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SeaWatch is an organization of private citizens dedicated to a healthy Sea of Cortez. We monitor destructive activities throughout the region and communicate the data we gather to the people of Mexico, the U.S. and the world.

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- Our New Design Will Contain More Information About Our Activities -

- Our New Design Will Be More Fun To Explore - It Will Have Even More Information -

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LATE BREAKING NEWS -

08/18/02 -NEWS SeaWatch Alert #21: Fish Traps Arrive In the Sea of Cortez 05/09/02 SeaWatch returns to the Revillagigedo Islands 60 days after closure to see what has changed. -NEWS - 04/9 Mexican authorities confiscated The Bluefin, a commercial fishing boat caught fishing illegally at the Revillagigedo Islands (see article below), and those in charge were arrested. -NEWS - 04/9 Mexico captured two longliners working at the Revillagigedo Islands on the 3rd of April. Their names are the Jesus Navares and the Luz Meraz. The Jesus Navares tried to flee, but was overtaken by a helicopter from the Naval Warship Juarez. Both longliners were taken to Isla Socorro where they were detained and the crews questioned. The boats and crews were then escorted to Manzanillo by the warship where they are now. - NEWS 03/29 SeaWatch Issues Major Press Release on Closure of Fishing At the Revillagigedo Islands - 11/15 Pacific Fishery Management Council Votes 14 - 0 to Recommend No Longliners Within 200 Miles

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The Destruction Of The Sea Of Cortez

Overview

Gillnet FleetThat Decimated Revillaggiedo Islands Marine Reserve Punished

Official Mexican Judgement

FreeDive Magazine Article About Incident

LA Times Article About Incident and Its Meaning

Article From eScuba

Where Have All the Mantas Gone?

Mexico's Marlins Doomed?

The Midriff Islands Shark Disaster

Tuna Seiner Illegally Wraps World Famous Hammerhead Sharks Schooling on Gordo Banks

SeaWatch Gains Protection for Giant Pacific Mantas and Whale Sharks

of California Coast - 11/25 SeaWatch Presents Position on Overfishing At Revillagigedo Islands - 10/25 SeaWatch Alert - 8/22 Join Us In Creating The Second Artificial Reef In The Sea of Cortez - 05/01 SeaWatch's Survey of the Health Of the Sea of Cortez - 01/01 Nets, Killers of the Sea - 2/14/94 The St. Valentine's Massacre, What Started It All - 5/15 Gillnet Fleet Punished for Illegal Fishing At Revillagigedo Islands

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A Reserve In Name Only...

Revillagigedo Islands, Under Continued Attack by Illegal Commercial Fishing, Have Now Been Closed to All Fishing

Sea Watch has always been a supporter of sustainable fishing at the Revillagigedo Islands. Last year a lawsuit (denuncia) was filed by various parties in Mexico. They said that the Islands were a biosphere and that the fisheries were depleted and by Mexican law there is no fishing in the nuclear zone of a biosphere, even with a management plan. We agree that the fisheries are depleted and would like to see the regulations changed to protect the Islands fisheries, while still allowing sustainable fishing. We strongly feel that to close the Islands entirely will only open the doors for more commercial fishing

Illegal longliner "Blutin" caught by Lic. Santiago Creel - Sec. de Gobernacion, the man in charge of the Islands, fishing 1.92 miles north of San Benedicto Island on 3/10/02

For the last year while the lawsuit worked its way through the court system no one in the States thought much about it until the ruling came down last month. That ruling and the applicable law are included below along with our report on the health of the fisheries, letter to Santiago Creel and response from Profepa. It may now require the changing of Mexican biosphere law to again allow fishing at the Islands. That may be a daunting task and at the very least there will be intelligent regulation and hopefully all boats going there in the future can help with reporting illegal longliners and drift gillnetters that have fished there with impunity.

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- 05/09/02 SeaWatch returns to the Revillagigedo Islands 60 days after closure to see what has changed

- Report on potential tagging programs by Salvador Jorgensen

Navy Patrols Revillagigedo Islands

- Click Here to Read Overview

- The General Law of Ecological Equilibrium and Environmental Protection

1994 Biosphere Decree

- English

- Spanish

- Boundaries of the biosphere

- SeaWatch Press Release 3/29/02

- Letter from Howard Hall

- Letter from Sea Watch and others to Lic. Santiago Creel Miranda - Secretary of Gobernacion on 3/10/02

- Answer to that letter from Profepa including what was said to SAC, received 4/1/02

Sea Watch report on the health of the fisheries at the Revillagigedo Islands

- English

- Spanish

Comments on the closing of the Islands -

- Last Comment on the SeaWatch Fisheries Report
- IATTC data, EPO yellowfin tuna stocks healthy or not?
- An Open letter from Sea Watch to Sportsfishing Association of California dated 4/17/02
- Editorial from SeaWatch founder "Too Little Too Late"
- Open letter from Terry Maas to SAC
- A Second Letter from Tim Ekstrom F/V Royal Star
- Western Outdoor News Article "Mexico slams door on long range island trips " by Gene Kira
- Interesting Commentary About The Islands Closing
- L. A. Times Article "A Rift Over Troubled Waters" by Pete Thomas
- Comments from Bernard R. Thompson

More Destructive Fishing Practices...

SeaWatch ALERT 1001: Illegal Commercial Spearfishing At Night Kills Hundreds of Parrot Fish Off San Diego Island In The Sea of Cortez

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Building On Success...

SeaWatch Needs Your Help To Create The Next Great Artificial Reef

On November 18, 1999, a project that was the brainchild of SeaWatch and consumed three years of effort became a reality when two large fishing boats were sunk in the Sea of Cortez near La Paz. Two years later, it is attracting marine life to the reef-like environment. Even better, it has begun attracting lots of divers. Nothing proves more successfully than this project how a sustainable and renewable resource can generate more revenue for an area over a longer period of time than merely stripping away its natural bounty. SeaWatch has been working ever since the dedication of the first artificial reef on New Reef, Phase II- sinking two more boats in the Sea. We need your help. For all the details, click below.

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SeaWatch Takes Stock Of The Conditions It Faces..

A Paradise In Danger

The 2001 Survey On the Health of the Sea of Cortez

SeaWatch conducted its 2001 trip in the Sea of Cortez to assess how its health has changed over the last year. This year's survey not only included scientists and concerned media people, but a most important addition: important industrial and governmental people from Mexico. This trip made some important observations that will have an impact throughout the region over the next year, thanks to those influential people who where aboard this year's armada. This is important material, so if you are as committed as we are to helping the Sea of Cortez return to it former glory, you'll find everything very, very important.

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An Important Review of the Sea of Cortez by Dr. Russ Nelson

50,000,000 New Hooks in Sea...


50 Miles of Longlines

Proposed Longline Permits Will Further Endanger Rapidly Declining Pelagic Fish Stocks On The West Coast

SeaWatch founder Mike McGettigan had reports as long as a year ago that there was a long- line fleet developing in Mexico. The same type of fleet that has decimated the East Coast fisheries. When he alerted US fishermen and the press there was initially hard core disbelief, but by late spring it had been verified that Mexico had a fleet of about 50 longliners. Now there is a proposal to add 138 new longline permits on the West Coast of the US. If this proposal passes, many already rapidly declining pelagic fish species will be decimated.

- CLICK HERE FOR THE COMPLETE STORY ABOUT THE DANGERS OF LONGLINING!
- A Case Against Longlining In California Presented By SeaWatch (PDF file)

SeaWatch Interviews Fishermen about...

Where Have All The Pelagics Gone? A Series of Fishermen's Interviews

In an effort to get to the truth about the negative impact longlining poses to the Sea of Cortez, SeaWatch interviewed fishermen whose livelihood comes from the bounty of the Sea of Cortez and the Pacific Ocean it feeds. There is universal agreement that every major fishery has been depleted 50 to 70 percent in the last 15 years.

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Fishery Protection In Hawaii - Another Dangerous Situation Presented By Longlining

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The single greatest threat to every fishery on earth...

Nets - Killers of the Sea

The gillnet is the reason there are far fewer fish throughout the world. Its ability to kill everything in its path is exemplified in the Sea of Cortez. It all has to do with "bycatch." Nets, whether set out by a single "panga" or rowboat-sized vessel commanded by one or two local fishermen or a huge international vessel capable of catching and then processing tens of tons of fish, are very, very good at catching their targeted fish. That is bad enough. Whether the nets are set for shrimp or huge tuna, they decimate the fisheries they target. What is even more destructive is what is called "bycatch." Bycatch represents all the other animals caught in the nets that the nets aren't "targeting." They get thrown away. So nets not only kill what the fisherman wants to "harvest," they kill everything else.

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NEW 1/5 "Winds of Change," Mexico's Fight To Save Their Oceans - NEW 11/15 Pacific Fishery Management Council Votes 14 - 0 to Recommend No Longliners Within 200 Miles of California Coast - NEW 11/25 SeaWatch Presents Position on Overfishing At Revillagigedo Islands - NEW 10/25 SeaWatch Alert - 8/22 Join Us In Creating The Second Artificial Reef In The Sea of Cortez - 05/01 SeaWatch's Survey of the Health Of the Sea of Cortez - 01/01 Nets, Killers of the Sea - 2/14/94 The St. Valentine's Massacre, What Started It All - 5/15 Gillnet Fleet Punished for Illegal Fishing At Revillagigedo Islands

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A Reserve In Name Only...

The Revillagigedo Islands
The Galapagos of Mexico Are At Risk

SeaWatch presented on November 25th its assessment of the state of the fisheries at the Revillagigedo Islands to the Primer Foro de Consulta Sector al Sector de Pesca Y Actividades Nautico Recreativas. The Revillagigedo Islands, which lie in the Pacific Ocean off the western Mexico, are facing fishing pressures that threaten every species there. The position paper addresses the current situation versus its state a mere twenty years ago, clearly specifies the causes for the depletion of the fisheries and offers sound recommendations that will return this archipelago to health and abundance.

Click Here for the Details

The Saint Valentine's Day Massacre, The Event That Started It All

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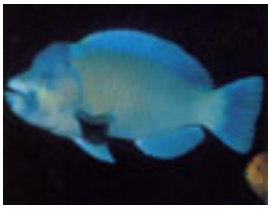
More Destructive Fishing Practices...



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- Summary of interview data on depletion of every fishery
- Howard Hall's description of the fish loss in the last 15 years
- Using What We Already Have to Save America's Fish

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Sea Watch

Dedicated to a Healthy Sea of Cortez

Selected By The Rolex Awards For Enterprise as One of the Top 100 ecological projects worldwide

A Brief Biography of the Founder of SeaWatch

Mike McGettigan has always had an interest in the Sea. He worked summers commercial fishing for salmon in the Columbia River while going to college. After graduating from Portland State University in 1965, Mike worked as a production Engineer for Tektronix and Omark Industries. He went into business for himself in 1967. In 1973 he bought his first boat in Mexico, spending that year cruising through the Sea of Cortez. In 1977 he came back to the Sea of Cortez on the Ambar I, the first of three boats he has had in the Sea. Since then, he has spent 25 years fishing and diving the waters between Costa Rica and San Diego on a full time basis. He has traveled over 350,000 miles in these waters and has made over 130 trips to the Revillagigedo Islands, which are located 250 miles south of Cabo San Lucas. He is an ardent free diver and spearfisherman and co-produced the classic video, "Blue Water Hunter". The famous documentary on the Sea of Cortez by Howard Hall " Shadows in a Desert Sea" and Stan Waterman's biography, "The Man Who Loves Sharks" were also made on his boat.

After watching first hand the rapid destruction of many fisheries in the Sea of Cortez during the late 1970s and 1980, McGettigan founded Sea Watch, an organization dedicated to exposing the destructive and often illegal fishing practices in Mexico's Sea of Cortez. Their initial work lead to many articles, TV reports and eventually led to a major expose by the Sacramento Bee. Sea Watch work at the Revillagigedo Islands led to protection for the Giant Pacific Manta and Whale Shark and helped focus the attention of Mexico on this beautiful Eastern Pacific Archipelago. Mexico has since made these Islands a protected biosphere and his work was recognized in the Rolex Awards for Enterprise in 1996. His organization initiated the first artificial Reef program in the Sea of Cortez and has kept up constant surveillance at the Islands reporting and publicizing illegal fishing. Last year they were the first to report large numbers of longliners working off Mexico's Pacific coast. Mr. McGettigan has a great working knowledge of what is happening in these Eastern Pacific waters and is most concerned about the dramatic decreases in both reef and pelagic fisheries that has taken place in the last 25 years.

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The SeaWatch Advisory Board

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The Sea Watch Advisory Board is made up of Mexicans and Americans with a strong working knowledge of the fisheries problems in the Sea of Cortez and the Eastern Pacific Ocean.

The SeaWatch Advisory Board

Russell Nelson, PhD

Russell Nelson has a doctorate in Marine Fisheries Ecology and over twenty years experience in marine fisheries research and management. Having served as a research biologist for the National Marine Fisheries Service, Director of Marine Fisheries for the State of Florida, and fourteen years as a member of both the South Atlantic and Gulf of Mexico Fishery Management Councils, Nelson currently is chief scientist and director of Nelson Consulting, a firm specializing in international marine fisheries science, management and policy development. Dr. Nelson has particular expertise in coastal and highly migratory pelagic species and reef fish assemblages. He has worked on management plans for over three hundred species of marine resources at the state, national and international levels.

Barbara Gomez Morin

Barbara Gomez Morin was born and raised in Mexico City and was educated in Art History, but her passion was in the conservation of nature. She went to work for Pronatura in 1994 as fund raising director and started and funded the Pronatura Northeast Chapter. She then worked on the first artificial reef project in the Sea of Cortez, which was a joint venture between Pronatura and Sea Watch. Barbara helped fund the project, oversaw the environmental studies and was the liaison with the Navy, coordinating the cleaning, preparation, towing and sinking of the first two large boats in the underwater marine park in La Paz, Mexico. In 1999 she helped form a travel company that specialized in environmental trips within the country. In 2001 she got married and moved to Cabo San Lucas, B.C.S. In early 2002 she started work with Sea Watch and is now it's Director in Mexico, where she will be working on the management plan for the Revillagigedo Islands and the sinking of the 3rd boat in the Marine Park. (Bárbara Gómez Morin nací en la ciudad de México y allí viví hasta finales del 2001. Estudié la carrera de Historia del Arte y curiosamente, a través de ella llegué al mundo de la conservación de la naturaleza, ya que al realizar mi servicio social en el Castillo de Chapultepec de la Ciudad de México, conocí a Michel Stinglamber y a Bárbara su esposa, personas que llevaban un par de años participando en Pronatura. En 1994 Michel me invitó a trabajar a Pronatura y entré como directora de recaudación de fondos. Durante esos años, participé en diversas actividades, entre ellas la formación de Pronatura Noreste, en expediciones para recaudar fondos a Baja California y a Campeche, y en el proyecto de Arrecifes Artificiales en la Paz, B.C.S., para el cual, además de recaudar fondos, se realizó un documental y se coordinó con la Secretaría de Marina la limpieza, preparación y remolque de los barcos Fang Ming y Lapas 03 para hundirlos. Esos años fueron de gran aprendizaje sobre el tema de medio ambiente y, sobre todo, comprendí la enorme urgencia de conservar nuestro patrimonio natural. En 1999 dejé Pronatura y junto con Miguel Sánchez Navarro y Mariana García-Bárcena, formamos la compañía México Desconocido Viajes, operadora de viajes especializados en México. Sin embargo, durante esos últimos años, seguí buscando las formas para poder seguir participando y apoyando a los trabajos de conservación que se realizan en México. Ahora que vivo en Cabo San Lucas, agradezco a Sea Watch y a Mike McGettigan la invitación para participar en la importante labor que realizan.)

Howard and Michele Hall

Howard and Michele Hall are natural history film producers specializing in marine wildlife films. Howard has received six cinematography Emmys for films produced for television. Michele has received one Emmy award.

Seasons in the Sea, a one hour film which aired on the PBS series N**ature** in the U.S. and was produced, directed, and photographed by Howard Hall in 1990, was judged best of show at Wildscreen90 receiving the Golden Panda Award, the most prestigious award in natural history film making. ***Seasons in the Sea*** also won the Festival Choice Award at the Jackson Hole International Film Festival.

Shadows in a Desert Sea was produced by Howard Hall in 1992, also for the PBS series **Nature** and the BBC, in conjunction with Partridge Films. ***Shadows*** won a Golden Panda Award at Wildscreen92 as well as five other top awards at other major film festivals.

Jewels of the Caribbean Sea was co-produced by Howard and Michele Hall and appeared as a **National Geographic Special** in 1994. ***Jewels of the Caribbean Sea*** won nighttime Emmys for best cinematography and best music in the News and Documentary category.

In 1997, Howard and Michele completed production of a 5-part series of hour-long television programs, which focuses on marine wildlife behavior from around the world. ***Secrets of the Ocean Realm*** aired as five specials on PBS during 1998. As a companion to the television series, Howard and Michele also produced and authored a coffee table style book, also titled ***Secrets of the Ocean Realm.***

Howard made his directorial debut in the IMAX® format in 1994 with ***Into the Deep***, an IMAX 3D film which opened the Sony IMAX Theater on Broadway in New York City and has played widely in IMAX 3D theaters throughout the world.

In the spring of 1999 Howard and Michele completed production on the IMAX film ***Island of the Sharks*** about the marine wildlife at Cocos Island, Costa Rica. Michele is the film's producer and Howard is the director and cinematographer. ***Island of the Sharks*** has won numerous awards, including a Cine Golden Eagle, the Special Jury Award of Merit at Jackson Hole International Film Festival, Best Underwater Film at Japan Wildlife Film Festival, and Motion Picture Sound Editors' Special Venue Film Award.

Howard was director of underwater cinematography for the popular MacGillivray Freeman film, ***The Living Sea.*** He was also underwater DP for the recently released IMAX film, ***Lost Worlds: Life in the Balance.***

Howard and Michele are currently working on an IMAX film, being produced by MacGillivray Freeman Films, with Howard as director of underwater photography and Michele as line producer. ***Coral Reef Adventure*** will explore coral reef ecology, the marine wildlife that makes coral reefs their home. It also profiles Howard and Michele and provides glimpses from 'behind-the-scenes.' The film is scheduled for release in February 2003.

In 1999 Howard and Michele sold their 16mm stock footage library. They are now aggressively rebuilding the library in the 1080 24p high definition format.

Howard holds a degree in zoology from San Diego State University. His interest in marine wildlife has led him to author numerous articles about marine life. He is a "Roving Editor" for **International Wildlife Magazine** and a Contributing Editor for **Ocean Realm Magazine** and **Fathoms Magazine**. Michele's underwater photographs have been published in numerous books and magazines around the world.

Michel and Barbara Meyer Stinglhamber

Barbara Meyer de Stinglhamber, works at the INAH ,(National Institute of Anthropology and History) of La Paz, B.C.S.. As an art historian, she is in charge of the missions of Southern Baja and just finished writing the book "Arte Sacro en B.C.S. Siglos .XVII - XIX.

During her spare time she learns about marine life and takes trips on the Sea of Cortez looking for whales and different fish, dives and shares a great concern for the conservation.

Michel Stinglhamber, is chairman of "Umicore", Mexico, (a branch of Umicore Belguim, ex Union Minière), a company devoted to trading and refining minerals, precious metals and metals; and the largest european copper refiner.

He is on the advisory committee of "Pronatura" for B.C.S. and of "Niparaja NC" and very much concerned in the conservation of the sea of Cortez. Michel is also a member of the World Organization of the Periodical Press. On his spare time he accompanies wife Barbara on her cultural trips and shares the same learning experiences.

Terry Maas, D.D.S.

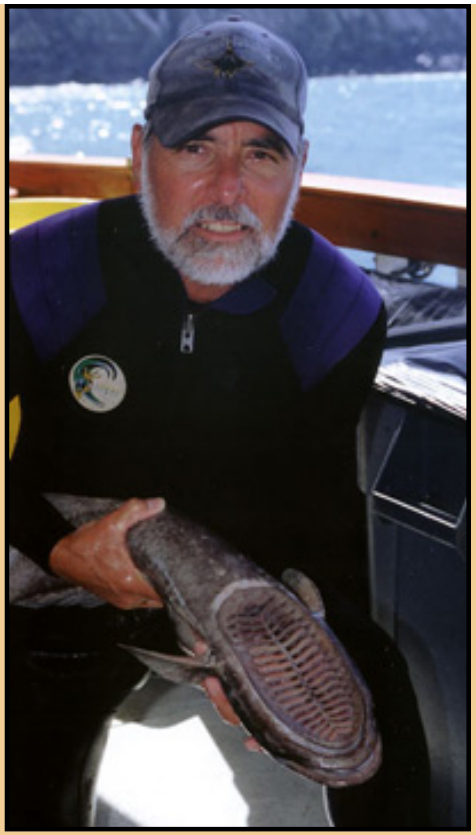
Terry Maas is a veteran freediver. He started diving when he was 14 years old and has been freediving steadily for the last 43 years. In his early years Terry won the individual U.S. National Spearfishing championships 4 times. His team won 10 championships. In 1982, his interests turned to blue water hunting. For the next 10 years he captured 3 world records for yellowfin and bluefin tuna. His 398-lb Pacific bluefin tuna record still stands. In 1995, Terry published his first book, *BlueWater Hunting and Freediving*. This book is richly illustrated with pictures and stories from Mexico. Several years later he published his second book on the subject of freediving *Freedive.*

Terry studied marine biology in his undergraduate work at the University of California. He holds 3 advanced degrees, Doctor of Dental Science from University of the Pacific, Resident in Oral Surgery from the University of Southern California and Masters of Business Administration from Pepperdine University.

His 1992 video, *Bluewater Hunters* for PBS has been viewed by over 25 million people and has helped introduce the sport of bluewater spearfishing to the world. His diving has been featured in such publications as *Sports Illustrated, American Airlines magazine, The Miami Herald and the Los Angeles Times.* He lectures nationally using his slides and video presentations to educate those interested in the adventure of bluewater hunting and marine resource conservation.
Maas is an accomplished videographer. His rare footage of wild yellowfin tuna taken at Socorro Island is displayed in two sections of the Monterey Bay Aquarium open water exhibit. He has produced two commercial videos, *The Joy of Freediving* and *Freediving Made Easy*.

Terry loves to document the underwater world on still film and in magazine articles. His recent article documenting the natural history of manta rays was the featured as the front-cover exhibit in M*exico Desconocido* (July 2002). His articles and photographs have been featured in such US magazines as *Sport Diver, Skin Diver, Scuba Times, Western Diver* and *California Diving News*. Internationally, his articles appear in *Sterne* (Germany), *Focus* (Italy) and *Australian Freediving and Spearfishing News.*

While Terry remains an avid hunter, he is very selective in his take and is deeply concerned with conservation of the ocean's bounty. He shares his underwater images of sea creatures captured in commercial poaching nets and on hooks with many environmental organizations. He is an active supporter of Sea Watch and in 2000 he was inducted as a fellow into the Explorers' Club of New York.



Robert Rubin PhD.

Education: Ph.D. in Comparative Physiology/Marine Ecology - University of California - Irvine

Presently on the faculty in the Department of Biology at Santa Rosa Community College where I teach courses in Marine Biology and The Biology of Marine Mammals. In addition, I have taught at the University of California Irvine and Santa Cruz, University of Maryland, Sonoma State University and The Huntsman Marine Laboratory (New Brunswick, Canada).

I have conducted field and Laboratory research on several species of marine mammals (Hooded and Harp seals in the Arctic, Elephant seals in California, Harbor seals in the Atlantic, Alaska and CA. , sea otters in CA and in Russia at the invitation of the Russian government and the Russian Academy of Sciences.

My research interests in the Gulf of California have spanned over two decades and have included field and/laboratory studies of The physiology of
salt and water metabolism in fish eating bats, (Isla Partida) and the population ecology of sea birds (Isla Raza). Beginning in 1990 I have been conducting field research on the population and community ecology of manta rays. This study has its primary focus in the Revillagigedos Islands, and includes comparable work on the species at Yap and Cocos Islands and Hawaii. I began paliminary studies of manta at the Revillagigedos in 1981.

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Distinguished Teaching Award - University of California, Irvine
Alumni Professor of the Year - Santa Rosa Community College

Foundations

Excellence in Education Award - California State Assembly
Excellence in Education Recognition - California State Senate
Special Congressional Recognition for Educational Excellence - U.S. Congress
California College and University of the Year (1996) - Carnegie Foundation

Professional Organizations:

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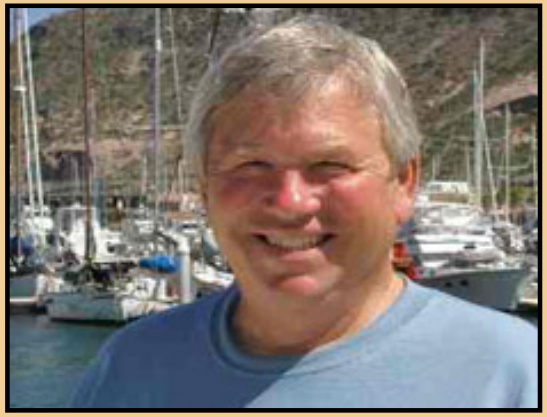

John Jackson

Hans Herrman

Career profile

1. Contributed to the realization of integrated, and multidisciplinary approach to biodiversity conservation in North America
2. Developed strategies for the planning, management and financing of biodiversity conservation
3. Engaged the private sector in playing a significant role in conservation & becoming effective stewards of the environment

Major Accomplishments and contributions

Head of Biodiversity Conservation. Commission for Environmental Cooperation

Led development of a long term agenda & strategic approach for the Conservation of Biodiversity program, which included the identification of North America's most important regions for biodiversity conservation;

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Negotiated, with Mexican Senate & Government, the recognition of Conservation Easements within Mexican Environmental Law and achieved the first Conservation Easements in Mexico

Led the project to identify Mexico's conservation priority regions, which has become the backbone of the national Protected Areas System (SINAP)

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Commission For environmental Cooperation 1998-*to date*

Biodiversity Conservation Program Head

Biodiversity Conservation Program Manager

Description

Assist the Executive Director in the development and implementation of the Commission's Conservation of Biodiversity work program. Supervise the Conservation of Biodiversity Program Manager, and ensure effective implementation of the marine & terrestrial biodiversity conservation projects, securing multistakeholder participation from the three countries.

Management & Coordination

- Coordinate & steward the implementation of the following trinational initiatives: the North American Bird Conservation Initiative, Species of Common Conservation Concern, North American Marine Protected Areas Network, B2B (Baja California to Bering Sea Marine Conservation Initiative), North American Important Bird Areas. Closing the Pathways of Aquatic Invasive Species across North America, Mapping Marine and Estuarine Ecosystems of North America and the Global Programme of Action for the Protection of the Marine Environment from Land Based Activities, North American Marine Species of Common Conservation Concern.
- Achieved financial leverage from government agencies and private partnerships to support the implementation of each of the Program's initiatives
- Promoted alliances with the public and private sector to finance sustainable coffee production in Mexico, in collaboration with the Environment, Economy & Trade Program

Strategic Planning

- Led the development of the CEC Strategy for the Conservation of Biodiversity
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Pronatura 1991-1998

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National Coordinator of all Pronatura Chapters and affiliates

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- Fundraised and established an Endowment Fund to finance the institution's administrative costs

	• Acted as Legal Representative to handle investment and financial strategies for the endowment fund
Strategic Planning	• Led the McKinsey task group in the development and implementation of Pronatura's Strategic Plan • Developed the conservation strategy for Pronatura Península de Baja California • Produced, in coordination with CONABIO, the methodology to develop conservation strategies for Mexico's Conservation Priority Regions • Coordinated the IUCN strategy for the Mesoamerican region as Chair of the regional IUCN membership
Fundraising	• Developed and implemented the Annual National Capital Campaigns which raised more than $20 US million over 7 years
Engaging the Private Sector	• Acted as Executive Secretary for the National Board of Directors (which included Presidents and CEO's of Mexico's major corporations) • Worked with the Mexican Business Council for Sustainable Development in preparing an agenda for the Earth Summit • Served as an advisor on environmental matters to GE Capital Mexico, McKinsey and Cervecería Modelo • Developed the legal analysis to implement private conservation endowments ("Fideicomisos para la Conservacion") • Launched Pronatura's Private Conservation Lands Program
Engaging the Government	• Worked with the Mexican government to develop a bioregional assessment and methodology to identify Mexico's conservation priority regions • Worked with the National System of Protected Areas to develop the renegotiated set of POAs (Annual Program Plans for GEF supported Biosphere Reserves) • Served as an advisor on conservation planning for the following state governments: Baja California, Baja California Sur, Mexico City, Quintana Roo and Campeche • Served as a member, advisor and councilor for CONABIO, "Programa de Accion Forestal Tropical", "Comite Técnico del Fideicomiso de la Reserva de la Biosfera El Vizcaino", "Consejo Nacional de Areas Naturales Protegidas", "Consejo Nacional Forestal", "Consejo Nacional para el Desarrollo Sustentable"

Operadora de Yates & OIKOS Ecoturismo de México 1989-1991

President and owner

scientific research center of quintana roo (CIQRO) 1983-1989

Director of Scientific Research, Sian Ka'an Coordinator of Scientific Research Marine

Department head Marine Ecology & Scientist Titular "A"

Description

Led the scientific research program for the State Government of Quintana Roo, and coordinated the institution's four research Divisions: Sustainable Technologies, Marine Ecology, Terrestrial Ecology and the Sian Ka'an Program. Led the development of the research, academic and funding programs. Managed a total of 60 scientists and 40 technicians.

Management & Coordination

- Handled the annual budget negotiation with the Ministry of Education (SEP), the State Government of Quintana Roo, and the National Council for Science and Technology (CONACyT)

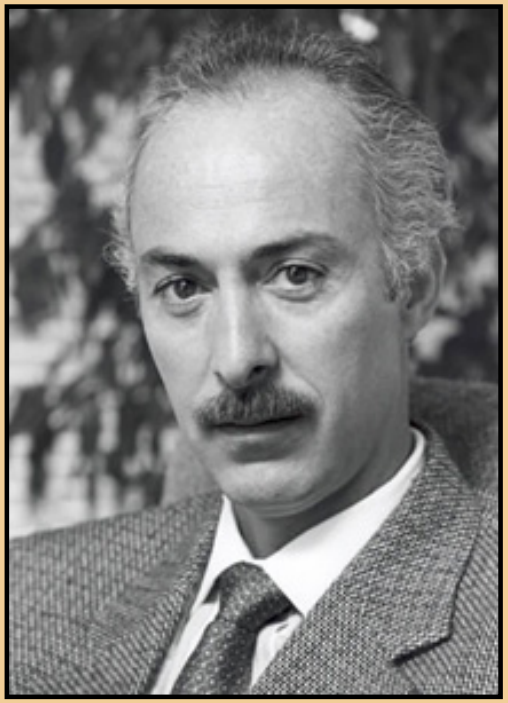
Fundraising

- Responsible to negotiation of funding proposals with the "Consejo Nacional de Ciencia y Tecnologia" (CONACyT) & National Science Foundation (NSF), and other international foundations
- Increased the annual research budget from $150 thousand to $1.5 million USD

RESEARCH, Education & Academic background

Scientific research	Marine scientist "Titular A" at CIQRO
	Lead CIQRO's plankton group: zooplankton, phytoplankton & marine fish larvae ecologists
	Author & co-author of 15 papers in international journals and two book chapters* in the fields of: Phytoplankton ecology, taxonomy, primary productivity, chemical oceanography and conservation: Chapters– "Vida, Ambiente y Desarrollo en el S. XXI"; "El Papel del Sector Privado en la Conservación de la Naturaleza", "The role of NGO's in Mexico's Coastal Management", "Mexico's Coastal Management in the International Context", "Maize and Biodiversity: The Effects of Transgenic Maize in Mexico". Thesis Director of 2 M.Sc., and 10 B. Sc. Students
	Workshops, courses and seminars. Speaker for the past 21 years at numerous national and international events on a number of topics, ranging from: protected areas & biosphere reserves, phytoplankton ecology, marine fish larvae, marine conservation, sustainable development, environmental economics, finances and planning, rural development, natural resources policies, governance, aquaculture and fisheries, North American conservation initiatives.
Education	M.Sc. Oceanography, specialization in Marine Ecology, Coastal Natural Resources Management and Economy. "Centro de Investigación Científica y de Educación Superior de Ensenada" (CICESE). Sponsored by the National Council of Sciences (CONACYT). Internship at Scripps Institution of Oceanography, sponsored by the University of California, San Diego, CA
	Diploma in Mariculture & Marine Fish Larvae. Individual Programme. Applied Research and Fish Production Techniques. National Marine Fishery Service, La Joya, CA. Sponsored by the National Council of Sciences (CONACYT).
	Bachelor of Engineering. Biochemistry Engineering & Marine Resources Management. Emphasis on Marine Ecology, Aquaculture and Fisheries. "Instituto Tecnológico y de Estudios Superiores de Monterrey ITESM Campus Guaymas". Graduated with honors
	Diploma in Executive in Business Administration (MEDEX), "Instituto Panamericano de Alta Dirección de Empresa" IPADE, México, DF
	Diploma in Executive Management & Business Administration. ITESM Campus Monterrey
	Diploma in Administration & management of NGO's. "Centro Agronómico

	Tropical de Investigación y Enseñanza". CATIE. Turrialba, Costa Rica
	Conservation leadership program. The Nature Conservancy. TNC. Latin American Training Program
Personal Information	
Date of Birth	25 August 1962
Citizenship	Mexican
Languages	Spanish, English, basic French
Training	Nautical Captain, SCUBA Instructor: PADI, NAUI, CMAS, American Red Cross CPR Instructor, EarthWatch nature guide
Voluntary & Professional affiliations	Member, World Commission of Protected Areas UICN
	Senior advisor to the Board of Directors of Pronatura
	Founding member of IUCN Mesoamerica
	Board member Instituto Mexicano de Recursos Naturales Renobables IMERNAR
	Advisory Board member of Sea Watch



Miguel Sanchez Navarro Redo

Home Page The Destruction of The Sea Of Cortez How You Can Help

E-Mail Us Useful Links

Dedicated to a Healthy Sea of Cortez

Selected By The Rolex Awards For Enterprise as One of the Top 100 ecological projects worldwide

The SeaWatch Advisory Board

The Sea Watch Advisory Board is made up of Mexicans and Americans with a strong working knowledge of the fisheries problems in the Sea of Cortez and the Eastern Pacific Ocean.

The SeaWatch Advisory Board

Russell Nelson, PhD

Russell Nelson has a doctorate in Marine Fisheries Ecology and over twenty years experience in marine fisheries research and management. Having served as a research biologist for the National Marine Fisheries Service, Director of Marine Fisheries for the State of Florida, and fourteen years as a member of both the South Atlantic and Gulf of Mexico Fishery Management Councils, Nelson currently is chief scientist and director of Nelson Consulting, a firm specializing in international marine fisheries science, management and policy development. Dr. Nelson has particular expertise in coastal and highly migratory pelagic species and reef fish assemblages. He has worked on management plans for over three hundred species of marine resources at the state, national and international levels**.**

Barbara Gomez Morin

Barbara Gomez Morin was born and raised in Mexico City and was educated in Art History, but her passion was in the conservation of nature. She went to work for Pronatura in 1994 as fund raising director and started and funded the Pronatura Northeast Chapter. She then worked on the first artificial reef project in the Sea of Cortez, which was a joint venture between Pronatura and Sea Watch. Barbara helped fund the project, oversaw the environmental studies and was the liaison with the Navy, coordinating the cleaning, preparation, towing and sinking of the first two large boats in the underwater marine park in La Paz, Mexico. In 1999 she helped form a travel company that specialized in environmental trips within the country. In 2001 she got married and moved to Cabo San Lucas, B.C.S. In early 2002 she started work with Sea Watch and is now it's Director in Mexico, where she will be working on the management plan for the Revillagigedo Islands and the sinking of the 3rd boat in the Marine Park. (Bárbara Gómez Morin nací en la ciudad de México y allí viví hasta finales del 2001. Estudié la carrera de Historia del Arte y curiosamente, a través de ella llegué al mundo de la conservación de la naturaleza, ya que al realizar mi servicio social en el Castillo de Chapultepec de la Ciudad de México, conocí a Michel Stinglamber y a Bárbara su esposa, personas que llevaban un par de años participando en Pronatura. En 1994 Michel me invitó a trabajar a Pronatura y entré como directora de recaudación de fondos. Durante esos años, participé en diversas actividades, entre ellas la formación de Pronatura Noreste, en expediciones para recaudar fondos a Baja California y a Campeche, y en el proyecto de Arrecifes Artificiales en la Paz, B.C.S., para el cual, además de recaudar fondos, se realizó un documental y se coordinó con la Secretaría de Marina la limpieza, preparación y remolque de los barcos Fang Ming y Lapas 03 para hundirlos. Esos años fueron de gran aprendizaje sobre el tema de medio ambiente y, sobre todo, comprendí la enorme urgencia de conservar nuestro patrimonio natural. En 1999 dejé Pronatura y junto con Miguel Sánchez Navarro y Mariana García-Bárcena, formamos la compañía México Desconocido Viajes, operadora de viajes especializados en México. Sin embargo, durante esos últimos años, seguí buscando las formas para poder seguir participando y apoyando a los trabajos de conservación que se realizan en México. Ahora que vivo en Cabo San Lucas, agradezco a Sea Watch y a Mike McGettigan la invitación para participar en la importante labor que realizan.)

Howard and Michele Hall

Howard and Michele Hall are natural history film producers specializing in marine wildlife films. Howard has received six cinematography Emmys for films produced for television. Michele has received one Emmy award.

Seasons in the Sea, a one hour film which aired on the PBS series N**ature** in the U.S. and was produced, directed, and photographed by Howard Hall in 1990, was judged best of show at Wildscreen90 receiving the Golden Panda Award, the most prestigious award in natural history film making. ***Seasons in the Sea*** also won the Festival Choice Award at the Jackson Hole International Film Festival.

Shadows in a Desert Sea was produced by Howard Hall in 1992, also for the PBS series **Nature** and the BBC, in conjunction with Partridge Films. ***Shadows*** won a Golden Panda Award at Wildscreen92 as well as five other top awards at other major film festivals.

Jewels of the Caribbean Sea was co-produced by Howard and Michele Hall and appeared as a **National Geographic Special** in 1994. ***Jewels of the Caribbean Sea*** won nighttime Emmys for best cinematography and best music in the News and Documentary category.

In 1997, Howard and Michele completed production of a 5-part series of hour-long television programs, which focuses on marine wildlife behavior from around the world. ***Secrets of the Ocean Realm*** aired as five specials on PBS during 1998. As a companion to the television series, Howard and Michele also produced and authored a coffee table style book, also titled ***Secrets of the Ocean Realm.***

Howard made his directorial debut in the IMAX® format in 1994 with ***Into the Deep***, an IMAX 3D film which opened the Sony IMAX Theater on Broadway in New York City and has played widely in IMAX 3D theaters throughout the world.

In the spring of 1999 Howard and Michele completed production on the IMAX film ***Island of the Sharks*** about the marine wildlife at Cocos Island, Costa Rica. Michele is the film's producer and Howard is the director and cinematographer. ***Island of the Sharks*** has won numerous awards, including a Cine Golden Eagle, the Special Jury Award of Merit at Jackson Hole International Film Festival, Best Underwater Film at Japan Wildlife Film Festival, and Motion Picture Sound Editors' Special Venue Film Award.

Howard was director of underwater cinematography for the popular MacGillivray Freeman film, ***The Living Sea.*** He was also underwater DP for the recently released IMAX film, ***Lost Worlds: Life in the Balance.***

Howard and Michele are currently working on an IMAX film, being produced by MacGillivray Freeman Films, with Howard as director of underwater photography and Michele as line producer. ***Coral Reef Adventure*** will explore coral reef ecology, the marine wildlife that makes coral reefs their home. It also profiles Howard and Michele and provides glimpses from 'behind-the-scenes.' The film is scheduled for release in February 2003.

In 1999 Howard and Michele sold their 16mm stock footage library. They are now aggressively rebuilding the library in the 1080 24p high definition format.

Howard holds a degree in zoology from San Diego State University. His interest in marine wildlife has led him to author numerous articles about marine life. He is a "Roving Editor" for **International Wildlife Magazine** and a Contributing Editor for **Ocean Realm Magazine** and **Fathoms Magazine**. Michele's underwater photographs have been published in numerous books and magazines around the world.

Michel and Barbara Meyer Stinglhamber

Barbara Meyer de Stinglhamber, works at the INAH ,(National Institute of Anthropology and History) of La Paz, B.C.S.. As an art historian, she is in charge of the missions of Southern Baja and just finished writing the book "Arte Sacro en B.C.S. Siglos .XVII - XIX.

During her spare time she learns about marine life and takes trips on the Sea of Cortez looking for whales and different fish, dives and shares a great concern for the conservation.

Michel Stinglhamber, is chairman of "Umicore", Mexico, (a branch of Umicore Belguim, ex Union Minière), a company devoted to trading and refining minerals, precious metals and metals; and the largest european copper refiner.

He is on the advisory committee of "Pronatura" for B.C.S. and of "Niparaja NC" and very much concerned in the conservation of the sea of Cortez. Michel is also a member of the World Organization of the Periodical Press. On his spare time he accompanies wife Barbara on her cultural trips and shares the same learning experiences.

Terry Maas, D.D.S.

Terry Maas is a veteran freediver. He started diving when he was 14 years old and has been freediving steadily for the last 43 years. In his early years Terry won the individual U.S. National Spearfishing championships 4 times. His team won 10 championships. In 1982, his interests turned to blue water hunting. For the next 10 years he captured 3 world records for yellowfin and bluefin tuna. His 398-lb Pacific bluefin tuna record still stands. In 1995, Terry published his first book, *BlueWater Hunting and Freediving*. This book is richly illustrated with pictures and stories from Mexico. Several years later he published his second book on the subject of freediving *Freedive.*

Terry studied marine biology in his undergraduate work at the University of California. He holds 3 advanced degrees, Doctor of Dental Science from University of the Pacific, Resident in Oral Surgery from the University of Southern California and Masters of Business Administration from Pepperdine University.

His 1992 video, *Bluewater Hunters* for PBS has been viewed by over 25 million people and has helped introduce the sport of bluewater spearfishing to the world. His diving has been featured in such publications as *Sports Illustrated, American Airlines magazine, The Miami Herald and the Los Angeles Times.* He lectures nationally using his slides and video presentations to educate those interested in the adventure of bluewater hunting and marine resource conservation.
Maas is an accomplished videographer. His rare footage of wild yellowfin tuna taken at Socorro Island is displayed in two sections of the Monterey Bay Aquarium open water exhibit. He has produced two commercial videos, *The Joy of Freediving* and *Freediving Made Easy*.

Terry loves to document the underwater world on still film and in magazine articles. His recent article documenting the natural history of manta rays was the featured as the front-cover exhibit in M*exico Desconocido* (July 2002). His articles and photographs have been featured in such US magazines as *Sport Diver, Skin Diver, Scuba Times, Western Diver* and *California Diving News*. Internationally, his articles appear in *Sterne* (Germany), *Focus* (Italy) and *Australian Freediving and Spearfishing News.*

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- Fundraised and established an Endowment Fund to finance the institution's administrative costs

	• Acted as Legal Representative to handle investment and financial strategies for the endowment fund
Strategic Planning	• Led the McKinsey task group in the development and implementation of Pronatura's Strategic Plan • Developed the conservation strategy for Pronatura Península de Baja California • Produced, in coordination with CONABIO, the methodology to develop conservation strategies for Mexico's Conservation Priority Regions • Coordinated the IUCN strategy for the Mesoamerican region as Chair of the regional IUCN membership
Fundraising	• Developed and implemented the Annual National Capital Campaigns which raised more than $20 US million over 7 years
Engaging the Private Sector	• Acted as Executive Secretary for the National Board of Directors (which included Presidents and CEO's of Mexico's major corporations) • Worked with the Mexican Business Council for Sustainable Development in preparing an agenda for the Earth Summit • Served as an advisor on environmental matters to GE Capital Mexico, McKinsey and Cervecería Modelo • Developed the legal analysis to implement private conservation endowments ("Fideicomisos para la Conservacion") • Launched Pronatura's Private Conservation Lands Program
Engaging the Government	• Worked with the Mexican government to develop a bioregional assessment and methodology to identify Mexico's conservation priority regions • Worked with the National System of Protected Areas to develop the renegotiated set of POAs (Annual Program Plans for GEF supported Biosphere Reserves) • Served as an advisor on conservation planning for the following state governments: Baja California, Baja California Sur, Mexico City, Quintana Roo and Campeche • Served as a member, advisor and councilor for CONABIO, "Programa de Accion Forestal Tropical", "Comite Técnico del Fideicomiso de la Reserva de la Biosfera El Vizcaino", "Consejo Nacional de Areas Naturales Protegidas", "Consejo Nacional Forestal", "Consejo Nacional para el Desarrollo Sustentable"

Operadora de Yates & OIKOS Ecoturismo de México 1989-1991

President and owner

scientific research center of quintana roo (CIQRO) 1983-1989

Director of Scientific Research, Sian Ka'an Coordinator of Scientific Research Marine

Department head Marine Ecology & Scientist Titular "A"

Description

Led the scientific research program for the State Government of Quintana Roo, and coordinated the institution's four research Divisions: Sustainable Technologies, Marine Ecology, Terrestrial Ecology and the Sian Ka'an Program. Led the development of the research, academic and funding programs. Managed a total of 60 scientists and 40 technicians.

Management & Coordination

- Handled the annual budget negotiation with the Ministry of Education (SEP), the State Government of Quintana Roo, and the National Council for Science and Technology (CONACyT)

Fundraising

- Responsible to negotiation of funding proposals with the "Consejo Nacional de Ciencia y Tecnologia" (CONACyT) & National Science Foundation (NSF), and other international foundations
- Increased the annual research budget from $150 thousand to $1.5 million USD

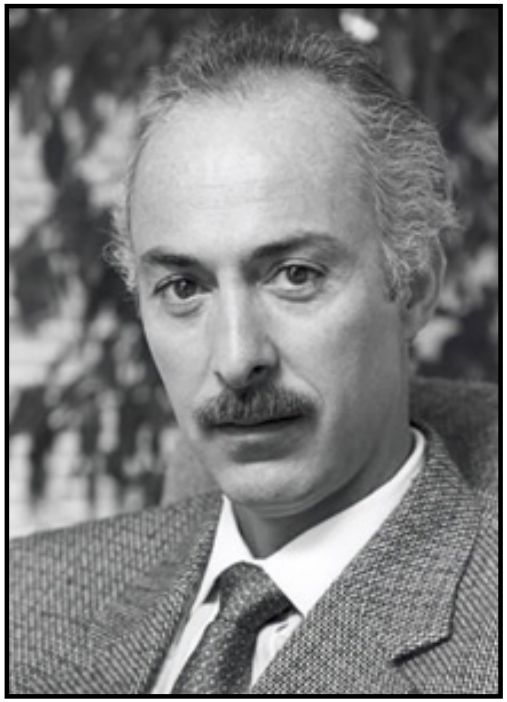
RESEARCH, Education & Academic background

Scientific research	Marine scientist "Titular A" at CIQRO
	Lead CIQRO's plankton group: zooplankton, phytoplankton & marine fish larvae ecologists
	Author & co-author of 15 papers in international journals and two book chapters* in the fields of: Phytoplankton ecology, taxonomy, primary productivity, chemical oceanography and conservation: Chapters– "Vida, Ambiente y Desarrollo en el S. XXI"; "El Papel del Sector Privado en la Conservación de la Naturaleza", "The role of NGO's in Mexico's Coastal Management", "Mexico's Coastal Management in the International Context", "Maize and Biodiversity: The Effects of Transgenic Maize in Mexico". Thesis Director of 2 M.Sc., and 10 B. Sc. Students
	Workshops, courses and seminars. Speaker for the past 21 years at numerous national and international events on a number of topics, ranging from: protected areas & biosphere reserves, phytoplankton ecology, marine fish larvae, marine conservation, sustainable development, environmental economics, finances and planning, rural development, natural resources policies, governance, aquaculture and fisheries, North American conservation initiatives.
Education	M.Sc. Oceanography, specialization in Marine Ecology, Coastal Natural Resources Management and Economy. "Centro de Investigación Científica y de Educación Superior de Ensenada" (CICESE). Sponsored by the National Council of Sciences (CONACYT). Internship at Scripps Institution of Oceanography, sponsored by the University of California, San Diego, CA
	Diploma in Mariculture & Marine Fish Larvae. Individual Programme. Applied Research and Fish Production Techniques. National Marine Fishery Service, La Joya, CA. Sponsored by the National Council of Sciences (CONACYT).
	Bachelor of Engineering. Biochemistry Engineering & Marine Resources Management. Emphasis on Marine Ecology, Aquaculture and Fisheries. "Instituto Tecnológico y de Estudios Superiores de Monterrey ITESM Campus Guaymas". Graduated with honors
	Diploma in Executive in Business Administration (MEDEX), "Instituto Panamericano de Alta Dirección de Empresa" IPADE, México, DF
	Diploma in Executive Management & Business Administration. ITESM Campus Monterrey
	Diploma in Administration & management of NGO's. "Centro Agronómico

	Tropical de Investigación y Enseñanza". CATIE. Turrialba, Costa Rica
	Conservation leadership program. The Nature Conservancy. TNC. Latin American Training Program

Personal Information

Date of Birth	25 August 1962
Citizenship	Mexican
Languages	Spanish, English, basic French
Training	Nautical Captain, SCUBA Instructor: PADI, NAUI, CMAS, American Red Cross CPR Instructor, EarthWatch nature guide
Voluntary & Professional affiliations	Member, World Commission of Protected Areas UICN
	Senior advisor to the Board of Directors of Pronatura
	Founding member of IUCN Mesoamerica
	Board member Instituto Mexicano de Recursos Naturales Renobables IMERNAR
	Advisory Board member of Sea Watch



Miguel Sanchez Navarro Redo

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Continuing Destructive Activities In The Sea of Cortez

Nets- Killers of the Sea

If there is one single scourge that brought the Sea of Cortez to its knees - it is the net. It is the Grim Reaper of every body of water it has been introduced into and the Sea of Cortez is no exception: It kills everything. It has been estimated that more fish have been thrown away after having been caught in nets than have been "harvested." It is a tragic story, but anyone wishing to make a difference in the Sea must know it by heart.

Mexico's Marlins Doomed?

No one has to go back as far as John Steibeck's "Sea of Cortez" to understand the importance of the mighty marlin to the reputation of the abundance that once was the Sea of Cortez. Less than twenty years ago, marlins could be caught inside the major bays of the Sea! Today they are more rumor than fact: one of the great game fish of the world has become more than exotic, it has become a ghost. And there are plans afoot to make a bad situation worse- help stop it and help stop it now!

Where Have All the Mantas Gone?

The Giant Pacific Manta has no commercial value, yet it is almost extinct in the Sea of

Cortez. Why? For no better reason than they are big. They swim into the huge nets drug behind the big foreign fishing boats that have come to pillage the Sea. And then they are killed and discarded: simple victims of a larger picture, as seen by the big boats - keep the fish that will bring high prices and kill the rest. But, there is hope and anyone interested in their world needs to make that hope a reality by raising their voice in defense of this gentle giant of the Pacific.

The Midriff Islands Shark Disaster

Nothing exemplifies the rampart greed that has all but destroyed the Sea of Cortez than the greed surrounding the shark fisheries. There are places in the Orient where a bowl of shark fin soup commands $30. The story of the Shark Camps in San Franciscito Bay is chilling enough without adding the element of crass greed - but such a motive is the only thing that explains the total disregard for the future that these bloody camps represented.

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- **Become A SeaWatch Member**
- **Buy And Wear The SeaWatch T-Shirt**
- **Become A Corporate Sponsor**

If we don't get involved... one of the last great fishing, diving and cruising areas of the world will be gone. Mexico is now realizing the folly of their ways. Both the private sector and the politicians are showing a will to protect their greatest natural resource...The Sea of Cortez!

Anyone who has cruised, fished or gone diving in the waters of the Sea of Cortez and seen a night sky in the immense, silent and tranquil wilderness of the Sea needs nothing more to stimulate their passion for this unique stretch of water.

But even those who have never experienced such a wild and untamed wilderness know in their heart that such places must be preserved, lest they disappear forever. If the ocean is violated in one place, we all inherit the damage. **No ocean is truly isolated.** The oceans are interconnected, and as certainly as we poison it's most remote regions, we infect ourselves.

The Sea of Cortez isn't "THEIR" ocean or problem; it belongs to all of us. **The senseless destruction wrought by nets is happening in your own backyard and if the effects of this havoc are not apparent to you today, they soon will be.** Your children and all generations after them will be impoverished by the irreplaceable loss of a creation which required eons of evolution to conceive.

SeaWatch needs your participation. Lend us your support as we work with the people of Mexico. Assist us in disseminating information about the Sea of Cortez through films, videos and the printed word. **Join us now in making a difference!**

Become a Member of SeaWatch

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Please Fill Out And Return With Your Donation:

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- ☐ Enclosed is $100 to become a Sea Watch Member
- ☐ Enclosed is SeaWatch Member's pledge for 2001 of $_____

Please Make Your Check Payable To Sea Watch, Inc.

Name: _____

Phone: _____ *Address:* _____

FAX: _____ _____

3939 N. Marine Dr. Slip 12, Portland Oregon 97217
USA phone/fax (503) 285-3673 • Mexico phone/fax 011-52-112-55108

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Mail to:

SeaWatch

3939 N. Marine Drive, Slip 12, Portland, Oregon 97217
Telephone/fax in U.S.A. - (503) 285-3673 Telephone/fax in Mexico - 01152 (112) 55108

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Your donation may be a charitable contribution deduction. Consult your tax advisor for details.

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Useful Links About The Ecology of The Sea of Cortez

Manta Mexico

This site is dedicated to information relating to the study and a preservation of the Giant Pacific Mantas in Mexico

Mexico Online

Mexico OnLine is the largest English language website dedicated to Mexico on the internet. It contains a huge number of features, from chat rooms to classified ads. from city guides and cultural information to an email newsletter that includes new information on travel opportunities and upcoming events in Mexico. It describes itself as the complete and independent online guide to Mexico, plus Accommodations, Activities, Business, Culture, Real Estate & Travel. That might well be true and if it isn't, it's close enough to being complete that it doesn't really matter who might do it better.

Baja Life's EcoWatch

Baja Life Magazine has established an ecological site related to The Sea of Cortez and the surrounding area. It is worth visiting on a regular basis to see what is what is going on in the region. Currently, there are several articles relating to SeaWatch

Fighting Against A Desalination Plant Where Whales Breed

Laguna San Ignacio Bay is a bioreserve, protected under Mexican law, located a little more than half way down the Baja's Pacific coast. The bay is recognized for its importance in birthing and raising young whales, especially the California Grey whales, and is famous among nursing grounds for its "friendly

encounters." In recent years, Laguna San Ignacio has become an environmental and political battleground. The Japanese industrial giant, Mitsubishi, has teamed up with the Mexican federal government to built a large, state of the art, salt evaporation complex within the protected bioreserve. While this is an internal Mexican government matter, international concern about the facility is a valid matter, since the Gray Whale is protected under international treaty. This site offers a variety of links to argue its case, at least some of which, should be visited by anyone interested in the health of the Sea of Cortez.

Environmental Directory

The Environmental WebDirectory has organized hundreds of environmental sites and describes itself as the largest exclusively environmental organization directory on the Web. It includes sites from over 100 countries. They describe their goal as making it easy for people from around the world to find environmental web sites. The site is organized by topic and can get fairly specific. For someone with a general ecological interest, this is a site worth investigating.

Environmental Database

This site may require membership for repeat users, although when we visited it last, filling out a registration form was all that was required. The site provides a wealth of scholarship, databases and other resources having to do with ecology. Surely some of the material may be beyond the layman, there is also access to a lot of reference materials, such as dictionaries, glossaries and thesauri. There is also an emphasis on providing a variety of environmental updates on a wide range of topics. If you have a specific concern, this site may well be able to answer whatever question you might have.

Photographs of the Ocean's Citizens

Phillip Colla is a natural history photographer, videographer and writer specializing in wild marine mammals (whales, dolphins, seals), remote islands of the eastern Pacific and the California kelp forest. This site displays several hundred examples of his work.

Fishing Issues In Hawaii

These sites are dedicated to the fishing issues of Hawaii, all of which closely mirror the issues in the Sea of Cortez:

http://wpacfin.nmfs.hawaii.edu/

http://www.soest.hawaii.edu/PFRP/pub_list_journals.html

http://www.geocities.com/Eureka/Vault/8020/

http://www.soest.hawaii.edu/PFRP/pub_list_journals.html

http://www.soest.hawaii.edu/PFRP/pfrp1.html

http://www.soest.hawaii.edu/

http://www.pop-hawaii.com/default.htm

http://www.greenpeace.org/~comms/97/ocean/report/bluefin.html

http://www.st.nmfs.gov/st1/index.html

http://wpacfin.nmfs.hawaii.edu/hi/dar/wpac_pel_fram.htm

http://www.wpcouncil.org

http://www.ecoworld.com/

http://www.westpacfisheries.net/

http://www.nmfs.noaa.gov/

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Where Your Money Goes

Sea Watch in its first five years has been able to help accomplish some great things and it's been done on a budget of under $30,000 a year. **Every dime donated goes directly into the projects we are involved in. There are no salaries paid to anyone**! Everything is donated down to the printing costs, which are donated by Super Printers and Web hosting by Aracnet both located in Portland, OR. The graph below breaks out the disbursement of all moneys received.

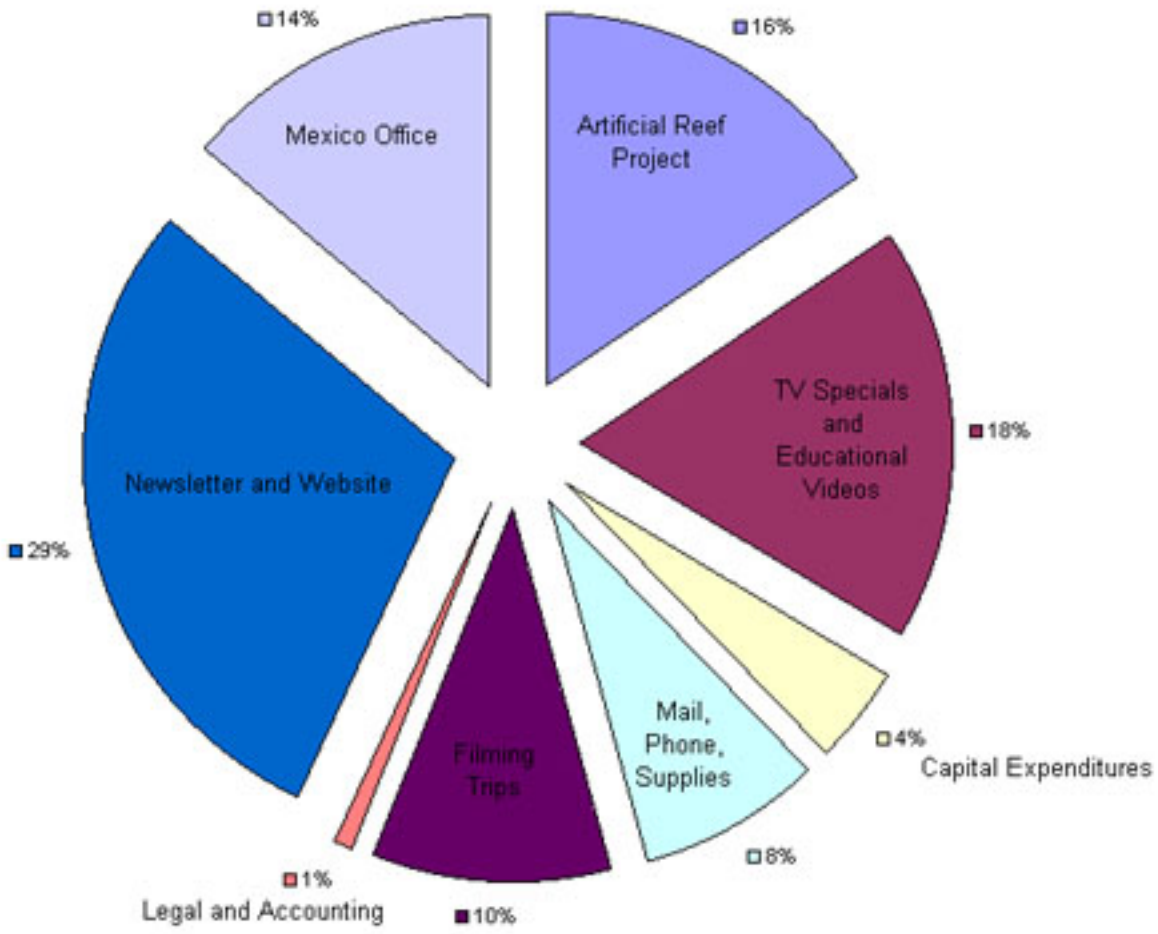
Thanks to all of you, the first artificial reef program in the Sea of Cortez is a reality. Two large boats (150 and 200 feet) were sunk outside La Paz Mexico in November of 1999, to create the first artificial reefs in the Sea of Cortez. The Secretary of the Navy and Julia Carabias the Secretary of the Environment, Ecology and Fisheries dedicated these first two boats. They said it was the beginning of an era to rebuild the fisheries in the Sea of Cortez. This project was the brainchild of SeaWatch and we were primary contributors in the developmental stages of the project, putting in 3 years of work and approximately 20% of the monies needed for the sinking of the first two boats.

I've listed some of our other accomplishments below:

- Brought to the attention of Mexico and the world the destruction of the Giant Pacific Mantas of the Revillagigedo Islands. As a result, the Islands are now a reserve where no commercial fishing is allowed within 12 miles and there is a $10,000 fine for killing a giant Pacific Manta.
- Caught and filmed over 25 boats illegally fishing in the Revillagigedo reserve. Our special reports on Televisa (100,000,000 viewers worldwide) caused 12 of these boats to be arrested and the Navy now has put a frigate on patrol within the reserve to further reduce illegal fishing.
- Produced over 60 special reports that have been aired on Mexico's most watched evening news. These 3-5 minutes reports are hard hitting and have made Mexicans aware of many destructive practices taking place in the Sea of Cortez and it's surrounding waters.
- Photographed the killing of Whale Sharks and spearheaded a petition drive to stop the killing of Whalesharks and Giant Pacific Mantas in the Sea of Cortez. Over 3000 petitions have been delivered to Mexican officials and there is now legislation being drawn up to protect these magnificent creatures in the future.
- Though a series of articles and television special reports we were able to give the Mexican officials a clear view of the problems in the Loreto area, which has now been turned into a marine park. We are currently producing a series of television reports showing the continuing destruction in the Marine Park.
- Our original work created interest from the world press and brought in writers from around the world to chronicle the destruction of the Sea of Cortez. Their work has helped Mexico to focus on stopping the destruction.
- We are currently very active in trying to stop the proliferation of longliners on the Pacific Coast of Mexico and the United States.

Thanks again for your continued support!

Sea Watch Expenses 1995-2000



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Report Illegal Fishing Activities To SeaWatch

The "Abelardo Rodriguez" a large tuna trawler made two sets within two miles of Roca Partida on Jan. 20, 1998, well within the 12 mile limit. Because this incident was reported within a week to authorities, this boat, and three others, were detained and fined within 45 days!

Our best chance of stopping illegal fishing practices is a network of SeaWatch people reporting them immdeiately to the authorities and media. If you can act as a reporter for SeaWatch, phone/fax us at (619) 678-0640 or e-mail us at seawatch@seawatch.org in the U.S. or John Riffe in Mexico (phone or fax) at 011-52-112-5-51-08.

If You See Destructive Acts

- **General:**
  - SeaWatch is interested in any stories or information that shows acts that are destroying the Sea of Cortez and its surrounding waters
  - SeaWatch is also interested in stories and information about things that are being done to protect and help the Sea of Cortez. For example, we are very interested to hear how the new protected area around Loreto is working.

This information will go immediately onto our website on the Internet, as well as, into our newsletter. The information will be passed on to the proper Mexican officials and we will follow up to see that your information is acted upon and if not, why not.

Important:

- Take Pictures
- Introduce as many facts as possible
- Talk to the people involved

If you see violations phone or fax John Riffe at 112-5-5108 in La Paz, B.C.S. If you are a ham operator, report to him at XE2HUP via sideband radio on the Sonrisa net 3968.0.

Then please send your information and copies of the photos you have collected to ***SeaWatch***, 3939 N. Marine Dr, Portland, OR 97217 or if you are in Mexico, send them to SeaWatch c/o John Riffe, V. Gomez Farias 1535, La Paz, B.C.S., Mexico. Call or fax John at 112-5-5108 and let him know to expect your information.

It is also important to give your observations to the relevant people in the Mexican government. To find out who to send your material to, go to opinion.htm.

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SeaWatch

3939 N. Marine Drive, Slip 12, Portland, Oregon 97217

Telephone/fax in U.S.A. - (619) 678-0640 Telephone/fax in Mexico - 01152 (112) 55108

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Make Your Opinion Known!

SeaWatch encourages you to contact the authorities listed below with letters, e-mail, faxes,and phone calls. Express your approval or disapproval of their actions and stands taken. Telephone numbers listed are direct dial from the United States.

PESCA:

Jerónimo Ramos
Dirección General de Administración de Pescarias
Lateral del Anillo Periférico No. 4209
Jardines de la Montaña
Delegación Tlalpan
C.P. 14210 México, D.F.
tel: 01152-628-0763
fax: 01152-628-06-00 Ext.12094
email: jramos@semarnap.gob.mx

SEMARNAT:

Lic. Victor Lichtinger
Sec. de SEMARNAT
Lateral de Anillo Periférico No. 4209
Jardines en la Montaña,
delegación Tlalpan,
C.P. 14210, México, D.F
tel: 011 52 5628 0643
email: vlichtinger@semarnat.gob.mx

SECTUR:

Lic. Leticia Navarro
Secretaria de Turismo

Presidente Masaryk 172
Col. Chapultepec Morales
11587 Mexico D.F. Mexico
FAX: 011 52 50 44 06

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SeaWatch Returns to the Revillagigedo Islands 60 days After Closure To See What Has Changed:

The following report (formatted as a PDF file), "SeaWatch Returns to the Revillagigedo Islands 60 days After Closure To See What Has Changed," contains the latest information on the current situation at the Islands.

To Download the file, click on the title: SWReturns.pdf

If you don't have Adobe Reader, click here to get it, install it and then return to download the files

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Sea Watch Revillagigedo Island trip

May 19-27

Purpose: Sea Watch took a group of freedivers that had been diving at the Islands for many years and marine biologist, Salvador Jorgenson, who has worked on pelagic tagging programs here in Mexico with Mexican scientist, Dr.A. Muhlia Melo from CIBNOR in La Paz. We wanted to gather anecdotal data on current levels fish stocks 60 days after the fishing ban was put into effect and see if we could develop an acceptable sampling protocol for future stock evaluation. We also wanted to develop a tagging program for wahoo and tuna. The various possibilities and costs will be looked at in another report by Salvador Jorgensen.

Group of divers and scientist that accompanied Sea Watch.

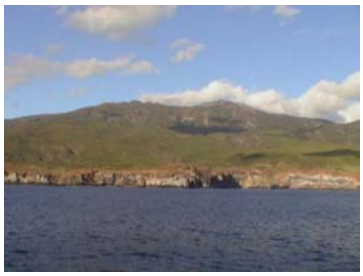
Intercept: Upon our arrival at San Benedicto on the 29th of May at 9:30 AM, we were intercepted by a Mexican Navy Grumman 8 miles outside the Island. It was flying about 100 feet above the water and we never saw it coming until we heard the roar of the engines when it was on top of us. The plane flew over us on several other occasions, including picking us up just after daybreak at Roca Partida. While at Socorro we saw the plane take off and land at various times of the day. It was evident to us that their patrols were very effective and we saw no signs of other boats commercial or sports boats in the area.

Mexican Navy plane intercepting boats at the Revillagigedo Islands

San Benedicto: We spent two days there looking at various aggregation (structure and drop-offs) points that we have been diving for the past 15 years. The specific data on what we saw, exactly where we looked, approximate sizes, man-hours spent in the water will be presented in another summary report. I will just give you a brief overview. Benedicto didn't seem to have changed much since our last dives in March. There was a lot of bait outside the lunker hole along the drop-off running over to Sues point. That was the only area were we saw tuna, wahoo and sharks. The boiler, north end and east side were barren with only 3 wahoo seen. Their average weight was about 20-30 lbs. Water temperature there was 79.5 F

San Benedicto showed no obvious signs of more or larger fish

Socorro: We spent two days diving there. Cabo Pearce had very few tuna except for one school of about 50, 40lb fish and one 80lb and one 50lb fish. Diver spent approximately 15 man-hours in the water. During that same time there was only 3 wahoo seen with an average size of 25lb. Two Tiger sharks were seen the largest about 12feet long, several hammerheads (there has been the same resident school there for the last 5 years) and one Galapagos shark. The other area we concentrated on was the drop-offs outside Punta Tosca. In this area too there were only a few sightings of 25 lb wahoo one or two Galapagos sharks and several small schools of 20 – 30 lb tuna. The silver tips usually there were non existent. In all Socorro showed no signs of increased fish activity.



Socorro also showed no obvious signs of recovery.

.

Roca Partida: We were very pleasantly surprised with what we saw at this Island. This small Island has always taken the heavy pressure from commercial seiners, bait boats, longliners, driftgillnetters, longrange boats coming from or going to Clarion and Hurricane bank and yachts out of Cabo. Even with all the pressure the Rock usually has fair quantities of wahoo, tuna and sharks. One this trip there were good quantities wahoo on the up current end of the rock. We drift dove this approximate 1 square mile area putting in about 30 man hours and saw a large schools of 2-3 lb very small yellow fin tuna as well as mixed schools (a hundred or more) from 40 to 150lbs. There were also approximately 75 to 100 wahoo spotted with an average weight of about 30 to 35#. And most of the 50 or so sharks were without lines hanging from their mouths. This was much better than we have seen the Rock in the last 2 years. There are definite signs of more fish here.

There were good numbers of Wahoo averaging about 30# at Roca Partida

Summary: This trip was more exploratory in nature than anything else. We wanted to see if we could find a repeatable way to sample fish stocks of wahoo, tuna and sharks in hopes that we could show increases in quantity and size after the closure. By the end of the trip it was felt that you couldn't set up an accurate, repeatable sampling protocol. What you could do is get a lot of video, assess the fish stocks into size ranges and set up tagging programs (spaghetti, archival and acoustic) that could yield an estimation of dispersal rates and resident time. This is looked at in more detail in the report to Sea Watch from Salvador Jorgenson below.

The populations of wahoo, sharks and tuna seem to be about the same on the inner two Islands with a definite increase at Roca Partida. A report on fish counts and size distribution will be up on the website in the near future.

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Sea Watch Alert #21 Part 2: Documentation of Fish Traps in the Sea of Cortez:

The following report (formatted as a PDF file), is a documentation by Robert L. Grimes of fish traps at Puerto Lopez Mateos in Bahia Magdalena.on the Pacific side of the Sea of Cortez. This is a quite detailed report and lays bare the full danger of fish traps in the already too heavily threatened waters in the Sea of Cortez. Get the background information from the original Alert #21 below and be sure to read Dr. Jeff Nelson's report before going over this report in detail.

To Download the file, click on the title: SeaWatch Alert #21 Update.pdf.

Sea Watch Alert #21: Fish Traps arrive in the Sea of Cortez:

The following report (formatted as a PDF file), is a prophesy fulfilled. A report from Jeff Nelson which we posted to this web site more than a year ago predicted what has recently transpired. To quote from that report: "the only good new was that fish traps hadn't arrived yet. The introduction of fish traps in the reef fishery of the Sea of Cortez would likely be the final stage in a serial depletion which would leave the ecosystem with little appeal to tourism and little to offer in terms of sustainable fish production for domestic consumption." Well, the fish traps have arrived. To learn more download the full SeaWatch Alert.

To Download the file, click on the title: SeaWatch Alert #21.pdf

To read the full report from Dr. Jeff Nelson, now a SeaWatch Board Member, click on the title: Nelson Report

If you don't have Adobe Reader, click here to get it, install it and then return to download the files

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Sea Watch Alert #21: Fish Traps arrive in the Sea of Cortez

Update from the Pacific side on fish traps from Robert L. Grimes

Mike: Attached are photos that I took on October 4, 2002. Probably the easiest place to get a video for television on the use of these fish traps would be at Puerto Lopez Mateos (I have seen them there) in Bahia Magdalena.

I took the photos of the fish traps because I recalled reading your previous alert regarding fish traps.

159: Three pangas at La Fridera (a large fish camp on the south shore of San Ignacio), with traps in the foreground. Since almost all fish have been gill netted out of Laguna San Ignacio, the fisherman primarily fish with traps for lobster, dive for scallops, and gill net at the mouth of the lagoon and outside of the mouth for halibut and various types of corvina when there are runs of those fish.

#162: Pangas and gill nets at La Fridera. I was told that the darker gill net on the left is of mesh that is used for catching sea turtles. Most of the sea turtles in this region have been gill netted and harpooned, but fishermen in these remote areas of Baja California, on both sides of the peninsula, still fish for them. The fishermen that I spoke with at La Fridera said that he was not among those who kills the sea turtles, but was catching them to tag them as part of a program funded by a North American ecology group. Whale watchers also come to La Fridera.

#163: A sign at La Fridera marking the refuge for water foul. Thousands of aquatic birds nest on islands on Laguna San Ignacio, where they are relatively safe from predators.

#176: A panga containing fish traps, and surrounded by gill nets, at El Datil. El Datil is located on a lagoon south of Laguna San Ignacio and north of San Juanico. It is a beautiful mangrove lined lagoon, which is subject to heavy gill netting and fish trapping.

#178: A sign at El Datil marking the desalination plant. In a number of areas like El Datil and Punta Abreojos, the Mexican government puts an infrastructure including desalination plants. The Mexican government spends a lot of money subsidizing the predatory fishing practices, so that fishermen can make the most marginal existence with their gill nets and traps.

#179: This is a home in El Datil, typical of the marginal existence in which most fishermen in the remote fish camps up and down the peninsula live in. There are fishermen whose families have lived in the region for generations, as well as many new outsiders who come in from mainland Mexico because they have already killed all the sea life in Sinoloa, Sonora, Guerrero, etc.

#180: Another photo of a home with pickup trucks in El Datil. You can do a pretty accurate net worth audit on any Mexican fishing camp by looking at the houses, the pangas, and the pickup trucks and cars. Most of these people live very marginal existences. One exception is the big fish camp south of La Paz to the east of Isla Cerralva, where they slaughter literally tons of Manta rays as well as gill netting everything that moves, and there is a fleet of approximately 20 or so relatively new pickup trucks (primarily Toyotas) parked next to the large panga fleet.

#188: A panga with fish traps, a gill net, and a view of the beach from San Juanico to the point where the surfers like to surf (sometimes they have to avoid some of the many gill nets in the area while they are surfing).

#190: A fisherman at San Juanico standing in a panga filled with juvenile “verdillos”, a type of cabrilla which appears very similar in appearance to Sand Bass.

#191: A panga at San Juanico full of juvenile verdillos (most of them are probably six to eight inches or so in size) with an occasional 18 to 24 inch fish. The fish trap in the foreground is what was used to catch these baby verdillos.

#192: Another photo of fish traps, panga, and the beach at San Juanico looking out toward the point, showing hundreds of pelicans that come to feed when the baby verdillos are being cleaned. Primarily the cleaning appears to consist of just ripping the gills out, after which the piles of baby fish are put into the fish trucks filled with ice and operated by middlemen which you see in the fish camps all up and down the peninsula.

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Sea Watch

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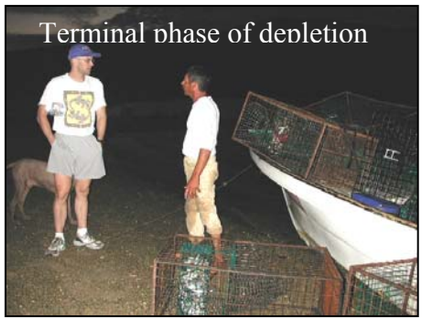
Terminal phase of depletion

Sea Watch Alert #21: Fish Traps arrive in the Sea of Cortez

Fisheries scientist Dr. Russ Nelson said in a June 2001 report on the health of the Sea of Cortez, "that the only good news was that fish traps hadn't arrived yet. The introduction of fish traps in the reef fish fishery of the Sea of Cortez would likely be final stage in a serial depletion which would leave the ecosystem with little appeal to tourism and little to offer in terms of sustainable fish production for domestic consumption."


1400 lbs per day of reef fish lbs

On 8/18/02 Sea Watch received the following report from a fisherman: I have been spearfishing and freediving this area for the past 10 years and I would like to bring to your attention the newest eco-disaster going on there. First they killed all the sharks and now they are decimating the reefs.
For the past 18 months there has been a large and ever growing fish trapping operation in Bahia San Francisquito. This operation is run by a guy named Javier who was once the part-time caretaker at the fly-in resort. Javier has told me that they are now catching 600 kilos of small fish per day in fish traps from the San Francisquito area and Isla San Lorenzo! I have been diving and spearfishing at this area since before the fish trapping operation existed. I can tell you that under the water the fish life is being exterminated.
Whole areas have been stripped of even the smallest reef fish. The ocean looks as though a vacuum has inhaled all of the Cabrilla, Ocean Whitefish, Spotted Bay Bass, Golden spotted bass and small snapper. These fish traps are even more deadly and destructive than gill nets and traps catch much smaller fish. When I dive the areas around San Francisquito I am horrified at how quickly and how much of the sea life has vanished in just the past year and a half. The southwest corner of Isla San Lorenzo used to look like an aquarium and now all of the fish have been removed.
Please do something! Please alert officials in Mexico City to what is going on. The Midriff is the spawning ground for most the Sea of Cortez and these fish traps are devastating the area.


Fish from traps on ice truck

On 8/20/02 Sea Watch received the following pictures and a report from San Diego Island just outside La Paz. A local boat from La Paz, the **Ivana F** has spent the last few weeks netting and using fish traps on the reefs around San Diego Island. The boat said that more and more fishermen are using them. **The Sea of Cortez has entered the terminal phase of fish depletion at the same time the government is talking of adding dozens of new marinas to attract tourists. This looks like another "White Elephant" in the making! The Government needs to show it can manage its fisheries first.**


Fish traps at Isla San Diego

Sea Watch

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Thoughts and Notes on the Sea of Cortez
Prepared for Sea Watch

Russell Nelson, Ph.D.
Nelson Consulting

June 2001

The Sea remains outwardly beautiful, fundamentally productive and under optimal management should be capable of providing ample harvests for domestic seafood consumption while maintaining very attractive opportunities for sport fishing and other ecotourism activities. However, as in other places around the world, the Sea of Cortez has been seriously overfished as increasing effort and gear efficiency have attempted to achieve maximum harvests in the face of stock biomass declines with little regard for future sustainability.

The escalation of gear types, from small pangas fishing handlines with multiple hooks or using spearguns to gill nets, trawls and longlines has been repeated in the U.S., the Caribbean and other insular ecosystems with productive reef or reef-like fisheries. As stocks decline in abundance and the distribution of fishes becomes sparse, fishers move to more efficient gears that can be deployed on larger scales of space and time. The impact of this race to efficiency is generally to stimulate further reductions in stock size, accelerate the use of more gear (longer lines or nets or ultimately fish traps) which fish broader areas over longer time periods and continue to push stocks to biomass lows from which recovery can be only achieved over very long time frames (if at all).

The Reef Fish Complex

Abundant and healthy stocks of lutjanids, sparids and serranids (snappers, porgies, groupers) support healthy fisheries using minimal (i.e. hook-and-line type) gears. The evolution of most of the species in this complex has produced fishes that depend on long life spans and decades of egg production to assure persistence in a fairly stable system subject to relatively little fluctuation and environmental perturbation. The introduction of high rates of fishing mortality into this system is a substantial perturbation and generally has been seen to cause fairly rapid (over periods of years) reductions in total standing stocks, switches in species dominance and, more importantly, the loss of larger fish (older age classes) which have evolved to supply the vast majority of the reproductive potential in the stock. For most of the species in this complex fishing mortality rates in excess of 8% to 18% annually are excessive and will ultimately cause stocks to decline to levels that will not produce maximum sustainable yields.

Given my cursory observations and discussions with persons who have a long history of experience in the Sea of Cortez, it appears to me that the extraction of reef fish stocks has produced dangerous, but perhaps not irreversible, levels of stock declines. Certainly the abundance of the larger reef predator (big snappers, groupers, jacks) has declined to levels that are unlikely to generate strong interest from sport fishing tourists.

It is encouraging to note that, for a variety of factors, reef fish harvest has not yet begun to focus on the second-order predators and omnivores (small serranids, haemulids, chaetodonts, pomacentrids, labrids, scarids, etc.) like butterfly fish, damselfish, parrot fish, and other smaller species which provide much of the species diversity and which generate strong

interest from diving tourists because of their visual appeal. In other reef systems around the world following the depletion of the larger, more valuable fishes harvests have ultimately shifted to these smaller species and have irreparably damaged both the aesthetic value of reefs to diving tourists and the functional integrity of the reef ecosystem long after the production of desirable fish species has approached zero.

The keynote gear introduction associated with harvest at this terminal level consists of fish traps (or alternatively explosives and water-soluble poisons). This gear fishes 24 hours a day indiscriminately and is subject to loss and subsequent "ghost-fishing" for long periods of time. The introduction of fish traps in the reef fish fishery of the Sea of Cortez would likely be final stage in a serial depletion which would leave the ecosystem with little appeal to tourism and little to offer in terms of sustainable fish production for domestic consumption.

Pelagic fish stocks

The apex predators of the Sea of Cortez ecosystem appear to have declined to very low levels. The directed harvest and extraction of sharks has probably severely reduced these stocks in the Sea and a recovery program would require substantial reductions in fishing mortality over a period of decades.

The highly migratory species (marlin, sailfish, tunas) stock declines are likely more the product of indirect loss to pelagic gill net and longline gear deployed both within and around the Sea. Current levels of abundance appear capable of supporting only a second-rate sport fishery within the Sea. It is likely that bycatch mortality of these species has seriously reduced local abundance, but it is possible that stock reserves in the eastern tropical Pacific are sufficient to restore the abundance of these species within the Sea with more modest management efforts. The most troubling aspect of the apparent change in these stocks is the apparent loss of larger fish from the population.

If current Mexican regulations that establish a 50 mile sport fishing conservation zone and prevent the commercial harvest and sale of billfish were effectively enforced, and the use of longline and gill net gear in these waters was reduced substantially, the recovery of billfish and other non-shark highly migratory species stocks in the Sea could be seen within a time frame of a decade.

Continued excessive mortality, either direct or indirect, on the large pelagic predators could have substantial and possibly irreversible effects on the structure and functional capabilities of the Sea of Cortez ecosystem. Ultimately the loss of a major portion of this apex predator biomass could trigger a broad expansion in the biomass of ctenophores, jellyfishes, squid and small pelagic fishes (sardines, anchovies, etc.). A shift in the biomass dominance to these largely planktivorous (including fish eggs and larvae) species could effectively preclude any recovery to a state which was similar to that of the Sea of Cortez thirty years ago.

Recommendations

1. Effective utilization of the potential productive potential of the Sea of Cortez should concentrate on low to moderate harvest levels for domestic consumption and an attempt to maximize the attractiveness of the Sea to low harvest level and non-consumptive sportfishing, diving and other ecotourism activities. Such an approach should maximize the total economic returns of the Sea to Mexico and the residents of Baja del Norte, Baja Del Sur, Sinaloa and Sonora. The Sea can likely not survive high levels of commercial effort and fishing mortality associated with the use of longlines, gill nets and large purse seines.
2. Effective management will require effort reduction (limited entry programs) and gear restrictions in all the commercial fisheries. These measures will be socially unpopular and have short-term negative economic consequences. However, the potential long-term economic and social advantages are substantial.
3. The careful development of recreational fishing, diving, whale watching, bird watching and other low ecosystem impact activities can be used to create a new economic base and ameliorate the impacts of restrictions in

commercial fishing necessary to achieve recoveries of fish stocks to high levels of abundance. Conversion of current commercial harvesting resources to use in the ecotourism industry should be a priority.

4. I would strongly suggest that the use of fish traps be prohibited in the Sea of Cortez (if not all of Mexico) now while the gear is not commonly in use. Such action now would generate relatively little negative social or economic impact and will prevent a tragic problem from arising. After fish trap fisheries developed in Florida, The U.S. South Atlantic and Gulf of Mexico EEZ, Bermuda and other jurisdictions action was required to prohibit them.
5. The Loreto National Marine Park might provide an effective portion of an overall fisheries management strategy, but at present it's effectiveness is questionable. A comprehensive review of the goals and objectives of the Park in the context of current management regulations and standards should be undertaken. The problem of enforcement in the Park (as elsewhere in Mexico's marine waters) needs to be addressed and effectiveness improved. The enforcement of recreational bag limits seems minimal and needs to be improved. Regulations should be reviewed to attempt to achieve maximum compliance and enforceability. Ultimately the use of marine parks will not compensate for a lack of effective conservation and management in the surrounding waters.
6. Effective management needs good data. Current information on catch and effort by area and gear type is very limited. A program for collecting and analyzing such data from both the recreational and commercial sectors is needed.
7. Licensing of recreational anglers and securing a permit to visit and use the Loreto Marine Park is a complicated and byzantine process that can consume the most part of a day. Mexico should look to simplifying this process. In my opinion there is a great loss of revenue to Mexico from anglers who either choose to fish without a license or decide not to visit and fish in Mexico because of the difficulty in obtaining a fishing license. The use of telephone or online website licensing services should be adopted. Funds derived from these licenses would be maximized if it were simple an easy for a tourist to order and receive a license prior to entering Mexico.

Moving Towards These Recommendations

1. Develop public educational materials (video, write, etc) which clearly show (and magnify) the negative consequences of the use of large scale longline and gill net gear on marine life.
2. Seek legislation or regulations prohibiting fish traps. Be careful not to allow any "experimental" permitting of such gear after a ban is in place
3. Attempt to develop an accurate inventory of commercial vessels and gear types fishing in the Sea. This should involve the use of official PESCA permit and license databases as well as attempts to do independent surveys of vessels at the numerous ports, villages and fish camps surrounding the Sea. This data would be invaluable for use in detailing the problems associated with effort expansion and overfishing.
4. Compile an historical review of the scientific and popular work and descriptive literature on the Sea of Cortez. Such written information dates back at least 50 years. This could serve to show that there has been a consistent history of concern over the potential impacts of expanded commercial fishing and that these concerns have been proven accurate by the history that followed.
5. Support a substantive effort to develop policy and management strategies for utilizing the Sea of Cortez in a fashion that will both provide sound economic benefits to Mexico and provide for a healthy and sustainable ecosystem. Such action might be initiated at the state level (i.e. Baja California Sur).
6. Use the results of this policy initiative to develop a "model fisheries management plan" for the Sea. Utilize this plan to persuade PESCA, Congress, etc. that there is a better way to use the Sea of Cortez.
7. Attempt to increase the political recognition of the importance of sport fishing, ecotourism, etc. to Mexico's growing tourism economy. Seek to forge alliances outside the traditional fisheries and conservation realms with tourism (Mexico's Secretary of Tourism) and Chamber of Commerce-type entities.

The single most important effort to achieve recovery of fish stocks and a general conservation plan for the Sea of Cortez

will be to continue to try to document and publicize the problems facing this Mexican national treasure. Current Sea Watch efforts in this regard must continue and will ultimately serve as the foundation for unified efforts to restore the Sea to its original state.

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SeaWatch Press Release:

Revillagigedo Islands Continue Under Attack by Illegal Commercial Fishing and Have Now Been Closed to All Fishing.

- **The SeaWatch Report on Overfishing At Revillagigedo Islands**
- **Islas Revillagigedo - Estado de las Pesquerías**

- The Revillagigedo Islands a favorite destination of fishermen and divers continues to sustain major damage from illegal longliners.
- Inshore fisheries of wahoo and reef fish are also rapidly declining. There has been a lot of pressure on Benedicto, Soccoro and Roca Partida from Cabo, San Felipe and San Diego based sportboats. This year alone over 2500 anglers have been permitted to go there with licenses to take over 37,000 wahoo, 37,000 tuna, and 37,000 of every other fish species there.
- Mexican officials came to investigate. Lic. Santiago Creel Miranda, C. Secretario de Gobernacion, the man in charge of the Islands came to investigate.
- Sea Watch, Mexico Desconocido and other interested parties presented him with information on the declining fisheries as well as ideas on how to bring the depleted stocks back while still allowing limited fishing. If after recuperative period of time to assess how rapidly depleted stocks come back, there is a decision to allow fishing, the following points are important:

    1. Continue the 12 mile no fishing zone for commercial boats.
    2. ***Stop all trolling at the Islands. This will significantly reduce the catch of wahoo, as 80-90% are currently caught trolling. It will also stop the common occurrence of hooking birds and sharks on large trolling lures. It will also stop the harassment of many boat trolling over the large fish like whale sharks, Giant Pacific Mantas and the Humpback Whales.***
    3. Reduce the catch of wahoo and tuna to 5 ea./angler trip. Down from 15.
    4. Stop all catching of reef fish, only wahoo and tuna can be taken, anything else must be

immediately released.

- While Santiago Creel was there with a Navy escort, Sea Watch discovered a major longliner (**Blufin**) working 1.9 miles north of the Island of San Benedicto. After following it and filming it was determined that this boat was taking on the average 5 sharks/mile of longline. This would work out to 250 to 350 sharks for the nights set. Longliners and drift gillnetters, still work the biosphere with impunity.

- Sea Watch had Televisa photographer, Armando Figaredo aboard. Videos of the longliner and interviews with the Navy and Lic. Santiago Creel were shot. They were flown back to Mexico City by Santiago Creel and aired on Televisa evening news the next night. Mexico, through the Navy and Santiago Creel has pledged to protect the Islands for the future.

- Yet, as of 3/27/02 the proper paperwork had not been filled out and the Blufin had returned unobstructed to their home port of Ensenada. Pofepa was waiting to board the ship, but couldn't as the paperwork (denunca) had not been filed. Longliners and drift gillnetters still have little fear of prosecution while illegally fishing at the Archipelago.

- On 3/27/02 the Revillagigedo Islands were shut down to all sportsfishing by order of Profepa and Gobernacion. The Islands are a biosphere and by Mexican law there is no fishing in the nuclear zone of a biosphere. There was a lawsuit to this effect filed in March of 2001 by concerned people and Profepa has now ruled that the Revillagigedo Archipelago is a protected biosphere.

- The big question now is will Mexico stop all sportsfishing in the biosphere. If they do it will again be wide open season for illegal commercial fishing. This is what Sea Watch said about this subject:

> **The importance of vigilance in biosphere management:** It is very tempting to simply say, "Close the Islands to all consumptive use." This would be a mistake. 5-6 pelagic fish per trip/fisherman is virtually the same as no-take, but a quantum improvement over current extraction by commercial poachers and high take sportsfishing. Time and again, conservation-minded sportsmen prove to be diligent and enthusiastic supporters of their target resource. Eliminating their watchful concern would blind the most significant group who, as this document attests, love and cherish this wonderland and are leading the effort for responsible

conservation. Their presence is a significant deterrent to commercial poachers.

- World famous underwater filmmakers Howard and Michele Hall were there with Sea Watch and Mexico Desconocido to look at the possibility of following up their very successful new I-Max film "Island of the Sharks" with another about the Revillagigedos entitled "Hurricane Islands". They spent 13 days at Benedicto, Socorro, and Roca Partida doing preliminary filming. ***In the end they came to the conclusion that the large pelagic animals and the prolific reef fish needed to make a quality film were already impacted so heavily that it would be impossible to make a good film***. In 13 days of diving less than 6 sharks were seen. If there was any good news, it was that Giant Pacific Mantas were still there and healthy with over 125 cataloged in the Archipelago. (Click here to read the full account of Howard Hall's observations).

For more information our repot and captioned pictures please contact Sea Watch representative Barbara Gomez Morin at **barbara@cabotel.com.mx** or for copies of the TV reports and video contact reporter Armando Figaredo **ccabos@prodigy.net.mx ,** phone 011-52-624-14-2-16-50.

The SeaWatch Report on Overfishing At Revillagigedo Islands

En Español

Howard Hall's Observations About the State of the Revillagigedo Islands

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The Revillagigedo Islands

SeaWatch Presents Its Position on Overfishing At Revillagigedo Islands

To read the SeaWatch position paper "Revillagigedo Islands - State of the Fisheries" presented on November 25th to the Primer Foro de Consulta Sector al Sector de Pesca Y Actividades Nautico Recreativas, please the title of the paper below.

To Download the file, click on the title: Revillagigedo Islands - State of the Fisheries

En Español: Islas Revillagigedo - Estado de las Pesquerías

- **Howard Hall's Observations About the State of the Revillagigedo Islands**

- **If you don't have Adobe Reader, click here to get it, install it and then return to download the files**

SeaWatch Fisherman Interviews Concerning the Collapse of the Fisheries At The Revillagigedo Islands

To read interviews with those who have seen the fishery decline first hand, click here -

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How It All Began!

The Saint Valentine's Day Massacre - February 14th 1994

The chopped-off wing of a Giant Pacific Manta, one of the most gentle creatures in the Sea of Cortez, is loaded illegally onto a fishing boat during The St. Valentine's Day Massacre. When SeaWatch

reported this atrocity, it created outrage all over the world. This horrible incident in the Revillagigedo

Islands became the driving forcebehind SeaWatch's efforts to get the area protected from this type of indiscriminant killing.

Today, the island sanctuary SeaWatch helped create is a two million dollar a year tourist attraction for Mexico, with hundreds of people each year coming to the area to see the gentle giants of the islands.

A Very Disturbing Story About San Benedicto Island from 2000

San Benedicto Island is 210 miles south of Cabo San Lucas Mexico. Early this May, 2000, five divers traveled with me to this magical volcanic island aboard the Ambar III. We hoped to find a record yellowfin tuna and swim with the manta rays...

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Photo by Norbert Wu

Revillagigedo Islands – State of the Fisheries

Prepared for
Primer Foro de Consulta Sector al Sector de Pesca Y Actividades Nautico Recreativas

By
Sea Watch - Mike McGettigan in collaboration with Dr. Terry Maas and Russell Nelson PhD, interviews with manta expert Robert Rubin PhD. and free divers with 15,000 hours of dive time in the waters of the Revillagigedo Islands.

November 25, 2001

Introduction:

Thirty years ago, The Revillagigedo Islands, were one of the richest archipelagos in the Eastern Pacific. Tuna seiners in the 1950s and 1960s returning from long trips would top off in the tuna rich waters around Roca Partida, San Benedicto and Socorro easily picking up the 100 to 200 tons needed to "plug the hold". Tuna bait boats would stop, top off their holds on tuna, and before leaving catch 100 to 200 wahoo in an afternoon to feed their families and to give to friends when they returned to California. One afternoon at Socorro in the early 1960s, John Wayne caught 3 wahoo all over 150 lb., with the largest over 175 lb. When I first went to the Islands in 1977, I would dive into a school of 50 lb tuna and spend 45 minutes underwater with the same school swimming by. The schools were miles long. In the early 1980s on the 50-fathom curve at Clarion, while in shark cages chumming for sharks to photograph, huge schools of 200 lb tuna would eat all the chum not allowing the sharks to get near. Any time you got in the water around structure you would immediately be surrounded by 25- 100 curious wahoo, whose average weight was about 50 to 60 lb. That was then. **Now**, **most of that is gone!** On the three inner Islands, Socorro, Benedicto and Roca Partida, the wahoo populations are decimated with the average weight of a fish around 20 lbs and populations down 70-80 % since the 1970s and down about 50% in the last 10 years with the biggest decreases coming in the last 5 years, as a result of heavy fishing pressures from sportfishermen. The tuna populations are also down drastically, both in size and in weight, but we believe for different reasons. Sharks have also decreased by 50-60% and many that are left have mouth injuries from hooks and are trailing long fishing lines. In the last three years the reef fish like the Blue Jack, Rainbow runners and Leather Bass have been heavily impacted with populations down 30-40%.

Background information:

The information and observations for this report has been gathered from the people who have the most experience in these waters over the last 25 years[1]. This information while anecdotal comes from reliable sources who have spent most of their lives diving and hunting in the waters of the world. Here is what they have to say about the fisheries at the Islands. This data comes from extensive diving at Socorro, San Benedicto, Roca Partida and limited diving at Clarion:

[1] The freedivers whose observations were used here have over 15,000 hours in the watercolmns around Socorro, Benedicto, Roca Partida and Clarion over the last 25 years

Dr. Terry Maas: Terry is a world champion free diver, underwater hunter and photographer and has written several books on free diving. He has been diving the Revillagigedo Islands for 19 years and has personally spent over 1000 hours in the water. *"I prefer to hunt in the water by breath holding alone. Often we will spend 8 hours of the day in the water. When I spear fish, I usually take one or two during a trip. Because of my skill and the extended duration I spend in the water, I have been able to observe nature as few others. During my 19 years, I have noted a steady and dramatic decline in sea life in the archipelago."*

"I remember swimming with thousands of wahoo. These curious fish often approach us from long distances. If any wahoo are around, I will see them. Currently, I am lucky to see 10 small fish in an entire day, whereas in 1984, I would see 20 large fish with every breath hold dive. Wahoo populations are down approximately 80% since 1984. The decline in yellowfin tuna is as dramatic. I would put their declines at 75% I remember seeing schools of young tuna so long that it would take 10 minutes to pass. I have not seen such a school in over 10 years. We have refined our knowledge of the local islands, which allows us to hunt the very best areas. In spite of our increased knowledge, we see fewer fish each passing year. The large tuna are missing, and the small are fewer. While I still see a number of sharks, their populations are down 50% and it is very common to find them with mouth injuries from a hook in their mouth."

Shark with hook & line

Dr. Daryl Wong: Daryl has been freediving in Hawaii for 25 years and started coming to the Revillagigedo Islands 10 years ago and has over 500 hours in the water. *"When I first came to the Islands 8 years ago it was a beautiful place, although it was already changing due to the increased pressure of sports fishing boats. Since we normally kill one to two fish/person/per trip, I didn't know how bad it was until two years ago when I went to the Islands on the* ***Capitan Villegas****. They put 9 pangas in the water and trolled all day, while many of the crew fished from the big boat. They proceeded to kill everything they caught, even if the angler wanted to release it. Sharks, wahoo, tuna, rainbow runners and all the reef fish like leather bass and blue star jacks. They even had the divers bring them two large bags of lobster. It was when we got back to Cabo that I found out why they killed everything. The 18-man crew was paid only with tips and the money they got for the fish they sold in Cabo. I heard it was over one ton of fillets they sold, although I didn't try to verify that number."*

Bob Caruso: Bob is a pharmacist from San Diego and has been diving here at the Revillagigedo Islands since 1981. "*I have seen the wahoo and tuna population decrease dramatically. It was common to see 250 to 300 lb. tuna on all trips to the Islands 20 years ago. It has been 10 years since I've seen one 300 lbs. Now it is exciting if you see one of 150 lb. It was easy to see 70-80 lb wahoo in the early 1980s.*

Now you are lucky to find one 50 lbs. and the average is now about 20 lbs. The wahoo are heavily over fished by sports boats. In 5 more years there will be nothing left"

Mike McGettigan: Founder of Sea Watch ardent fisherman and free diver. He has been going to the Islands since 1977 and has made over 130 trips there. He was one of the first people to extensively dive the area and worked hard to get the world famous Giant Pacific Mantas of these Islands protected. " *When I got there 25 years ago, it was terrifying to get into the water. You would often be surrounded by several hundred sharks and up to 100 wahoo would be visible within your range of sight. Tuna schools miles long would swim by until you were tired of watching them. The tuna were decreasing every year, even back then. There was heavy commercial seiner pressure in those days near the Islands. The Wahoo were starting to get smaller by the late 1980s, but the real declines have come as more and more yachts decimate the very limited stocks that exist there. A yacht fishing there for 5-6 days would often come back with legal limits of 100 to 125 Wahoo. In the past five years alone, the number of wahoo we see diving has decreased at least 40-50% and the average size has dropped to about 20 lbs from 45 –50 lbs. five years ago. The wahoo populations are down 70-80% from 1977, when I first arrived at the Islands. The tuna have also been decimated, but it isn't obvious what is happening to them. The tuna are fewer and smaller each year. The 200 to 300 pound fish are gone from the inner Islands and the 150 to 200 lb fish are now very rare. I would think the declines reflect heavy commercial pressure on the Eastern Pacific Yellowfin tuna populations and they are being intercepted before arriving at the Islands. We don't see that much yacht pressure on tuna.* ***At the rate of declines we have seen in the last 5 years wahoo at the Revillgigedos will be gone in the next 5 years.*** *The panamic wahoo that may have been replenishing the Islands have also come under pressure from CA long-range boats. These CA boats are having to range further and further, out to places like Hurricane Bank, to catch wahoo ."*

Average wahoo size 2001

Ron Mullins: Ron is an underwater photographer and free diver with over 500 hours of water time in the 17 years he has been diving the Revillagigedo Islands. *"17 years ago there were large schools of 5-10 pounds, Yellowfin that numbered in the 1000s. 17 years ago 200 lb. Yellowfin were common, now they are very rare. Wahoo have dramatically declined, about 75% in numbers and 40% in size. Yachts heavily over fish them. Sharks are also declining and many have hooks in their mouth. The situation at the Islands is critical. Unless the number of fish being caught is drastically reduced there will be nothing left in a few years."*

Brian Quinn: Has been freediving the Revillagigedo Islands since 1994 and has spent over 400 hours in the water hunting a world record fish. *"I am surprised how fragile the ecosystems of these small Islands are. In 8 years the wahoo populations have dramatically decreased in both size and quantity in every dive location. The average size was 40-50 pounds when I first started diving there and now it is about 20-30 pounds. The tuna are also smaller and fewer. There are almost no 150 to 200 pound Yellowfin tuna and the sharks are fewer and easily identified by lines and hooks hanging from their mouths."*

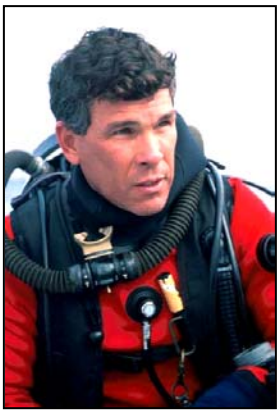
Brian Yoshikawa: He has been diving and spearfishing starting at the age of seven in 1972. He dives nationally for Hawaii and has spent much time diving around the world, especially in Hawaii, Micronesia, Tahiti and the Revillagigedo Islands. He has over 700 hours in the waters around the Islands. Brian says, *"In the last 10 year the average size of the wahoo has gone from 50 pounds to 25 pounds and the numbers have decreased by 40-50%. There are no really big fish (over 250 pounds) anymore and now you are lucky to see one 200 pound fish in a week of diving whereas 10 years ago you would have seen up to 100. 10 years ago there were schools of tuna that would take 10 minutes to go by. Now there are only a few fish in the schools. The increased fishing pressure on the inner Islands has left about 50% of the local sharks swimming around with hooks and lines hanging out of their mouths".*

Gerald Lim: Gerald has been freediving for twenty years and I have been diving the Revillagigedo Islands for the past ten years. He has spent over 1000 hours in the water there over that period of time. Gerald says, *"I have been diving SE Asia, Australia, Adriatic, Tahiti, Mexico and the USA on the way to two National Championships. I am an endodontist practicing in Redlands, CA Observations: In the 20 years of freediving around the world, I have never seen as unique and incredible diving as at the Revillagigedo Islands. The Islands have a variety of big animals like whales, marlin, yellowfin tuna, giant mantas and dolphin unequaled anywhere in the world. That was then!*

In the last 5 years there has been a dramatic decrease in hammerhead and Galapagos sharks. There has even been a major decrease in the reef fish in the last three to five years. The chubs, blue jacks, and chopas are down about 30 to 40%. Ten years ago you would never shoot a yellowfin tuna under 200 pounds and now you are lucky to see one over 100 pounds. There has been a dramatic decrease in both tuna numbers and their size. The same is also true of wahoo. Where you would see several hundred on a nine day trip ten years ago, you only see a few today and they are much smaller, weighing about twenty to thirty pounds."

Derek Stavenger: Derek has been freediving Mexican and California waters for 25 years and has been diving the Revillagigedo Islands for the last 8 years and has over 500 hours freediving in the Islands waters. *"Even in the short time that I have been diving the Islands I have see dramatic reductions in the fish. When I first started diving there, we would see 20-60 large wahoo to 80lbs in a days diving, now we are lucky to see 20 small fish in a day. The wahoo are heavily over fished. With the tuna it is even worse. In general there are very few large fish over 150 lbs. left. Even more dramatic is the average size drop. Small schools of 10-40 lb fish now swim where large schools of 40-120 lb fish once swam.*

Jose Maciel: Diver for the Mexican Navy. He has had tours of duty at the Revillagigedo Islands since 1993. He runs the Navy fishing and diving boat and is very familiar with the waters of Socorro. Jose says, "*that when I got here the wahoo were 1.5 to 2 meters long weighing 20-30 kilos and that you could easily get 5-6 in a mornings fishing. Now, you only find fish about a meter long and weighing 10-12 kilos. The other day we were fishing from 8 am until 3pm (7 hours) and we caught one wahoo in all that time. There are very few wahoo left and they are very small."*



Howard Hall's career as an underwater natural history film producer, cinematographer, still photographer and writer began in the early 1970's. He is a roving editor for ***International Wildlife Magazine***, a senior associate editor for ***Ocean Realm Magazine***, and is on the advisory board for ***Fathoms Magazine.*** His photographs have been published internationally in hundreds of books and magazines including: ***Life, Natural History Magazine, National Geographic, GEO, Terre Sauvage, London Illustrated News, and BBC Wildlife.*** Howard has authored several books including ***Sharks, Dolphins, The Kelp Forest, Successful Underwater Photography,*** and ***Secrets of the Ocean Realm.*** The winner of six Emmy Awards, Howard has worked on over one hundred underwater film projects. He has produced and/or directed many award winning natural history films television films including a ***National Geographic Special*** and two episodes of the PBS series ***Nature.*** Working with his wife, producer Michele Hall, Howard also directed the award winning, five-hour series ***Secrets of the Ocean Realm.*** Howard is perhaps best known for his underwater IMAX® films. In 1994 he directed the IMAX 3D feature, ***Into the Deep*** and in 1998 he directed the IMAX film, ***Island of the Sharks,*** which was an enterprise of Howard Hall Productions and was produced by Michele Hall.

Howard says the following about the Sea of Cortez and the Islands; *"In 1980 I brought an ABC film crew to Mexico to make an episode of American Sportsman about the spectacular marine life surrounding the Marisula Seamount (El Bajo) north of La Paz. The film depicted "Jaws" author Peter Benchley and his long-time friend Stan Waterman diving with giant manta rays and swimming into spectacular schools of hammerhead sharks. During our two week filming expedition we saw dozens of huge manta rays and were often awe-struck by the sight of schools numbering more than 300 hammerhead sharks. The film won an Emmy and in the*

months that followed its release, photographs of Mexico's manta rays of the Sea of Cortez appeared in National Geographic, on the cover of Skin Diver Magazine, and in dozens of other publications worldwide. In a very short time Mexico's Marisula Seamount was considered the most spectacular sport diving location in the world. It's sudden popularity inspired the creation of many sport diving operations to take sport diving tourists out to see its wonders. Thousands of divers came to Mexico. That's all over now. Commercial fishing boats also discovered the Marisula Seamount. In a few short years their nets killed nearly all of the manta rays and hammerhead sharks that had made this wonderful place world famous. Today few divers talk about the Marisula Seamount. It is no longer consider an interesting dive location. Dive boats still stop there but no one expects to see more than a few moray eels and some butterfly fish.

But Mexico still has a world-class sport diving destination. The Revillagigedo Islands are world famous for their enormous manta rays, whale sharks, and spectacular schools of tuna and sharks. Few places on Earth equal the marvels of the Revillagigedo Islands. And no serious sport diver's travels are complete until he has visited these Islands. Only Costa Rica's Cocos Island rivals the majesty of the Revillagigedo Islands. Thousands of divers each year visit Cocos to swim with and photograph its amazing schools of hammerhead sharks. Costa Rica has made Cocos a Costa Rican National Park. Cocos has also been named a World Heritage Site. To protect this valuable Costa Rican resource, Costa Rica has banned all fishing around the Island. Although the Costa Rican government struggles against corrupt commercial fishing lobbies and illegal poaching, it has largely succeeded in protecting Cocos from the kind of destruction by commercial fishing that has befallen so many other marine wilderness environments like the Marisula Seamount. Today the marine life at Cocos Island is just as spectacular as it was the first time I dived there more than ten years ago. Certainly the Revillagigedo Islands deserve the same degree of protection by Mexico's government as Cocos receives from Costa Rica. If commercial fishing is banned at the Revillagigedo Islands and if these laws are enforced, these islands will remain world-famous for generations to come. If commercial fishing is permitted at the Revillagigedo Islands, even for a short time, then the spectacular schools of tuna, sharks, and the magnificent manta rays will be wiped out just as they were on the Marisula Seamount, and the Revillagigedo Islands will only be famous as an example of an undersea wonder lost to short-sighted fisheries management."

Other factors affecting the fisheries and Island ecosystem

Boats trolling cause problems for Giant Mantas: The populations of Giant Pacific Mantas have stayed constant around the inner Islands for the past 10 years. There have been over 125 of these animals cataloged at San Benedicto alone. With more and more yachts trolling around the area these giant animals feeding on top are constantly in danger and are having to rapidly dive to avoid being hit by propellers. The new influx of yachts, especially the Capitan Villegas and it's 9 pangas and the smaller long range SAC boats from San Diego working the 3 inner Islands are causing many problems for these one ton Giant Mantas. One Manta was badly injured by a boat propeller in 2000. It has not been seen since and the probability is that it died.

Birds caught on trolling lures are a problem: At San Benedicto Island young boobies dive on trolling lures and are often caught and drowned before they can be released. About 10% of those caught die. About 5-8 get caught per day of trolling. This is most common when birds are young, November though February.

Sharks caught on trolling lures are a major problem: Sharks will attack lures being trolled and will also eat about 30 to 40% of the wahoo and tuna that are hooked. Most wahoo are caught on large trolling lures called marauders or speedsters. The shark eating the caught fish normally gets the large trolling lure caught in his mouth. If the shark has swallowed the lure and is released it will die and about 15% -25% of the sharks at Benedicto have lures and line hanging from their mouths.

The ecosystems at the Islands are very fragile and cannot withstand the heavy and sustained fishing pressure: A good example of a loser in this fragile ecosystem is the fish of choice, the wahoo. Its numbers at the Islands have been decimated and their populations are down 70 to 80% from the late 1970s. We've done an analysis (Exhibit A) to roughly determine the number of wahoo that are around the Island of San Benedicto[2]. You can see from the analysis a rough estimate is that there about 350 (+/- 100%) wahoo at any given time around Benedicto. *The total area that is fished around San Benedicto is less than 6 square miles. One day in March, 2002 there were 16 boats trolling over and over every square inch of this 6 square miles*. Two boats alone fishing for 10 days could take a large percent of these wahoo. There would have to be rest days in between fishing days, since wahoo get line wise quickly, but the point is two boats could seriously impact the wahoo on the whole Island with 10 days of fishing. There are current permits for 34 boats, carrying over 2500 anglers to fish a total of

[2] Exhibit 1 - The attached map of the Islands has all the waypoints that normally hold wahoo. We have fished and dived every one 3-5 times a year for the last 20 year. Our quess is that the data while anecdotal is accurate +/- 100% depending on conditions and time of year.

approximately 800 days this season at the Islands[3]. It should be very apparent that the fish populations **can't** take this kind of fishing pressure[4].

Over fishing by yachts from Cabo and long range sports boats from San Diego: This season the Mexican Government has issued permits for approximately 34 boats, carrying over 2500 anglers, to fish the Revillagigedo marine reserve for over 800 days. **Under current Mexican fishing regulations the anglers can legally take from the Revillagigedo Island reserve this season: Over 37,000 wahoo, 37,000 tuna, 37,000 leather bass grouper, etc., etc., They can take over 37,000 of every species that lives in the reserve** (dorado don't live there). Is it any wonder that most of the fish species at the Islands are in serious trouble!

Commercial boats fishing in the biosphere: Seven drift gillnetters decimated the reserve in May of 2000 taking over 2000 sharks by their own admission. Small boats like the **Mazatleco** shown here drift netting 1.5 north of San Benedicto can get $100.00 USD for each shark. These 7 boats at the Islands were making over $15,000 USD per day. Large tuna seiners still wrap (seine) fish at Clarion and Roca Partida with impunity, although most of the time they stay away from the 3 inner Islands. Longliners like the **Blufin** pictured here at the right (filmed 1.92 miles from Benedicto on 3/10/02) are now working relentlessly at the Islands. The Blufin was seen there for many days, by boats visiting the Islands.

Summary and Conclusions:

The latest rulings by Profepa on 3/27/02 have closed the nuclear zone of the Revillagigedo Islands to all extraction. Profepa has determined that the laws of Mexico say that in a biosphere there is no fishing in the nuclear zone, which extends out about 4-5 miles from the land mass. This would stop all fishing as the fish are all within 2 miles of the Island. If it is determined at a later date through

[3] Exhibit 2 - 2001 incomplete figures from Semarnat for Cabo and San Diego based boats. We still need boats names and trips originating from Manzanillo and Puerto Vallarta.
[4] Exhibit 3 – Wahoo data gathered on 12/01 –12/8/01 fishing trip to Islands

changes in the law that the best use of the Islands is to have sustainable fishing, then Sea Watch has the following recommendations:

1. **<u>Most Important</u> - Stop all trolling at the Islands immediately! This would have the biggest single positive impact! Any fishing would have to be done at anchor. Assuming the penalty for trolling was high and enforcement (peer pressure from other boats) good, this would immediately**:
   - Stop the harassment of the Giant Mantas, as no boats would be trolling around the Islands.
   - Eliminate the pressure on the wahoo since 80% to 90% of the wahoo are caught while trolling.
   - Eliminate extremely destructive boats like the Capitan Villegas that have one permit, but fish 9 boats, all high speed trolling around and around the Islands.
   - Not cause a fight with the long-range boats that already primarily fish at anchor. They go to Hurricane Bank for most of their wahoo and can troll for them there.
   - Stop the killing of the Boobies that dive on the trolled lures at San Benedicto Island.
   - It would also eliminate the killing of sharks that have taken large trolling lures, either directly or by eating a fish that has a trolling lure in its mouth. At anchor the sharks are going to get hooked, but only with live bait hooks which will usually not kill them.

2. **Immediately reduce the number of fish that can be taken at the Islands**
   - Reduce the wahoo to 5 per angler per trip. This will still allow a private yacht with six passengers to catch 30 wahoo.
   - Reduce tuna to 5 per angler per trip. This will encourage the release of small fish and will still allow 30 tuna for a private yacht and 100 tuna for a long range boat. This may cause some problems with the long range boats, but if they are still keeping only 100 lb plus tuna that is over 10,000 lbs of tuna a trip. More than enough! The days of plugging the boat with 30,000 to 40,000 pounds of fish per trip are gone. In defense of the yachts and long range boats, the declines in tuna at the Islands appear to be from heavy commercial pressure elsewhere, not from the yachts or long-range boats at the Islands.

3. **Eliminate the taking of all reef fish and sharks:**
    - Sharks and reef fish are being killed by some boats (for resale) and by yachts where the shark has taken a large wooden trolling lure and the lure can't be retrieved without killing the shark. Last year two Cabo based yachts killed over 100 grouper on one 5day trip. Laws need to be in place immediately to stop the taking of any reef fish or sharks.

4. **Sagarpa Inspection of all private boats that were fishing at the Islands**, **immediately upon their return to Cabo**.
    - There should be a count of all fish by weight as well as a form filled out to account for fish numbers, weights, fishing effort and environmental effects of fishing activities (sharks caught, birds caught, etc.)[5].

5. **The importance of vigilance in biosphere management:**
    - It is very tempting to simply say, "Close the Islands to all consumptive use." This would be a mistake. 5-10 pelagic fish/fisherman per trip is a little more compared to no-take, but a quantum improvement over current extraction by commercial poachers. Time and again, conservation-minded sportsmen prove to be diligent and enthusiastic supporters of their target resource. Eliminating their watchful concern would blind the most significant group who, as this document attests, love and cherish this wonderland and are leading the effort for responsible conservation. Their presence is a significant deterrent to commercial poachers.

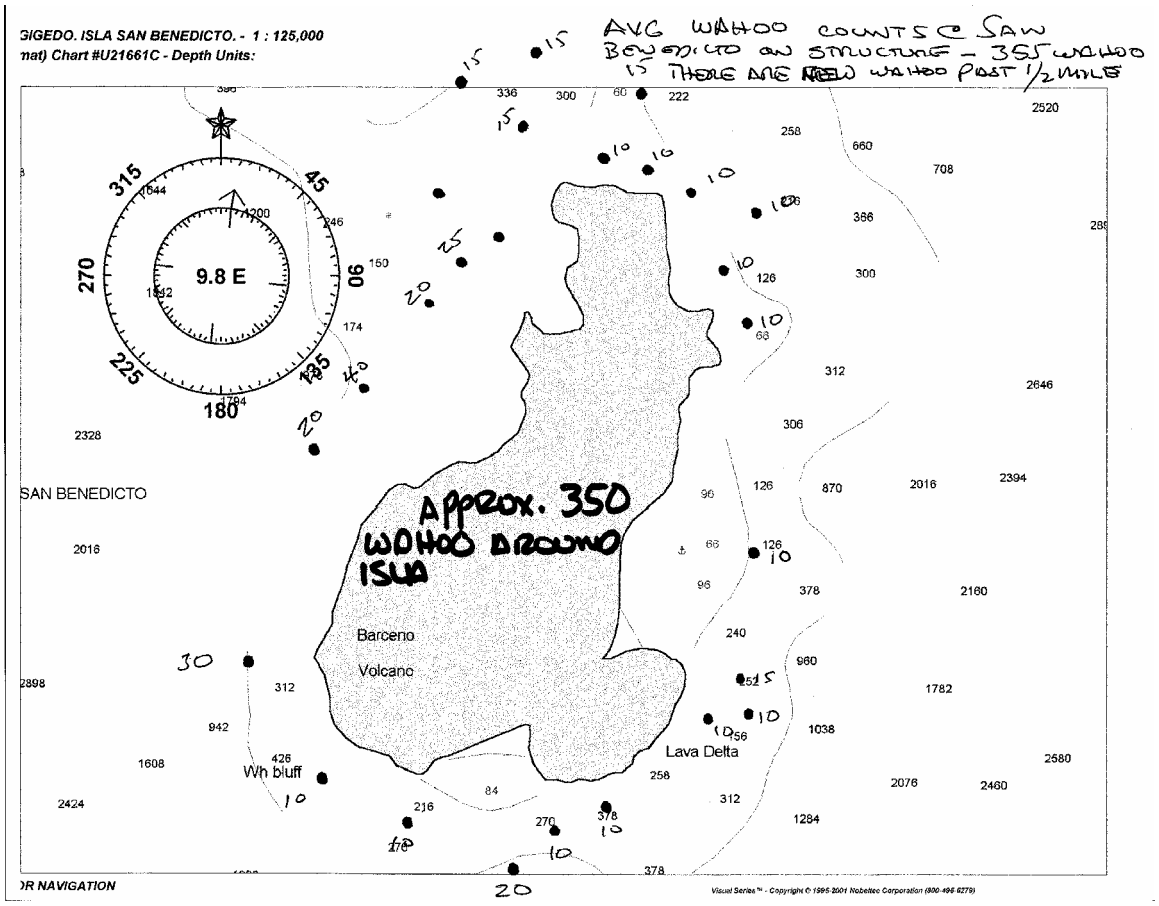
Summary: On 3/27/02 the Mexican government stopped all fishing at the Revillagigedo Islands. Only time will tell whether this decision will help the depleted fisheries or will merely open the door wider for commercial longliners and drift gillnetters. We suspect the latter, since in the past the Navy has not had the resources to provide adequate vigilance and almost all the arrests for illegal commercial fishing have come from concerned sportboats. Regardless, we strongly recommend that fish stock assessment studies start immediately at the Islands. Current stock levels need to be measured so that the recuperative powers of the fisheries at the Islands can be measured in the future. What caused the

[5] See exhibit 3 which was from 12/01 trip and there is a form attached as exhibit 4. It accounts for wahoo. The same could be done for tuna and modified to include other animal interactions. You want to keep the wahoo and tuna forms separate as quantity/effort data would be diluted by combining them.

current depleted state of the fisheries in the first place was a total lack of knowledge about the pelagic fish stocks and the fishing pressure they could take. Although, we believe that some simple logic would have told authorities that you can't turn thousands of anglers with permits to kill tens of thousands of fish lose on 30 square miles of fishing grounds and expect the fisheries to stay healthy.

Exhibits 1 - 4 and examples of forms

EXHIBIT 1. The dots are the primary locations were wahoo are caught at San



Benedicto Island, with only 6 square miles of fishing area. The number beside the dot is the average number of wahoo seen in the vicinity of the dots over several years. The reality may be that there is twice the figure we came up with. **The point of the exercise is to show how few fish there are when you are allowing over 2500 anglers a year to go there, with permits to kill over 37,000 wahoo.**

Exhit 2

Wahoo caught on trip December 1 – 8, 2001 to the Revillagigedo Islands

Type of fish	Weight in Lbs. (kilos)	Location:
Wahoo	16	San Benedicto
Wahoo	23	San Benedicto
Wahoo	18	San Benedicto
Wahoo	30	San Benedicto
Wahoo	18	San Benedicto
Wahoo	20	Socorro South end
Wahoo	16	Socorro South end
Wahoo	21	Socorro South end
Wahoo	34	Socorro South end
Wahoo	42	Socorro North end
Wahoo	32	Socorro North end
Wahoo	21	Socorro North end
Wahoo	35	Socorro North end
Wahoo	35	Socorro North end
Wahoo	18	Socorro North end
Wahoo	35	Socorro North end
16 total	**394/16 = 24.62 lbs**	

- ***Average weight = 24.62 lbs***
- ***Average weight San Benedicto = 21.00 lbs***
- ***Average weight south Socorro = 22.75 lbs***
- ***Average weight North Socorro = 31.14 lbs***
- **Averaged one wahoo for every two hours of fishing.**

Wahoo were larger at North end of Socorro where there is little fishing pressure; due to heavy prevailing winds.

Exhibit 3
Wahoo Form

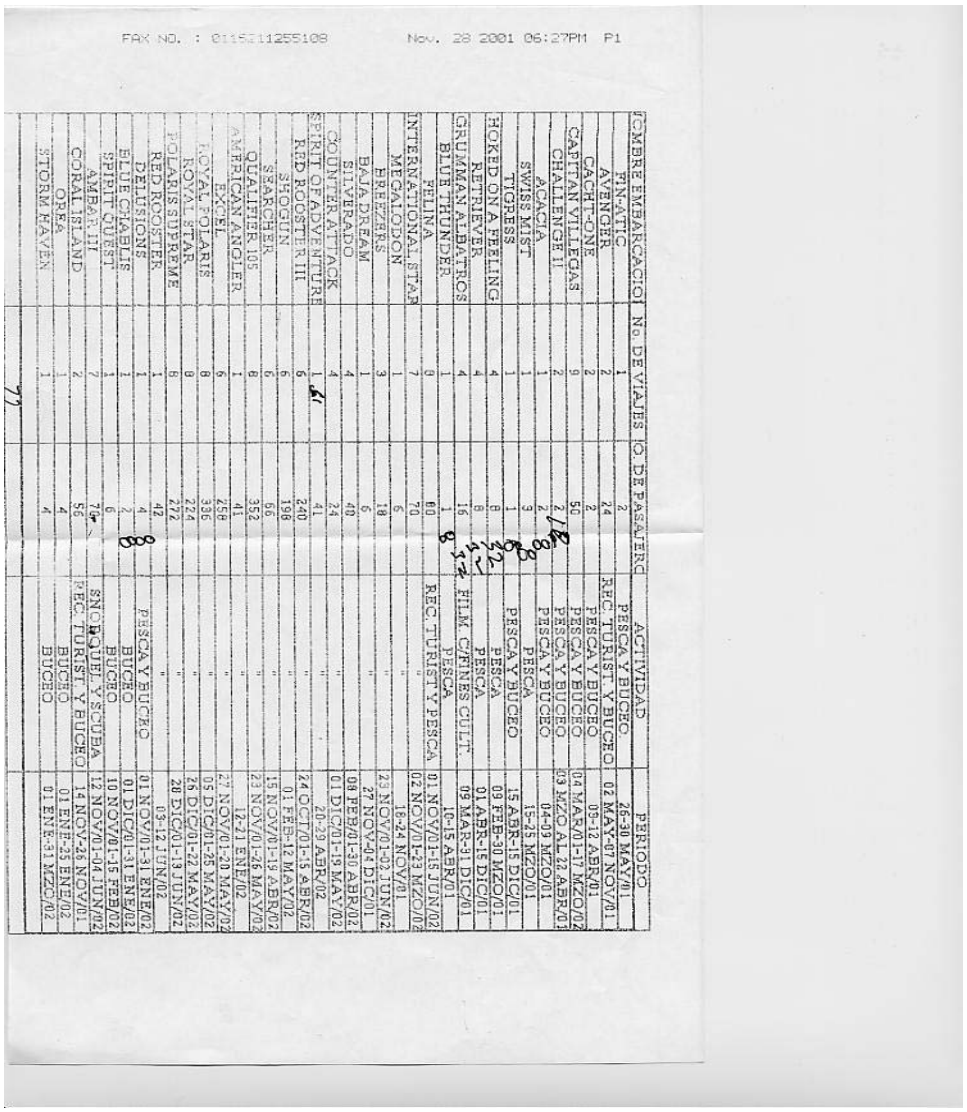
Wahoo caught on fishing trip to the Revillagigedo Islands:

- Date arrived Islands: Date departed Islands:
- Number of hours trolling during trip:

Type of fish	**Weight in lbs**	**Location caught**

The purpose of this information is to get gather data on the size of wahoo caught in various locations in the archipelago (San Benedicto, Roca Partida, Clarion, Socorro, break down by north or south or by location; i.e., Pearse, Tasca, Flats, etc.). Please return this form with your paperwork (Entrada), upon your return to port or send Sea Watch - 3939 N. Marine Dr #12. Portland OR 97217. Thank you for your help.

Exhibit 4



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NOMBRE EMBARCACION	No. DE VIAJES	NO. DE PASAJERO	ACTIVIDAD	PERIODO
FIN-ATIC	1	2	PESCA Y BUCEO	26-30 MAY/01
AVENGER	2	24	REC. TURIST. Y BUCEO	02 MAY-07 NOV/01
CACHI-ONE	2	2	PESCA Y BUCEO	05-12 ABR/01
CAPITAN VILLEGAS	9	50	PESCA Y BUCEO	04 MAR/01-17 MZO/02
CHALLENGE II	2	2	PESCA Y BUCEO	03 MZO-04 ABR/01
ACACIA	1	2	PESCA Y BUCEO	04-09 MZO/01
SWISS MIST	1	3	PESCA	15-25 MZO/01
TIGRES	1	1	PESCA Y BUCEO	15 ABR-15 DIC/01
HOKED ON A FEELING	4	8	PESCA	09 FEB-30 MZO/01
RETRIEVER	4	8	PESCA	01 ABR-15 DIC/01
GRUMMAN ALBATROS	4	16	FILM. C/PINES CULT.	09 MAR-31 DIC/01
BLUE THUNDER	1	1	PESCA	10-15 ABR/01
FELINA	9	60	REC. TURIST Y PESCA	01 NOV/01-15 JUN/02
INTERNATIONAL STAR	7	70	"	02 NOV/01-23 MZO/02
MEGALODON	1	6	"	18-24 NOV/01
FREEZERS	3	18	"	23 NOV/01-02 JUN/02
BAJA DREAM	1	6	"	27 NOV-04 DIC/01
SILVERADO	4	40	"	09 FEB/01-30 ABR/02
COUNTER ATTACK	4	24	"	01 DIC/01-15 MAY/02
SPIRIT OF ADVENTURE	1	41	"	20-29 ABR/02
RED ROOSTER III	6	240	"	24 OCT/01-15 ABR/02
SHOGUN	6	198	"	01 FEB-12 MAY/02
SEARCHER	6	66	"	15 NOV/01-19 ABR/02
QUALIFIER 105	8	352	"	23 NOV/01-26 MAY/02
AMERICAN ANGLER	1	41	"	12-21 ENE/02
EXCEL	6	258	"	27 NOV/01-20 MAY/02
ROYAL POLARIS	8	336	"	05 DIC/01-25 MAY/02
ROYAL STAR	8	224	"	25 DIC/01-22 MAY/02
POLARIS SUPREME	6	272	"	20 DIC/01-13 JUN/02
RED ROOSTER	1	42	"	03-12 JUN/02
DELUSIONS	1	4	PESCA Y BUCEO	01 NOV/01-31 ENE/02
BLUE CHABLIS	1	4	BUCEO	01 DIC/01-31 ENE/02
SPIRIT QUEST	1	6	BUCEO	10 NOV/01-15 FEB/02
AMBAR III	7	70	SNORQUEL Y SCUBA	12 NOV/01-04 JUN/02
CORAL ISLAND	2	56	REC. TURIST. Y BUCEO	14 NOV-26 NOV/01
OPEA	1	4	BUCEO	01 ENE-25 ENE/02
STORM HAVEN	1	4	BUCEO	01 ENE-31 MZO/02

This year there will be over 135 trips with over 2500 anglers allowed to go to the Islands with Mexican fishing permits allowing them to catch over 37,000 of each species of fish that lives at the Islands.

Fotografía por Norbert Wu

Islas Revillagigedo – Estado de las Pesquerías

Preparado por

Sea Watch - Mike McGettigan en colaboración con el Dr. Terry Maas y el Dr. Russel Nelson, con entrevistas al experto en mantas Robert Rubin PhD., y testimonios de buzos (buceo libre) quienes cuentan con más de 15,000 horas de buceo en las aguas de las Islas Revillagigedo.

Introducción:

Hace 30 años las Islas Revillagigedo conformaban uno de los archipiélagos más ricos del Pacífico Oriental. Se localiza a 373 millas náuticas de las costas de Colima y debido a su riqueza biológica y a que posee gran cantidad de especies endémicas en flora, aves, reptiles y peces, muchas de ellas en peligro de extinción, fue decretado Reserva de la Biosfera, comprendiendo 636,585 hectáreas.

Durante los 50´s y 60´s, a su regreso de largos viajes los barcos atuneros terminaban de llenar sus depósitos al toparse con las aguas ricas en atún de los alrededores de Roca Partida, San Benedicto y Socorro y con facilidad recogían las 100-200 toneladas necesarias para llenar hasta el último rincón vacío. Los barcos atuneros se detenían, sus tripulantes atrapaban todo lo que podían y, antes de partir para regresar a California, capturaban entre 100 y 200 wahoos en una sola tarde para alimentar a sus familias y regalar a sus amigos a su regreso. Durante una tarde en Socorro, a principios de los 60´s, John Wayne atrapó 3 wahoos de más de 150 libras, el más pesado de más de 175 libras. Las primeras veces que fui a bucear a las Islas, en 1977, me encontraba cardúmenes de atunes de 50 libras y me pasaba 45 minutos bajo el agua nadando al lado de este mismo cardumen que tenía varias millas de longitud. A principios de los 80´s, en la curva de 50 brazas de profundidad en Clarión, metido en una jaula para protegerme de los tiburones – a los que les echaba carnada para que se acercaran y así poder fotografiarlos – veía pasar cardúmenes de atún de 200 libras que se comían la carnada sin permitir que los tiburones se acercaran. Cada vez que te metías al agua dentro de una estructura, te veías inmediatamente rodeado de entre 25 a 100 curiosos wahoos, que pesaban un promedio de 50 a 60 libras. Eso era entonces. ¡En la actualidad casi todo eso ha desaparecido! En las tres islas interiores, las poblaciones de wahoo han bajado su peso promedio, pesando aproximadamente 20 libras, el número de individuos ha bajado en un 70-80 % desde los 70´s y hasta un 50% en los últimos 10 años. Debido a la intensa presión que los pescadores han ejercido en esta zona y a la falta de una normatividad clara que se adecue al estado de las pesquerías, la mayor disminución se ha dado en los últimos 5 años. Las poblaciones de atún también han disminuido drásticamente, tanto en tamaño como en peso, probablemente por la excesiva pesca comercial que tiene lugar en las aguas tropicales del Pacífico Oriental. Los tiburones también han disminuido en un 50-60% y muchos de los que sobreviven, presentan heridas en la boca causadas por anzuelos y muchas veces se les ve arrastrando largos sedales. En los últimos tres años los peces del arrecife como son el “blue jack” o “jurel”, los “rainbow runners” y los “leather bass” o “meros” han visto sus poblaciones disminuidas en un 30-40%.

Gracias a la cooperación de muchos buzos y pescadores, se han logrado hacer reportes y monitoreos del estado de las poblaciones de peces en el archipiélago, así como conocer las zonas más vulnerables y que requieren de un mayor grado de

protección. Por otro lado, y debido al gran tamaño del archipiélago que hace imposible que la base de la Marina vigile toda la zona, las embarcaciones de pesca deportiva han sido un factor importante para cooperar en la vigilancia, denunciando a las embarcaciones de pesca comercial que se adentra a esta zona o a las de pesca deportiva que que no cumplen con los reglamentos ya establecidos.
El Archipiélago Revillagigedo, es famoso por sus enormes manta rayas, tiburones ballena y espectaculares cardúmenes de atunes y tiburones y es considerado como uno de los destinos de buceo más importantes del mundo, solamente comparable a Cocos en Costa Rica, lugar que se ha logrado conservar gracias a los esfuerzos de conservación que ha realizado su gobierno.
De no tomarse medidas para conservar todo este patrimonio, se perderá un capital natural invaluable. Si no se detiene la pesca comercial en esta zona y si no se aplican leyes para protegerlas, las Revillagigedos será famosas por ser un magnífico ejemplo de las maravillas marinas perdidas por una falta de visión del manejo de las pesquerías.

Antecedentes:

La información y las observaciones utilizadas en la elaboración de este reporte se obtuvieron de entrevistas con personas que nos relatan sus experiencias en estas aguas en los últimos 25 años[1].
Esta información, aunque anecdótica, proviene de fuentes confiables, de personas que han pasado la mayor parte de su vida buceando y cazando en las aguas del mundo. Aquí hacemos una recopilación acerca de sus conocimientos sobre el estado de la pesca en las Islas. Esta información proviene de innumerables buceadas en las Islas de Socorro, San Benedicto, Roca Partida y de buceo más limitado en Clarión:

Dr. Terry Maas: Terry es Campeón Mundial de buceo libre; es también cazador y fotógrafo submarino y ha escrito varios libros sobre buceo libre. Ha buceado durante 19 años en las Islas Revillagigedo y tiene más de 1000 horas bajo el agua.
"Prefiero cazar en el agua conteniendo la respiración. Con frecuencia pasamos hasta 8 horas en al agua. Cuando uso el arpón, generalmente cazo uno o dos peces por viaje. Gracias a mi habilidad y a que paso mucho tiempo en el agua, he podido observar a la naturaleza como poca gente lo

[1] Los buzos cuyas observaciones citamos aquí, han pasado los últimos 25 años, más de 15,000 horas bajo el agua alrededor de Socorro, Benedicto, Roca Partida y Clarión

ha hecho. Durante 19 años he notado un continuo y dramático descenso en la vida marina del archipiélago."
"Recuerdo estar nadando con miles de wahoos. Estos peces, curiosos por naturaleza, con frecuencia se nos acercaban cuando nos veían desde lejos. Si hay algún wahoo cerca, lo veo. En la actualidad, con suerte veré 10 peces pequeños durante todo un día, mientras que en 1984 cada vez que me sumergía – aguantando la respiración – veía 20 peces grandes. Las poblaciones de wahoos han bajado aproximadamente un 80% desde 1984. La disminución en las poblaciones de atún de aleta amarilla es dramática. Yo diría que han disminuido un 75%. Recuerdo haber visto cardúmenes de atún tan grandes que tardaban hasta 10 minutos en pasar. No he visto una escuela de ese tamaño en 10 años. Hemos perfeccionado nuestro conocimiento de las islas locales, lo que nos permite cazar en las mejores áreas. A pesar de que ahora sabemos más, cada año vemos menos peces. Los atunes grandes ya no están y los pequeños son menos. Mientras que todavía veo bastantes tiburones, sus poblaciones han disminuido en un 50% y es muy común encontrarlos con heridas en la boca causadas por anzuelos."

Dr. Daryl Wong: Daryl ha practicado el buceo libre durante 25 años en Hawai; comenzó a hacerlo en las Islas Revillagigedo hace 10 años. Cuenta con 500 horas bajo el agua. *"Cuando vine por primera vez a las Islas, hace 8 años, era un lugar precioso aunque ya empezaba a cambiar debido a la intensa presión de los barcos de pesca deportiva. Ya que normalmente matamos un pez por persona por viaje, no me imaginaba lo mal que estaban las cosas hasta hace dos años cuando fui a las Islas en el Capitán Villegas. Echaban 9 pangas al agua y troleaban todo el día, mientras que varios miembros de la tripulación pescaban desde la embarcación grande. Después mataban todo lo que habían capturado, aunque el pescador quisiera liberar al animal. Tiburones, wahoos, atunes y todos los peces de arrecife como los meros y los jaureles. Incluso le pedían a los buzos que les trajeran dos grandes bolsas de langostas. Fue hasta que regresamos a Cabo que supe la razón por la que mataban todo: La remuneración económica de la tripulación de 18 hombres consistía solo de las propinas y del dinero que obtenían de la venta de los pescados en Cabo. Me dijeron que vendían más de una tonelada en filetes, aunque nunca lo corroboré."*

Bob Caruso: Bob trabaja en una farmacia en San Diego y ha estado buceando en las Islas Revillagigedo desde 1981. *"He visto como las poblaciones de wahoo y atún han disminuido de manera dramática. Hace 20 años, cada vez que íbamos a las Islas, era común ver atunes de entre 250 a 300 libras. Hace 10 años que no veo uno de*

300 libras. Ahora es emocionante encontrarte con uno de 150 libras. A principios de los 80´s era común ver wahoos de 70-80 libras. Ahora tienes suerte de encontrarte uno de 50 libras y el promedio es de aproximadamente 20 libras. Las embarcaciones deportivas pescan en exceso a los wahoos. En 5 años ya no va a quedar nada"

Mike McGettigan: Fundador de "Sea Watch", pescador apasionado y practicante del buceo libre. Ha ido a las Islas desde 1977 a donde ha ido más de 130 veces. Fue una de las primeras personas en bucear en esta área, a la que conoce muy bien, y ha trabajado intensamente para conseguir que se les de protección a las famosas Mantas Gigantes que habitan en estas Islas. *"Cuando llegué allí, hace 25 años, entrar al agua era una experiencia terrorífica. Con frecuencia te rodeaban varios cientos de tiburones y en tu campo visual había hasta 100 wahoos. Cardúmenes de atún de varias millas de longitud nadaban contigo hasta que te cansabas de verlas. El atún ha estado*

Tamaño promedio del wahoo en el 2001

disminuyendo año con año, incluso desde entonces, cuando ya había una fuerte presión por parte de los barcos atuneros en estas aguas. A fines de los 80´s los wahoos comenzaban a volverse más pequeños, pero la disminución principal se ha dado ahora que más y más yates extraen los pocos peces que todavía quedan. Un yate que pesca en este lugar durante 5-6 días con frecuencia regresa con un tope legal de 100 a 125 wahoos. En los últimos 5 años solamente, el número de wahoos que vemos cuando buceamos ha disminuido cuando menos un 40-50% y el tamaño promedio ha bajado a 20 libras de las 45–50 libras que pesaban hace 5 años. Las poblaciones de wahoos han bajado 70-80% desde 1977, año en que visité por primera vez las Islas. Los atunes también han disminuido, aunque lo que les sucede a estos peces no es tan evidente. Los atunes son menos y más pequeños cada año. Los peces de 200 a 300 libras ya no existen en las Islas interiores, los de 150 a 200 libras son ahora escasos. Yo pensaría que estas disminuciones reflejan una presión comercial intensa sobre las poblaciones de atún de aleta amarilla de Pacífico oriental que están siendo interceptadas antes de llegar a las Islas. No vemos tanta presión sobre los atunes por parte de los yates. ***De continuar el mismo ritmo de disminución de wahoos que hemos notado en los últimos 5 años en las Revillagigedo, éstos desaparecerán en los próximos 5 años****. Los wahoos que emigran hacia las Islas y que han estado aumentando el número de las poblaciones también están presionados por parte de los barcos de 25*

pasajeros que vienen de lejos. Estas embarcaciones cada vez se adentran más y más, hasta lugares como Hurricane Bank, en busca de wahoos."

Ron Mullins: Ron es fotógrafo submarino y practica el buceo libre; cuenta con más de 500 horas bajo el agua en los 17 años en que ha estado buceando en las Islas Revillagigedo. *"Hace 17 años había grandes cardúmenes –con unos 1000 peces - de atún de aleta amarilla de 5-10 libras. Hace 17 años era común encontrarte con un atún de aleta amarilla de 200 libras; actualmente casi no se ven. Los wahoos han disminuido dramáticamente, más o menos 75% en números y 40% en tamaño. Los yates los pescan en demasía. Los tiburones también están disminuyendo y a veces te los encuentras con anzuelos en la boca. La situación en las Islas es crítica. A menos que se reduzca drásticamente el número de peces que se extrae, en algunos años no quedará ninguno."*

Brian Quinn: Ha estado practicando el buceo libre en las Islas Revillagigedo desde 1994 y ha pasado más de 400 horas en el agua en busca de un pez que rompa un record mundial. *"Estoy sorprendido por lo frágiles que son los ecosistemas de estas Islas. En 8 años, las poblaciones de wahoo han disminuido dramáticamente tanto en tamaño como en cantidad en todos lados. Cuando empecé a bucear en estas aguas, el tamaño promedio era de 40-50 libras y ahora es de 20-30 libras. Los atunes son también más pequeños y hay menos. Ya casi no quedan atunes de aleta amarilla de 150 a 200 libras y los tiburones también son menos y se identifican fácilmente por los sedales y anzuelos que tienen atorados en la boca.*

Brian Yoshikawa: Ha estado buceando y cazando con arpón desde que tenía 7 años en 1972. Bucea en Hawai y ha pasado mucho tiempo buceando alrededor del mundo, como Micronesia, Tahití y las Islas Revillagigedo. Ha pasado más de 700 horas en las aguas alrededor de las Islas. *"En los últimos 10 años el tamaño promedio de los wahoos ha bajado de 50 a 25 libras y sus números han disminuido en un 40-50%. Ya no quedan peces realmente grandes (de más de 250 libras); ahora tienes suerte si ves un pez de 200 libras en una semana de buceo, mientras que hace 10 años habrías visto hasta 100. Hace 10 años había cardúmenes de atún que se tardaban hasta 10 minutos en pasar. Ahora quedan pocos peces en las cardúmenes. El aumento en la presión ejercida por la pesca en las islas interiores*

ha dejado aproximadamente el 50% de los tiburones nadando con sedales y anzuelos atorados en la boca."

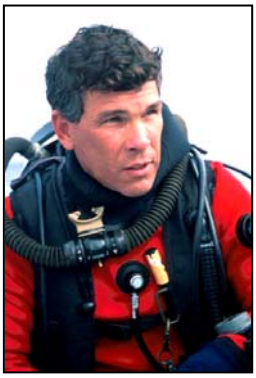
Gerald Lim: Gerald ha practicado el buceo libre durante 20 años y ha buceado en las Islas Revillagigedo durante los últimos diez años. Ha pasado más de 1000 horas en el agua en esta región. *"He buceado en el SE de Asia, Australia, el Adriático, Tahití, México y los EUA y he participado en dos Campeonatos Nacionales. Soy odontólogo y trabajo en Redlands, California."*

"Observaciones: Durante los 20 años en que he practicado el buceo libre alrededor del mundo, el buceo más increíble que he hecho ha sido en las Islas Revillagigedo. Estas islas tienen una variedad de animales grandes como ballenas, marlines, atún de aleta amarilla, mantas gigantes y delfines como no he visto en ninguna otra parte del mundo. ¡Pero eso era antes!

En los últimos 5 años ha habido una disminución dramática de tiburones martillo y Galápagos. Ha habido una disminución importante en los peces del arrecife en los últimos 3 a 5 años. Los jureles y chopas han disminuido en un 30-40%. Hace 10 años nunca le hubieras disparado a un atún de aleta amarilla de menos de 200 libras y ahora tienes suerte si te encuentras uno de más de 100 libras. Ha habido una disminución dramática tanto en el número de atunes como en su tamaño. Lo mismo sucede con los wahoos. Cuando antes veías varios cientos en un viaje de 9 días hace 10 años, hoy sólo se ven unos cuantos y son mucho más pequeños, pesan unas 20-30 libras."

Derek Stavenger: Derek ha practicado el buceo libre en aguas mexicanas y californianas durante 25 años y en las Islas Revillagigedo durante los últimos 8; tiene más de 500 horas de buceo libre en las aguas de las Islas. *"A pesar de que no es mucho el tiempo durante el cual he buceado alrededor de las Islas, he visto reducciones dramáticas en las poblaciones de peces. Cuando empecé a bucear en esta región, veíamos entre 20-60 wahoos grandes, de 80 libras en un solo día de buceo. Hoy nos consideramos afortunados si vemos 20 peces pequeños en un día. Los wahoos están terriblemente sobre-explotados. La situación de los atunes es aún peor. En general, quedan muy pocos peces grandes de más de 150 libras. Todavía más dramática es la reducción en el tamaño promedio de los peces. Ahora se ven cardúmenes pequeñas de peces de 10-40 libras cuando antes eran cardúmenes de peces de 120 lb. "*

José Maciel*:* Es buzo de la Marina Mexicana y ha cumplido con sus servicios en las Islas Revillagigedo desde 1993; él se encarga del barco de pesca y buceo de la Marina y conoce muy bien las aguas de Socorro. José comenta: *"cuando llegué aquí, los wahoo medían de 1.5 a 2 metros de largo y pesaban entre 20 a 30 kilos. El otro día fuimos de pesca durante 7 horas (de 8 am a 3 pm) y sacamos un wahoo durante todo ese tiempo. Ya quedan muy pocos wahoo y muy pequeños"*



Howard Hall: Su carrera como productor de documentales de historia subacuática natural, cinematógrafo, fotógrafo y escritor, comenzó a principios de 1970. Es un reconocido editor en el ***International Wildlife Magazine,*** miembro editor asociado para el ***Ocean Realm Magazine***, y pertenece al consejo de ***Fathoms Magazine.*** Sus fotografías han sido publicadas en gran cantidad de libros y revistas internacionales, entre ellas ***Life, Natural History Magazine, National Geographic, GEO, Terre Sauvage, London Illustrated News, and BBC Wildlife.*** Howard ha escrito, entre otros libros ***Sharks, Dolphins, The Kelp Forest, Successful Underwater Photography,*** y ***Secrets of the Ocean Realm.*** Ha ganado seis premios Emmy y ha trabajado en más de un centenar de proyectos fílmicos subacuáticos. Howard ha producido y/o dirigido numerosos documentales para televisión sobre historia natural merecedoras de premios, entre ellos uno para ***National Geographic Special*** y dos episodios de las series de ***Nature***. En trabajo conjunto con su esposa, la productora Michele Hall, Howard también dirigió la serie de 5 horas de ***Secrets of the Ocean Realm.*** Probablemente, Howard es más conocido por sus películas subacuáticas IMAX®. En 1994 dirigió el IMAX 3D, ***Into the Deep*** y en 1998 la película IMAX, ***Island of the Sharks,*** proyecto de Howard Hall Productions producido por Michele Hall.

Howard comenta sobre el Mar de Cortés y sus islas: *"En 1980 llevé a México un grupo de personas de ABC para realizar un episodio para el programa Deportistas Americanos sobre la espectacular vida marina alrededor del monte marino Marisula, mejor conocido como el "El Bajo", localizado al norte de la Paz; aparecían Peter Benchley, autor de la película "Tiburón" y su viejo amigo Stan Waterman buceando con las mantas gigantes y nadando entre espectaculas*

cardúmenes de tiburón martillo. La expedición para realizar el rodaje duró dos semanas, durante las cuales vimos docenas de enormes manta rayas y en muchas ocasiones nos quedamos sorprendidos al ver grandes cardúmenes de más de 300 tiburones martillo. La película ganó un premio Emmy y durante varios meses después de su realización, fotografías de las manta rayas en el Mar de Cortés aparecieron en el National Geographic, en la portada del Skin Diver Magazine, y en docenas de publicaciones mundiales. En muy poco tiempo, "El Bajo" se convirtió en el lugar de buceo más espectacular del mundo; su repentina popularidad detonó la creación de muchos viajes de buceo para llevar a los buzos a conocer estas maravillas de lugares. Ahora todo eso se acabó. Los barcos de pesca comercial descubrieron "El Bajo" y en unos pocos años, sus redes han matado a prácticamente todas las manta rayas y tuburones martillos que hacían que este lugar fuera el más famoso y espectaculoar del mundo. Hoy día, pocos buzos hablan de "El Bajo" y ya no es considerado como un buen lugar de buceo, aunque los barcos de buceo se detienen allí sin esperar ver nada más que algunas anguilas y peces mariposa.

Aún así, México continua siendo un destino importante para el buceo deportivo. Las Islas Revillagigedo son famosas por sus enormes manta rayas, tiburones ballena y sus especutaculares cardúmenes de atunes y tiburones. Pocos lugares en la Tierra poseen las maravillas de las Islas Revillagigedo y ningún buzo puede considerar que conoce todos los lugares importantes de buceo si aún no ha visitado estas islas. Solamente la Isla de Cocos en Costa Rica, compite con la majestad de las Islas Revillagigedo. Cientos de buzos visitan anualmente Cocos para nadar y fotografiar sus sorprendentes cardúmenes de tiburón martillo. Costa Rica ha decretado a Cocos como un Parque Marino Nacional y es Patrimonio de la Humanidad. Para proteger este recurso invaluable, Costa Rica prohibió toda la pesca alrededor de la isla. No obstante, el gobierno de Costa Rica lucha en contra de la corrupción que existe en la pesca comercial y actividades ilegales, y ha logrado proteger Cocos de la depredación que ocacionan este tipo de actividades que ha terminado con la riqueza natural que poseen lugares como "El Bajo". Hoy día, la riqueza natural de la Isla de Cocos es tan espectacular como lo fue hace más de diez años. Ciertamente, las Islas Revillagigedo merecen que el gobierno les de la misma protección que la que posee Cocos. Si la pesca comercial es prohibida en las Islas Revillagigedo y se aplican leyes para protegerlas, estas islas se conservarán para las generaciones actuales y futuras y seguirán siendo famosas por su riqueza natural. Si la pesca comercial es permitida en las Islas Revillagigedo, aunque sea por un tiempo más, sus espectaculares cardúmenes de atún, tiburón y sus magníficas manta rayas correrán con la misma suerte que las que existieron en el "El Bajo" y estas islas solamente serán famosas por ser un magnífico ejemplo de las maravillas marinas perdidas por una falta de visión del manejo de las pequerías"

Otros factores que afectan los bancos de pescado y los ecosistemas de las Islas

Las embarcaciones que trolean causan problemas a las mantas gigantes: Las poblaciones de mantas gigantes se han mantenido constantes alrededor de las Islas durante los últimos 10 años. Se han catalogado a más de 125 de estos animales sólo en San Benedicto. El número de yates ha aumentado alrededor de esta área por lo que estos animales de gran tamaño, que se alimentan en la superficie, están en constante peligro: tienen que sumergirse rápidamente para evitar que las hélices los hieran o maten. La entrada reciente de yates, especialmente el Capitán Villegas y sus 9 pangas, y las embarcaciones más pequeñas - SAC – de San Diego, que trabajan alrededor de las 3 islas interiores están causando muchos problemas para estas mantas gigantes de 1 tonelada. Una manta fue herida de gravedad por la hélice de un barco en el año 2000. Desde entonces no ha sido visto y es muy probable que esta muerta.

Las aves atrapadas con las carnadas de las embarcaciones son un problema: Los pájaros bobos jóvenes de la Isla de San Benedicto con frecuencia se ahogan al quedar atrapados con los anzuelos con carnada de las embarcaciones que trolean.

Existe un gran problema con los tiburones que quedan atrapados por los anzuelos: Los tiburones se comen aproximadamente entre el 30 y el 40% del wahoo y el atún que queda enganchado con las carnadas de los barcos que trolean utilizando anzuelos de los llamados "*marauders*" o "*speedsters*". Estos tiburones tendrán muy poca probabilidad de sobrevivir. En San Benedicto, entre el 15 y el 25% tiene anzuelos y sedales enganchados en su boca.

Los ecosistemas en las Islas son muy frágiles y no soportan una presión sostenida e intensa de pesca: Un buen ejemplo de una especie que sale perdiendo en este frágil ecosistema es el pez consentido, el wahoo. En las Islas, las poblaciones de este pez han sido diezmadas, bajando en un 70-80%

desde finales de los 70´s. Hemos hecho un análisis (Figura A) para determinar aproximadamente el número de wahoos que existen alrededor de la Isla de San Benedicto. Este análisis demuestra que hay aproximadamente 350 (+/-100%) wahoos en cualquier momento dado alrededor de San Benedicto[2]. Dos embarcaciones pescando durante 10 días podría capturar un gran porcentaje de estos peces. Debería haber días de descanso entre los días de pesca ya que los wahoos aprenden rápidamente a evitar los anzuelos. Lo importante es que dos embarcaciones pescando durante 10 días causarían un fuerte impacto sobre la población de wahoos en toda la Isla. Actualmente hay permisos para 34 embarcaciones, que transportan a más de 2500 pescadores deportivos durante un total de aproximadamente 800 días durante esta estación en las Islas[3]. Debería ser evidente que las poblaciones de peces no soportarán este tipo de presión[4].

Pesca excesiva por pescadores de yates de Cabo y barcos de pesca deportiva para 25 pasajeros que vienen desde San Diego: Durante esta estación el gobierno mexicano ha otorgado permisos a aproximadamente 34 embarcaciones que transportan a más de 2500 pescadores amateurs a pescar a la reserva marina de Revillagigedo durante más de 800 días. Bajo el reglamento de pesca mexicano actual los pescadores amateurs pueden pescar legalmente en las Islas Revillagigedo durante esta estación: más de 37,000 wahoos, 37,000 atunes, 37,000 meros, etc., etc., Pueden llevarse más de 37,000 individuos de cualquier especie que viva en la reserva (los dorados no viven aquí). ¡No es de sorprenderse que la mayoría de las especies de peces en las Islas se encuentran en serios problemas!

Embarcaciones comerciales que pescan en la reserva: Siete embarcaciones que colocaron redes agalleras admitieron diezmar la reserva en mayo del 2000 cuando capturaron más de 2000 tiburones. Embarcaciones pequeñas como el **Mazatleco** que se muestra aquí, colocando este tipo de redes 1.5 Km. al norte de San Benedicto pueden obtener

[2] El mapa anexo de las Islas, indica todos los lugares en los que normalmente se encuentran los wahoos. Hemos pescado y buceado en todos estos puntos entre 3 y 5 veces por año durante los últimos 20 años. Pensamos que la información que recopilamos, aunque es anecdótica, es correcta más o menos en un 100% dependiendo de las condiciones y la época del año de que se trate

[3] Figura 2. 2001
figuras incompletes de Semarnat para los barcos de Cabo y San Diego. Seguimos necesitando los nombres de los barcos y los viajes que salieron desde Manzanillo y Puerto Vallarta.

[4] Datos sobre el wahoo recopilados del 12/01 –12/8/01 durante un viaje de pesca a las islas.

$100.00 dólares americanos por cada tiburón. Estas 7 embarcaciones en las Islas obtenían ganancias de más de $15,000 dólares americanos por día. Grandes barcos atuneros continúan capturando peces en Clarión y Roca Partida impunemente, aunque la mayor parte del tiempo se mantiene alejados de las 3 islas interiores. Barcos palangreros como el **Blufin**, cuya fotografía aparece a la derecha (tomada a 1.92 millas de San Benedicto el 3/10/02). Ciertos barcos que han visitado las islas informaron que vieron al Blufin trabajando insistentemente en el archipiélago.

Resumen y conclusiones

Cada reserva de la biosfera debe de contar con un plan de manejo. Al carecer de este, dichas zonas son sometidas a lo que establece la Ley General del Equilibrio Ecológico y la Protección al Ambiente, en donde se prohibe extraer cualquier tipo de recurso natural de las zonas núcleo de las resevas. De acuerdo con esto, el 3/27/02 él la Profepa cerró la zona núcleo de la Reserva de la Biosfera Revillagigedo a cualquier tipo de actividad extractiva y se prohibió la pesca en la zona núcleo que se extiende a 4-5 millas desde las islas. Esto parará por completo la pesca en el áreas ya que los peces se encuentran a máximo 2 millas de las islas. Si en un futuro se recuperan las poblaciones de peces y si se permitieran actividades de pesca sustentable, Sea Watch recomendaría que:

1. **Lo más importante – Prohibir que se "trolee" en las islas. ¡Esta acción sería la que causaría un mayor impacto positivo! Cualquier tipo de pesca tendría que hacerse desde una nave anclada. Si la multa por trolear fuera alta y la prohibición fuera respetada, inmediatamente notaríamos que:**
   - a no se molestaría a las Mantas Gigantes ya que ninguna embarcación estaría troleando alrededor de las Islas.
   - Se eliminaría la presión sobre los wahoos ya que 90% de estos se capturan por embarcaciones que están troleando.
   - Se eliminarían embarcaciones extremadamente destructivas como la "Capitán Villegas" que poseen un permiso y son 9 embarcaciones las que pescan, todas ellas de alta velocidad, que trolean una y otra vez alrededor de las Islas.
   - No habría problemas con las embarcaciones deportivas que vienen desde lejos y que actualmente pescan mientras están ancladas. Estas se dirigen al Banco "Huracán" (Hurricane Bank) en busca de wahoos, una vez allí, trolean para obtenerla.
   - Se terminaría con la matanza de pájaros bobos que buscan alimento cerca de las embarcaciones que trolean en la Isla San Benedicto.

- También se terminaría con la matanza de tiburones quienes se enganchan en las carnadas artificiales o señuelos. Desde una embarcación anclada los tiburones se seguirán enganchando con los anzuelos, pero sólo con carnadas vivas que generalmente no los matan.

2. **Reducir inmediatamente la cantidad de peces que se pueden extraer de las Islas**
   - Reducir el número de wahoos de 5 por pescador por viaje. Esto permitirá a un yate privado con 6 pasajeros, sacar 30 wahoos.
   - Reducir los atunes a 5 por pescador por viaje. De este modo serán liberados los peces pequeños y al mismo tiempo se permitirá la pesca de 45 atunes por yate privado y 150 atunes a aquellos que vienen de lejos y que son para 25 pasajeros. Esta medida inconformará a éstos últimos barcos, pero si conservan atunes de más de 100 libras o más, esto equivaldría a más de 15,000 libras de atún por viaje. ¡Lo que es más que suficiente! Los días de atiborrar hasta el límite al barco con más de 30,000-40,000 libras de pescado por viaje pertenecen al pasado.

3. **Eliminar la pesca de todos los tiburones y de los peces de arrecife:**
   - Embarcaciones como el Capitán Villegas (a la venta), así como los yates, están matando tiburones, cuando estos animales se enganchan con el señuelo de madera el cual no puede ser recuperado sin matar al tiburón. Dos yates de Cabo mataron más de 100 meros el año pasado en un viaje de 5 días. Es necesario implementar una legislación inmediatamente para evitar la captura de cualquier pez de arrecife.

4. **Sagarpa debe de revisar los barcos que regresen de las Islas a Cabo:**
   - Establecer un sistema de conteo, pesos y medidas de los pescados que permitiera medir el estado del de la pesca, así como monitorear los efectos de estas actividades y realizar un contéo de tiburones, aves y peces capturados.[5]

5. **La vigilancia es un punto importante al hacer el plan de manejo de la Reserva:**
   - Lo más sencillo sería decir "que se cierren las islas a cualquier tipo de actividad". Esto sería un gran error ya que la pesca deportiva ha jugado un papel importante en la vigilancia de la zona, cuidando que no entren embarcaciones de pesca comercial y denunciando a las embarcaciones de pesca deportiva que pescan indiscriminadamente. El permitir la pesca de 5

[5] En la figura 4 se anexa una forma para el conteo de wahoo. Lo mismo podría ser establecido para el atún. Con el fin de evitar errores, es necesario llevar las formas de wahoo y de atún por separado.

especies pelágicas por viaje por pasajero, es prácticamente nada comparada con el daño que causaría dejar estas islas sin la protección y vigilancia que durante años han realizado las embarcaciones de pesca deportiva y que, como ya pasó hace muchos años, que las islas nuevamente se vuelvan susceptibles al daño que causó la pesca comercial en otros tiempos. Conservar la naturaleza significa usar con responsabilidad. Desde hace años, los primeros que han visto y denunciado la disminución de las poblaciones de las especies, y que han buscado las formas para recuperarlas han sido los pescadores deportivos que llegan a esta zona. Eliminar su cuidadosa vigilancia sería suprimir los intereses de personas que se han preocupado por conservar este maravilloso lugar. Su presencia es un factor primordial para detener la entrada y el saqueo que la pesca comercial podría causar.

Conclusiones*:* El 3/27/02 el Gobierno Mexicano detuvo toda la pesca en las Islas Revillagigedo. Sólo el tiempo dirá si esta decision ayudará a detener la disminución de las pesquerías o abrirá más la puerta para los barcos palangreros a a las redes de amallar. Sospechamos que puede ocurrir esto ultimo, ya que la Marina no tiene los recursos para vigilar adecuadamente el area y la mayoría de las denuncias han sido realizadas por los barcos de pesca deportiva y buceo. A pesar de todo, recomentamos que se comiencen a hacer estudios de las poblaciones de los peces en las islas. Las actuales poblaciones deben de ser medidas para poder ver en un futuro el estado de recuperación de las pesquerías. Lo que ocurrió con la reducción actual de las pesquerías fue el total desconocimiento de las poblaciones de los peces migratorios y la presión que podían soportar. Aun así, pensamos que por simple lógica las autoridades deberían de haber visto que miles de pescadores con permisos para matar docenas de miles de peces en 30 millas cuadradas, iban a causar gran daño e iba a ser imposible mantener sano el estado de las pesquerías.

FIGURA A: Los puntos indican los principales lugares en donde se capturan los wahoos en la Isla San Benedicto. El número junto al punto indica el número promedio de wahoos que se ha visto en las cercanías de los puntos. En realidad podría haber el doble de animales. El objeto de este ejercicio es demostrar que el número de peces es bajo cuando se permite a más de 2500 pescadores al año visitar este lugar, con permisos para matar a más de 37,000 wahoos, 37,000 tuna y 37,000 de todo otro especies que viven in las Islas.

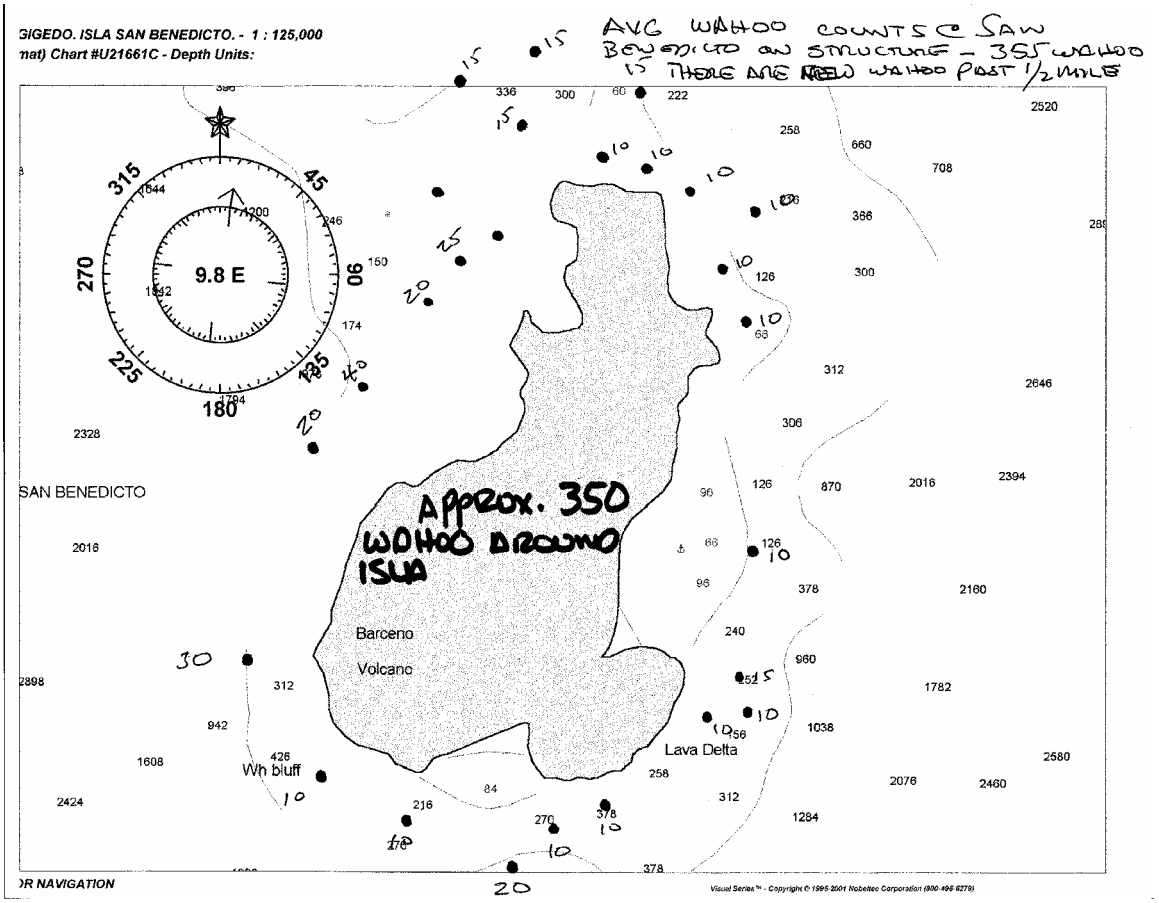


FIGURA B: Viajes a las Islas en 2001 y 2002 de embarcaciones originarias de Cabo y San Diego. Sobre 135 viajes con sobre 2500 pescadores.

NOMBRE EMBARCACION	No. DE VIAJES	NO. DE PASAJERO	ACTIVIDAD	PERIODO
FIN-ATIC	1	2	PESCA Y BUCEO	26-30 MAY/01
AVENGER	2	24	REC. TURIST. Y BUCEO	02 MAY-07 NOV/01
CACHT-ONE	2	2	PESCA Y BUCEO	09-12 ABR/01
CAPTAN VILLEGAS	9	50	PESCA Y BUCEO	04 MAR/01-17 MZO/02
CHALLENGE II	2	2	PESCA Y BUCEO	03 MZO AL 22 ABR/01
ACACIA	1	2	PESCA Y BUCEO	04-09 MZO/01
SWISS MIST	1	3	PESCA	15-25 MZO/01
TIGRESS	1	1	PESCA Y BUCEO	15 ABR-15 DIC/01
HOKED ON A FEELING	4	8	PESCA	09 FEB-30 MZO/01
RETRIEVER	4	8	PESCA	01 ABR-15 DIC/01
GRUMMAN ALBATROS	4	16	FILM. C/FINES CULT.	09 MAR-31 DIC/01
BLUE THUNDER	1	1	PESCA	10-15 ABR/01
FELINA	8	80	REC. TURIST Y PESCA	01 NOV/01-15 JUN/02
INTERNATIONAL STAR	7	70	"	02 NOV/01-23 MZO/02
MEGALODON	1	6	"	18-24 NOV/01
BREEZERS	3	18	"	23 NOV/01-02 JUN/02
BAJA DREAM	1	6	"	27 NOV-04 DIC/01
SILVERADO	4	40	"	08 FEB/01-30 ABR/02
COUNTER ATTACK	4	24	"	01 DIC/01-19 MAY/02
SPIRIT OF ADVENTURE	1	41	"	20-29 ABR/02
RED ROOSTER III	6	240	"	24 OCT/01-15 ABR/02
SHOGUN	6	198	"	01 FEB-12 MAY/02
SEARCHER	6	66	"	15 NOV/01-19 ABR/02
QUALIFIER 105	8	352	"	23 NOV/01-26 MAY/02
AMERICAN ANGLER	1	41	"	12-21 ENE/02
EXCEL	6	258	"	27 NOV/01-20 MAY/02
ROYAL POLARIS	8	336	"	05 DIC/01-25 MAY/02
ROYAL STAR	8	224	"	26 DIC/01-22 MAY/02
POLARIS SUPREME	8	272	"	28 DIC/01-13 JUN/02
RED ROOSTER	1	42	"	03-12 JUN/02
DELUSIONS	1	4	PESCA Y BUCEO	01 NOV/01-31 ENE/02
BLUE CHABLIS	1	2	BUCEO	01 DIC/01-31 ENE/02
SPIRIT QUEST	1	6	BUCEO	10 NOV/01-15 FEB/02
AMBAR III	7	70	SNORQUEL Y SCUBA	12 NOV/01-04 JUN/02
CORAL ISLAND	2	56	REC. TURIST. Y BUCEO	14 NOV-26 NOV/01
OREA	1	4	BUCEO	01 ENE-25 ENE/02
STORM HAVEN	1	4	BUCEO	01 ENE-31 MZO/02

Figura 3

Captura de wahoo en el viaje de Diciembre 1 – 8 del 2001 a las Islas Revillagigedo.

Tipo de pez Peso en Lbs. (kilos) Lugar

Wahoo	16	San Benedicto
Wahoo	23	San Benedicto
Wahoo	18	San Benedicto
Wahoo	30	San Benedicto
Wahoo	18	San Benedicto
Wahoo	20	Socorro South end
Wahoo	16	Socorro South end
Wahoo	21	Socorro South end
Wahoo	34	Socorro South end
Wahoo	42	Socorro North end
Wahoo	32	Socorro North end
Wahoo	21	Socorro North end
Wahoo	35	Socorro North end
Wahoo	35	Socorro North end
Wahoo	18	Socorro North end
Wahoo	35	Socorro North end
16 total	**394/16 = 24.62 lbs**	

- ***Peso promedio = 24.62 lbs***
- ***Peso promedio en San Benedicto = 21.00 lbs***
- ***Peso promedio al sur de Socorro = 22.75 lbs***
- ***Peso promedio al norte de North Socorro = 31.14 lbs***
- **Peso promedio de un wahoo por cada dos horas de pesca.**

Al norte de Socorro los wahoo fueron más grande debido a que existe poca presión por los vientos prevalecientes.

Figura 4
Forma para el reporte de wahoo

Captura de wahoo durante el viaje de pesca a las Islas Revillagigedo

- Día de llegada a las Islas: Día de salida de las Islas:
- Número de horas de troleo durante el viaje:

Tipo de Pez	Peso en libras	Lugar de captura

El propósito de esta información es recolectar datos sobre el tamaño de los wahoo capturados en diferentes lugares del archipiélago (San Benedicto, Roca Partida, Clarion, Socorro, tomados de norte, sur o por lugar: i.e., Pearse, Tasca, Flats, etc.). Favor de enviar esta forma a su regreso a: PIER – 1400 North Pacific Street - Oceanside, CA 92054. Gracias por su colaboración.

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An Eyewitness Account of The SeaWatch Visit To Los Revillagegido Islands - March 2002 -

Howard Hall Productions

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March 25, 2002

Mike McGettigan
Sea Watch
3939 N Marine Dr. #12
Portland, OR 97217

Dear Mike:

I found our March trip to Los Revillagegido Islands disturbing. During our two weeks diving at the islands, I saw only one shark at Socorro, six sharks at Partida, and no sharks at Benedicto. It can certainly

be argued that the extraordinarily few number of sharks sighted during this expedition was the result of seasonal or migratory variation and I believe that this is true in part. I'm sure that during future expeditions, divers will see more sharks than we did due to this kind of seasonal or migratory variation. However, I am absolutely convinced that the primary reason we saw so few sharks was that commercial long-line fishing and drift gill net fishing have decimated the shark populations. The best evidence for this conviction is that, during our stay at Benedicto, we witnessed a Mexican commercial long-line fishing boat (The Bluefin) pulling its 70 mile long-line just two miles offshore from the island. Knowing how efficiently a commercial long-line boat can completely remove a population of sharks from a habitat, I immediately understood why we saw no sharks at Benedicto Island.

Sharks were not the only animals conspicuously absent at the Islands during our expedition. I saw only one wahoo, two yellowfin tuna, and surprisingly small numbers of schooling bigeye jacks. Ten years ago, when I last visited the islands, I saw schools of yellowfin tuna and bigeye jacks numbering in the thousands, and I saw dozens of wahoo hovering over offshore pinnacles.

During our expedition it became obvious to me that making a film that celebrates the spectacular numbers of large predators at the Revillagigedo Islands may not be practical. Commercial fishing pressure has already damaged the populations of predators there. Unless commercial long-line and gill net fishing laws restricting fishing near these islands are more effectively enforced, I fear there will soon be little left to film at the Revillagigedo Islands.

The good news is that the beautiful Pacific manta rays were still plentiful at Benedicto and Socorro. These wonderful animals still qualify the Revillagigedo Islands as a world class diving destination. But the population of mantas is also at risk. If illegal commercial drift gill net boats manage to avoid enforcement of existing laws or consider potential fines only the cost of doing business, the Revillagigedo manta rays could be wiped out in a matter of months. I've seen this happen before. In 1981 the Marisula Seamount in the Sea of Cortez was home to dozens of manta rays and the site was considered one of the best diving locations in the world. Then commercial gill net boats set their nets on the Seamount. After only a few weeks of fishing, the mantas were gone and they have never returned. I hope this doesn't happen to the Revillagigedo manta rays.

Thank you for being the "eyes" that help enforce the fishing laws at the Revillagigedo Islands. With your help and with increased Mexican government commitment to enforcement of fishing laws, I hope the predators and mantas of the Islands can be saved.

Sincerely,

Howard Hall

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Where Have All the Pelagics Gone?

The following interviews have been done with fishermen and divers who are familiar with the fishing decline in the Revillagigedo Islands in the Pacific Ocean off the Baja. The fishermen that have been out working in the seas for the last 20 to 30 years are often seeing a completely different ocean than are the scientists and administrators of the NMFS and the eight Regional Fish Counsels that control the US fisheries, the Department of PESCA and the INP (Instituto National de PESCA) that control fisheries and fisheries science in Mexico. The fish management and science in both countries are and have been controlled by those favoring commercial interests. The Highly Migratory Species Advisory Subpanel now considering longlines in California has 13 members 9 are from the commercial fishing Industry.

The people who fish daily in the ocean know when sealife disappears. They are constantly using their eyes for life signs in the ocean to tell where the fish are. When those life signs disappear it is the fishermen, not the scientists who know it first. In the last 25 years the scientists and fish managers have continually got it wrong. We have to put more faith in the empirical data that our fishermen are giving us and take back what's left of our ocean resources from those that will continue the destructive fish
management policies of the past.

Brian Quinn

Brian Quinn

Q: What is your fishing background?

A: I have been freediving the Revillagigedo Islands since 1994 and have logged over400 hours in the water at Isla San Benedicto and Socorro. Previously I spent years diving and spearfishing in Hawaii and other locations in Mexico. A freediver sees everything in the water and has interactions with pelagic fish that a tank diver will never have.

Observations: The average size and number of wahoo has decreased in every dive location. When I first started diving the Islands. The average wahoo size was 40-50 lb. Now it is 20-30 lb.

The tuna are smaller and fewer. There are almost no 150 to 200 pound fish anymore around the Islands.

There are fewer sharks, although the big ones still seem to be there, easily identified by the hooks and lines hanging out of

there mouths.

Brian Yoshikawa

Q: What is your fishing background?


Brian Yoshikawa

A: I started diving and spearfishing at the age of seven in 1972. I started competitive diving locally in 1983 and nationally in 1989. I dive Micronesia, Tahiti, the remote areas of northwestern Hawaii and the Revillagigedo Islands in Mexico. I have spent approximately 1200 hours freediving in the waters around the Revillagigedo Islands since 1991.

Observations: In the last 10 years the average size of wahoo has gone from about 50 to 70 pounds to 25 to 35 and the number of people you see free diving the inner three islands is about 40 to 50% of what was there 10 years ago.

There are no really big fish (over 250 lb.) anymore. We used to see several each year, now you are lucky to see even one at 200 pounds. The larger schools of small ten to twenty pound fish are also gone. Ten years ago you would see hundreds of fish that would swim by you for ten to fifteen minutes at a time. Now the schools are much smaller.

The increased fishing pressure at the inner islands has left about fifty percent of the sharks swimming around with hooks and lines hanging out of their mouths.

Gerald Lim

Gerald Lim

Q: What is your fishing background?

A: I have been freediving for twenty years and I have been diving the Revillagigedo Islands for the past ten years. I have spent over 1000 hours in the water there over that period of time. I have been diving SE Asia, Australia, Adriatic, Tahiti, Mexico and the USA on the way to two National Championships. I am an endodontist practicing in Relands, CA

Observations: In the 20 years of freediving around the world, I have never seen as unique and incredible diving as at the Revillagigedo Islands. The Islands have a variety of big animals like whales, marlin, yellowfin tuna, giant mantas and dolphin unequaled anywhere in the world.

There has been a dramatic decrease in hammerhead and Galapagos sharks in the last 5 years. There has even been a major decrease in the reef fish in the last three to five years. The chubs, blue jacks, and chopas are down about 30 to 40%.

Ten years ago you would never shoot a yellowfin tuna under 200 pounds and now you are lucky to see one over 100 pounds. There has been a dramatic decrease in both tuna numbers and their size. The same is also true of wahoo. Where you would see several hundred on a nine day trip ten years ago, you only see a few today and they are much smaller, weighing about twenty to thirty pounds.

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The Saint Valentine's Massacre

At San Benedicto Island - February 14th, 1994

As Reported by
Terry Kennedy and Joyce Clinton

At dawn on the 14th of February 1994, while anchored at the south end of San Benedicto Island, we were awakened by two Mexican fishing boats laying long lines and inshore gill nets on the reefs, just 200 yards off the beach. At about 9:00 a.m. the Unicap III, a Mexican Department of Fisheries boat, started pulling in their nets and, as Joyce and I watched helplessly, our worst fears came true.

Two of the mantas we had been riding the day before were hopelessly tangled in the nets. These gentle giants had fought the nets and been torn to pieces. Because of the damage to the nets, and to the mantas, those on the fishing boat decided it would be easier to cut their nets loose and throw them back in the water - entangled mantas, nets and all. When they left, there were thousands of feet of thin monofilament net all over the reef, still killing.

When they pulled in their long lines, there was nothing but reef sharks on the hooks. As these dead or dying sharks came up over the back of the boat, the lines were cut off above the hook and the hook and shark were dropped back into the water, where they immediately sank to the bottom. The underwater reef was littered with dozens of dead sharks.

In all this killing, not one usable fish was caught.

In the meantime, the other fishing boat, Mero VII, was busy harpooning the first manta that passed by their boat. The twenty-foot, one-ton manta was then gaffed with large hooks, and lifted out of the water, still very much alive, alongside the boat. Then the men got out in a small boat and proceeded to use axes to cut the wings off the still-living manta. In just a few hours over five tons of fish were killed near this pristine volcanic island, and many more were going to die in the discarded net. The two boats had nothing to show for all that carnage, except two, almost useless manta wings.

This world famous spot to ride mantas was forever changed in just 4 hours - divers from all over the world clamored to come and ride the gentle giants of San Benedicto. This senseless act will cost millions of tourist dollars in the future.

Within days SeaWatch brought this senseless slaughter was brought forcefully to the attention of the Mexican public. The news was run three times on Guillermo Ortega's influential Mexican TV news-magazine, *Al Despartar*, which is seen by 58 million Latinos. With the help of free-lance reporter, Armando Figaredo, SeaWatch has made nine more Sea of Cortez specials for *Al Despartar*. The Manta slaughter was part of the national *CBS Evening News* in August and it became international news on *CNN* the same month.

Various newspapers and magazines picked up the story: it appeared as a feature article in the spring issue of *Baja Life*, was followed by a three-quarter page, full-color feature by sportswriter Pete Thomas in the *L.A. Times*, and appeared in *Latitude 38*, a popular boaters newspaper in San Diego. Other Magazine articles appeared soon after. *Discover Diving* did a cover in their May/June issue and in their October issue called - "Murder of the Mantas," and the prestigious *Ocean Realm* featured the Mantas in an article on the plight of the Sea of Cortez.

Reaction was swift: Miguel Sanchez - Navarro and Mauricio Ruiz of Pronatura, the largest private Mexican ecology foundation, took the video of the killing of the Mantas directly to the Mexican President and the Head of Fisheries. Within two months, the Giant Pacific Manta was put on the endangered species list and it is now a crime to kill one, punishable with a $10,000 fine.

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50,000,000 New Hooks in Sea...

Proposed Longline Permits Will Further Endanger Rapidly Declining Pelagic Fish Stocks On The West Coast

The Sea of Cortez and the Pacific side of the Baja have already been ravaged by the irresponsible use gillnets and now it faces another disaster in the form of longliners - boats that are capable of streaming thousands of hooks miles behind them, catching everything it their path - often fish and animals that are just thrown away to die. The following exposes the threat to the future to the Sea of Cortez...

LONGLINING PROPOSAL: WEST COAST OF THE UNITED STATES

Dozens of immature swordfish are offloaded from a member of the new fleet of Mexican longliners.

Summary: The US commercial interests at this time are proposing 138 new West Coast longline permits. There are already 160 permits (115 in use) in Hawaii and best guess is around 40+ boats on the Pacific Coast of the Baja in Mexico. It also appears that the US commercial interests now want to have both drift nets and longlines. Before there was talk of giving up a gillnet permit for each new longline permit issued

That's a potential minimum of 300 Pacific longline boats, putting about 50,000,000 baited hooks in the water yearly, targeting tuna, swordfish, marlin, sharks and everything else that eats squid or mackerel in the Eastern Pacific. Each boat needs a minimum of 200,000 lbs. of saleable fish yearly to survive. That's **60,000,000 (60 million pounds)** of saleable fish needed yearly to support a longline fleet of this size.

The logic of either Mexico or the US adding to the Pacific longline fleet, in light of the existing major declines in tuna, marlin, shark, and swordfish along the Pacific Coast of the US and Baja, defies the imagination!

Quoted from a letter written by Sea Watch to concerned Mexicans and to Pronatura, an important Mexican ecology group:

"As you said in our conversation, it is important to get observers on the Mexican longline and drift gillnet

fleet that will be operating out of San Carlos (Magdalena Bay) this fall. The best months to observe would be November, December and January. This is the time the Striped marlin are moving down the coast. Mexico's Baja is also one of the last areas were we can truly see the by-catch effects of longlining. There are still enough other fish, mammals, turtles, and birds to provide good by-catch information. The US East Coast fisheries are so depleted that there is no longer a way to accurately understand how much by-catch damage was done in years past. Mexico and the world need to know to what extent the longline and drift gillnet fleets are affecting the rapidly declining marlin runs on the West Coast of the Baja. As you suggested a Socio-Economic impact statement and biological assessment needs to be done before there is any growth in the longline and drift gillnet fishery. This data will also be critical in helping the US understand the effects of issuing new longline permits on it's West Coast. **SeaWatch is prepared to immediately put up $10,000 to help finance an observer program and to help develop an Environmental Impact Study this fall.**"

Background information:

- Longlining is a failed experiment. Most pelagic fish on the East Coast of the United States are severely overfished, largely due to longlining. In the Southern Oceans the Bluefin tuna as well as 6 of the 14 Albatross species are in rapid decline (2-5% of original levels with only a 15% chance of survival) due to longlining. In Hawaii swordfish is in decline as are albacore, marlin (especially Blue Marlin the bread and butter of the sports fleet), big-eye tuna. Again it was the longline fleets to blame

With the new Lingren/Pitnarm Super Spool any boat 50 feet or more in length, like the one pictured, can put a 50-mile, 2000 hook longline on their boat, when not so long ago it took a 100 foot boat to manage such an endeavor.

- The longliners rhetoric about fishing at certain depths and at certain times of day to prevent by-catch is another questionable premise. Every hook and bait starts at the surface and ends at the surface. That means every hook covers the water column from surface to soak depth and a 50 mile longline takes 12 to 15 hours minimum to set and pull. Birds, which naturally follow fishing boats are usually caught by diving on the baits as they are put in the water. They get hooked pulled down and drowned.

- The following was part of the dialogue from the HMS (Highly Migratory Species) meeting (they are in charge of evaluating the need for longline permits on the West coast) held in San Diego July 17th, 2000. There is going to be this same argument from both sides of the border.

> "In another twist, the commercial reps said that they are not looking for a swap of long lines for drift nets, instead they want to add long lines in addition to the existing net permits! One of the commercial fisherman brought up the fact that the Mexican long liners are fishing 50 miles below Point LOMA as he was speaking. "The Mexicans are long lining fish just 50 miles below us right now, off loading in Ensenada later today and those same fish will be tomorrow right here in San Diego!" **"What about the US fishermen, why can't we be given the same opportunity?".** This is known as the

International cop-out theory, "Everyone else is killing them so why can't we."

If Mexico increases it's longline fleet, it will give the Americans a chance to use the "cop out theory" and once that starts on both sides of the border the longline fleets in both countries will increase rapidly.

- The West coast proposal by the commercial interests (Chuck Janisse, a West Coast drift gillnetter and Pete Dupuy, who brought over 3 longline boats from the East Coast) is to add 138 longline permits in OR, WA and CA. The target species is claimed to be large Bluefin Tuna. They are saying they want this on top of the existing driftnet permits. They would stay 25 miles off shore.

- The Pacific Fish Management Council (www.pcouncil.org) in conjunction with the West Pacific Fish Management Council (www.wpcouncil.org) is studying this proposal. Herein lies the problem. Congress established eight Regional Fish Management Councils, when they enacted the Fishery Conservation and Management Act of 1976. The council's job was to conserve our fish. The problem came when they appointed the most knowledgeable about fishing, commercial fishermen, to run them. Putting commercial fishermen in charge of billions of dollars worth of fish and then asking them to police themselves was to say the least, unrealistic. That is why you have **Jim Cook**, owner of several longline boats and the owner of Pacific Ocean Producers, which is a large supplier of longline gear, also as the Chairman of the West Pacific Fish Management Council. He is the one that opened a warehouse in Ensenada to supply longline gear, ice and bait to Mexico's emerging longline fleet and was the Chairman when the council gave the OK to fin 85,000 (reduced to 50,000) blue sharks a year in Hawaii.

- The Hawaiian longline fleet had 37 boats in 1987, which took 168,000 lb. of tuna and 14,000 lb. of swordfish. It now has 115 boats that take over 3,000,000 lb. of tuna each year and over 3,400,000lb. of swordfish. The overall longline catch of Hawaii's 115 boats is approximately 20,000,000 lb.(20 million pounds) of fish yearly (http://wpacfin.nmfs.hawaii.edu)

- A Federal judge recently ruled against the Hawaiian longliners in a suit filed by the turtle restoration league. The limits that he originally put on longlining around Hawaii would have seriously impacted the longliners. He also demanded that each longliner have an observer. He has since backed down and said that 10% to 20% of the longliners must have observers and has partially opened up most of the closures again. I talked with a Hawaiian longliner two nights ago. He felt that most of the fleet would be fishing again as usual this fall. His family's been fishing Hawaii for over 30 years and he says that the fisheries of tuna, swordfish, marlin and sharks have dramatically decreased there also, especially Blue Marlin. He blames a lot of the problem on overfishing by both large Asian longline fleets working the same waters as the Hawaiian boats and the large seiners that are picking up the juvenile tuna in the Western Pacific.

- Mexico has also seen major declines in marlin, tuna and shark along the West Coast of the Baja. This is especially true around Cabo where the declines in the number of Marlin according to 13 recent interviews we did with the best old time Mexican Captains is between 40% and 50% in the last 12 years. Those that are still fishing and were in the late 1960s and early 1970s say the populations are down about 70% from those days.

- Longlining is about 30% more efficient than drift gillnetting and the new hydraulic longline systems from Lindgren-Pitman (www.lindgren-pitman.com) can turn any 50+ foot boat with an ice hold and a 3 man crew into a 50 mile longliner with 2000 hooks fishing 24 hours a day. Think of it this way and you get an idea of the killing potential of a single small longliner. *A 60 foot boat with an ice hold and a 50 mile longline and 2000 hooks has the same killing potential as 500 sportsfishing yachts drift fishing those same waters 24 hours a day with the intent of killing anything and everything they can catch.*

- Technology has made it possible to convert the excess small and cheap boats of the world into efficient killing machines. Just a few years ago the Japanese needed a 31-meter boat and a much larger crew to accomplish the same 50-mile longline set. For example, there are over 1200 shrimpers on Mexico's pacific side. They could easily add 50 mile longlines, including 50 mile mainline, hydraulic Super Spool, line setter, 1000 to 2000 hooks, leaders, strobes, radio buoys, direction finders, surface temperature electronics, spare parts, etc. All this can be installed in a few days for under $75,000 dollars. And there's more, they can still function as shrimpers, since the longline Super Spool fits out of the way on the cabin top. Add to that the 100s of salmon trollers, groundfish draggers, trawlers, salmon and herring seiners, etc. that are out of business, or close to it, (due to overfishing their primary fisheries) in Alaska, Canada, Or, Washington and California. There is an endless supply of potential longline boats.

- **If the longliners get any stronger foothold on the Pacific Coast of the US and Mexico the pelagic fish like tuna, albacore, sharks, marlin, sailfish, swordfish, wahoo, dorado and everything else (fish, mammals, turtles, birds) that eats squid or mackerel will be severely depleted in the next decade (many already are).**

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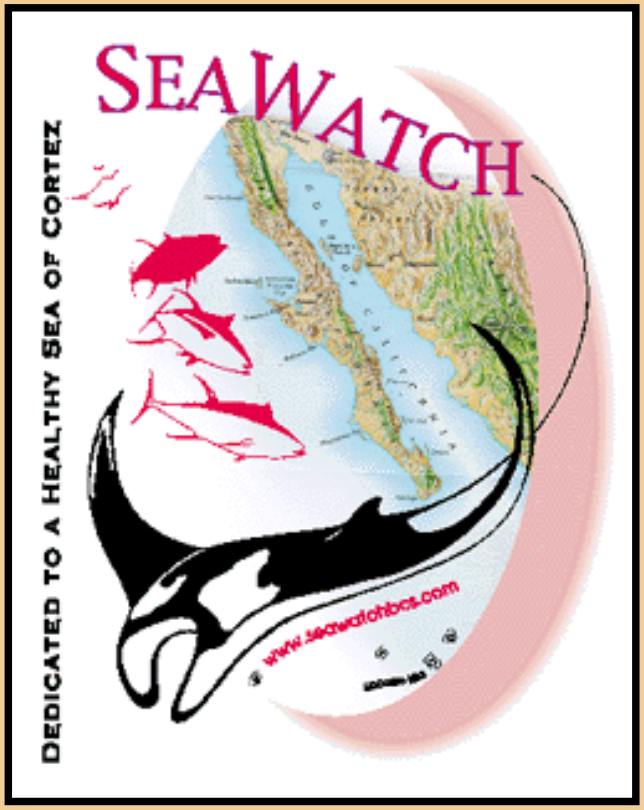
We Proudly Introduce The SeaWatch T-Shirt

The Sea Watch T-shirts were introduced less than six months ago, and the response already has been tremendous. We're quite sure anyone connected with Sea Watch will be proud to wear one. The design, created by Scott Hanson of Hanson Studios in Hawaii, has meanings every friend of the Sea of Cortez will appreciate (description below).

The T-Shirt is made from Hanes best Beefy-T 100% cotton,
is silk-screened in 5 colors and features this artwork:

The Design's Meaning:



The SeaWatch shirt design shows the Revillagigedo Islands encircled by their new 12-mile no commercial fishing zones. Also surrounding, and protecting, the islands are the wings of a Giant Manta Ray. The Giant Pacific manta is shown swimming away from a depleted Sea of Cortez and the destructive fishing practices present there. The Manta's tail, connecting to mainland Mexico is a reminder that its fate is still tied to environmental decisions yet to be made there. It swims under the protection of the Sea Watch name and its wings protect the Revillagigedo Islands where the senseless slaughter of mantas helped establish the no-fishing zones that will protect mantas and other threatened species. The three yellowfin tuna shown heading back toward Mexican waters represent a renewable and sustainable resource under proper management.

Pricing:

1 to 5 - $12.75 ea.
6 to 23 - $10.75 ea.
24 or more T-Shirt Pricing: - $9.75 ea.
Orders of 24 or more include,at no extra charge, your company's name and logo printed on one sleeve in 3/4" letters
Be sure to order correct sizes

To Order

Pricing:
1 to 5 - $12.75 ea.
6 to 23 - $10.75 ea.
24 or more - $9.75 ea. - including company name or logo on sleeve

Number of T-Shirts: _____
Priced @ each: $ _____
Handling: $5.50
Total: $ _____

Name _____

Address _____

_____

Telephone\FAX _____

Make Checks Payable To SeaWatch, Inc
Mail to:

SeaWatch
3939 N. Marine Drive, Slip 12, Portland, Oregon 97217
Telephone/fax in U.S.A. - (619) 678-0235 Telephone/fax in Mexico - 01152 (112) 55108

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An Overview of The Destruction of The Sea of Cortez

The Sea of Cortez, that mightiest of fish traps, is in the midst of total collapse. The Sea of Cortez is one of the most unique seas anywhere in the world. This narrow, long body of water that covers 8° of latitude is the mother of all the Mexican waters on the Pacific side. It is the breeding and rearing grounds for the surrounding Pacific Ocean. It's giant midriff tidal pumps produce nutrient rich upwellings that feed the plankton, the first link in the food chain. The Cortez produces as much protein per cubic meter of water as any sea in the world.

Although representing less than 5% of the total Mexican waters, the Sea of Cortez has been producing 75% of Mexico's yearly 1,500,000 metric ton fish catch. Before the destruction began, in the early 1970's,

The Sea of Cortez was pure, untamed and filled with the energy that abundant life generates. Evidence of that life energy was everywhere, above and below the surface. Flocks of birds, who thrived on the Gulf's bounty, would fill the sky from horizon to horizon, sometimes taking nearly half an hour for a string of pelicans to pass overhead. Fishermen in their pangas would find a gathering of birds that would indicate big fish working the bait up to the surface, and be confident of a good catch..

The birds told more of a story of where the fish were than any of today's modern "fish finders." In the late 1970's, the individual Mexican handline fisherman in his panga was replaced by the monofilament gill net. This new fisherman, armed with several 400-foot gillnets increased his catch tenfold. By the mid-1980's, the number of boats had increased

from a trickle to a flood, and the technology of fishing had taken an ominous turn. Big boats with big nets began to take huge quantities of fish.

Relentlessly, day after day, week after week, month following month, the Gulf was systematically robbed of its life force. Soon the Sea of Cortez was under full assault: being strip-mined and clear-cut of every life form it contained, regard- less of its value. What was deemed worthy was kept and sold; the rest was thrown back to die. When the commercial boats took 100 tons of fish, what they did not see was the emptiness that was left where the fish used to be - great stretches of emptiness, like holes in the sea, which the Sea had no time to repair.

Then the birds began to disappear, for there was nothing to drive the bait fish to the surface. The sky became as empty as the sea. The unimaginable had occurred: the Sea of Cortez had became a barren hunting ground; it had became a place of silent emptiness. Perhaps forever. This was written in the early 1990s and today at the beginning of 2000 you can find almost no birds left in the Sea of Cortez.

Decreases In The Fish Population Since 1984

Species of Fish	*Magdellina Bay to C. Pulmo*	*Pulmo to La Paz*	*La Paz to Midriff*	*Midriff*	*Northern Sea of Cortez*	*Average Decrease*
Yellowfin	60%	85%	85%	n/a	n/a	75%
Cabrilla	80%	80%	80%	80%	n/a	80%
Black Seabass	95%	85%	85%	90%	90%	90%
Gulf Grouper	85%	85%	85%	85%	80%	85%
White Seabass	n/a	n/a	n/a	80%	80%	80%
Yellowtail	90%	100%	80%	80%	80%	85%
Manta Ray	100%	100%	85%	-	-	100%
Striped Marlin	60%	70%	80%	n/a	n/a	70%
Blue Marlin	70%	70%	70%	n/a	n/a	70%
Roosterfish	80%	95%	95%	n/a	n/a	90%

Sailfish	70%	70%	70%	n/a	n/a	70%
Amberjack	75%	75%	75%	-	n/a	75%
Dog Snapper	80%	90%	80%	80%	80%	80%
Dorado	60%	60%	60%	60%	-	60%
Wahoo	75%	75%	n/a	n/a	n/a	75%
Sierra	85%	90%	90%	n/a	n/a	90%
Vaqueta (Grouper)	n/a	n/a	75%	75%	n/a	75%

Fish species shown in bold type are commercially extinct, or will be within a few years.

The chart above is based on 17 years of fishing and diving these areas on a daily basis, talking with the long-range boats from California on a daily basis, as well as fisherman in the camps, charter boat owners, etc. from Cabo San Lucas to San Felipe on a contiuning basis.

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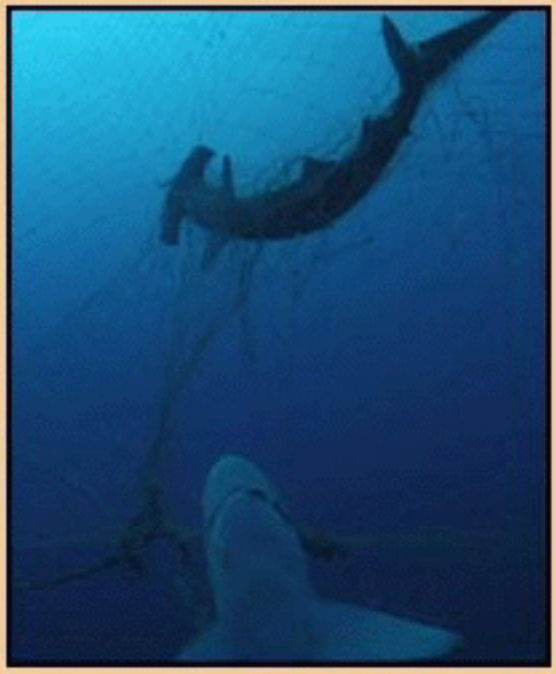
Drift Gillnet Fleet Decimates Revillagigedo Island Marine Reserve

This is one of over 150 sharks killed in the 2 mile long net of the Tiburon Maco on 5/3/00, while fishing 5.5 miles off the north end of San Benedicto Island in the Revillagigedo Marine Reserve.

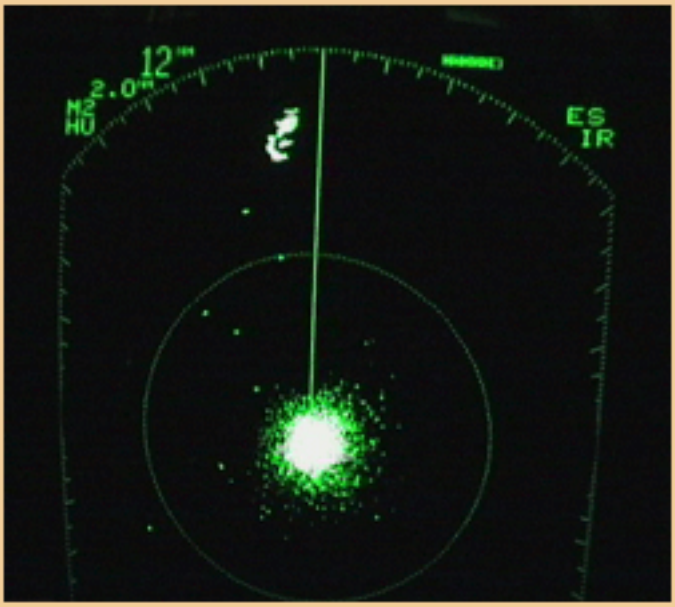
On about April 29th a fleet of seven 70 to 90 ton drift gillnet boats, carrying 2 miles of net each surrounded San Benedicto Island, which is the home of the world's largest Giant Pacific Mantas and for 4 to 5 days decimated the sealife in this famous Mexican Marine Park. Even after 4 days of fishing, their nets were still getting from 100 to 200 sharks per boat per day. Based on counts from several nets it is estimated that they killed between 2000 and 4000 sharks, plus Mantas, turtles, tuna, and other marine animals. In two days of diving at Benedicto after the gillnet boats were gone we didn't see one live shark, whereas

before that we would have seen hundreds.

In the years since it first became a Marine Park, the Revillagigedo Islands have become the world's premier area to see and experience the world's largest Giant Pacific Mantas (up to 2 tons). People come from around the world spending over $2,000,000 each year to go and dive with these amazing animals. It would be insane to jeopardize all that has been built up for the few dollars someone would get to issue an illegal permit to fish in the reserve.



In just 4 days, between 2000 and 4000 sharks were killed in the Marine Reserve at the Revillagigedo Islands. One net surveyed had an average of one shark every 60 feet and the net was 10,000 feet long.



This radar picture was taken at 4:22 AM. It shows seven boats fishing inside the Reserve boundaries.

This area remains wild and exciting largely because these apex predators roam so freely. In the 6 years since the marine park was started the shark populations have come back and appeared to be more or less constant over the last two years. The damage from this weeks attack will take many years to repair. This area is the only area in all Mexico that has been protected and still has much of what was there 30 years ago. It would be tragic to see this last frontier be permanently decimated and a fleet of seven large drift gillnet boats could do it in a few weeks. The details of the incident are below.

5/2/00 - 4:33 AM - Seven large 70 to 90 ton drift gillnet boats were spotted fishing inside the marine reserve at San Benedicto Island before dawn on 5/2/00. All were within the 12 mile no fishing zone and several were within a mile of the Island. After daylight five boats were identified. They were the "Victor M. Calzas", the "Macapule III", the "Mazatleco", the "Tiburon Maco" and the "Nino" In early afternoon the boats finished pulling their nets and anchored in the East bay of San Benedicto until evening when the went out to put there nets in again. The first boat The "Mazatleco" was 1.7 miles off when it put it's two mile net out. At 5:30 PM the "Nino" had set it's two mile net within 300 yard of the Island and right on top of Boiler Rock, home of the worlds most famous and largest Giant Pacific Mantas. People from the dive boat Solmar V and divers from the Ambar III confronted the "Nino" at Boiler rock and after about an hour persuaded it to pull it's net and move further off shore.

In the first net from the Tiburon Maco, checked 5.5 miles offshore, this manta was found entangled and dying. If it is verified that it was a Giant Pacific Manta killed in the Reserve, it will carry a $10,000 fine.

The Victor M. Calzas was one of the boats fishing inside the Reserve.

5/3/00 7:30 AM - Divers were put in the water to film the net of the "Mazatleco". It had been sitting about 1.7 miles off the North end of Benedicto all night. This was their 4th day of fishing in this area according to the Captain. He said they were going to leave that day as catches were going down. He had about 40 sharks in his 1 mile net. At 10:30 AM we heard one boat on

The Macapule III, another boat that was fishing in the Reserve.


The Mazatleco had its nets out 17 miles off the north end of San Benedicto, well within the 12-mile No-Fishing-Zone.

the radio say that his nets were so full he couldn't turn the wench to pull them. We approached the "Tiburon Maco" fishing 5.5 miles off the North end of the Island asking if they made that call. It wasn't them, but their net was full of sharks (between 100 and 150 sharks. They averaged 1.5 sharks between 90 foot buoys and their net was 2 miles long). They also had a Manta and a turtle in the net. Five hours were spent counting sharks coming in and filming them in the nets.


The Nino had its nets out within 100 yds of Boiler Rock, where the world's largest Giant Pacific Mantas live. This large drift gillnet boat can hold over 2500 sharks when fully loaded.

5/4/00 - The Navy was contacted as this appeared to be a clear violation of the 12 mile, "NO FISHING ZONE" in the marine park. The park was created by Presidential decree in 1994. There is also a $10,000 dollar fine for killing a Manta in this marine reserve.


The Tiburon Maco had thousands of shark fins drying on their boat. Dried they are worth over $100 a kilo.

5/12/00 - Video tapes of the incident were aired today on Mexican television.

The Navy command in La Paz and Manzanillo have copies of video shot of the incident and are doing their own investigation and Julia Carabais, The Secretary of SEMARNAP is meeting Tuesday, May 16th with prominent business and ecology people in Mexico City to try to get to the bottom of what happened.

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From the Los Angeles Times, Friday May 18, 2000 - Written by Pete Thomas

Poachers' Net Gain Is Revillagigedo Islands' Loss

By PETE THOMAS

They are ghastly, if not ghostly images that will remain in the divers' minds for some time.

Those of the large hammerhead shark that ruled the reefs a day earlier, dangling lifeless from an invisible net, its slender body twisting in the current. . .

Of the large sea turtle that a day earlier was using its little legs to push through the blueness, using those same little legs in a vain attempt to free itself from the net wrapped tightly around its neck, squeezing its life away. . .

Of the giant manta that soared gracefully between the amber shafts of sunlight a day earlier, now stuck in a vertical position, its white underbelly pressed flat against a monofilament curtain, flapping its wing-like fins but going nowhere.

These, of course, were not the encounters the divers had hoped to have with the wildly wonderful inhabitants of Mexico's Revillagigedo Islands. But then they rarely share their paradise with poachers.

"To see those sharks wrapped up in those nets with their fins folded against their chests as if they're in some sort of deathly prayer is . . . just sickening," said Terry Maas, 55, a renowned free-diving spear fisherman from Ventura.

Maas, a blue-water hunter who at least can boast of being selective, was among several divers who for four days earlier this month witnessed

commercial fishermen aboard seven Mexican vessels deploying and redeploying miles of gill-nets in the supposedly protected waters of San Benedicto Island, 220 miles south-southwest of Cabo San Lucas.

In all, the divers estimate, the netters killed 2,000-4,000 sharks, removed their fins--presumably for sale in Asian markets--and, in most cases, discarded their bodies.

San Benedicto is the northernmost of the four-island Revillagigedo archipelago, which was established as a "biosphere reserve" in 1994 because of its unique and highly vulnerable ecosystems.

The islands are home to such threatened species as the Socorro mockingbird, Townsend's shearwater and Socorro green parakeet. They boast a variety of native plant and animal species and have been referred to as "Mexico's little Galapagos."

The inshore waters are popular among free-divers and scuba divers, who enjoy the company of giant Pacific mantas, playful dolphins and curious turtles. The divers must also put up with several species of sharks, but the sharks are an attraction in their own right, Maas said, until they start "dogging us, which can be damn frightening."

Maas was one of five passengers aboard the Ambar III out of Cabo San Lucas. The Solmar V, also from Cabo San Lucas, was the other vessel arriving at San Benedicto on May 1, when the gill-netters had already gone to work, having "surrounded" the island with nets, working as close as 400 yards from shore.

By law, commercial fishing vessels are not allowed to even navigate within 12 miles of the islands. Sport and spear fishermen are allowed inside 12 miles, with special restrictions.

Mike McGettigan, owner of the Ambar III and founder of SeaWatch, a conservation organization, said in a report on his Web site, "In two days of diving at Benedicto after the gill-net boats left, we didn't see one live shark, whereas before we would have seen hundreds."

Photographs taken by the divers show nets wrapped around sharks being hauled in methodically by crews that generally ignored the divers, and decks of the rusty old vessels littered with shark fins. Also caught were several species of fish, turtles, and at least one giant Pacific manta. The killing of mantas can result in a $10,000 fine.

Mexican fisheries officials are investigating the incident, but as of Thursday had made no arrests. The seven vessels reportedly were still at sea, and there were unconfirmed rumors that one of them sank in rough weather.

Julia Carabias Lillo, Mexico's environment secretary, disputed the number of sharks killed, saying, "This figure [2,000-4,000] is not possible in that area."

Without offering specifics, she added that Mexico is taking steps to better enforce laws against fishing in Mexico's marine reserves.

"We know that there is a problem in the Revillagigedo of illegal fishing, but not in the amounts that have been reported, not at all," Carabias said.

A report by the Mexican government to be released next month will address the issue.

With the Revillagigedo Islands more than 350 miles off mainland Mexico and 220-plus miles from Cabo San Lucas, enforcement is difficult at best. There's a Mexican navy base on Socorro Island, the largest of the four and 40 miles from San Benedicto. Otherwise, the barren islands are uninhabited.

The navy's resources are limited and, in fact, the crews of sport fishing vessels from the United States, dive boats and private vessels from Cabo San Lucas are considered more effective watchdogs.

The last time a slaughter of this magnitude created such a stir, it was because two recreational sailors from the United States documented the fishermen's actions with a video camera.

The so-called Valentine's Day Massacre on Feb. 14, 1994 aired throughout Mexico and served as a catalyst in the movement to create a reserve and save the giant Pacific mantas, which diving and ecotourism industries say help generate at least $2 million annually.

The sailors, a man and woman who had been diving just the day before, were at San Benedicto when two Mexican fishing vessels arrived. Their crews used nets, baited hooks and harpoons to catch and kill anything they could.

Gill-nets and long-line gear were used to catch dozens of sharks, which were finned and discarded. The sharks were still alive, but without fins they couldn't swim and ultimately came to rest on the ocean floor.

The fishermen used harpoons and gaffs to kill and lift at least one giant manta, whereupon crew members in a skiff used axes to hack off its wings.

Other mantas were trapped in gill-nets and were too heavy to be hauled aboard, so the nets were simply cut loose with the mantas still in them. They settled over the reefs, trapping and killing other fish.

Two of the mantas the couple had been riding a day earlier were identified in the nets and eventually "torn to pieces." The woman's sobbing and cries, "Oh, God, no!" were picked up by the camera.

To be sure, the giant mantas are what make a trip to the islands truly magical. With wing spans of 20 feet, the docile plankton eaters often hover below boats, like alien craft waiting to take passengers on a trip through space.

Though responsible divers no longer ride on the backs of mantas, they do gently touch and rub the animals, which seem to appreciate the experience.

"When an animal with a 20-foot wing span swims by and stops and just lets you rub your hands against its body and looks you in eye, it's really just a humbling experience," said Leslie Lee, who owns a Cabo San Lucas dive shop with her husband, Jose Luis Sanchez. "And anyone who does this, soon

develops a spiritual connection with these creatures."

At San Benedicto, one of the mantas' favorite hangouts is Boiler Rock, a pinnacle that rises to only a few feet beneath the surface, creating a boiling effect. The mantas often hold still in the current while "cleaner fish" such as jacks and angelfish pick parasites from their bodies.

"I think this is why they interact so well with humans," said Sanchez, who also is the U.S. representative for the Solmar hotel and Solmar V. "We show divers where to scratch their bellies and how to touch them without harming them. My theory is that they think of us as giant cleaning-station fish.

"They like our bubbles against their bellies. . . . And when we leave, they look at us, like, 'Why are you leaving? Please don't go.' "

They might have had other words for the gill-netters. Remarkably, the mantas were largely spared during the most recent raid--only one was seen trapped in the nets.

Sanchez was quick to point out that the islands' waters no longer resemble the macabre sort of graveyard created by the gill-netters, that Mother Nature has acted quickly in restoring the dazzling beauty the region is known for.

Reading from the log of the Solmar V, which was back at the islands a few days after the gill-netters had left, he said the 76-degree water with 80-foot visibility was teeming with life.

"The Boiler was very good with dolphins in the morning and numerous mantas, which were very friendly," Sanchez said.

Sharks were understandably scarce at San Benedicto, but were plentiful at nearby Roca Partida, the smallest of the four islands, and Socorro.

"The divers saw great numbers of sharks," Sanchez said. "Galapagos [sharks], duskies, silver-tip sharks and hammerheads. As in previous trips, the sharks put on a spectacular show by aggregating in groups of about 20 and coming in close to look over the divers--the divers were very happy."

If not a little bit frightened.

Times staff writer Esther Schrader, in Washington, contributed to this report.

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Where Have All The Mantas Gone?

Fifteen years ago Giant Pacific Mantas could be found around every major reef in the Sea of Cortez. By 1990 their population had dwindled to nothing, victims of harpooning and gill nets. Although mantas havenever been generally a targeted species, too many became entangled in nets intended to catch other species, and were then harpooned and thrown overboard to die.

Mexico is becoming aware of the Mantas' importance to tourism: on the Revillagigedo Islands over $2,000,000 is spent each year by tourists wishing to see and photograph these gentle giants. These mantas are now protected from the nets, thanks in part, to SeaWatch's efforts. But they are not protected in the Sea of Cortez, although many realize their value.

A simple story will illustrate the point. In June of 1997, because of the influence of El Niño, 6 mantas entered the Sea of Cortez. The 14 La Paz dive operations finally had what they needed. For three weeks everyone was photo- graphing and riding these beautiful 1-ton creatures and hoping they would stay for the entire summer. Unfortunately one of the

local fishing co-ops heard about the mantas and killed three of them. The remaining three left immediately.

In the complicated food chain of the ocean, it is difficult to say exactly how the absence of mantas will impact other species. However, it is quite clear that tourists will be less likely to come and dive if there are no mantas to be seen. Mantas are one of the truly awesome creatures to watch underwater, with their 18-22 foot wing span, gliding motion, and gentle disposition.

There continues to be a need to educate everyone of the economic value of these incredible animals, so they are not needlessly slaughtered through carelessness and ignorance. Sea Watch continues to spread this message and fight for laws that will protect the Giant Manta in the Sea of Cortez.

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Mexico's Marlin...Doomed?

For many years the marlin, along with other fisheries off Cabo San Lucas have been in serious decline. When I first fished marlin in Cabo in the early 1970s you didn't have to go outside the main bay to catch marlin, certainly never further than the light house five miles away. There were few boats fishing for them and the daily catch and release during those years was virtually unlimited. You caught billfish until you had enough.

By 1985 we were still catching and releasing an average of over 6 marlin a day, although the average weight had dropped by 30 to 40%. In the last 12 years, the number of boats fishing marlin between the East Cape and Cabo has increased to over 800 boats. The fall migratory path of the striped marlin coming down the coast from California is now full of drift gill nets and long lines from Cedros to Magdalena Bay.

Last year around Thanksgiving, as the marlin migrated south, the commercial pangas from Todo Santos were off the coast with their boats loaded with empty 5-gallon oil buckets. The fishermen tied these to a hook, line and bait and then floated them on the sea as the marlin migrated by their coastline. It was reported by a Mexican fisherman from Cabo that at one time he saw over 30 marlin hooked up and dragging around buckets until they died. These marlin, along with many caught by the sports fleet, can be found illegally for sale in almost any market in Cabo and San Jose del Cabo. These same protected fish can be found in the major markets of Manzanillo, Mazatlan and Mexico City. All this is happening to a species that is supposedly protected exclusively for sports fishing. This is happening even while many boats in the sports fleet, according to Marco Ehrenberg of Pisces fleet, are releasing up to 80% of the marlin they catch.

We wondered what else they could do to destroy this mainstay of the sports fishing industry of Mexico. Well, we didn't have to wait long. Subsecretary of Pesca Lic. Carlos Camacho Gaos just unveiled a plan to allow drift gill nets to be used inshore to catch swordfish and keep the bycatch of marlin. A few swordfish have begun showing up on the Mexican coast, interestingly, only a few years after California banned the same practice in their waters after almost wiping out the last of their swordfish population.

Has Mexico learnt anything from California's destructive practices? Apparently not! Luckily, The Hotel Association of East Cape, Jesus "Chuy" Valdez, "Chacha" and Bob Vanwormer, along with the Marina El Cid in Mazatlan, Julio Verdeguer, and The Sportsfishing Association of Cabo San Lucas, Marco Ehrenberg, Minerva Smith and Pancho Cota have some clout in Mexico City and are fighting to stop this ill conceived plan. Best of luck to them! Regardless, unless there is a major change in practice and management, in next few years marlin on the west coast of the Baja will all but disappear.

Contact Julia Carabias, she's in charge of ecology in Mexico and express your feelings about this ill-conceived plan.

By Mike McGettigan, SeaWatch Founder

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The Midriff Island Shark Disaster

Nothing illustrates how the Sea of Cortez has had its bounty decimated better than the story of the shark camps of San Francisquito Bay. Over 200,000 sharks died in the San Francisquito Bay fishery before it finally collapsed. An equal number of other fish, the by-catch that couldn't be sold immediately, were simply thrown away. The last vast shark population in the Sea of Cortez was massacred in a single decade. Perhaps the story will teach us a lesson that might save another fishery from extinction.

In 1985, San Francisquito Bay, a small bay located about 50 miles south of Bahía de Los Angeles, was shared by a single Mexican family and a small fly-in resort. The killing of over 200,000 sharks began slowly: just three small Mexican fishing boats, or pangas, using gill nets and long lines, fished from June through September, when the shark population there is at its largest. At the end of the season they sold their catch in the form of dried shark meat and fins. The next year, 1986, the locals were joined by four more boats from La Paz and added harpoons to their arsenal and the seven boat fleet sold about 8-10 tons of dried shark and manta ray meat at season's end.

The next two years the fleet, now up to 10 pangas, caught 8,000 to 10,000 sharks each season, by drifting their gill nets all night, every night. They also caught and threw away dead an equal number of other fish they didn't want, like sailfish, skipjack and manta rays, only enough meat was saved to bait their nets. The mantas caught in the nets, if not already dead, were harpooned with long lengths of steel rebar and thrown overboard dead.

In June of 1989 a company from Mexico City imported 15 large pangas powered by big Yamaha engines, along with the filleters, salters, cooks and other workers required to set up a large slaughterhouse. Another camp with 10 boats was set up 15 miles south of San Francisquito Bay at Rancho Barrill. The "harvest" doubled to 24,000 sharks a season and, again, at least an equal number of non-target fish were thrown back dead.

Over the next three years (1990-1993) the camps grew and grew and more than 150,000 sharks were killed, 40% of which were pregnant females. But the boats had to range further and further away from the bay to maintain their catches. Harpooned dolphin and seal carcasses began washing up onto beaches 40 miles away; the fishermen

had found that baiting their nets with mammal meat attracted more sharks.

By 1993 there were two shrimpers hauling fresh shark to Guaymas for processing and several trucks were running carcasses to the desert for burial. The bay, which often ran red with the blood of discarded shark carcasses and the tons of fish they didn't want, became almost uninhabitable from the smell and the millions of flies the pollution attracted.

The fishermen began noticing by the end of 1993 the sharks being caught were getting smaller and smaller, and by 1994 the boom was over, the boats were bringing in only 2 or 3 small sharks a trip. The by-catch they discarded dead far exceeded the sharks processed. The fishery was in total collapse. In 1995 the boats all arrived expecting the sharks to be there. When they realized there was nothing left, the big processors moved on to their next target and the 5 local pangas left found almost no sharks at all.

This huge breeding ground for sharks, which had survived for eons, was now gone, wiped out in just ten years. What happened is simple: the fishing outstripped the fishery's ability to replenish itself. Someone in authority should not only have noticed, but done something about it. The signs were clear and the destruction complete.

Sharks mature and reproduce slowly. Their reproductive strategy more closely resembles that of large mammals than of other fish. The fishery was losing its newborns each season, plus an estimated 40% of all the sharks caught that decade were pregnant females. These facts are an ominous sign: this fishery may never recover. And to make matters worse, hundreds of thousands of other fish were senselessly wasted in the netting process.
What is done is done. What we must do now is make sure what happened to a vibrant fishery in San Francisquito Bay isn't repeated again somewhere else. That is what Sea Watch exists to do: to warn Mexico, the United States and the world of the next great impending slaughter, so that the next disaster of this magnitude can be stopped.

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Tuna seiners continue to wrap the inshore banks along the coastline of the Baja, killing tuna as well as the large pelagic animals around these once famous and prolific underwater sea mounts...

all photos on this page are courtesy of John Vallon, at http://www.catchbillfish.com

On 5/20/00 at this location: Latitude 22 degrees 59 minutes north and Longitude 109 degrees 29 minutes west, the Nair III, a large tuna seiner, set its nets on the Gordo Banks, a world famous spot to see hammerhead sharks. They killed 100s of hammerhead sharks in their wrap. **They could have released them, but the current law allows them to fish anywhere they want and to keep all by-catch**. So the sharks were all dip netted and killed. Time and again tuna seiners have worked the inner banks and the near shore Islands of the Southern Baja. The seiners are made to fish 1000 of miles from their home port, why is it that they are allowed to net the in shore banks, where the by catch is extremely high? These inshore banks are also the lifeblood of the local sport fishing and ribireno (local inshore) commercial fleets. Mexico needs to keep seiners away from the inshore Islands like Carmen, Catalina, Santa Cruz, San Diego, San Jose, Las Animas, Espiritu Santo/Partida and Ceralvo. They also need to protect the sea mounts (bajos) between Loreto and Todo Santos. Keeping tuna seiners 12 miles from any shoreline would accomplish that.

Just one year after the tuna seiner Nair III was caught illegally (they had no permits) wrapping 100s of hammerhead sharks near the outer Gordo Banks (www.seawatch.org) three large tuna boats from Ensenada (Eduardo V, Arete and the Guaymas) wrapped the banks on May 9th. There were many snapper feeding mid water on red crabs. The snapper had been supporting the commercial pangeros for weeks. Now, they are gone along with the marlin, wahoo (that had just started to arrive), mantas and the tuna that had been helping support the panga sportsfleet for the last year. It's also this month that whales sharks are normally on the Inner Gordo. There are literally 100 of families dependent on that sea mount for their livelihood, both commercial and sportsfishing as well as the Cabo dive shops. It will be years before the Gordo Banks can fully recover.

The linked pictures and video are just one example of how the tuna seiners destroy indiscriminately all the large animals, both reef and pelagic, that live around these Sea Mounts. 20 years ago two of these banks, the Marisula sea mount out of La Paz and the Gordo Banks near Cabo were the world's most famous dive spots to see hammerhead sharks. Now due to the continuing pressure from commercial fishing the divers of the world go to Cocos Island in Costa Rica and spent a record $5,000,000 each year diving with the hammerhead sharks of Cocos Island. Mexico lost all that business because it has no protection for any of its near shore sea mounts. They are all open year around to local drift gillnetters, longliners, commercial pangas and tuna seiners. There is no chance that the Baja sea mounts will again become world class destination dive spots until Mexico realizes that it must protect it's once beautiful aquatic sea mounts. There are negotiations now in progress with the tuna industry to voluntarily stop wrapping these inshore sea mounts. It is video and picture like those shown here that will persuade those who care, to stop the relentless destruction of these inshore sea mounts.

More Pictures of the Destruction at the Gordo Banks

Profepa's Response to Seiners on the Gordo Banks (PDF File In Spanish)

Read Another Account of a Tuna Seiner Outrage from early in the history of SeaWatch

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Profepa's Response to Seiners on the Gordo Banks (in Spanish):

The following document (formatted as a PDF file), Profepa's Response to Seiners on the Gordo Banks, is the official Mexican government's response to the activities of tuna seiners on the Gordo Banks

To Download the file, click on the title: Profepa on Gordo Banks.pdf

If you don't have Adobe Reader, click here to get it, install it and then return to download the files

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PROCURADURIA FEDERAL DE PROTECCION AL AMBIENTE
SUBPROCURADURIA DE RECURSOS NATURALES
DIRECCION GENERAL DE INSPECCION Y VIGILANCIA
DE LOS RECURSOS PESQUEROS Y MARINOS

PROCURADURIA FEDERAL DE
PROTECCION AL AMBIENTE

DGVP.-341.01
México D.F., 2 de julio de 2001.

MIKE McGETTIGAN
SEA WATCH
3939 N MARINE DR. # 12
PORTLAND, OR 97217
U.S.A.

Hemos analizado con detenimiento su información sobre las actividades de pesca que se realizan en la zona de Gordo Banks y compartimos su preocupación porque dichas actividades se realicen en pleno cumplimiento del marco legal que las regula. Solamente cumpliendo la normatividad aplicable garantizaremos la protección y conservación de los ecosistemas y especies marinas, y esa tarea es precisamente la responsabilidad de esta Dirección General.

Cuando las actividades pesqueras se realizan en áreas naturales protegidas o sobre especies protegidas es atribución de la PROFEPA a través de nuestra delegación en el estado, en caso contrario, las atribuciones de cumplimiento de la Ley son de la SAGARPA a través de la Comisión Nacional de Acuacultura y Pesca.

Las áreas naturales protegidas son zonas del territorio nacional y/o aquellas sobre las que la nación ejerce su soberanía y jurisdicción, en donde los ambientes originales no han sido significativamente alterados por la actividad del ser humano o que requieren ser preservadas y restauradas. Para tal propósito existe un procedimiento para decretar dichas áreas y publicar en el Diario Oficial de la Federación la disposición y los lineamientos a los que deberá sujetarse la gestión ambiental en dicha zona.

Los Gobiernos de los estados, en los términos que establezca la legislación local en la materia, tienen también la posibilidad de establecer parques y reservas estatales en áreas relevantes a nivel de las entidades federativas.

El área conocida como Gordo Banks, cercana a San José del Cabo, no cuenta con ninguna de las categorías mencionadas anteriormente, por lo que las actividades que señalan son motivo de verificación por parte de SAGARPA; sin embargo por la importancia ecológica y económica que tiene la zona, quizás valdría la pena proponerla como área natural protegida. Ello representaría el fortalecimiento jurídico para la protección de los recursos marinos de la zona. Lo anterior es independiente de que se realice la verificación del cumplimiento de la Ley de Pesca y su Reglamento y de las Normas Oficiales Mexicanas aplicables a la región.

Si les parece adecuada esta propuesta, nos ponemos a su disposición a fin de explicar los mecanismos y detalles de dicha gestión.

Sin otro particular, reciba un cordial saludo.

A T E N T A M E N T E
SUFRAGIO EFECTIVO. NO REELECCION.
EL DIRECTOR GENERAL.

M. EN C. LUIS FUEYO MAC DONALD.

C.c.p.....vta.

C.c.p. Lic. Diana Ponce Nava.- Subprocuradora de Recursos Naturales.- Edificio, 2o piso.- Presente.- Para su conocimiento.
C.c.p. Mtro. Javier Mayen Mena.- Director General de Coordinación de Delegaciones.- Edificio, P.B.- Presente.- Para su conocimiento.
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Vpm/aemh/c/alma/oficios/

Sea Watch

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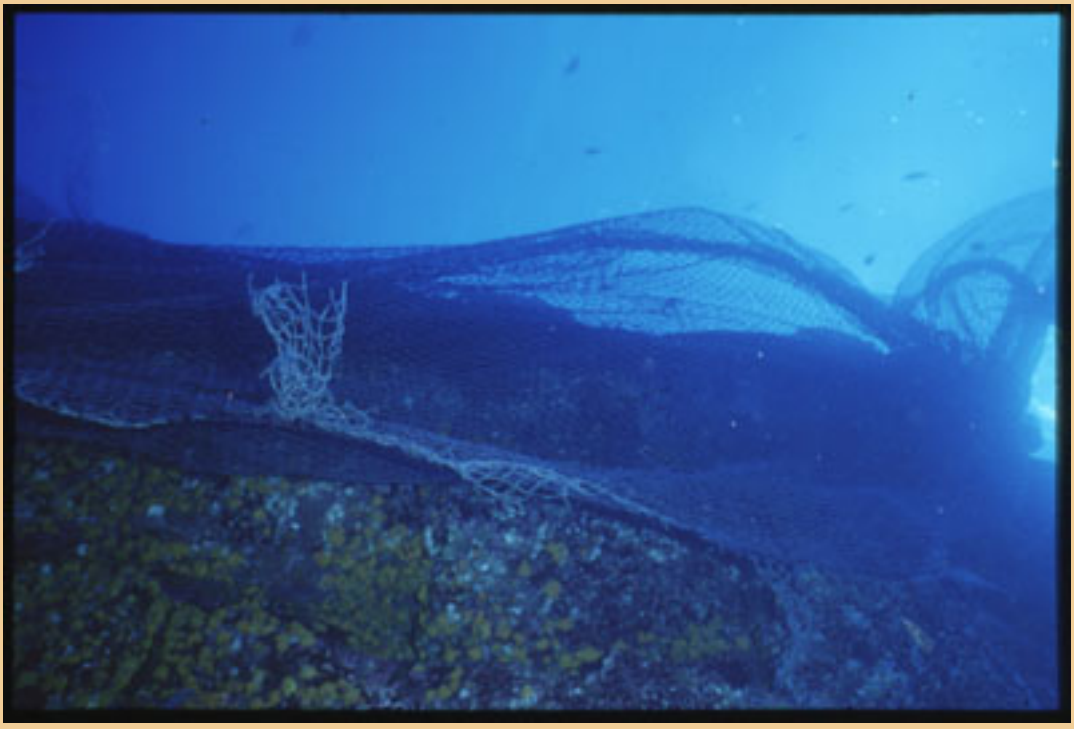
Tuna Seiner Fouls World Famous Dive Site:

The following is from a SeaWatch newsletter from almost seven years ago, when we first began reporting on how tuna seiners wrapped wherever and whenever they wanted in the Sea of Cortez. Further, you can see and download an Acrobat file which details the entire incident of the "Cancun" and its illegal fishing at Socorro Island.

Nets Foul Dive Site



"One of SeaWatch's most important functions is to document and report destructive fishing incidents so the authorities can act on them. An episode at the most famous diving site in the Sea of Cortez illustrates as strongly as possible the kinds of dangers the Sea faces.

Gary Cotter, from Baja Expeditions, was diving "The Bajo" or the Marisula Seamount outside of La Paz, from the Don Jose in November of 1995. A tuna seiner named the Maria Veronica came between his diving group and the Don Jose and began unreeling into the water a huge net that actually engulfed the divers' panga and fouled the Don Jose's anchor line!

But freeing the panga and the anchor line from the tuna boat's net was only a small problem compared to the real damage done: the net had caught the seamount and when the tuna boat left the area over 400 yards of it still draped 70% of the north mount, 30% of the central mount and almost 90% of the south mount.

The incident was immediately reported on Televisa by Armando Figaredo. His report caused quick action by the

authorities. The video documentation of the incident and the destruction it caused was given to the director of the Procuraduria Federal De Proceccion Al Ambiente (PROFEPA), Jorge Jimenez, in La Paz by another SeaWatch member, John Riffe of La Paz. In February of this year, Riffe was told by PROFEPA that the tuna company had removed the net.

On April 4, 1996 a Japanese film crew arrived at the Bajo to film hammerhead sharks. Their anchor was fouled by a large seine net which enveloped a large portion of the seamount! Another net was now fouling this famous diving seamount!

Two nets foul a legally protected area within several months! It's obvious that the destruction will never end until illegal and destructive fishing practices are stopped by enforcing the laws that already exist.

We are currently doing another Televisa special report documenting exactly what the Mexican authorities (specifically PROFEPA) are doing, or not doing, about these boats illegally using nets in protected waters. We will report on this in our next newletter."

To Download the file, click on the title: Cancun Incident.pdf

Read About the Latest Tuna Seiner Outrage

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Sea Watch Alert #3: Large tuna seiner Cancun wrapping north end of Socorro Island one mile off shore and killing Giant Mantas.

Date: May 9th, 1994

The following pictures are of the tuna seiner setting its nets within one mile of the north end of Socorro Island in the Revillagigedo Islands and catching Giant Pacific Mantas which are a protected species and have created a million dollar dive industry at the Islands.

The tuna seiner Cancun shown here is setting their net near shore at the north end of Socorro Island.

During 1995 through 1998 there were often 2-4 tuna seiners working around Socorro Island. You would sometimes see as many helicopters flying around looking for tuna.

You can see the Giant Pacific Mantas on the back deck of the tuna seiner. Any time you allow tuna

seiners near structure (near shore) the by catch of non targeted reef fish and sharks is going to be very high.

Sea Watch

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We Made a Difference!

Mexican Government Extends Protection to the Giant Pacific Manta and the Whale Shark in the Sea of Cortes

A year and a half of work between Pronatura, Sea Watch, PESCA and the Secretariat of Environment, Natural Resources and Fisheries of Mexico (SEMARNAP) has culminated in a program of protection for the giant Pacific manta and the whale shark in the Sea of Cortes. Both of these animals have been harpooned in years past and the killing of whale sharks has become a common thing in recent years in the Sea of Cortes. Mexico protected the Giant Pacific Manta in the Revillgigedo Islands in 1994 after several fishing boats were filmed killing them (to learn more about what started it all, click here) but they were never protected in other Mexican waters. This is a big step forward for ecotourism in the Sea of Cortes. Thanks to PESCA, SEMARNAP and Pronatura for taking this important step to protect these animals.

For SeaWatch, this issue took on a special urgency in November of 1998 when we became aware that three whale sharks had been killed in the New Loreto Marine Park over the previous six months. SeaWatch, in conjunction with Pronatura, one of Mexico's most eminent ecological organizations, immediately started a worldwide petition campaign to protect them, along with several other key species.

Specifically, we were petitioning the government to protect the whale shark, the hammerhead shark and the giant Pacific manta in the Sea of Cortes. We believed that these three species possess immense value alive and precious little value dead.

Showing these senseless killings on our website resulted in our receiving over 1300 petitions from people all over the world. We followed this up by distributing full color petitions at an international dive show, DEMA, held in New Orleans in January of 1999. Over 2,200 were signed and also sent to Mexico. All the petitions were delivered to the Mexican government by the president of Pronatura in hopes of initiating legislation that would put these animals on Mexico's endangered species list.

The first effect of our efforts was having our protection plan used in the creation of a Mexican government document titled "Mexican Official Standard Rules That Regulate the Shark and Ray Fisheries in Mexican Waters." "Standard Rules" are the legal instruments used by the Mexican federal government to establish how and when people can use Mexico's natural resources.

This document was presented to all the social sectors of the country that participate in this economic activity for their feedback. Application of this Standard Rule was set January 1, 2000 and it has become a reality. Best of all, one of the sections of this regulation establishes a special protection status for the whale shark and the giant Pacific manta that will mean that no one can capture or fish these species.

Everyone involved in this process should be commended for doing such a remarkably swift job of stopping the senseless killing of animals that are worth much more to the Mexican economy alive than they are dead. Our deepest thanks to everyone how helped in this effort.

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SeaWatch Alert

Sea Watch Alert: Illegal commercial spearfishing at night kills 100s of Parrot fish off San Diego Island in the Sea of Cortez!

Date: October 25, 2001 9:20 PM

The document is formatted as an Adobe Acrobat file. If you have Acrobat or Acrobat Reader, click here -

If you don't have Adobe Reader (it is free of charge), click here to get it, install it and then return to view the Report!

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Sea Watch

Dedicated to a Healthy Sea of Cortez

Sea Watch Alert: Illegal *commercial spearfishing at night kills 100s of Parrot fish off San Diego Island in the Sea of Cortez!*

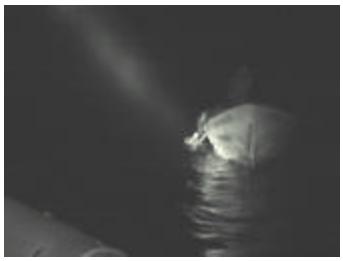
Date: *October 25, 2001 9:20 PM*

Sea Watch heard of pistoleros recently shooting fish at night around the Islands between La Paz and Loreto. On the 25th of October 2001 we went out to see. While anchored on the East side of San Diego Island located about 50 miles north of La Paz Mexico, BCS we observed two pangas each with a hookah and divers aboard arriving at the Island about 8:00 PM. At about 9:15 PM we approached the closest panga named the Cabo III with it's commercial registration # (matricula) 0304080813-2

Pistoleros atDiegoIsland.

There were two divers in the water and as soon as we got close, the panga driver signaled the divers underwater and they surfaced and put a large bag of Parrotfish in the boat. Most of the Parrot fish were about 12" in length. There appeared to be about 30 Parrot fish in the bag

.



Pistoleros put fish in the boat

The divers got out of the water and told us they were only killing Parrot fish, nothing else and wouldn't tell us where they were from. After we left they went back to work shooting fish until about midnight. The bag we saw had about 30 Parrot fish for the first hours work. Based on that, each boat would have killed over 100 fish that night.

Over 100 fish killed by each panga

Contact Sea watch in La Paz at 112-55108 or email seawatch@seawatch.org to report other destructive fishing practices.

Dedicated to a Healthy Sea of Cortez

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Help Create The Next Artificial Reef in The Sea Of Cortez By Becoming a Member of SeaWatch

SeaWatch, with the significant help of Pronatura, spearheaded the first artificial reef in the Sea of Cortez. It is an unqualified success. We need look no further than the largest dive group in the area to understand why.

"The Cortez Club alone, probably the largest of the 5 prominent dive centers in La Paz, is responsible for taking approximately 6,000 divers a year to the area of Espiritu Santo, of which almost 70% are repeat clients. The company has a fleet of eleven boats and are responsible for a total of 28 Mexican employees, including captains and divemasters which have been trained by The Cortez Club itself, as well as certified by government bodies and associations such as PADI (Professional Association of Diving Instructors) when appropriate. Diving as an activity is not only taking a great leap towards, catching up to sportfishing as the number one tourist activity in La Paz, but is also giving the locals a better understanding of the importance for conserving the riches of the Sea of Cortez, as they can earn much more money in showing clients the fauna, time and time again, both in salary and tips, rather than taking it out of the Sea at the end of a rod. Whether new or repeat clients, they are all interested in seeing a growing number of dive sites; not only in order to have more choices, but also because the growing number of sites will allow the growing number of divers to be distributed almost unnoticeably. Those who have been here before are interested, in particular, in visiting the wrecks again, in order to personally be able to witness the new habitants who are rapidly taking possession of the wreck."

The point is, simply put, the first new reef in the Sea of Cortez is an unqualifed success! The new reef has proved that wasting the area's resources is a deadend compared to the immediate and future possibilities offered by a New Reef.

On August tenth Pronatura members in Mexico City met with the Undersecretary of Marina, Admiral Armando Sanchez Moreno. He ratified the offer of the vessels to Pronatura and SeaWatch to create the second artificial reef of La Paz and also made a commitment to participate in all the process (cleaning, cutting, transportation and sinking).

SeaWatch immediately responded. Kozy Boren, a faithful contributor to SeaWatch, and Mike McGettigan, the founder of SeaWatch, presented Pronatura with $10,000 to kick off the project. Furthermore, SeaWatch pledged another $40,000 toward the project’s completion.

Help SeaWach create the next artificial reef in the Sea or Cortez. We now have the boats we want to sink and we will soon begin the process of cleaning them for sinking. We need your support to get it done and then duplicate the ceremony that brought two of the most important members of the Mexican government to the dedication ceremony of the first artificial reef.

Send your contribution today! It will be applied to a most important project whose results will be obvious for years to come.

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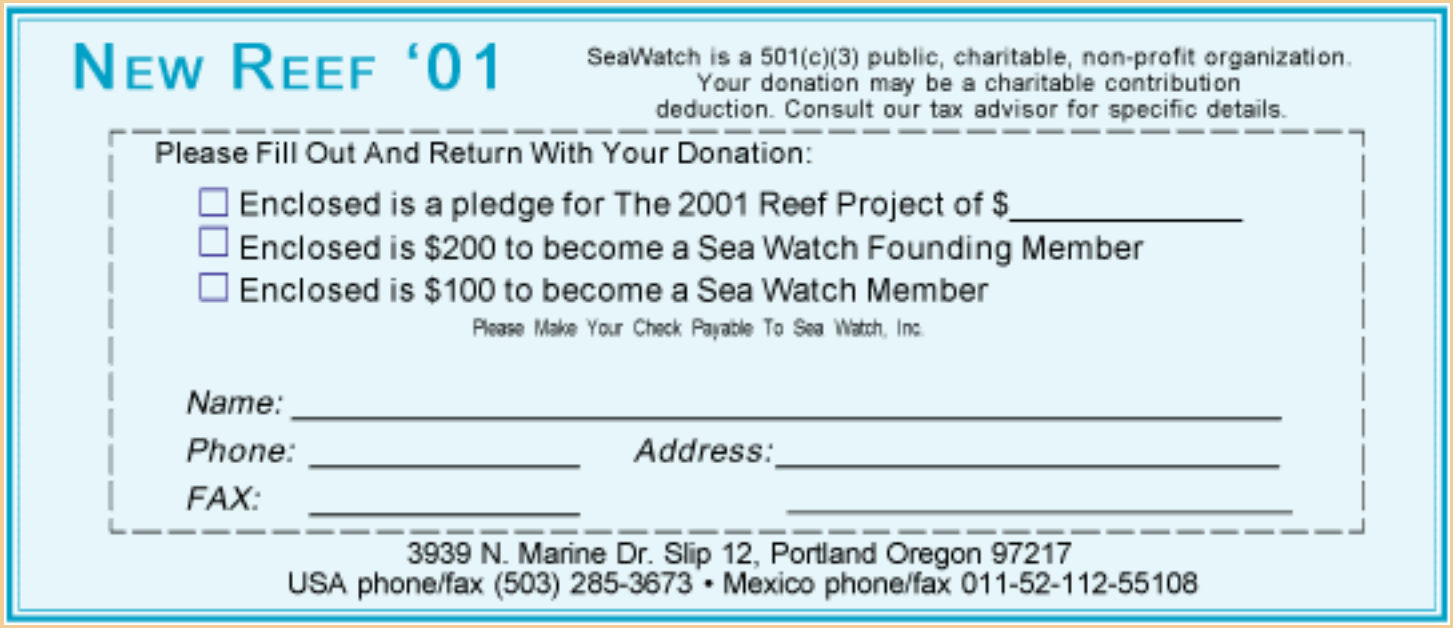

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An Overview of The SeaWatch 2001 Survey On the Health of the Sea Of Cortez

The 2001 SeaWatch survey of the Sea of Cortez was the best ever. Every year SeaWatch takes a trip from La Paz to Loreto, interviewing fishermen in fishing camps and on the high seas. We also dive and film existing reefs, while making a series of television special reports. This trip included scientists, television people and others interested in the Sea of Cortez.

This year there were three boat loads of people that left La Paz at noon on June 16th. Two of the boats carried Mexican guests of Miguel and Barbara Sanchez Navarro and Fernando Chico. The guests included a number of important members of Mexico's govenrment and industrial leaders. The Ambar III had aboard major SeaWatch contributors Kozy Boren and Jerry Guthrie, who is heading up our artificial reef program, as well as, Dr Russ Nelson, who has been hired by the Billfish Foundation to work with Mexico on the dramatically declining billfish population in their country. Also along were Ellen Peel, President of the Billfish Foundation and Armando Figaredo, Televisa news correspondent and TV producer.

During the trip Kozy Boren and Mike McGettigan, SeaWatch founder, gave Pronotura $10,000 to start the second new reef project in La Paz. There will be two large two hundred foot Navy boats sunk there to create Mexico's second artificial reef. SeaWatch and Pronatura teamed up on the first project by sinking two large Chinese boats outside La Paz in November of 1999. These four boats will form an underwater marine park that will be a boon to diving in La Paz. Jerry Guthrie (cjguthinpdx@aol.com) will be heading up this project for SeaWatch. We have pledged another $40,000 to help complete this project.

The entire group met at Carmen Island to see the new sanctuary for desert bighorn sheep. There are over seventy-five animals there now.

There was not much optimism for the fisheries. All fishing groups (commercial and sportsfishing) in Loreto Marine Park said that fishing had gone down in the last few years even futher.

Summary of the 2001 Sea of Cortez Survey

Local fishermen between La Paz and Loreto are subsisting on huachinango and hurel. Fishing is a little better this year than last by about hundred kilos a day. The current price for fish is nineteen pesos for first-class fish, thirteen pesos for second-class fish and six pesos for third-class fish. A new co-op at Tomabichi has twelve fishermen and is catching about two tons of fish per week. Nets are not being used much in this area.

In the Loreto Marine Park things are bad. The sportsfishing fleet says business is off 40% to 50% from last year. They used to go out five or six days a week, now is two to three days each week. The commercial fishermen that have 150 permits to fish in the marine park say that there are no fish left and the money they make with their catches can't even pay

for the gas to catch them. At the same time, the marine park is going to start charging everyone five dollars a day to use the park. If one of the park's goals was to bring more people in to help the local economy, they have failed miserably.

An Important Review of the Sea of Cortez by Dr. Russ Nelson

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Nets - Killers Of the Sea

Nets, specifically, monofilament gill nets, have been the scourge of the Sea of Cortez. They became the tool of the panga fisherman in the late 1970's and early 1980's. Close upon their heels were the big boats with nets that literally scooped everything up in their path. Regardless of the size of boat and net, the pattern was the same: the species of choice was sold and the rest, often the bulk of the catch, was discarded to die on the sea bottom. It took only a few years to witness a dramatic decrease in the fisheries throughout the Sea of Cortez.

A marine biologist from Guaymas estimated that between 5,000 and 7,000 pangas were, and still are, fishing the Sea of Cortez. That's between 5,000 and 7,000 nets that can be spread over the few hundred reefs and corridors used by migrating fish. Finding as many as 30 nets on a small reef of less than one half square mile was not uncommon. The populations of fish are now so decimated that the fishermen very seldom can use all their nets, except for shark and manta.

The best years for panga fishermen from the Loreto to La Paz area were between 1981 and 1984. The fishermen were getting between 3-8 tons of Yellowtail a week per panga, not counting the bonus catches of bottom fish. Now, at the same time of year, there are no Yellowtail in their nets. Catching this species requires that they fish deep with long lines and hooks. Even so, they can only get 10 to 20 Yellowtail per week.

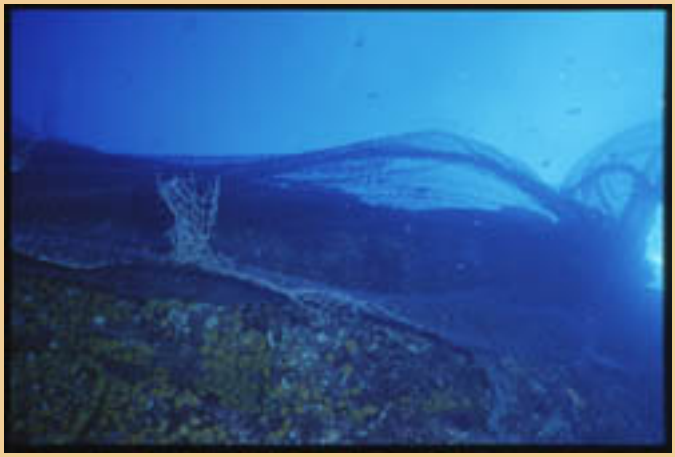
The nets have done their job all too well in this area of Sea: five years ago the fish brokers bought 150 to 200 tons of fish a week, today they are lucky to buy 10 to 15 tons. The "harvest" has dropped 90% in five years.

This one area of the Sea is not an "isolated example." When SeaWatch did its first Report on The Health of The Sea of Cortez, in 1995, most fisheries throughout the area had declined between 70% and 80%. The situation has not improved.

Nets kill everything. The misconception that you can change gill net sizes and save certain fish is wrong. Nets kill sealife indiscriminately. And they have a stubborn history of continuing to kill long after the fishermen who own them have either lost or discarded them. SeaWatch has gathered dozens of stories of seamounts and reefs becoming killers rather than havens for fish, all because of lost or thrown away nets.

But, the damage goes deeper than the decimation of the premier species. Nets are responsible for bringing the Sea of

Cortez to very brink of becoming a dead sea, an empty body of water no more alive than a swimming pool.



It has to do with chicken feed. Sardines are a major source of food for all the structure-dwelling fish throughout the entire length of the Sea of Cortez, such as, cabrilla, snapper, yellowtail, grouper, amberjack and roosterfish. Nets scooped up more than 1,000,000,000 pounds of sardines a year during the peak years - all to feed chickens. When the once famous fishing destinations in the Sea began seeing 50% drops in those coming to fish, the word was out: the great fishing that once was the Sea of Cortez was gone.

All because of nets and the greed that put them into the Sea of Cortez.

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The Accomplishments of our first 5 years

SeaWatch in its first five years has been able to help accomplish some great things and it's been done on a budget of under $30,000 a year. Every dime donated goes directly into the projects we are involved in. There are no salaries paid to anyone. Even our legal work and printing are donated. I've listed some of our major accomplishments below:

1. **SeaWatch** though a video and television specials, brought to the attention of Mexico and the world the slaughter of the Giant Pacific Mantas (largest in the world) of the Revillagigedo Islands. As a result the Islands are now a game reserve, no commercial fishing is allowed within 12 miles and there is a $10,000 fine for killing a Giant Pacific Manta. Also there is now over $2,000,000 spent by divers each year coming out to see and film these gentle giants.
2. **SeaWatch** caught and filmed over 25 boats illegally fishing in the Revillagigedo reserve. Our special reports on Mexico's most watched evening news (100,000,000 viewers worldwide) caused 12 of these boats to be arrested and the Navy now has put a frigate on patrol within the reserve to further reduce illegal fishing.
3. **SeaWatch** produced over 60 special reports that have been aired on Mexico's most watched evening news. These 3-5 minutes reports are hard hitting and have made Mexican's aware of many destructive practices taking place in the Sea of Cortez and it's surrounding waters.
4. **SeaWatch** last year photographed the killing of Whale Sharks in the Loreto area and spearheaded a petition drive to stop the killing of Whalesharks and Giant pacific Mantas in the Sea of Cortez where neither was protected. Over 3000 petitions have been delivered to Mexican officials and there is now Federal legislation being drawn up to protect these magnificent creatures in the future.
5. **SeaWatch** though a series of articles and Television special reports was able to give the Mexican officials a clear view of the problems in the Loreto area, which has now been turned into a marine park. We are currently producing a series of television reports showing the continuing abuse and destruction in the Marine Park.
6. Our work has created interest from the world press and brought in writers and film crews from around the world to chronicle the destruction of the Sea of Cortez. Their work has helped Mexico to focus on stopping the destruction.
7. **SeaWatch** developed the plan for the artificial reef program with Pronatura (Mexican ecology group), paid for the initial feasibility studies and contributed 25% of the money spent to sink the first two boats. These first two boats are the start of a major effort to sink many of the old and dilapidated shrimpers that still exist. A befitting end for the boats responsible for much of the destruction of the Sea of Cortez in the first place.

8. **SeaWatch** and the Brooks Institute of Photography teamed up to produce a video on the beauty of the Revillagigedo Islands. The script is by Carlos Eyles and famous underwater photographer Howard Hall assembled the show. Its purpose is to raise the awareness and concern of the Mexican people for this rare and uniquely beautiful Archipelago. It will be shown on television, in the schools of Mexico as well as on the airlines. It is being produced in English and Spanish.

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Archives of Past SeaWatch Articles and Activities

1998 SeaWatch Reconnaissance Trip Through The Lower Gulf

In 1998 SeaWatch investigated the lower gulf of the Sea of Cortez, from La Paz to Loreto, using it as a microcosm of the general state of the whole Sea. Our expedition exposed the usual short-sightedness of the greedy, while, at the same time, it discovered areas of hope for this most fertile part of the Sea. Today, it is a historical document many can use to track the progress or the lack thereof of those attempting to repair the damage done to this area of the Sea.

Illegal Fishing Activities Observed at Roca Partida

On the morning of Friday, November 27, 1998 six fishing vessels were observed at Roca Partida, a remote islet in the Revilligigedos archipelago southwest of Baja California. There was no apparent reason, other than fishing, for these commericial boats to be at Roca Partida. The problem was that these boats were in no-fishing zone. This episode underscored the threat to the Sea of Cortez posed by illegal fishing

Whale Shark Killed In Protected Loreto Marine Park

On November 24th 1998, fishermen from

Juncalito, a small fishing village just outside of Loreto and in the middle of its new marine park, harpooned a juvenile Whale Shark in the head (pictured below). After several hours of dragging the fishermen and their pangas behind it, the Whale Shark died. It was hauled onto the beach, where it was cut up. This would never have been done years ago, since the whale shark was considered inedible by natives of the Baja. As more and more fishermen have come from the mainland, that has changed, since those fishermen have been killing Whale Sharks for years. It is now just another fish to hunt in the Sea of Cortez...

Mexican Navy Patrolling Revillagigedos Islands

Persistent reporting of illegal fishing in the Revillagigedos Islands by SeaWatch had pushed the Mexican Navy to begin patrolling the Islands on a regular basis starting in early February 1999. The Secretary of the Mexican Navy officially announced his intention to stop illegal fishing there once and for all in a communique issued on July 18, 1999. The patrols began, but were later cancelled.

"Shadows In A Desert Sea"

A first-account of the "way it was" by renowned underwater photographer Howard Hall. A deeply personal story by a man who has spent more than twenty years in the Sea of Cortez and who has seen its demise first-hand.

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1998 SeaWatch Reconnaissance Trip Through The Lower Gulf.

The crew aboard Ambar III getting ready for the 1998 Sea Watch trip through the lower gulf.

Dates: July 7 through 15, 1998
Location: La Paz to Loreto

Overview of our trip in the lower gulf:

There were more first class fish, such as Pargo, Cabrilla and yellowtail, seen on this trip than in years past. Individual fisherman saw slight increases in catches of these fish. At the same time, there continued to be large decreases in Dorado, sailfish and all bait fish, such as sardines and anchovies. The average, full-time, local fisherman was making a net of between $15.00 and $25.00 a day, which is up a little from recent years. Most local fishermen have voluntarily given up nets, mostly because they don't catch anything now. But be forewarned: the nets will go back in the water as soon the fish that net easily reappear in significant numbers. Illegal fishing is primarily limited to the Mechudo fish camp. There are more and more fishermen from the Mexican mainland side of the Gulf, especially Topolabampo, coming to fish the Baja side. They make the dangerous 12-hour trip across the Sea in small boats because there are no fish left on their side.

The Lower Gulf: The lower gulf on the Baja side between La Paz and Loreto is the most beautiful and accessible area in the Sea of Cortez. It has beautiful tropical waters and attractive offshore islands. The area easily could be made into a mecca for ecotourism, generating 2 to 3 million dollars annually for La Paz and Loreto. This is the last area with significant sealife, yet Mexico has shown almost no political will to save or utilize it. All it would take are three things:

- Create a one kilometer no-fishing zone around the main offshore islands. The island's landmasses are already protected, but not the waters around them.

- Sink eight to ten large boats in the La Paz and Loreto area to create artificial reefs. These would become important dive sites and would also be protected by a one kilometer no-fishing zone. The 11 local dive shops, with the help of SeaWatch, could advertise this area world-wide. The dive shops would also be responsible for policing the no-fishing area.

- Protect the sea mount El Bajo and the Sea Lion rookery outside La Paz, both of which were once world renowned dive locations. Again, the dive industry could be used to protect these locations.


Shrimp boats continue to fish and then off-load their catches in the Marine Park

Loreto Marine Park: The government has made the Loreto area a marine park, but as yet, it has no enforcement policies or regulations and its preliminary management plan seems to be an attempt to appease everyone. Currently there is more commercial fishing inside the area than before it became a Marine Park, almost 4 years ago. Their major success to date is stopping shrimpers from dragging in front of the town.

There are two good things going for the park. First, the Nature Conservancy, and their program manager Serge Dedina (E-mail sldedina@aol.com), are putting up quite a bit of money to help and they are taking an active roll in making sure that the money yields results. Second, the Park manager is a very knowledgeable and energetic young man named Benito Bermudez. He grew up in La Paz diving, spearfishing and fishing the area. He has watched its destruction first hand. He is a teacher and has a strong desire to see the park work. His knowing what's happening in the field will be a huge asset. SeaWatch will continue to be very involved here.

Trip Details:

July 6, 1998: We started our trip in the main fish market in La Paz, where we found that the number of fish purveyors had increased in the last two years from about 4 to a dozen. They all said there were more fish available, mostly on the Pacific side. They had buyers in remote areas along the Pacific Coast. They felt that very few fish were coming in from local fishermen working the Sea of Cortez.

July 7, 1998: 38 miles north of La Paz, (Water temp. 85.5 F). The first day out we visited a local seamount called El Bajo or the Marisula Sea Mount. This amazing place was once the pride of the Sea of Cortez and has been world renowned for its schooling hammerhead sharks. For the past 20 years commercial fishermen with nets and longlines, as well as, sports and spearfishermen, have devastated this once prolific reef. While we were there, a local fisherman came out and put a mile's length of longline over the reef. The next


The schooling hammerhead sharks have made the dive site at El Bajo world famous. Yet, commerical fishermen still kill them everyday.


Commercial fishermen working El Bajo, a reef that also supports eight dive shops.

morning we found two dead hammerheads on the longline. There are 11 dive shops that could bring hundreds of thousands of dollars a year in tourism to this area, yet no one has had the political will and organization to stop commercial fishing on this reef.

We found El Bajo to still have some real reef life left. There were actually more reef fish than two years ago. There were more Pargo, Grouper and Cabrilla. This comes from the fact that 11 dive companies are competing with fishermen for use of the reef and they eventually succeed in driving the local fisherman off during the day. Later that day, we stopped and interviewed a local fishermen, Refugio Amador Castro, at San Francisquito. He fishes with hook and line and chinchorro and catches parrotfish in the nets and triggerfish on hooks.


Thousands of conch shells left on the beach at Mechudo - all illegally taken without permits.

July 8, 1998: We spent this day with the Cuavas family on the small Island of Partido, 45 miles north of La Paz. This family has been fishing these waters for over 80 years and has seen the devastation first hand. Almost their entire catch has become second class fish and, like most of the other local fisherman, they have voluntarily given up using nets. (NO THANKS TO PESCA). They told us about a fish camp at Mechudo that was using hooka gear to night dive and shoot fish. We went to the fish camp and found a family that was engaged in illegal fishing. They were taking lobster, octopus, sea cucumbers and conch without permits. They were also night diving to kill parrot fish with spearguns. They bring in 300 to 500 kilograms of fish a week, plus 100 to 200 kilograms of conch, 100 kilograms of sea cucumber and about 100 kilograms of octopus - *all* illegally. They make between $2000 and $3000 per month. They said Raul Castro from La Paz, who also has no permits and is wanted on several illegal fishing charges, financed them. The officials at PROFEPA have been given the evidence and we will be following up to see what they do.

July 9, 1998: We spent the day at one of the small Islands outside of San Jose Island, called Animas. We talked to the local fishermen who said that each fisherman was getting about 20 to 30 kilograms per day. With the average price at about $1.00 a pound, each fisherman was grossing about forty to fifty dollars a day. After expenses, their take came out to between fifteen and twenty-five dollars a day. We saw more Pargo, Cabrilla and yellowtail than in years past, but almost no grouper, Dorado, baitfish or sailfish.


Local fishermen told us that "Fishing in the lower Gulf has decreased by 60% to 70% in the last dozen years."

July 10, 1998: We were at Santa Cruz Island where we interviewed the fisherman from the boat "Halcyon de la Costa." They were from Topo. They had 6 people fishing and would get about 1 ton of bottom fish each week, about a two thousand dollars gross per week. They blame the lack of fish on nets. They say they also use only hook and line. The water around the Island was clear and 87 degrees. This area has tremendous potential for ecotourism and should be protected.

July 11, 1998: We were still at Santa Cruz Island and spent some time talking with fishermen from Punta Alta. They fish Pargo Blanco and Estacudas and said that 10 years ago they would get 100 kilograms of prime fish every day. Now they get less than 30 kilograms (this was consistent with our findings throughout our trip: fish catches are off about 60 to 70%). They worry most about night divers with spearguns and trawl nets (shrimpers). They are making about $1.00 per

fisherman and are getting about three pesos per kilogram for triggerfish, five pesos per kilogram for parrotfish and sixteen pesos per kilogram for huachinango.

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Illegal Fishing Activities Observed at Roca Partida

On the morning of Friday, November 27, 1998 six fishing vessels were observed at Roca Partida, a remote islet in the Revilligigedos archipelago southwest of Baja California. Observations were made by a group of divers anchored nearby.

We arrived at Roca Partida at approximately 7 A.M. on November 27, 1998. The fishing vessels were motoring around Roca Partida and one another. At approximately 8 A.M., they apparently became aware that we were taking photographs and video of their presence at the islet. Some of the boats moved away from the rock and us, while others (Macel, Nair III and Tatiana) moved closer to a cluster of floats and a flag floating in the water.

The Macel eventually moved between us and the floats/flag and then apparently retrieved the floats/flag. Soon after, all the fishing vessels moved away from Roca Partida, remaining approximately one mile away throughout the day. It is our belief that they returned to Roca Partida to resume fishing when we left at approximately 5 P.M. There was no apparent reason, other than fishing, for these commericial boats to be at Roca Partida.

There was no adverse weather from which they may have been seeking protection. None of the boats were anchored near the islet, nor did they ever appear to try anchoring. Weather conditions were overcast skies clearing by 9 A.M., virtually no wind or surface chop, 10 to 15 foot long period swells,

and little current. Large schools of skipjack tuna, and schools of yellowfin tuna, bigeye crevalle jacks and wahoo were observed by divers at Roca Partida during the day.

This material is courtesy of Phillip Colla, whose web site at

http://www.oceanlight.com/html/partida_fishing.html details this tragedy. Our sincere thanks to him for giving us this valuable information so soon. You can be sure that we are moving on this violation immediately.

You can also gain further insight into the problem by visiting Baja Life's EcoWatch site at http://www.bajalife.com/ecowatch/tday.htm

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Whale Shark Killed In Protected Loreto Marine Park

On November 24th 1998, fishermen from Juncalito, a small fishing village just outside of Loreto and in the middle of its new marine park, harpooned a juvenile Whale Shark in the head (pictured below). After several hours of dragging the fishermen and their pangas behind it, the Whale Shark died. It was hauled onto the beach, where it was cut up. This would never have been done years ago, since the whale shark was considered inedible by natives of the Baja. As more and more fishermen have come from the mainland, that has changed, since those fishermen have been killing Whale Sharks for years. It is now just another fish to hunt in the Sea of Cortez.

In September of this year, we talked with some fishermen from Sinaloa who are now living in La Paz. They had plans to go out late in the day and kill the two big Whale Sharks that had been seen in the La Paz area throughout the summer. These animals had provided hundreds of divers, from all over the world, a chance to interact with the world's largest fish. They had also been the mainstay of the eight dive shops located in La Paz.

We looked at the harpoons these fishermen had made from 1 inch rebar and tried to convince them that the Whale Sharks were more valuable alive than dead. Killing these giant fish, which they had almost no chance of actually bringing to shore, would have seriously hurt the local dive shops and provided no benefit to anyone. Yet, the fishermen told us, "The seas of Mexico are for all of us and no one can stop us from killing those Whale Sharks."

They were right, there are no laws against killing these amazing animals that are worth literally hundreds of thousands of dollars alive and almost nothing dead. Twenty years ago, Mexico's Sea of Cortez was the number one dive location in the world to see Giant Pacific Mantas, Hammerhead Sharks and Whale Sharks. Now it's not even listed in the top 100 dive spots. It is imperative that Mexico protects these valuable animals while there are still some left.

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Mexican Navy Patrolling Revillagigedos Islands

Persistent reporting over the last three years of illegal fishing in the Revillagigedos Islands by SeaWatch has brought in the "cavalry." The Mexican Navy began patrolling the Islands on a regular basis starting in early February 1999. And the Secretary of the Mexican Navy officially announced his intention to stop illegal fishing there once and for all in a communique issued on July 18, 1999.

The Revillagigedos Islands are one of the most beautiful archipelagos in the eastern Pacific and the one place in all of Mexico's waters where a marine reserve has been established before there were dramatic declines in its fisheries. Since SeaWatch and Pronatura, a Mexican ecology group, got the Giant Pacific Manta protected there in 1995, two very different things have happened at these islands.

A two million dollar a year eco-tourism industry has developed there. Hundreds of people are diving the islands to see and film the giant Pacific mantas that make these islands their home. On the other hand, the entire area has been plagued by illegal fishing inside the twelve mile no-fishing zone that was created around the islands. Many commercial fishing boats were willing to risk getting caught in order to profit from the rich waters surrounding these islands.

Since SeaWatch was instrumental in helping establish these reserves in the first place, it decided to spearhead a campaign to report and help arrest the commercial boats that were illegally fishing inside the 12-mile no-fishing zone. SeaWatch began providing monthly reports on illegal fishing to Televisa, Mexico's largest television network. Televisa ran our reports on their evening news, which was seen by 100,000,000 Spanish-speaking viewers world-wide. Further, SeaWatch reported every incident of illegal fishing activity to PROFEPA, Mexico's fish and game enforcement arm, and worked with them to have these boats prosecuted.

In January of 1998 a number of boats were caught illegally fishing. All were fined $5000 each and one was fined more heavily and held in port for over seven months, since it had been caught illegally fishing before. In November of 1998, 6 more boats were caught and this February a trawler was caught fishing off San Benedicto, inside the marine reserve's no-fishing zone. Since then, SeaWatch, with the help of several other boats, has caught 11 more boats.

So it came as a pleasant surprise when the Ambar III, arrived at San Benedicto Island in mid-February to find that a Mexican Navy frigate was on patrol there.We have not seen a single boat fishing within the 12-mile no-fishing zone around the Islands since then. Mexico and their navy are to be congratulated for their quick response to the increased illegal fishing at the Revillagigedos Island. At the same time, we encourage everyone who visits this archipelago to keep their eyes open and their video cameras handy.

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The Health of The Sea of Cortez

"Shadows In A Desert Sea"
By Howard Hall

PHOTOS ALSO BY HOWARD HALL

At the end of a long dive one September morning in 1981, I paused at the summit of the Marisula Seamount to see if the tube blenny was home. Checking on the tube blenny was routine. Physiology always forced me to the surface well before I was ready to go. But I often stopped briefly at the mountain summit to see the blenny, and to let myself imagine what wonders he must see from his tiny home in an abandoned barnacle perched at the top of an undersea mountain. What marvels would one witness during a lifetime of observation from a home with such a view?

The tube blenny was a tiny fish less than three inches long. But what he lacked in size, he more than made up in animation. He breathed so rapidly, opening and closing his tiny mouth as he pumped water through his gills, he seemded to be delivering a lively soliloquy. His eyes moved independently, allowing him to watch for danger in two directions at once. The tiny orbs darted about so rapidly it almost made me dizzy to watch. What a great character for a wildlife film, I thought. And what a great place to make an undersea wildlife film.

I looked up to see the CCMar hanging heavily in the sky above. The dilapidated cement tub we had chartered three weeks earlier, for making a Wild Kingdom film about hammerhead sharks, was anchored far overhead. I had no great desire to return there. The round concrete hull pitched and rolled unmercifully in the mildest wind chop. Her decks offered no protection from the summer sun. There was no refrigeration for maintaining fresh foods. The toilet offered no privacy. The superstructure had caught fire the night before causing considerable damage. This damage caused little concern since the value of the vessel could not be decreased further by anything short of sinking. And whether sinking could depreciate its value or not was argumentative. No one, however, cared to argue the matter when the pathetic vessel sank in La Paz harbor five days after our film crew disembarked.

The CCMar was no luxury livaboard, but I didn't care. It was only a place to sleep and replenish my energies for making another wonder-filled dive. In those days the waters surrounding the Merisel Seamount were filled with fish. Giant pacific mantas soared the rising currents upwelling over the escarpment. Whale sharks lumbered along close to the seamount walls. And legions of hammerhead sharks regularly rose from the

depths to cast their shadows across the rugged summit.

The shadow of a manta ray passed over me and I looked up to watch the familiar beast fly off across the seamount. Suddenly, I was surprised to see another diver rise over the escarpment on the opposite side of the mountain. By his equipment and the large red camera housing he was pushing, I realized he was not a member of our small group. But as he swam across the seamount with exceptionally powerful yet graceful strides, moving easily, yet nearly twice as rapidly as an average diver, I realized I knew him. I hadn't known that Jack McKinley was working in the Sea of Cortez, but there was no mistaking him even from eighty feet away. I leapt off the reef and started swimming in his direction. He too was surprised and puzzled at first (we both thought we had the Marisula Seamount to ourselves that morning), but as the distance closed he stuck out his hand to greet me. What a small and wonderful world, I thought.

That evening the setting sun splashed vermilion light against the high clouds as I ravenously consumed a modest dinner of chicken soup and tortillas. One of the launches from the Baja Explorador started up and headed in my direction. A minute later, Jack and a few friends climbed aboard the CCMar for a visit. We talked about hammerheads by the glow of a gas lantern as the vermilion sky was replaced by stars. As I finished my meal, I noticed a strange expression on Jack's face.

"What is it?", I asked breaking the flow of conversation.

"It's got feathers on it for Christ's sake!", he said pointing to the chicken leg I was gnawing on. I pulled the scrawny leg from my mouth and realized that, indeed, it had the foot, nails, and feathers still attached. Having spent three weeks on that wretched vessel without a bath, without a shave, with little more than chicken feet soup to look forward to, I realized I had, indeed, lost some degree of civilization. Recalling the scene, I always wished I'd come up with something clever to say at that moment, but Jack started laughing and the chance was lost. We all laughed so hard we nearly fell overboard.

More than ten years later I was again anchored over the Marisula Seamount. As I sat on the ample bow of the Ambar III sipping a cold drink as the sun set once again over the Baja Peninsula, I often thought of adventures past, opportunities seized and lost, and friends departed to explore deeper waters. A lot changes in ten years. The Sea of Cortez remains one of the most wonderful undersea wilderness environments on Earth. But much has changed here as well.

"You still want to make this dive?" Mark Conlin asked as he stepped out of the wheelhouse and onto the bow.

"Helluva current", I said standing up to look over the rail.

"Yeah!", Mark said thinking I had reconsidered making a night dive to film Tubastrea corals.

"Corals should be out in force. I guess we should give it a try".

"Ok, I'll put the zoom on the camera and put up a fresh magazine", Mark said then walked away shaking his head.

The current was strong but the idea was to film Tubastrea corals feeding in current. You simply needed current to do that.

Bob Cranston came up on the bow a minute later carrying the cable-supplied movie lights. "Still wanna make a night dive, huh?", he said. He must have been talking to Mark. Bob was always up for another dive no matter what. However, sometimes you had to wake him up after falling asleep in his dessert plate. Bob can sleep anywhere, anytime of the day. Producers sleep only when the day is over and then only if they're achieving their goals. Bob and I had spent most of the day filming hammerheads with mixed gas rebreathers. We were both a little drawn out, but I felt we had one more dive in us. An all out effort makes it easier for a film producer to get a good night's sleep.

"What do you think, Bob? Too much current?", I asked knowing he would discourage only the most impossible dive.

"No", he said. "Should be all right", he replied as he tightened the lamp heads on their ball joint arms.

There was still a red glow on the horizon as Bob, Mark and I stepped off the stern of the Ambar. Current was too strong to swim to the anchor line. So my wife, Michele, played out the cable lights from the surface as we plunged straight down through the current until we reached ninety feet and the calm water on the lee side of the seamount. We worked our way up the seamount wall and over a ledge at the summit. Here we were able to brace ourselves against the current as we inched along looking for patches of coral. Water visibility was poor, but that didn't matter much since all I had in mind were close-ups. Now and then I would pause and take a shot of the brilliant yellow polyps extended by the corals to catch the plankton and detritus hurtling by.

It didn't take long to get the shots I needed and that was well since our bottom time was very limited. The tricky part was getting back to the boat with all that gear at the end of the dive. We had a plan for that. Since Bob and I had spent a lot of time underwater that day, Bob would leave early and scout ahead to find the anchor line for precautionary decompression. He would then signal the position of the anchor line with his dive light. Mark would take the cable lights and be on his own to make his way to the anchor line. I would stay put with the camera and tripod until I got Bob's signal so as to not risk missing the anchor line after using up all my bottom time.

After Mark left, I leaned back against the ledge, turned on my small Q-light and waited for Bob's signal.

I ran the beam of my light across the rocky ledge and marveled again at the myriad tiny creatures that lived there. This was to be our last night dive in the Sea of Cortez. Tomorrow would be our last day. During the last two years, we had regularly dived from the decks of the Ambar III as we constructed a one hour wildlife film about the marine life of the Sea of Cortez. We had exposed nearly forty hours of film during that time and made hundreds of dives.

As we made the film, our science consultant Alex Kerstitch, guided us through the food web of the Sea of Cortez revealing to us and our cameras the secret lives of dozens of unusual animals and the overwhelming forces that now threaten them. Alex had been diving the Sea of Cortez ten years before I made my first dive there. The stories he told of vast shoals of tuna, hammerhead shark fins on the surface as far as you could see, schools of manta rays and other wonders often seemed like tales of fiction. But then I thought back to my first years diving these waters.

In 1981 mantas were common on the Marisula Seamount. You could almost always see three or four mantas on a dive. In the summer, whale sharks were regularly found there. And it was quite easy to free dive into schools of hundreds of hammerheads.

During 1991 and 1992, the two years we spent making our film, we never saw a single manta or whale shark in the Sea of Cortez. To capture images of these animals we were forced south to the open Pacific. The hammerheads are still found at the Seamount, but not in the number I remembered from a decade earlier. Bob and I were forced to dive deep and long to find schools like the ones Alex talked about that swarmed on the surface twenty years ago.

But Mark Conlin had never dived the Sea of Cortez before 1990. To him, this was a wonderland filled with schools of hammerheads, marlin, and sailfish. I wondered what younger colleagues diving with him in the year 2000 will think of his stories of a decade past? Ten years seems to be a good period for measuring change in an undersea wilderness. It doesn't matter when you make your first dive in an area, ten years later the site will almost always seem "dived out". You enter a wilderness environment on a time-line that represents diversity and abundance as a declining curve. Whether you make your first dive in 1945 or 1992, you enter the curve high and leave it low.

It's easy to blame divers for wrecking a popular dive site. Divers inadvertently abuse the reef with their fins and abuse marine life by pursuing, touching, even riding wild animals. Dive masters are quick to discourage these abuses today because these are things they can do something about. But they often helplessly ignore the rusting hulks of fishing boats lurking on the horizon. Make no mistake, for every manta touched by a sport diver in the Sea of Cortez and elsewhere, thousands die in gill nets. For every hammerhead disturbed by a photographer, thousands die on long lines. And, especially in the Sea of Cortez, for every fragile coral damaged by the fin of a diver, miles of sea floor are ripped up and desolated by shrimp trawls. During the making of our film we had many opportunities to wait below commercial fishing boats as they cast their incidental kill back into the sea. The ominous shadows spiral down, threatening no one but the sea itself.

I looked at my Orca meter and saw that I had five minutes left. I was going to have to move soon. Where was Bob's signal?

Bob had left me and began swimming forward of the light shining down from the Ambar. But he missed the anchor line. The current was impossible to swim against and he was swept down stream. Realizing his mistake, he began swimming

across current to intercept the dive ladder. Bob climbed up the ladder and yelled for another tank. He leaned over the rail and touched the movie light cable and, feeling it taut as a guitar string, pointed down stream to a glow 250 feet astern and said to Michele, "Somebody better go and get Mark. He's going to get lonely out there". Throwing a fresh tank on over his head, he trudged up along the deck, with his fins still on, and climbed up on the bow. Then he turned his light on and dived off. Michele thought he had lost his mind.

I had just begun contemplating an attempt to navigate back to the anchor line myself when I saw Bob's light flashing. "What the hell took him so long?" I wondered. Dragging the heavy camera and tripod, I worked my way across the seamount toward Bob's light and the anchor line for decompression. When I joined him he shrugged as if to say, "Sorry". And judging from the look in his eye, I anticipated a few good laughs over a cold Corona or two when we got back on board. Later that evening we would plan our last day of diving in the Sea of Cortez.

Suddenly I realized just how much I was going to miss the Ambar and our dives in this wonderful sea. I looked up stream and watched as galaxies of bioluminescent plankton rushed by. It had taken nearly two years to make a wildlife film about the marine life of the Sea of Cortez, and now with the filming finally over, it's like saying goodbye to an old friend you never expect to see again.

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Dedicated to a Healthy Sea of Cortez

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An Overview on Situation at the Revillagigedo Islands

Profepa (Mexico's attorney general) ruled on a lawsuit filed 1 year ago by a group of concerned Mexican's. These Mexicans represented the marinas, hotels and diving industry, The Profepa ruling says that any fishing at the Islands must conform to the biosphere laws of Mexico. Those laws say no fishing in the nuclear zone (5 kilometers from the Islands) of a biosphere. See boundaries map of the Revillagigedo biosphere, nuclear zone and buffer zone below,

The Revillagigedo Islands were made a biosphere in 1994 by decree of the then President, therefore no fishing in the nuclear zone. Even with a management plan, the law says no fishing in the nuclear zone of a biosphere. See the letter from Profepa to Watch below. It looks to us like it will take a major change in the laws of Mexico to again allow fishing at the Islands.

The feeling in much of Mexico is that the agreements made to issue fishing permits at the Islands by PESCA and INE in the past were ill advised and did not conform with existing Mexican Law. It is felt that the experimental shark permits currently being issued by PESCA to Longliners (so that they can really fish billfish) fall in that same category.

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Report to Seawatch Following 8-day Cruise to the Revillagigedo Island Archipelago

By Salvador Jorgensen

The cruise was from May 19 to 27, 2002. We visited San Benedicto, Socorro, and Roca Partida Islands. The purpose of this cruise was to perform a preliminary (observational) assessment of the pelagic fish resources found within the 12-mile protected buffer surrounding each island, and to consider the feasibility of future studies to evaluate populations of sharks, rays, tuna and wahoo. These studies would be important to inform a future management plan for pelagic species within the Revillagigedo biosphere following enforcement of a fishing closure, which effectively began in early 2002.

A Naval officer at the Socorro Island Naval base informed us that their surveillance efforts had increased since March 2002 and that they now had an aircraft allocated for daily flyovers of the islands. During our cruise we saw the Grumman twin-engine plane on several occasions. Also anchoring at Socorro Island has been confined to the area adjacent to the Naval base.

Of primary interest in this effort is whether these pelagic populations (particularly wahoo, *Acanthocybium solandri*), which according to Seawatch appear to have been declining, will increase following the closure. One possibility is that wahoo, tuna and many sharks have such wide-ranging movements that they will not reside within the protected areas long enough to provide significant protection from fishing mortality. In this scenario, it is likely that the island adult populations are well connected with surrounding populations (Baja, mainland Mexico, and the open ocean), and that island abundances will reflect surrounding regional abundances. Additionally displaced fishermen are likely to relocate their efforts in the surrounding areas – resulting in no local population growth for these pelagic species. Another possibility is that pelagics do have sufficient residence time within the protected areas to reduce overall fishing mortality to a degree that will significantly shift local fish size distribution towards larger individuals and greater reproductive output.

I suggested that there might be two approaches to this question. One would be to attempt to measure a population trend following the closure, and the other would be to try and measure residence time and home ranges in the species of interest. The likelihood of performing a fisheries independent survey over a long enough time period and with

sufficient precision to detect a significant trend in relative abundance or size distribution seems low given the scale and ephemeral nature of this pelagic environment. Measuring fish movement (residence time), although not without limitations, may be a more tangible undertaking in this case.

In a recent tagging study conducted jointly by CIBNOR of La Paz and UCDavis, I tagged yellowfin tuna at a seamount (El Bajo Espiritu Santo) in the southern Gulf of California with surgically implanted acoustic transmitters. I then monitored the tuna's attendance at the seamount using moored automated listening devises. We found that many of the 23 tagged tuna maintained a near constant presence within close proximity of the seamount over extended periods of time. Most individuals were present on a daily basis during all seasons, and two individuals remained for two years (the entire life of the transmitter). Also two out of three returned tags were from individuals recaptured at the same seamount months after they were first tagged. These results will be published shortly in Fisheries Bulletin[1]. In a different study conducted by the Pfleger Institute of Environmental Research Heidi Dewar and Michael Domeier reported similar findings; tuna tagged with simple spaghetti tags at the Revillagigedo Islands were recaptured months later virtually in the same location. These studies combined suggest that even highly mobile pelagic species such as yellowfin tuna can exhibit a surprising degree of resident behavior at distinct and productive locations in this region.

I suggested that similar tagging studies might be carried out on wahoo, if successful tagging protocols can be tested and developed. A thorough use of tagging technologies (spaghetti, acoustic and archival) could yield an estimation of dispersal rates, site fidelity, and residence time. An age/growth study aided by the adjacent sport-fishing community in Cabo San Lucas can produce information on Wahoo growth rates and reproductive age. Given dispersal estimates in the context of these population parameters, inferences could then be made as to how local wahoo populations would be expected to respond to regional protection at the Revillagigedo Islands. This could be modeled under different assumptions of natural and fishing mortality rates, inside and outside of the sanctuary.

During the cruise we performed numerous free-diver surveys estimating numbers (encounter rates) and sizes of observed Wahoo, tuna and sharks. 3 to 5 divers made repeated drift transect dives over numerous aggregation sites at all three islands and recorded data using slates and video. Given high variance in measurement and the patchiness of fish distribution (spatially and temporally) these surveys are not expected to stand alone quantitatively as a viable assessment method to measure anything but the very large changes over time. However, these observational data are very useful in assessing the feasibility of a tagging study. The successful design of a tagging program would be guided in large part by these data both in hypothesis formulation and logistics determination.

[1]Klimley, A.P., S.J. Jorgensen, S.C. Beavers, and A.M. Muhlia. (In press). The occurrence of yellowfin tuna (*Thunnus albacares*) at seamount Espiritu Santo in the Gulf of California. Fisheries

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THE GENERAL LAW OF ECOLOGICAL EQUILIBRIUM AND ENVIRONMENTAL PROTECTION

Here is THE GENERAL LAW OF ECOLOGICAL EQUILIBRIUM AND ENVIRONMENTAL PROTECTION translated into English by attorneys. Section 48 and 49 were used by Profepa to close the Revillagigedo Islands to sportfishing. They are on page 29 and 30.

Parts of the original 1994 degree used by SAC and others to show that an intended use for the biosphere was to have sportfishing are also attached, but not yet translated to English. More soon.

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THE GENERAL LAW OF ECOLOGICAL EQUILIBRIUM AND ENVIRONMENTAL PROTECTION

Effective March 1, 1988, amended by Decree published December 13, 1996 and Decree published January 7, 2000.

TITLE ONE. GENERAL PROVISIONS (Environmental Law)

CHAPTER I. PRELIMINARY PROVISIONS (Environmental Law)

Article 1. (Environmental Law)

This Law is governed by the provisions of the Political Constitution of the United Mexican States which refer to the preservation and restoration of ecological equilibrium, as well as protection of the environment, in Mexican territory and the zones over which the nation exercises its sovereignty and jurisdiction. Its provisions are for public order and of social interest, having as their objective establishment of the bases for:

I. defining the principles of general ecological policy and regulating the instruments for their application;

II. ecological regulation;

III. environmental preservation, restoration and improvement;

IV. protection of natural areas and land and aquatic flora and fauna;

V. rational use of natural elements in a manner by which obtaining economic benefits is compatible with ecosystem equilibrium;

VI. prevention and control of air, water and soil pollution;

VII. agreement between federal, state, and local government on the subject;

VIII. coordination among the several agencies and bodies of Public Federal Administration, as well as appropriate participation of society in the subject matter hereof;

The provisions of this law will be applied without prejudice to the content of other laws on specific questions related to the subjects governed hereby.

Article 2. (Environmental Law)

(Amended by Decree published December 13, 1996) The following will be considered to be as for public utility:

I. the ecological regulation of national territory in the cases provided for in this and other applicable laws;

II. the establishment, protection and preservation of protected natural areas and zones of ecological restoration;

III. drawing up and execution of protective and preservative actions concerning biodiversity of the national territory and zones in which the nation exercises its sovereignty and jurisdiction, as well as the improvement of genetic material; and

IV. the establishment of intermediate safety zones by reason of the presence of activities deemed hazardous.

Article 3. (Environmental Law)

(Amended by Decree published December 13, 1996 and Decree published January 7, 2000) For purposes of this law, the following definitions will be applicable:

I. environment - the conjunction of natural and artificial or man-induced elements that make possible the existence and development of humans and other living organisms that interact in a determined space and time;

II. protected natural areas - zones in national territory and those places where the nation exercises its sovereignty and jurisdiction, in which the original environment has not been significantly altered by man or which have been preserved and restored and are subject to the system provided in this Law;

III. sustainable use - the use of natural resources in a manner that respects the functional integrity and the capacities of load of ecosystems that form part of those resources, for indefinite periods;

IV. biodiversity - the variability of living organisms of any source, including, inter alia, land, seas and other aquatic ecosystems and the complex ecologies made up thereby; including the diversity within each species, between the species and ecosystems;

V. biotechnology - every technological application that uses biological resources, living organisms or their derivatives for the creation or modification of products or processes for specific uses;

VI. pollution - the presence in the environment of one or more pollutants or of any combination thereof that causes ecological imbalance;

VII. pollutant - any material or energy in any of its physical states and forms, which upon being incorporated or acting on air, water, soil, flora, fauna, or any natural element, alters or modifies its natural composition and condition;

VIII. environmental risk - a risk situation deriving from human activities or natural phenomena which could place the integrity of one or more ecosystems in danger;

IX. control - inspection, supervision, and application of the measures necessary for implementation of the provisions established herein;

X. ecological criteria - the obligatory guidelines contained in this Law, to orient the actions of preservation and restoration of the ecological balance, sustainable use of natural resources and the protection of the environment, that are instruments of environmental policy;

XI. sustainable development - the process assessable by means of criteria and indicators of the economic and social environmental nature tending to improve the quality of life and productivity of persons, funded by appropriate measures of preservation of the ecological balance, protection of the environment and use of natural resources, in a manner that does not compromise the satisfaction of the necessities of future generations;

XII. œcological imbalance - alteration of the interdependent relationships between natural elements which form the environment, that negatively affects the existence, transformation and development of man and other living beings;

XIII. ecosystem - the basic functional unit for interaction of living organisms among themselves and these with the environment, in a determined space and time;

XIV. ecological equilibrium - the interdependent relationship between elements forming the environment that make possible existence, transformation, and development of man and other living beings;

XV. natural element - physical, chemical, and/or biological elements that present themselves in a determined time and space without the human influence;

XVI. ecological emergency - a situation deriving from human activities or natural phenomena that upon severely affecting natural elements places one or several ecosystems in danger;

XVII. wild fauna - animal species that subsist subject to natural selection processes, and develop freely, including lesser populations found under the control of man, as well as domestic animals that due to abandonment become wild and therefor are susceptible to capture and appropriation;

XVIII. wild flora - vegetable species as well as mushrooms, that subsist subject to natural selection processes and develop freely, including populations or specimens of these species found under human control;

XIX. environmental impact - modification of the environment caused by human or natural action;

XX. environmental impact statement - the document through which significant or potential environmental impact is provided, on the basis of studies, concerning a work or activity, as well as the manner of avoiding or minimizing the environmental impact if same is negative;

XXI. genetic material - all material of vegetable, animal, micro-organic or other type of origin, containing functional inheritance units;

XXII. hazardous material - elements, substances, compounds, residues or mixtures thereof that, regardless of their physical state, represent a risk to the environment, health or natural resources, by their corrosive, reactive, explosive, toxic, inflammable or biologically infectious characteristics;

XXIII. ecological regulation - the instrument of environmental policy whose object is regulating or instigating the use of land and productive activities, with the purpose of attaining the protection of the environmental medium and the preservation and sustainable use of natural resources, from the analysis of the tendencies of deterioration and the potentialities of use thereof;

XXIV. preservation - the conjunction of policies and measures to maintain conditions which encourage evolution and continuity of ecosystems and natural habitat, as well as to conserve viable populations of species in their natural environments and the components of biodiversity outside their natural habitat;

XXV. prevention - the conjunction of preventive provisions and measures taken to avoid environmental deterioration;

XXVI. protection - the conjunction of policies and measures to improve the environment and to control and prevent its deterioration;

XXVII. biological resources - genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with a real or potential value or utility for humanity;

XXVIII. genetic resources - genetic material of real or potential value;

XXIX. natural resource - natural elements susceptible to being used to human benefit;

XXX. ecological region - the unit of Mexican territory which shares common ecological characteristics;

XXXI. waste - any material generated in extraction, cultivation, transformation, production, consumption, use, control or treatment processes whose quality does not permit using it again in the process that generated it;

XXXII. hazardous wastes - all residues, in any physical state, that due to corrosive, reactive, explosive, toxic, inflammable, or biologically infectious properties, represent a danger to ecological equilibrium or to the environment;

XXXIII. restoration - conjunction of activities tending toward recovery and re-establishment of conditions propitious for evolution and continuity in natural processes;

XXXIV. (Added by Decree of January 3, 2000, effective January 8, 2000) Minister: The Minister of Environment, Natural Resources and Fishing;

XXXV. (Added by Decree of January 3, 2000, effective January 8, 2000) Natural Vocation: Conditions that an eco-system presents to sustain one or more activities without imbalance of ecology being produced, and

XXXVI. (Added by Decree of January 3, 2000, effective January 8, 2000) Environmental Education: Process of training directed to all the society, both in the school environment and in the extracurricular environment, in order to facilitate an integrated perception of the environment for the purpose of attaining more rational conduct on behalf of the social and environmental development. Environmental education includes the assimilation of knowledge, the formation of values, the development of competences and conduct for the purpose of guaranteeing the preservation of life.

CHAPTER II. DISTRIBUTION OF COMPETENCE AND COORDINATION (Environmental Law)

Article 4. (Environmental Law)

(Amended by Decree published December 13, 1996) The Federation, the States, the Federal District and the Municipalities shall exercise their powers in the matter of preservation and restoration of the ecological balance and protection of the environment, in accordance with the distribution of competence provided in this Law and in other legal ordinances.

Article 5. (Environmental Law)

(Amended by Decree published December 13, 1996) The following are powers of the Federation:

I. formulation and co-ordination of a national environmental policy;

II. the application of the instruments of the environmental policy provided in this Law, in the terms established herein, as well as the regulation of the actions for the preservation and restoration of the ecological balance and the protection of the environment that shall be carried out on property and zones of federal jurisdiction;

III. attention to matters that affect ecological balance in the national territory or in the zones subject to the sovereignty and jurisdiction of the nation, originating in territories or zones subject to the sovereignty or jurisdiction of other States, or in zones that are outside the jurisdiction of any State;

IV. attention to matters that, originating in national territory or in zones subject to the sovereignty or jurisdiction of the national, affect the ecological balance of the territory or zones subject to the sovereignty or jurisdiction of other States, or zones that are outside the jurisdiction of any State;

V. issue of official Mexican standards and supervision of their fulfillment in the matters provided in this Law;

VI. regulation and control of activities considered highly hazardous, and the generation, management and final disposal of materials and wastes hazardous to the environment or ecosystems, as well as the preservation of natural resources, in accordance with this Law, other ordinances applicable and their regulatory provisions;

VII. participation in the prevention and control of emergencies and environmental risks, pursuant to the policies and programs of civil protection that shall be established for the purpose;

VIII. establishment, regulation, administration and supervision of the natural protected areas under federal jurisdiction;

IX. the formulation, application and evaluation of general ecological programs of the territory and of marine ecological programs to which article 19bis of this Law refers;

X. the evaluation of the environmental impact of the works or activities to which article 28 of this Law refers and, if applicable, the issue of the corresponding authorizations;

XI. regulation of sustainable use, the protection and the preservation of wild resources, the land, national waters, biodiversity, flora, fauna and other natural resources under its jurisdiction;

XII. regulation of the atmospheric pollution, deriving from any type of emission sources, as well as the prevention and control in zones under federal jurisdiction or in case of fixed or mobile sources under federal jurisdiction;

XIII., encouragement of the application of technology, equipment and processes that reduce emissions and contaminating discharges deriving from any type of source, in coordination with the authorities of the States, the Federal District and the Municipalities; as well as the establishment of the provisions that must be observed for sustainable use of energy sources;

XIV. regulation of activities related to the exploration, exploitation and mining of the minerals, substances and other resources of the subsoil belonging to the nation, insofar as it relates to the effects that those activities might generate on the ecological balance and on the environment;

XV. regulation of the prevention of environmental pollution originating from noise, vibrations, thermal energy, light, electromagnetic radiation and odors prejudicial to ecological balance and the environment;

XVI. promotion of the participation of society in environmental matters, in accordance with that which is provided in this Law;

XVII. integration of the National Environmental and Natural Resources Information System and its placement at the disposal of the public in the terms of this Law;

XVIII. issue of recommendations to Federal, State and Municipal authorities, for the purpose of promoting compliance with the environmental legislation;

XIX. supervision and promotion, within the scope of its competency, of compliance with this Law and with the other ordinances derived therefrom;

XX. attention to the matters that affect the ecological balance of two or more federal states, and

XXI. others that this Law or other legal provisions attribute to the Federation.

Article 6. (Environmental Law)

(Amended by Decree published December 13, 1996) The powers that this Law grants to the Federation shall be exercised by the Federal Executive Branch through the Minister, except those that directly correspond to the President of the Republic by express provision of the law.

When, due to the matter and in accordance with the Organic Law of the Federal Public Administration or other applicable legal dispositions, the intervention of other agencies is required, the Minister shall exercise its powers in coordination therewith. The agencies and entities of the Federal Public Administration that exercise powers that other ordinances whose dispositions are related to the purpose of this Law confer upon them, shall adjust their exercise thereof to the criteria for preserving the ecological balance, to use natural resources in a sustainable manner and to protect the environment included therein, as well as to the provisions of the regulations, official Mexican standards, programs of ecological ordinance and other rules derived therefrom.

Article 7. (Environmental Law)

(Amended by Decree published December 13, 1996) The following powers shall correspond to the States in accordance with the provisions in this Law and local laws on the matter:

I. The formulation, implementation and evaluation of the state environmental policy;

II. The application of the instruments of environmental policy provided in local laws on the matter, as well as the preservation and restoration of the ecological balance and the protection of the environment that is carried out on property and zones of state jurisdiction, in the matters that are not expressly allotted to the Federation;

III. The prevention and control of atmospheric pollution generated by fixed sources that function as industrial establishments, as well as by mobile sources, that are not under Federal jurisdiction, pursuant to that which is established in this Law;

IV. The regulation of activities that are not considered at high risk for the environment, in accordance with the provisions in article 149 of this Law;

V. The establishment, regulation, administration and supervision of

protected natural areas provided in the local legislation, with the participation of the municipal governments;

VI. The regulation of the systems of collection, transport, holding, management, treatment and final disposal of solid and industrial wastes that are not considered as hazardous in accordance with the provisions of article 137 of this Law;

VII. The prevention and control of the pollution generated by noise emissions, vibrations, thermal energy, light, electromagnetic radiation and odors prejudicial to the ecological balance or to the environment, deriving from fixed sources such as industrial establishments, as well as, if applicable, from mobile sources that pursuant to that which is established in this Law, are not under Federal jurisdiction;

VIII. The regulation of the sustainable use and the prevention and control of pollution of waters under state jurisdiction; as well as national waters assigned thereto;

IX. The formulation, issuance and execution of territorial ecological programs to which article 20bis2 of this Law refers, with the participation of the respective municipalities;

X. The prevention and control of the pollution generated by the use of substances not reserved to the Federation, that constitute deposits of a nature similar to the components of earth, such as rocks or products of their decomposition that can only be used for the manufacture of materials for the construction or ornamentation of works;

XI. Attention to the matters that affect the ecological balance or the environment of two or more municipalities;

XII. Participation in environmental emergencies and risks pursuant to the policies and programs of civil protection that shall be established for the purpose;

XIII. Supervision of the compliance with the official Mexican standards issued by the Federation, in the matters and cases to which items III, VI and VII of this article refer;

XIV. Implementation of the state information policy and broadcasting of environmental material;

XV. Promotion of the participation of the society in environmental matters, in accordance with the provisions of this Law;

XVI. Evaluation of the environmental impact of works or activities that are not expressly reserved to the Federation by this Law and, if applicable, the issue of the corresponding authorizations, in accordance with the provisions of article 35bis2 of this Law;

XVII. The exercise of the functions that the Federation transfers to them in the matter of preservation of the ecological balance and protection of the environment, pursuant to that which is provided in article 11 of this ordinance;

XVIII. The formulation, execution and evaluation of the state program of environmental protection;

XIX. The issue of recommendations to the competent authorities in environmental matters, with the purpose of promoting compliance with the environmental legislation;

XX. In coordination with the Federation, attention to matters that affect the ecological balance of two or more Federal States, when the respective Federal States deem it suitable, and

XXI. Attention to other matters that this Law or other ordinances in harmony therewith concede in matters of preservation of the ecological balance and environmental protection, where they are not expressly granted to the Federation.

Article 8. (Environmental Law)

(Amended by Decree published December 13, 1996) The following powers correspond to the Municipalities in accordance with the provisions in this Law and local laws on the matter:

I. Formulation, implementation and evaluation of a municipal environmental policy;

II. The application of the instruments of environmental policy provided in the local laws on the matter and the preservation and restoration of the ecological balance and environmental protection in property and zones of municipal jurisdiction, in the matters that are not expressly allotted to the Federation or to the States;

III. The application of legal dispositions in the matter of prevention and control of atmospheric pollution generated by fixed sources that function as mercantile or service establishments, as well as emissions of contaminants to the atmosphere deriving from mobile sources that are not considered under federal jurisdiction, with the participation of the state government in accordance with the state legislation;

IV. The application of legal dispositions relative to the prevention and control of the environmental effects occasioned by the generation, transport, storage, management, treatment and final disposal of solid and industrial wastes that are not considered hazardous, in accordance with the provisions in article 137 of this Law;

V. The creation and administration of ecological preservation zones in population centers, city parks, public gardens and other similar areas provided by local legislation;

VI. The application of legal dispositions relative to the prevention and control of pollution by noise, vibrations, thermal energy, electromagnetic radiation and light and odors prejudicial to the ecological balance and environment, deriving from fixed sources that function as mercantile or service establishments, as well as the supervision of the compliance with dispositions that, if applicable, result from mobile sources except those that are considered of federal jurisdiction pursuant to this Law;

VII. The application of the legal dispositions in matters of prevention and control of pollution of the waters that are discharged in drainage and sewage systems from population centers, as well as in national waters assigned thereto, with the participation of the state governments that corresponds pursuant to local legislation;

VIII. The formulation and issue of local territorial ecological ordinance programs to which article 20bis4 of this Law refers, in the terms provided therein,

as well as the control and supervision of the use and change of use of the soil, established in those programs;

IX. The preservation and restoration of the ecological balance and environmental protection in population centers, in relation to the effects derived from local sewage, cleaning, markets, supply centers, cemeteries, slaughterhouses, transit and transportation, provided and when they are not within the powers granted to the Federation or to the States in this Law;

X. Participation of two or more municipalities in attention to matters that generate environmental effects in their territorial area;

XI. Participation in environmental emergencies and risks pursuant to the policies and programs of civil protection that are established for that purpose;

XII. Supervision of the compliance with the official Mexican standards issued by the Federation, in the matters and cases to which items III, IV, VI and VII of this article refer;

XIII. The formulation and implementation of the municipal information policy and broadcasting of environment material;

XIV. Participation in the evaluation of the environmental impact of works or activities of state jurisdiction, when they are carried out in the perimeter of their territorial area;

XV. The formulation, execution and evaluation of the municipal environmental protection program, and

XVI. Attention to other matters that this Law or other ordinances in concordance with it concedes in the matter of preservation of the ecological balance and environmental protection, that are not expressly granted to the Federation or to the States.

Article 9. (Environmental Law)

(Amended by Decree published December 13, 1996) The powers to which articles 7 and 8 of this Law refer shall correspond to the Government of the Federal District in the matter of preservation of the ecological balance and environmental protection, pursuant to the legal provisions that the Legislative Assembly of the Federal District shall issue.

Article 10. (Environmental Law)

(Amended by Decree published December 13, 1996) The State Congresses and the Legislative Assembly of the Federal District, according to their respective Constitutions, shall issue the legal provisions that are necessary to regulate the matters of their competence provided in this law. The city councils, for their part, shall hand down the edicts of policy and good government, the regulations, circulars and administrative provisions that correspond thereto, in order that the provisions of this ordinance shall be fulfilled in their respective territories. The States, the Federal District and the Municipalities shall observe the provisions of this Law and those derived from it in the exercise of their powers.

Article 11. (Environmental Law)

(Amended by Decree published December 13, 1996) The Federation, through

the Minister, may sign coordination conventions or agreements with the purpose of having the States or the Federal District assume the following functions:

I. The management and supervision of the natural protected areas under Federal jurisdiction;

II. Control of hazardous wastes considered of low hazard pursuant to the provisions of this ordinance;

III. Prevention and control of atmospheric pollution deriving fixed and mobile sources under federal jurisdiction;

IV. Control of actions for the protection, preservation and restoration of ecological balance and environmental protection in the federal terrestrial maritime zone, as well as in the federal zone of bodies of water considered as national waters;

V. Protection, preservation and restoration of the natural resources to which this Law refers, and of the wild flora and fauna, as well as the control of their sustainable use;

VI. Carrying out actions for the supervision of the fulfillment of the provisions of this Law.

Likewise the States may sign coordination conventions with their Municipalities, under a prior agreement with the Federation, for the purpose of having them assume the above-mentioned functions.

Article 12. (Environmental Law)

(Amended by Decree published December 13, 1996) Coordination conventions or agreements that the Federation signs with the Federal District and the States and the latter with the Municipalities for the purposes to which the preceding article refers, must be made on the following bases:

I. They shall precisely define the matters and activities that constitute the object of the convention or agreement;

II. The purpose of the coordination conventions or agreements must be congruent with the dispositions of the National Development Plan and with the national environmental policy;

III. The property and resources that the parties shall contribute shall be described, clarifying what shall be their specific intention and their form of administration;

IV. The period during which the convention or agreement shall be in force, its terms of termination and solution of controversies and, if applicable, its length of extension, shall be specified;

V. They shall define the branch or branches that shall carry out the actions resulting from the coordination conventions or agreements, including evaluations, and

VI. They shall contain other stipulations that the parties consider necessary for the correct fulfillment of the convention or agreement.

The conventions to which this article refers must be published in the Diario Oficial of the Federation and in the official publication of the respective local

government.

Article 13. (Environmental Law)

(Amended by Decree published December 13, 1996) The States may sign coordination and administrative collaboration conventions or agreements among themselves and with the Government of the Federal District, if applicable, for the purpose of attending to and resolving common environmental problems and to exercise their powers through the instances that they shall determine for the purpose, attending to that which is provided in the local laws that are applicable. The municipalities may exercise the same faculties among themselves, even if they belong to different federal states, in accordance with that which the stipulated laws establish.

Article 14. (Environmental Law)

(Amended by Decree published December 13, 1996) Federal Public Administration agencies and bodies will be coordinated with the Minister to carry out the necessary actions, when there is danger to ecological equilibrium in some zone or region of the country as a consequence of disasters caused by natural phenomena or force majeure or act of God.

Article 14bis. (Environmental Law)

(Added by Decree published December 13, 1996) The environmental authorities of the Federation and of the federal states shall form an agency that shall meet periodically for the purpose of coordinating forces on environmental matters, to analyze and exchange opinions in relation to the actions and programs on the matter, to evaluate and pursue them, as well as to agree upon the actions and to draw up pertinent recommendations, particularly insofar as refer to the objectives and principles established in articles 1 and 15 of this Law.

CHAPTER III. ECOLOGICAL POLICY (Environmental Law)

Article 15. (Environmental Law)

(Amended by Decree published December 13, 1996 and by Decree published January 7, 2000, effective January 8, 2000) For formulation and implementation of ecological policy and issuance of Mexican official standards and other instruments provided for herein, relating to preservation and restoration of ecological equilibrium and environmental protection, the Federal Executive Branch shall observe the following principles:

I. ecosystems are the common patrimony of the society and the nation's life and productive possibilities depend on their equilibrium;

II. ecosystems and their elements must be used in a manner which assures optimum sustained productivity compatible with their equilibrium and integrity;

III. authorities and individuals must assume responsibility for protecting ecological equilibrium;

IV. whoever carries out works or activities that affect or could affect the environment, is obligated to prevent, minimize or repair damages that are caused,

as well as to assume the costs that such use implies. Likewise, whoever shall protect the environment must give incentives for natural resources to be used in a sustainable manner;

V. responsibility regarding ecological equilibrium includes both present conditions and those that will determine the quality of life for future generations;

VI. prevention of causes that generate them is the most efficient means of avoiding ecological imbalances;

VII. use of renewable natural resources must be done in a manner which assures maintenance of their diversity and renovation;

VIII. non-renewable natural resources must be used in a manner that avoids the danger or exhausting them and of generating adverse ecological effects;

IX. coordination among the agencies and bodies of the public administration and among different levels of government and coordination with society are indispensable for the efficacy of ecological action;

X. the principal subjects of ecological cooperation are not only individuals but include social groups and organizations. The purpose of concerted ecological action is to reorient the relationship between society and nature;

XI. in exercising the powers conferred by law on the State to regulate, promote, restrict, prohibit, orient, and, generally, induce individual action in economic and social fields, the criteria for preservation and restoration of ecological equilibrium shall be considered;

XII. all persons are entitled to enjoy an environment adequate for their development, health and well being. The authorities, pursuant to this and other laws, shall take the measures to guarantee this right;

XIII. to guarantee the right of the communities, including indigenous people, to the protection, preservation, use and sustainable development of natural resources and the safeguard and use of biodiversity, in accordance with what this Law and other applicable ordinances determine;

XIV. the eradication of poverty is necessary for sustainable development;

(EDITOR'S NOTE: Though we believe this is the correct translation of: "la erradicacion de la pobreza es necesaria para el desarrollo sustentable", which is the text as given to us by the Mexican Government itself, we feel that this should read: "sustainable development is necessary for the eradication of poverty", since poverty, being a state both present and future, cannot be eradicated without sustainable development. In other words, without sustainable development in the present, we cannot expect poverty to be eradicated in the future. The meaning of the text as given, however, states that without the eradication of poverty, sustainable development is not possible. This is clearly a non-sequitor)

XV. women fulfill an important function in the protection, preservation and sustainable use of natural resources and in development. Their full participation is essential to the attainment of sustainable development;

XVI. control and prevention of environmental pollution, proper use of natural elements, and improvement of the natural environment in human settlements, are fundamental elements to elevate the population's quality of life;

XVII. it is in the interest of the nation that activities which are carried out within national territory and in those zones where it exercises its sovereignty and

jurisdiction do not affect the ecological equilibrium of other nations or zones under international jurisdiction;

XVII. (Amended by Decree of January 3, 2000, effective January 8, 2000) the competent authorities in equality with other nations, shall promote preservation and restoration of the equilibrium of regional and global ecosystems;

XIX. (Amended by Decree of January 3, 2000, effective January 8, 2000) Through the quantification of the cost of the contamination of the environment and of the depletion of the natural resources provoked by economic activities in a determined year, the Domestic Net Ecological Product shall be calculated. The National Institute of Statistics, Geography and Informatics shall integrate the Domestic Net Ecological Product into the System of National Accounts, and

XX. (Added by Decree of January 3, 2000, effective January 8, 2000) Education is a means to value life through the prevention of environmental deterioration, preservation, restoration and the sustainable development of the ecosystems and to thereby avoid ecological imbalance and environmental damages.

Article 16. (Environmental Law)

(Amended by Decree published December 13, 1996) The state and local governments, within the spheres of their competence, shall observe and apply the principles to which items I to XV of the preceding article refer.

CHAPTER IV. INSTRUMENTS OF ECOLOGICAL POLICY (Environmental Law)

SECTION I. ECOLOGICAL PLANNING (Environmental Law)

Article 17. (Environmental Law)

In national development planning, general ecological policy and the ecological regulation established hereunder and other provisions on the subject shall be considered.

SECTION II. ECOLOGICAL REGULATION (Environmental Law)

Article 18. (Environmental Law)

(Amended by Decree published December 13, 1996) The Federal Government will stimulate participation of the different social groups in preparation of programs which have as their purpose preservation and restoration of ecological equilibrium and environmental protection, in accordance with that which is established in this Law and in other applicable laws.

Article 19. (Environmental Law)

(Amended by Decree published December 13, 1996) For ecological regulation, the following criteria must be considered:

I. the nature and characteristics of the ecosystems existing in national

territory and in the zones over which the nation exercises sovereignty and jurisdiction;

II. the vocation of each zone or region on the basis of its natural resources, population distribution, and prevailing economic activities;

III. existing imbalances in the ecosystems by reason of human settlement, economic activities, or other human activities or natural phenomena;

IV. the balance that ought to exist between human settlements and their environmental conditions; and

V. the environmental impact of new human settlements, communication means and other works, or activities.

Article 19bis. (Environmental Law)

(Added by Decree published December 13, 1996) The ecological regulation of the national territory and of the zones over which the nation exercises its sovereignty and jurisdiction shall be carried out through programs of ecological regulation:

I. General Territory;

II. Regional;

III. Local, and

IV. Marine.

Article 20. (Environmental Law)

(Amended by Decree published December 13, 1996) The general ecological regulation program shall be drawn up by the Minister, in the framework of the National Democratic Planning System and the purpose shall be to determine:

I. The ecological regionalization of the national territory and of the zones over which the nation exercises sovereignty and jurisdiction, from the diagnosis of the characteristics, availability and demand of the national resources, as well as the productive activities that are developed on them and, of the location and situation of existing human settlements, and

II. The ecological arrangements and strategies for the preservation, protection, restoration and sustainable use of natural resources, as well as for the localization of productive activities and human settlements.

Article 20bis. (Environmental Law)

(Added by Decree published December 13, 1996) The formulation, issue, execution and evaluation of the general ecological regulation of the territory shall be carried out in accordance with that which is provided in the Planning Law. Likewise, the Minister must promote the participation of social and business groups and organizations, academic and investigative institutions, and other interested persons, in accordance with that which is established in this Law, as well as in other dispositions that are applicable.

Article 20bis1. (Environmental Law)

(Added by Decree published December 13, 1996) The Minister must technically support the formulation and execution of regional and local ecological regulation

programs, in accordance with that which is provided in this Law. Federal states and municipalities may participate in the consultations and issue the recommendations that they deem pertinent for the formulation of general ecological regulation programs of the territory and the marine ecological regulations.

Article 20bis2. (Environmental Law)

(Added by Decree published December 13, 1996) The Governments of the States and Federal District may formulate and issue regional ecological regulatory programs in the terms of the applicable local laws, that include all or part of the territory of a federal entity. When an ecological region is located in the territory of two or more federal entities, the Federal Government, and the Governments of the respective States and Municipalities or the Federal District, if applicable, may formulate a regional ecological regulatory program within the scope of their competence. For that purpose, the Federation shall conclude the necessary coordination agreements or conventions with the local governments involved.

Article 20bis3. (Environmental Law)

(Added by Decree published December 13, 1996) The regional ecological regulatory programs to which article 20bis2 refers must contain at least:

I. The determination of the area or region to regulate, describing their physical, biotic and socioeconomic attributes, as well as the diagnosis of their environmental conditions and the technology utilized by the inhabitants of the area;

II. The determination of the criteria of ecological regulation for the preservation, protection, restoration and sustainable use of the natural resources that are located in the region in question, as well as for carrying on productive activities and the location of human settlements, and

III. Directives for their execution, evaluation, pursuit and modification.

Article 20bis4. (Environmental Law)

(Added by Decree published December 13, 1996) Local ecological regulatory programs shall be issued by the municipal authorities or by the Federal District authorities, as the case may be, in accordance with the local environmental laws, and their purpose shall be:

I. To determine the different ecological areas located in the zone or region in question, describing their physical, biotic and socioeconomic attributes, as well as the diagnosis of their environmental conditions, and the technology utilized by the inhabitants of the area in question;

II. To regulate the uses of the soil outside of population centers for the purpose of protecting the environment and to preserve, restore and use the respective natural resources in a sustainable manner, fundamentally in carrying out of productive activities and the localization of human settlements, and

III. To establish the criteria of ecological regulation for the protection,

preservation, restoration and sustainable use of the natural resources within population centers, in order that they might be considered in the corresponding urban development plans or programs.

Article 20bis5. (Environmental Law)

(Added by Decree published December 13, 1996) The procedures under which local ecological regulatory programs are formulated, approved, issued and modified, shall be determined in the state laws or the laws of the Federal District on the matter, pursuant to the following bases:

I. Congruence shall exist between the marine ecological regulatory programs, if applicable, and the general territorial and regional programs, and the local ecological regulatory programs;

II. Local ecological regulatory programs shall cover a geographic extension whose dimensions permit the regulation of the use of the soil, in accordance with that which is provided in this Law;

III. The provisions contained in local ecological regulatory programs, by means of which the uses of the soil are regulated, shall refer only to areas located outside the limits of population centers. When, in these latter areas, enlargement of a population center or urban development projects are sought, such enlargement or projects shall be subject to that which is established in the respective ecological regulatory program, which may only be modified by means of the procedure that the local legislation establishes on the matter;

IV. The local authorities shall make the territorial ecological ordinance compatible with the ordinance and regulation of human settlements, incorporating the corresponding provisions in local ecological regulatory programs, as well as in the applicable urban development plans or programs. Likewise, local ecological regulatory programs shall provide mechanisms of coordination between the different authorities involved, in the formulation and execution of the programs;

V. When a local ecological regulatory program includes a natural protected area, where all or part of it is under the jurisdiction of the Federation, the program shall be drawn up and approved jointly by the Minister and the Governments of the States, the Federal District and the Municipalities, as the case may be;

VI. Local ecological regulatory programs shall regulate the uses of the soil, including by ejidos (farmers under the Agrarian Law - see the Agrarian Law), communities and small owners, expressing the motivations that justify such regulation;

VII. In the drawing up of local ecological regulatory programs, the laws on the matter shall establish the mechanisms that guarantee the participation of private parties, social groups and organizations, businesses and other interested parties. Such mechanisms shall include at least procedures of broadcasting and public consultation of the respective programs. The local laws on the matter shall establish the forms and procedures by which private parities may participate in the execution, supervision and evaluation of ecological regulatory programs to which this precept refers, and

VIII. The Federal Government may participate in the consultation to which the preceding item refers and issue the recommendations that it deems pertinent.

Article 20bis6. (Environmental Law)

(Added by Decree published December 13, 1996) The Minister may draw up, issue and execute marine ecological regulatory programs in coordination with the competent Agencies. The purpose of these programs shall be to establish the guidelines and provisions to which the preservation, restoration, protection and sustainable use of the natural resources existing in specific areas or surfaces located in Mexican marine zones, including adjacent federal zones, must be subject.

Article 20bis7. (Environmental Law)

(Added by Decree published December 13, 1996) Marine ecological regulatory programs must contain at least:

I. A precise delimitation of the area that the program shall include;

II. Determination of the ecological zones from the characteristics, availability and demand of the natural resources included therein, and

III. Guidelines, strategies and other provisions for the preservation, protection, restoration and sustainable use of natural resources, as well as for the carrying on of productive activities and other works or activities that may affect the respective ecosystems. In the determination of these provisions the criteria established in this Law, the dispositions derived from it, international treaties of which Mexico is a party and other ordinances that regulate the matter, must be considered.

Article 21. (Environmental Law)

(Amended by Decree published December 13, 1996) The Federation, the States and the Federal District, within the scope of their respective jurisdictions, shall design, develop and apply economic instruments that given incentives to the fulfillment of the environmental policy, by means of which the following shall be sought:

I. Promotion of a change in the conduct of the persons that carry on industrial, commercial and service activities, in such manner as their interest are compatible with the collective interests of environmental protection and sustainable development;

II. Encouragement of the incorporation of reliable and sufficient information on the consequences, benefits and environmental costs in the price system of the economy;

III. Grant of incentives to those who carry out actions for the protection, preservation or restoration of the ecological balance. Likewise, they must manage that those who damage the environment, make undue use of natural resources or alter the ecosystems, assume the respective costs;

IV. Promotion of a greater social equity in the distribution of costs and benefits associated with the objectives of environmental policy, and

V. Procure their use along with other instruments of environmental policy,

especially in the case of the observation of thresholds or limits in the utilization of ecosystems, in such manner that their integrity and equilibrium, the health and the well being of the population is guaranteed.

Article 22. (Environmental Law)

(Amended by Decree published December 13, 1996) Regulatory and administrative mechanisms of a fiscal, financial or market nature, by means of which persons assume environmental costs and benefits that generate their economic activities, inducing them to carry on actions that favor the environment, shall be considered economic instruments. Tax incentives that induce the fulfillment of the objectives of the environmental policy shall be considered economic instruments of a fiscal nature. In no case shall those instruments be established exclusively for the purposes of collecting a tax. Credits, bonds, civil liability insurance, funds and trusts are financial instruments, when their objectives are directed to the preservation, protection, restoration or sustainable use of natural resources and the environment, as well as to the financing of programs, projects, studies and scientific and technological investigation for the preservation of the ecological balance and environmental protection. Concessions, authorizations, licenses and permits corresponding to pre-established volumes of emissions of air, water or soil pollution, or else those that establish the limits of use of natural resources or of construction in protected natural areas or in zones whose preservation and protection are considered relevant from the environmental point of view, are market instruments. The prerogatives derived from economic instruments of a market nature are transferable, non-taxable and shall be subject to the public interest and to the sustainable use of natural resources.

Article 23. (Environmental Law)

Ecological regulation of human settlements consists of the conjunction of standards, provisions, and measures for urban development and housing to maintain, improve, or restore the balance of human settlements with natural elements and assure improvement of the quality of life of the population, effected by the Federal Government, and the state and local governments.

Articles 24-27. (Environmental Law)

Repealed by Decree published December 13, 1996.

Article 28. (Environmental Law)

(Amended by Decree published December 13, 1996) Evaluation of environmental impact is the procedure through which the Minister shall establish the conditions to which works and activities to be carried on that might cause ecological imbalance or exceed the limits and conditions established in the applicable dispositions to protect the environment and preserve and restore the ecosystems, for the purpose of avoiding or minimizing their negative effects on the environment, shall be subject. For this purpose, in the cases that the Regulation issued for the purpose shall determine, whoever would seek to carry out any of the following works or

activities, shall require the prior authorization of the Minister in the matter of environmental impact:

I. Hydraulic works, general communication ways, pipelines, gas lines, coal chutes and multi-purpose lines (poliductos);

II. Petroleum, petrochemical, chemical, steel, paper, sugar, cement and electrical industries;

III. Exploration, extraction and mining of minerals and substances reserved to the Federation in the terms of the Mining Laws and Regulation of Constitutional Article 27 on Nuclear Material;

IV. Installations of treatment, storage or elimination of hazardous wastes, as well as radioactive wastes;

V. Use of forests in tropical jungles and of species of difficult regeneration;

VI. Forest plantations;

VII. Changes of use of the land in forest areas, as well as in jungles and arid zones;

VIII. Industrial parks where there are provisions for highly risky activities to be carried out;

IX. Building developments that affect coastal ecosystems;

X. Works and activities in marshes, mangrove swamps, lagoons, rivers, lakes and estuaries connected with the sea, as well as in their literals or federal zones;

XI. Works in protected natural areas under the jurisdiction of the Federation;

XII. Fishing, fish farming or agricultural activities that may put the preservation of one or more species in danger or cause damages to the ecosystems, and

XIII. Works or activities that correspond to matters under federal jurisdiction, that may cause serious or irreparable ecological imbalances, damages to the public health or to the ecosystems, or exceed the limits and conditions established in the legal dispositions relative to the preservation of the ecological balance and environmental protection. The Regulation of this Law shall determine the works or activities to which this article refers, that by their location, sizes, characteristics or scope will not produce significant environmental impacts, shall not or may not cause ecological imbalances, nor exceed the limits and conditions established in the legal dispositions referring to the preservation of the ecological balance and environmental protection, and that thus must not be subjected to the procedure of evaluation of environmental impact provided in this ordinance. For the purposes to which item XIII of this article refers, the Minister shall notify the interested parties of its determination in order that they should submit the corresponding work or activity to the procedure of evaluation of environmental impact, explaining the reasons justifying such determination, in order that the interested parties might present the reports, expert opinions, and considerations deemed proper within a period not over ten days. Once the documentation is received from the interested parties, the Minister, within a period not over 30 days, shall communicate whether or not the presentation of statement of environmental impact should proceed or not, as well as the ways and means and the period within which to do so. Once the stipulated period has elapsed without the Minister issuing the corresponding communication,

it shall be understood that the presentation of a statement of environmental impact is not necessary.

Article 29. (Environmental Law)

(Amended by Decree published December 13, 1996) Negative effects on the environment, natural resources, wild flora and fauna and other resources to which this Law refers, may cause works or activities under federal jurisdiction which were not required to be subject to the procedure of evaluation of environmental impact to which this section refers, to be subject thereto, as well as to its regulations, official Mexican standards in environmental matters, the applicable legislation on natural resources, as well as to the permits, licenses, authorizations and concessions required pursuant to such regulations.

Article 30. (Environmental Law)

(Amended by Decree published December 13, 1996) In order to obtain the authorization to which article 28 of this Law refers, interested parties must present an environmental impact statement to the Minister, which must contain at least a description of the possible effects on the ecosystem or ecosystems that might be affected by the work or activity in question, considering the ensemble of the elements that conform to those ecosystems, as well as preventive measures, mitigation measures and other necessary measures to avoid and reduce the negative effects on the environment to a minimum. In the case of activities considered highly risky in the terms of this Law, the statement must include a study of the corresponding risk. If after the presentation of an environmental impact statement, the respective work or activity undergoes modifications, the interested parties must make these known to the Minister, in order that the latter might notify them within a period no greater than 10 days whether it is necessary to present additional information to evaluate the environmental effects that such modifications might occasion in the terms of the provisions of this Law. The contents of the preventive report, as well as the characteristics and the ways and means of environmental impact statements and the studies of risk shall be established by the Regulation of this Law.

Article 31. (Environmental Law)

(Amended by Decree published December 13, 1996) The works and activities to which items I to XII of article 28 refer require the presentation of a report on prevention and not an environmental impact statement when:

I. There exist official Mexican standards or other dispositions that regulate emissions, discharges, the use of natural resources and, in general, all relevant environmental impacts that the works or activities may produce;

II. The works or activities in question are expressly provided in a partial plan of urban development or ecological ordinance that has been evaluated by the Minister in the terms of the following article, or

III. It is a case of installations located in industrial parks authorized in the terms of this section.

In the preceding cases, the Minister, once the report on prevention is analyzed, shall determine, within a period no longer than 20 days, whether the presentation of an environmental impact statement will be required on any of the modalities provided in the regulation of this Law, or whether it is a question of any of the premises stipulated. The Minister shall publish the list of reports on prevention that are presented in the terms of this article in its Ecological Gazette, which shall be at the public's disposal.

Article 32. (Environmental Law)

(Amended by Decree published December 13, 1996) In the case in which a partial plan or program of urban development or ecological ordinance of the territory includes works or activities among those stipulated in article 28 of this Law, the competent authorities of the States, the Federal District or the Municipalities may present those plans or programs to the Minister for the purpose of the latter issuing the authorization corresponding to environmental impact in respect to the ensemble of works or activities that are foreseen in a determined area, in the terms provided in article 31 of this Law.

Article 33. (Environmental Law)

(Amended by Decree published December 13, 1996) In the case of works and activities to which items IV, VIII, IX and XI of article 28 refer, the Minister shall notify the state and municipal governments or the Federal District, as the case may be, that it has received the respective environmental impact statement, so that they might express that which is their rights in the matter. The authorization that the Minister shall issue shall not obligate the local authorities in any manner to issue the authorizations that correspond to them in the scope of their respective jurisdictions.

Article 34. (Environmental Law)

(Amended by Decree published December 13, 1996) Once the Minister receives an environmental impact statement and the procedure to which article 35 refers is formed, it may be placed at the disposal of the public, in order that it might be consulted by any person. The promoters of the work or activity may require that the information that has been included in the procedure, which upon being made public, might affect industrial property rights and the confidentiality of the commercial information that the interested party contributed, be maintained under reserve. The Minister, upon application of any person of the community in question, may carry on a public consultation, pursuant to the following bases:

I. The Minister shall publish the application of authorization in matters of environmental impact in its Ecological Gazette. Likewise, the promoter must publish an abstract of the project of the work or activity in a periodical of wide circulation within the federal state in question, at his own cost, within the period of five days from the date on which the environmental impact statement was presented to the Minister;

II. Any citizen, within the period of 10 days from the publication of the abstract of the project in the terms referred to above, may apply to the Minister to

place the environmental impact statement at the disposal of the public in the corresponding federal state;

III. In the case of works or activities that may generate serious ecological imbalances or damages to public health or to the ecosystems, in accordance with that which is stipulated in the regulation of this Law, the Minister, in coordination with the local authorities, may organize a public information meeting in which the promoter shall explain the technical environmental aspects of the work or activity in question;

IV. Any interested party, within the period of 20 days from that in which the Minister made the environmental impact statement public in the terms of item I, may propose the establishment of additional measures of prevention and mitigation, as well as observations that are considered pertinent, and

V. The Minister shall aggregate the observations made by interested parties to the respective procedure and shall make a statement, in the resolution that it issues, on the process of public consultation carried out and the results of the observations and premises that have been drawn up in writing.

Article 35. (Environmental Law)

(Amended by Decree published December 13, 1996) Once the environmental impact statement has been filed, the Minister shall initiate the procedure of evaluation, by which it shall review that the application is adjusted to the formalities provided in this Law, its Regulation and the applicable Mexican official standards, and shall form the respective file in a period no longer than 10 days. For the authorization of the works and activities to which article 28 refers, the Minister shall be subject to that which is established in the aforementioned ordinances, as well as the programs of urban development and ecological ordinances of the territory, the declaratories of protected natural areas and the other applicable legal dispositions.

Likewise, for the authorization to which this article refers, the Minister must evaluate the possible effects of those works or activities in the ecosystem or ecosystems in question, considering all of the elements that are included therein, and not only the resources that, as the case may be, would be subject to the use or exploitation thereof. Once the environmental impact statement is evaluated, the Minister shall issue the corresponding decision in which it may:

I. Authorize the work or activity in question, in the terms requested;

II. Conditionally authorize the work or activity in question, with the modification of the project with the establishment of additional prevention and mitigation measures in order to avoid, attenuate or compensate for the adverse environmental impacts that might possibly be produced in the construction, normal operation or in case of accident. In the case of conditional authorizations, the Minister shall stipulate the requirements that must be observed in carrying on the work or activity foreseen, or

III. Refuse the requested authorization, when:

a) That which is established in this Law, its regulations, official Mexican standards or other applicable dispositions are contravened;

b) The work or activity in question may potentially threaten one or more species or place them in danger of extinction or when one of those species are affected, or

c) False information has been furnished by the promoters in respect to the environmental impacts of the work or activity in question.

The Minister may demand the granting of securities or guarantees in respect to the fulfillment of the conditions established in the authorization, in those cases expressly stipulated in the regulation of this Law, when during the carrying out of the works serious damages to the ecosystems may be produced. The resolution of the Minister shall refer only to the environmental aspects of the works and activities in question.

Article 35bis. (Environmental Law)

(Added by Decree published December 13, 1996) The Minister must issue the resolution corresponding to the environmental impact statement within a period of 60 days from the receipt of the statement. The Minister may request clarifications, corrections or augmentations to the contents of the environmental impact statement that was presented, the term remaining to conclude the procedure being suspended. In no case may the suspension exceed the period of 60 days from the day on which it is declared by the Minister, provided and when the required information is delivered thereto.

Exceptionally, when due to the complexity and dimensions of a work or activity, the Minister requires a longer period for its evaluation, the period may be extended up to 60 additional days, provided that it is justified pursuant to that which is provided in the regulation of this Law.

Article 35bis1. (Environmental Law)

(Added by Decree published December 13, 1996) The persons who render environmental impact services shall be liable to the Minister for preventive reports, environmental impact statements and studies of risk that they shall draw up, who shall declare under sworn affidavit that the best techniques and methodologies existing are incorporated therein, as well as the information and most effective measures of prevention and mitigation. Likewise, the preventive reports, the manifestations of environmental impact and studies of risk may be presented by the interested parties, research institutions, professional colleges or associations, in which case the liability in respect to the contents of the document shall correspond to whoever signs it.

Article 35bis2. (Environmental Law)

(Added by Decree published December 13, 1996) The environmental impact that the works or activities not included in article 28 might occasion shall be evaluated by the authorities of the Federal District or the States, with the participation of the respective municipalities, when due to their location, size or characteristics they will produce significant environmental impacts on the environmental medium, and

are expressly stipulated in the state environmental legislation. In these cases, the evaluation of environmental impact may be made within the procedures of authorization of use of the land, constructions, platting, or others that are established in the state laws and the dispositions that derive therefrom. These ordinances shall provide that which is necessary for the purpose of making the environmental policy compatible with urban development and to avoid unnecessary duplication of administrative procedures in the matter.

Article 35bis3. (Environmental Law)

(Added by Decree published December 13, 1996) When the works or activities stipulated in article 28 of this Law require authorization of the initiation of a work in addition to the authorization of environmental impact, it must be verified that the liable party has the environmental impact authorization issued in terms of that which is provided in this ordinance. Likewise the Minister, upon application of the promoter, shall include in the authorization of environmental impact, the other permits, licenses and authorizations under its competency, which are required for the carrying on of the works and activities to which this article refer.

Article 36. (Environmental Law)

(Amended by Decree published December 13, 1996) In order to guarantee the sustainability of economic activities, the Minister shall issue official Mexican standards in environmental matters and for the sustainable use of natural resources, the purpose of which shall be:

I. To establish the requirements, specifications, conditions, procedures, goals, parameters and permissible limits that must be observed in regions, zones, watersheds or ecosystems, in the use of natural resources, in the development of economic activities, in the use and destination of goods, in inputs and in processes;

II. To consider the conditions necessary for the well-being of the population and the preservation or restoration of natural resources and protection of the environment;

III. To encourage or induce economic agents to reorientate their processes and technologies for environmental protection and sustainable development;

IV. To grant long term certitude to the investment and induce economic agents to assume the costs of the environmental indications that they occasion, and

V. To encourage productive activities in a framework of efficiency and sustainability.

The issue and amendment of official Mexican standards in environmental matters shall be subject to the procedure established in the Federal Law on Metrology and Standardization.

Article 37. (Environmental Law)

(Amended by Decree published December 13, 1996) In the formulation of official Mexican standards in environmental matters it must be considered that compliance with their provisions must be undertaken in accordance with the

characteristics of each productive process or activity subject to regulation, without implying the obligatory use of specific technologies. When the official Mexican standards in environmental matters establish the use of specific equipment, processes or technologies, the consignees thereof may propose the approval of alternative equipment, processes or technologies, by means of which the corresponding provisions shall be adjusted. For that purpose, the interested parties shall attach the justification to their proposal in which their intent to comply with the objectives and ends established in the official Mexican standard in question is maintained. Once the proposal is received, the Minister shall issue the respective decision within a period that shall not exceed 30 days. If that decision is not issued within the stipulated period, it shall be considered refused. When the decision is favorable, it must be published in an official newspaper and shall become effective in benefit of whoever should request it, respecting, as the case may be, the rights acquired in industrial property matters.

Article 37bis. (Environmental Law)

(Added by Decree published December 13, 1996) Official Mexican standards in environmental matters are obligatory in national territory and shall stipulate their scope of validity, enforcement and the phases in their application.

Article 38. (Environmental Law)

(Amended by Decree published December 13, 1996) Producers, business enterprises or organizations may develop voluntary processes of environmental self-regulation, through which they shall improve their discharge of their environmental duty, respecting the legislation and standards in force in the matter and shall pledge themselves to exceed or comply at higher levels, goals or benefits in the matter of environmental protection. The Minister shall induce or arrange the following on the federal level:

I. The development of adequate productive processes compatible with the environment, as well as systems of protection and restoration in the matter, agreed upon with chambers of industry, commerce and other productive activities, organizations of producers, organizations representative of a zone or region, scientific and technological research institutions and other interested organizations;

II. The fulfillment of voluntary standards or technical specifications in environmental matters that are stricter than the official Mexican standards or that refer to aspects not provided thereby, which are established in common agreement with private parties or with associations or organizations that represent them. For that purpose, the Minister may promote the establishment of Mexican standards pursuant to that which is provided in the Federal Law on Metrology and Standardization;

III. The establishment of systems of certification of processes or products to induce patterns of consumption that are compatible or that preserve, improve or restore the environmental medium, duly observing, if applicable, the applicable dispositions of the Federal Law on Metrology and Standardization, and

IV. Other actions that shall induce enterprises to reach the objectives of

environmental policy higher than those provided in the established environmental standards.

Article 38bis. (Environmental Law)

(Added by Decree of December 13, 1996) Those who are liable for the functioning of an enterprise may voluntarily, through an environmental audit, carry out a methodological examination of their operations in respect to pollution and risk that they generate, as well as the degree of compliance with the environmental standards and international parameters and applicable good operational and engineering practices, with the purpose of defining the preventive and corrective measures necessary to protect the environmental medium. The Minister shall develop a program directed to encourage environmental audits, and may supervise their execution. For this purpose:

I. It shall draw up the terms of reference that shall establish the methodology for carrying out environmental audits;

II. It shall establish a system of approval and accreditation of experts and environmental auditors, determining the procedures and requirements that the interested parties must fulfill in order to be included in that system, duly, if applicable, observing that which is provided by the Federal Law on Metrology and Standardization. For that purpose, it shall join together a technical committee constituted by representatives of research institutions, professional colleges and associations and organization of the industrial sector;

III. It shall develop training programs in the matter of environmental expertise and auditors;

IV. It shall direct a system of recognitions and incentives that permit the industries that comply with the compromises acquired in environmental audits in a timely manner to be identified;

V. It shall promote the creation of regional support centers for small and medium industry for the purpose of facilitating the realization of audits in those sectors, and

VI. It shall agree or arrange the realization of environmental audits with public or private individuals or legal persons.

Article 38bis1. (Environmental Law)

(Added by Decree published December 13, 1996) The Minister shall place the preventive and corrective programs derived from environmental audits, as well as the basic diagnosis from which they derive, at the disposal of whoever is or may be directly affected. In any case, the legal dispositions relative to the confidentiality of the industrial and commercial information must be observed.

Article 39. (Environmental Law)

(Amended by Decree of January 3, 2000, effective January 8, 2000) The competent authorities shall promote the incorporation of ecological content, knowledge, values and skills, in the various educational cycles, especially at the basic level, as well as in the cultural training of the children and young people.

Likewise, they shall sponsor their promised share of mass communication media in the strengthening of the ecological conscience and the socialization of sustainable development plans.

The Minister, with the participation of the Minister of Public Education, shall promote the development of plans and programs for the training of specialists in the matter in institutions of Higher Education and organizations engaged in scientific and technological research, in the entire national territory, as well as for the investigation of the causes and effects of environmental phenomena.

The Minister shall promote the generation of strategic knowledge by means of various actions concerning nature, the interaction between the elements of the ecosystems, including the human element, the evolution and transformation thereof, for the purpose of gathering information for drawing up programs that encourage the prevention (of harm), restoration, conservation and protection of the environment.

Article 40. (Environmental Law)

The Secretariat of Labor and Social Planning (STPS) shall promote development of training in and for jobs on environmental protection and preservation and restoration of ecological equilibrium, in accordance with that establishment herein and with the systems, methods and procedures provided by specific legislation. Further, it shall encourage incorporation of ecological content in the programs of the Joint Safety and Health Commission.

Article 41. (Environmental Law)

The Federal Government, the state and local governments, in accordance with provisions adopted by state legislatures, shall support scientific research and promote programs for development of techniques and procedures that permit preventing, controlling and reducing pollution, contribute to rational use of resources and protect ecosystems. Therefor, agreements may be executed with higher education institutions, centers for research, public and private sector institutions, researchers, and specialists in the subject matter.

Article 42-43. (Environmental Law)

Repealed by Decree published December 13, 1996.

TITLE II. BIODIVERSITY (Environmental Law)

CHAPTER I. PROTECTED NATURAL AREAS (Environmental Law)

I. General Provisions (Environmental Law)

Article 44. (Environmental Law)

(Amended by Decree published December 13, 1996) Zones of national territory and those over which the Nation exercises sovereignty and jurisdiction, in which the

original environment have not been significantly altered by human activity, or that require preservation and restoration, shall remain subject to the system provided in this Law and other applicable ordinances. Those who own, possess or hold other rights on lands, waters and forests included within protected natural areas must be subject to the modalities that in accordance with this Law, establish the decrees by which those areas are constituted, as well as to the other provisions contained in the management program and in the corresponding ecological ordinance programs.

Article 45. (Environmental Law)

(Amended by Decree published December 13, 1996) Determination of protected natural areas shall have as its purpose:

I. to preserve natural environments representative of the different biogeographical and ecological regions and of the most fragile ecosystems to assure equilibrium and continuity of evolutionary and ecological processes;

II. to safeguard the genetic diversity of wild species whose evolutionary continuity depends upon, as well as to assure the preservation and sustainable use of the biodiversity of the national territory, in particular to preserve species that are in danger of extinction, threatened, endemic, rare and those that are subject to special protection;

III. to assure sustainable use of ecosystems and their elements;

IV. to provide areas appropriate for scientific research and study of ecosystems and their equilibrium;

V. to generate, recover and publish knowledge, practices and technology, traditional or new, that permit rational sustained use of the biodiversity of the national territory;

VI. to protect towns, communications routes, industrial installations and agricultural activities through forest zones in mountains where floods begin; the hydrologic cycle in watersheds, as well as others that tend toward protection from surrounding elements with those ecologically related in the area; and

VII. to protect natural environments in archeological, historic, and artistic remains, monuments and zones, as well as tourist zones and other areas of importance to recreation, culture and national identity, as well as to indigenous populations.

Article 46. (Environmental Law)

(Amended by Decree published December 13, 1996) Protected natural areas shall be considered:

I. biosphere preserves;

II. Repealed by Decree published December 13, 1996.

III. national parks;

IV. natural monuments;

V. Repealed by Decree published December 13, 1996.

VI. areas for protection of natural resources;

VII. areas for protection of flora and fauna;

VIII. Sanctuaries;

IX. parks and state preserves; and

X. ecological conservation zones in population centers.

For purposes of this Chapter, the natural areas included in sub-paragraphs I through VIII above are of federal interest. The Governments of the States and Federal District, in the terms established in the local legislation on the matter, may establish parks and state preserves in areas relevant to the level of the federal states, that meet the characteristics stipulated in articles 48 and 50, respectively, of this Law. Those parks and preserves may not be established in zones previously declared as protected natural areas under the jurisdiction of the Federation, except in the case of those stipulated in item VI of this article. Likewise, the municipalities may establish ecological preservation zones in population centers, pursuant to that which is provided in the local legislation. In protected natural areas, the foundation of new population centers may not be authorized.

Article 47. (Environmental Law)

(Amended by Decree published December 13, 1996) In the establishment, administration and development of protected natural areas referred to in the preceding article, the Minister shall promote the participation of their residents, owners or those who possess them, local governments, indigenous people and other public or private social organizations, for the purpose of encouraging the full development of the community and to assure the protection and preservation of the ecosystems and their biodiversity. For that purpose, the Minister may sign the corresponding conventions of cooperation or coordination agreements with the interested parties.

Article 48. (Environmental Law)

(Amended by Decree published December 13, 1996) Biosphere preserves will be constituted in biogeographic areas relevant to the national level, representative of one or more ecosystems that are not significantly altered by human activity or that require to be preserved and restored, in which species representative of the national biodiversity, including those considered endemic, threatened or in danger of extinction.

In such preserves the existence of the area or areas best conserved or not altered may be determined which contain ecosystems or natural phenomena of special importance, or species of flora and fauna that require special protection, which shall be conceived as the nuclear zone or zones. Therein may be authorized activities for preservation of ecosystems and their elements, scientific research and ecological education, and uses which alter the ecosystems may be limited or prohibited.

In those reserves the area or areas that protect the nuclear zone from external impact, which will be conceived as shock absorber zones, in which only productive activities undertaken by the communities residing there at the time of the issuance of the respective decree may be carried out, or productive activities undertaken with their participation, which shall be strictly compatible with the objectives, criteria and

programs of sustainable use, in the terms of the respective decree and of the management program that was drawn up and issued, considering the provisions of the ecological ordinance programs that are applicable.

Article 49. (Environmental Law)

(Amended by Decree of December 13, 1996) In the nuclear zones of protected natural areas the following shall be expressly prohibited:

I. To spill or discharge pollutants into the soil, underground or any kind of watercourse, reservoir or aquifer, as well as to carry on any polluting activity;

II. To interrupt, fill up, drain or turn aside hydraulic flows;

III. To carry on synergetic activities or activities of exploitation and use of wild species of flora and fauna, and

IV. To execute actions that violate that which is provided by this Law, the respective decree and the other dispositions that derive from them.

Article 50. (Environmental Law)

(Amended by Decree published December 13, 1996) In the case of biogeographic representations on the national level of one or more ecosystems that are significant for their scenic beauty, their scientific, educational, recreational, or historical value, for the existence of flora and fauna, for their aptitude for the development of tourism, or else for other similar reasons of general interest, national parks shall be constituted. In national parks only activities related to the protection of their natural resources, the increase of their flora and fauna and in general, the preservation of the ecosystems and their elements, may be permitted, as well as activities concerning ecological research, recreation, tourism, and education.

Article 51. (Environmental Law)

(Amended by Decree published December 13, 1996) For the purposes stipulate in the preceding article, as well as to protect and preserve marine ecosystems and regulate the sustainable use of aquatic flora and fauna, national parks shall be established in the Mexican marine zones, which may include the contiguous federal maritime land zone. In these areas only activities related to the preservation of aquatic ecosystems and their elements shall be permitted, including ecological research, repopulation, recreation and education, as well as the uses of natural resources that proceed in accordance with that which is provided in this Law, the Fishing Law, the Federal Law of the Sea, international conventions to which Mexico is a party and other applicable ordinances. The authorizations, concessions or permits for the use of natural resources in these areas, as well as the transit of ships in the zone or the construction or utilization of infrastructure therein, shall be subject to that which is provided in the corresponding decrees. For the establishment, administration and supervision of the national parks established in Mexican marine zones, as well as for the drawing up of their management program, the Minister and the Marine Minister must coordinate, attending to their respective jurisdictions.

Article 52. (Environmental Law)

(Amended by Decree published December 13, 1996) Natural monuments shall be established in areas that include one or several natural elements of national importance, consisting of natural places or objects whose unique or exceptional quality, esthetics interest, historical or scientific value is resolved for incorporation into a system of absolute protection. Such monuments do not have the variety of ecosystems nor the area necessary to be included in other management categories.

In natural monuments only realization of activities related to their preservation, scientific research, recreation and education may be permitted.

Article 53. (Environmental Law)

(Amended by Decree published December 13, 1996) Areas for protection of natural resources are those used for conservation and protection of the soil, hydrographical watersheds, waters and in general the natural resources located in preferential forest lands, provided that those areas are not included in the other categories provided in article 46 of this Law. The forest preserves and zones, protection zones of rivers, lakes, lagoons, springs and other bodies of water considered as national waters, particularly when the latter are intended for the supply of water for service to people. In the areas of protection of natural resources only activities related to the preservation, protection and sustainable use of the natural resources included therein, as well as the ecological research, recreation, tourism and education, may be carried on, in accordance with that which is disposed in the decree that establishes them, the respective management program and the other applicable legal provisions.

Article 54. (Environmental Law)

(Amended by Decree published December 13, 1996) Protection areas for flora and fauna shall be constituted in accordance with the provisions of this Law, the Federal Hunting and Fishing Laws and other applicable laws, in places that contain habitat whose existence depends upon equilibrium and preservation of the species of wild flora and fauna.

In those areas activities related to the preservation, repopulation, propagation, acclimatization, shelter, research and sustainable use of the aforementioned species may be permitted, as well as those relative to education and dissemination on the matter.

Likewise, the use of the natural resources by communities that reside therein at the time of the issue of the respective decree may be authorized, or use thereof that are possible in accordance with studies that are carried out, which must be subject to the official Mexican standards and uses of the land that are established in the same decree.

Article 55. (Environmental Law)

(Amended by Decree published December 13, 1996) Sanctuaries are those areas

that are established in zones characterized by a considerable risk to flora or fauna, or by the presence of species, subspecies or habitat whose distribution is restricted. Those areas include glens, meadows, relics, grottos, caverns, creeks or other topographical or geographical units that need to be preserved or protected. Only activities of investigation, environmental recreation and education compatible with the nature and characteristics of the area shall be allowed in sanctuaries.

Article 56. (Environmental Law)

(Amended by Decree published December 13, 1996) The authorities of the States and the Federal District may promote the recognition of protected natural areas before the Federal Government, that they establish pursuant to their legislation, with the purpose of making the corresponding systems of protection compatible.

Article 56 bis. (Environmental Law)

(Added by Decree published December 13, 1996) The Minister shall constitute a National Council of Protected Natural Areas that shall be composed of representatives of the Minister, of other agencies and entities of the Federal Public Administration, as well as of academic institutions and centers of research, producers and business groups, non-governmental organizations and other social or private organizations, as well as individuals, with recognized prestige in the matter. The Council shall function as a consultation organ and aid the Minister in the formulization, execution, pursuit and evaluation of the policy for the establishment, maintenance and control of the natural protected areas under its jurisdiction. Opinions and recommendations that the Council draws up must be considered by the Minister in the exercise of the faculties that correspond thereto in the matter of natural protected areas pursuant to this and other applicable legal ordinances. The Council may invite representatives of the governments of the States, Federal District and Municipalities to its sessions when it is a question of matters related to natural protected areas under federal jurisdiction that they encounter within their territory. Likewise, it may invite representatives of ejidos (government granted communal lands - see the Agrarian Law), communities, proprietors, owners and generally any person whose participation is necessary pursuant to the matter in question in each case.

Article 57. (Environmental Law)

(Amended by Decree published December 13, 1996) The protected natural areas stipulated in items I to VIII of article 46 of this Law, shall be established through a degree issued by the President pursuant to this and other applicable laws.

Article 58. (Environmental Law)

(Amended by Decree published December 13, 1996) Prior to the issue of declaratories for the establishment of the natural protected areas to which the preceding article refers, studies that justify them must be carried out in the terms of this chapter, which must be posted at the disposal of the public. Likewise, the Minister must seek the opinion of:

I. The local governments in whose territorial areas the natural area in

question is located;

II. Agencies of the Federal Public Administration that must intervene, in accordance with their powers;

III. Public or private social organizations, indigenous people and interested individuals or legal persons, and

IV. The universities, research centers, institutions and organizations of the public, social and private sectors interested in the establishment, administration and supervision of natural protected areas.

Article 59. (Environmental Law)

(Amended by Decree published December 13, 1996) Indigenous people, public or private social organizations and other interested persons may promote the establishment of natural protected areas before the Minister, on lands they own or contract with third parties, in the case of areas intended for the preservation, protection and restoration of biodiversity. The Minister, if applicable shall promote the issue of the respective declaratory before the Federal Executive, by means of which the handling of the area by the promoter shall be established, with the participation of the Minister pursuant to the powers granted thereto in that respect by this Law.

Likewise, the subjects stipulated in the preceding paragraph may voluntarily carry out actions of preservation of ecosystems and their biodiversity on the property that belongs to them. For that purpose, they may petition the Minister for the respective recognition. The certificate that said authority shall issue must contain, at least, the name of the promoter, the denomination of the respective area, its location, surface and its borders, the system of management to which it shall be subject and, if applicable, the period of time of the supervision. That property shall be considered as productive areas devoted to a function of public interest.

Article 60. (Environmental Law)

The decrees for establishment, conservation, management, development, and supervision of protected natural areas in the interest of the Federal Government, shall contain, without prejudice to provisions of other laws, the following elements:

I. precise delimitation of the area, indicating size of area, bounds, and as applicable, the corresponding zoning classification;

II. the measures to which use of the natural resources in general or those specifically subject to protection are subjected;

III. description of activities that can be carried out in the relevant area, and the measures and limitations to which they are subject;

IV. the reason for the public utility that provides grounds, where applicable, for expropriation of lands, in order that the nation acquire ownership when in establishing a protected natural area such decision is necessary; in these cases, the provisions of the Expropriation Law and the Law of Agrarian Reform must be observed; and

V. the guidelines for preparation of a management program for the area.

Article 61. (Environmental Law)

(Amended by Decree published December 13, 1996) The decrees must be published in the federal Diario Oficial and prior notice must be given to the owners or occupants of the land affected, personally when their addresses are known; otherwise, a second publication will be made, which shall become effective as notice. The decrees shall be recorded in the relevant public register or registries of ownership.

Article 62. (Environmental Law)

(Amended by Decree published December 13, 1996) Once a protected natural area is established, its extension and, if applicable, the land use permitted or any of its provisions, may only be altered by the authority which established it in accordance with the same formalities provided in this Law for the issue of the respective decree.

Article 63. (Environmental Law)

(Amended by Decree published December 13, 1996) Protected natural areas established by the President may include, partially or totally, land subject to any system of ownership. The President, through the competent agencies, shall carry out the programs of standardization of the tenancy of the land in natural protected areas, with the objective of giving legal security to the owners and occupiers of the lands included therein. The Minister shall promote management programs to the Federal, State, Municipal and Federal District authorities, within the scope of their jurisdiction, in the terms that the applicable legal provisions establish, giving priority to programs of standardization of the ownership of the land in the natural protected areas of federal jurisdiction. National lands located within natural protected areas of federal jurisdiction shall remain at the disposal of the Minister, which shall destine them for the purposes established in the corresponding decree, pursuant to the legal provisions that are applicable.

Article 64. (Environmental Law)

(Amended by Decree published December 13, 1996) In the grant or issuance of permits, licenses, concessions, or generally, authorizations to which exploration, exploitation or use of resources in protected natural areas are subject, the provisions of this law, of laws on which the decrees for the corresponding creation thereof are based, and the provisions of the decrees themselves and the management programs will be observed.

The applicant must in such cases demonstrate to the competent authority its technical and economic capacity to effect the exploration, exploitation or use at issue, without causing deterioration to the ecological equilibrium.

The Minister, as well as the Ministers of Agriculture, Livestock and Rural Development and of Agrarian Reform shall render to ejidatarios (persons taking part in the ejido or communal lands program - see the Agrarian Law), communal farmers (comuneros or persons who are living in farming communes) and small owners the technical advice necessary for the fulfillment of that which is provided in

the preceding paragraph, when they do not have sufficient economic resources to procure it themselves. The Minister, taking the socioeconomic and technical studies done as a basis, may request the competent authority to cancel or revoke the corresponding permit, license, concession or authorization when the exploration exploitation or use of resources causes or may cause deterioration to the ecological equilibrium.

Article 64 bis. (Environmental Law)

(Added by Decree published December 13, 1996) The President, through the Minister in coordination with the Minister of Finance and Public Credit, as well as with the government of the States and of the Municipalities, in the scope of their respective jurisdictions:

I. Shall promote public and private investment for the establishment and management of natural protected areas;

II. Shall establish or promote, as the case may be, the utilization of mechanisms to secure resources and to finance or aid the management of natural protected areas;

III. Shall establish the economic incentives and the tax incentives for the persons, and the public or private social organizations that participate in the administration and supervision of natural protected areas, as well as for whoever contributes resources for those purposes or destines their lands to actions of preservation in terms of article 59 of this Law, and

IV. Shall promote before the Minister of Finance and Public Credit, that the total surface that each of the States or Municipalities devotes to the preservation of ecosystems and their biodiversity should be considered as a criterion in the Federal participations to those States or Municipalities, in the terms of that which is provided in article 46 of this Law.

Article 64 bis 1. (Environmental Law)

(Added by Decree published December 13, 1996) The Federation, the States, the Federal District and the Municipalities, in the scope of their respective jurisdictions, may grant concessions, permits or authorizations to owners, users, public or private social organizations, indigenous people and other interested persons, for the carrying out of works or activities in the protected natural areas, in accordance with that which is established in this Law, the decree and the corresponding management program. Agrarian families, indigenous people and other owners or users of the lands on which they are trying to carry out the works or activities previously stipulated, shall have preference to obtain the respective permits, concessions and authorizations.

Article 65. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister shall draw up, within a period of one year from the publication of the respective decree in the Diario Oficial of the Federation, the management program of the protected natural area in question, giving participation to the inhabitants, owners and users of the lands included therein, to the other competent agencies, the State governments,

municipal governments and to the Federal District, as the case may be, as well as to public or private social organizations and other interested persons. Once a protected natural area of federal jurisdiction is established, the Minister must appoint the Director of the area in question, who shall be responsible for coordinating the formulation, execution and evaluation of the corresponding management program, in accordance with that which is provided in this Law and the provisions that derive therefrom.

Article 66. (Environmental Law)

(Amended by Decree published December 13, 1996) The management program of protected natural areas must contain at least the following:

I. The description of the physical, biological, social and cultural characteristics of the protected natural area, in the national, regional and local context, as well as the analysis of the situation that is observed of the tenancy of the land in the respective area;

II. The actions to be carried out on a short-term, medium-term and long-term basis, establishing their connection with the National Development Plan, as well as with the corresponding sectoral programs. These actions shall include the following, inter alia: environmental research and education, protection and sustainable use of natural resources, flora and fauna, for the carrying on of recreational, tourist activities, infrastructure works and other productive activities, financing for the administration of the area, prevention and control of contingencies, supervision and others that are required by the characteristics of the protected natural area;

III. The form in which the administration of the area is organized and the mechanisms of participation of the individuals and communities located therein, as well as of all persons, institutions, groups and social organizations interested in its protection and sustainable use;

IV. The specific objectives of the protected natural area;

V. Reference to the Mexican official standards applicable to each and all of the activities to which the area is subject;

VI. Existing biological inventories and those that are foreseen to be realized, and

VII. Rules of an administrative nature to which the activities that are carried out in the protected natural area in question shall be subject.

The Minister must publish a resume of the respective management program and the localization plan of the area in the Diario Oficial of the Federation.

Article 67. (Environmental Law)

Coordination agreements as referred to in the preceding article will govern subjects deemed necessary, including but not limited to:

I. the manner in which the state and local governments will participate in management of the preserve;

II. coordination of federal policies with state and local policy and the preparation of a management program for the preserve, with formulation of commitments for its implementation;

III. the source and use of financial resources for preserve management;

IV. types and manner in which research and experiments on the preserve are to be done; and

V. forms and designs of coordination with the community, social groups and scientific and academic groups.

Article 68. (Environmental Law)

The preserve management program must include at least the following:

I. description of the physical, biological, social and cultural characteristics of the preserve in the national, regional and local context;

II. actions to be carried out in the short, medium and long term, establishing their connection with the National Democratic Planning System. Said actions will include research, resource and control;

III. the specific objectives of the preserve; and

IV. the applicable technical standards, when appropriate, for use of flora and fauna, clean-cutting, cultivation and livestock production, as well as those to avoid pollution of soil and water.

Article 69. (Environmental Law)

The measures which the President may impose for protection of the areas of biosphere preserves of special biosphere preserves, shall be those established in accordance with the subject matter, this law, the Forestry Law, the Federal Water Law, the Federal Fisheries Law, the Federal Hunting Law, the Organic Law of Federal Public Administration, and such other as are applicable. These measures may consist of restricting or prohibiting activities that might alter the ecosystems; imposition of measures concerning private property; and regulation of use of natural elements susceptible of use. Included in said measures are temporary or indefinite, and total or partial, closed seasons.

Pursuant to Article 61 herein, the decrees shall ascertain the reasons and basis for the measures imposed, and summons to interested parties in order that the Minister receive the statements that these prepare in writing within the period established in the decrees and resolve them on clearly stated grounds within thirty days thereafter. For this purpose, each agency which was involved in the prior studies and proposals for the decree shall address the part of the petitions which corresponds to their attributes through the Minister.

Article 70. (Environmental Law)

When nuclear zones are determined within biosphere preserves or within special biosphere preserves, the following shall be expressly prohibited:

I. to dump or discharge pollutants in the soil, subsoil and any kind of water flow or deposit, as well as to carry out any polluting activity;

II. to interrupt or re-channel water flows;

III. to carry out any kind of hunting with dogs or exploitation or use of flora or fauna species; and

IV. to execute actions that contravene the provisions of the decree.

Article 71. (Environmental Law)

National marine parks shall be established through decree by the President on joint proposal of THE MINISTER and the Secretariats of Fisheries and the Navy.

Prior to establishment of a national marine park, the aforementioned agencies shall make the studies and investigations to provide the basis for issue of the corresponding decree.

The decrees by which national marine parks are established must contain:

I. the precise limits of the area subject to protection, indicating, if applicable, the corresponding zoning classification;

II. description of the activities that may be carried out in the area. On prior opinion from the Secretariat of Communications and Transport (SCT), shipping traffic in the zone may be regulated, as may the establishment or utilization of artificial installations and platforms and structures for fishing. Further, exploration or exploitation of natural resources of the sea bed and its subsoil may be regulated.

III. the measures and limitations to which use of natural resources will be subjected within the area. The decree may establish the requirement of prior authorization for fishing for purposes of domestic consumption, development and recreational sport, pursuant to the relevant law; and

IV. the guidelines for development of the area management program.

Once established, the administration, organization, and management of national marine parks will be the responsibility of the Secretariats of Fisheries and of the Navy, with participation by THE MINISTER, and will be done pursuant to the provisions of this law, the Federal Sea Law, the Federal Fisheries Law, and other applicable law, the relevant decree, and the management program that the agencies develop.

Article 72. (Environmental Law)

The decrees to establish protected natural areas of interest to the Federal Government, provided for in Article 46 (III, (IV), (VI), and (VII) herein will be issued by the Federal Executive Branch pursuant to the Forestry Law, the Federal Fisheries Law, the Federal Hunting Law, and other relevant laws , on proposal of the agencies referred to therein, applying for matters not provided for in said laws, the provisions hereof.

Article 73. (Environmental Law)

THE MINISTER will promote and coordinate realization of the prior studies and the proposal to the President of such areas, particularly when there are united in them, subjects under the competence of several agencies.

Article 74. (Environmental Law)

For establishment of areas for protection of land flora and fauna, THE MINISTER will perform the necessary prior studies and will propose to the President the issue of corresponding decrees. The conservation, management, development, and

supervision of said areas pertains to THE MINISTER.

Article 75. (Environmental Law)

(Amended by Decree published December 13, 1996) All acts, agreements, and contracts relating to property, possession, or any right in relation to real estate located in protected natural areas must contain reference to the corresponding decree and to the information recorded in the Public Registry of Property.

Notaries public and any other public officers may only authorize public instruments, acts, agreements or contracts in which they intervene when the provisions of this article have been fulfilled.

Article 75 bis. (Environmental Law)

(Added by Decree published December 13, 1996) Receipts that the Federation collects through the granting of permits, authorizations and licenses in the matter of protected natural areas, pursuant to the applicable ordinances, shall be destined to carrying out the actions of preservation and restoration of the biodiversity within the areas from which those receipts were generated.

Article 76. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister shall establish the National System of Protected Natural Areas for the purpose of including therein the areas that are considered of special relevance in the country for their biodiversity and ecological characteristics. The integration of protected natural areas under federal jurisdiction into the National System of Protected Natural Areas by the Minister shall require the prior favorable opinion of the National Council of Protected Natural Areas.

Article 77. (Environmental Law)

(Amended by Decree published December 13, 1996) The Agencies of the Federal Public Administration, the governments of the States, the Federal District and of the municipalities, must consider the provisions contained in this Law, the regulations, Mexican official standards that are issued on the matter, in the decrees by which protected natural areas are established thereby and in the respective management programs, in their programs and actions that affect the territory of a protected natural area under federal jurisdiction, as well as in the granting of permits, concessions and authorizations for works or activities that are to be carried out in those areas.

CHAPTER II. RESTORATION ZONES (Environmental Law)

Article 78. (Environmental Law)

(Amended by Decree published December 13, 1996) In those areas that present processes of degradation or desertification, or serious ecological imbalances, the Minister must draw up and execute programs of ecological restoration, with the

purpose of carrying out the actions necessary for the recovery and re-establishment of the conditions that will be propitious for the evolution and continuity of the natural processes that are to be developed therein. In the formulation, execution and continuation of those programs, the Minister must promote the participation of the owners, users, public or private social organizations, indigenous people, local governments and other interested persons.

Article 78 bis. (Environmental Law)

(Added by Decree published December 13, 1996) In those cases in which accelerated process of desertification or degradation are being produced that imply the loss of resources of very difficult regeneration, recovery or re-establishment, or irreversible consequences to ecosystems or their elements, the Minister shall promote the issue of declaratories for the establishment of ecological restoration zones before the President.

For that purpose, it shall previously draw up the studies that justify them. The declaratories must be published in the Diario Oficial of the Federation, and shall be recorded in the corresponding Public Register of Property. The declaratories may totally or partially include lands subject to any system of ownership and shall express:

I. The borders of the zone subject to ecological restoration, laying down the surface area, location and demarcations;

II. The actions necessary to regenerate, recover or re-establish the natural conditions of the zone;

III. The conditions to which the uses of the land, the use of the natural resources, the flora and fauna shall be subject, as well as the realization of any type of work or activity within the zone;

IV. Delineations for the drawing up and execution of the corresponding ecological restoration program, as well as for the participation in those activities by owners, users, public or private social organizations, indigenous people, local governments and other interested parties, and

V. The periods for the execution of the respective ecological restoration program.

Article 78 Bis1. (Environmental Law)

(Added by Decree published December 13, 1996) All the acts and agreements relative to the ownership, possession or any other right related to real estate located in the zones that are the subject of the declaratories to which article 78 bis refers shall be subject to the application of the ways and means provided in those declaratories. Notaries and any other public officials shall put this circumstance on the record upon authorizing public deeds, acts, agreements or contracts in which they intervene. Any act, agreement or contract that contravenes that which is established in the aforementioned declaratory shall be null and void.

CHAPTER III. WILD FLORA AND FAUNA (Environmental Law)

Article 79. (Environmental Law)

(Amended by Decree published December 13, 1996) For the preservation and sustainable use of wild flora and fauna, the following criteria shall be considered:

I. Preservation of biodiversity and natural habitats of species of flora and fauna in Mexican territory and in zones where the nation exercises its sovereignty and jurisdiction;

II. Continuity of the evolutionary processes of species of flora and fauna and other biological resources, designating areas representative of ecological systems of the country to actions of preservation and research;

III. Preservation of endemic or threatened species and of those in danger of extinction or subject to special protection;

IV. Combat of illegal traffic or appropriation of species;

V. Encouragement and creation of biological stations for rehabilitation and repopulation of species of wild fauna;

VI. Participation of private or public social organizations and other interested parties in the preservation of biodiversity;

VII. Encouragement and development of research of wild fauna and flora and of genetic materials, with the object of knowing their scientific, environmental, economic and strategic value for the Nation;

VIII. Encouragement of the dignified and respectful treatment of animal species for the purpose of avoiding cruelty against them;

IX. Development of alternative productive activities for rural communities, and

X. Traditional biological knowledge and the participation of the communities, as well as the indigenous people in drawing up of programs of biodiversity of the areas in which they live.

Article 80. (Environmental Law)

(Amended by Decree published December 13, 1996) The criteria for the preservation and sustainable use of wild flora and fauna, to which article 79 of this Law refers, shall be considered in:

I. The grant of concessions, permits, and, generally, all kinds of authorizations for use, possession, management, conservation, repopulation, propagation, and development of wild flora and fauna;

II. The establishment or modification of closed seasons on wild flora and fauna;

III. Actions for livestock health;

IV. Protection and conservation of flora and fauna in Mexican territory against damaging action from pests and illnesses, or pollution which can arise from livestock activities;

V. The establishment of a national information system on biodiversity and certification of the sustainable use of its components that the National Commission for the Knowledge and Use of Biodiversity shall develop, as well as the regulation of the preservation and restoration of wild flora and fauna;

VI. The formulation of an annual program for production, repopulation, cultivation, planting, and dissemination of species of aquatic flora and fauna;

VII. The creation of refuge areas to protect aquatic species when required;

and

VIII. The determination of the methods and means applicable or indispensable for conservation, cultivation or repopulation of fisheries resources.

Article 81. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister will establish closed seasons on wild flora and fauna and the modification or raising thereof, based on studies that have previously been carried out for that purpose.

Closed seasons declared will have for their purpose conservation, repopulation, propagation, distribution, acclimatization or refuge for specimens, principally species which are endemic, threatened or in danger of extinction or subject to special protection.

The legal instruments by means of which closed seasons are established must specifically state their nature and the length of time, limits of the areas or zones which are closed, and the species of flora or fauna included therein, in accordance with the applicable legal provisions.

Said instruments must be published in the official gazette of the state (s) where the closed area is located, without prejudice to the provisions in the Federal Law on Metrology and Standardization and other applicable ordinances.

Article 82. (Environmental Law)

Provisions of this law are applicable to the possession, management, conservation, repopulation, propagation, import, export and development of wild flora and fauna, and genetic material, without prejudice to that which is established in other legal ordinances.

Article 83. (Environmental Law)

(Amended by Decree published December 13, 1996) Use of natural resources in areas which are the habitat of species of wild flora or fauna, especially those endemic, threatened, or in danger of extinction, must be done in a manner that does not alter the conditions necessary for the survival, development and evolution of said species.

The Minister must promote and aid the management of wild flora and fauna on the basis of traditional biological knowledge, technical, scientific and economic information, for the purpose of making sustainable use of the species.

Article 84. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister shall issue the official Mexican standards for conservation and sustainable use of habitat of wild flora and fauna and other resources.

Article 85. (Environmental Law)

When so required for protection of species, the Minister will promote with SECOFI establishment of measures for regulation or restriction, total or partial, of export or import of specimens of wild flora and fauna and shall impose the necessary restrictions on circulation or movement through Mexican territory of species of wild flora and fauna coming from or going to other countries.

Article 86. (Environmental Law)

(Amended by Decree published December 13, 1996) It corresponds to the Minister to apply provisions on sustainable use and conservation of species of wild fauna that are established herein and in other laws, and to authorize their use in economic activities, without prejudice to the authorities that correspond to other agencies pursuant to other laws.

Article 87. (Environmental Law)

(Amended by Decree published December 13, 1996) Use of species of wild fauna in economic activities may be authorized when the individuals guarantee their controlled reproduction and development in captivity or semi-captivity or when the rate of exploitation is less than that of the natural renewal of the populations, in accordance with the official Mexican standards that are issued by the Minister for the purpose.

Use with respect to natural populations of species threatened or in danger of extinction may not be authorized except in cases in which controlled reproduction and development of populations of such species is guaranteed. The authorization for the sustainable use of endemic species shall be granted pursuant to official Mexican standards issued by the Minister for the purpose, provided that said use does not threaten or place the species in danger of extinction. The use of species of wild flora and fauna requires the express consent of the owner or legitimate holder of the property on which they are encountered. Likewise, the Minister may grant those owners or holders, when they guarantee the controlled reproduction and development of populations of wild fauna, the synergetic permits that correspond. The collection of species of wild flora and fauna, as well as of other biological resources for purposes of scientific research required authorization of the Minister and must be subjected to the terms and formalities established in official Mexican standards issued, as well as in the other applicable ordinances. In every case, the results of the investigation must be guaranteed to be at the disposal of the public. Said authorizations may not cover the use for purposes of utilization in biotechnology, which shall be subject to the provisions in article 87 bis. The use of non-timber forest resources and firewood for domestic uses shall be subject to official Mexican standards issued by the Minister and other applicable provisions.

Article 87 bis. (Environmental Law)

(Added by Decree published December 13, 1996) The use of species of wild flora and fauna, as well as other biological resources for purposes of utilization in biotechnology requires the authorization of the Minister. The authorization to which this article refers may only be granted if the prior express and informed

consent of the owner or legitimate holder of the land on which the biological resource is encountered is given. Likewise, those owners or legitimate holders shall have a right to an equitable distribution of the profits that shall or may be derived from the uses to which this article refers, according to the applicable legal provisions. The Minister and other competent agencies shall establish the mechanisms necessary for the interexchange of information in respect to authorizations or decisions relative to the use of biological resources for the purposes to which this precept refers.

Article 87 bis 1. (Environmental Law)

(Added by Decree published December 13, 1996) The receipts of the Federation from granting of permits, authorizations and licenses in the matter of wild flora and fauna, pursuant to the which is determined in the applicable ordinances shall be intended for the carrying on of actions of conservation and restoration of biodiversity in the areas that constitute the habitat of the species of wild flora and fauna in respect to which those corresponding permits, licenses or authorizations are granted.

Article 87 bis 2. (Environmental Law)

(Added by Decree published December 13, 1996) The Federal Government, the governments of the States, the Federal District and the Municipalities, in the scope of their respective jurisdictions, shall regulate the dignified and respectful treatment that must be given to animals.

TITLE III. RATIONAL USE OF NATURAL ELEMENTS (Environmental Law)

CHAPTER I. RATIONAL USE OF WATER AND AQUATIC ECOSYSTEMS (Environmental Law)

Article 88. (Environmental Law)

For rational use of water and aquatic ecosystems, the following criteria shall be considered:

I. protection of aquatic ecosystems and equilibrium in the natural elements that are involved in the hydraulic cycle corresponds to the State and to society;

II. (Amended by Decree of December 13, 1996) sustainable use of the natural resources that include aquatic ecosystems must be done in a manner that does not affect their ecological equilibrium;

III. (Amended by Decree of December 13, 1996) to maintain integrity and the equilibrium among the natural elements involved in the hydraulic cycle, protection of soil and wooded and jungle areas and maintenance of basic flows of water currents and the capacity to refill aquifers must be considered; and

IV. (Added by Decree of December 13, 1996) the preservation and sustainable use of water, as well as of aquatic ecosystems is the liability of their users, as well as anyone carrying out works or activities that affect those resources.

Article 89. (Environmental Law)

Criteria for rational use of water and aquatic ecosystems shall be considered in:

I. formulation and integration of the National Hydraulic Program;

II. grant of concessions, permits, and generally, all kinds of authorizations for use of natural resources or realization of activities that affect or may affect the hydraulic cycle;

III. grant of authorization for re-channeling, extraction, or derivation from waters owned by the nation;

IV. (Amended by Decree of December 13, 1996) establishment of regulated prohibited or reserve zones;

V. (Amended by Decree of December 13, 1996) suspensions or revocations of permits, authorizations, concessions or allotments granted pursuant to the Federal Water Law, in those cases of works or activities that damage national hydraulic resources or affect the ecological equilibrium in a region;

VI. (Amended by Decree of December 13, 1996) operation and administration of potable water and drainage systems that serve population centers and industries;

VII. (Amended by Decree of December 13, 1996) the provisions of the program for urban development in the Federal District regarding water reuse policy;

VIII. (Amended by Decree of December 13, 1996) policies and programs for protection of aquatic species which are endemic, threatened, or in danger of extinction or subject to special protection;

IX. (Amended by Decree of December 13, 1996) concessions for carrying out aquaculture activities, in terms of the Fishing Law; and

X. (Amended by Decree of December 13, 1996) creation and administration of preserves and zones for fisheries protection.

XI-XII. Repealed by Decree of December 13, 1996.

Article 90. (Environmental Law)

(Amended by Decree of December 13, 1996) The Minister, in coordination with the Ministers of Agriculture and Hydraulic Resources and the Minister of Health, shall issue the ecological technical standards for establishment and management of protection zones for rivers, springs, deposits, and generally, water supply sources for service to populations and to industry, and will promote the establishment of water reserves for human consumption.

Article 91. (Environmental Law)

Grant of authorizations to affect the course or bed of water flows shall be subject to the ecological criteria contained herein.

Article 92. (Environmental Law)

(Amended by Decree of December 13, 1996) For the purpose of assuring availability of water and reducing waste levels, the competent authorities will promote the saving and efficient use of water, waste water treatment and reuse.

Article 93. (Environmental Law)

(Amended by Decree of December 13, 1996) The Minister shall undertake the actions necessary to avoid, and as applicable, control, eutrophication, salinization and any other polluting process in national waters.

Article 94. (Environmental Law)

(Amended by Decree of December 13, 1996) Exploration exploitation, use and management of aquatic resources, living and not living, will be subject to this Law, the Fishing Law, official Mexican standards and other applicable provisions.

Article 95. (Environmental Law)

(Amended by Decree of December 13, 1996) The Minister may request from interested parties, in the terms stipulated in this Law, realization of prior environmental impact studies before granting concessions, permits, and generally, all kinds of authorizations for fisheries activity, when use of the species endangers their preservation or may cause ecological imbalance.

Article 96. (Environmental Law)

(Amended by Decree of December 13, 1996) The Minister shall issue official Mexican technical standards for protection of aquatic ecosystems and will promote coordinated action for protection and restoration of aquatic ecosystems with the productive sectors and with the communities.

Article 97. (Environmental Law)

(Amended by Decree of December 13, 1996) The Minister shall establish nurseries, breeding grounds, and preserves for species of aquatic flora and fauna.

CHAPTER II. PRESERVATION AND SUSTAINABLE USE OF SOIL AND ITS RESOURCES (Environmental Law)

Article 98. (Environmental Law)

(Amended by Decree of December 13, 1996) For the preservation and sustainable use of soil, the following criteria will be considered:

I. land use must be compatible with its nature and must not alter the equilibrium of ecosystems;

II. land use must be done such that the land retains its physical integrity and productive capacity;

III. productive land uses must avoid practices that favor erosion, degradation or modification of topographic characteristics with adverse ecological effects;

IV. measures necessary to prevent or reduce erosion, deterioration of physical, chemical or biological properties of the soil and the loss of natural vegetation must be considered in actions of preservation and sustainable use of the soil;

IV. in zones with pronounced slopes or desertification, necessary actions of regeneration, recovery and rehabilitation must be carried out for the purpose of restoring them, and

V. realization of public or private works that in and of themselves may

provoke severe deterioration to land must include equivalent actions of regeneration and re-establishment of its natural state.

Article 99. (Environmental Law)

(Amended by Decree published December 13, 1996) The ecological criteria for the preservation and sustainable use of land will be considered in:

I. supports for farming activities given by the Federal Government, directly or indirectly, whether through credit, technical assistance or investment, in order that progressive incorporation of crops compatible with preservation of ecological equilibrium and restoration of ecosystems be promoted;

II. establishment of population centers and location of human settlements;

III. establishment of uses, preserves and futures in urban development plans, as well as in actions to improve and preserve population centers;

IV. determination of uses, preserves and futures in forest lots;

V. establishment of forest zones and preserves;

VI. determination or modification of limits established in summer pasturage co-efficients;

VII. provisions, technical guidelines and programs of protection and restoration of soil in agricultural, forestry and hydraulic activities;

VIII. establishment of soil conservation districts;

IX. forestry regulation for watersheds in national territory;

X. grant and modification, suspension or revocation of permits for forestry use;

XI. activities for extraction of substances from the subsoil; exploration, exploitation, smelting, and use of mineral substances; excavations and all actions that alter forest cover and soils; and

XII. The formulation of the ecological ordinance programs to which this Law refers.

Article 100. (Environmental Law)

Permits and generally, authorizations for forestry use, imply the obligation to rationally use this resource. When forestry activities seriously deteriorate ecological equilibrium, the Minister shall promote before SARH revocation, modification, or suspension of the respective permit or authorization pursuant to Article 56 of the Forestry Law.

Article 101. (Environmental Law)

In jungle zones, the Federal Government shall attend as a priority in accordance with applicable provisions:

I. (Amended by Decree published December 13, 1996) the preservation and sustainable use of jungle ecosystems where there are established farming activities;

II. (Amended by Decree published December 13, 1996) progressive change of clear-cutting and burning practices or those that do not permit natural regeneration or that alter the processes of ecological succession, to others that do no imply ecosystem deterioration;

III. (Amended by Decree published December 13, 1996) compliance with the criteria established in this Law, as well as the official Mexican standards issued for the purpose, in extraction activities involving non-renewable resources;

IV. (Amended by Decree published December 13, 1996) introduction of crops compatible with the ecosystems and that favor their restoration when they have deteriorated;

V. ecological regulation of human settlements;

VI. ((Added by Decree published December 13, 1996) prevention of the phenomena of erosion, deterioration of physical, chemical or biological properties of the soil and lasting loss of natural vegetation, and

VII. (Added by Decree published December 13, 1996) the regeneration, recovery and rehabilitation of the zones affected by phenomena of degradation or desertification, for the purpose of restoring them.

Article 101 bis. (Environmental Law)

(Added by Decree published December 13, 1996) In carrying out activities in arid zones, the criteria that are established in this Law and other applicable dispositions for the preservation and sustainable use of the soil must be observed.

Article 102. (Environmental Law)

(Amended by Decree published December 13, 1996) All authorizations that affect soil use in jungle or arid zones, as well as the ecological equilibrium of their ecosystems are subject to the criteria and provisions established herein and in other applicable laws.

Article 103. (Environmental Law)

(Amended by Decree published December 13, 1996) Those who undertake farming and livestock activities must follow conservation, sustainable use and recovery practices necessary to avoid deterioration of soils and ecological imbalance and, as the case may be, procure their rehabilitation, pursuant to this and other applicable laws.

Article 104. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister shall promote before the Minister of Agriculture, Livestock and Rural Development and other relevant agencies, introduction and generalization of protection and recovery practices for soils in farming activities, as well as realization of prior environmental impact studies to grant authorizations to make changes in land use, when there are elements that permit foreseeing grave deterioration to the soils affected and to the ecological equilibrium in the zone.

Article 105. (Environmental Law)

(Amended by Decree published December 13, 1996) In those zones that show serious ecological imbalance, the Minister, with the participation of other competent agencies, shall formulate plans for suitable special programs to restore ecological

equilibrium, and shall promote their approval by the President, with the involvement of SPP in accordance with the Planning Law.

When ecological equilibrium phenomena in such zones need it immediately, due to desertification processes being produced or loss of resources which are highly difficult to recover or irreversible, the Federal Executive Branch, by reason of public interest, on proposal from the Minister in coordination with SARH and other relevant agencies, may issue decrees to regulate land use, use of resources and carrying out activities. The decrees shall be published in the federal Diario Oficial and recorded in the corresponding Public Registry of Property. The decrees shall take effect on prior hearing for the interested parties, who must offer and contribute the evidence necessary to justify the questions raised within a period which shall not exceed twenty days after the corresponding notice.

The decrees may include, wholly or partially, land subject to any property system, and shall state:

I. the delimitation of the zone, specifically describing the surface area size, location, and metes and bounds;

II. conditions to which land use, use of natural resources, and carrying out of polluting activities are subject within the zone;

III. the recovery programs that the President determines for the zone, which may be subject to coordination agreements with state and local governments and coordination agreements with social and private sectors; and

IV. determination of the effective period.

Article 106. (Environmental Law)

All acts and contracts relating to property, possession, or any other right related to real estate located in zones that were subject to the decrees referred to in Article 105 herein will be subject to application of the measures on use thereof, provided for in the corresponding decree

Notaries public and any other public officials will record such circumstance in authorizing the public instruments, acts, agreements or contracts in which they intervene.

All acts, agreements or contracts which contravene that referred to in the decree established shall be void.

Article 107. (Environmental Law)

In tax incentives given for forestry activities, ecological criteria must be considered such that integrated development and encouragement of forestry activities, establishment and expansion of forest plantations, and works for protection of forest soils, pursuant to this law and the Forestry Law, are promoted.

CHAPTER III. EFFECTS OF EXPLORATION AND EXPLOITATION OF NON-RENEWABLE RESOURCES ON ECOLOGICAL EQUILIBRIUM (Environmental Law)

Article 108. (Environmental Law)

(Amended by Decree published December 13, 1996) To prevent and control effects of exploration and exploitation of non-renewable resources on the equilibrium and integrity of ecosystems, the Minister shall issue official Mexican technical standards which permit:

I. the control of water quality and protection of waters that will be used or which result from these activities, such that they may be put to other uses;

II. protection of soil and of wild flora and fauna such that topographic changes which are generated by these activities be treated properly and opportunely; and

III. proper location and forms of discarded ore, ore sweepings, and slag from mines and mineral smelting establishments.

Article 109. (Environmental Law)

The ecological technical standards referred to in the preceding article shall be observed by holders of concessions, authorizations, and permits for use, benefit, exploration and exploitation of non-renewable natural resources.

TITLE IV. ENVIRONMENTAL PROTECTION (Environmental Law)

CHAPTER I. GENERAL PROVISIONS (Environmental Law)

Article 109 bis. (Environmental Law)

(Added by Decree published December 13, 1996) The Minister, in the terms that the regulations of this Law shall stipulate, must put together an inventory of atmospheric emissions, discharges of waste waters into federal receiving bodies or that infiltrate into the sub-soil, dangerous materials and residues under its jurisdiction, coordinate the registers that the Law establishes and create a consolidated information system based on the authorizations, licenses or permits that must be granted in the matter.

Article 110. (Environmental Law)

For air protection, the following criteria shall be considered:

I. air quality must be satisfactory in all human settlements and in all regions of the nation; and

II. emissions of pollutants into the atmosphere, whether from artificial or natural sources, fixed or mobile, must be reduced and controlled to assure air quality satisfactory for the welfare of the population and ecological equilibrium.

CHAPTER II. PREVENTION AND CONTROL OF AIR POLLUTION (Environmental Law)

(Amended by Decree published December 13, 1996)

Article 111. (Environmental Law)

(Amended by Decree published December 13, 1996) To control, reduce, or avoid air pollution, the Minister shall:

I. issue the official Mexican technical standards establishing the air quality of different areas, zones or regions of the national territory, based on the amounts of maximum permissible concentration of air pollutants for the public health, as determined by the Minister of Health;

II. Put together and maintain up to date the inventory of sources of air polluting emissions of federal jurisdiction and coordinate with the corresponding local and regional governments for putting together the national inventory;

III. Issue official Mexican standards establishing the maximum permissible levels of issue of odors, gases as well as solid and liquid particles in the atmosphere deriving from fixed and movable sources, for each contaminant and for each source of contamination;

IV. draw up and apply programs for the reduction of the issue of air pollutants, on the basis of the air quality that shall be determined for each area, zone or region of national territory. Said programs must provide the objectives that they are trying to reach, the periods corresponding and the mechanisms for their instrumentation;

V. to promote and technically help the local governments in the drawing up and application of air quality management programs whose objective shall be compliance with the applicable standard;

VI. Require compliance with the maximum permissible limits of issue of pollutants, in accordance with article 37 of this Law, its regulation and in the respective official Mexican standards, by those responsible for the operation of fixed sources under federal jurisdiction;

VII. Issue the official Mexican standards for the establishment and operation of air quality monitoring systems;

VIII. issue official Mexican technical standards for certification by the competent authority of levels of pollutant emission into the atmosphere arising from determined sources;

IX. issue, in coordination with SECOFI, official Mexican technical standards that establish the maximum permissible levels of emission of air pollutants deriving from new automotive vehicles in plant and of automotive vehicles in circulation, considering the amounts of maximum permissible concentration for human beings of pollutants in the environment, determined by the Secretariat of Health;

X. Define maximum permissible levels of emission of air pollutants by sources, areas, zones or regions, in such manner that the capacities of assimilation of atmospheric watersheds are not exceeded and that the official Mexican standards of air quality are complied with;

XI. promote, in coordination with the corresponding authorities, in accordance with the applicable dispositions, systems of transferable rights of air polluting emissions;

XII. Approve programs of air quality management drawn up by the local governments for compliance with the respective official Mexican standards;

XIII. promote the application of new technologies to parties responsible for

the operation of sources of pollutants, with the purpose of reducing their emissions into the atmosphere, and

XIV. Issue the official Mexican standards that establish the provisions to which the operation of fixed sources that issue air pollutants must be subjected in cases of contingencies and environmental emergencies.

Article 111 bis. (Environmental Law)

(Added by Decree published December 13, 1996) For the operation and functioning of fixed sources under federal jurisdiction that issue or may issue odors, gases or solid or liquid particles into the atmosphere, authorization of the Minister shall be required. For the purposes to which this Law refers, fixed sources under federal jurisdiction shall be considered as the chemical, petroleum and petrochemical industries, paints and inks, automotive, cellulose and paper, metallurgy, glass, generation of electricity, asbestos, cement and treatment of dangerous wastes. The regulation to be issued for this purpose shall determine specific sub sectors belonging to each one of the aforementioned industrial sectors, whose establishments shall be subject to the provisions of the federal legislation, so far as it refers to the emission of air pollutants.

Article 112. (Environmental Law)

(Amended by Decree published December 13, 1996) In the area of prevention and control of air pollution, the governments of the States, the Federal District and Municipalities, in accordance with the distribution of powers established in articles 7, 8 and 9 of this Law, as well as with the local legislation on the matter, shall:

I. control air pollution on the property and zones within local jurisdiction, as well as in fixed sources that function as industrial, commercial and service establishments, provided that they are not included in article 111 bis of this Law;

II. apply general criteria for the protection of the atmosphere in urban development plans under their jurisdiction, defining the zones in which installation of polluting industries shall be permitted;

III. Require those responsible for the operation of fixed sources under local jurisdiction to comply with the maximum permissible limits of emission of pollutants, in accordance with the provisions of the regulation of this Law and in the respective official Mexican standards;

IV. compose and keep up-to-date an inventory of fixed sources of pollution;

V. establish and operate emission verification systems for automobiles in circulation;

VI. establish and operate, with technical assistance if necessary, from the Minister, air quality monitoring systems. Local governments shall remit local reports of atmospheric monitoring to the Minister in order to incorporate them into the National Environmental Information System;

VII. establish requirements and procedures to regulate emissions from public transportation, except federal transportation, and the means of transit, and, if appropriate, suspension of circulation in serious cases of pollution;

VIII. take preventative measures necessary to avoid environmental risk due to air pollution;

IX. prepare the reports on the condition of the environment in the corresponding entity or municipality which they shall accord with the Minister through coordination agreements;

X. impose sanctions and measures for violation of the laws which the local legislatures adopt for that purpose, or the police power and good government edicts or regulations adopted by local councils, pursuant hereto;

XI. draw up and apply, based on official Mexican standards issued by the Federation to establish environmental quality in national programs of quality of air management, and

XI. exercise the other powers conferred on them by applicable legal provisions and regulations.

Article 113. (Environmental Law)

Pollutants may not be released into the atmosphere which cause or may cause ecological imbalance or damage to the environment. All emissions into the atmosphere must observe the provisions hereof and the regulatory provisions arising herefrom, as well as the ecological technical standards issued by the Minister. When said emissions contain hazardous materials or residues, prior authorization from the Minister shall be required for said emission.

Article 114. (Environmental Law)

The competent authorities shall promote in zones where suitability for industrial use near residential areas has been determined, installation of industry which uses technology and fuel that generates less pollution.

Article 115. (Environmental Law)

The Minister shall promote that, in determination of land use defined by the respective urban development plan, topographic, climatologic, and meteorological conditions be considered to assure proper dispersion of pollutants.

Article 116. (Environmental Law)

For grant of tax incentives, the competent authorities shall consider those who:

I. acquire, install or operate equipment for control of pollutant emissions into the atmosphere;

II. Manufacture, install, or provide maintenance for filter, combustion, control, and generally, treatment equipment for emissions that pollute the atmosphere;

III. carry out research on technology whose application reduces generation of polluting emissions; and

IV. locate or relocate their installations to avoid polluting emissions in urban zones.

CHAPTER III. PREVENTION AND CONTROL OF WATER POLLUTION AND POLLUTION OF AQUATIC ECOSYSTEMS (Environmental Law)

Article 117. (Environmental Law)

For prevention and control of water pollution, the following criteria shall be considered:

I. prevention and control of water pollution is fundamental to avoid its availability being reduced and to protect the nation's ecosystems;

II. prevention of river, watershed, reservoir, and sea water pollution, and that of other water deposits and flows, including subterranean waters, corresponds to the State and to society;

III. use of water in productive activity susceptible of producing its pollution carries with it responsibility for treatment of discharges to restore it to a condition appropriate for its use in other activities and to maintain equilibrium in ecosystems;

IV. residual water from urban origins must receive treatment prior to its discharge into rivers, water sheds, reservoirs, marine waters and other deposits or flows of water, including subterranean waters; and

V. participation and cooperation from society is an indispensable condition for avoiding water pollution.

Article 118. (Environmental Law)

(Amended by Decree published December 13, 1996) The criteria for water pollution prevention and control shall be considered in:

I. the issue of official Mexican technical standards for the use, treatment and disposal of residual waters, to avoid risks and damages to public health;

II. the formulation of official Mexican standards that must satisfy the treatment of water for human use and consumption, as well as for the infiltration and discharge of residual waters in receiving bodies considered national waters;

III. agreements executed by the Federal Executive Branch for delivery of water en bloc to user systems or to users, especially with reference to determination of residual water treatment that must be installed;

IV. the establishment of regulated zones of prohibition or reserve in the terms of the National Waters Law;

V. concessions, assignments, permits, and generally, authorizations that must be obtained by concessionaires, assignees, or permit holders, and generally, users of waters owned by the nation, to infiltrate residual water onto their lands, or to discharge them into recipient bodies other than population center drainage systems;

VI. organization, direction and regulation of hydraulic works in watersheds, beds, and ditches for national waters, both above ground and subterranean, and

VII. The classification of receiving bodies of residual water discharge, in accordance with their capacity of assimilation or dilution and the amount of pollutants that they may receive.

Article 119. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister shall issue the official Mexican standards that are required to prevent and control the contamination of national waters, pursuant to this Law, the Law of National Waters, their Regulation and other applicable dispositions.

Article 120. (Environmental Law)

To avoid water pollution, the following are subject to local or federal regulation:

I. discharges originating in industry;

II. discharges originating with the municipality and its uncontrolled mixing with others;

III. discharges originating from farming activities;

IV. discharges of waste, substances, or residues generated in activities for extraction of non-renewable resources;

V. application of pesticides, fertilizers, and toxic substances;

VI. infiltrations that affect aquifers; and

VII. (Amended by Decree published December 13, 1996) emptying of solid wastes, hazardous materials and sludge deriving from treatment of residual waters into water bodies or flows.

Article 121. (Environmental Law)

(Amended by Decree published December 13, 1996) Residual waters containing pollutants may not be discharged or infiltrated into any water body or current or into the soil or subsoil, without prior treatment and the permit or authorization from the federal authority, or from the local authority in cases of discharges of water in local jurisdiction or into drainage and sewage systems in population centers.

Article 122. (Environmental Law)

(Amended by Decree published December 13, 1996) Residual waters deriving from urban public use, and from industrial or farm use, which are discharged into drainage and sewage systems in towns or into watersheds, rivers, river beds, reservoirs, and other deposits or flows of water, as well as those that by any means infiltrate the subsoil, and generally, those that fall on soil, must meet the conditions necessary to prevent:

I. pollution of the recipient body;

II. interference with water purification processes; and

III. disturbance, impediments, or alterations in proper use or in proper functioning of the systems, and in the hydraulic capacity of watersheds, river beds, reservoirs, aquifers, and other deposits owned by the nation, as well as sewage systems.

Article 123. (Environmental Law)

(Amended by Decree published December 13, 1996) All discharges into collecting networks, rivers, aquifers, watersheds, river beds, reservoirs, marine waters, and other deposits or flows of water and spills of residual waters on soil, or infiltration into lands, must meet the official Mexican technical standards issued for such purpose, and , as applicable, the specific discharge conditions determined by the Minister or local authorities. Whosoever generates the discharges is responsible for providing the prior treatment required.

Article 124. (Environmental Law)

When residual waters affect or could affect water supply sources, the Minister shall so advise the Secretariat of Health, and will promote before the competent authority

denial of the corresponding permit or authorization, or its immediate revocation, and if appropriate, suspension of supply.

Article 125. (Environmental Law)

The Minister, considering the general health criteria established by the Secretariat of Health as well as the use of watersheds of national waters determined by SARH, shall determine the particular conditions for discharge and the treatment systems that must be installed by agencies and bodies of the Federal Public Administration for discharge of residual waters.

Article 126. (Environmental Law)

(Amended by Decree published December 13, 1996) Equipment for treatment of residual water from urban sources that the municipality, state authorities, or the Department of the Federal District design, operate, or control, must meet the official Mexican technical standards issued for that purpose.

Article 127. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister, in coordination with the Secretariat of Health, shall issue opinions, on the basis of the corresponding watershed system studies, for planning and construction of works and installations for purification of industrial residual water.

Article 128. (Environmental Law)

(Amended by Decree published December 13, 1996) Residual waters from urban sewage systems may be used by industry and agriculture, if submitted when necessary to treatment that meets the technical standards issued by the Minister, in coordination with SARH and the Secretariat of Health.

In existing uses of residual water in agriculture, actions will be undertaken to improve the quality of the resource, regulation of crops, and irrigation practices.

Article 129. (Environmental Law)

Grant of assignments, authorizations, concessions, or permits for exploitation, use or benefit from water in economic activities susceptible of polluting said resource shall be conditioned on prior treatment needed for the residual waters produced.

Article 130. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister shall authorize the dumping of residual waters into marine waters in accordance with the provisions of the Law of National Waters, its Regulation and official Mexican standards issued for that purpose. When the origin of the discharges is from mobile sources or from platforms fixed in the territorial sea or the exclusive economic zone, the Minister shall coordinate with the Secretariat of the of the Navy for issue of the corresponding authorizations.

Article 131. (Environmental Law)

(Amended by Decree published December 13, 1996) For protection of the marine environment, the Minister will issue official Mexican standards for exploitation, conservation, and administration of natural resources, living and abiotic, of the sea bed and subsoil of the sea and of the adjacent waters, as well as those that must be observed to carry out exploration and exploitation activities in the exclusive economic zone.

Article 132. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister will coordinate with the Secretariat of the Navy, SEMIP, the Secretariat of Health, and of Communications and Transport, in order that within their respective authorities, they intervene to prevent and control pollution of the marine environment, and preserve and restore the equilibrium of its ecosystems, in accordance with this law, the Law of National Waters, the international conventions to which Mexico is party, and the other applicable provisions.

Article 133. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister, with the participation of the Secretariat of Health in accordance with other legal provisions, shall perform systematic and permanent monitoring of the quality of waters to detect the presence of pollution or excessive organic waste and apply the appropriate measure. In the cases of waters within local jurisdictions, action will be coordinated with the authorities of the States, the Federal District and the Municipalities.

CHAPTER IV. PREVENTION AND CONTROL OF SOIL POLLUTION (Environmental Law)

Article 134. (Environmental Law)

For prevention and control of soil pollution, the following criteria shall be considered:

I. prevention of soil pollution corresponds to the State and to society;

II. residues must be controlled to the extent that they constitute the principal source of soil pollution;

III. (Amended by Decree published December 13, 1996) it is necessary to prevent and reduce the generation of solid, city, and industrial residues, to incorporate techniques and procedures for their reuse and recycling, as well as to regulate their management and final efficient disposal;

IV. (Amended by Decree published December 13, 1996) the use of pesticides, fertilizers, and toxic substances must be compatible with the equilibrium of ecosystems and consider their effects on human health for the purpose of preventing damages that they may occasion, and

V. (Added by Decree published December 13, 1996) in soils polluted by the presence of hazardous materials or wastes, the actions necessary to recover or re-establish their conditions must be carried out in such manner as may be utilized in any type of activity provided by the urban development program or ecological

ordinance that may be applicable.

Article 135. (Environmental Law)

(Amended by Decree of December 13, 1996) The criteria to prevent and control soil pollution will be considered in the following cases:

I. the ordering and regulation of urban development;

II operation of cleaning systems and systems for final disposal of municipal residues in sanitary landfills;

III. the generation, management and final disposal of solid, industrial and dangerous wastes, as well as in the authorizations and permits granted for that purpose;

IV. grant of all kinds of authorizations for manufacture, import, use, and generally, the realization of activities related to pesticides, fertilizers, and toxic substances.

Article 136. (Environmental Law)

(Amended by Decree of December 13, 1996) Residues which accumulate or may accumulate and are deposited or infiltrate into the soil must meet the conditions necessary to prevent or avoid:

I. soil contamination;

II. harmful alteration to soil biological process;

III. alterations in the soil which prejudice its benefit, use or exploitation; and

IV. health risks and problems.

Article 137. (Environmental Law)

(Amended by Decree of December 13, 1996) The functioning of collection, storage, transport, containment, reuse, treatment and final disposal systems for municipal solid waste is subject to authorization from the Municipalities or the Federal District, pursuant to their local laws on the matter and to official Mexican standards that are applicable.

Article 138. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister shall promote the execution of coordination and consulting agreements with state and municipal governments for:

I. putting in place and improving municipal solid waste collection, treatment and final disposal systems; and

II. identification of alternatives for reuse and final disposal of municipal solid waste, including preparation of inventories thereof and their generating sources.

Article 139. (Environmental Law)

(Amended by Decree published December 13, 1996) All discharge, deposit or infiltration of polluting substances or materials into the soil shall be subject to the provisions of this Law, the Law of National Waters, their regulatory provisions, and official Mexican technical standards issued for such purpose by the Minister.

Article 140. (Environmental Law)

(Amended by Decree published December 13, 1996) The generation, handling and final disposal of wastes of slow degradation must be subject to the provisions in official Mexican standards issued by the Minister in coordination with SECOFI for that purpose.

Article 141. (Environmental Law)

SECOFI shall promote manufacture and use of packaging and shipping crates for all kinds of products whose materials permit reduction in generating solid residues.

Article 142. (Environmental Law)

(Amended by Decree published December 13, 1996) In no case may the import of residues be authorized for spillage, deposit, containment, storage, burning, or any treatment for their destruction or final disposal in Mexican territory or in the zones where the nation exercises sovereignty rights and jurisdiction. Authorizations for transit through Mexican territory of non-hazardous residues to another country may only be granted when there is prior consent from the recipient country.

Article 143. (Environmental Law)

(Amended by Decree published December 13, 1996) Pesticides, fertilizers and other hazardous materials are subject to the official Mexican standards issued in the scope of their respective jurisdictions by the Minister and the Ministers of Agriculture, Livestock and Rural Development, of Health and of Commerce and Industrial Encouragement. The regulations to this law will establish the rules which within the same coordinated framework must be observed for activities related to said materials, including final disposal of their residues, empty packaging and containers, measures to avoid adverse effects on ecosystems and the procedures for grant of the corresponding authorizations.

Article 144. (Environmental Law)

(Amended by Decree published December 13, 1996) Attending to the provisions hereof, of the Federal Vegetable Health Law, and other applicable laws and regulations, the Minister will coordinate with the Secretariat of Health, of Agriculture, Livestock and Rural Development, and SECOFI to participate in determination of the tariff and non-tariff restrictions relating to import or export of hazardous materials. Authorization may not be granted for import of pesticides, fertilizers or other hazardous materials, when their use is not permitted in the country where they are prepared or manufactured.

CHAPTER V. ACTIVITIES CONSIDERED HAZARDOUS (Environmental Law)

Article 145. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister shall encourage that in determination of land use zones be specified in which will be permitted the establishment of industries, businesses, or services deemed hazardous due to the gravity of the effects that they could cause in ecosystems or on the environment, taking into consideration:

I. the topographical, meteorological, climatological, geological and seismic conditions in the zones;

II. proximity to population centers, foreseeing expansion tendencies in the respective settlement and creation of new settlements;

III. impacts that a possible extraordinary event in the industry, business, or service at issue, would have on the population center and on natural resources;

IV. compatibility with other activities in the zones;

V. existing and necessary infrastructure to attend to ecological emergencies; and

VI. infrastructure to provide basic services.

Article 146. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister, with the prior opinion of the Minister of Energy, SECOFI, the Secretariat of Health, of Government and of Labor and Social Security, pursuant to the Regulation to be issued for that purpose, shall establish the classification of the activities that must be considered highly risky by virtue of the corrosive, reactive, explosive, toxic, inflammable or biologically infectious for the ecological balance or the environment, of the materials that would be generated or handled in the industrial, commercial or service establishments, considering, moreover, the volumes to be handled and the location of the establishment.

Article 147. (Environmental Law)

(Amended by Decree published December 13, 1996) Realization of industrial, commercial or service activities which are highly hazardous shall be done in accordance herewith, the regulatory provisions arising herefrom, and the official Mexican standards to which the preceding article refers. Anyone who carry on highly risky activities, in the terms of the corresponding Regulation, must draw up and present to the Minister a study of environmental risk, as well as submit to the approval of each agency and of the Ministers of Government, of Energy of Commerce and Industrial Encouragement, of Health, and of Labor and Social Security, the programs for the prevention of accidents in carrying out those activities that may cause serious ecological imbalances.

Article 148. (Environmental Law)

(Amended by Decree published December 13, 1996) When to guarantee the safety of the neighbors of an industry that carries on highly risky activities, it is necessary to establish an intermediate security zone, the Federal Government may establish restrictions to urban uses that might occasion risks for the population, by means of a decree. The Minister shall promote, to the competent local authorities, plans or programs of urban development that establish that in those zones no housing, commercial businesses or others that would place the people at risk.

Article 149. (Environmental Law)

(Amended by Decree published December 13, 1996) The States and the Federal District shall regulate the performance of activities that are not considered highly

dangerous, when they affect the balance of the ecosystems or the environment within the corresponding territorial district, in accordance with the official Mexican standards that are applicable. The local legislation shall define the bases in order that the Federation, the States, the Federal District and the Municipalities should coordinate their actions in respect to the activities to which this precept refers.

CHAPTER VI. HAZARDOUS MATERIALS AND RESIDUES (Environmental Law)

Article 150. (Environmental Law)

(Amended by Decree published December 13, 1996) Hazardous materials and wastes must be handled in accordance with this Law, its Regulation and the official Mexican standards issued by the Minister with the prior opinion of the Ministers of Commerce and Industrial Encouragement, of Health, of Energy, of Communications and Transport, of the Navy and the Government.

The regulation of management of such materials and wastes shall include, as the case may be, their use, re-collection, storage, transport, re-use, recycling, treatment and final disposal. The Regulation and the official Mexican standards to which the preceding paragraph refers shall contain the criteria and listings that classify the hazardous materials and wastes identifying them by their degree of being hazardous and considering their characteristics and volumes.

The Minister shall be responsible for the regulation and the control of the hazardous materials and wastes. Likewise, the Minister in coordination with the agencies to which this article refers, shall issue the official Mexican standards in which the requirements for the labeling and packaging of hazardous materials and wastes shall be established, as well as for the evaluation of risk and information on contingencies and accidents that might be generated by their handling, particularly in the case of chemical substances.

Article 151. (Environmental Law)

(Amended by Decree published December 13, 1996) The liability for the management and final disposal of hazardous wastes shall correspond to whoever generates them. In the case in which the services of management and final disposal of hazardous residues is contracted with enterprises authorized by the Minister and the wastes are delivered to those enterprises, the liability for the operations shall lie with the latter, regardless of the liability that, if applicable, the person who generated shall have. Anyone who generates, re-uses or recycles hazardous wastes must make it known to the Minister in the terms provided in the Regulation of this Law. In authorizations for the establishment of containments of hazardous wastes, only the wastes that technically and economically cannot be subjects of re-use, recycling or thermal or physical chemical destruction shall be included, and containment of hazardous wastes in liquid form will not be permitted.

Article 151 bis. (Environmental Law)

(Amended by Decree published December 13, 1996) The following requires prior authorization of the Minister:

I. Furnishing services of operation of systems for the collection, storage, transport, re-use, treatment, recycling, incineration and final disposal of hazardous wastes to third parties;

II. The installation and operation of systems for the treatment or final disposal of hazardous wastes, or for their recycling when the latter' purpose is the recovery of energy by means of incineration, and

III. The installation and operation, on the part of the generator of the hazardous wastes, of systems for their re-use, recycling and final disposition, outside of the installation wherein those wastes were generated.

Article 152. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister shall promote programs for the prevention and reduction of the generation of hazardous wastes, as well as to encourage their re-use and recycling. In those cases in which the hazardous wastes can be utilized in a process other than that which generated them, the Regulation of this Law and the official Mexican standards that are issued, must establish the mechanisms and procedures that make their efficient management possible from the environmental and economic point of view. Hazardous wastes that are used, treated or recycled in a process other than that which generated them, on the same premises, shall be subject to an internal control on the part of the enterprise responsible, in accordance with the formalities that the Regulation of this Law shall establish.

If the wastes stipulated in the preceding paragraph are transported to premises outside of that on which they were generated, that which is provided in the standards applicable to land transport of hazardous wastes shall be applicable.

Article 152 bis. (Environmental Law)

(Amended by Decree published December 13, 1996) When the generation, management or final disposal of hazardous materials or wastes produces pollution of the soil, the parties responsible for those operations must carry out the actions necessary to recover and re-establish the former conditions, with the intention that this may be directed to any of the applicable activities provided in the program of urban development or ecological ordinance for the respective property or zone.

Article 153. (Environmental Law)

(Amended by Decree published December 13, 1996) Import or export of hazardous materials or residues will be subject to the restrictions established by the Federal Executive, in accordance with the Foreign Trade Law. In all cases, the following provisions must be observed:

I. control and ecological supervision of hazardous materials or residues imported or for export shall correspond to the Minister, applying appropriate safety measures without prejudice to that provided by the Customs Law;

II. import of hazardous materials or residues for treatment, recycling or

reuse, may only be authorized when their use be in accordance with current law, regulations, official Mexican standards and other provisions;

III. import of hazardous materials or residues for the sole purpose of final disposal or simple deposit, storage, or containment in Mexican territory or in zones where the nation exercises sovereignty and jurisdiction, or when their use or manufacture is not permitted in the country in which they were manufactured, may not be authorized;

IV. transit through national territory of hazardous materials that do not satisfy the specifications of use or consumption pursuant to those that were manufactured, or whose manufacture, use or consumption is prohibited or restricted in the country to which they are en route may not be authorized; neither may the transit of such hazardous materials or wastes be authorized when they derive from abroad to be transported to a third country;

V. the grant of authorizations for export of hazardous materials or residues shall be subject to express consent from the recipient country;

VI. hazardous materials or residues generated in production, transformation, manufacture, or repair processes in which primary materials have been used that were brought into Mexico under the temporary import system, including those regulated by Article 85 of the Customs Law, must be returned to the country of origin during the period that is determined therefor by the Minister;

VII. the grant of authorizations by the Minister for import or export of hazardous materials or residues is subject to due guaranty of compliance herewith and with other applicable provisions, as well as remedy of damages and losses that may be caused either in Mexico or abroad; and

Likewise, the export of hazardous wastes must be refused when their reimport into national territory is planned; express consent of the receiving country does not exist; the country to which they are destined demands reciprocity; or non-compliance with the promises assumed by Mexico in International Treaties or Conventions on the matter is implied; and

VIII. in addition to that established in other applicable provision, authorizations granted for import or export of hazardous residues and materials may be revoked, without prejudice to imposition of the corresponding sanctions in the following cases:

a. when due to supervening causes, it is proven that the hazardous materials or residues authorized constitute a greater risk for ecological equilibrium than that considered when grant of the corresponding authorization was made;

b. when the import or export operation does not comply with the requirements established on the ecological clearance certificate issued by the Minister;

c. when the hazardous materials or residues do not have the attributes or characteristics in accordance with which they were authorized; and

d. when it is determined that the authorization was transferred to a person other than the one that requested the authorization, or when the corresponding application contained false information or was filed in such a way as to hide information necessary for correct evaluation of the application.

CHAPTER VII. NUCLEAR ENERGY (Environmental Law)

Article 154. (Environmental Law)

(Amended by Decree published December 13, 1996) SEMIP, and the National Commission on Nuclear Safety and Safeguards, with the participation corresponding, if appropriate, to the Secretariat of Health, shall assure that exploration, exploitation and use of nuclear minerals, use of nuclear fuel, use of nuclear energy, the nuclear industry and, generally, activities related thereto, are performed in accordance with official Mexican standards for nuclear, radioactivity, and physical safety in nuclear or radioactive installations, such that risks to human health are avoided and preservation of ecological equilibrium and protection of the environment is assured, it corresponding to the Minister to realize evaluation of environmental impact.

CHAPTER VIII. NOISE, VIBRATIONS, THERMAL ENERGY, AND LIGHTING ODORS AND VISUAL POLLUTION (Environmental Law)

Article 155. (Environmental Law)

(Amended by Decree published December 13, 1996) Emissions of noise, vibrations, thermal energy and lighting and generation of visual pollution are prohibited to the extent that they exceed the maximum limits contained in the official Mexican technical standards issued for such purpose by the Minister, considering the values of maximum permissible concentration for human beings of pollutants in the environment as determined by the Secretariat of Health. Federal and local authorities, according to their jurisdictions, shall adopt measures to impede exceeding said limits and, as applicable, shall impose the corresponding sanctions.

In construction projects or installations that generate thermal energy, noise, or vibrations, as well as operation or functioning of those existing, preventive and corrective actions must be undertaken to avoid the harmful effects of such pollutants in the ecological balance and the environment.

Article 156. (Environmental Law)

(Amended by Decree published December 13, 1996) Official Mexican technical standards on subjects within this Chapter will establish procedures in order to prevent and control pollution by noise, vibration, thermal energy, lighting, electromagnetic radiations and odors and shall fix the respective emission limits.

The Secretariat of Health shall undertake the analysis, studies, research and supervision needed in order to locate the origin or source, nature, degree, magnitude, and frequency of the emissions to determine when injury to health is produced.

The Minister, in coordination with public and private, national and international, groups, shall integrate information relating to this type of pollution as well as the

methods and technology for its control and treatment.

TITLE V. SOCIAL PARTICIPATION AND ENVIRONMENTAL INFORMATION(Environmental Law)

CHAPTER I. SOCIAL PARTICIPATION (Environmental Law)

Article 157. (Environmental Law)

The Federal Government shall promote participation and responsibility from society in formulation of ecological policy, application of its instruments, and information and supervision activity, and generally, in the ecological actions undertaken.

Article 158. (Environmental Law)

(Amended by Decree published December 13, 1996) For purposes of the preceding article, the Minister shall:

I. call within the scope of the National Democratic Planning System representative of labor, business, campesino and agricultural, fishing and forestry producer organizations, agrarian communities, indigenous people, educational institutions, social organizations and private non-profit institutions, and other interested persons, to state their opinions and proposals;

II. execute cooperation agreements with labor organizations and social groups for environmental protection in the work place and residential units; with indigenous people, agrarian communities and other campesino organizations for establishment, administration, and management of protected natural areas, and to provide them ecological advisory services concerning activities related to sustainable use of natural resources; with business organizations in the cases provided for herein for environmental protection; with educational and academic institutions for realization of studies and research on the subject; with civil organizations and private non-profit institutions to undertake joint ecological action; as well as with social representatives and individuals interested in preservation and restoration of ecological equilibrium and environmental protection;

III. execute agreements with the mass communication media for broadcasting information and promotion of actions to preserve the ecological balance and protection of the environment;

IV. promote the establishment of recognition of the most outstanding forces of the society to preserve and restore ecological balance and to protect the environment; and

V. To impel the strengthening of ecological conscience through carrying out joint actions with the community for the preservation and improvement of the environment, the rational use of natural resources and the correct management of wastes. For this purpose, the Minister may, in coordination with the corresponding States and Municipalities, execute agreements with urban and rural communities, as well as with miscellaneous social organizations, and

VI. assemble actions and investments with the social and private sectors and with academic institutions, social groups and organizations, indigenous people and other interested individual and legal persons for the preservation and

restoration of the ecological balance and protection of the environment.

Article 159. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister shall form consultation organizations in which entities and agencies of the public administration, academic institutions and social and business organizations shall participate. These organizations shall have advisory, evaluation and follow-up functions in the matter of environmental policy and may issue the opinions and observations that they deem pertinent. Their organization and functioning shall be subject to resolutions issued by the Minister.

When the Minister must decide a matter on which the organizations to which the preceding paragraph refers have issued an opinion, the former must express the causes for acceptance or rejection of that opinion.

CHAPTER II. RIGHT TO ENVIRONMENTAL INFORMATION (Environmental Law)

Article 159 bis. (Environmental Law)

(Added by Decree published December 13, 1996) The Minister shall develop a National System of Environmental and Natural Resources Information whose purpose shall be to register, organize, up-date and broadcast national environmental information, that shall be available for consultation and shall be coordinated and complementary with the National System of Accounts in charge of the National Institute of Statistics, Geography and Data processing. In that System, the Minister must integrate, among other aspects, information relative to the inventories of natural resources existing in national territory, the mechanisms and results obtained from monitoring air, water and soil quality, the ecological ordinance of the territory, as well as the information stipulated in article 109 bis and that corresponding to the records, programs and actions that are being carried out for the preservation of the ecological balance and the protections of the environment. The Minister shall bring together relevant reports and documents resulting from the scientific, academic, technical work or any other kind of material on the environment or conservation of natural resources carried out in the country by individuals or legal persons, national or foreign, which shall be remitted to the National System of Environmental and Natural Resources Information.

Article 159 bis1. (Environmental Law)

(Added by Decree published December 13, 1996) The Minister must draw up and publish a detailed biennial report of the general situation existing in the country in the matter of ecological balance and protection of the environment.

Article 159 bis 2. (Environmental Law)

(Added by Decree published December 13, 1996) The Minister shall edit a Gazette in which the legal provisions, official Mexican standards, decrees,

regulations, resolutions and other administrative acts shall be published, as well as information of general interest in environmental matters, published by the Federal Government or local governments, or international documents in environmental matters of interest for Mexico, regardless of their publication in the Diario Oficial of the Federation or in other periodicals. Likewise, official information related to protected natural areas and the preservation and sustainable use of natural resources shall be published in that Gazette.

Article 159 bis 3. (Environmental Law)

(Added by Decree published December 13, 1996) Every person shall have a right to have environmental information that they request placed at their disposal by the Minister, the States, the Federal District and the Municipalities, in the terms provided by this Law. As the case may be, the expenses that are generated shall be passed on to the applicant. For the purposes of that which is provided in this ordinance, any written, visual or data base information made available by the environmental authorities on water, air, soil, flora, fauna and natural resources in general, as well as on the activities or measures that affect them or may affect them, shall be considered environmental information. Every petition for environmental information must be presented in writing, clearly specifying the information that is being requested and the reasons for the petition. Applicants must identify themselves indicating their name or firm name and address.

Article 159 bis 4. (Environmental Law)

(Added by Decree published December 13, 1996) The authorities to which the preceding article refers shall refuse to deliver the information when:

I. By legal provision it is considered that the information is confidential or that by its nature its broadcasting would affect national security;

II. It is information relative to matters that are subject to judicial procedures or inspection and supervision, pending resolution;

III. It is information contributed by third parties when the latter are not obligated by legal disposition to furnish it, or

IV. It is information on inventories and inputs and process technologies, including the description thereof.

Article 159 bis 5. (Environmental Law)

(Added by Decree published December 13, 1996) The environmental authority must respond in writing to applicants for environmental information in a period of time no greater than 20 days from receipt of the respective petition. If the authority negatively contests the request, the reasons that motivate its determination must be stated.

If the period established in the preceding paragraph elapses without the environmental issuing its written reply, the petition shall be understood to have resulted in a refusal to the petitioner. The environmental authority, within the 10 days following the information request, must notify the generator or owner thereof

concerning the receipt of the request. Those who are affected by acts of the Minister regulated in this Chapter may challenge them by filing an appeal for review, in accordance with the provisions of this Law and the Federal Law of Administrative Procedure.

TITLE VI. MEASURES FOR CONTROL AND SAFETY AND SANCTIONS (Environmental Law)

CHAPTER I. GENERAL DISPOSITIONS (Environmental Law)

Article 160. (Environmental Law)

(Amended by Decree published December 13, 1996) The provisions of this Title will be applied in performance of acts for inspection and supervision, execution of safety measures, determination of administrative violations and commission of crimes and their sanctions, and administrative procedures and appeals when matters within federal jurisdiction regulated by this law are involved, except when other laws govern specifically said questions in relation to the subjects dealt with herein.

In the above-mentioned matters, the provisions of the Federal Laws of Administrative Procedure and on Metrology and Standardization shall be applied supplementally.

In the case of matters referred to in this Law that are regulated by special laws, this ordinance shall be of supplemental application insofar as it refers to the procedures of inspection and supervision.

CHAPTER II. INSPECTION AND OVERSIGHT (Environmental Law)

Article 161. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister shall perform the acts of inspection and supervision of compliance with the provisions contained in this ordinance, as well as those deriving therefrom.

Article 162. (Environmental Law)

(Amended by Decree published December 13, 1996) The competent authorities may undertake, through duly authorized personnel, inspection visits, without prejudice to other measures provided for in the laws that may be taken to verify compliance herewith.

Said personnel, on making the inspection visits, must be provided with the official document which accredits or authorizes them to make the inspection or verification, as well as a written order, duly grounded and providing cause, issued by the competent authority, wherein is located the place or zone which must be inspected, the object of the inspection and its scope being detailed.

Article 163. (Environmental Law)

(Amended by Decree published December 13, 1996) The authorized personnel, on beginning the inspection, shall duly identify themselves to the person to whom the inspection refers, shall exhibit the respective order, and deliver a signed copy thereof, designation of two witnesses being required for this act.

In the event of refusal, or the persons designated to act as witnesses not agreeing to do so, the authorized personnel may designate them, recording this situation on the administrative report prepared for the purpose, without this circumstance invalidating the effects of the inspection.

Article 164. (Environmental Law)

(Amended by Decree published December 13, 1996) On all inspection visits, a report shall be prepared in which shall be recorded on the required form the facts or omissions that were found during the inspection, as well as that which is provided in article 67 of the Federal Law of Administrative Procedure.

Upon ending the inspection, the person to whom the inspection referred shall be given opportunity to draw up observations in relation to the facts or omissions asserted in the respective report, and to offer evidence that he considers proper or to make use of that right in the term of five days subsequent to the date on which the visit had been made.

Thereafter, the report shall be signed by the person to whom the inspection refers, by the witnesses, and by the authorized personnel, who shall provide a copy thereof to the interested party.

If the person to whom the inspection refers or the witnesses refuse to sign the report, or the interested party refuses to accept a copy thereof, said circumstances shall be noted therein without this affecting its validity and evidentiary value.

Article 165. (Environmental Law)

The person to whom the inspection refers is obligated to permit authorized personnel access to the place or places subject to inspection in accordance with the terms on the written order referred to in Article 162 hereof, as well as to provide all kinds of information that assists in verification of compliance with this law and other applicable provisions, excepting that relative to industrial property rights which are confidential pursuant to law. The information must be kept by the authority in absolute confidentiality if the interested party so requests, except in case of judicial order.

Article 166. (Environmental Law)

The competent authority may request assistance from public forces to effect the inspection visit when a person or persons obstruct or oppose its realization, independent of the applicable sanctions.

Article 167. (Environmental Law)

(Amended by Decree published December 13, 1996) Once the inspection report is received by the ordering authority, the latter shall require the interested party, by means of personal notification or by certified mail with acknowledgment of receipt, immediately to adopt corrective or urgent measures necessary to comply with the applicable legal dispositions, as well as with the permits, licenses, authorizations or respective concessions, the requirement being duly grounded and cause described, stipulating the time period that corresponds, and within the term of 15 days the interested party shall state that which is within his rights and contribute the evidence that is considered proper, if applicable, in relation to the proceedings of the Minister.

Once the evidence offered by the interested party has been admitted and declared, or the period to which the preceding paragraph refers has elapsed without his making use of that right, the proceedings may be placed at his disposal for a period of three working days, their pleadings being presented in writing.

Article 168. (Environmental Law)

(Amended by Decree published December 13, 1996) Once the pleadings are received or upon elapse of the term to present them, the Minister shall proceed, within the following 20 days, to hand down the respective decision in writing, of which the interested party will be notified personally or by certified mail with acknowledgment of receipt.

Article 169. (Environmental Law)

(Amended by Decree published December 13, 1996) In the corresponding administrative decision, it shall be stated, or as applicable, added, the measures which must be taken to correct the deficiencies or irregularities observed, the period granted to the violator to satisfy them, and the sanctions to which he is subject pursuant to the applicable provisions.

Within the five business days following the expiration of the period granted the violator to remedy the deficiencies or irregularities observed, he must advise the ordering authority in writing and in detail that he has complied with the measures ordered in accordance with the respective order.

In the case of a second or subsequent inspection to verify compliance of a previous requirement or requirements, and of the corresponding act, it is discovered that the previously ordered measures have not been fulfilled, the competent authority may impose an additional penalty or penalties pursuant to article 171 of this Law, an additional fine which shall not exceed the maximum limits stated in that precept.

In cases in which the violator carries out the corrective or urgent measures or corrects the irregularities detected in the time periods ordered by the Minister, provided and when the violator is not recidivist and none of the cases provided in article 170 of this Law are applicable, the Minister may revoke or modify the penalty or penalties imposed.

In the cases where applicable, the federal authority shall advise the Public Prosecutor of acts or omissions recorded which may constitute one or more crimes.

CHAPTER III. SAFETY MEASURES (Environmental Law)

Article 170. (Environmental Law)

(Amended by Decree published December 13, 1996) When there exists imminent risk of ecological imbalance or of serious damage or deterioration to natural resources, cases of pollution with repercussions dangerous for ecosystems, their components, or public health, the Minister may order one or more of the following measures of security:

I. Total or partial temporary closing of the polluting, as well as of installations in which specimens, products or sub-products of wild flora or fauna species, forestry resources are managed or stored, or where activities from which the cases to which the first paragraph of this article refer are carried out;

II. Precautionary securing of hazardous materials and residues, as well as of specimens, products or sub-products of species of wild flora or fauna or their genetic material, forest resources, as well as goods, vehicles, utensils and instruments directly related to the conduct from which the imposition of the security measure arose, or

III. The neutralization or any similar action of any kind that impedes hazardous materials or residues from generating the effects provided in the first paragraph of this article.

Likewise, the Minister may promote the execution of one or more of the security measures that are established in other ordinances to the competent authority.

Article 170 bis. (Environmental Law)

(Amended by Decree published December 13, 1996) When the Minister orders any of the security measures provided in this Law, it shall indicate to the interested party, if applicable, the actions that must be carried out to correct the irregularities that required the imposition of those measures, as well as the time periods for their realization, in order that once these are fulfilled, the withdrawal of the imposed security measure will be ordered.

CHAPTER IV. ADMINISTRATIVE SANCTIONS (Environmental Law)

Article 171. (Environmental Law)

(Amended by Decree published December 13, 1996) Violations of the provisions of this law, its regulations, and provisions arising herefrom, constitute infractions and shall be administratively penalized by the Minister with one or more of the following sanctions:

I. a fine in the equivalent of twenty to twenty thousand days of the general minimum wage effective in the Federal District at the time the sanction is imposed;

II. temporary or final closure, in whole or in part. when:

a) The violator has not complied within the time periods and under the conditions imposed by the authority, with the corrective or urgent measures ordered;

b) In cases of recidivism when the violations generate negative effects on the environment, or

c) In the case of reiterated disobedience, on three or more occasions, to the fulfillment of one or more corrective or urgent measures imposed by the authority;

III. administrative arrest for up to 36 hours.

IV. Confiscation of the instruments, copies, products or sub-products directly related to violations relative to forestry resources, wild species of flora and fauna or genetic resources, pursuant to this Law, and

V. Suspension or revocation of the corresponding concessions, licenses, permits or authorizations.

If once the period granted by the authority to correct the violation or violations that have been committed has elapsed once, and that violation or violations still exist, fines for each day that elapses without the mandate being obeyed may be imposed, provided that the total fines shall not exceed the maximum amount permitted pursuant to item I of this article.

In the event of recidivism, the amount of the fine imposed may be up to twice the amount originally imposed, without exceeding double the maximum amount permitted, as well as final closure.

Recidivism shall be considered to occur when the violator is more than once involved in conduct that implies violations to the same precept within a period of two years, as from the date on which the act in which the first violation had been reported was drawn up, provided that the latter had not been voided.

Article 172. (Environmental Law)

When the gravity of the infraction so warrants, the authority shall request the grantor who extended it to suspend, revoke, or cancel the concession, permit, license, and generally, any authorizations granted for realization of commercial, industrial, or service activities, or for use of natural resources that gave rise to the infraction.

Article 173. (Environmental Law)

(Amended by Decree published December 13, 1996) For imposition of the sanctions for infractions hereof, the following shall be taken into account:

I. the gravity of the infraction, considering primarily the following criteria: impact on public health; generation of ecological imbalances; affect on natural resources or on biodiversity; and, if applicable, the levels on which the limits established in the applicable official Mexican standard have been exceeded;

II. the economic condition of the actor; and

III. the recidivism, if any;

IV. the intentional or negligent nature of the action or omission constituting the violation, and

V. the benefit directly obtained by the violator by the acts that caused the sanction.

In the case in which the violator carries out corrective or urgent measures or corrects the irregularities that he had incurred prior to the Minister imposing a sanction, that authority must consider that as an extenuating circumstance of the violation committed.

The corresponding authority may grant the violator the option to pay the fine or to make equivalent investments in the acquisition and installation of equipment to avoid pollution or in the protection, conservation or restoration of the environment and natural resources, provided and when the obligations of the violator are guaranteed, none of the cases of article 170 of this Law being present and the authority fully justifies its decision.

Article 174 (Environmental Law)

(Amended by Decree published December 13, 1996) When confiscation or the temporary or final, total or partial closing shall proceed, the staff commissioned to execute it shall proceed to draw up a detailed report of the action, observing the provisions applicable to carrying out inspections.

In the cases in which temporary closing is imposed as a penalty, the Minister must indicate the corrective measures and actions that must be carried out to correct the irregularities that caused that penalty, as well as the time periods for carrying them out.

Article 174 bis. (Environmental Law)

(Added by Decree published December 13, 1996) The Minister shall determine confiscated assets to any of the following destinations:

I. Direct sale in those cases in which the value of the confiscated asset does not exceed 5,000 time the general minimum wage in force in the Federal District at the time of imposing the penalty;

II. Auction by public bidding when the value of the confiscated property exceeds 5,000 times the general minimum daily wage in force in the Federal District at the time of imposing the penalty;

III. Donation to public organizations and scientific institutions or institutions of higher education or for the public welfare, in accordance with the nature of the confiscated property and in accordance with the functions and activities that the donee carries out, provided and when they are not for profit. In the case of species and sub-species of wild flora and fauna, they may be donated to public zoos provided that the existence of adequate conditions for their development is guaranteed; or

IV. Destruction in the case of products or sub-products, of wild flora and fauna, of forestry products that are diseased or that have any infirmity that

impedes their use, as well as fishing and hunting prohibited by the applicable legal provisions.

Article 174 bis 1. (Environmental Law)

(Added by Decree published December 13, 1996) For purposes of items I and II of the preceding article, those procedures are proper only when the confiscated property is susceptible to appropriation pursuant to the applicable legal provisions. In the determination of the value of the property subject to auction or sale, the Minister shall consider the market price of the property at the time the operation is being carried out. In no case may the parties liable for the violation that has caused the confiscation participate or benefit from the acts stipulated in article 174 bis of this Law, by means of which the disposal of the confiscated property is accomplished.

Article 175. (Environmental Law)

(Amended by Decree published December 13, 1996) The Minister may promote before competent federal or local authorities, on the basis of studies done for such purpose, limitation or suspension of the installation or operation of industries, businesses, services, urban developments, tourist services or any activity which affects or may affect the environment, natural resources or cause ecological imbalance or loss of biodiversity.

Article 175 bis. (Environmental Law)

(Added by Decree published December 13, 1996) The receipts obtained from fines for violations of this Law, its regulations and other provisions that are derived from it, as well as those that are obtained from auction for public bidding or direct sale of confiscated property, shall go to funds for development programs related to the inspection and supervision in matters to which this Law refers.

CHAPTER V. APPEAL FOR NON-CONFORMITY (Environmental Law)

Article 176. (Environmental Law)

(Amended by Decree published December 13, 1996) Final decisions handed down in administrative procedures for the purpose of application of this Law, its regulations and provisions deriving therefrom, may be challenged by the affected parties by means of an appeal for reversal within the 15 working days following the date of notification, or before the competent jurisdictional instances. Appeal for reversal shall be presented directly before the authority that issued the challenged decision, who, if applicable, shall grant its admission and the authorization or refusal of the suspension of the appealed act, turning the appeal over to a superior court for its final resolution.

Article 177. (Environmental Law)

(Amended by Decree published December 13, 1996) When with the presentation of the appeal for reversal, the appellant requests the suspension of the confiscation, the authority may order the return of the respective property to the interested party,

provided and when:

I. The appeal is proper, and

II. A guarantee for the amount of the value of the confiscated property is exhibited, which value shall be determined by the Minister, in accordance with the market price at the time that guarantee should have been granted.

In the case in which previous requirements have not been fulfilled, the Minister shall determine the final destination of perishable products and species of wild flora and fauna, in accordance with this Law and other that are applicable.

Property other than that stated in the preceding paragraph shall be maintained in deposit and may not be disposed of until the corresponding decision is stated.

Article 178. (Environmental Law)

(Amended by Decree published December 13, 1996) The suspension of the confiscation shall not proceed in the following cases:

I. In the case of species of wild flora and fauna that lack the corresponding concession, permit or authorization;

II. In the case of wild flora and fauna extracted or captured at a time, in a zone or place not included in the respective concession, permit or authorization, as well as in volumes greater than those established;

III. In the case of species of wild flora and fauna declared in closed season or considered rare, endangered, in danger of extinction or subject to special protection pursuant to this Law or other applicable legal dispositions;

IV. In the case of wild flora and fauna captured abroad, or on foreign ships or transports;

V. In the case of products or sub-products of wild flora and fauna, hunting weapons, fishing gear and other objects or utensils prohibited by the applicable rules; and

VI. In the case of wood or non-wood forestry raw materials, deriving from uses for which no authorization exists.

Article 179. (Environmental Law)

(Amended by Decree published December 13, 1996) Insofar as reference is made to other procedures relative to the substantiation of the appeal for reversal to which article 176 of this ordinance refers, the Federal Law of Administrative Procedure shall be applicable.

Article 180. (Environmental Law)

(Amended by Decree published December 13, 1996) In the case of works or activities that violate the provisions of this Law, ecological ordinance programs, decrees of protected natural areas or the regulations and official Mexican standards derived therefrom, individuals and legal persons from communities affected shall have a right to challenge the corresponding administrative acts, as well as to demand that the actions necessary for observation of the applicable legal provisions be carried out, provided that they demonstrate in the procedure that

those works or activities originate or may originate damage to the natural resources, wild flora or fauna, public health or quality of life. For that purpose, the administrative appeal for reversal to which this chapter refers must be entered.

Article 181. (Environmental Law)

(Amended by Decree published December 13, 1996) If licenses, permits, authorizations or concessions are issued in contravention of this Law, they shall be null and void and shall not produce any legal effect, and the public servants responsible shall be penalized pursuant to that which is provided in the legislation on the matter. That nullity may be demanded by means of the appeal to which the preceding article refers.

Article 182. (Environmental Law)

(Amended by Decree published December 13, 1996) In those cases in which, as a result of the exercise of its duties, the Minister receives knowledge of acts or omissions that could constitute crimes pursuant to the provisions of the applicable legislation, it shall formulate the corresponding accusation to present before the Federal Prosecutor.

Any person may present criminal accusations directly, which correspond to environmental crimes provided in the applicable legislation. The Minister shall furnish the technical or expert reports, in matters under its competency, that the Public Prosecutor or the judicial authorities request for the purpose of the accusations presented by the commission of environmental crimes.

Article 183. (Environmental Law)

Repealed by the Second Transitory Article of the Decree to Reform the Penal Code for the Federal District, published December 13, 1996.

Article 184. (Environmental Law)

Repealed by the Second Transitory Article of the Decree to Reform the Penal Code for the Federal District, published December 13, 1996.

Article 185. (Environmental Law)

Repealed by the Second Transitory Article of the Decree to Reform the Penal Code for the Federal District, published December 13, 1996.

Article 186. (Environmental Law)

Repealed by the Second Transitory Article of the Decree to Reform the Penal Code for the Federal District, published December 13, 1996.

Article 187. (Environmental Law)

Repealed by the Second Transitory Article of the Decree to Reform the Penal Code for the Federal District, published December 13, 1996.

Article 188. (Environmental Law)

(Amended by Decree published December 13, 1996) The laws of the States shall establish the penal and administrative sanctions for violations of environmental matters on the local level.

Article 189. (Environmental Law)

(Amended by Decree published December 13, 1996) Any person, social groups, non-governmental organizations, associations and companies may file a denunciation with the Federal Environmental Protection Prosecutor or with other authorities, concerning any fact, act or omission that produces ecological unbalance or damages to the environment or to natural resources, or contravenes the provisions of this Law and of other ordinances that govern matters related to the protection of the environment and the preservation and restoration of ecological balance.

If there is no representative of the Federal Environmental Protection Prosecutor in the locality, the denunciation may be filed with the municipal authority or, at the election of the informer, with the closest representative office of the Federal Environmental Protection Prosecutor.

If the denunciation be filed with the municipal authority and is found to be a federal matter, it must be remitted to the Federal Environmental Protection Prosecutor for attention and processing.

Article 190. (Environmental Law)

(Amended by Decree published December 13, 1996) A public denunciation may be made by any person, it being sufficient that it be filed in writing and contain:

I. The name or firm name, address, telephone, if applicable, of the informer and, as the case may be, of his legal representative;

II. The acts, facts or omissions denounced;

III. Data that permits identification of the presumed violator or location of the polluting source, and

IV. The evidence offered by the informer, if applicable.

Likewise, the denunciation may be formulated by telephone, in which case the public servant receiving it shall draw up a report of the circumstances, and the informer must ratify it in writing, complying with the requirements established in this article, within a term of three working days following the formulation of the denunciation, without prejudice that the Federal Environmental Protection Prosecutor shall investigate the facts constituting the denunciation ex officio.

Notoriously improper or unfounded denunciations, those that show bad faith, lack of foundation or non-existence of petition shall not be admitted, which the informer shall be notified of.

If the informer requests the Federal Environmental Protection Prosecutor to keep his identity secret for reasons of security and private interest, the Prosecutor shall

perform the follow up of the denunciation pursuant to the attributions that this Law and other applicable legal provisions grant him.

Article 191. (Environmental Law)

(Amended by Decree published December 13, 1996) Once the denunciation is received, the Federal Environmental Protection Prosecutor shall acknowledge its receipt, assign a number to the case and record it. If two or more denunciations are received for the same facts, acts or omissions, the accumulation thereof in only one case file shall be accorded, duly notifying the informers of the respective accord.

Once the denunciation is recorded, the Federal Environmental Protection Prosecutor shall notify the informer of the corresponding agreement of qualification within the 10 days following its filing, stipulating the procedure that has been given it. If a filed denunciation is outside the competence of the Federal Environmental Protection Prosecutor, the latter shall acknowledge of the denunciation, but shall not admit the instance and shall turn it over to the competent authority for its processing and decision by means of a founded and motivated accord, notifying that fact to the informer.

Article 192. (Environmental Law)

(Amended by Decree published December 13, 1996) Once the instance is admitted, the Federal Environmental Protection Prosecutor shall identify the informer and notify the denunciation to the person or persons, or to the authorities to whom the denounced facts are imputed or to whoever may affect the results of the intended action, in order that they may file the documents and evidence to which they have a right within a maximum period of 15 working days as from the respective notification.

The Federal Environmental Protection Prosecutor shall carry out the necessary measures for the purpose of determining the existence of acts, facts or omissions mentioned in the denunciation. Likewise, in the cases provided in this Law, he may initiate the procedures of inspection and supervision that are proper, in which case the respective provisions of this Title shall be observed.

Article 193. (Environmental Law)

(Amended by Decree published December 13, 1996) The informer may cooperate with the Federal Environmental Protection Prosecutor, contributing the evidence, documentation and information that is deemed pertinent. That Prosecutor must manifest the considerations adopted in respect to the information furnished by the informer at the time of deciding upon the denunciation.

Article 194. (Environmental Law)

(Added by Decree published December 13, 1996) The Federal Environmental Protection Prosecutor may request the drawing up of studies, reports or expert opinions of the academic institutions, research centers and organizations of the public, social and private sector, on questions raised in the denunciations that are

presented to him.

Article 195. (Environmental Law)

(Added by Decree published December 13, 1996) If, as a result of the investigation carried out by the Federal Environmental Protection Prosecutor, it appears that it is the case of acts, facts or omissions in which federal, state or municipal authorities have been involved, he shall issue the recommendations necessary to promote the execution of the proper actions thereto. The recommendations that the Federal Environmental Protection Prosecutor issues shall be public, autonomous and not bound.

Article 196. (Environmental Law)

(Added by Decree published December 13, 1996) When a public denunciation does not imply violations to the environmental regulations or affect questions of public order and social interest, the Federal Environmental Protection Prosecutor may subject it to a procedure of conciliation. In any case, the parties involved must be heard.

Article 197. (Environmental Law)

(Added by Decree published December 13, 1996) In case it is not proved that the denounced acts, facts or omissions produce or could produce ecological imbalance or damages to the environment or to natural resources or that they contravene the provisions of this Law, the Federal Environmental Prosecutor shall make this known to the informer for the purpose of his issuing observations that he deems proper.

Article 198. (Environmental Law)

(Added by Decree published December 13, 1996) The formulation of a public denunciation, as well as the agreements, resolutions and recommendations that the Federal Environmental Protection Prosecutor issues, shall not affect the exercise of other rights or means of defense that may correspond to the parties affected thereby pursuant to the applicable legal provisions, shall neither suspend nor interrupt their preclusive periods, prescription periods or lapse. This circumstance must be stipulated to the interested parties in the agreement of admission of the instance.

Article 199. (Environmental Law)

(Added by Decree published December 13, 1996) The case files of a public denunciation that have been opened may be concluded for the following causes:

I. By the public denunciation being out of the jurisdiction of the Federal Environmental Protection Prosecutor;

II. By the corresponding recommendation having been handed down;

III. When no violations to the environmental regulations exist;

IV. By lack of interest of the informer in the terms of this Chapter;

V. By an agreement of accumulation of files having previously been handed down;

VI. By the public denunciation having been solved by means of a conciliation

between the parties;

VII. By the issue of a decision derived from the inspection procedure, or

VIII. By waiver of the informer.

Article 200. (Environmental Law)

(Added by Decree published December 13, 1996) State laws shall establish the procedure for the attention of the public denunciation inn the case of acts, facts or omissions that produce or could produce ecological imbalances or damages to the environment by violations to the local environmental legislation.

Article 201. (Environmental Law)

(Added by Decree published December 13, 1996) The authorities and public servants involved in matters under the jurisdiction of the Federal Environmental Protection Prosecutor, or who by reason of their offices or activities may furnish pertinent information, must comply on their terms with the petitions that such agency draws up in that sense. Authorities and public servants of whom information or documentation that is deemed to be of a reserved nature is requested, shall notify the Federal Environmental Protection Prosecutor thereof, pursuant to the provisions in the applicable legislation. In this case that agency must hand over the information furnished under the strictest confidentiality.

Article 202. (Environmental Law)

(Added by Decree published December 13, 1996) The Federal Environmental Protection Prosecutor in the scope of his duties and powers is enabled to initiate actions that are proper, before the competent judicial authorities, when he knows of acts, facts or omissions that constitute violations to the administrative or penal legislation.

Article 203. (Environmental Law)

(Added by Decree published December 13, 1996) Without prejudice to the penal or administrative penalties that would proceed, any person who pollutes or deteriorates the environment or adversely affects natural resources or the biodiversity, shall be liable and be obligated to repair the damages caused, in accordance with the applicable civil legislation. The term for claiming environmental liability shall be five years as from the time at which the corresponding act, fact or omission was produced.

Article 204. (Environmental Law)

(Added by Decree published December 13, 1996) When damages or losses are occasioned through violation of the provisions of this Law, the interested parties may petition the Minister to draw up a technical report in that respect, which shall have value as evidence in case of being presented in court.

TRANSITORY ARTICLES (Environmental Law)

First Transitory Article. (Environmental Law)

This law shall become effective on March 1, 1988.

Second Transitory Article. (Environmental Law)

The Federal Environmental Protection Law of December 30, 1981, published in the federal Diario Oficial on January 11, 1982, is abrogated, and other legal provisions are derogated where they conflict with the provisions hereof.

Until such time as the local legislatures adopt laws, and the local councils adopt the police power and good government edicts and regulations to regulate the subjects which hereunder are within the jurisdiction of the states and municipalities, application of this law in the local sphere shall correspond to the Federal Government, coordinating therefor with the state authorities, and with their participation, with the municipalities that correspond, as applicable.

Third Transitory Article. (Environmental Law)

Until the regulatory provisions hereto are adopted, those which have governed to the present shall continue in effect to the extent that they do no conflict with the provisions herein. References in law or regulation tot he Federal Environmental Protection Law shall be understood to refer as applicable hereto.

Fourth Transitory Article. (Environmental Law)

All administrative procedures and appeals related to the subject matter of this law which began while the Federal Environmental Protection Law was in effect, shall be processed and resolved in accordance with the provisions of the Law here abrogated.

English translation of the original 1994 Biosphere Decree

DECREE by which the region known as Archipiélago de Revillagigedo [Revillagigedo Archipelago], composed of four areas: San Benedicto Island, Clarión or Santa Rosa Island, Socorro or Santo Tomás Island and Roca Partida Island, is declared a protected natural area with the character of biosphere reserve.

(In the margin, a seal with the National Shield which says: United Mexican States - Presidency of the Republic.)
I, **CARLOS SALINAS DE GORTARI,** Constitutional President of the United Mexican States, exercising the authority conferred on me by Article 89 (I) of the Political Constitution of the United Mexican States, based on the provisions of Articles and

CONSIDERING

That the National Development Plan 1989-1994 establishes that planning and execution of government action on environmental matters must be done under the basic premise that natural resources form a fundamental strategic reserve for national sovereignty and integral development of the country, consolidation of the National Protected Natural Area System is therefore proposed, as is implementation of programs for conservation, management, and administration of said areas.

That the region known as "Archipiélago de Revillagigedo," located in the Pacific Ocean, which includes the Socorro or Santo Tomás, San Benedicto or Anublada, Clarión or Santa Rosa and Roca Partida Islands has a wealth of species of land and marine flora y fauna with a high biological value, some of them unique in the world.

That in the land portion of said region are located types of vegetation, some of them endemic, with a high value to the preservation of ecological equilibrium, like those that are located in arid, halophyte, brake, shrub, meadowland, pastureland and woodland zones, as well as fauna rich in reptiles, mammals, and insects.

That in the marine portion of said region there is a large variety of algae; coral; annelids like polychaeta;

echinoderms; crustaceans; mollusks; mammals like whales, Orcas and dolphins; sharks; and a wide range of scaled fish.

That the ecosystem has suffered damage due to introduction of some animal species that have caused extinction of birds, particularly the Grasson dove and reduction of the *cenzontle* population.

That the Ministry of the Navy did technical studies from which the necessity is shown of establishing the protected natural area, with the character of National Marine Park, named "Archipiélago de Revillagigedo," the delimitation of which is provided on the official map that is in the National Ecology Institute, in order to preserve the natural environment of the zone; protect and conserve its land and aquatic flora and fauna; safeguard the genetic diversity of species; and provide a field appropriate for scientific research and the study of the ecosystem and its equilibrium.

That the Ministry of Social Development, in coordination with the Ministries of Interior, Navy, Agriculture and Hydraulic Resources, Communications and Transportation, and Fisheries, has proposed to the Federal Executive Branch which is my responsibility the incorporation of the zone known as "Archipiélago de Revillagigedo" into the National Protected Natural Area System, with the character of Biosphere Reserve, and therefore I have deemed it appropriate to issue the following

DECREE

ARTICLE FIRST.- It being in the public interest, the region known as "Archipiélago de Revillagigedo" is declared a Protected Natural Area with the character of a Biosphere Reserve, which includes a total area of 636,685-37-50 hectares, made up of four areas identified as: San Benedicto Island, with a total area of 137,002-00-00 hectares, including a nuclear zone of 39,915-87-50 hectares and its corresponding buffer zone; Clarión or Santa Rosa Island, with a total area of 161,345-87-50 hectares, which includes a nuclear zone of 47,501-12-50 hectares and its corresponding buffer zone; Socorro or Santo Tomás Island, with a total area of 225,701-00-00, including a nuclear zone of 89,841-50-00 hectares and its corresponding buffer zone; and Roca Partida Island, with a total area of 112,636-50-00 including a nuclear zone of 28,236-50-00 hectares and its corresponding buffer zone, the analytical-topographical description of which is the following:

ARTICLE SECOND.- The management, conservation, development and oversight of the "Archipiélago de Revillagigedo" Biosphere Reserve shall be the responsibility of the Ministry of Social Development, with participation from the Ministries of Interior, Navy, Agriculture and Hydraulic Resources, Communications and Transportation, and Fisheries.

Said agencies of the Federal Executive Branch shall jointly formulate the management program for the area, inviting research and higher education institutions, researchers and specialists to participate in its preparation and fulfillment of its objectives, along with representatives of interested public groups, executing the cooperative agreements that are appropriate;

ARTICLE THIRD.- The management program for the "Archipiélago de Revillagigedo" Biosphere Reserve must include at least the following:

I. Description of the physical, biological, social and cultural characteristics of the Biosphere Reserve, in the national, regional and social context;

II. Actions to be performed in the short, mid- and long term, establishing their connection to the National Democratic Planning System. Said actions shall include research, use of resources, extension, diffusion, operation, coordination, follow-up and control;

III. The specific objectives of the Biosphere Reserve;

IV. The rules for use of the land and aquatic flora and fauna, for protection of the ecosystems, and those intended to avoid contamination of soil and waters;

V. An inventory of the aquatic fauna and flora species found in the zone;

VI. The requirements that applicants for concessions, permits, or authorizations must comply with for exploitation, extraction, or use of the resources of the Biosphere Reserve, in accordance with the applicable legislation;

VII. Activities permitted inside the Biosphere Reserve;

VIII. The restrictions on construction, occupation, and operation of marine installations and other kinds of building; and

IX. Activities for protection of ecosystems and their elements for scientific research and ecological education.

ARTICLE FOURTH.- The Ministry of Social Development shall not authorize execution of public or private construction in the nuclear zones of the "Archipiélago de Revillagigedo" Biosphere Reserve.

ARTICLE FIFTH.- Any plan for public or private construction planned inside the buffer zones of the Reserve must have, prior to its implementation, the corresponding environmental impact statement pursuant to the General Law of Ecological Equilibrium and Environmental Protection and its Regulations on Environmental Impact.

ARTICLE SIXTH.- The works and activities that are done in the buffer zone of the "Archipiélago de Revillagigedo" Biosphere Reserve must be subject to the guidelines established in the area management program and the applicable legal provisions.

ARTICLE SEVENTH.- Foundation of new population centers shall not be authorized in the Biosphere

Reserve.

ARTICLE EIGHTH.- The productive activities performed in the buffer zones of the "Archipiélago de Revillagigedo" Biosphere Reserve; the activities for preservation of ecosystems and their elements; scientific research and ecological education; and use of the wild fauna and flora for research and experimental purposes shall be subject to the restrictions set forth in the management program and the applicable Official Mexican Standards.

ARTICLE NINTH.- The Ministry of Social Development shall promote establishment of closed season on land fauna and flora and for forestry use in the "Archipiélago de Revillagigedo" Biosphere Reserve, attending to the technical studies done in coordination with the Ministry of Agriculture and Hydraulic Resources.

ARTICLE TENTH.- The use, exploitation, and use of the national waters located in the Reserve shall be governed by the legal provisions applicable on the subject and shall be subject to:

I. The Official Mexican Standards for conservation and use of wild flora and fauna and their habitat, as well as those intended to avoid water contamination;

II. The policies and restrictions for protection of wild flora and fauna species that are established in the management program for the Reserve; and

III. The cooperative agreements for ecosystem protective actions which are executed with the productive sectors and academic and research institutions.

ARTICLE ELEVENTH.- Within the Biosphere Reserve, it is prohibited to dump or discharge contaminants into the soil and subsoil, or into the sea, and into any kind of standing or running water, and to perform contaminating activities.

ARTICLE TWELFTH.- The competent agencies shall only grant permits, licenses, concessions and authorizations for exploitation, exploration, extraction or use of natural resources in the Biosphere Reserve pursuant to the provisions of the General Law of Ecological Equilibrium and Environmental Protection, this decree, the Reserve management program, and the other applicable legal provisions.

ARTICLE THIRTEENTH.- In the Biosphere Reserve, sports fishing shall be permitted, as shall commercial fishing for ichthyic and mollusk species, in the areas, seasons and subject to the limits, skills, equipment and methods established in the management program, closed season notices, Official Mexican Standards, and the other applicable legal provisions.

ARTICLE FOURTEENTH.- In the "Archipiélago de Revillagigedo" Biosphere Reserve, establishment of fish farms may be authorized for cultivation of mollusks, fish, crustaceans, algae, and other species that may be used for the repopulation of the area.

ARTICLE FIFTEENTH.- Recreational activities in the "Archipiélago de Revillagigedo" Biosphere Reserve may only be performed in accordance with the guidelines established in the management program for the area.

ARTICLE SIXTEENTH.- The navigation channels and areas established in the Biosphere Reserve shall continue in use, and the anchorage area must be delimited.

ARTICLE SEVENTEENTH.- The final disposal of solid waste produced by the desilting of the navigation channels located in the "Archipiélago de Revillagigedo" Biosphere Reserve must be removed outside the boundaries of the territorial sea.

ARTICLE EIGHTEENTH.- Violations of the provisions herein shall be administratively sanctioned by the competent authorities pursuant to the General Law of Ecological Equilibrium and Environmental Protection, the General Law of National Assets, the Hunting Law, the Forestry Law, the Federal Sea Law, the Law of General Means of Communication, the Navigation Law, the Fisheries Law, the Law of National Waters, the Regulations to Prevent and Control Ocean Contamination by Pouring Out Waste and other Materials, and the other applicable legal provisions.

TRANSITION ARTICLES

FIRST.- This Decree shall become effective on the day following its publication in the federal ***Diario Oficial***.

SECOND.- The management program for the "Archipiélago de Revillagigedo" Biosphere Reserve must be created in a period of 365 calendar days counted from and after the effective date of this Decree.

THIRD.- The Ministry of Social Development shall proceed to process registration of this Decree in the public registries of federal property and in the National Protected Natural Area System within a period of 90 calendar days counted from and after its publication in the federal ***Diario Oficial***.

FOURTH.- The administrative provisions that are contrary to the provisions hereof are derogated.

Given at the Residence of Federal Executive Power in Mexico City, Federal District, on the fifth day of the month of June, nineteen hundred and ninety-four.

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Lunes 06 de Junio de 1994 DIARIO OFICIAL PODER EJECUTIVO

SECRETARIA DE DESARROLLO SOCIAL

06-06-94 DECRETO por el que se declara como área natural protegida con el carácter de reserva de la biosfera, la región conocida como Archipiélago de Revillagigedo, integrada por cuatro áreas: Isla San Benedicto, Isla Clarión o Santa Rosa, Isla Socorro o Santo Tomás e Isla Roca Partida.

Al margen un sello con el Escudo Nacional, que dice: Estados Unidos Mexicanos.- Presidencia de la República.

CARLOS SALINAS DE GORTARI, Presidente Constitucional de los Estados Unidos Mexicanos, en ejercicio de la facultad que me confiere el artículo 89 fracción I de la Constitución Política de los Estados Unidos Mexicanos, con fundamento en lo dispuesto por los artículos 27 párrafos tercero, cuarto y quinto y 42 fracciones III y V de la propia Constitución; 1o. fracciones I, IV y V, 2o. fracción III, 5o. fracciones II, XI, XII y XVII, 8o. fracciones III, IV, V y VIII, 28 a 30, 38, 44, 45, 46 fracción I, 47, 48, 57 a 61, 64, 65 a 70, 73, 75 a 78, 82, 160 y 171 de la Ley General del Equilibrio Ecológico y la Protección al Ambiente; 1o. fracción I, 2o. fracción II y 16 de la Ley General de Bienes Nacionales; 1o. a 6o., 18, 21, 22 y 36 de la Ley Federal del Mar; 1o., 2o., 5o., 32 y 33 de la Ley Forestal; 1o., 3o., 4o. incisos a), b) y d), 9o., 15 y 27 de la Ley Federal de Caza; 1o., 2o., 3o. fracción I, 6o. fracción I, 16, 38 fracción II, 85 y 86 fracciones III y VII de la Ley de Aguas Nacionales; 3o. y 40 de la Ley de Vías Generales de Comunicación; 1o., 3o., 6o. fracción I, 7o. fracciones VII y XVI de la Ley de Navegación; 1o., 2o., 3o. fracciones V y VI, 25 a 27 de la Ley de Pesca; 1, 4 fracciones III, IV y V, 19 fracciones I y IV y 20 de la Ley de Adquisiciones y Obras Públicas; 33 a 35 y 37 a 39 de la Ley de Planeación; 27, 30, 32, 35, 36 y 43 de la Ley Orgánica de la Administración Pública Federal, y

CONSIDERANDO

Que el Plan Nacional de Desarrollo 1989-1994 establece que la planeación y ejecución de la acción gubernamental en materia ecológica, deberá realizarse bajo la premisa básica de que los recursos naturales conforman una reserva estratégica fundamental para la soberanía nacional y el desarrollo integral del país, por ello se plantea la consolidación del Sistema Nacional de Areas Naturales Protegidas, así como la instrumentación de programas para la conservación, manejo y administración de dichas áreas.

Que la región conocida como "Archipiélago de Revillagigedo", ubicada en el Océano Pacífico que comprende las Islas Socorro o Santo Tomás, San Benedicto o Anublada, Clarión o Santa Rosa y Roca Partida, tiene una gran riqueza de especies de flora y fauna terrestres y marinas de alto valor biológico, algunas de ellas únicas en el mundo.

Que en la porción terrestre de dicha región se localizan tipos de vegetación, algunos de ellos endémicos, de gran valor en la preservación del equilibrio ecológico, como los que se localizan en zonas áridas, halófitas, matorral, arbustos, vegetación de pradera, pastizales y bosques, así como una fauna rica en réptiles, mamíferos e insectos.

Que en la parte marina de dicha región existe una gran variedad de algas; corales; anélidos como poliquetos; equinodermos; crustáceos; moluscos; mamíferos como ballenas, orcas y delfines; tiburones, y una amplia gama de peces de escama.

Que el ecosistema ha sufrido daños debido a la introducción de algunas especies animales que han provocado la extinción de aves, especialmente de la paloma de Grasson y la disminución de la población del cenzontle.

Que la Secretaría de Marina realizó estudios técnicos de los que se desprende la necesidad de establecer el área natural protegida con el carácter de Parque Marino Nacional denominada "Archipiélago de Revillagigedo", cuya delimitación se prevé en el plano oficial que obra en el Instituto Nacional de Ecología, a fin de preservar el ambiente natural de la zona; proteger y conservar su flora y fauna terrestres y acuáticas; salvaguardar la diversidad genética de las especies, y proporcionar un campo propicio para la investigación científica y el estudio del ecosistema y su equilibrio.

Que la Secretaría de Desarrollo Social en coordinación con las de Gobernación, de Marina, de Agricultura y Recursos Hidraúlicos, de Comunicaciones y Transportes y de Pesca, han propuesto al Ejecutivo Federal a mi cargo incorporar la zona conocida como "Archipiélago de Revillagigedo" al Sistema Nacional de Areas Naturales Protegidas, con el carácter de Reserva de la Biosfera, por lo que he tenido a bien expedir el siguiente

DECRETO

ARTICULO PRIMERO.- Por ser de interés público se declara como Area Natural Protegida con el carácter de Reserva de la Biosfera, la región conocida como "Archipiélago de Revillagigedo", que comprende una superficie total de 636,685-37-50 Has., integrada por cuatro áreas identificadas como: Isla San Benedicto con una superficie total de 137,002-00-00 Has., que incluye una zona núcleo de 39,915-87-50 Has. y su correspondiente zona de amortiguamiento; Isla Clarión o Santa Rosa con una superficie total de 161,345-87-50 Has., que incluye una zona núcleo de 47,501-12-50 Has., y su correspondiente zona de amortiguamiento; Isla Socorro o Santo Tomás con una superficie total de 225,701-00-00 Has., que incluye una zona núcleo de 89,841-50-00 Has. y su correspondiente zona de amortiguamiento, e Isla Roca Partida con una superficie total de 112,636-50-00 Has., que incluye una zona núcleo de 28,236-50-00 Has. y su correspondiente zona de amortiguamiento, cuya descripción analítico-topográfica es la siguiente:

DESCRIPCION LIMITROFE DEL POLIGONO GENERAL DE LA ISLA SAN BENEDICTO

El polígono se inicia en el vértice 1 de coordenadas 19°30'4".07 Lat. N; 110°48'55" Long. W; partiendo de este punto hacia el SE y una distancia de 7,948.89 m. se llega al vértice 2 de coordenadas 19°29'29".92 Lat. N; 110°44'24".9 Long. W; partiendo de este punto hacia el SE y una distancia de 10,410.81 m. se llega al vértice 3 de coordenadas 19°26'0".16 Lat. N; 110°39'45".4 Long. W; partiendo de este punto hacia el SE y una distancia de 10,913.86 m. se llega al vértice 4 de coordenadas 19°20'41".46 Lat. N; 110°37'3".08 Long. W; partiendo de este punto hacia el SW y una distancia de 9,219.54 m. se llega al vértice 5 de coordenadas 19°15'42".28 Lat. N; 110°37'26".15 Long. W; partiendo de este punto hacia el SW y una distancia de 10,651.29 m. se llega al vértice 6 de coordenadas 19°10'26".02 Lat. N; 110°40'00."85 Long. W; partiendo de este punto hacia el SW y una distancia de 9,602.08 m. se llega al vértice 7 de coordenadas 19°07'26".34 Lat. N; 110°44'27".52 Long. W; partiendo de este punto hacia el SW y una distancia de 9,305.91 m. se llega al vértice 8 de coordenadas 19°06'42".44 Lat. N; 110°49'37".78 Long. W; partiendo de este punto hacia el NW y una distancia de 9,535.32 m. se llega al vértice 9 de coordenadas 19°08'20".00 Lat. N; 110°54'42".9 Long. W; partiendo de este punto hacia el NW y una distancia de 11,395.17 m. se llega al vértice 10 de coordenadas 19°12'32".03 Lat. N; 110°59'29".2 Long. W; partiendo de este punto hacia el NW y una distancia de 11,606.57 m. se llega al vértice 11 de coordenadas 19°18'39".51 Lat. N; 111°01'4".1 Long. W; partiendo de este punto hacia el NE y una distancia de 12,350.00 m. se llega al vértice 12 de coordenadas 19°24'53".5 Lat. N; 110°58'19".15 Long. W; partiendo de este punto hacia el NE y una distancia de 10,289.92 m. se llega al vértice 13 de coordenadas 19°28'45".2 Lat. N; 110°54'2".74 Long. W; partiendo de este punto hacia el NE y una distancia de 8,478.00 m. se llega al vértice 1 en donde se cierra el polígono con una superficie de 137,002-00-00 Has.

DESCRIPCION LIMITROFE DE LA ZONA NUCLEO DE LA ISLA SAN BENEDICTO

El polígono se inicia en el vértice 1 de coordenadas 19°24'30".73 Lat. N; 110°46'34".00 Long. W; partiendo de este punto hacia el SE y una distancia de 6,909.59 m. se llega al vértice 2 de coordenadas 19°22'4".39 Lat. N; 110°43'36".2 Long. W; partiendo de este punto hacia el SE y una distancia de 4,026.47 m. se llega al vértice 3 de coordenadas 19°20'4".88 Lat. N; 110°42'36".41 Long. W; partiendo de este punto hacia el SW y una distancia de 6,423.58 m. se llega al vértice 4 de coordenadas 19°16'37".56 Lat. N; 110°42'53".5 Long. W; partiendo de este punto hacia el SW y una distancia de 7,156.29 m. se llega al vértice 5 de coordenadas 19°13'12".68 Lat. N; 110°44'51".45 Long. W; partiendo de este punto hacia el SW y una distancia de 6,415.80 m. se llega al vértice 6 de coordenadas 19°11'55".45 Lat. N; 110°48'12".31 Long. W; partiendo de este punto hacia el NW y una distancia de 6,257.99 m. se llega al vértice 7 de coordenadas 19°12'19".84 Lat. N; 110°51'41".71 Long. W; partiendo de este punto hacia el NW y una distancia de 7,035.80 m. se llega al vértice 8 de coordenadas 19°15'7".32 Lat. N; 110°54'32".65 Long. W; partiendo de este punto hacia el NW y una distancia de 7,089.60 m. se llega al vértice 9 de coordenadas 19°18'51".71 Lat. N; 110°55'19".66 Long. W; partiendo de este punto hacia el NE y una distancia de 7,179.48 m. se llega al vértice 10 de coordenadas 19°22'18".21 Lat. N; 110°53'28".55 Long. W; partiendo de este punto hacia el NE y una distancia de 7,130.56 m. se llega al vértice 11 de coordenadas 19°24'38".86 Lat. N; 110°50'13".68 Long. W; partiendo de este punto hacia el SE y una distancia de 6,451.74 m. se llega al vértice 1 en donde se cierra el polígono con una superficie de 39,915-87-50 Has.

DESCRIPCION LIMITROFE DEL POLIGONO GENERAL DE LA ISLA CLARION

El polígono se inicia en el vértice 1 de coordenadas 18°32'50".36 Lat. N; 114°42'52".60 Long. W; partiendo de este punto hacia el SE y una distancia de 7,972.60 m. se llega al vértice 2 de coordenadas 18°32'28".66 Lat. N; 114°38'25".10 Long. W; partiendo de este punto hacia el SE y una distancia de 8,050.62 m. se llega al vértice 3 de coordenadas 18°30'28".13 Lat. N; 114°34'23".20 Long. W; partiendo de este punto hacia el SE y una distancia de 9,915.64 m. se llega al vértice 4 de coordenadas 18°26'27".05 Lat. N; 114°30'41".60 Long. W; partiendo de este punto hacia el SE y una distancia de 8,090.88 m. se llega al vértice 5 de coordenadas 18°22'17".95 Lat. N; 114°29'30".20 Long. W; partiendo de este punto hacia el SW y una distancia de 8,993.46 m. se llega al vértice 6 de coordenadas 18°17'32".68 Lat. N; 114°30'29".70 Long. W; partiendo de este punto hacia el SW y una distancia de 8,057.60 m. se llega al vértice 7 de coordenadas 18°13'59".73 Lat. N; 114°33'6".79 Long. W; partiendo de este punto hacia el SW y una distancia de 7,669.41 m. se llega al vértice 8 de coordenadas 18°11'25".45 Lat. N; 114°36'26".30 Long. W; partiendo de este punto hacia el SW y una distancia de 8,736.13 m. se llega al vértice 9 de coordenadas 18°10'07".50 Lat. N; 114°41'13".30 Long. W; partiendo de este punto hacia el SW y una distancia de 5,550.90 m. se llega al vértice 10 de coordenadas 18°09'46".61 Lat. N; 114°44'21".70 Long. W; partiendo de este punto hacia el NW y una distancia de 5,161.87 m. se llega al vértice 11 de coordenadas 18°09'58".56 Lat. N; 114°47'16".70 Long. W; partiendo de este punto hacia el NW y una distancia de 7,446.47 m. se llega al vértice 12 de coordenadas 18°11'35".09 Lat. N; 114°51'11".00 Long. W; partiendo de este punto hacia el NW y una distancia de 6,741.29 m. se llega al vértice 13 de coordenadas 18°13'55".71 Lat. N; 114°54'09".34 Long. W; partiendo de este punto hacia el NW y una distancia de 8,454.73 m. se llega al vértice 14 de coordenadas 18°18'04".82 Lat. N; 114°55'58".00 Long. W; partiendo de este punto hacia el NW y una distancia de 5,590.16 m. se llega al vértice 15 de coordenadas 18°21'01".61 Lat. N; 114°56'31".90 Long. W; partiendo de este punto hacia el NE y una distancia de 6,010.19 m. se llega al vértice 16 de coordenadas 18°24'14".46 Lat. N; 114°56'15".00 Long. W; partiendo de este punto hacia el NE y una distancia de 9,749.35 m. se llega al vértice 17 de coordenadas 18°28'49".29 Lat. N; 114°53'42".10 Long. W; partiendo de este punto hacia el NE y una distancia de 8,301.35 m. se llega al vértice 18 de coordenadas 18°31'35".63 Lat. N; 114°50'01".42 Long. W; partiendo de este punto hacia el NE y una distancia de 6,035.10 m. se llega al vértice 19 de coordenadas 18°32'42".32 Lat. N; 114°46'51".20 Long. W; partiendo de este punto hacia el NE y una distancia de 7,008.74 m. se llega al vértice 1 en donde se cierra el polígono con una superficie de 161,345-87-50 Has.

DESCRIPCION LIMITROFE DE LA ZONA NUCLEO DE LA ISLA CLARION

El polígono se inicia en el vértice 1 de coordenadas 18°27'35".36 Lat. N; 114°42'28".80 Long. W; partiendo de este punto hacia el SE y una distancia de 5,522.68 m. se llega al vértice 2 de coordenadas 18°27'17".68 Lat. N; 114°39'22".00 Long. W; partiendo de este punto hacia el SE y una distancia de 4,743.41 m. se llega al vértice 3 de coordenadas 18°25'50".09 Lat. N; 114°37'13".00 Long. W; partiendo de este punto hacia el SE y una distancia de 6,852.91 m. se llega al vértice 4 de

coordenadas 18°22'36".43 Lat. N; 114°35'20".90 Long. W; partiendo de este punto hacia el SW y una distancia de 6,179.19 m. se llega al vértice 5 de coordenadas 18°19'10".71 Lat. N; 114°35'41".30 Long. W; partiendo de este punto hacia el SW y una distancia de 4,720.16 m. se llega al vértice 6 de coordenadas 18°17'17".41 Lat. N; 114°37'19".80 Long. W; partiendo de este punto hacia el SW y una distancia de 4,302.61 m. se llega al vértice 7 de coordenadas 18°15'52".23 Lat. N; 114°39'16".10 Long. W; partiendo de este punto hacia el SW y una distancia de 5,521.09 m. se llega al vértice 8 de coordenadas 18°15'16".07 Lat. N; 114°42'34".80 Long. W; partiendo de este punto hacia el NW y una distancia de 6,665.20 m. se llega al vértice 9 de coordenadas 18°15'33".75 Lat. N; 114°46'03".68 Long. W; partiendo de este punto hacia el NW y una distancia de 8,063.80 m. se llega al vértice 10 de coordenadas 18°18'36".96 Lat. N; 114°49'18".90 Long. W; partiendo de este punto hacia el NW y una distancia de 8,109.40 m. se llega al vértice 11 de coordenadas 18°22'50".09 Lat. N; 114°50'07".36 Long. W; partiendo de este punto hacia el NE y una distancia de 7,907.27 m. se llega al vértice 12 de coordenadas 18°26'31".07 Lat. N; 114°47'49".80 Long. W; partiendo de este punto hacia el NE y una distancia de 5,534.66 m. se llega al vértice 13 de coordenadas 18°28'17".14 Lat. N; 114°45'00" Long. W; partiendo de este punto hacia el E.F.y una distancia de 4,400.00 m. se llega al vértice 1 en donde se cierra el polígono con una superficie de 47,501-12-50 Has.

DESCRIPCION LIMITROFE DEL POLIGONO GENERAL DE LA ISLA SOCORRO

El polígono se inicia en el vértice 1 de coordenadas 19°02'18".21 Lat. N; 111°00'00" Long. W; partiendo de este punto hacia el SE y una distancia de 9,750.00 m. se llega al vértice 2 de coordenadas 19°01'00".98 Lat. N; 110°54'32".65 Long. W; partiendo de este punto hacia el SE y una distancia de 9,705.79 m. se llega al vértice 3 de coordenadas 18°58'41".14 Lat. N; 110°49'33".50 Long. W; partiendo de este punto hacia el SE y una distancia de 17,282.72 m. se llega al vértice 4 de coordenadas 18°55'09."76 Lat. N; 110°46'34".02 Long. W; partiendo de este punto hacia el NE y una distancia de 5,153.88 m. se llega al vértice 5 de coordenadas 18°51'09".92 Lat. N; 110°44'06".15 Long. W; partiendo de este punto hacia el SE y una distancia de 8,597.96 m. se llega al vértice 6 de coordenadas 18°46'37".56 Lat. N; 110°42'57".78 Long. W; partiendo de este punto hacia el SW y una distancia de 7,913.43 m. se llega al vértice 7 de coordenadas 18°42'32".03 Lat. N; 110°43'57".61 Long. W; partiendo de este punto hacia el SW y una distancia de 10,148.52 m. se llega al vértice 8 de coordenadas 18°37'23".09 Lat. N; 110°45'55".56 Long. W; partiendo de este punto hacia el SW y una distancia de 11,920.15 m. se llega al vértice 9 de coordenadas 18°33'31".38 Lat. N; 110°51'24".62 Long. W; partiendo de este punto hacia el SW y una distancia de 8,918.52 m. se llega al vértice 10 de coordenadas 18°32'01".95 Lat. N; 110°56'10".94 Long. W; partiendo de este punto hacia el NW y una distancia de 6,718.63 m. se llega al vértice 11 de coordenadas 18°32'18".21 Lat. N; 111°00'00" Long. W; partiendo de este punto hacia el NW y una distancia de 9,797.06 m. se llega al vértice 12 de coordenadas 18°34'52".68 Lat. N; 111°04'54".87 Long. W; partiendo de este punto hacia el NW y una distancia de 3,558.79 m. se llega al vértice 13 de coordenadas 18°35'34".96 Lat. N; 111°08'28".55 Long. W; partiendo de este punto hacia el NW y una distancia de 3,810.83 m. se llega al vértice 14 de coordenadas 18°36'54".63 Lat. N; 11°08'28".55 Long. W; partiendo de este punto hacia el NW y una distancia de 12,306.90 m. se llega al vértice 15 de coordenadas 18°41'26".99 Lat. N; 111°13'31".97 Long. W; partiendo de este punto hacia el NW y una distancia de 14,102.83 m. se llega al vértice 16 de coordenadas 18°48'59".84 Lat. N; 111°14'30".09 Long. W; partiendo de este punto hacia el NE y una distancia de 10,783.78 m. se llega al vértice 17 de coordenadas 18°54'30".73 Lat. N; 111°12'27".86 Long. W; partiendo de este punto hacia el NE y una distancia de 8,170.83 m. se llega al vértice 18 de coordenadas 18°57'44".23 Lat. N; 111°09'17".26 Long. W; partiendo de este punto hacia el NE y una distancia de 8,570.29 m. se llega al vértice 19 de coordenadas 19°00'48".78 Lat. N; 111°05'41".88 Long. W; partiendo de este punto hacia el NE y una distancia de 10,345.16 m. se llega al vértice 1 en donde se cierra el polígono con una superficie de 225,701-00-00 Has.

DESCRIPCION LIMITROFE DE LA ZONA NUCLEO DE LA ISLA SOCORRO

El polígono se inicia en el vértice 1 de coordenadas 18°56'50".57 Lat. N; 111°00'00" Long. W; partiendo de este punto hacia el SE y una distancia de 4,700.26 m. se llega al vértice 2 de coordenadas 18°56'47".32 Lat. N; 110°57'16".70 Long. W; partiendo de este punto hacia el SE y una distancia de 5,916.92 m. se llega al vértice 3 de coordenadas 18°55'11".38 Lat. N; 110°54'24".10 Long. W; partiendo de este punto hacia el SE y una distancia de 3,640.05 m. se llega al vértice 4 de coordenadas 18°53'57".40 Lat. N; 110°52'45".80 Long. W; partiendo de este punto hacia el SE y una distancia de 3,440.93 m. se llega al vértice 5 de coordenadas 18°52'27".15 Lat. N; 110°51'37".40 Long. W; partiendo de este punto hacia el SE y

una distancia de 2,140.09 m. se llega al vértice 6 de coordenadas 18°51'31".06 Lat. N; 110°50'52".10 Long. W; partiendo de este punto hacia el SE y una distancia de 5,104.16 m. se llega al vértice 7 de coordenadas 18°49'07".97 Lat. N; 110°49'26".60 Long. W; partiendo de este punto hacia el SE y una distancia de 4,996.24 m. se llega al vértice 8 de coordenadas 18°46'29".43 Lat. N; 110°48'49".00 Long. W; partiendo de este punto hacia el SW y una distancia de 4,197.61 m. se llega al vértice 9 de coordenadas 18°44'17".72 Lat. N; 110°49'20".60 Long. W; partiendo de este punto hacia el SW y una distancia de 1,697.79 m. se llega al vértice 10 de coordenadas 18°43'24".88 Lat. N; 110°49'33".50 Long. W; partiendo de este punto hacia el SW y una distancia de 6,053.92 m. se llega al vértice 11 de coordenadas 18°40'21".95 Lat. N; 110°50'52".10 Long. W; partiendo de este punto hacia el SW y una distancia de 7,086.95 m. se llega al vértice 12 de coordenadas 18°38'20".00 Lat. N; 110°54'15".50 Long. W; partiendo de este punto hacia el SW y una distancia de 5,827.94 m. se llega al vértice 13 de coordenadas 18°37'47".48 Lat. N; 110°57'30".4 Long. W; partiendo de este punto hacia el NW y una distancia de 6,869.13 m. se llega al vértice 14 de coordenadas 18°39'23".41 Lat. N; 111°01'4".1 Long. W; partiendo de este punto hacia el NW y una distancia de 5,591.51 m. se llega al vértice 15 de coordenadas 18°41'06".67 Lat. N; 111°03'39".66 Long. W; partiendo de este punto hacia el NW y una distancia de 9,614.18 m. se llega al vértice 16 de coordenadas 18°43'53".33 Lat. N; 111°08'15".73 Long. W; partiendo de este punto hacia el NW y una distancia de 7,448.65 m. se llega al vértice 17 de coordenadas 18°47'50".73 Lat. N; 111°08'45".64 Long. W; partiendo de este punto hacia el NE y una distancia de 4,923.92 m. se llega al vértice 18 de coordenadas 18°50'25".20 Lat. N; 111°08'17".44 Long. W; partiendo de este punto hacia el NE y una distancia de 3,911.84 m. se llega al vértice 19 de coordenadas 18°52'14".96 Lat. N; 111°06'58".80 Long. W; partiendo de este punto hacia el NE y una distancia de 4,318.56 m. se llega al vértice 20 de coordenadas 18°53'44".39 Lat. N; 111°05'09".40 Long. W; partiendo de este punto hacia el NE y una distancia de 5,765.63 m. se llega al vértice 21 de coordenadas 18°56'02".60 Lat. N; 111°02'55".21 Long. W; partiendo de este punto hacia el NE y una distancia de 5,350.23 m. se llega al vértice 1 en donde se cierra el polígono con una superficie de 89,841-50-00 Has.

DESCRIPCION LIMITROFE DEL POLIGONO GENERAL DE LA ISLA ROCA PARTIDA

El polígono se inicia en el vértice 1 de coordenadas 19°10'38".21 Lat. N; 112°03'59".32 Long. W; partiendo de este punto hacia el SE y una distancia de 15,208.55 m. se llega al vértice 2 de coordenadas 19°07'35".28 Lat. N; 111°55'58".10 Long. W; partiendo de este punto hacia el SE y una distancia de 15,284.63 m. se llega al vértice 3 de coordenadas 19°00'00" Lat. N; 111°52'32".90 Long. W; partiendo de este punto hacia el SW y una distancia de 12,744.01 m. se llega al vértice 4 de coordenadas 18°53'24".07 Lat. N; 111°54'45".40 Long. W; partiendo de este punto hacia el SW y una distancia de 17,933.48 m. se llega al vértice 5 de coordenadas 18°48'59".84 Lat. N; 112°03'50".77 Long. W; partiendo de este punto hacia el NW y una distancia de 15,284.63 m. se llega al vértice 6 de coordenadas 18°52'02".76 Lat. N; 112°11'51".11 Long. W; partiendo de este punto hacia el NW y una distancia de 15,681.99 m. se llega al vértice 7 de coordenadas 19°00'00" Lat. N; 112°15'12".80 Long. W; partiendo de este punto hacia el NE y una distancia de 14,066.44 m. se llega al vértice 8 de coordenadas 19°07'02".76 Lat. N; 112°12'15" Long. W; partiendo de este punto hacia el NE y una distancia de 16,072.95 m. se llega al vértice 1 en donde se cierra el polígono con una superficie de 112,636-50-00 Has.

DESCRIPCION LIMITROFE DE LA ZONA NUCLEO DE LA ISLA ROCA PARTIDA

El polígono se inicia en el vértice 1 de coordenadas 19°05'18".70 Lat. N; 112°03'52".48 Long. W; partiendo de este punto hacia el SE y una distancia de 7,576.93 m. se llega al vértice 2 de coordenadas 19°03'47".64 Lat. N; 111°59'55".70 Long. W; partiendo de este punto hacia el SE y una distancia de 7,523.96 m. se llega al vértice 3 de coordenadas 19°00'00" Lat. N; 111°58'10".60 Long. W; partiendo de este punto hacia el SW y una distancia de 6,154.06 m. se llega al vértice 4 de coordenadas 18°56'47".32 Lat. N; 111°59'07".86 Long. W; partiendo de este punto hacia el SW y una distancia de 9,394.14 m. se llega al vértice 5 de coordenadas 18°54'20".98 Lat. N; 112°03'52".48 Long. W; partiendo de este punto hacia el NW y una distancia de 7,661.75 m. se llega al vértice 6 de coordenadas 18°55'54".47 Lat. N; 112°07'54".36 Long. W; partiendo de este punto hacia el NW y una distancia de 7,947.95 m. se llega al vértice 7 de coordenadas 19°00'00" Lat. N; 112°09'36".92 Long. W; partiendo de este punto hacia el NE y una distancia de 7,320.68 m. se llega al vértice 8 de coordenadas 19°03'41".14 Lat. N; 112°07'58".63 Long. W; partiendo de este punto hacia el NE y una distancia de 7,661.75 m. se llega al vértice 1 en donde se cierra el polígono con una superficie de 28,236-50-00 Has.

ARTICULO SEGUNDO.- La administración, conservación, desarrollo y vigilancia de la Reserva de la Biosfera "Archipiélago de Revillagigedo", queda a cargo de la Secretaría de Desarrollo Social, con la participación de las Secretarías de Gobernación, de Marina, de Agricultura y Recursos Hidraúlicos, de Comunicaciones y Transportes, y de Pesca.

Dichas dependencias del Ejecutivo Federal formularán conjuntamente el programa de manejo del área, invitando a participar en su elaboración y en el cumplimiento de sus objetivos a instituciones de educación superior y de investigación, a investigadores y especialistas, así como a representantes de grupos sociales interesados, celebrando los convenios de concertación que sean procedentes.

ARTICULO TERCERO.- El programa de manejo de la Reserva de la Biosfera "Archipiélago de Revillagigedo" deberá contener por lo menos, lo siguiente:

I. La descripción de las características físicas, biológicas, sociales y culturales de la Reserva de la Biosfera, en el contexto nacional, regional y social;

II. Las acciones a realizar a corto, mediano y largo plazos estableciendo su vinculación con el Sistema Nacional de Planeación Democrática. Dichas acciones comprenderán la investigación, uso de recursos, extensión, difusión, operación, coordinación, seguimiento y control;

III. Los objetivos específicos de la Reserva de la Biosfera;

IV. Las normas para el aprovechamiento de la flora y fauna silvestres y acuáticas, de protección de los ecosistemas, así como las destinadas a evitar la contaminación del suelo y de las aguas;

V. El catálogo de especies de la flora y fauna acuática que se encuentran en la zona;

VI. Los requisitos que deberán cumplir los solicitantes de concesiones, permisos o autorizaciones para la explotación extracción o aprovechamiento de los recursos de la Reserva de la Biosfera, de conformidad con la legislación aplicable;

VII. Las actividades permitidas dentro de la Reserva de la Biosfera;

VIII. Las restricciones a la construcción, ocupación y funcionamiento de instalaciones marítimas o de otra clase de obras, y

IX. Las actividades de protección de los ecosistemas y de sus elementos de investigación científica y de educación ecológica.

ARTICULO CUARTO.- La Secretaría de Desarrollo Social no autorizará la ejecución de obras públicas o privadas dentro de las zonas núcleo de la Reserva de la Biosfera "Archipiélago de Revillagigedo".

ARTICULO QUINTO.-Todo proyecto de obra pública o privada que se pretenda realizar dentro de las zonas de amortiguamiento de la Reserva, deberá contar previamente a su ejecución, con la autorización de impacto ambiental correspondiente, en los términos de la Ley General del Equilibrio Ecológico y la Protección al Ambiente y su Reglamento en materia de Impacto Ambiental.

ARTICULO SEXTO.- Las obras y actividades que se realicen en la zona de amortiguamiento de la Reserva de la Biosfera "Archipiélago de Revillagigedo", deberán sujetarse a los lineamientos establecidos en el programa de manejo del área y a las disposiciones jurídicas aplicables.

ARTICULO SEPTIMO.- En la Reserva de la Biosfera no se autorizará la fundación de nuevos centros de población.

ARTICULO OCTAVO.- Las actividades productivas que se realizan en las zonas de amortiguamiento de la Reserva de la

Biosfera "Archipiélago de Revillagigedo", las actividades de preservación de los ecosistemas y sus elementos; la investigación científica y educación ecológica, y el aprovechamiento de la flora y fauna silvestre, para fines de investigación y experimentación, se sujetarán a las restricciones establecidas en el programa de manejo y las normas oficiales mexicanas aplicables.

ARTICULO NOVENO.- La Secretaría de Desarrollo Social promoverá el establecimiento de vedas de flora y fauna silvestres y de aprovechamientos forestales en la Reserva de la Biosfera "Archipiélago de Revillagigedo", atendiendo a los estudios técnicos que realice en coordinación con la Secretaría de Agricultura y Recursos Hidráulicos.

ARTICULO DECIMO.- El uso, explotación y aprovechamiento de las aguas nacionales ubicadas en la Reserva, se regularán por las disposiciones jurídicas aplicables en la materia y se sujetarán a:

I. Las normas oficiales mexicanas para la conservación y aprovechamiento de la flora y fauna silvestres y de su hábitat, así como las destinadas a evitar la contaminación de las aguas;

II. Las políticas y restricciones para la protección de las especies de flora y fauna silvestres que se establezcan en el programa de manejo de la Reserva, y

III. Los convenios de concertación de acciones de protección de los ecosistemas que se celebren con los sectores productivos e instituciones académicas y de investigación.

ARTICULO DECIMO PRIMERO.- Dentro de la Reserva de la Biosfera queda prohibido verter o descargar contaminantes en el suelo y el subsuelo, así como en el mar y en cualquier clase de corriente o depósitos de agua, y desarrollar actividades contaminantes.

ARTICULO DECIMO SEGUNDO.- Las dependencias competentes solamente otorgarán permisos, licencias, concesiones y autorizaciones para la explotación, exploración, extracción o aprovechamiento de los recursos naturales en la Reserva de la Biosfera, de acuerdo a lo dispuesto en la Ley General del Equilibrio Ecológico y la Protección al Ambiente, este decreto, el programa de manejo de la Reserva y demás disposiciones jurídicas aplicables.

ARTICULO DECIMO TERCERO.- En la Reserva de la Biosfera se permitirá la pesca deportiva, así como la pesca comercial de las especies ícticas y malacológicas, en las áreas, épocas y con los límites, artes, equipos y métodos que se establezcan en el programa de manejo, los avisos de veda, las normas oficiales mexicanas y demás disposiciones jurídicas aplicables.

ARTICULO DECIMO CUARTO.- En la Reserva de la Biosfera "Archipiélago de Revillagigedo" se podrá autorizar el establecimiento de granjas marinas para el cultivo de moluscos, peces, crustáceos, algas y otras especies que se puedan utilizar para la repoblación del área.

ARTICULO DECIMO QUINTO.- Las actividades de recreación en la Reserva de la Biosfera "Archipiélago de Revillagigedo", únicamente podrán realizarse de conformidad con los lineamientos establecidos en el programa de manejo del área.

ARTICULO DECIMO SEXTO.- Las áreas y canales de navegación establecidas en la Reserva de la Biosfera continuarán en uso, debiendo delimitarse el área de fondeadero.

ARTICULO DECIMO SEPTIMO.- La disposición final de residuos sólidos producto de desazolve de los canales de navegación localizados en la Reserva de la Biosfera "Archipiélago de Revillagigedo", deberán ser deslastrados fuera de los límites del mar territorial.

ARTICULO DECIMO OCTAVO.- Las infracciones a lo dispuesto por el presente decreto, serán sancionadas administrativamente por las autoridades competentes en los términos de la Ley General del Equilibrio Ecológico y la Protección al Ambiente, Ley General de Bienes Nacionales, Ley de Caza, Ley Forestal, Ley Federal del Mar, Ley de Vías

Generales de Comunicación, Ley de Navegación, Ley de Pesca, Ley de Aguas Nacionales, el Reglamento para Prevenir y Controlar la Contaminación del Mar por Vertimiento de Desechos y otras Materias, y demás disposiciones jurídicas aplicables.

TRANSITORIOS

PRIMERO.- El presente decreto entrará en vigor al día siguiente de su publicación en el Diario Oficial de la Federación.

SEGUNDO.- El programa de manejo de la Reserva de la Biosfera "Archipiélago de Revillagigedo", deberá ser elaborado en un término de 365 días naturales contados a partir de la fecha de entrada en vigor de este decreto.

TERCERO.- La Secretaría de Desarrollo Social procederá a tramitar la inscripción del presente decreto en los registros públicos de la propiedad federal y en el Sistema Nacional de Areas Naturales Protegidas, en un plazo de 90 días naturales contados a partir de su publicación en el Diario Oficial de la Federación.

CUARTO.- Se derogan las disposiciones administrativas que se opongan al presente decreto.

Dado en la Residencia del Poder Ejecutivo Federal, en la Ciudad de México, Distrito Federal, a los cinco días del mes de junio de mil novecientos noventa y cuatro.- Carlos Salinas de Gortari.- Rúbrica.- El Secretario de Gobernación, Jorge Carpizo Mac Gregor.- Rúbrica.- El Secretario de Marina, Luis Carlos Ruano Angulo.- Rúbrica.- El Secretario de Desarrollo Social, Carlos Rojas Gutiérrez.- Rúbrica.- El Secretario de Agricultura y Recursos Hidráulicos, Carlos Hank González.- Rúbrica.- El Secretario de Comunicaciones y Transportes, Emilio Gamboa Patrón.- Rúbrica.- El Secretario de Pesca, Guillermo Jiménez Morales.- Rúbrica.

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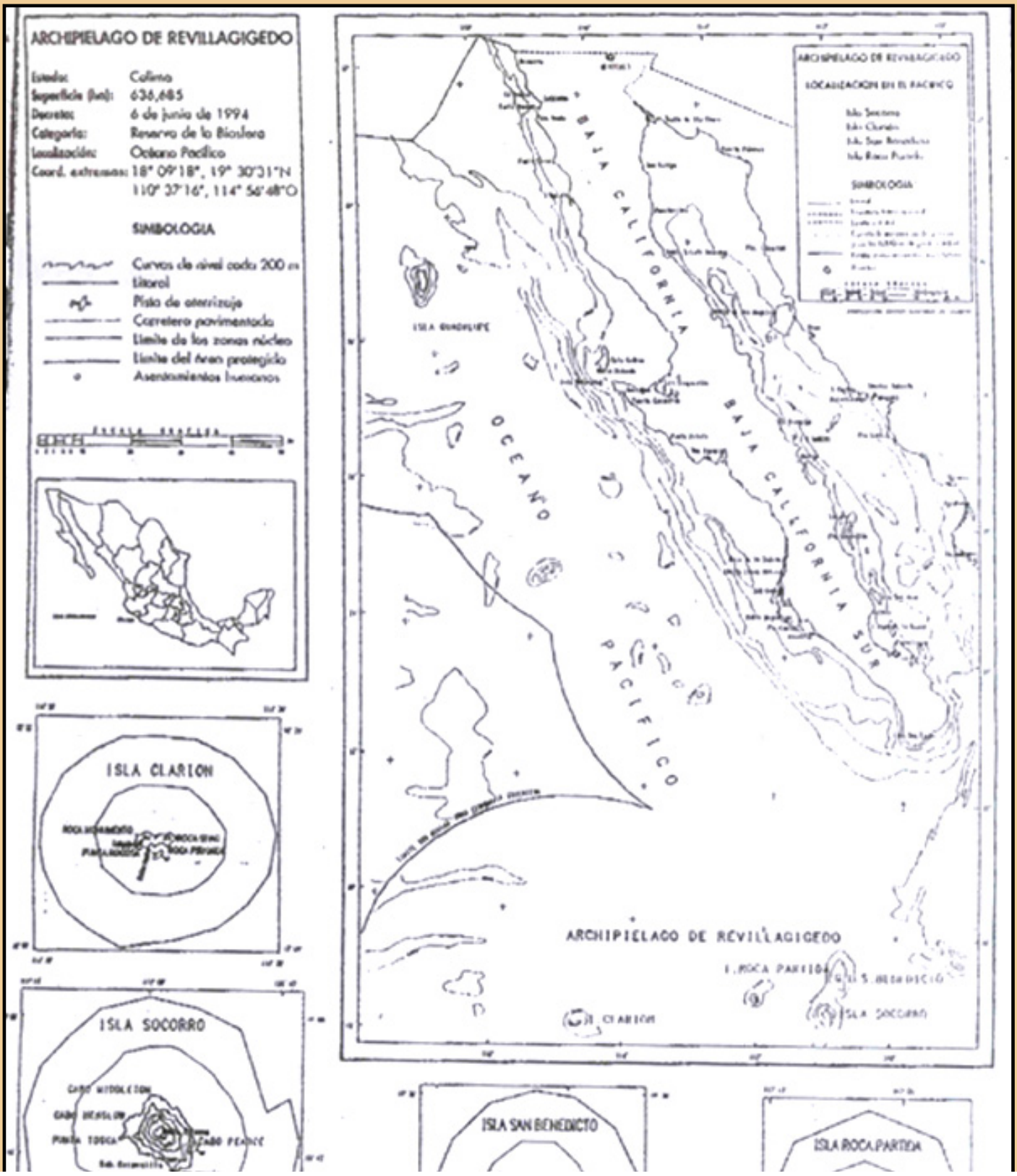
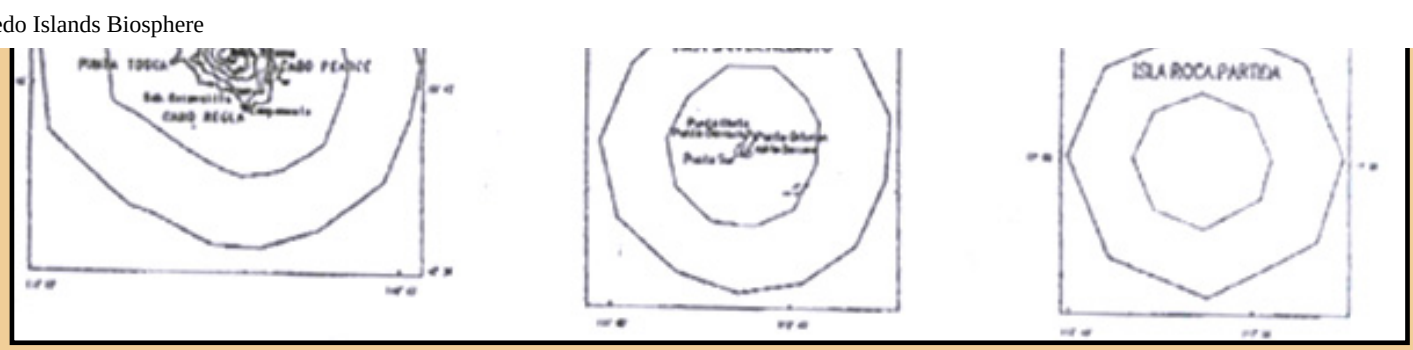
The Revillagigedo Islands Biosphere





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A Letter from Sea Watch and others to Lic. Santiago Creel Miranda - Secretary of Gobernacion

Islas Revillagigedo, a 9 de marzo del 2002

Lic. Santiago Creel Miranda
C. Secretario de Gobernación
P r e s e n t e

Estimado Santiago:

Las Islas Revillagigedo, famosas por sus enormes manta rayas, ballenas jorobadas, tiburones ballenas, espectaculares cardúmenes de atunes y tiburones, fueron decretadas como Reserva de la Biosfera en 1994. Aunque son menos conocidas que las Islas Galápagos, su importancia biológica es mayor ya que posee gran cantidad de endemismos en flora, aves, reptiles y peces. Gracias a la cooperación de científicos, buzos y pescadores, se ha logrado tener un mejor conocimiento de la zona que ha permitido identificar las áreas que requieren un mayor grado de protección.

A pesar de ser área natural protegida, desde hace muchos años esta zona ha sido víctima del saqueo que ha realizado la pesca comercial y del impacto que ha causado la pesca deportiva sin control.

Por otro lado y debido al gran tamaño del archipiélago que hace imposible que la base de la Marina vigile toda la zona, las embarcaciones de pesca deportiva han sido un factor importante para cooperar en la vigilancia, denunciando a las embarcaciones de pesca comercial que se adentran ilegalmente a esta zona, o a las de pesca deportiva que pescan indiscriminadamente.

Desde hace 25 años la riqueza natural del Archipiélago Revillagigedo ha disminuido dramáticamente. Los científicos y pescadores calculan que las poblaciones de wahoo y de atún aleta amarilla han disminuido entre un 70-80% y 60-70% respectivamente. De no tomarse medidas para conservar todo este patrimonio se perderá irreversiblemente un capital natural invaluable. Por este motivo, SeaWatch y reconocidos expertos en el tema preocupados por el futuro de las Revillagigedo, proponemos lo

siguiente:

- Es indispensable prohibir cualquier tipo de actividad de pesca comercial dentro de las 12 millas que se establecen en el decreto de la reserva.

- La acción que más impacto tendría sería el prohibir que las embarcaciones "troleen" en las islas y que la pesca solamente se pueda realizar desde una embarcación anclada. De esta forma se salvaría el 90% del wahoo que generalmente es capturado al trolear y, además, se dajaría de molestar a las especies que han sido más afectadas por los "curricanes" o señuelos y por el movimiento de las embarcaciones, tales como las manta rayas, los tiburones, los wahoos y cierto tipo de aves. Asimismo, prohibir por completo la pesca de tiburón y de peces de arrecife.

- También, es importante bajar el límite de pesca para especies pelágicas (wahoo y atún) de 15 peces de cada especie por viaje a 5 por persona por viaje. Debido a que el archipiélago es un lugar de difícil acceso y a la cantidad de pescadores que llegan al área, esta cantidad no causará impacto sobre las poblaciones de peces.

Te agradecemos todas tus atenciones y esperamos que estas propuestas sean de utilidad para proteger el Archipiélago de Revillagigedo.

Mike McGettigan

Miguel Sánchez Navarro Redo

Bárbara Gómez Morin

Armando Figaredo

Eustaquio Escandón Cusi

Manuel de Yturbe

Bruno Paglai

Carlos Aragón

Joaquín Garibay

Alejandra Cue

Lucero Escandón

Howard Hall

Terry Mass

Sherry Shaffer

Jeff Jacobsen

Michele Hall

B/M Solmar, yate prestador de servicios de turismo náutico

Capitán Sr. Pedro Humberto Saiza Glez.

Motorista Sr. Jesús Huerta Ocampo

Cocinero Sr. Pedro Serrano

Marinero Sr. Gerónimo Lara

Marinero Sr. José Ramón López G.

Marinero Sr. Luis Godinez Castro

Marinero Sr. Francisco Garciglia

Instructor de buceo Jésus Reyes C.

Instructor de buceo Manuel Muro Venegas

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The Response from PROFEPA to A Letter from Sea Watch and others to Lic. Santiago Creel Miranda - Secretary of Gobernacion

PROFEPA

OFICIO N° [illegible]

México D.F., 01 ABR. 2002

MIKE MCGETTIGAN Y FIRMANTES
SEA WATCH
PRESENTE

Hago referencia a su atento oficio del 9 de marzo del 2002, dirigido al Lic. Santiago Creel Miranda, Secretario de Gobernación, en el que manifiestan su preocupación por el saqueo que ha realizado la pesca comercial y del impacto que ha causado la pesca deportiva sin control en el Archipiélago de las Revillagigedo.

Como es de su conocimiento, la región conocida como Archipiélago de Revillagigedo, integrado por cuatro áreas: Isla San Benedicto, Isla Clarión o Santa Rosa, Isla Socorro e Isla Roca Partida, fue declarada área natural protegida con el carácter de Reserva de la Biósfera, de acuerdo con el decreto publicado en el Diario Oficial de la Federación del 6 de junio de 1994.

La Ley General del Equilibrio Ecológico y la Protección al Ambiente (LGEEPA) establece con toda claridad que las reservas de la biósfera se constituyen como áreas biogeográficas relevantes a nivel nacional, representativas de uno o más ecosistemas no alterados significativamente por la acción del ser humano o que requieren ser preservados y restaurados, en los cuales habiten especies representativas de la biodiversidad nacional, incluyendo a las consideradas endémicas, amenazadas o en peligro de extinción.

La LGEEPA, en su artículo 49 fracción III, prohibe de manera expresa que en las zonas núcleo de las áreas naturales protegidas se realicen actividades cinegéticas o de explotación y aprovechamiento de especies de flora y fauna silvestres. Los recursos pesqueros y marinos son parte de la fauna silvestre y en consecuencia su aprovechamiento está prohibido en las zonas núcleo de la Reserva de la Biósfera "Archipiélago de Revillagigedo".

El reglamento de la LGEEPA en materia de áreas naturales protegidas, en congruencia con la ley, establece en su título sexto, capítulo I, los usos y aprovechamientos permitidos, así como de las prohibiciones.

La pesca comercial está prohibida en la Reserva de la Biósfera Archipiélago de las Revillagigedo.

La pesca comercial está prohibida en la Reserva de la Biósfera Archipiélago de las Revillagigedo. Quien realice actividades de pesca comercial dentro del polígono de la Reserva lo hace de manera ilegal y debe ser sancionado de acuerdo a las disposiciones legales vigentes.

1

La pesca deportiva solo podrá realizarse en la zona de amortiguamiento de la Reserva. Las actividades de uso turístico y recreativo deberán sujetarse a los criterios establecidos en el artículo 82 del reglamento de la LGEEPA en materia de áreas naturales protegidas.

Sin embargo, una equivocada interpretación de la Ley ha provocado que se realicen aprovechamientos extractivos dentro de la zona núcleo de la Reserva de la Biósfera "Archipiélago de Revillagigedo".

Por lo anterior, y en congruencia con las políticas y lineamientos establecidos en el Plan Nacional de Desarrollo 2001 – 2006, el Programa de Medio Ambiente y Recursos Naturales y el Programa de Procuración de Justicia Ambiental, que incorporan el estricto apego al Estado de Derecho y a la protección, preservación y conservación del medio ambiente y los recursos naturales en la planeación del desarrollo nacional, la PROFEPA, en coordinación con la Secretaría de Marina - Armada de México, ha ordenado la realización de actos de inspección para vigilar el estricto cumplimiento de las disposiciones legales aplicables a la Reserva de la Biósfera "Archipiélago de Revillagigedo".

Se le ha informado a la Comisión Nacional de Acuacultura y Pesca que con el propósito de garantizar que las actividades que se realizan en la Reserva de la Biósfera "Archipiélago de Revillagigedo" se ajusten a los términos de ley los permisos de pesca (comercial y deportiva) otorgados por dicho órgano desconcentrado, establezcan claramente, de manera expresa, los términos y condiciones a los que deberán sujetarse de conformidad con los preceptos legales contenidos en los artículos 48 y 49 de la LGEEPA, en el Título Sexto, Capítulo I de su reglamento y los artículos duodécimo y décimo tercero del decreto que declara dicha zona como área natural protegida.

Así mismo, la Lic. Diana Ponce Nava, Subprocuradora de Recursos Naturales de la PROFEPA, en audiencia otorgada el día 26 de marzo a los Señores José Medina Sánchez y Barnard R. Thompson, representantes de "Sport Fishing Association of California", les informó las disposiciones legales aplicables a la Reserva de la Biósfera, las prohibiciones establecidas en la zona núcleo y los criterios de aplicación de la Ley por la PROFEPA. No puede existir duda al respecto.

La PROFEPA requiere de una participación social más amplia en torno a la protección y preservación de los recursos naturales del país. Hemos iniciado el programa de GUARDIANES

La PROFEPA requiere de una participación social más amplia en torno a la protección y preservación de los recursos naturales del país. Hemos iniciado el programa de GUARDIANES DEL MEDIO AMBIENTE MARINO con el claro propósito de incorporar a todas aquellas personas interesadas en la protección y preservación de los recursos marinos dentro de la Zona Económica Exclusiva de México. Les invitamos a participar de esta iniciativa.

9

2

SECRETARÍA DE MEDIO AMBIENTE
Y RECURSOS NATURALES

Coincidimos con la prioridad de detener el saqueo que ha realizado la pesca comercial y la pesca deportiva sin control. Desarrollaremos los programas de inspección que nos permitan frenar y revertir el deterioro. Esperamos que nos acompañen en esta empresa.

Reciban ustedes mi cordial saludo.

ATENTAMENTE
SUFRAGIO EFECTIVO. NO REELECCION.
EL PROCURADOR

LIC. JOSÉ CAMPILLO GARCÍA

C.c.p. Santiago Creel Miranda.- Secretario de Gobernación.
Marco Antonio Peyrot González.- Secretario de Marina.
Javier Usabiaga Arroyo- Secretario de Ganadería, Agricultura, Desarrollo Rural, Pesca y Alimentación.

Marco Antonio Feyrot González.- Secretario de Marina.
Javier Usabiaga Arroyo- Secretario de Ganadería, Agricultura, Desarrollo Rural, Pesca y Alimentación.
Bertha Leticia Navarro Dehesa.- Secretaría de Turismo.
Víctor Lichtinger - Secretario de Medio Ambiente y Recursos Naturales
Ernesto Enkerlin.- Presidente de la Comisión Nacional de Áreas Naturales Protegidas.
Jerónimo Ramos Sainz Pardo.- Comisionado Nacional de de Pesca y Acuacultura.
Diana Ponce Nava.- Subprocuradora de Recursos Naturales.
Luis Fueyo Mac Donald.- Director General de Inspección y Vigilancia de los Recursos Pesqueros y Marinos.

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The Revillagigedo Islands

SeaWatch Presents Its Position on Overfishing At Revillagigedo Islands

To read the SeaWatch position paper "Revillagigedo Islands - State of the Fisheries" presented on November 25th to the Primer Foro de Consulta Sector al Sector de Pesca Y Actividades Nautico Recreativas, please the title of the paper below.

To Download the file, click on the title: Revillagigedo Islands - State of the Fisheries

En Español: Islas Revillagigedo - Estado de las Pesquerías

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Last Comments On The SeaWatch Fisheries Report

On a Sunday evening SeaWatch founder Mike McGettigan and WON writer Gene Kira met in Cabo San Lucas. The short version of those conversations were:

1. That Gene found no fault with the anecdotal data gathered by freedivers showing declines in wahoo and tuna seen at the Revillagigedo Islands.

2. Gene felt there was an implicit lie when SeaWatch said that there were permits issued by the Mexican Government allowing over 2500 anglers to go to the Islands this season. He said that it inferred that those permits were issued to the long range boats and they were the ones causing the problem. SeaWatch was attempting to show how many permits were issued by the Mexican Government and that it was too many permits and would allow too many fish to be caught. We should have clarified it more by saying it was "how many permits/passengers were applied for and given and that it didn't reflect the number of fish actually caught by yachts or long-range boats."

Sea Watch certainly wasn't trying to blindside SAC as we called them and then sent them our report two weeks before it was released. We asked for their comments and asked them if they could live with what we were recommending. Their initial comment was that they objected to no trolling and would get back to SeaWatch after talking to a few key members. That never happened. SeaWatch also specifically said in its report that it didn't feel that it was yachts or long range boats causing the decreases in tuna seen at the Islands.

3. Gene agrees, that the "SeaWatch Report on the Island Fisheries" had no direct effect in Mexico City on the closing of the Islands. He feels that Santiago Creel being at the Islands and seeing what was happening was the catalyst that as Gene put it, "Will change fishing as we know it in Mexico." Secretary Creel's Island visit was set up by Miguel Sanchez Navarro and was integrally tied into the SeaWatch Island filming trip. To that end SeaWatch was involved in the events that eventually closed the Islands. As a result of Sec. Creels visit, other agencies suddenly got the political will to take a strong stand. It

started at the Islands, spread to the East Cape net ban and he feels the critical mass is probably now there to get nets banned in the Loreto Marine Park and hopefully next will come Magdalena Bay. We agree, although we feel that the Islands were going to be closed by the PROFEPA ruling anyway, albeit not as quickly.

We all need to get involved and help keep this momentum going. Everyone who has put hard work into the fisheries issues in the US and Mexico should feel encouraged, but must not let up for a moment.

This will be our last comment on defending our Revillagigedo Island Report. Our time in the future will be better spent helping develop support data, and volunteering to help on the management plan. There is a conciliatory feeling developing amongst many of the parties involved and we want to be there to work with them!

Regards,

Mike McGettigan

Founder - Sea Watch

Footnote: It's important for Americans to note that Mexico under Fox is turning away from the questionable practices of the past. Unless there is a surprising reversal of policy at the top, LGEEPA and the 1994 establishing decree will determine what can and cannot happen at the Revillagigedos.

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An Editorial by SeaWatch founder Mike McGettigan:

Sea Watch believes that if the long range boats want to have any future at all in Mexico they will have to actively fight to save Mexico's fisheries.

To Download the file, click on the title: Too Little Too Late.pdf

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Editorial

By: Mike McGettigan – Sea Watch

The Good neighbors to the north "Too little too late"

Anyone still saying the pelagic fish stocks of wahoo, tuna or reef fish stocks are healthy around the inner 3 Revillagigedo Islands just hasn't spent time there recently. "A 12 wahoo day is now considered a good day with 6 more the norm", says long range fishermen John Hayes and the Islands are just a microcosm of the bigger problem all over Mexico. Pelagic stocks everywhere in Mexico are decreasing at a catastrophic rate. PESCA for years has given out permits based on money only with no understanding what so ever about fish stocks, sustainable fisheries, etc. Their recent experimental shark (really for billfish) longline permits are devastating marlin populations in the closed to commercial billfishing fishing area from Magdalena Bay to Manzanillo including the Revillagigedo Islands

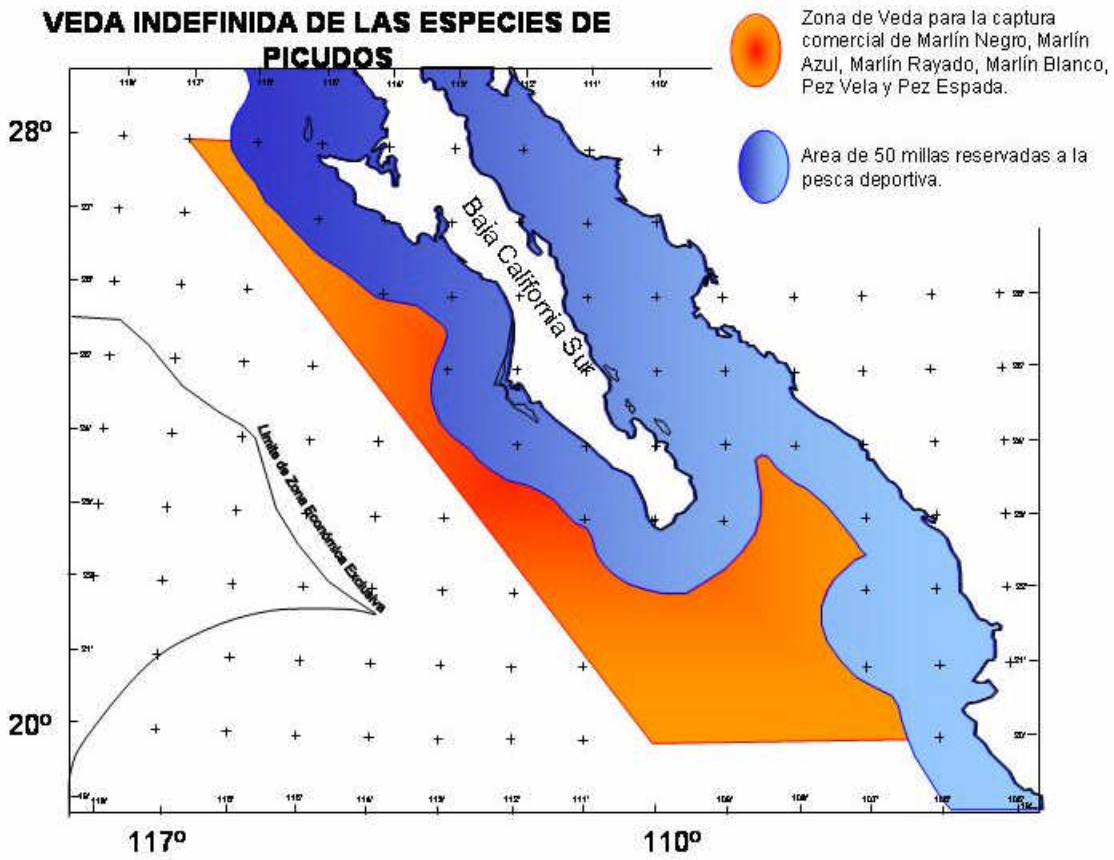
Where were all the good neighbors from the north (yachts, long-range boats, anglers associations, news organizations, etc.) during the last 10 years when the Revillagigedo Islands were being overfished and overrun by illegal commercial boats? Those same special interest groups who have done nothing to assure sustainable fisheries at the Islands now feel persecuted when the resources are depleted and they are told they can't fish there. The good neighbors from the North stood by for years watching the fish stocks decrease, with commercial boats fishing right next to them and they did nothing to try and stop it. In fact there was a long range boat fishing ½ mile north of Benedicto less than a mile away from the illegal longliner Blufin on March 10th 2002. The Mexican Navy was less then 3 miles away on the other side of the Island and they still didn't call the Navy frigate to report the illegal longliner.

The good neighbors from the North still did not get engaged, even after the Mexican marina, hotel and sportfishing interests filed their lawsuit of early 2001. In the lawsuit it was said, the Islands were a biosphere, the fisheries were depleted and no one should be fishing there. Now a year later when the ax finally falls, comes the cries that we were blindsided. Now we hear a new enlightened approach that, *we will now be glad to help with vigilance at the Islands if asked. Mexico needs us to help stop the real bad guys, commercial fishing*. This new good guy, Mexico needs us to watch the Islands rhetoric may well be **too little too late.**

Maybe it is time for the good neighbors from the North to get seriously involved. Forget the rhetoric about suddenly being the eyes for the Islands. They should work with the tourism and sportfishing councils and other NGOs in Mexico that are trying to expose and stop the illegal longlining and drift gillnetting so rampant in Mexico. They could really make a difference by actively siding against the illegal longliners and drift gillnetters that are ruining a multimillion dollar sportfishing business in Mexico. Illegal

permits issued by PESCA, without the scientific approval needed by law, are killing thousands, no tens of thousands of marlin (estimates range from 500 to 1000/week) yearly along the Baja coast and throughout the closed to commercial fishing area which goes from Cedros to Manzanillo and includes the Revillagigedo Islands. The PESCA people that the long-range boats have lived and died with for years are rapidly losing power in Mexico. It's time for the long-range boats to throw their political weight and money behind those truly trying to assure the future of fishing in Mexico through sustainable fisheries. **Then maybe they would deserve the title of "The Good Neighbors from the North".**

Footnote: Instead of the above it is my guess all the political weight and money will be thrown at a management plan and a change of law that allows them to fish at the Revillagigedo Islands with little regard to the long term sustainability of the fisheries there. They may get what they want, but it will be short lived as Mexico's fisheries are rapidly collapsing.



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An Open Letter from Terry Maas to SAC

First let me qualify the following remarks. I speak as an individual, a concerned sportsman.

I am sorry to see that recent discussions regarding the Revillagigedos (Rev.) have, in some cases, devolved into an "us versus them" argument.

As I see it, we are in almost total agreement as to the fundamental issues surrounding the Rev. problem.

1. This world-class environment is being severely impacted by poachers.
2. Sportfishers (anglers and divers) are not the root of the problem.
3. In fact, sportfishers offer one of the best solutions to the preservation of the biosphere.

Where I think we (all of us) lose perspective is when we try to interpret and control actions taken by a separate and sovereign state Mexico. Mexico has made, and continues to make, fundamental changes as a result of the change in the ruling party. Mr. Fox has made it clear to his citizens that the old ways of graft and corruption will end. While these goals are laudable, they are obviously difficult to implement is a short time. Nevertheless, the Fox government is making good on many of its promises.

When I met with representatives of Mexico's top conservationists and leaders last month, I was surprised with their humility, intelligence, compassion and overall grasp of local and global concerns. These men can speak on any topic, from politics, economics to biology with equal in-depth knowledge—all in English. A slight digression might help clarify their perspective. Could you expect such a discussion from our leaders with the Mexicans—in the Mexican language? Further, do you think our leaders would give the Mexicans the time of day if we were discussing their right to send fishing vessels from Ensenada to fish Catalina and the Channel Islands?

The Mexican leaders know that their chief problem resides within their country. Many of their commercial fishermen sneak or bribe their way into protected waters. The catching of the illegal long-liner the Blufin while we visited with them was a dash of cold water on the face of these leaders.

We were afraid that out of rage and not a little embarrassment these leaders would call for an immediate closure of islands. There are all too many wonderful fishing areas closed already, the Tres Marias several hundred miles to the south and Cocos Island off Costa Rica just to name a few. We respectfully begged that these officials allow current sportsmen to continue at the Islands because of the valuable anti-poaching "eyes" that they provide. The sudden cancellation of fishing permits to the Islands was, indeed unfortunate—a temporary loss to those of us with trips scheduled this spring. I am especially sympathetic of the San Diego based long-range fleet, their customers and suppliers that laterally had their feet

pulled out from under them.

While the Islands are temporally closed to prefect a management plan, which many in Mexico say will include sportsmen, we all have an opportunity to impact the plan by providing scientific input.

I think everyone agrees that the science surrounding the Revs. is lacking. A lot has been made about the unscientific anecdotal observations made by the Sea Watch divers. I studied Zoology at UC Berkeley with a minor in marine science. I agree that our observations cannot be considered science. In fact, this is why I have waited a full 10 years to speak out about the drastic decrease in marine life and gamefish I have been witnessing. I kept telling myself just what others have said, "The fish are offshore, it's an El Nino phenomenon, the fish are running deep, the bait has moved and all the fish have followed…" I cannot keep my face in the sand any longer. The fish are disappearing from the Islands and fast! I agree that there are annual and seasonal, even daily changes in fish habits. And the occasional bonanza still happens. However, when you take the peaks and valleys in fish observations, the trend is clear—it is headed down at a steep angle.

Over 20 years, I have learned the best locations to find pelagics. Not coincidentally, these areas are often adjacent long-range boats. Schools of 30 or more wahoo used to be the norm. Now they are rare. And their size is embarrassingly small-just little guys now. 200-lb tuna used to be commonplace, now I'm lucky to see one or two a trip. The never-ending schools of small tuna are all gone. Even if we take at face value those in the Inter-American Tropical Tuna Commission who say, "Clearly the yellow fin tuna stocks are healthy", the fact remains, the fish are decreasing around the Revs.

Here is where I think the anglers and divers can offer a great deal to the implementation of the management plan. We should open our records to scientists for study. Each trip should provide space for a scientific observer, and each trip should allow for a small percentage if it's time in the pursuit of scientific information about the biology and health of the Rev. marine environment. The sooner we can get together, the sooner we will have the Islands reopened and under favorable terms for anglers and divers alike.

As for interdiction, the Bluefin has been confiscated. The Mexican Navy just impounded two poaching long-liners. With the use of real-time satellite imagery, their efforts should be more effective. The message is out, "fish the Rev. illegally and your out of business." Let's hope this effort is sustainable.

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A Letter from Tim Ekstrom
Owner/operator, Long-range F/V Royal Star

Letter from Tim Ekstrom:

I want to begin this post by saying that I had nothing to do with posting my emotionally charged
letter to Mike McGettigan on the Allcoast site. The letter was a personal correspondence between
myself and Mr. McGettigan and was never intended as public forum. I like to think that I am smarter
than to put something as personal as my rip of Mike out to the public, but sadly I am not. Not being
all that familiar with computers I learned a valuable lesson of which I will always take heed. Never,
ever send an e-mail that you don't feel comfortable with the entire world seeing.
I certainly concede that if I knew my letter was going to be posted to the public I would have
tempered my anger, but I do not apologize for my emotion or motivation in its creation. I am obviously
deeply involved both emotionally and financially. This is not my hobby we are talking about. From
reading all your posts, I see that many of you have read the report and interpreted the contents
differently than myself. I see the fact that Mike made an attempt to minimize the impact on long
range boats but in his summary the primary suggestion he made was to stop all trolling and from there
he made a handful of other suggestions all relating to sport fishing. Whether Mr. McGettigan intended
to or not, the hugely inflated figures and very convincing first hand reports from the divers

shelled us.
That is why I was so angry. We used to have a good relationship with Mike and other free divers
working around the island. They produced this report with full knowledge of the detrimental
implications for the sport boats fishing the Revillas. The fact that we have absolutely no long term
impact on the pelagic fish at the islands is categorically proven by science, but the report was
submitted to very influential individuals with no knowledge of this fact. Why the approach of us over
fishing was used does not puzzle me. It was sufficient to clear the road and make way for a new order
at the islands. That is a commendable goal in the interest of conservation; we were the incidental kill.

That being said I will now tell all of you that we are past our initial anger and have established civil
dialogues with several members of the Seawatch group. We are in agreement on enough issues
regarding conservation to find common ground and leave the negativity behind. I believe the vast
majority of the Seawatch guys are very good people and honestly did not want the present dilemma
to occur. It is crystal clear to all of us that our problems require the complete cooperation of every
one involved if we are to have any hope of fishing the islands again. To all of you posting opinions
regarding this matter, we are now taking a positive approach and leaving the negativity behind. All of
our gripes are water under the bridge. Done. Over.

To all of you posting your opinions regarding Mexican politics, I must say that many of you have both
intelligent perspectives and lively imaginations. Here is a fact in both U.S. and Mexican politics that
most of us know. It is basically about two things; money and who you know. The latter being the
most important. If you have the right connections, your party is in power, and your desire is within
reason, it is simply a matter of asking and backing your request with financial incentive. This is
certainly underselling it by a long shot but I think you all know what I mean.

This recent closure is a real eye opener to all of us and very solid reminder of the fact that our
cherished fishery is to be appreciated simply because it is on the perpetual precipice of being taken
away. We can speculate as to what, and how, and why this ever happened but the fact is that we
thought we were doing the right thing. Changes in Mexico's political climate and environmental
sentiment precipitated this event. I have learned plenty in the last few weeks and although it hasn't
been pleasant, I value the experience. Rest assured that we are doing everything possible to clear the
air, establish a plan, and continue our historic presence at the islands.

Finally, I want to thank everyone for both their interest and support during this process of evolution.

Sincerely,

Tim Ekstrom

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Mexico slams door on long range island trips

By
Gene Kira, Baja Editor,
Western Outdoor News

Contact: BajaDestinations.com

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Mexico slams door on long range island trips

By GENE KIRA, Baja Editor

SAN DIEGO-- The Revillagigedo Islands are closed for business, at least for now.

On March 18, the San Diego long-range sport fishing fleet was dealt a hammer blow by Mexico's marine resources protection agency, Procuraduría Federal de Protección al Ambiente (PROFEPA), when agents closed the Revillagigedo Islands Biosphere Reserve, two-hundred miles south of Cabo San Lucas, to all sport fishing. As expected, few of the key players on either side of the border wished to be quoted in *WON* concerning this super-charged development, however all were anxious to provide background information.

The surprise reversal of a working relationship dating back to at least 1997 came as two PROFEPA agents from La Paz were transported to Roca Partida by the *Solmar V* dive boat from Cabo San Lucas. They

boarded the San Diego sport fishing boats, *Red Rooster III* and *Shogun*, which were cited for fishing inside the Revillagigedo Biosphere Reserve, established on June 6, 1994 by Mexican President Carlos Salinas de Gortari. The American boats proceeded to Cabo San Lucas and were released after brief delays without paying fines, but under orders to respond to the citations within five days. A third boat, the *Royal Star*, was also observed fishing in the area, and Mexican authorities said that it too would be required to respond to charges of violating the 1994 decree that created the Biosphere Reserve.

The boardings followed closely upon a series of events that began months ago, when Miguel Sanchez Navarro of the influential Mexican conservation group, PRONATURA, invited Mexican Secretario de Gobernación, Santiago Creel, for a trip to review the condition of the islands' flora and fauna. On March 9, Secretary Creel flew to the islands and began a tour, with support from the Mexican Navy, Sanchez Navarro, and American conservation activist Mike McGettigan. Creel witnessed several sport fishing boats inside the Biosphere Reserve, including the San Felipe panga mothership *Captain Villegas*, and he was also informed that the commercial longline boat, *Blufin*, had been seen working in the area.

A letter denouncing the lack of regulations enforcement at the islands was sent to Creel's office in Mexico City, from the Revillagigedo Islands, with a date of March 9, over signatures by: Mike McGettigan, Miguel Sánchez Navaro Redo, Bárbara Gómez Morin, Armando Figaredo, Eustaquio Escandón Cusi, Manuel de Yturbe, Bruno Paglai, Carlos Aragón, Joaquin Gribay, Alejandra Cue, Lucero Escandón, Howard Hall, Terry Mass, Sherry Shaffer, Jeff Jacobsen, and Michele Hall.

Secretary Creel, whose portfolio includes responsibility for all uninhabited Mexican islands, left the following day, and he returned to Mexico City requesting full information on the legal condition and protection of the Revillagigedos. On that day, March 10, San Jose del Cabo television producer, Armando Figaredo filmed the *Blufin* fishing inside the Biosphere Reserve from McGettigan's boat the *Ambar III*.

The *Solmar V* dive boat, which had also been in the area and had left for Cabo San Lucas on March 9, later returned to the islands with two PROFEPA inspectors, Francisco Davis and one other agent, and it was these agents who cited the *Red Rooster III* and *Shogun* on March 18 at Roca Partida.

For the present, those citations and the threat of further boardings have ended all sport fishing close to the Revillagigedo Islands. The ban affects the four major islands of the group: Isla Socorro, Isla Clarion, Isla San Benedicto, and Roca Partida. With the exception of one final trip now under way, which will be completed by the *Royal Star*, no further sport fishing of any kind will be permitted at these islands, Mexican authorities said.

Technically, commercial fishing is also included in the ban, although the immediate effect on commercial fishing boats would probably be minimal, since they enter the Biosphere Reserve surreptitiously, not openly as in the case of the long-range sport fishing boats.

Mexican opponents to fishing at the islands were committed to applying as much pressure as possible to clear the Revillagigedos of both sport and commercial fishing, a source close to the group said. On March 6, a response, with official government docket number DB-RN-0575-2202, was received from Mexico

City regarding a denuncia, or complaint, that was filed May 28, 2001 against commercial and sport fishing activities at the Revillagigedos. This complaint was filed by Guillermo Alvarez Aguilar, of the Mexican Billfish Foundation, and was backed by most of the tourist industry of the Los Cabos Corridor, national tourism representatives, and congressman Roberto Preciado of the Mexican State of Colima, which has administrative control over the Revillagigedo archipelago.

The wide support for this complaint, the stonewall attitude by PROFEPA's Mexico City administrators, and current political pressure from influential government ministers such as Secretary Creel, seem to indicate that the current crisis was not caused by local PROFEPA officials going on an isolated campaign, but by policy changes higher up in the government, a much more serious problem.

At noon on March 26, a closed-door meeting was called by the newly-formed Mexican government advisory council, Consejo Nacional de Pesca y Acuacultura (CONAPESCA), at Cabo San Lucas' Hotel Solmar, attended by Victor Manuel Martinez de Escobar Cobela and Julio Cesar Peralta Gallegos of PROFEPA; a representative of the Sportfishing Association of California (SAC); International Game Fish Association (IGFA) representative, Gary Graham; Mike McGettigan, John Riffe, and Bárbara Gómez Morin, of the conservation activist group, Seawatch; Hotel Solmar owner, Luis Bulnes Molleda, and Guillermo Alvarez Aguilar, representing the Mexican Billfish Foundation (Fundación para la Conservación de Picudos); and Armando Figaredo C., of the television production company, Comunicabos. Sources contacted by *Western Outdoor News* indicated that the overall tenor of this meeting was strongly negative for the future of sport fishing at the Revillagigedos, and the session ended with a confirmation of PROFEPA's closure of the islands.

Simultaneously, a series of meetings was being held in Mexico City between SAC representative, Barnard R. Thompson of MIRA Associates, SAC's Mexican attorney Jose Medina, and Diana Ponce, head of PROFEPA's subagency for natural resources. Sources close to these meetings indicated that on March 29, the final result reached was the same as that of the meeting in Cabo San Lucas: no more fishing at the islands.

Sources close to both meetings said that in some ways, the perception by Mexican authorities of what they saw as an aggressive attitude from SAC may have worsened the outcome. Amid a flurry of claims and counter-claims by both sides, several documents obtained by *Western Outdoor News* support some preliminary conclusions:

--The original 1994 decree that established the Revillagigedos Biophere Reserve defined protected areas extending roughly 12 nautical miles out from each island. Each protected area is divided into two zones: a Nucleus Zone extending out about 6 miles, and a Buffer Zone extending from 6 to 12 miles out.

--The 1994 decree cites as its foundation, another law dealing with general regulations on the environment and natural resources: Ley General del Equilibrio Ecológico y la Protección al Ambiente. Article 49, Paragraph III of this law states that within the Nucleus Zone (up to 6 miles out), the exploitation and utilization of wild flora and fauna species is "expressly prohibited."

These two laws, taken together and alone, seem to make it clear that fishing cannot take place within 6 miles of any of the Revillagigedo Islands. Since the highest concentrations of fish are within this Nucleus Zone, such a prohibition would make fishing around the islands unprofitable, and there would be little reason for sport fishing boats to make the long run there.

However, representatives of the San Diego long-range fleet have another argument, based on Article 13 of the original establishing decree, which states (in unofficial translation) that: "In the Biosphere Reserve both sport and commercial fishing *will be permitted* for fish and shellfish species in the areas, times, and within the limits of equipment and methods to be established by a *management plan*..." (emphasis added).

Further, this law decrees that the specified management plan governing such fishing activities be completed within one calendar year of the establishment of the Biosphere Reserve itself, i.e., no later than June 6, 1995.

In fact, no management plan has ever been implemented for the Revillagigedos, meaning that fishing is still expressly prohibited within 6 miles of any island, according to letter of the existing 1994 law.

However, in 1997, a preliminary management plan *was* drafted by the Mexican government, and although it was never approved or entered on the books, it is upon this unpublished document that the San Diego long-range fleet has based its claim to being able to fish inside the Biosphere Reserve's Nucleus Zones, U.S. and Mexican sources said.

Western Outdoor News has obtained a copy of this draft management plan, and found it to be self-contradictory. Its unofficial title was "Programa de Manejo de la Reserva de la Biosfera 'Archipelago de Revillagigedo', Mexico," and it was created under the auspices of the old Secretaria del Medio Ambiente, Recursos Naturales y Pesca (SEMARNAP), which has since been reorganized.

A key feature of this plan was that it divided the marine Nucleus Zones into three sub-zones: 1) some small prohibited areas subject to dangerous volcanic activity. 2) a special species reproduction and protection area extending 500 meters out from the islands, where no fishing is allowed. 3) and, *an area of limited use, extending from 500 meters to the outer edge of the Nucleus Zone* (6 miles), *where controlled sport and commercial fishing might be allowed* (emphasis added). If allowed, all fishing activities would still be subject to fishing and environmental regulations and controls.

Regardless of what this draft management plan said, Article 49 of the underlying law, still states that no exploitation or use can be made of wildlife anywhere inside the Nucleus Zone. The draft management plan did not address the critical question of how its conflict with the underlying law would be resolved.

This draft management plan, if it had been implemented despite its contradiction of underlying law, at least would have opened the door to sport fishing inside the Nucleus Zone, subject to presumably very strict regulations.

However, since the draft was shelved in 1997, there is at present no known written legal basis for fishing

within the 6-mile Nucleus Zone surrounding each island. Apparently, neither sport fishing nor commercial fishing is legal inside these zones, according to the letter of the presently applicable Mexican laws.

The Sportfishing Association of California (SAC), U.S. and Mexican sources said, argues that it long ago obtained an unwritten, verbal agreement from the Mexican Department of Fisheries (PESCA) now headed by Geronimo Ramos, which allowed its boats to fish within the Nucleus Zones and to within 500 meters of the islands. This agreement, SAC says, was based upon the provisions of the old draft management plan that was never published.

Opponents of fishing at the Revillagigedos point out that if any such agreement, verbal or written, was ever issued by PESCA it would have been an illegal action, contrary to the written law of Mexico. Even if such an agreement were to be brought forth in written form today, they say, it would be immediately declared illegal and invalid, and they threaten legal action against whatever agency of the Mexican government might have allowed it.

Sport fishing boats entering the Revillagigedo Biosphere Reserve have carried two types of permits: 1) simple boat permits allowing them to be present and fish in Mexican waters. 2) special permits issued by the Department of Natural Resources (SEMARNAT) allowing them to enter the Biosphere Reserve.

Although it has been commonly thought by some sport fishing captains that the SEMARNAT Biosphere Reserve entry permit allows them to fish legally to within 500 meters of the islands, in fact, the text of at least one permit used this season does not say so. A copy of this permit obtained by *Western Outdoor News* says, on the contrary, that (in unofficial translation): "The present authorization [to enter the biosphere reserve] does not provide for sport fishing activities, because this must be done, on a case-by-case basis, with the permission of the Department of Agriculture [SAGARPA]..."

Yacht permitting agent, Chris Phillips, of Naviera Turistica del Pacifico, in La Paz and Cabo San Lucas, said he recalled that in the past at least some SAC permits may have referenced the 500-meter limit specified in the unpublished management plan, but he could not confirm it. Another source asking not to be named said at press time on Monday that the original permits signed by PESCA did in fact contain the 500-meter reference. The significance of the signature on the permit is that it looks to be the only written documentation of the 500-meter agreement that SAC has been fishing under.

At present, the San Diego sport fishing fleet is pressing forward its legal argument in Mexico City that it be allowed to fish at the islands, based on its claim of a longstanding verbal agreement from PESCA. Mexican opponents say that argument is irrelevant, and would be illegal in any case. Barring other agreements that may be reached through political channels, potentially at the Presidential level, the fleet has been stopped from fishing the Revillagigedos Islands for the present, and as unofficial sources on the U.S. side said, the best hope for a resolution may lie in the prompt completion and promulgation of the old "500-meter" island management plan that has been tabled since 1997.

With the present stoppage of sport fishing at the islands, another immediate problem has been created. The commercial longline fleets, which fish illegally inside the Biosphere Reserve at every opportunity, now

have virtually no other boats present to monitor their activities. Mexican sources said that plans are being discussed for Navy or private patrolling of the Revillagigedo Islands in order to prevent a massive encroachment by these illegal commercial boats. However, no agreements have been reached, and it was unknown how or when the islands would be protected in the future.

This group of islands, discovered in 1533, and named in 1793 by Capt. James Colnett for the Spanish Conde de Revillagigedo, Juan Francisco Güemes y Horcasistas, now requires the immediate attention of the Mexican government in order to prevent severe damage by commercial fishing interests.

Contact Baja Editor, Gene Kira, at **gene@bajadestinations.com,** *or fax to* 760-751-8866.

The longliner, *Blufin*, caught fishing illegally, 1.9 miles off the north end of Isla San Benedicto on March 10, with 69 miles of longline out, according to Mike McGettigan of Seawatch. The incident inside the Revillagigedo Islands Biosphere Reserve Nucleus Zone was reported to Mexican Secretario del Gobernación Santiago Creel, who was present at the islands. On March 18, PROFEPA closed the Revillagigedos to all sport and commercial fishing. Photo, courtesy Seawatch.

Shark being brought aboard the *Blufin*. According to Seawatch's Mike McGettigan, the boat had 69 miles of longline out, and was averaging 5 sharks per mile. Photo, courtesy Seawatch.

Baja Beat Column, April 5, 2002]

A grinding of axes...

By GENE KIRA, Baja Editor

Back in 'Nam, when I was hanging out of helicopters, shooting pictures with three Nikons around my neck, and writing articles on the sly for an innocuous little underground newspaper called *The Grunt Free Press*, one of my favorite quotations came from somebody in the U.S. military, who said (to paraphrase; it's been a while) that we had to "destroy a certain village, in order to save it."

As a young, closet-humanist combat reporter, I never did get the hang of that kind of logic, but in gathering facts for this week's story of the big dust-up at the Revillagigedo Islands, I was reminded of it. Seems like everybody wants a piece of the Revillagigedos, and let the islands be damned.

Once again, the battle lines are a messy web of hidden agendas and weird alliances. There are so many axes being ground, it's like the night before the action starts in a *Halloween* teen-gore flick.

The undisputed bad guys are the commercial long-line boats that sneak into the Revillagigedo Islands Biosphere Reserve, about 200 miles south of Cabo San Lucas, and illegally kill shark, tuna, wahoo, billfish, birds, turtles, and anything else that crosses their miles-long hook arrays.

The current sacrificial scapegoats are the San Diego long-range sport fishing boats, who have also been fishing the islands, but under a verbal agreement negotiated with the Mexican government. Without warning, last week, Mexico's PROFEPA unilaterally abrogated that agreement, and kicked the American boats out in mid-season.

Urging PROFEPA on is a strange coalition of environmentalist groups and Baja Sur business interests. One branch of this coalition issues a constant stream of anecdotal propaganda, and the other branch supplies political connections, financial backing, and logistical support for PROFEPA inspectors.

In Mexico City, the main battle is between PROFEPA's parent organization, SEMARNAT (Mexico's secretariat for natural resources), which says it is trying to protect the islands, and the old PESCA department headed by the increasingly beleaguered Jeronimo Ramos, which is doing everything it can to promote commercial fishing in any form.

There are two potential big losers here.

First, of course, is the San Diego long-range fleet, which is in grave danger of being reduced to a shadow of its former self, if it really is banned from the islands on a permanent basis.

The other big potential loser is the sea life around the Revillagigedos. Without the U.S. sport fishing fleet's eyes out there, only a tiny handful of boats are left to "patrol" the remote waters surrounding Islas Socorro, Clarion, San Benedicto, and Partida. The most notable of these are Mike McGettigan's *Ambar III*, and Luis Bulnes' *Solmar V*. These are just two seasonal tourist dive boats, totally insufficient for counter-balancing the influx of longliners that will now be able to plunder the islands almost unseen.

Here's a modest proposal, presented in the hope that cooler, wiser heads may eventually prevail.

-- Might it be possible for the environmentalist and business interests to back off just a bit, and admit that commercial fishing is the real enemy, and conscientious sport fishing does no significant harm to migratory fish populations?

-- Might the Los Cabos business interests admit that by convincing PROFEPA to ban all fishing at the islands, they have just shot themselves in the foot, since they are not able to fish there either? (Unless, of course, this whole thing is a plot to clear the American boats away, so a few Mexican boats, with "special" permission, can monopolize the market. (*Oh! What a nasty thought!* Forget I mentioned it.)

-- Might the environmentalists admit that they also have just shot themselves in the foot, since now virtually nobody is left at the islands to witness illegal commercial fishing there? Might it be that they have been used as pawns by some dark forces whose ultimate plan is to rape the islands commercially? (Oh, boy. That's *really* nasty. Forget that one, too.)

-- Finally, might it be possible to re-admit conscientious sport fishing at the islands, in exchange for the San Diego long-range fleet's concerted aid in keeping the commercial boats away?

With only slight modifications in schedules and routes, the large San Diego fleet, as "vigilancia civil," could help immeasurably in patrolling not only the islands, but also the striped marlin core zone and all the coastal waters north to the U.S. border. In the grandest scale imaginable, the natural partnership between sport fishing and conservation would be displayed as an example to the world.

All we need for this to be possible is the final completion of an island management plan that has always included sport fishing anyway, but has been held in limbo for the past five years. Why not do something intelligent, clear the legal decks, and publish this plan?

Why can't this happen? I dunno. It's like Vietnam, I guess.

Contact Baja Editor, Gene Kira, at **gene@bajadestinations.com,** *or fax to* 760-751-8866.

Sea Watch

Dedicated to a Healthy Sea of Cortez

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Interesting Commentary About The Islands Closing:

The following report (formatted as a PDF file), click below to open it.

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Revillagigedos

Posted by Don on April 07, 2002 at 12:07:21:
In Reply to: Revillagigedos closure articles posted by Bundo on April 06, 2002 at 12:52:16:

" Gene Kira's column on the closing of the Revillagigados Islands was the most rational observations yet in a sea of recriminations, predictions of economic privilege and financial hardships, as well as the blaming and denying of reasons for the state of the ecology from those on various sides of the controversy.
I submit that the horse is almost out of the barn now, and unless both sides admit there is a problem with man's impact on the environment of this unique island group, and that each segment, be it divers, sightseers, sportfishers, and commercials has some responsibility, some larger than others, then it will resemble the Mideast situation where each side claims the other is the only culprit. In the Mideast this has resulted in mayhem and destruction. At the islands a stalemate will result in a continued closure to sportsmen of all ilk.
As Gene approaches the problem, is it possible that years of flaunting outrageous boat loads of fish, piled to the rails and stretched across the transom in front of the press and Mexicans themselves, has ticked off a few people. Could not the long-range sport fleet, of which I patronize frequently, have used some restraint as to those 2000lb per angler counts? Credit goes to John Klein of the Qualifier 105 for at least some attempt at releases years ago with his awards program for passengers who released the most fish on each trip. Other skippers have released smaller fish but usually because the boat was already plugged or soon would be.
Is there not some arrogance by the U.S. in promoting the closure of our Channel Island to protect the environment, while expecting the Mexicans to ignore their own island scenario?
And although, as a former commercial I believe that is an honorable and valuable occupation, I know that as times change, the population grows, and technology advances, there has to be constraints on these forces in many areas. Does the U.S., and Southern California in particular, not have a dismal record of waiting almost too late in many cases? Look at abalone, rockfish, and black and white seabass. Why should we not expect to see the Mexicans be as concerned, especially with their new prosperity and the recently improved political and governmental climate?
Nor should we denigrate Mike McGittigen and his Seawatch Organization as some are now doing. I know him personally, and his dedication and drive are intelligent and well intended. He is a world class diver, and I have fished with him at the Revillagigados. He is definitely not anti-sportsman. He will step on some toes but if you read his evaluation report on the island's problems, you will see that he targets the commercial longliner and netters as the largest impactors, and favors continued diving and sportfishing activities, albeit with some slight moderation in techniques. And, yes, much of his evidence for the decline of the big Yellowfin and the lesser size and abundance decline of Wahoo is "anecdotal", making the conclusions somewhat empirical. But I think anyone involved in the sport fleet would acknowledge change in the health of the fishery, especially regarding Wahoo. But do we (the Mexicans and our long-range fleet) wait until the techniques for counting the fish scientifically are developed and then implemented? The poster child for this reasoning has to be the Western Atlantic Swordfish. We all know the story there. Also, Seawatch has almost been alone in blowing the whistle on netting of Giant Mantas and sharks at San Benedicto, removing gill nets from the reefs, photographing and documenting

longliners close to the islands, and reporting seiners right up next to Roca Partida.
We are now pulling out the old argument of how much money is pumped into Mexico by the U.S. long rangers. We used this at Cabo, and in the Ensenada Anchovy reduction program years ago. We used it in the long defunct U.S. commercial tuna fishery off Mexico and Central America. Not too successful an approach.
Now, regardless of the outcome at the Revillagigados, our long range boats will fish the Ridge more, fish the offshore pelagics further north, and even go to Clipperton (French) a little more often, and hopefully returning in some way to those islands in the future. How about giving Bobby Fletcher a little more ammunition than just that “we have been wronged and it is not fair”.
But what, of any other, message can we take from this unfortunate situation? Well, after being in this fishery for 55 years, I can see the difference in Southern California and Baja California fishing. Oh, we still have bonanza days, as good as ever now and then, but one would have to have his head in the sand to not admit a change has occurred for the worse. So let the sport fleet do some soul searching about years of pounding local spots day after day, two to three trips sometimes, and bringing home anything that swims. Let the commercials try to govern their take or let’s get it imposed on them with better scientific facts. Let’s more closely monitor the end food chain as we once began to do with the Sardine, Anchovy, Mackerel, and squid to make darn sure these are not maintained at too low a biomass to feed the top and middle of this chain.
And, as I would caution Mike McGittigen and even Surfrider Foundation, there is a danger in collaborating with those whose moral position is fundamentally against hunting, fishing, and even visiting. Our goal as fishermen should be in sustaining the environment for everyone’s pleasure, not closing it off to all but the eco-fanatics. The former is science; the latter is moral judgment.
Hopefully the result at the Revillagigados will not be to let these cow tuna, nearing the end of their lifespan anyway, die a natural death. And hopefully we will not protect the Wahoo so they can migrate elsewhere to be caught by Taiwanese and other longliners and returned to us at Costco or Trader Joes, neatly packaged.
As one of the national columnists said, I don’t practice protection or release of any one species because someone has judged them more noble, but because it is in my interest that they thrive and remain available for our future needs and enjoyment. "

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A Rift Over Troubled Waters

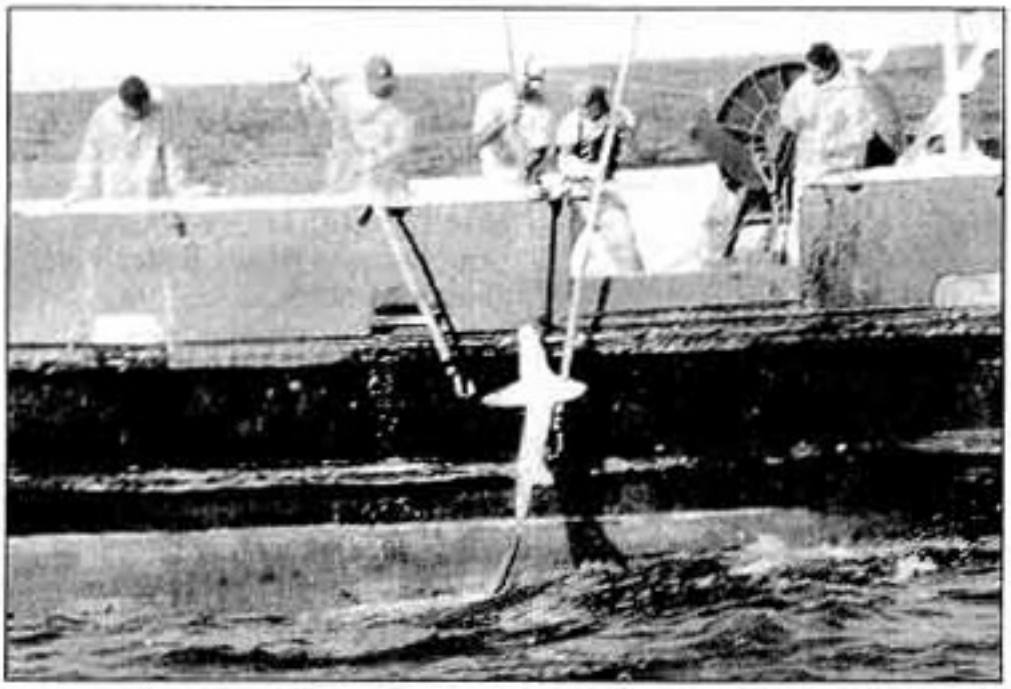
by

Pete Thomas
Los Angeles Times

They are mere specks in what seems the middle of the ocean; barren chunks of land amid a flat expanse of blue.

On the surface, they're not much to look at. But anyone who has been to Mexico's Revillagigedo Islands will say that it is what's beneath the surface that makes them so special.

The remote four-island archipelago, located more than 200 miles south of Baja California and 400 miles west of the mainland, is seasonal home to a stunning array of marine creatures. Giant Pacific mantas soar over the reefs with power and grace. Predatory sharks maintain a random but thorough patrol. Divers, many of them wielding spears, have reported swimming amid schools of tuna and wahoo that seemed to have no end. Anglers, mostly aboard San Diego-based vessels, say there is no better place to catch these prized species.



TERRY MAAS / For The Times

Footage of poachers hauling in dead sharks may have influenced Mexico's decision to rescind permits for the Revillagigedo Islands.

But these have long been troubled waters. Over and over the mantas have been harpooned, the sharks butchered by poachers. And now, amid more of this plunder, and amid claims by spear-fishermen that sport fishermen are taking too much tuna and wahoo, these barren specs in the ocean appear to have become even more isolated.

With no advance warning, Mexico last week invalidated sportfishing permits and announced that all consumptive recreation would cease. The action was taken by the Attorney General for the Protection of the Environment, or PROFEPA, only days after a visit to the islands by the high-ranking Secretary of Government, Santiago Creel Miranda.

Creel has the law on his side--sort of. The islands have been protected since 1994, when the Revillagigedo Archipelago Biosphere Reserve was established. Commercial fishing was banned immediately within 12 miles, but sportfishing and spear fishing, with restrictions, was allowed to continue until the completion of a management plan that would spell out any such special uses.

That plan was supposed to have been completed within a year, but eight years later there still is no plan, only confusion.

Various branches of government have continued to authorize and issue permits that allow fishing beyond 547 yards (500 meters) of the islands for migratory species such as tuna and wahoo. But now the policing and enforcement branches (PROFEPA and the Secretariat of the Navy) are interpreting the law to mean that no fishing should take place unless specified in a management plan.

The issue is more complex, but basically it's a catch-22 situation that has forced the San Diego long-range fleet to seek other options--while arguing to have this one restored.

In an article published Monday in the on-line forum www.hispanicvista.com, fleet consultant Barnard Thompson called Creel's announcement "a huge overreaction" to a poaching incident he witnessed during his visit to the islands three weeks ago. That trip was made soon after meetings in Mexico between President Bush and Mexican President Vicente Fox, intended to improve ties between the nations.

"Mexican officials are showing a darker side that could give pause to any entrepreneur and/or developer who might have an investment interest in that country," Thompson wrote.

San Diego's fleet has been fishing the islands for about 30 years, exclusively targeting tuna and wahoo. Ten of its vessels are annually issued permits for a five-month season ending in late May. Only eight used the permits last season.

These are specialized trips costing $3,000 or more per person, lasting nearly two weeks. Many are shorter "fly-down, fly-back" trips, with pickups and drop-offs in Cabo San Lucas.

All told, Thompson wrote, the trips annually contribute $2.9 million directly to the Mexican economy, "to say nothing of indirect spending and benefits received by Mexico through promotions and advertising."

Some in Mexico have contended for years that the Revillagigedo Island fishery belongs to Mexico and should not be utilized for profit by U.S. interests, despite the contributions Thompson refers to. If these sentiments influenced PROFEPA, so, too, did events that occurred during Creel's trip.

The visit coincided with that of the environmental watchdog group Sea Watch. Those on the Sea Watch vessel, including veteran breath-hold "free divers," encountered commercial fishermen retrieving long-line gear two miles north of San Benedicto Island, the northernmost of the four. Footage of the poachers hauling dead sharks over the rail--an estimated 250 to 350--was presented to Creel. It aired the next night on Mexican television, along with interviews with the official, who pledged more protection within the reserve.

Sea Watch founder Mike McGettigan also presented Creel with a "state of the fisheries" report citing substantial declines over the past 30 years, due mostly to commercial fishing practices but also to those of the San Diego sportfishing fleet.

The report suggested more restrictive bag limits for sport fishermen and that trolling should be banned to lessen the danger to giant mantas and whale sharks. It did not recommend the elimination of spear-fishing or sportfishing. Its findings are purely anecdotal, devoid of scientific evidence and based solely on observations of free divers and photographers.

"All I know is what I see," said Terry Maas, a world-renowned spear fisherman from Ventura, who was with McGettigan during his meeting with Creel.

"I've probably been to the islands 40 times since 1983 and sharks, tuna, wahoo ... all are down by about 80%. I used to see schools of wahoo that went beyond the field of sight."

Bob Fletcher, president of the Sportfishing Assn. of California, called the report baseless and labeled McGettigan a "loose cannon" who is doing more harm than good.

Tim Ekstrom, owner-operator of the Royal Star, said, "To base these conclusions on the observations of a

handful of divers is beyond ludicrous. But even more ludicrous is that anyone would put stock in such a report."

The per-angler bag-limit before the closure was 15 tuna and 15 wahoo per trip. "But the reality is, our boats won't even hold that many fish," Ekstrom said. His log book, typical of those turned in by the other seven captains, revealed an average angler catch last season of seven tuna (averaging 90-120 pounds) and six wahoo (25-40 pounds) per trip.

"These guys are taking home 700 pounds of tuna, but our impact on the fishery is nil," Ekstrom said.

Robin Allen, director of the Inter-American Tropical Tuna Commission, said that while it's possible that sportfishing small areas "might affect the local abundance" during a given time, "generally speaking it won't have an impact on the fishery."

He added that yellowfin tuna stocks in the Eastern Pacific were deemed healthy enough last year to sustain a record quota of 310,000 metric tons. Wahoo are not managed by the IATTC.

McGettigan stands by his group's efforts, saying, "Sea Watch is against anything that depletes the biosphere's stocks of pelagic and reef fish." That he and many of his supporters are spear fishermen may make them look like hypocrites, but it is widely accepted that such a selective and small-scale effort has even less of an impact on the resource than sportfishing.

In any event, both of these groups have been ordered out. Which begs an important question: Who's going to keep an eye on the poachers?

Creel may have vowed greater protection, but the remoteness of the islands and the fact that they're so spread out makes them all but impossible to effectively patrol. "And don't think the poachers don't know that," Ekstrom said.

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A Case Against Longlining Inside the EEZ:

The following report (formatted as a PDF file), A Case Against Longlining Inside the EEZ Off California, has been presented to the Pacific Fishery Management Council. The proposed longlining permits have critical implications for the pelagic fish of the Eastern Pacific. Please read our report and respond to the following with a letter of your own.

A Case Against Longlining Inside the EEZ: EEZ_Report.pdf

If you don't have Adobe Reader, click here to get it, install it and then return to view our Summary Argument!

California's Senators and Congressmen -
Senator Barbara Boxer
112 Senate Hart Office Building
Washington, DC 20510-0505

Senator Dianne Feinstein
331 Senate Hart Office Building
Washington, DC 20510-0504
For The Address of Your Congressman, Click Here.

Pacific Fishery Management Council -

Mr. Jim Lone, Chairman
Pacific Fishery Management Council
2130 SW Fifth Ave.
Portland, OR 97201

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National Marine Fisheries Service -

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A CASE AGAINST LONGLINING INSIDE THE EEZ OFF CALIFORNIA

Prepared for the
Pacific Fishery Management Council

By

Mike McGettigan
Sea Watch – Founder
WWW.SEAWATCH.ORG
Phone 503-285-3673

March 2001

March 6, 2001

Pacific Fishery Management Council
2130 SW Fifth Ave.
Portland, OR 97201

Dear Council Members:

I have been following the declines in fisheries in Mexico and Southern CA for the last 23 years as a sportsman and founder of Sea Watch, Inc. More recently our interests have expanded to drift gillnet issues and the proliferation of longliners along the Baja Pacific Coast. We have spent many of those years interviewing Mexican and American fishermen, concerning destructive fishing practices in the Sea of Cortez and it's surrounding Pacific Waters and then televising the interviews. I've enclosed a brief bio and you can see some of our work on our website www.seawatch.org.

It was of special interest to Sea Watch when you decided, while developing your HMSFMP to look at allowing longliners inside the EEZ off the coasts of California, especially in light of the rapidly declining stocks of billfish along Mexico's Baja and in Southern California. There are some major areas that need to be specifically addressed and questions answered before allowing any more indiscriminate fishing gear types or other sources of fish mortality in the water.

- One of your primary concerns as stated in your scooping document is to protect the billfish fishery through the new HMSFMP. To that end, you need to know the following.

- Eastern Pacific billfish stock assessment data is virtually non-existent. Your voluntary postcard method of determining CPUE on the last great biomass of Striped Marlin in the Pacific does not in any way reflect the health of the stock. CPUE shows no decrease, while Striped Marlin in the core aggregation area around Cabo San Lucas, along the Pacific Coast of Mexico's Baja and in Southern CA. have been in major decline since the early 1980s with anecdotal data showing declines of 40-50% in the last 15 years.[1] The average weight of a Striped marlin caught 15 year ago versus today has dropped from 160 lb. to120 lb a 25% drop.[2] Can the Council quantify what this drop in numbers and average caught weight says about the health of the Striped Marlin stock? If not, the precautionary approach mandates that no new gear types or other sources of fish mortality be allowed until Marlin populations can be understood, stabilized and sustained.

[1] *Anecdotal data gathered for television special reports on Televisa over the last 7 years by Sea Watch. Preliminary results can be found at http://www.seawatch.org/int_sum.htm and as an attachment to this document. We are now conducting further surveys with the help of Dave Holts, NMFS. Those surveys have started coming in and results will be available soon.*

[2] *Data taken from weigh in pictures taken over the last 20 years by famous Cabo photographer Mario Banaga Sr.*

- In 1999 and 2000 Mexico's longline fleet started and was growing rapidly under the direction of PESCA's Camacho Gaos. There were over 50 vessels fishing marlin and swordfish along the Baja coast with what turned out to be illegal permits. Mexico has taken the lead in the last several months through Congress, by temporarily stopping all permits. The fishermen are fighting back, saying in the Ensenada newspapers that, "California is amassing an inshore longline fleet and that Mexican fishermen are going to lose out again to the American fishing fleets". If there are any permits issued inside the California EEZ, the Mexican fishermen will have all the ammunition they need to go back to the Mexican Congress and get the rulings reversed. You will then have opened the floodgates for inshore (inside the EEZ) longlining in both countries. Conservation of many of these HMS stocks will require joint U.S./Mexican action – the Council should take the broadest possible view of the implications of current decisions as they affect present and future international actions.

- Prior to 1980 there were only harpooners and sports fishermen targeting swordfish and marlin in Southern California waters.

- Around 1977 drift gillnets were introduced in Southern California waters and by the early1980s with about 300 permits issued, the gillnetters had their banners years, killing approx 46,000 swordfish in 1984-85. From then on it has been straight downhill. As a direct result of those gillnets, today there are virtually no Blue Sharks, very few Threshers or Makos and not enough Swordfish in the California bight (Channel islands to Mexican border) to support a harpoon fishery or a drift gillnet fishery. Only about 70 drift gillnet permits are still active and many of those only partially so and primarily fishing Northern California waters. As longliner Pete Dupuy said to me himself, "You could probably buy all the CA. gillnet permits out there for $200,000. Why don't the sports fishermen just do it!" If there were still plenty of fish in the California bight would that statement be made?

- It's relatively hard to fathom the fishing power of a small 50-foot longline boat, fishing with 800 to 2000 baits spread out over 25-40 miles of ocean. To get an idea of the killing power, think of one small 50 foot longline boat being equivalent to 200 to 500 sportsfishing yachts drift fishing those same waters 18 hours a day and killing virtually everything they catch. A longliner fishing tuna, sets up to 2000 baits from the surface to fishing depth about 3 hours at dawn and pulls the baits and catch back to the surface for 7 hours starting at dusk. A swordfish boat, setting 800 to 1000 hooks does just the opposite, setting 3 hours at dusk and pulling 7 hours at dawn. Both are prime times to catch marlin, as these baits move up and down through the water column 10 hours a day.

- Hawaii started bringing in longliners in the mid 1980s and has now 160 permits issued, about 115 now being used. In 1999 they caught about 23,000 swordfish down from a 1993 high of about 85,000 swordfish. Over 60% of the boats are now fishing tuna and that number is rising. The reasons for this shift, according to a longliner from Hawaii, with whom I have recently discussed the issue are:

    1. Swordfish boats have to travel further to find swordfish.

    2. North of 30 degrees, where the swords were, there were too many interactions with albacore.

    3. General politics of the turtle lawsuit.

- There are now about 25-35 of the Hawaiian boats fishing off California outside the EEZ, [3] although they have been seen on temperature breaks, 135 mile offshore by harpoon spotter pilots. They are taking about 200 - 250 swordfish per day [4] from the open ocean areas that are thought by many to be the areas that replenish the California bight (http://www.swordfishmanagement.com/id3.htm). The number of boats fishing off California may soon increase, according to a Hawaiian longliner, when the new two-month closures in Hawaii start in March. This would put further pressure on the waters off California and Northern Mexico.

- In a recent conversations with a longliner that has been working Hawaiian waters for over 30 years, I was told that 15 years ago he would average about 2-3 Blue Marlin and 10-15 Striped Marlin on a typical 10 day tuna trip. Now he catches one Blue every 2-3 trips and for the last two years almost no Striped Marlin.

- Mexico tried an experimental Bluefin tuna longline fishery with two Japanese boats from September 1997 – May 1998. An effort of 471,952 hooks caught…. [5]

o	11,743	Striped Marlin	(77.5%)
o	758	Sailfish and swordfish	(5%) How many swordfish?
o	2,652	Other fish	(17.5%) 12.5% shark

  This test was experimental for Bluefin tuna and they were fishing Northern Mexican waters, which is basically the same geographical area and target species that the US longliners want. About 95% of the test was by-catch directly affecting the already declining billfish and shark populations. At the very least this dispels the premise of those who say, "That you can't tell that longlining is bad here just because of its effect on the billfish populations in Chile and the Atlantic. The Pacific is different and catch components are different and you very probably won't hurt non-targeted billfish populations. We need to try longlining to see." Well, it's recently been tried and the results were disastrous.

- The number of registered commercial sports fishing boats, fishing Marlin in the core aggregation area around Cabo and the East Cape has increased from less than 75 in 1985 to over 800 in 2000.[6] Estimates are that there are 300 to 500 sports boats and yachts fishing each day in the core aggregation areas around Cabo and the East Cape, up about 1000% from mid 1980s. Unless otherwise demonstrated the precautionary approach mandates that the Council assume that present recreational effort alone on this stock is a significant source of mortality. No new gear or sources of fishing mortality should be allowed.

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[3] *Bob Enderson, Hawaii*
[4] *9 boats took 241,000 lbs of swordfish on 10-15 day trips in August of 2000*
[5] *January 1999 National Report of Mexico by National Institute of Pesca*
[6] Port Captain, Cabo San Lucas

- With the advent of GPS and Ocean Imaging, CPUE data that does not take into account increases in fishing efficiency, does not reflect the health of a fishery until stocks are already in trouble**.** For example, NMFS, CPUE data has not shown a drop off on the Blue Shark in Southern CA, nor on billfish in Mexico and Southern CA, even when anecdotal data shows 80-90% decreases in Blue Sharks and 40-50% decreases in Striped Marlin. Longliners, gill netters and others are now able to read ocean temperature breaks to .001 of a degree, watch breaks form, predict their path to structure and be there waiting a day or two before the fish arrive. The Cabo sports fleet working together using only GPS and VHF radio communication have managed to keep their CPUE at 1.0 to 1.3 marlin/fishing day for many years, even though the marlin populations in that area are only about 50% of what they were 15 years ago.

Summary:

- As a result of increased pressure from the sports fleets and proliferation of small longline and drift gillnet pangas (528 permits issued in La Paz, Mexico alone-1999) marlin and swordfish stocks along the Baja and Southern California coast will probably continue to decline even if longliners are kept outside the EEZ. Add to this the pressure from the Hawaiian fleet, which with declining swordfish stocks in their waters, will continue to increase pressure off the California and Northern Mexican coastline.

- Major work needs to done to accurately assess the status of stocks of pelagic fish. There are many 1000s of hours going into a HMSFMP (Highly Migratory Species Fish Management Plan) that will dictate fishing for many years to come and no time going into accurately assessing fish stocks. You cannot start out with bad to nonexistent baseline stock data and somehow come up with a good fish management plan.

- If American longline boats are allowed inside the EEZ. You can be assured that the Mexican Congress will allow their longline fishermen inside also. The NMFS and the Council needs to be working with Mexico's Dept. of PESCA (not just listening to them as in the past) to really protect the last and largest concentration of Striped Marlin in the Pacific. If Mexico and the US can keep their emerging longline fleets and existing drift gillnetters outside the EEZ the Stripped Marlin will have a chance. If not, at the present rate of decline they will be severely depleted within 10 years.

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Summary of American and Mexican Interviews on the Decreases in Fisheries in Sea of Cortez, The Pacific Side of the Baja and Southern California

Interviews with Mexican Fishermen

Name and Interview Date	Years Fishing and Main Fishing Area	Percent Decrease in Billfish Over Last 15 Years	Percent Decrease in All Fisheries In Last 15 Years Including Shark, Billfish, Pargo, Cabrilla and Grouper
Francisco Cota Ruiz 2000	15 - 20 years - Cabo	40%	Fishes billfish daily (250 days a year)
Juan Jose Arce 2000	15 years - Cabo	45 to 50%	Fishes billfish daily
Roberto Sandes 2000	15 years - Cabo	" a lot more than 50%"	Fishes billfish daily
Esteban Ortiz 2000	22 years - Cabo	50 to 60%	Fishes billfish daily
Juan Perez 2000	25 years - Cabo	50% - especially in billfish	Billfishes daily 50%
Abraham Marquez 2001	12 years - Los Brailles	30% in last 12 years	30% in the last 12 yr. part time commercial
Jesus Banaga 2001	27 - 28 years - La Playita	50%	Fishes billfish daily 50%
Marco Guluarte 2001	25 years - La Playita	"The billfish are almost gone."	Fishes billfish 100 days/year 50%
Eric Briesen 2001	15 years - La Playita	50%	50% American living in Mexico
Amadeo Marquez 2001	10 to 15 years - La Playita	"literally nothing"	Fishes billfish daily 40%
*Julio Castro 2001	19 years - Cabo	70%	Billfishes 250days/yr
*Benito Agundez 2001	20 years - Sea of Cortez	50 - 70%	Billfishes 250days/yr. sharks 75 to 80%
*Ricardo Agundez 2001	10 years - Cabo	30 to 70%	Billfishes 250 days/yr. sharks - 90%
Antonio Castro 2001	7 years - La Playita	- -	Commercial 50%
Marco Antonio Guluarte 2001	15 years - La Playita	- -	Commercial 20 to 30%
Jose Cruz Gonzalez 2001	46 years - La Playita	- -	Commercial about 60%
Monico Galban 2001	10 years - Los Barilles	- -	Commercial has seen decrease
Eduardo Castro 2001	- -	- -	Commercial 20 to 30% in last 10 years
Amador Talamantes 1996	10 years - Sea of Cortez	- -	A panga 10 years ago, would catch 200 to 300 kilos/day then, now takes 10 pangas to do the same thing.
Manuel Salvador Alvarez 1996	- 15 year - Sea of Cortez	- -	His fishing village has gone from 10 tons per day to 200 to 300 kilos per day.
Miguel Cota 1994	many years - Sea of Cortez	- -	"There has been a decrease."
Fernando Reyes and Castro Navarro 1994	at least 15 years - Sea of Cortez	- -	70 to 80%
Valentine Romero Murrillo 1994	at least 10 years - Sea of Cortez	- -	80%
Pantaleon Calderon 1994	30 to 40 years - Sea of Cortez	- -	"Fish are very scarce now." Before you would catch a ton a day, now it takes 10 days to catch a ton.
Manuel Valdez 1994	30 to 40 years - Sea of Cortez	- -	"You can't compare now with then. Now you have to work hard just to eat."

Francisco Javier de la Toba 1994	at least 10 to 15 years - Sea of Cortez	- -	"The catch is much smaller now."
Cruz de la Toba Amador 1994	35 years - Sea of Cortez	- -	"At first, there were a lot of fish. Now there is almost nothing."
Rafael Iglesias 1996	50 years - Sea of Cortez, fishes on a converted shrimper and is from Topo.	- -	Noticed a big decrease last 10 years. Our boat would could catch 1.5 tons/daythen, now we catch 2 tons in 10 days
Javier Magaña 1996	- -	- -	"Yes, it has gone down a lot."

Interviews with American Fishermen and Divers

Name and Interview Date	Years Fishing or Diving And Area Commented Upon	Percent Decrease in Billfish Over Last 15 Years	Percent Decrease in All Fisheries In Last 15 Years Including Shark, Billfish, Pargo, Cabrilla and Grouper
Marty Snyderman	30 years - Southern California	- -	shark population has dropped almost 90%
Howard Hall	30 years - Sea of Cortez	- -	shark population has dropped 80% or worse
Pete Groesbeck	30 years - Southern California	50% - 60%	shark population has dropped 95%

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Samples of Newest Surveys Being Done With the Help of David Holts, NMFS

Julio Castro -


Julio Castro

Q: What is your fishing background? What makes you a knowledgeable source of information?

A: Since I was a small boy fishing was a great diversion for me. I grew up with the idea of continuing to fish throughout my childhood. When I was 16 years old I started working at Rancho Bueno Vista, where I had the chance to start in sportsfishing and to come to know to perfection what it is to be a "fisherman." My first 5 years. I was fishing exclusively in the Sea of Cortez, but due to severe fishing problems I had to migrate to Cabo San Lucas, where I have been for the past 14 years and fortunately fishing has been very good to me there.

Q: How long have you been fishing in the waters you are talking about?

A: 19 years. I fish from Cabo Falso to the Gordo Banks.

Q: Do you own your boat or fish on someone else's?

A: I fish on a boat called "Andrea," that belongs to Pisces Fleet.

Q: Do you keep a fishing record or log?

A: Sometimes, but they have records in the office.

Q: What percentage change have you seen in the numbers of the following pelagic fish (striped marlin, blue marlin, sailfish, blue sharks, mako sharks, thresher sharks, dorado, yellowtail) in the areas you fished in the last 15 years?

A: Striped marlin, blue marlin, sailfish, dorado and shark, have dropped 70%.

Q: Has the average size of the striped marlin caught dropped in the last 15 years?

A: Comparing 15 year ago to today, the fish weighed 150 to 180 pounds then and now they are 90 to 100 pounds.

Q: What about the average size of the sailfish caught?

A: The same as for marlin.

Q: Give as many examples as you can of how fishing used to be 15-20 years ago versus what it is today? Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above.

A: 15 years ago you found fish wherever you wanted. Whatever you wanted to catch, you caught and there wasn't so much useless killing of fish.

Q: Do you have to travel further today to get fish than you did 15 years ago?

A: 15 years ago we wouldn't go out more than 10 miles, now we sometimes have to go 35 to 40 miles out.

Q: How many marlin have you caught in your fishing career, or in a year with an old hook in it?

A: About 20, or one a year.

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Benito Agundez -


Benito Agundez

Q: What is your fishing background? What makes you a knowledgeable source of information?

A: I started fishing approximately 20 years ago. I consider myself a source of knowledge because of the day to day experience I have gained. I know how the fishing was 20 years ago and how it has diminished over the years, up until the present day.

Q: Where do you do most of your fishing?

A: I fish at the southernmost part of the Baja Peninsula in the Sea of Cortez and Pacific Ocean.

Q: How long have you been fishing in the waters you are talking about?

A: About 20 years. I fish about 280 days a year.

Q: Do you own your boat or fish on someone else's?

A: The boat I fish on belongs to a company called Barcos Piscis, (Pisces Fleet).

Q: Do you keep a fishing record or log?

A: I do keep records, but they are not exact, the office keeps records of my catches for me.

Q: What percentage change have you seen in the numbers of the following pelagic fish (striped marlin, blue marlin, sailfish, blue sharks, mako sharks, thresher sharks, dorado, yellowtail) in the areas you fished in the last 15 years?

A: I believe that striped marlin has declined 65-70%. Blue marlin is possibly about 50% of what it was before. Sailfish have declined even more than the blue marlin. With dorado and tuna there not as much decline as the aforementioned species, but they have declined considerably. Sharks, all types of sharks, are the ones whose numbers are most damaged; I would say that there is only 20 -25% left of what there was before, so a decline of 75 to 80%.

Q: Has the average size of the striped marlin caught dropped in the last 15 years? What about the average size of the sailfish caught?

A: The weight on all species has dropped noticably, especially the striped marlin. In past times many were caught that were over 200 pounds. Before, sailfish weighed 100 pounds or more and now the average catch on a sailfish is 60 to 70 pounds.

Q: Give as many examples as you can of how fishing used to be 15-20 years ago versus what it is today? Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above.

A: In the different billfish species there are a lot of differences. 15 to 20 years ago swordfish was found in acceptable quantities, 35 to 40 per year. Today we only see 5 or 6 per boat per year. With the other species, such as tuna, dorado , roosterfish, etc., there have been changes but they are not as noticable.

Q: Do you have to travel further today to get fish than you did 15 years ago?

A: Before our work area was no more than 20 miles from port. Today we frequently go out 35 to 40 miles.

Q: How many marlin have you caught in your fishing career, or in a year with an old hook in it?

A: Approximately 40, the majority of which where the type of hook we use for sportsfishing, say about 30. The rest were the type used by longliners.

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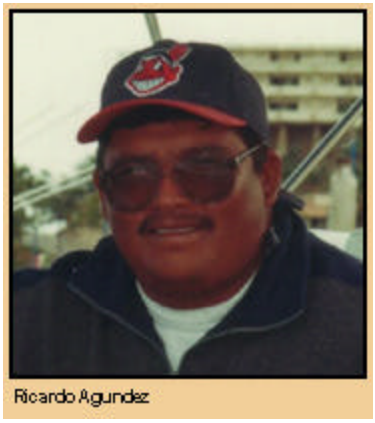
Ricardo Agundez -


Ricardo Agundez

Q: What is your fishing background? What makes you a knowledgeable source of information?

A: I started 10 years ago with Pisces Fleet. During that time I was a deck hand for one year, before stepping up to being a captain , which I've been doing for 9 years. I have had good and bad experiences, which I feel will help those that will follow behind me.

Q: Where do you do most of your fishing?

A: The southern tip of B.C.S. or the southern tip of the Baja.

Q: How long have you been fishing in the waters you are talking about?

A: Approximately 10 to 11 years. I fish 240 to 250 days a year.

Q: Do you own your boat or fish on someone else's?

A: I work on a boat called "Adriana I," which belongs to Pisces Fleet.

Q: What percentage change have you seen in the numbers of the following pelagic fish (striped marlin, blue marlin, sailfish, blue sharks, mako sharks, thresher sharks, dorado, yellowtail) in the areas you fished in the last 15 years?

A: For striped marlin, a drop of 30%; blue marlin a drop of 40%; sailfish a 70% drop; sharks of all types a 90% drop.

Q: Has the average size of the striped marlin caught dropped in the last 15 years?

A: About 15 years ago weights were varied, a good sized fish would have been 160 to 180 pounds. Today a good-sized fish is between 100 and 140 pounds.

Q: What about the average size of the sailfish caught?

A: In the past 80 to 100 pounds, now the few that remain are from 40 to 70 pounds.

Q: Give as many examples as you can of how fishing used to be 15-20 years ago versus what it is today? Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above.

A: Before fishing was very successful and plentiful Before there were no limits as to how many marlin could be killed and some captains killed 2 to 3 marlin per day. Before there was no commercial exploitation. Today, we should not only preserve certain species, but we should do something about the sportsfishing boats that catch fish indiscriminately and then sell their catch. Many of these boats doing this belong to well-know and important companies. It is not right that some of us try to preserve marlin and other species, while others don't help us in the slightest, killing one or as many fish as they can, a day. It is really important that fishermen and boat owners help each other to preserve our natural resources and our jobs for the future. We should not make the same mistakes, that have been made in other fishing ports.

Q: Do you have to travel further today to get fish than you did 15 years ago?

A: Before we only had to go out 2or 3 miles. Today, we sometimes have to go as far as 35 miles out and sometimes we don't have any luck.

Q: How many marlin have you caught in your fishing career, or in a year with an old hook in it?

A: About 10 a year.

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A Brief Biography of the Founder of SeaWatch

Mike McGettigan has always had an interest in the Sea. He worked summers commercial fishing for salmon in the Columbia River while going to college. After graduating from Portland State University in 1965, Mike worked as a production Engineer for Tektronix and Omark Industries. He went into business for himself in 1967. In 1973 he bought his first boat in Mexico, spending that year cruising through the Sea of Cortez. In 1977 he came back to the Sea of Cortez on the Ambar I, the first of three boats he has had in the Sea. Since then, he has spent 25 years fishing and diving the waters between Costa Rica and San Diego on a full time basis. He has traveled over 350,000 miles in these waters and has made over 130 trips to the Revillagigedo Islands, which are located 250 miles south of Cabo San Lucas. He is an ardent free diver and spearfisherman and co-produced the classic video, "Blue Water Hunter". The famous documentary on the Sea of Cortez by Howard Hall " Shadows in a Desert Sea" and Stan Waterman's biography, "The Man Who Loves Sharks" were also made on his boat.

After watching first hand the rapid destruction of many fisheries in the Sea of Cortez during the late 1970s and 1980, McGettigan founded Sea Watch, an organization dedicated to exposing the destructive and often illegal fishing practices in Mexico's Sea of Cortez. Their initial work lead to many articles, TV reports and eventually led to a major expose by the Sacramento Bee. Sea Watch work at the Revillagigedo Islands led to protection for the Giant Pacific Manta and Whale Shark and helped focus the attention of Mexico on this beautiful Eastern Pacific Archipelago. Mexico has since made these Islands a protected biosphere and his work was recognized in the Rolex Awards for Enterprise in 1996. His organization initiated the first artificial Reef program in the Sea of Cortez and has kept up constant surveillance at the Islands reporting and publicizing illegal fishing. Last year they were the first to report large numbers of longliners working off Mexico's Pacific coast. Mr. McGettigan has a great working knowledge of what is happening in these Eastern Pacific waters and is most concerned about the dramatic decreases in both reef and pelagic fisheries that has taken place in the last 25 years.

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PELAGIC FISHING SURVEY

Please help by filling out this survey. The NMFS/P Council are looking at allowing longliners inside the EEZ off California. Their Catch/unit effort (CPUE) data shows no decrease in blue sharks or billfish. We have to accurately record changes in pelagic fisheries as seen through the eyes of people that have been fishing Southern California and/or Mexican waters with frequency over the last 15 years. This anecdotal data is the only good information they will have to make decisions.

There are two ways to do the Survey:

1) Do the Survey online.

This will take between ten and twenty minutes, not because of the length of the survey, that should only take about ten minutes, but because of the way the Internet processes two-way communications. You will find yourself spending less time answering the questions than waiting for the Internet to record them and allowing you to go to the next question. Further, we want to make sure what you send is what you mean to send, so you have to spend a certain amount of time for the Internet to send all your answers back to confirm they are correct. Nevertheless, this is the most direct and simple way to help SeaWatch. All you have to do is follow the directions.

2) Download the Survey as a Word document, fill it out and email it to SeaWatch.

If you have Microsoft Word on your computer, you can "download" the survey to a Word document, save it, fill it out and then email to us at SeaWatch. Normally, this takes longer and involves more steps than just doing the survey on the Internet. On the other hand, "normally" may not apply to you and if your system and your Internet connection is slower, downloading the survey might take less time. We don't care if you use this method or not, we only care about you filling it out and getting it to us.

To Fill Out The Survey On the Internet - Click Here!

To Do The Survey By Downloading a Word Document and Then Emailing It Back To Us...Follow the Directions Below

1) Click Here

2) Save the File somewhere on your hard drive

3) Open the file when you are "offline" and complete the survey

4) Save the file and email it to: seawatch@seawatch.org with an electronic picture attached, if you have one.

Whichever Way You Choose...Thanks For Your Help!

These questions were written with the help of David Holts of the NMFS (National Marine Fisheries Service).

Home Page The Destruction of The Sea Of Cortez How You Can Help

E-Mail Us Useful Links

Dedicado a un Mar de Cortez Sano

Seleccionado por Rolex como uno de los mejores cien proyectos ecologicos en el mundo

¿Adonde Se Han Ido Todos Los Picudos?

En una entrevista de los pescadores deportivos y comerciales de Baja California Sur el misterio de "?Donde se han ido los picudos?" esta partialmente revelada. ?Usted que cree? Por favor mande sus commentarios a www.seawatch.org para ser participante en una organizacion dedicada a la preservacion de las especias en el Mar De Cortez.

Francisco Cota Ruiz

P: ¿Cual es su nombre por favor?
R: Francisco Cota Ruiz (Capitán/ pesca deportiva)
P: ¿Se podría decir que la pesca del marlin, la pesca en general ha disminuido en los últimos 5 anos?
R: Definitivamente, aquí le puede preguntar a cualquier capitán de lancha o marinero y te lo puede decir. Independientemente de que ha disminuido, ahora se ha ido mucho mas lejos y tenemos que ir mas lejos por ellos que hace cinco años par atrás.
P: ¿En los últimos cinco a diez años que porcentaje ha disminuido?
R: Yo diría unos 40%.

P: ¿Cual es su nombre?
R: Juan Jose Arce (Capitan/ pesca deportivo)
P: ¿Cuantos años tiene usted en el mundo de la pesca deportiva?
R: Hasta ahorita yo llevo alrededor de 15 años.
P: ¿En los ultimos 15 años podiamos decir que ha disminuido la pesca, como se venia capturando unos 10 años par aca? ?Y en que porcentaje?:
R: Definitivamente si, ha disminuido en gran cantidad, yo creo que todo mundo lo ha notado. Yo de que recuerde, fueron unos cinco anñs par atrás los que fueron verdaderamente una pesca excelente que se puede considerar.
P:¿Que tanto se ha disminuido?
R: Pues, yo creo que en un 45 a 50%.


Juan Jose Arce


Roberto Sandes

P: ¿Cual es su nombre?
R: Roberto Sandes (Capitan/pesca deportivo)
P: ¿Cuantos años tiene usted trabajando en la pesca deportiva?
R: 15 años.
P:¿En esos 15 años ha notado que hasta ahorra se ha disminuido la captura de las especias que ustedes suelen pescar?
R: Si, si he notado que ha bajado la pesca.
P: ¿Me puede decir que tanto ha bajado? Por ejemplo si ante se pescaba 100, cuantos se pesca ahorra?
R: Bueno, si antes sí se pescaba tres, ahora se pesca uno si bien nos va. Se ha bajado mucho. Como 50%.

P: ¿ Cual es su nombre?
R: Esteban Ortiz (capitan/ pesca deportiva)
P: ¿ Sr. Ortiz, desde hace cuanto usted se dedica a la pesca deportiva?
R: Desde hace como 22 años.
P: ¿ En estos últimos 10 años ha notado que ha venido disminuendo y en que porcentage?
R: En los últimos 3 años ha reducido 50 – 60%.
P: ¿A que crees que se deba?
R: Hay barcos piratas, dicen. Quien sabe?


Esteban Ortiz


Juan Perez

P: ¿Cual es su nombre?
R: Juan Perez (pesca deportiva)
P: ¿Y cuanto tiempo lleva usted en el mundo de la pesca deportiva?
R: 25 años
P: ¿En estos 25 años ha notado usted disminución de la pesca deportiva en los últimos 5 -10 años? En que porcentaje se ha disminuido?
R: En casi un 50% sobre todo el marlin.
P: ¿Y a que crees se deba esto?
R: Muchas veces por barcos que vienen a pescar de otras partes.

P: ¿Cual es su nombre?
R: Jose Talamantes Romero (Comercial)
P: ¿Y de donde es?
R: De aquí de la Noria.
P: ¿Y desde hace cuanto que se dedica a la pesca?
R: Aproximadamente 6 años.
P: ¿Cree usted que ha disminuido la pesca?
R: Pues mira, si como no. Aquí entran muchos barcos. Sobre todo de Topo, Guaymas, La Paz y se llevan muchas toneladas de pescado.


Jose Talamantes Romero

Miguel Cota de Agua Verde

P: ¿Cual es su nombre?
R: Miguel Cota de Agua Verde. (Pesca comercial)
P: ¿Usted tiene mucho tiempo aquí pescando. Siente que ha bajado la pesca?
R: Pues si, si se ha bajado.
P: ¿Que puede ser la causa?
R: Pues hay mucha pistoleada, chinchorro, red

P: ¿Cuales son sus nombres?
R: Fernando Reyes y Castro Navarro.


Fernando Reyes

P: ¿ De un año par aca, la pesca ha desminuido o sigue igual. Como lo sienten?
R: Vienen muchos barcos de afuera, de guaymas, de Mazatlan, de Sinaloa. Y si afecta porque trabajan con chinchorros. El problema es que quedan aveces atoradas en las piedras en el fondo. Si afecta.
P: ¿Ustedes se acuerdan hace quince años como estaba la pesca. Creen que ha bajado?


Castro Navarro

R: Hace quince años habia mucho, habia cantidad de producto. Habia veces que en esta ensenada sacaban hasta 15 – 20 toneladas de jurel, sierra.
P: ¿Si hicieramos un promedio, que porcentaje ha disminuido?
R: Un 70 o 80 %.

P: Aquí estamos hablando con el delegado de Cortez, quien se llama Valentin Romero Murillo. ¿Nos puede decir si se ha disminuido la pesca en los ultimos diez años? ¿Que comparacion se puede hacer?
R: Totalmente ha disminuido. Por lo menos un 80%. Una de los principales problemas es ese; que no hay pesca, porque aquí todos vivimos de la pesca.


Valentin Romero Murillo


Pantaleon Caleron

P: ¿Cual es su nombre?
R: Pantaleon Calderon (pesca comercial)
P: ¿Sr. Calderon, como siente que ha venido dando la pesca por aquí? ¿En los ultimos diez años se ha cambiado mucho?
R: Está muy escaso el pescado. No sacamos ni para los gastos.
P: ¿En porcentaje cuanto se ha bajado?
R: Bueno, en 10 dias sacamos una tonelada ahora. Hace 10 años sacamos 4 toneladas en 3 o 4 dias.

P: ¿Cual es tu nombre?
R: Manuel Valdez (Pesca comercial)
P: ¿Se recuerda cuando era joven, como estaba la pesca?
R: Si muy bien. No se puede comparar entonces a lo de ahorita. Ahorita hay que luchar por la comida.


Manuel Valdez


Francisco Javier de la Toba

P: ¿Como se llama?
R: Francisco Javier de la Toba (pesca comercial)
P: ¿Siente usted que ha bajado la pesca en los ultimos 10 – 15 años?
R: Si ha bajado mucho.
P: ¿Y porque crees que es esto?
R: Mucho pescador, se usan redes y se quedan pegadas abajo.

P: ¿Como se llama?
R: Cruz de la Toba Amador (pesca comercial)
P: ¿Cuantos años tiene pescando?
R: Como 35 años pescando en Tambabiche.
P: ¿Usted se acuerda cuando era mas joven, hace diez años? Como cuanto sacaba, mas o menos?
R: Primero salia bastante pescadito. Ahora casi ya no sale.
P: ¿A que cree que se deba esto?
R: No, no se.


Cruz del la Toba Armador


Rafael Iglesias

P: ¿Usted, como se llama?
R: Rafael Iglesias (Pesca Comercial)
P: ¿Don Rafael, cuantos años tiene usted pescando?
R: Como cincuenta años.
P: ¿Hace 10 años o 5 como cuanto sacaba?
R: En 10 dias sacabamos 12 – 14 toneladas. Habia mucho.
P: ¿Desde cuanto tiempo notaste que comenso a bajar?
R: Desde hace 10 años, mas o menos. Desde que empezaron con los chinchorros.


Javier Magana

P: ¿Cual es su nombre?
R: Javier Magaña (pesca comercial)
P: ¿Oye, Javier, muchos dicen que la pesca ha bajado. Que dice usted?
R: Si, ha bajado mucho. Porque se usa mucho chinchorro.


Manuel Salvador Alvarez

P: ¿Como se llama?
R: Manuel Salvador Alvarez . (pesca comercial)
P: ¿Hace como 10 años, cual era la cuota diaria de pescado?
R: Se capturaba mucho pescado aquí. Principalmente la sierra, la cabrilla, huachinango y pargo.
P: ¿Que tanto porcentaje ha bajado? Si antes se capturaban 10 toneladas por dia ahora cuanto se captura?
R: Unos dos, trescientos kilos. Sobre todo, debido a problemas con el chinchorro. El problema es que el chinchorro se queda atorado abajo de las piedras y se siguen atrapando pescados allí.


Amador Talamantes

P: ¿Como se llama?
R: Amador Talamantes (pesca comercial)
P: ¿Desde cuando se hace usted esta actividad?
R: Aquí en Agua Verde yo ya tengo 9 años.
P: ¿En una semana normal de trabajo cuantas toneladas se sacaban?
R: Yo le voy a hablar de hace 2 años para atrás. Pangas que sacaban 2 o 3 cientos kilos por día. Hoy diez o quince pangas juntas; es lo que sacan.


Monico Galban

P: ¿Nos encontramos con Monico Galban aquí en Liguí. ¿Don Mónico, cuantos años tiene usted aquí?
R: Como 10 años.
P: ¿En esos 10 años ha visto usted una disminución de la pesca?
R: Pues si, como todo si se acaba, pero es debido a que hay mas lanchas ahora.

En Los Barriles

Abraham Marquez
P: ¿Cuantos años pescando?
R: Como 12...
P: ¿En estos doce años que estás pescando, has notado alguna disminucion en la cantidad de pesca que obtenían en la temporada?
R: Sí, hay veces que se escasea mucho el pescado, en temporada por ejemplo la tuna es la que principalmente se ha escaceado, ya no entra igual como en otros años..
P: ¿A que crees que se deba?
R: Depende para allá afuera los barcos,como estee la pesca los barcos pesqueros de tuna...
P: ¿Ustedes han detectado barcos comerciales grandes atuneros que han estado pescando en esta zona?
R: Aveces si se miran aquí cerca de la costa, los barcos y también se han encontrado cimbras con boyas muy grandes, millas y millas de boyas y también afecta mucho, el marlín también lo pescan así y todo eso...


Abraham Marquez

P: ¿En que porcentaje ha disminuido?
R: 30 % o menos por que antes entraba más el pescado aquí, en esta parte de aquí del Mar de Cortéz ha habido mucho pescado pero ya ha bajado, se nota...

Eduardo Castro


Eduardo Castro

P: ¿En los últimos 20 annos digamos, 10 años ha notado alguna disminución en lo que antes pescaba a la actualidad?
R: No mucho, pero si se ha notado algo.
P: ¿En que porcentaje podríamos decir que ha disminuido, si es que lo hay?
R: 20 ó 30 por ciento creo.

En La Playita:

Jesús Bañaga
P: ¿Cuantos años tiene usted pescando señor?
R: Desde que tenía yo unos diecisiete años.
P: ¿De ese tiempo a la fecha, ha notado que haya disminuido de alguna forma?
R: Sí, como no...
P: ¿A que cree que se deba?
R: Será principalmente la carnada, antes se pescaba aquí cerquita ahora ya no se encuentra. Se augura que fué por los barcos camaroneros que en el arrastre se lleban todo...
P: ¿En cuanto a los picudos o los peces grandes?
R: En aquel tiempo si habia mucho, mucho , mucho,pero pues no se a que se deba por que anteriormente metian unos barcos japoneses que cuando yo estaba en lancha de pesca deportiva los miraba que andaban afuera y tenian unas lin eas larguisimas, como de unos cuatro o cinco kilometros, posible hasta más y todos tenian sus anzuelos o carnadas, ahí lo que caía era tiburón, marlin, de todo. Y esos se lo llevaron.
P: ¿En que porcentaje disminuyó la cantidad de peces?
R: Yo calculo que un cincuenta porciento, por que si es mucho...

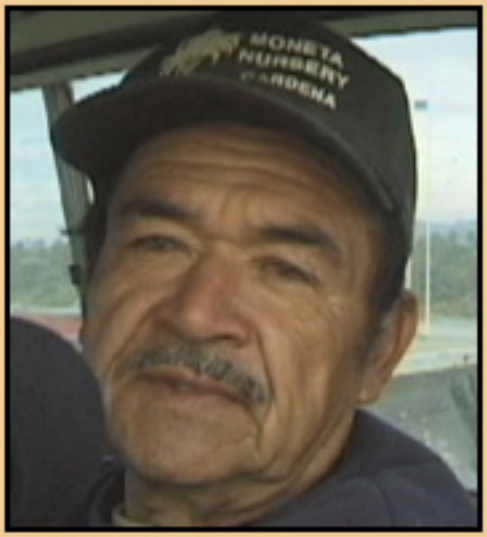

Jesus Banaga

José Cruz González


Jose Cruz Gonzalez

P: ¿Cuantos años tiene pescando señor?
R: 46 años...
P: ¿En estos años de los primeros años que usted pescaba a los de ahorita usted ha notado que ha disminuido de alguna forma la cantidad de pesca, que usted obtenia en ese entonces hasta ahorita?
R: Si mucho, cuando pescabamos el tiburon, cabrilla, pargo, por los barcos, se lleban todo el product, ahora los yates han hecho mucho destrozo, agarran pescado y se ponen a destazar en los bajos donde agarran el pescado...
P: ¿En que porcentaje ha disminuido la pesca de aquel entonces a ahorita?
R: Como al 60%.

Marco Guluarte
P: ¿Cuantos años tiene pescando?
R: 25 años pescando.
P: ¿En estos 25 años usted ha notado que pescaba lo mismo que ahorita o ha disminuido?
R: Hace 25 años había más especies de pescado, había mas manera de pescar, había más movimiento, se ha escaseado principalmente la pesca comercial que había, era pur a pesca de tiburón y hoy en día, ni tiburón por que todo el tiburón se lo han llevado los barcos japoneses o los atuneros matan mucho tiburón, y no lo aprovechan por que principalmente lo tiran al agua todo y pesca de turismo, la pesca deportiva, también el mismo caso el marlin, hace 25 años había mucho marlin, mucho pez de pesca deportiva y también se lo llevan como pesca comercial, la pesca de turismo, y se está acabando.



Marco Guluarte

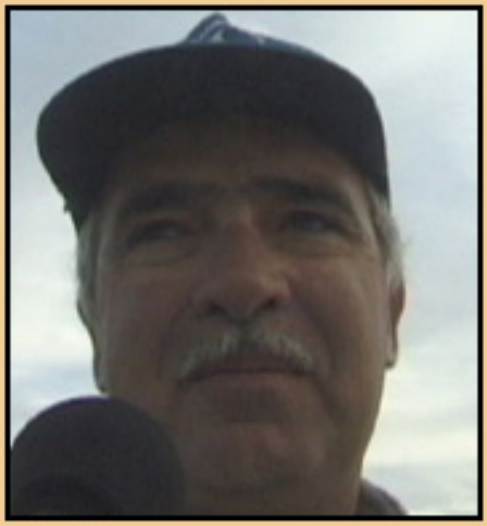
P: ¿Y en que porcentaje podemos decir que ha disminuido?
R: Pues ha disminuido como más del 50 % lo que ha disminuido, por que hace 25 años uno hiba a unas 5 o 6 millas y ya encontraba el picudo ya, en contraba el dorado, pero hoy no, tienes que ir a 30, 40 millas sales para encontrar la especie deportiva y ya no hay tanto como antes, y además hace 25 años no había tanta pesca deportiva, pero hoy hay el doble de embarcaciones...

Marco Antonio Guluarte


Marco Antonio Guluarte

P: ¿Cuantos años dedicado a la pesca?
R: Yo tengo aproximadamente 15 años pescando...y la pesca si ha disminuido, por que antes había mucho pescado de fondo, había el pescado del huachinango, la cabrilla, el tiburón y todo eso ha disminuido por falta de protección por que ha habido muchos barcos, sistemas de redes de arrastre, ha venido gente de Sinaloa, de otras ciudades a poner redes y han matado todo el pescado y ahorita está muy baja la pesca...
P: ¿De 15 años a la fecha que porcentaje se puede decir que ha disminuido?
R: Pués que yo tengo ha disminuido como un 20 % no ha disminuido mucho pero si un 20 o 30 % se ha notado que ha disminuido mucho, por el sistema de pesca de los barcos camaroneros que han venido...

Erick Briesen
P: ¿Usted es residente aquí en la playita?
R: Si, vivo aquí en la playita.
P: ¿Cuantos años tiene dedicado a la pesca?
R: Tengo 15 años trabajando aquí...
P: ¿En estos 15 años usted ha notado o detectado que la pesca en general ha disminuido en relacion a otros años?
R: Sí, varias especies sí, por ejemplo el marlin, hay menos marlin y la pescadería, la sierra, pez gallo, pargo, de fondo cabrilla, ...
P: ¿A que cree que se deba que ha disminuido?
R: Por la comercial, por las redes por éste, la pesca deportiva casi no afecta mucho pero las redes comerciales pescando también mucho aquí la long line, necesitan hacer algo...
P: ¿En que porcentaje aproximadamente ha disminuido?
R: Más que 50 % ...


Erick Briesen

Antonio Castro
P: ¿ Cuantos años tienes pescando?


Antonio Castro

R: Pescando como unos siete años...
P: ¿En estos siete años, tu has notado de alguna forma o has escuchado que ha disminuido la pesca que se obtenía en años anteriores, con el tiempo se ha disminuido?
R: Sí, como no.
P: ¿Meas ó menos en que porcentaje?
R: Pués de perdida un 50 %
P: ¿A que crees que se deba?
R: Tal vez mucho barco, mucha masacre, mucha matanza, por las redes me imagino que también hay muchas redes es lo que más mata, la red.
P: ¿A ustedes les a afectado directamente en su trabajo?
R: La red si, como no, si por que ellos agarran todo, somos deportiva nosotros, ellos se llevan deportva de todo se llevan, lo que se encuentran hasta lo que no se comen se llevan, lo matan...

Amadeo Marquez
P: ¿Cuantosa años tiene pescando?
R: Como unos diez años, quince años.
P: ¿En estos años ha notado una disminución de la pesca, en la cantidad que pescaban antes a lo que se pesca ahora, es la misma o ha disminuido?
R: Antes yo pescaba comercial, allá con mi papá a matar tiburón, entonces había mucho, pero ahora ya no, los barcos, las redes, todo eso comercial pero todo el marlin, el dorado todo eso ya va para abajo...
P: ¿En que porcentaje ha disminuido la pesca de picudos?
R: Un 60 %, los barcos todos esos barcos atuneros, japoneses todo eso llevan ahí, todo se lleban, y nos afectan mucho eso ...


Amadeo Marquez

Modesto Miranda
P: ¿Cuantosa años tiene pescando?
R: Mas ó menos como unos 9 ó 10 años.
P: ¿En este tiempo usted a detectado o ha visto que ha disminuido de alguna forma la pesca en general en especial las especies grandes?
R: Sí unpoco las mas grande si lo que es el marlin si ha disminuido un poco.
P: ¿Ha que se deberá esta disminución?
R: Pues que puedo decirle por una parte pues lo han comercializado yo creo y por otro lado también hay muchas embarcaciones ya no es como antes ahora son muchas las embarcaciones que pescan este tipo

de pesca.
P: ¿Que porcentaje oncidera más o menos concidera que ha disminuído?
R: Un 50 % más o menos.

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Dedicated to a Healthy Sea of Cortez

Selected By The Rolex Awards For Enterprise as One of the Top 100 ecological projects worldwide

Summary of American and Mexican Interviews on the Decreases in Fisheries in Sea of Cortez, The Pacific Side of the Baja and Southern California

If you've been fishing for 15 years or more in the same area, please help us by filling our our survey.

Interviews with Mexican Fishermen

The full Mexican Interviews

Name and Interview Date	Years Fishing and Main Fishing Area	Percent Decrease in Billfish Over Last 15 Years	Percent Decrease in All Fisheries In Last 15 Years Including Shark, Billfish, Pargo, Cabrilla and Grouper
Francisco Cota Ruiz 2000	15 - 20 years - Cabo	40%	Fishes billfish daily (250 days a year)
Juan Jose Arce 2000	15 years - Cabo	45 to 50%	Fishes billfish daily
Roberto Sandes 2000	15 years - Cabo	" a lot more than 50%"	Fishes billfish daily
Esteban Ortiz 2000	22 years - Cabo	50 to 60%	Fishes billfish daily
Juan Perez 2000	25 years - Cabo	50% - especially in billfish	50%
Abraham Marquez 2001	12 years - Los Brailles	30% in last 12 years	30% in the last 12 years
Jesus Banaga 2001	27 - 28 years - La Playita	50%	50%
Marco Guluarte 2001	25 years - La Playita	"The billfish are almost gone."	more than 50%
Eric Briesen 2001	15 years - La Playita	50%	50%
Amadeo Marquez 2001	10 to 15 years - La Playita	"literally nothing"	40%
Julio Castro 2001	19 years - Cabo	70%	- -
Benito Agundez 2001	20 years - Sea of Cortez	50 - 70%	sharks - 75 to 80%
Ricardo Agundez 2001	10 years - Cabo	30 to 70%	sharks - 90%
Antonio Castro 2001	7 years - La Playita	- -	50%
Marco Antonio Guluarte 2001	15 years - La Playita	- -	20 to 30%
Jose Cruz Gonzalez 2001	46 years - La Playita	- -	about 60%

Monico Galban 2001	10 years - Los Barilles	- -	has seen decrease
Eduardo Castro 2001	- -	- -	20 to 30% in last 10 years
Amador Talamantes 1996	10 years - Sea of Cortez	- -	A panga 10 years ago, would catch 200 to 300 kilos/day then, now takes 10 pangas to do the same thing.
Manuel Salvador Alvarez 1996	- 15 year - Sea of Cortez	- -	His fishing village has gone from 10 tons per day to 200 to 300 kilos per day.
Miguel Cota 1994	many years - Sea of Cortez	- -	"There has been a decrease."
Fernando Reyes and Castro Navarro 1994	at least 15 years - Sea of Cortez	- -	70 to 80%
Valentine Romero Murrillo 1994	at least 10 years - Sea of Cortez	- -	80%
Pantaleon Calderon 1994	30 to 40 years - Sea of Cortez	- -	"Fish are very scarce now." Before you would catch a ton a day, now it takes 10 days to catch a ton.
Manuel Valdez 1994	30 to 40 years - Sea of Cortez	- -	"You can't compare now with then. Now you have to work hard just to eat."
Francisco Javier de la Toba 1994	at least 10 to 15 years - Sea of Cortez	- -	"The catch is much smaller now."
Cruz de la Toba Amador 1994	35 years - Sea of Cortez	- -	"At first, there were a lot of fish. Now there is almost nothing."
Rafael Iglesias 1996	50 years - Sea of Cortez, fishes on a converted shrimper and is from Topo.	- -	Noticed a big decrease last 10 years. Our boat would could catch 1.5 tons/daythen, now we catch 2 tons in 10 days
Javier Magaña 1996	- -	- -	"Yes, it has gone down a lot."
Abraham Marquez - 2001	12 years in Sea of Cortez	- -	Fishing has decreased by 30% in last decade
Eduardo Castro - 2001	20 years in Sea of Cortez	- -	20% to 30% decrease in last twenty years
Jesus Banaga - 2001	25 years in Sea of Cortez	- -	Fishing has decreased 50%
Jose Cruz Gonzalez - 2001	46 years in Sea of Cortez	- -	Fishing has declined about 60%
Marco Guluarte - 2001	15 years in Mexico	- -	Ffishing has decreased by more than 50%
Marco Antonio Guluarte - 2001	15 years in Mexico	- -	All fisheries down at least 20% to 30%
Eric Briesen - 2001	15 years in La Playa	All have declined	Fishing has been reduced by 50%
Antonio Castro - 2001	7 years in Mexico	- -	Ffishing is down 50%
Amadea Marquez - 2001	10 to 15 years in Mexico	60%	Literally left of some fisheries for us
Julio Castro - 2001	20 years in Sea o fCortez	70%	Fish sizes have dropped in half

Benito Agundez - 2001	20 years in Sea o fCortez	50% to 70%	Pelagics are much smaller in size
Ricardo Agundez - 2001	10 years in Sea of Cortez	30% to 70%	Sharks have decreased by 90%

Interviews with American Fishermen and Divers

The full American Interviews

Name and Interview Date	Years Fishing or Diving And Area Commented Upon	Percent Decrease in Billfish Over Last 15 Years	Percent Decrease in All Fisheries In Last 15 Years Including Shark, Billfish, Pargo, Cabrilla and Grouper
Tony Berkowitz	17 years - Sea of Cortez	50% - 60%	Tuna populations have dropped 25% - 40%, Sharks 40% - 60%
Terry Maas	35 years - Mexico and So. California	- -	Tuna populations have dropped 50% - 70%, blue sharks in So. Cal 99%
Richard Hoffman	23 years - Panama to California	30% - 75%	Tuna populations have dropped 20% - 40%, mako sharks 40%
Ron Mullins	30 years - Mexico and So. California	- -	Yellowtail now much smaller in size
David Purcell	boat captain 10 years - Sea of Cortez	25% - 50%	Tuna populations have dropped 25% - 40%, maco sharks 60% in So. Cal.
Jim Mabry	45 years Mexico, Cal. and Hawaii	- -	Shark population has dropped 50% - 75%
Steve Murphy	20 years Baja and So. California	40% - 50%	All populations down 20% to 70%
Robert Caruso	40 years in So. California	- -	Tuna populations have dropped 50% - 70%, blue sharks 60%
Brian Quinn	10 years at Revillagigedo Islands	- -	Wahoo and tuna smaller and lower in number
Brian Yoshikawa	10 years at Revillagigedo Islands	- -	No really big fish anymore
Gerald Lim	10 years at Revillagigedo Islands	- -	Wahoo and tuna smaller and lower in number
Dave Elm	30 years in So. California	50%	Sharks have decreased 90%
Carl Robbins	40 years around San Diego, Ca.	30% - 60%	Most fisheries depleted in both numbers and size
Jeff Kingsley	20 in So. California, 15 years in Mexico	50% - 60%	Sharks reduced 50% to 60%
Burleigh Brewer	40 years in So. California and Mexico	30% - 40%	Pelagics are much smaller

Charlie Johnson	50 years	90%	Average striped marlin 25 poounds lighter
Dean Plant	20 years in So. California and Mexico	50%	Shark populations down 60% to 90%
A. Michael Moutlon, M.D.	40 years in So. California	40% to 50%	All fisheries down 15% to 70%
Doug Wright	35 years	50%	Sharks 80% to 99%
Greg Stotesbury	35 years in Mexico and Pacific	major decline in last decade	Other fisheries 50% to 90% reductions
Frank Adler	38 years in So. California and Mexico	50% - 75%	Shark populations reduced 50% to 75%
Steve Behrens	30 years in So. California and Mexico	50% in California	Shark population decline 30% to 50% in last decade
Robert Hetzler	30 years in So. California	50% in last decade	Number of smaller fish increasing
John Willis	40 years in So. California and Mexico	- -	Everything down 25% to 30%
Bill Shedd	30 years	- -	Blue sharks have declined 90%
Bill Byler	25 years in So. California and Mexico	- -	Blue sharks down 95%, yellowtail a shadow
Marty Snyderman	30 years - Southern California	- -	shark population has dropped almost 90%
Howard Hall	30 years - Sea of Cortez	- -	shark population has dropped 80% or worse
Pete Groesbeck	30 years - Southern California	50% - 60%	shark population has dropped 95%

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Sea Watch

Dedicated to a Healthy Sea of Cortez

Selected By The Rolex Awards For Enterprise as One of the Top 100 ecological projects worldwide

Where Have All the Pelagics Gone?

The following interviews have been done with fishermen in Mexico and in the US. The fishermen that have been out working in the seas for the last 20 to 30 years are often seeing a completely different ocean than are the scientists and administrators of the NMFS and the eight Regional Fish Counsels that control the US fisheries, the Department of PESCA and the INP (Instituto National de PESCA) that control fisheries and fisheries science in Mexico. The fish management and science in both countries are and have been controlled by those favoring commercial interests. The Highly Migratory Species Advisory Subpanel now considering longlines in California has 13 members 9 are from the commercial fishing Industry.

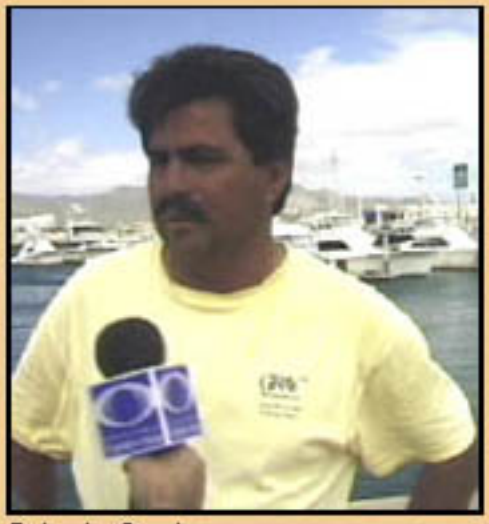
The people who fish daily in the ocean know when sealife disappears. They are constantly using their eyes for life signs in the ocean to tell where the fish are. When those life signs disappear it is the fishermen, not the scientists who know it first. In the last 25 years the scientists and fish managers have continually got it wrong. We have to put more faith in the emperical data that our fishermen are giving us and take back what's left of our ocean resources from those that will continue the destructive fish management policies of the past.

Francisco Cota Ruiz

Q: What is you name please?
A: Francisco Cota Ruiz (captain of sport fishing boat)
Q: Would you say that there has been a general decrease in the number of marlin caught in the last 5 years?
A: Definitely, you can ask any captain or deckhand and he'll tell you. Independent of the fact that there are fewer fish caught, we're having to go much farther from port to find them.
Q: In the last five to 10 years, what percentage has the catch decreased?
A: I'd say about 40%.

Q: What is your name?
A: Juan Jose Arce (captain of sport fishing boat)
Q: How many years have you been involved in the sport fishing industry?
A: About 15 years.
Q: Could you say if the catch has decreased, say from 10 years ago?
A: It's definitely gone down, and by a lot. I think everyone has noticed that. As I remember, it's been about five years since we've had any fishing that you could consider excellent fishing.
Q: How much has it decreased?
A: Well, I believe it's been by about 45% or 50%.


Juan Jose Arce


Roberto Sandes

Q: What is your name?
A: Roberto Sandes (captain of sport fishing boat)
Q: How many years have you been involved in sport fishing?
A: 15 years.
Q: In those 15 years, have you noticed any decrease in the capture of the species you fish for?
A: Yes, yes, I have noticed that the catch has gone down.
Q: Can you tell me how much it has decreased? For example, if you caught 100 fish before, how many do you catch now?
A: Well, if we caught three before, we're lucky to catch one now. Its decreased a lot, a lot more than 50%.

Q: What is your name?
A: Esteban Ortiz (captain/ sport fishing)
Q: Sr. Ortiz, how long have you been involved in sport fishing?
A: For about 22 years.
Q: In the last 10 years have you noticed a decrease in the catch? What percentage?
A: In just the last 3 years, the catch has decreased 50 – 60%.
Q: What do you think has been the cause?
A: It's said there are pirate ships. Who knows?


Esteban Ortiz


Juan Perez

Q: What is your name?
A: Juan Perez (sport fishing)
Q: How long have you been involved with sport fishing?
A: 25 years.
Q: have you noticed a decrease in the catch in, say, in the last 5 to 10 years? What percentage has it decreased?
A: I've seen about a 50% decrease. Especially in the marlin catch.
Q: And what do you believe to be the cause?
A: Many times boats come from outside the area.

Q: What is your name?
A: Jose Talamantes Romero (commercial fisherman)
Q: Where are you from?
A: From here, from La Noria.
Q: How long have you been fishing?
A: Approximately 6 years.
Q: Do you believe there's been a decrease in the catch?
A: Well look, of course I do. A lot of boats come here to fish. They come from Topo, Guaymas and La Paz, and they take many tons of fish.


Jose Talamantes Romero

Miguel Cota de Agua Verde

Q: What is your name?
A: Miguel Cota from Agua Verde (commercial fishing)
Q: Have you been fishing many years? Do you feel there is a decrease in the catch?
A: Well, yes, and yes, there has been a decrease.
Q: What do you think might be the cause?
A: Well, there is a lot of spear fishing and netting (with "chinchorro") going on.

Q: What are your names?
A: Fernando Reyes and Castro Navarro (commercial fishing)
Q: In the last year, have you seen a decease in the number of fish you've caught or is it the same? What do you feel about that?


Fernando Reyes

A: A lot of boats come here from outside, from Guaymas, Mazatlan and Sinaloa. They do effect the fishing because they work with nets (chinchorros). The problem with that is that they get stuck on the bottom in the rocks. They leave them there and they keep killing the fish.
Q: You two remember how the fishing was some 15 years ago? Do you think the catch has decreased?


Castro Navarro

A: 15 years ago there were a lot of fish, great quantities. There were times that in this bay alone 15 to 20 tones of fish were caught: jurel, sierra and other species.
Q: If you were to say what percentage it has decreased, what would you say?
A: Some 70 to 80%.

Valentin Romero Murillo

Q: Here we are talking to the delegate of Cortez, whose name is Valentine Romero Murrillo. Would you say that there has been a decrease in the catch of fish over the last 10 years.? How can you compare those numbers to those of today?
A: It has decreased at least 80%. One of the principal problems we have here is that there are no fish and we all live from fishing.

Pantaleon Caleron

Q: What is your name?
A: Pantaleon Calderon (commercial fishing)
Q: Sr. Calderon, how do you feel the fishing is of late? Has it changed much in the last 10 years?
A: Fish are very scarce now. We can't even cover the cost of our operations.
Q: What percentage has the catch decreased?
A: Well, in 10 days we take one ton now. Ten years ago we could take out 4 tons in 3 or 4 days.

Manuel Valdez

Q: What is your name?
A: Manuel Valdez (commercial fishing)
Q: Do you remember how the fishing was some years back when you were younger?
A: Yes, very well. You can't compare now with then. Now you have to work hard just to eat.


Francisco Javier de la Toba

Q: What is you name?
A: Francisco Javier de la Toba. (commercial fishing)
Q: Do you feel that you are catching fewer fish in the last 10 to 15 years?
A: Yes, the catch is much smaller now.
Q: And why do you think this is so?
A: There are a lot of people fishing now. They use nets ("chinchorro") that get stuck on the bottom and they leave them there.

Q: What is your name?
A: Cruz de la Toba Amador (commercial fishing)
Q: How many years have you been fishing?
A: About 35 years in Tambabiche.
Q: Do you remember when you were younger, say ten years ago, did you catch more fish or less fish?
A: At first, there were a lot of fish. Now there is almost nothing.
Q: And why do you think this has happened?
A: I don't know.


Cruz del la Toba Armador


Rafael Iglesias

Q: What is your name?
A: Rafael Iglesias (commercial fishing)
Q: Sr. Iglesias, how long have you been fishing for a living?
A: About 50 years.
Q: Five or ten years ago how much did you catch?
A: In ten days we caught 12 to 14 tons. There was a lot.
Q: Since when have you noticed a decrease?
A: Since about 10 years ago, more or less. Since they started fishing with nets ("chinchorros").


Javier Magana

Q: What is your name?
A: Javier Magaña (commercial fishing)
Q: Javier, many say the fish catch is way down. What do you say?
A: Yes, it has gone down a lot. Because they're using a lot of nets ("chinchorro").


Manuel Salvador Alvarez

Q: What is your name?
A: Manuel Salvador Alvarez (Commercial fishing)
Q: Ten years ago what was your daily quota of fish?
A: They caught a lot of fish here. Mainly, sierra, cabrilla and red snapper.
Q: What percentage has the catch decreased? If you caught 10 tons per day before, how
much are you catching now?
A: About 200 kilos, maybe 300 kilos. Above all, the problem is the nets (chinchorros).
Q: The problem is that they get stuck and are left on the bottom, where they keep on killing the fish.

Q: What is your name?
A: Amador Talamantes (commercial fishing)
Q: How long have you been fishing?
A: I've been fishing here in Agua Verde about 10 yrs.
Q: In a normal week of working how many tons do you catch?
A: I'll tell you about 2 years ago a boat (panga) took 200 or 300 kilos per day. Today, 10 or 15 boats working together take that much in one day.


Amador Talamantes


Monico Galban

Q: Here we are with Monico Galban in Liguí. Monico, how many years have you been
fishing here? (Commercial fishing)
A: About 10 years.
Q: In those 10 years have you seen a decrease in the number of fish you catch?
A: Well, yes, like everything it's getting less and it's due to the fact that there are so many boats now.

Abraham Marquez -
Q: How long have you been fishing?
A: For about 12 years.
Q: During the past 12 years have you noticed a decrease in the amount of fish you've been catching?
A: Yeah, during the fishing season the fish seem to be scarce. For example, tuna, which used to be most abundant, aren't coming around anymore as in other years.
Q: Why not do you think? What's the cause?
A: It depends, because the tuna fishing boats get out there farther.
Q: Have you seen large commercial tuna fishing boats fishing in this zone?
A: At times we can see them close to the coast, and proof of that is there have been drag-nets floating, suspended by large buoys, miles and miles long. And, of course, this kind of fishing affects a lot; even marlin and other types of sea animals are trapped in these drag-nets.
Q: By what percentage has fishing decreased here?
A: By at least 30%, fish that used to come around here to the Sea of Cortez, where once upon a time there were fish galore, but...now is obvious that less and less fish come around.


Abraham Marquez


Eduardo Castro

Eduardo Castro -
Q: In the last 20 years or shall we say ten, has there been a noticeable decrease in fish up to the present?
A: No, not that much ,but we have noticed some changes.
Q: About what percentage has fishing decreased, if it has at all?
A: Oh, about 20-30% I believe.

Jesus Banaga -
Q: How long have you been fishing here Jesus?
A: For about 27-28 years, since I was 17 years old.

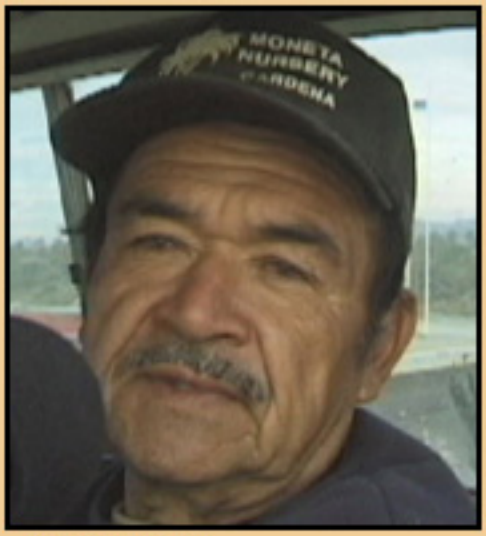

Jesus Banaga

Q: And have you noticed since then any decrease in the fishing that you can tell?
A: Oh yeah, by all means.
Q: Why is that?
A: Maybe because of the bait primarily, because back then we used to fish real close by without much effort, but now we have to go way out and most likely due to those large shrimp fishing boats, which drag away any and every fish around that comes their way.
Q: What about picudo fish or the larger fish, are they still around?
A: Back then there were a ton of them, I mean a lot. And when I would go out on my panga sport-fishing, I would see the Japanese fishing boats way out there, dropping lines 4-5 kilometers long or longer, with multiple hooks attached with bait on them, trapping sharks, marlin and many other fish and taking them away to be slaughtered.
Q: What percentage did the amount of fish decrease?
A: I estimate to about 50%, because that's a lot.

Jose Cruz Gonzalez -
Q: How long have you fishing?
A: 46 years.
Q: During the first few years of your fishing career, as compared to today's fishing, have you noticed any decrease in the number of fish you catch?
A: Oh yeah, a lot. When we used to fish for shark, cabrilla,and pargo, there were plenty, but now with these large commercial fishing boats taking away our product, it is harder on us. The yachts have also done a lot of harm by fishing los bajos (shallow water, good gathering for fish) and slaughtering fish and just dumping overboard the remaining pieces of fish.
Q: So, then to what percentage has the fishing decreased since then until now?
A: To about 60%.


Jose Cruz Gonzalez

Marco Guluarte -

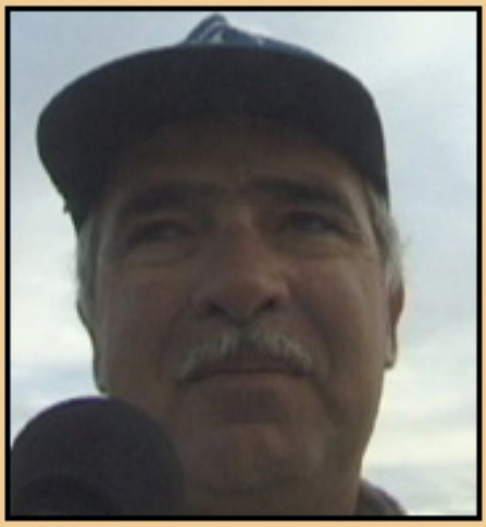


Marco Guluarte

Q: How long have you been fishing here Marco?
A: 25 years.
Q: During these 25 years have you noticed a change or a decrease in fishing?
A: There were many varieties of fish for us to fish then. There was a lot more action, too. Fish are very scarce now and commercial fishing has slowed down somewhat. Back then, they used to catch shark, a lot of shark. But today, because of the Japanese fishing boats and tuna fishing boats we hardly ever catch a good fish to eat. And the sad thing is that they don't care what they catch. They simply slaughter what they consider a no-good fish and throw it overboard. Sport-fishing has been gravely affected by this action, to the point where marlin are almost extinct. 25 years
ago, marlin was most abundant and sports-fishing was fun. Tourism has also been affected because the marlin are almost gone.
Q: To what percentage can we say the fishing has decreased?
A: I would say more than 50%. 25 years ago we didn't face this problem and fish of all kinds were abundant, to the extent that we didn't have to go out farther than five or six miles and we would find plenty of fish like picudo and dorado. That's all gone. We have to travel 30 to 40 miles out in order to do any sports-fishing, and if you're lucky you may catch something. Of course, 25 years ago sports-fishing wasn't as popular as compared to today. And today there are double the number of boats fishing and there are fewer fish to catch.

Marco Antonio Guluarte -
Q: How much time have you dedicated to fishing Marco Antonio?
A: I've been fishing for about 15 years, and fish have decreased a lot, particularly the tasty deep sea bottom fish, like red snapper and rock cod, Shark and other fish - strongly due to the lack of protection and rulings against the numerous large commercial fishing boats and their using drag-nets indiscriminately. Some of them come from Sinaloa state and from other nearby port towns, killing a lot of fish and that's why fishing is low for us here.
Q: What percentage do you think fishing has decreased to in the last 15 years?
A: I think 20% since. And I remember back when there was a lot of huachinango fish, cabrilla and shark but it hasn't decreased that much. I gather at least 20-30% noticeably, because of the large shrimp fishing boats that have come from out of state.


Marco Antonio Guluarte


Erick Briesen

Eric Briesen -
Q: Are you a resident of La Playita?
A: Yes, I am. I live here in La Playita.
Q: How long have you been fishing?
A: I've been woking here for about 15years.
Q: In these last 15 years have you noticed that the fishing has decreased in general as compared to other years past?
A: Oh yeah. Many different species such as marlin, sierra. Fishing overall is down. Many other fish are scarce such as rooster fish and red fish like snapper, and cabrilla have almost disappeared.
Q: What do you think is the cause?
A: Commercial over fishing and the use of drag-nets... although I don't think sports-fishing affects things much. However, something must be done right away to fix this problem.
Q: By what percentage has fishing decreased in your opinion?
A: 50%.

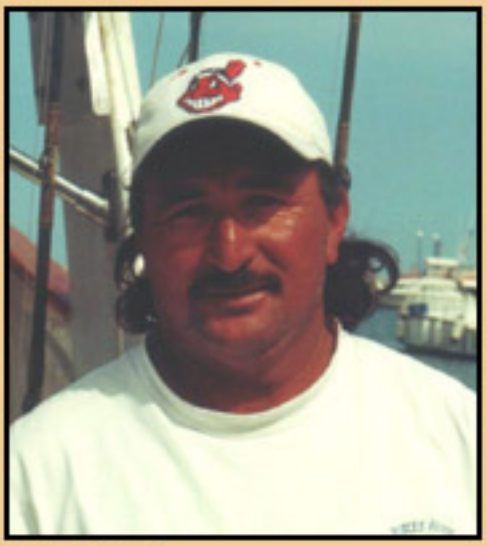
Antonio Castro -
Q: How long have you been fishing Antonio?
A: About 7 years.
Q: During these past 7 years have you noticed or have you heard that fishing has decreased?
A: Yes it has. Of course, it has.
Q: To what percentage more or less?
A: To at least 50%. It's bad.
Q: What's the cause do you think?
A: Maybe because there are too many boats fishing with drag-nets and massacring all those fishes, I imagine.
Q: Has that kind of fishing affected your fishing and your work directly?
A: Drag-nets? Yes, of course, because they grab any and all fish and indiscriminately, even fish which are not eatable. We only fish for sport-fish, but they don't care what they catch, they simply drag into their nets what's in their path and slaughter what is not usable and throw their remains over-board.


Antonio Castro


Amadeo Marquez

Amadeo Marquez -
Q: How long have you been fishing Amadeo?
A: For about 10-15 years.
Q: Have you noticed a decrease in fishing compared to the quantity you used to catch or is it still about the same?
A: Well, I used to fish shark commercially with my dad and back then there was a lot of shark and we used to catch a lot of them and slaughtered a good number of them ourselves. But now the large fishing boats ,with their drag-nets fishing everything, like marlin, dorado and other fish leave us literally nothing.
Q: To what percentage has the picudo fish decreased?
A: To about 60%. The large commercial tuna fishing boats and, of course, the Japanese fishing boats, which take us to the cleaners, have dramatically affected our fishing.

Julio Castro -


Julio Castro

Q: What is your fishing background? What makes you a knowledgeable source of information?
A: Since I was a small boy fishing was a great diversion for me. I grew up with the idea of continuing to fish throughout my childhood. When I was 16 years old I started working at Rancho Bueno Vista, where I had the chance to start in sportsfishing and to come to know to perfection what it is to be a "fisherman." My first 5 years. I was fishing exclusively in the Sea of Cortez, but due to severe fishing problems I had to migrate to Cabo San Lucas, where I have been for the past 14 years and fortunately fishing has been very good to me there.
Q: How long have you been fishing in the waters you are talking about?
A: 19 years. I fish from Cabo Falso to the Gordo Banks.
Q: Do you own your boat or fish on someone else's?
A: I fish on a boat called "Andrea," that belongs to Pisces Fleet.
Q: Do you keep a fishing record or log?
A: Sometimes, but they have records in the office.
Q: What percentage change have you seen in the numbers of the following pelagic fish (striped marlin, blue marlin, sailfish, blue sharks, mako sharks, thresher sharks, dorado, yellowtail) in the areas you fished in the last 15 years?
A: Striped marlin, blue marlin, sailfish, dorado and shark, have dropped 70%.
Q: Has the average size of the striped marlin caught dropped in the last 15 years?
A: Comparing 15 year ago to today, the fish weighed 150 to 180 pounds then and now they are 90 to 100 pounds.
Q: What about the average size of the sailfish caught?
A: The same as for marlin.
Q: Give as many examples as you can of how fishing used to be 15-20 years ago versus what it is today? Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above.
A: 15 years ago you found fish wherever you wanted. Whatever you wanted to catch, you caught and there wasn't so much useless killing of fish.

Q: Do you have to travel further today to get fish than you did 15 years ago?
A: 15 years ago we wouldn't go out more than 10 miles, now we sometimes have to go 35 to 40 miles out.
Q: How many marlin have you caught in your fishing career, or in a year with an old hook in it?
A: About 20, or one a year.

Benito Agundez -


Benito Agundez

Q: What is your fishing background? What makes you a knowledgeable source of information?
A: I started fishing approximately 20 years ago. I consider myself a source of knowledge because of the day to day experience I have gained. I know how the fishing was 20 years ago and how it has diminished over the years, up until the present day.
Q: Where do you do most of your fishing?
A: I fish at the southernmost part of the Baja Peninsula in the Sea of Cortez and Pacific Ocean.
Q: How long have you been fishing in the waters you are talking about?
A: About 20 years. I fish about 280 days a year.
Q: Do you own your boat or fish on someone else's?
A: The boat I fish on belongs to a company called Barcos Piscis, (Pisces Fleet).
Q: Do you keep a fishing record or log?
A: I do keep records, but they are not exact, the office keeps records of my catches for me.
Q: What percentage change have you seen in the numbers of the following pelagic fish (striped marlin, blue marlin, sailfish, blue sharks, mako sharks, thresher sharks, dorado, yellowtail) in the areas you fished in the last 15 years?
A: I believe that striped marlin has declined 65-70%. Blue marlin is possibly about 50% of what it was before. Sailfish have declined even more than the blue marlin. With dorado and tuna there not as much decline as the aforementioned species, but they have declined considerably. Sharks, all types of sharks, are the ones whose numbers are most damaged; I would say that there is only 20 -25% left of what there was before, so a decline of 75 to 80%.
Q: Has the average size of the striped marlin caught dropped in the last 15 years? What about the average size of the sailfish caught?
A: The weight on all species has dropped noticably, especially the striped marlin. In past times many were caught that were over 200 pounds. Before, sailfish weighed 100 pounds or more and now the average catch on a sailfish is 60 to 70 pounds.
Q: Give as many examples as you can of how fishing used to be 15-20 years ago versus what it is today? Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above.
A: In the different billfish species there are a lot of differences. 15 to 20 years ago swordfish was found in acceptable quantities, 35 to 40 per year. Today we only see 5 or 6 per boat per year. With the other species, such as tuna, dorado , roosterfish, etc., there have been changes but they are not as noticable.
Q: Do you have to travel further today to get fish than you did 15 years ago?
A: Before our work area was no more than 20 miles from port. Today we frequently go out 35 to 40 miles.
Q: How many marlin have you caught in your fishing career, or in a year with an old hook in it?
A: Approximately 40, the majority of which where the type of hook we use for sportsfishing, say about 30. The rest were the type used by longliners.

Ricardo Agundez -


Ricardo Agundez

Q: What is your fishing background? What makes you a knowledgeable source of information?
A: I started 10 years ago with Pisces Fleet. During that time I was a deck hand for one year, before stepping up to being a captain , which I've been doing for 9 years. I have had good and bad experiences, which I feel will help those that will follow behind me.
Q: Where do you do most of your fishing?
A: The southern tip of B.C.S. or the southern tip of the Baja.
Q: How long have you been fishing in the waters you are talking about?
A: Approximately 10 to 11 years. I fish 240 to 250 days a year.
Q: Do you own your boat or fish on someone else's?
A: I work on a boat called "Adriana I," which belongs to Pisces Fleet.
Q: What percentage change have you seen in the numbers of the following pelagic fish (striped marlin, blue marlin, sailfish, blue sharks, mako sharks, thresher sharks, dorado, yellowtail) in the areas you fished in the last 15 years?
A: For striped marlin, a drop of 30%; blue marlin a drop of 40%; sailfish a 70% drop; sharks of all types a 90% drop.
Q: Has the average size of the striped marlin caught dropped in the last 15 years?
A: About 15 years ago weights were varied, a good sized fish would have been 160 to 180 pounds. Today a good-sized fish is between 100 and 140 pounds.
Q: What about the average size of the sailfish caught?
A: In the past 80 to 100 pounds, now the few that remain are from 40 to 70 pounds.
Q: Give as many examples as you can of how fishing used to be 15-20 years ago versus what it is today? Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above.
A: Before fishing was very successful and plentiful Before there were no limits as to how many marlin could be killed and some captains killed 2 to 3 marlin per day. Before there was no commercial exploitation. Today, we should not only preserve certain species, but we should do something about the sportsfishing boats that catch fish indiscriminately and then sell their catch. Many of these boats doing this belong to well-know and important companies. It is not right that some of us try to preserve marlin and other species, while others don't help us in the slightest, killing one or as many fish as they can, a day. It is really important that fishermen and boat owners help each other to preserve our natural resources and our jobs for the future. We should not make the same mistakes, that have been made in other fishing ports.
Q: Do you have to travel further today to get fish than you did 15 years ago?
A: Before we only had to go out 2or 3 miles. Today, we sometimes have to go as far as 35 miles out and sometimes we don't have any luck.
Q: How many marlin have you caught in your fishing career, or in a year with an old hook in it?
A: About 10 a year.

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Dedicated to a Healthy Sea of Cortez

**Selected By The Rolex Awards For Enterprise as
One of the Top 100 ecological projects worldwide**

Where Have All the Pelagics Gone?

The following interviews have been done with fishermen in Mexico and in the US. The fishermen that have been out working in the seas for the last 20 to 30 years are often seeing a completely different ocean than are the scientists and administrators of the NMFS and the eight Regional Fish Counsels that control the US fisheries, the Department of PESCA and the INP (Instituto National de PESCA) that control fisheries and fisheries science in Mexico. The fish management and science in both countries are and have been controlled by those favoring commercial interests. The Highly Migratory Species Advisory Subpanel now considering longlines in California has 13 members 9 are from the commercial fishing Industry.

The people who fish daily in the ocean know when sealife disappears. They are constantly using their eyes for life signs in the ocean to tell where the fish are. When those life signs disappear it is the fishermen, not the scientists who know it first. In the last 25 years the scientists and fish managers have continually got it wrong. We have to put more faith in the emperical data that our fishermen are giving us and take back what's left of our ocean resources from those that will continue the destructive fish
management policies of the past.

The American "interviews" are a little different than those of the Mexican fishermen in that we are also going to present the ideas of several of America's most well known undersea photographers and film makers, Marty Snyderman and Howard Hall, both legends of underwater film. Of course, the observations of fishermen who have seen their livelihoods decline over the last two decades are included, as the large commercial interests have stripped the Pacific Ocean of its bounty. When we're done, we'll have proved just how the issues faced by the Sea of Cortez influence things far beyond its boundaries.

Captain Pete Groesbeck


Pete Groesbeck

Q: What is your fishing background?

A: I've been fishing the waters from San Diego to Cabo since 1970. I'm a full time captain and have fished those waters about 6 months a year every year.

Q: What type of fish do you usually target?

A: We primarily fish billfish and swordfish.

Q: What changes have you seen in the pelagic fisheries off the coast of California and Mexico since you started fishing?

A: About 1980 we caught 350 marlin in 31 days off Cabo. In the early 1980s you could catch all the marlin and pelagic threshers you wanted within 10 miles of Cabo. It was more or less the same in California. In 1978, during the two-month California marlin season, we caught 35 marlin and 7 swords sports fishing. Our best year was 1981, when we caught 78 marlin in California. Before the gillnets came, there were blue shark everywhere, now 17 years later there are no blue sharks.

Q: What is the percentage change in the various pelagics during the last 15 years in the areas you fish?

A: Stripped marlin are down 50-60% in both Mexico and Southern California and blue shark are down about 95%.

Tony Berkowitz

Q: What is your name and age?

A: Tony Berkowitz, 47.

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I am a charter operator and captain based in Cabo San Lucas since 1985, so my observations on the charter industry come first hand.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I’ve averaged 120 days per year in the Pacific Ocean and the Sea of Cortez.

Q: Do you operate your own boat or fish someone else’s?

A: I own my own boat, but I have also fished yachts as a guest captain or deck hand.

Q: Do you keep a journal or log of your fishing trips?

A: Yes, I've made entries on the logs of various vessels.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped Marlin – 50 to 60%

Blue Marlin (Mexico) – 50%

Yellowfin tuna – 40% and smaller sizes

Blue sharks – 40 to 50%

Mako sharks – 60% and smaller average sizes

Thresher sharks – 50%

Yellowtail – 25%

Dorado – 60%

Sailfish (Mexico) – 50%

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: Yes, from 155 pound averages to a 120 pound average.

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: Yes, from 120 pound averages to 90 pounds.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: At one point in '86-'87, charter boats averaged a striped marlin catch of over three fish per eight hour charter. The 2001 season average is estimated at less than one striped marlin capture per eight hour

charter. Size, quantity and duration of durado catches have decreased rapidly and substantially since 1993. Durado species have been heavily impacted in the past six years in the traditionally high catch season from September to December. Fishing near shore at Cabo San Lucas, the season has been reduced to only several high catch days. The decline coincides with the arrival of near shore trawlers an shrimpers.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: Fifteen years ago the distance was less than 10 miles from port. Now, the average is 23 plus miles out.

Q: How often do you catch a billfish with an old hook in it? Are those hooks sports hooks or longline hooks?

A: Catch one per five hundred casts with a hook. Half are sport hooks and half from longliners.

Terry Maas

Q: What is your name and age?

A: Terry Maas, 56.

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have been freediving for 42 years and I have won four national championships, hold three world records for tuna. I have also written two books and produced three videos on diving.


Terry Maas

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I have been diving in southern California for 35 years, on average about twenty times a year. I have also been diving 15 to 20 days a year for 35 years in Mexico.

Q: Do you operate your own boat or fish someone else's?

A: Both.

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Yellowfin tuna - 60 to 70% in numbers; 30% in size

Blue sharks (Ca.) - 99% in numbers

Yellowtail - 50% in numbers in California

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: When I started spearfishing San Benedicto seventeen years ago, I would see schools of small, five to ten pound, yellowfin that numbered in the thousands. Seventeen years ago, two hundred pound yellowfin were common; now they are rare. Wahoo have dramatically declined, about 75% in numbers and about 40% in size. Sharks are declining and now I see many with hooks in their mouths.

Richard Hoffman

Q: What is your name and age?

A: Richard Hoffman, 47.

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have sportsfished from California waters to Panama for the last 23 years.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: In California about 90 days a year, about three to six months a year on the Baja, mainland Mexico, from Mazatlan to Alcapolco, about one to six months a year and from Costa Rica to Panama about 4 to 9 months a year, on alternate years to best catch the seasons of fishing at each place.

Q: Do you operate your own boat or fish someone else's?

A: I am a professional sportsfishing boat captain

Q: Do you keep a journal or log of your fishing trips?

A: Yes.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped Marlin – 75%

Blue Marlin (Mexico) – 60%

Yellowfin tuna – 60%

Mako sharks – 40%

Yellowtail – 20%

Dorado – 40%

Sailfish (Mexico) – 30%

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: In 1960 and 1970 we traveled 15 miles to the Coronado Islands. Now we have to travel 60 to 100 miles to San Clemente Island and the Cortez banks to find the same fish to fifteen miles further out.

Ron Mullins


Ron Mullins

Q: What is your name and age?

A: Ron Mullins, 46.

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I was born into a diving family, so I have been diving the Sea of Cortez and surrounding waters since I was a small boy.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I have mostly dived California and the Baja and I dive approximately fifty days a year.

Q: Do you operate your own boat or fish someone else's?

A: I usually dive from others' boats.

Q: Do you keep a journal or log of your fishing trips?

A: Seldom

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Blue sharks (Ca.) - dramatic decreases in numbers

Yellowtail - in California I see a lot of yellowtail, however, I don't the large ones (over 40 pounds) as often as I used to.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: When I started spearfishing San Benedicto seventeen years ago, I would see schools of small, five to ten pound, yellowfin that numbered in the thousands. Seventeen years ago, two hundred pound yellowfin were common; now they are rare. Wahoo have dramatically declined, about 75% in numbers and about 40% in size. Sharks are declining and now I see many with hooks in their mouths.

Captain David Purcell

Q: What is your name and age?

A: David Purcell.

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have been a yacht captain in Cabo San Lucas for 10 years.

Q: Where do you fish/dive mostly?

A: Mostly in Cabo San Lucas.

Q: Do you operate your own boat or fish someone else's?

A: Someone else's.

Q: Do you keep a journal or log of your fishing trips?

A: Not lately.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped Marlin - 25%

Blue Marlin (Mexico) - 50%, this is a big problem and has to change

Yellowfin tuna - 25% or greater

Blue sharks - 80% in California

Mako sharks - 60% in California

Yellowtail - 40%

Dorado - 25%

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: Seems to be about the same.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: There are more boats. Today's fishing seems to be very hi-tech and catching fish has become an exact science.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

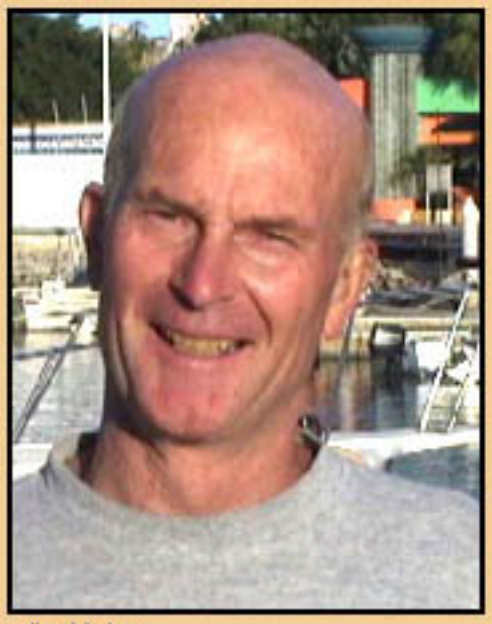
A: Not really, we know where they will be, just by reading the water.

Q: How often do you catch a billfish with an old hook in it? Are those hooks sports hooks or longline hooks?

A: We see two out of 100 blue marlin.

Jim Mabry

Q: What is your name and age?


Jim Mabry

A: Jim Mabry, 61.

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I was a deckhand on a sportsfishing boat in 1956 and '57. I have been diving off California, Mexico and Hawaii for the last 45 years. I was a commercial abalone diver for four years.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I have been diving the California channel islands and the southern California three or four time a month for the last 45 years.

Q: Do you operate your own boat or fish someone else's?

A: Both. I have two boats.

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Blue sharks (Ca.) - 50% in California channel islands

Thresher sharks - 75% in California channel islands

Yellowtail - 20% in California

Steve Murphy

Q: What is your name and age?

A: Steve Murphy

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I've been fishing my whole life.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: . Twenty years in southern California and almost 20 years around the Baja.

Q: Do you operate your own boat or fish someone else's?

A: Both

Q: Do you keep a journal or log of your fishing trips?

A: Yes.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped Marlin - 50%

Blue Marlin (Mexico) - 40%

Yellowfin tuna - 20%

Blue sharks - 20%

Mako sharks - 70%

Thresher sharks - 20%

Yellowtail - 40%

Dorado - 50%

Sailfish (Mexico) - 40%

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: We used to catch a lot more fish, period. The problem in Mexico is that there is no law enforcement of the regulations on all types of commercial fishing.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: In the old days never more than 20 miles, today it's 30 miles, plus.

Q: How often do you catch a billfish with an old hook in it? Are those hooks sports hooks or longline hooks?

A: Mostly longiline, every once in a while.

Robert Caruso


Robert Caruso

Q: What is your name and age?

A: Robert Caruso.

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have been diving since 1954 and in California since 1961.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I have spent most of my diving time in southern California waters, including the Coronado Islands, San Clemente and the Catalina and Cortez banks.

Q: Do you operate your own boat or fish someone else's?

A: I have used my own boat since 1990.

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Yellowfin tuna - 50 to 60% drop in numbers and size

Blue sharks - 60% drop

Yellowtail - drop in quantity and size of 60 to 70%

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: In 1960 and 1970 we traveled 15 miles to the Coronado Islands. Now we have to travel 60 to 100 miles to San Clemente Island and the Cortez banks to find the same fish.

Dave Elm

Q: What is your name and age?

A: Dave Elm

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have been fishing the Southern California bight since the early 70's, after years as a commercial swordfish harpooner.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I fish the Southern California bight now 30 to 50 days, but during the 80's it was 100-150 days.

Q: Do you operate your own boat or fish someone else's?

A: Both

Q: Do you keep a journal or log of your fishing trips?

A: Yes.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped marlin - It seems about 50% less since the mid-80's.

Yellowfin tuna - 50 to 60% drop in numbers and size

Blue, mako and tresher sharks - Fallen 90%. We would see literally hundreds of sharks while looking for swordfish, now we see just a few.

Yellowtail - 25% less and not as many at the Islands as before.

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: No.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: There just isn't the quantity of life there used to be. In the past, there more mature and larger sharks. Now, all we see are young pups. The quantity of marlin is nowhere near what it used to be. The amount of fish in the Southern California bight just isn't there anymore. The reason for these decreases is simple and there are just two of them: drift gillnets and longlines.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: No, because there just aren't as many fish to travel to. It doesn't matter how far out you go, they just don't exist.

Carl Robbins

Q: What is your name and age?

A: Carl Robbins

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: Recreational fishing aside I've become a knowledgeable source of information through my employment history. Point Loma Sportfishing employed me while in high school. I worked for the California Dept. of Fish and Game while in college. After college, I worked for the National Marine Fisheries Service and the Inter-American Tropical Tuna Commission. Presently, I am a program manager for the U.S. Navy and am responsible for the Naval Meteorological and

Oceanographic Tactical Systems.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I fish both fresh and saltwater, based on the season and availability of gamefish. In the spring, I usually fish the lakes, although I do go fishing for rockfish and halibut in the ocean. Should there be an early show of yellowtail, then I'll go fishing for them. Summers see a shift to saltwater and depending on the conditions I will fish for albacore, yellowfin, bonita and mackerel. When extremely lucky, I'll fuss around with the occasional broadbill sailfish. Fall is almost exclusively marlin and tuna fishing. Generally, the winter months do not offer many fishing opportunities locally, so I will often fish the waters of Mexico. Again, I have been at it for over 40 years, my logbook suggests that, on average, since 1980, I fish 68 days a year. Of those, 40 are spent on the ocean, most categorized as "off-shore."

Q: Do you operate your own boat or fish someone else's?

A: Both

Q: Do you keep a journal or log of your fishing trips?

A: Yes.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000).

A: Striped marlin - Overall there has been a noticable decline in the number of "stripers." Having visited the fish markets Tokyo and seen the huge numbers of stripers processed each day, I have to believe that commercial longline fishing pressure is partially, and maybe mostly, to blame for the decline. Southern California may be experiencing declines in striper numbers from other factors, such as environmental and climatological. San Diego Marlin Club records that striper populations do vary naturally and did so prior to the extensive use of drift nets and longlines. However, I believe that we are experiencing an overall decline beyond just natural population variations. My guess, and that is all it is, is that there are about 30-60% fewer stripers entering our waters, as the historical averages suggest.

Blue marlin - There are insignificant numbers in Southern California. As for Cabo San Lucas, where I do fish for blue marlin, it is difficult to say since for many years sportsmen just were not armed with the proper tackle to take large numbers of blue marlin. My guess is that there were more blue marlin 20 years ago, however, my guess is that there are more blue marlin caught today than in the past mostly due to tackle and fishing technique improvements.

Yellowfin tuna - Twenty years ago I really don't remember significant numbers of yellowfin tuna in the catches, it was mostly albacore. I believe that climtatological changes have caused the number of yellowfin to actually increase in our waters. Ditto for bigeye. I believe that such changes also resulted in the presence of the giant bluefin that arrived two summers in the last twenty.

Blue sharks - Certainly fewer now than twenty years ago, this is especially true for hammerhead sharks. The presence of hammerhead sharks used to be our signal that we were where the marlin were and the number of hammerhead sharks is insignificant these days.

Mako sharks - About the same today as there were twenty years ago, however, the average size has dramatically decreased. This is a terrible indication of the health of the fishery as it says that the young are taken before they become sexually mature. I expect to see a near collapse of this shark's presence off our coast. I've never fished for makos and contend that no one should. However, for those compelled to keep these animals, a minimum size should be set to *at least 150 pounds*. The animals are not sexually mature until they are at or above 100 pounds.

Yellowtail - Fewer and smaller is the way I'd categorize the shift in Yellowtail numbers over the past 20 years. During the summer of 1973 I was the weight master at Point Loma Sportsfishing for the annul Yellowtail Derby, which extended over a 3-month period. It would be difficult for me to guess how many thirty pound yellowtail I would refuse to weigh for the customers as it would have taken too long given the number of 35 to 40 pound fish that required weight slips...

Dorado - Along with the increased numbers of yellowfin we've seen over the last 15 years, dorado counts on average have increased. Dorado seem to have much more variations year to year and it seems that the average size was smaller last year than in past years, but that may just be a function of my personal experience and not the overall trend.

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: Certainly, although there are "fatties" that still enter our fishery off of Southern California. As a rule, I'd say that we've gone from an average of 150 pound fish to 115 pound fish. They school as they once did the size is smaller.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: Personally, I probably travel farther now, but not necessarily because of the fish, but because I have the resources to travel farther. I fish the local banks the same today as I did years ago. Honestly, I believe that the 'disappearance" of albacore and bluefin tuna in and around Catalina is more a function of the water quality than anything else.

Jeff Kingsley

Q: What is your name?

A: Keff Kingsley

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have fished the Southern California waters for over 20 years. I have been fishing the East Cape in Mexico for 13 years, usually in spring or early summer.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I fish either the offshore banks or the islands off Southern California twenty plus days a year. I also fish in the "East Cape" of the Baja for billfish one week a year.

Q: Do you operate your own boat or fish someone else's?

A: My own and on charters in Mexico.

Q: Do you keep a journal or log of your fishing trips?

A: Recently, yes, historically, no.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped marlin - 60% down

Blue Marlin - 50% less

Yellowfin tuna - 30% down

Blue sharks - 60% less

Maco sharks - 50% less

Thresher sharks - 50% less

Yellowtail - 20% down

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: The fish I have caught are about 50 pounds smaller.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: Not really quantifiable, but I remember getting many more strikes in years past, especially sharks.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: I mainly fish outside of Catalina Island today. In years past, I would fish closer to shore and at the inner banks with success.

Burleigh Brewer

Q: What is your name?

A: Burleigh Brewer

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I began fishing Southern California waters as a boy in 1951 and I have fished these area regularly since then. I am a member of the Tuna Club of Avalon.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: In addition to what I said above, I have also regularly fish in the Mexican waters from La Paz to Cabo San Lucas and the mainland areas from Mazatlan to Manzanillo. I average approximately 45 days per year fishing in these waters.

Q: Do you operate your own boat or fish someone else's?

A: I currently do not own a boat, but in the past I have owned several boats, varying in size from a 16' outboard to a 33' sportfisher.

Q: Do you keep a journal or log of your fishing trips?

A: I began keeping a fishing log about two years ago.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped marlin - the decrease varies from year to year in Southern California, but I would estimate a drop of 20 to 30% and a 30% to 40% drop in Mexico where I have fished.

Yellowfin tuna - overall decrease on average of 30 to 40%, but in some years, there is an increase in offshore areas

Blue sharks - there appears to be a substantial decrease in numbers

Yellowtail - substantial decreases in coastal areas generally, but some areas still produce substantial numbers, but not with the regularity I experienced in the 1950's and 1960's.

Dorado - an increase during El Nino and La Nina cycles in Souther California and a 50% to 60% decrease in the Mexican waters I have fished.

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: Yes, they are substantially smaller.

Q: What about the average size of sailfish caught in the last 15 years?

A: In the Mexican waters the average sailfish size has dropped substantially during that period. Most sailfish I have seen or hooked and released seem to be in the fifty to seventy pound range, while in earlier years the average size was closer to 90 to 100 pounds. Unfortunately, in several recent trips to the Manzanillo area the landings and tourist fishing guides continue to kill and hang for photos any size sailfish. I guess the only offset is that the landings claim the fish are filleted and eaten.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: Earlier fishing in the local area produced substantially larger striped marlin and substantial catches of albacore. In Mexico there were substantially greater numbers of all the pelagic fish to be found on a regular basis. Now, it is much harder to find adequate quantities of bait, whether anchovies, sardines or makerel and I believe this is the direct result of overfishing the bait resources and indiscriminant removal of larger fish through gill netting and longline hooking.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: Absolutely. In the 50's and 60's I caught albacore, tuna, marlin and yellowtail in a number of local Southern Californian areas less than twenty miles off shore from the San Clemente flats, Laguna kelp beds, 14-Mile Bank, Horseshoe Kelp, Rocky Point and Santa Monica Bay. Now, those fish are seldom found in local waters and one must travel to the Channel Islands, outer banks and south of the Mexican border to locate these fish in any numbers.

Charlie Johnson

Q: What is your name?

A: Charlie Johnson

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I've fished for 50 years, everthing from bass to broadbill. I've fished in a number of countries around the world.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I have fished for thirty years in California, about 30 days a year.

Q: Do you operate your own boat or fish someone else's?

A: My own.

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped marlin - 90% down

Yellowfin tuna - 50% down

Blue sharks - 99% less

Maco sharks - 50% down

Tresher sharks - 50% down

Yellowtail - about the same

Dorado - depends on El Nino years

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: The average size of striped marlin has fallen from one hundred and fifty pounds to a hundred and twenty-five pounds

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: Fishing has decreased because of longlines and gill netters.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: No. I still fish the same areas.

Dean Plant

Q: What is your name?

A: Dean Plant

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have been fishing Southern California's offshore waters since the early 70's. I have been in the saltwater tackle retail business since 1975.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I fish the waters of Southern California, the Baja and mainland Mexico. I have been fishing these waters since the early 80's. I currently fish about 50 days a year.

Q: Do you operate your own boat or fish someone else's?

A: I fish with clients.

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped marlin - 50% less

Yellowfin tuna - varies yearly

Blue sharks - 90% down

Maco sharks - 60% down

Tresher sharks - 65% fewer

Yellowtail - varies yearly, but there seems to be a lot of smaller fish

Dorado - varies yearly

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: I believe the average size has decreased from about 150 pounds down to the 100-125 pound range.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these

examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: Fishing in the Southern California bight has changed substantially during over the past years. During the early to mid-80's there were several areas one could target to find striped marlin. It was never a problem to "find your own fish." Recently, it seems we are fishing in a tighter fleet. The technology has also changed with the times. Navigation aids, like Loran C and GPS, and other things, like satellite sea temperature imagery and sonar, have all improved our fish finding ability. Yet, our catch numbers are constantly on the decline. The shark population has definitely decreased. Trolling ten years ago we would hook two to three mako sharks daily. When looking for kelps or tailers, we would spot several hundred blue sharks. Now, we are lucky to see one or two a day. The number of yellowfin tuna change from year to year. As we are the northern end of their migration, during the warmer water years the yellowfin tuna fishing can be excellent.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: In past years we had great fishing for marlin and tuna as close as fourteen miles off the beach. Now we find ourselves fishing areas twenty, sixty and ninety miles from port.

A. Michael Moulton, M.D.

Q: What is your name?

A: A. Michael Moulton, M.D.

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have been fishing off Southern California since 1957. I am currently President of the Avalon Tuna Club, past president of the Huntington Harbor Anglers, past secretary of the International Light Tackle Tournament Assoc. I have fished world-wide for all types of species of fish.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: Although I fished on the east and southern coasts of the U.S., currently most of my fishing is done off the coast of Southern California. I have fished this area for approximately 45 years. I fish approximately 30 to 40 days a year.

Q: Do you operate your own boat or fish someone else’s?

A: I own and operate a forty foot sportfisher.

Q: Do you keep a journal or log of your fishing trips?

A: I have never kept a log.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped marlin - 40 to 50% drop

Yellowfin tuna - 15% to 20%

Blue sharks - 15% down

Maco sharks - 40% drop

Tresher sharks - 50% to 75% drop

Yellowtail - down 25%

Dorado - 25% drop

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: Yes, it is very evident.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: Going back and forth to Catalina or San Clemente Island twenty years ago, blue sharks were plentiful, mako sharks and thresher sharks were also easily caught and released. Twenty years ago, the Horseshoe Kelp, San Clemente Kelp beds and other kelp beds up and down the coast were extremely productive. Since the ban on gill nets inside the 3-mile area, halibut have increased tremendously. Commercial fishing without regard to size, bycatch, etc., I feel, had a great impact on the local fishery. Longliners have negatively impacted marlin off Mexico, which indirectly affects the fisheries off our coast.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: I used to fish 3 to 10 miles off the coast fifteen to twenty years ago for yellowtail, dorado, barracuda and all other types of small game fish. Larger game fish were found twenty to twenty five miles offshore. Now we must travel to San Clemente Island or down into Mexican waters to all types of game fish.

Doug Wright

Q: What is your name?

A: Doug Wright

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have been fishing 35 years.

Q: Do you keep a journal or log of your fishing trips?

A: Sometimes

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped marlin - 50% drop

Yellowfin tuna - 50% increase

Blue sharks - 99% drop

Maco sharks - 90% drop

Tresher sharks - 80% drop

Greg Stotesbury

Q: What is your name?

A: Greg Stotesbury

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have 35 years of saltwater fishing experience, thirty years as a private boat owner with hundreds of trips offshore and to Mexico

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I fish 50 to 100 days a year and have for the past 25 to 30 years.

Q: Do you operate your own boat or fish someone else's?

A: I have a 25' skipjack F.B.S.F. and 16' CC. I frequently fish on other private boats from 18 to 50 feet.

Q: Do you keep a journal or log of your fishing trips?

A: I have kept a detailed journal for the past ten years and records of trips going back twenty years.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped marlin - major declines in numbers for the last ten years, now must run offshore to find

Yellowfin tuna - no noticable decline in yellowfins, but very few bigeye tuna in last fifteen years

Blue sharks - 80% to 90% decline

Maco sharks - 50% to 70% decline and very few large fish

Tresher sharks - 50% less inshore, 90% offshore and fish are smaller

Yellowtail - no significant change, although possibly fewer fish at the Islands

Dorado - no change, maybe even more fish some years with warm water

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: Size seems to have remained stable.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: By far the most noticeable decline is in the pelagic sharks - mako, blue and thresher. We used to see *dozens* of blue and maco *every* day on the waters offshore. Now we see few, if any. Drift gillnets and offshore longlines have decimated the sharks. Marlin fishing has been very poor now for over ten years. We get occasional good shows in very tight areas, but not the wide spread bites we used to get in 70's and 80's. Drift gillnet bycatch and longliners are to blame.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: Definitely - we spend all of our time offshore and very little on the beach. No more show of bigeye, marlin or threshers anywhere but offshore at Clemente , Santa Cruz or the outer banks.

Frank Adler

Q: What is your name?

A: Frank Adler

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have been fishing for 38 years.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I have spent about fifty days a year fishing in Southern California and Mexico for the last 38 years.

Q: Do you operate your own boat or fish someone else's?

A: I operate my own boat.

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped marlin - 50% to 70% down

Blue marlin - 50% to 70% down

Yellowfin tuna - 10% to 20% down

Blue sharks - 50% to 70% down

Maco sharks - 50% to 70% down

Tresher sharks - 50% to 70% down

Yellowtail - 20% to 30% down

Dorado - 20% to 30% down

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: Yes, they are smaller.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: Fishing stocks have decreased because of pollution and over harvesting.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: Yes and it is harder to find them further out.

Steve Behrens

Q: What is your name?

A: Steve Behrens

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have been fishing off of the Southern California coast and Mexico for the thirty years.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I fish in the Southern California waters probably 30 days a year and, on average, about eight days a year in Mexican waters.

Q: Do you operate your own boat or fish someone else's?

A: I operate my own boat.

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped marlin - 50% less in California, Baja seems about the same

Blue marlin - about the same in Mexico

Yellowfin tuna - about 25% more in California waters

Blue sharks - 50% less in California waters

Maco sharks - have maybe 30% more in Californian waters in last two years

Tresher sharks - 50% less in California waters

Yellowtail - 30% less

Dorado - 30% more

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: Neither striped marlin or sailfish seem to have changed.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: I just remember how there were so many broadbill caught twenty years ago. The bigeye would show up off the east end. Marlin seemed to be more plentiful. There were just generally more jig strikes. I remember the fish count twenty years ago with the boat catch being over 200. Last year it was 50?

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: I feel we are still fishing in all the same areas we were twenty years ago.

Jim Willis

Q: What is your name?

A: Jim Willis

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have been a recreational fisherman for about 40 years and pretty serious for about the last fifteen years.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: Mostly offshore Southern California and the northern Baja. I have spent considerable time in the last 12 years in the Mulege area of the Sea of Cortez. I fish about 30 to 50 days per year.

Q: Do you operate your own boat or fish someone else's?

A: I have currently have a 26 foot boat now and have been a boat owner for 15 years.

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Yellowfin tuna - 20% down

Blue sharks - 25% down

Maco sharks - 25% down

Tresher sharks - 25% down

Yellowtail - 25% down

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: Fishing has decreased because of sea lions, commercial fishing by people who ignore laws and limits, temperature variations, the rapid increase in sport fishing and boat ownership, increased populations in Northern Mexico and Southern California and bait variations, i.e. anchovies are no longer abundent.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: Most fish are out past the islands of San Clemente and Catalina, as well as, below the border off Ensenada. We used to be able to catch yellowtail, yellowfin and albacore in mass on the inner banks.

Bill Shedd

Q: What is your name?

A: Bill Shedd

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I fished swordfish by harpoon in early 1970's, so I can compare what I saw then versus now.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I have fished since 1970 for about six to ten days a year in the Southern California bight.

Q: Do you operate your own boat or fish someone else's?

A: I fish on others' boats.

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Blue sharks - a 90% decline. I now see less than 10% of the blue sharks I saw in the mid-1970's. Blue sharks have been impacted in a huge way.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: I am responding to blue sharks here because this change is so drastic and obvious. In the early 1970's I would see several hundred blue sharks a day, almost every day. During the last 10 to 15 years, looking at the same water, I might see 2 or 3 on a good day. The fact is that the blue sharks are gone. I believed that the high seas squid drift gill nets did major damage to the blue sharks prior to the fishery being eliminated. Local drift gillnets and Hawaiian longliners have contributed to the blue shark demise.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: As far as blue sharks are concerned, it does not matter how far you travel in the Southern California bight, you will not find them in our local waters in anywhere near the numbers you found them in the 1970's and before.

Bill Byler

Q: What is your name?

A: Bill Byler

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I am a sportsfisherman, boat owner who fishes within a 100 miles of the local coast, a multi-day fisherman on

sportsboats from San Diego, a long-range fisherman and a Baja California fisherman.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: For thirty years I have been tuna fishing from San Diego for about 10 to 15 days a year. For twenty five years I have taken two or three trips to the Baja for seven days each trip. I also go on two trips of four to six days each year and one long-range trip of sixteen days.

Q: Do you operate your own boat or fish someone else's?

A: Both

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Yellowfin tuna - it seems cyclical to me

Blue sharks - rarely see them anymore on the tuna grounds, less than 5% of what it was

Yellowtail - fishing is a shadow of what it was in the 60's, but fairly level for teh last twenty years

Dorado - no change

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: With the early 80's as a baseline: albacore dropped to less than 5% through the late ninties, then returned to normal. High seas drift nets were the cause. Blue sharks were a pest on the tuna grounds 15 to 20 years ago and are now rarely seen, although I don't know why. Yellowtail fishing out of San Diego between the 50's and early 70's was spectacular and now is at best only 10% of the past.

Robert W. Hetzler

Q: What is your name?

A: Robert W. Hetzler

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have a B.S. in Zoology and did graduate work at the Scripps Institute of Oceanography. I worked for five years as a scientist for Inter-American Tropical Tuna Commission and then retired after thirty-one years at Star-Kist Foods, Inc. I was Director of UASC for five years and for the past seven years, President of the Harbour Ocean Preservation Enhancement. I have fished aboard my own boat for the last thirty one years. I am currently a member of the Tuna Club of Avalon, Harbour Rod and Reel Club and the Huntington Harbour Anglers.

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I have fished mainly from the Channel Islands to below Ensenada and as far out as ninety miles for the past thirty one years. I fish an average of 30 to 40 days a year. I have made a fishing trip from Huntington Beach to Cabo San Lucas, fishing all areas south, as well as, at least one trip a year over the last six years to the East Cape area of the Sea of Cortez.

Q: Do you operate your own boat or fish someone else's?

A: I own my own boat but also fish with other anglers on their boats.

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Striped marlin - A drop of more than 50%, especially in the last ten years. Fish are found in smaller areas during the season

Yellowfin tuna - no major changes, but changes from one season to the next

Blue sharks - big drop of numbers of sharks observed, down by over 50%

Maco sharks - drop in incidental catch by 40%

Tresher sharks - big drop in incidental catch, especially in last ten years

Yellowtail - no major changes, but changes from one year to the next

Dorado - no change, but varies by years

Q: Has the average size of Striped Marlin caught changed in the last 15 years?

A: Yes - very seldom are fish in excess of 200 pounds caught and none over 300 pounds. Also number of smaller fish under 125 pounds seems to be increasing.

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: Good quantities of marlin were found in many different areas fifteen years ago. A lot more blind strikes would occur when traveling from one area to another. Also a lot more feeders, jumpers and sleepers were observed. Now one must work closely with other vessels to find the fish. Running to and from Catalina or the other islands, as well as, during fishing, we would see many (15 to 25) surface swimming blue sharks. If I see one a season now it is unusual.

Q: Do you have to travel further today to get fish than 15 -20 years ago? Explain where you used to go and where you have to go now.

A: No, the marlin still show on the same grounds as in the past, the only difference now is that instead of boats catching them at serveral different fishing areas on any one day, they tend to be only in one area on any given day. The number and availability of marlin is definitely down today versus 15 or more years ago.

Marty Snyderman


Marty Snyderman

Residing in Solana Beach, CA, Marty Snyderman is a film producer, **Emmy Award winning** cinematographer, still photographer, author and speaker specializing in issues concerning marine wildlife and the marine environment. His film,***The Secret World of Sharks and Rays***, a documentary about the natural history of sharks, premiered during October of 1998 on the PBS series ***NATURE***. Marty produced and filmed ***To Be With Sharks (View From The Cage)*** which premiered on the Discovery Channel in July 1994 during Shark Week. A big ratings success, it is the second most widely watched premier in the history of **Shark Week**.

In addition, Marty's cinematography has been used by **Warner Brothers** (*Free Willy* released in the summer of 1993), the **National Geographic Society** (*Sharks* - the most widely watched documentary in the history of television, and ***Jewels of the Caribbean***- produced by Howard and Michele Hall), the **British Broadcasting Corporation**, **NOVA**, **the Public Broadcasting System**, the **CBS film *Dolphins, Whales and Us,* ABC**, the **Audubon Society**, Paramount's magazine series entitled **Wild Things**, numerous episodes of **Mutual of Omaha's Wild Kingdom**, **ESPN**, **the Discovery Channel**, and many more organizations expressing interest in marine wildlife. Marty's still photography and/or writing has been utilized by **National Geographic Magazine** (cover April '87), numerous **National Wildlife Federation** publications, **Natural History**, **Audubon**, **Skin Diver**, **Dive Training**, **Sport Diver**, **Newsweek**, the **Monterey Bay Aquarium**, **New England Aquarium**, and **Seattle Aquarium**, and by numerous other publications and organizations expressing interest in the marine environment both in the United States and overseas.

A **Masthead Editor** and author of Skin Diver magazine's **Ask The Pro Columm**, Marty has been a long time contributor to the magazine. To date, Marty has authored nine books. ***California Marine Life***, his first book, has just been substantially revised and re-released in cooperation with the Monterey Bay Aquarium. Marty also wrote and photographed ***Sharks!- Endangered Predators of The Sea***, a children's story about the sea, ***Great Shark Adventures***, and two coffee table works about marine life: ***The Living Ocean*** and ***Ocean Life***. Marty co-wrote and photographed the ***Guide to Marine Life: Caribbean, Bahamas, Florida,*** a field guide to the marine life of the Caribbean and associated waters.

Marty will soon take his expertise to the internet **with "Marty Snyderman's School of Underwater Photography**," a comprehensive class intended for all underwater still photographers hoping to improve their work **(http://www.martysnyderman.com).**

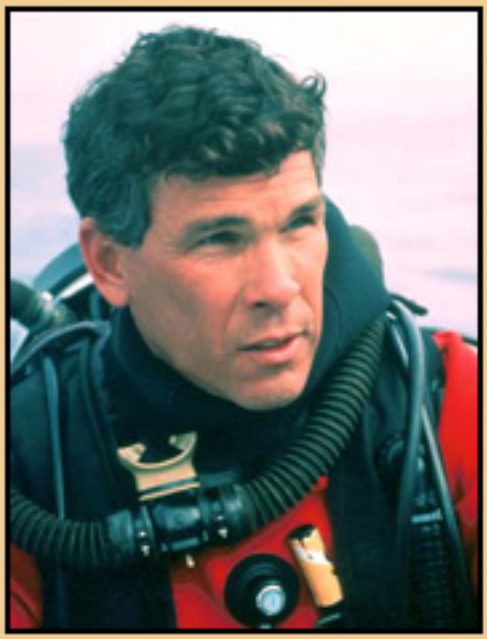
Marty Snyderman's Observations

As you know, I started diving in the open ocean off Southern California in the mid-1970's. I got involved with a group of divers that truly loved that environment, and we spent a lot of days diving in the open sea miles offshore. Usually we dived at a variety of high spots and seamounts, not that we could see them, but we knew where they were from charts. At first we were kind of a macho gang, but the macho faded rather quickly, and pretty soon we were overwhelmed with all there was to see and experience. For several years we would commonly encounter 30 to 75 or 100 blue sharks and mako sharks in a single day. There was the occasional day when we would only get 15 or 20 sharks, but a number that low was a rare day indeed.

But sometime in the early 1990's things changed dramatically and for the worse. We had days where we got skunked. Then we started having weeks when we would see very few sharks. Then months, and then summers, and now years. At first, we hoped that the lower numbers were just part of a natural cycle. But after so many years of seeing fewer and fewer sharks, and realizing that the ones we were seeing were getting smaller and smaller, we knew that this was a direct result of gill netters. In fact, during the summer of 1997 I spent 19 days working in waters off San Diego and Catalina on a film about sharks for the PBS series Nature, and never for one second did we enjoy having two blue sharks that were as long as six feet around us at the same time. In the mid-1970's we thought the six-footers were little guys.

I could go on and on, but it is clear to me that gill netters have taken an incredible toll on blue sharks and mako sharks. That is the bottom line. A lot of people paint the picture with a different brush, but there is no way to convince me that blue shark populations and mako shark populations have not taken a horrific beating from drift nets. In my heart of hearts I think a lot of bureacratic agencies are long on paid holidays and short on courage.

Howard Hall



Howard Hall

Howard Hall is a wildlife photographer and natural history film producer specializing in marine wildlife films. Howard has received six cinematography Emmys for films produced for television.

Seasons in the Sea, a one hour film which aired on the PBS series N**ature** in the U.S. and was produced, directed, and photographed by Howard Hall in 1990, was judged best of show at Wildscreen90 receiving the Golden Panda Award. ***Seasons in the Sea*** also won the Festival Choice Award at the Jackson Hole International Film Festival.

Shadows in a Desert Sea was produced by Howard Hall in 1992, also for the PBS series **Nature** and the BBC, in conjunction with Partridge Films. ***Shadows*** won a Golden Panda Award for cinematography at Wildscreen92 as well as five other top awards at other major film festivals.

Jewels of the Caribbean Sea was co-produced by Howard and Michele Hall and directed by Howard Hall. It appeared as a **National Geographic Special** in 1994. ***Jewels of the Caribbean Sea*** won nighttime Emmys for best cinematography and best music in the News and Documentary category.

In 1997, Howard and Michele completed production of a 5-part series of hour-long television programs, which focused on marine wildlife behavior from around the world. ***Secrets of the Ocean Realm*** aired as five specials on PBS during 1998. ***Secrets of the Ocean Realm*** won best cinematography and best directing at the 1998 Jules Verne Film Festival. As a companion to the television series, Howard and Michele also produced and authored a coffee table book, also titled ***Secrets of the Ocean Realm.***

Howard's first IMAX film was ***Into the Deep***, an IMAX 3D film which opened the Sony IMAX Theater on Broadway in New York City and has played widely in IMAX 3D theaters throughout the world. Howard was also Director of Underwater Cinematography for the MacGillivray Freeman IMAX production, ***The Living Sea.***

Howard and Michele collaborated on a third IMAX production titled ***Island of the Sharks***. The film was produced by Michele and directed by Howard. It opened in theaters around the world in April 1999.

The Hall's are currently working on the MacGillivray Freeman IMAX production, ***Coral Reef Adventure***. In addition to directing the underwater cinematography for the film, Michele and Howard will also appear in the film showing the process of underwater IMAX production. During this production, Howard has captured IMAX images in water deeper than 350 feet using trimix rebreather technology.

Howard holds a degree in zoology from San Diego State University. He has authored numerous articles about marine life. Howard is a Roving Editor for International Wildlife Magazine and a Contributing Editor for Ocean Realm Magazine. He is also on the advisory board for Fathoms Magazine.

Howard has also authored a series of three children's books for Blake Publishing (**Sharks, Dolphins, and The Kelp Forest**) and an underwater photography text called **Howard Hall's Guide to Successful Underwater Photography**.

Howard's stories and marine life articles have been published in the following magazines:

International Wildlife Skin Diver; Sport Diver Seacoast; Tauchen Submarine; Vista USA GEO; Penthouse Aqua; California Diver National Wildlife; Pacific Diver; Ocean Realm; Illustrated London News and others.

Howard occasionally accepts assignments as a Hollywood stuntman and has worked for Columbia Pictures and CBS Productions in that capacity. Howard is a member of the Director's Guild of America.

In his spare time, Howard enjoys snow skiing, surfing, back packing, and especially hang gliding for which he holds a Masters rating having logged over a thousand cross country miles and hundreds of hours in the air.

Howard Hall's Observations On The Decreases In The Shark Population

Although "wiped out" is technically an exaggeration, "decimated" would be an understatement. In 1975 we could go out on a summer day, put bait in the water and never ever attract less than 15 sharks. Normally we would attract between 30 and 60. I'd say average was about 45 sharks or so.

Today using the same methods you have a 50% chance of getting skunked. A good day would be to attract 10. Average today would be to attract three or four. Yes, drift netters have killed the hell out of them. In five years seeing a single blue shark will be exceptional.

Blame our California fish and game department for allowing drift nets and their wonderfully successful campaign to advertise the banning of in-shore nets (which had long since quit catching anything anyway).

 "Shadows of The Sea" An article on the Sea of Cortez by Howard Hall

Bob Jackson

Q: What is your name and age?

A: Bob Jackson, 64

Q: What is your fishing/diving background? What makes you a knowledgeable source of information?

A: I have been diving for 35 years in California and Mexico

Q: Where do you fish/dive mostly and how long have you been fishing/diving in the waters you are talking about? How many days each year and for how many years?

A: I dive thirty days a year in California and sixteen days a year in Mexico.

Q: Do you operate your own boat or fish someone else's?

A: Both

Q: Do you keep a journal or log of your fishing trips?

A: No.

Q: What percentage (%) change have you seen in the numbers of the following pelagic fish in the area you fish in the past 15-20 years (1980-2000)?

A: Yellowfin tuna - down 40 to 50% in numbers

Blue sharks - 80% drop

Q: Give as many examples as you can of how fishing used to 15-20 years ago versus how it is today. Try to quantify these examples as much as possible. We are most interested in the pelagics mentioned above. Why have they decreased?

A: We used to see blue sharks by the dozens on trips to the northern channel islands from Santa Barbara. It is now rare to see a single fish. I have been told this decline is due to the off shore drift nets.

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Sea Watch

Dedicated to a Healthy Sea of Cortez

Selected By The Rolex Awards For Enterprise as One of the Top 100 ecological projects worldwide

Limit the longliners or else be fished out

Letter to the editor – Roy Sokolowski to the Honolulu Advertiser

In 1987, there were 37 longliners operating in Hawai'i. Today there are 116. Some of these longliners moved to Hawai'i after depleting tuna and swordfish populations in the Atlantic Ocean and Gulf of Mexico.

In 1987, the Hawai'i longline fleet caught 168,000 pounds of 'ahi, compared with almost 3 million pounds caught in 1999. The price of 'ahi has not gone down with the increase in supply. Why? Because the exporters and importers are making money when the fish is shipped out of state.

Untold numbers of marine mammals, sharks, seabirds and turtles have been needlessly killed by the longline industry, which cries out that fish prices will increase and the quality will go down if Judge David Ezra's ruling goes into effect. They have said this in the past and it has not been true; it is not true now.

Hawai'i must limit longliners before we are added to the list of places that have fished out.

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Dedicated to a Healthy Sea of Cortez

Selected By The Rolex Awards For Enterprise as One of the Top 100 ecological projects worldwide

THE LAST FISH
The BLUE Plate Special Could Save U.S. Fisheries

David Helvarg is an investigative journalist and author. His new book, Blue Frontier -Saving America's Living Seas, will be out in April and published by W. H. Freeman

The year 2001 began with the sale of a bluefin tuna for $172,400, the most expensive fish ever sold, and a bad omen for the survival of Atlantic bluefin and other marine wildlife. That sale took place in Tokyo's Tsukiji Market thousands of miles from where the fish was caught. But walk through New York's Fulton Fish Market any morning at 5 a.m. and you'll see the same globalized market frenzy in the form of dead fish on ice: king mackerel, red mullet, tilefish and grunts, whiting and butterfish, parrot fish from the Caribbean, tuna from Vietnam, Australia and Ecuador, New Zealand mussels and clams, all part of a world market demand for anything indigenous to the sea. The urchin caught in California, Maine or Alaska this morning could have its gonads removed and served in a Tokyo night spot by tomorrow evening. A bluefin tuna caught off Louisiana will definitely end up in Tsukiji Market, as will most black cod caught off the West Coast. Creatures once considered useless or inedible like baby eels, skates, urchins, dogfish, and horseshoe crabs all have their markets now.

The global fish trade is also keeping Americans ignorant about what's happening in their own waters. People ordering fish and
chips in Boston may not realize the white fish they're eating is pollack from the Bering Sea instead of overfished New England cod. The blue crab you order in Baltimore may come not from nearby Chesapeake Bay but Indonesia, where the pickers work for $15 a week.

The reality is America's marine wildlife is in decline. The National Marine Fisheries Service (NMFS) reports close to half of U.S. fisheries are now depleted and those numbers only reflect the commercial species that the government tracks. The U.S. fisheries boom of the 1980s turned into the bust of the last decade thanks to the wrong kind of politics, money and technology.

How did this come about? It may have started with the 1976 Magnuson Act, which, ironically, was designed to protect U.S. fishermen from foreign factory trawlers. This act created eight regional Fisheries Councils. Unfortunately, these councils were established as the only federal regulatory agencies exempted from conflict-of-interest laws. Commercial fishing interests now dominate them. The result has been policies that favor short-term economic benefit over long-term conservation. The New England Council, for example, ignored fifteen years of scientific warnings that their cod populations were being overfished until emergency closures in the fishing grounds were required to prevent the complete collapse of the stocks.

The Magnuson Act also provided easy federal loans that encouraged fishermen to borrow heavily in order to buy new boats and expand their catching capacity beyond all reasonable limits Government-backed savings and loans and foreign banks also funded this massive expansion of the fleet, as did the 1986 Reagan investment tax credit that brought corporate lawyers and other outside investors flooding the docks.

On top of this, sophisticated sonar, satellite tracking and other technologies developed for the Navy allowed the fishing fleet to carry out a high-tech war of extermination against targeted species, so that it consumed its biological capital at a faster rate than the fish could reproduce.

A practical solution to America's fisheries crisis has to be at the heart of any attempt to save America's living seas. Now the tab's come due. A practical solution to America's fisheries crisis has to be at the heart of any attempt to save America's living seas. What's required is a public understanding and commitment to turning things around. This could be done using a combination of already available policy tools.

Let's call this solution the BLUE plate special. The BLUE, of course, is a fisheries acronym (the industry's full of them).

The B is for "Buy-backs," a financial commitment by both government and industry to reduce the size of the fishing fleet to a sustainable level.
The L is for "Limited Entry," which means only so many people can be licensed to work in a given fishery or biological complex of fisheries, to prevent them from being overcapitalized again. We cannot allow more people to fish a living resource than its biology and habitat can sustain.

The U in BLUE is for "Undersea Reserves" or what are being called Marine Protected Areas. Biologists suggest 20 percent
of the blue frontier needs to be set aside as no-take zones in order to restore and propagate new populations of fish, crustaceans and other plants and animals. Where undersea reserves already exist studies are finding them highly effective, with healthy populations of marine wildlife slowly expanding beyond their fluid borders.

Finally, the E: an "End to Conflicts of Interest." Fisheries management must be taken away from people with a direct stake
in killing the resource. At a hearing in Washington on the billion-dollar-a-year pollock fishery's impact on Steller's sea lions, I heard a one-time NMFS scientist give testimony. He'd quit NMFS to help found a factory trawler company and was also vice chair of the Pacific Fishery Council. In the aviation industry, an FAA inspector might quit his or her job to found an airline, but once in that position that airline executive would not be allowed to sit on the National Transportation Safety Board. The flying public wouldn't tolerate it, nor does the law allow it. The same principal of not allowing economic self-interest to oversee the public trust should apply to preserving our living oceans for future generations.

This BLUE plate special program can work, but only if more Americans who say they love our oceans decide to take active responsibility for their stewardship.

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Selected By The Rolex Awards For Enterprise as One of the Top 100 ecological projects worldwide

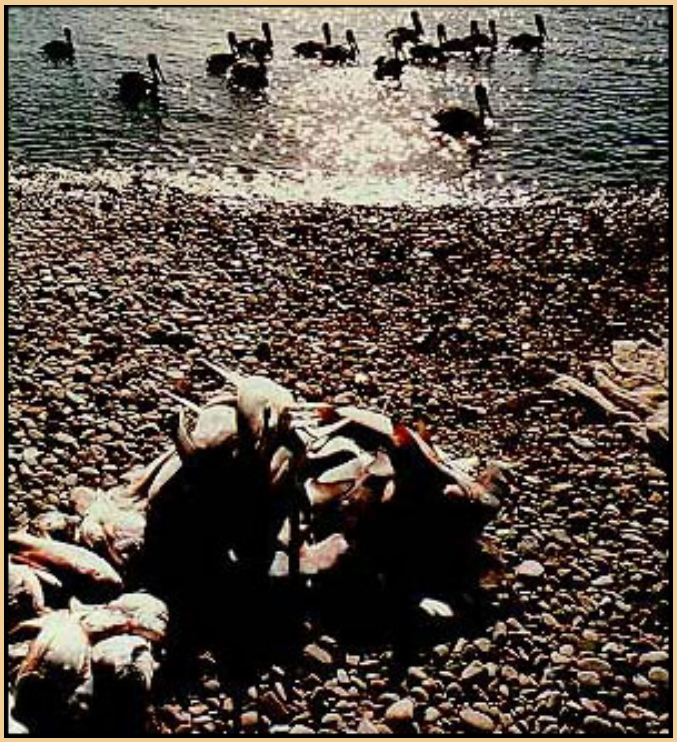
Sharks Beware

A. Peter Klimley
Bodega Marine Laboratory

By:
A. Peter Klimley
Bodega Marine Laboratory
University of California, Davis
Bodega Bay, California

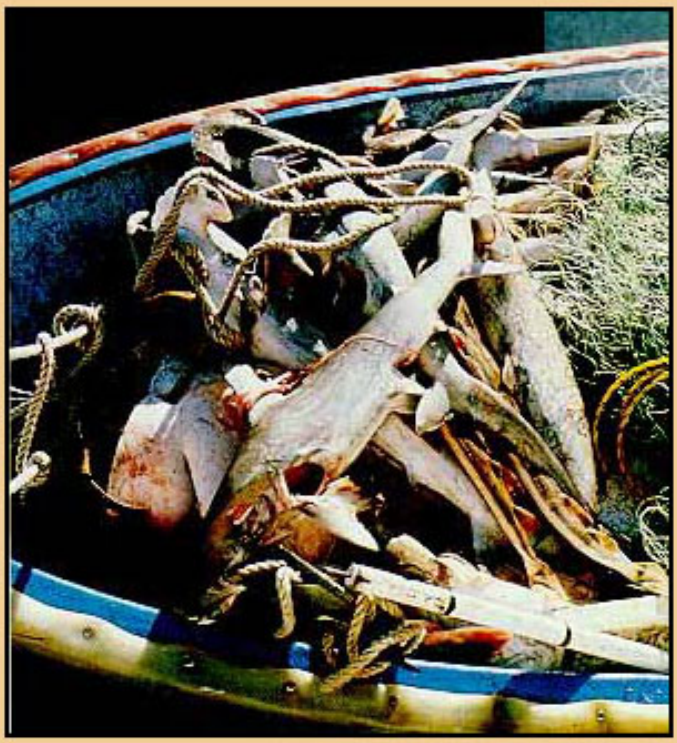
Excerpted From:
American Scientist
Volume 87
November - December 1999
Macroscope

People have curiously mixed emotions about sharks. Once again this summer moviegoers were thrilled by a shark-attack movie, Deep Blue Sea. Genetically engineered mako sharks that were both huge and smart unabashedly devoured their scientific creators, carrying on the Hollywood tradition begun in 1975 with the huge success of the movie Jaws.



Yet at the same time, the public is learning to appreciate sharks for their beauty. During the past 20 years, tourists have come from around the world to swim with the hammerhead sharks at the Espiritu Santo seamount in the Gulf of California. Not only are there hammerheads magnificent to observe swimming gracefully in their schools, but these sharks also have keen senses and sophisticated behavioral repertoires. For example, female scalloped hammerhead sharks perform an elaborate display – resembling a springboard diver's reverse flip with a full twist – in order to induce subordinates to leave the center or harem-like schools, where the chance of a female mating with a male is highest.

The fact that the hammerhead can perceive very weak electromagnetic fields, an ability human beings lack, makes this species so abundant and a tourist attraction around the world. Like other sharks and rays, hammerheads migrate extensively, using their detection and navigational abilities to find prey buried out of sight and also to guide their movements back and forth from their seamount homes to neighboring feeding grounds. Ecotourism for sharks is currently very common in Florida, the Caribbean, Southern California, South Pacific islands and Australia, where divers are taken to sites to which oceanic and reef sharks are attracted by bait. Tourists are also taken in boats to islands inhabited by colonies of colonies of seals and sea lions off Australia and South Africa, where white sharks can be viewed from the security of a shark-proof cage.



Since these pictures of hammerhead sharks captured in the Gulf of California were taken in 1978 (top) and 1980, no regulations have been put in place to protect the sharks from overfishing. Today ecotourism is popular in the area, and sport divers often swim with the hammerheads. (Photography courtesy of Jeff Corwin (top) and Giuseppi Notobotolo di Sciara)

But just as they are becoming tourist attractions, sharks may be vanishing. During my last two visits to the Gulf of Califonia, I was stunned by how rare hammerhead sharks were in these waters. My research team manage to see only one small group of eight hammerhead sharks on a two-week cruise during summer 1998 to study pelagic fishes at a seamount near the tip of the Baja California peninsula. We spent much of our time searching for the hammerheads by making free and scuba dives.

During a similar cruise 18 years earlier, I discovered massive schools of the species at the same site. My colleague Don Nelson and I estimated the number of scalloped hammerheads sharks swimming around this underwater ridge less than one-half mile long by using a Lincoln Index capture-recapture analysis modified for our observations of sharks. One August morning we made breath-holding dives into the schools of sharks and quickly tagged 21 sharks with color-coded, plastic-streamer tags. The sharks, often accelerated momentarily after tagging, but usually remained within their groups. That afternoon, nine tagged sharks were observed again with a group of 225, yielding an estimate of 525 sharks in the vicinity of the seamount.

Who's Eating Whom

If sharks are threatened, it is not by the recreational fishing inspired by Jaws or by ecotourism. The simple fact is that people also like to eat sharks, a species whose life-history characteristics make it sensitive to overfishing and whose wide travels make fisheries management difficult. This appetite has resulted in the recent growth of fisheries for shark species worldwide. These fisheries have had a boom-and-bust history. Shark populations have decreased sharply after periods of intense fishing pressure.

Examples are the fisheries of the porbeagle shark (Lamna nasus) in the North Atlantic, the soupfin shark (Galeorinus galeus) off California, the basking shark (Cetorlinus maximus) off Europe and Canada, and the spiny dogfish (Squalus acanthias) both in the North Sea and off British Columbia. For example, in 1961, Norwegian fishers began to target the porbeagle shark. The yearly landings of the fish- and squid-eating porbeagle shark in the Northeastern Atlantic rose to 8,060 tons in 1964, only to fall in the next three years to 207 tons. The landings have not exceeded 100 tons since the late 1970s.

Basking-shark fisheries fisheries have collapsed in both the Atlantic and Pacific oceans. A very localized fishery for the species arose off western Ireland in 1947 near Achill Island. Between 900 and 1,800 of these enormous, plankton-eating sharks were captured each year from 1950 to 1956. Over the following years the catch declined, shrinking to 119 by 1968. The fate of the soupfin shark, a relative of reef sharks, is another prime example. The need for high-grade oil by the military during World War II created a market for soupfin liver oil. The liver, impregnated with oil, can reach a third of the body mass of an adult shark. The price of oil rose from $50 per ton in 1937 to $2000 per ton in 1941. The catch of soupfin rose from 270 tons per year in the early 1930s to a peak of 2,172 tons in 1941 and then dropped to 287 tons in 1994. (For a detailed review, read Camhi et al. 1998.)

Commercial fisheries for sharks have operated in the United States since the 1930s, but they were originally small and restricted to small areas. They did not begin to grow until the late 1980s. Massachusetts has the largest fishery for sharks in the United States (Figure 3). This fishery mainly targets a single species, the spiny dogfish, which (in addition to its other ranges) lives in large schools off New England in the spring and summer and then migrates to the waters off the southeastern United States during winter. It is served as "fish and chips" in restaurants in both the U.S. and Europe. The landings of this small but very abundant predatory species were still rising by the late 1990s.

Excluding dogfish from the catch, Florida has the largest shark fishery. This fishery targets many coastal species in the Gulf of Mexico. The landings of these reef sharks rose until the early 1990s, when they began to decrease. The growth in the commercial shark fisheries in the late 1980s for sharks in the Atlantic and Gulf of Mexico was partly due to a new public appreciation of the value of these species as food. However, a more important reason for the expansion of the shark fisheries was the demand in Asia for fins.

There are several reasons why sharks and rays are particularly vulnerable to intense fishing pressure. Most species are near the top of the food chain and not abundant. Sharks grow slowly, mature late in their lives, do not reproduce every year and have few young. They succeed in part because they are long-lived. As Merry Camhi of the National Audubon Society points out, "Unlike most bony fishes in which the survival of millions of eggs and larvae are often largely dependent on environmental variables, chondrichyans (sharks and rays) exhibit a much closer relationship between the

number of young produced and the number of breeding adults." Kill a substantial proportion of adults, and the population cannot be expected to be replaced.

	white shark *Carcharodon carcharias*	sandbar *Carcharhinus plumbeus*	scalloped hammerhead *Sphyrna lewini*	spiny dogfish *Squalus acanthias*	Atlantic cod *Gadus morhua*
age to maturity (years)	m 9–10, f 12–14	m 13–16	m 4–10, f 4–15	m 6–14, f 10–12	m 2–4
size at maturity (centimeters)	m 350–410, f 400–430	m 170, f >180	m 140–280, f 150–300	m 60, f 70	m 32–41
life span (years)	m 15(?)	m 25–35	m 35	m 35, f 40–50	m 20+
litter size	2–10 pups	8–13 pups	12–40 pups	2–14 pups	2 million–11 million eggs
reproductive frequency	biennial(?)	biennial	?	biennial	annual
gestation period (months)	>12	9–12	9–12	18–24	n/a

Figure 2. Life-history characteristics of sharks (here compared with Atlantic cod) make them vulnerable to overfishing. (Data from Camhi 1998.)

Take, for example, the sandbar and scalloped hammerhead shark, two species frequently caught in the Atlantic and Gulf of Mexico fisheries. The sandbar takes 13-16 years to reach maturity and then gives birth to 8-13 pups every other year. Female hammerheads can take up to 15 years to reach maturity and then give birth to 12-40 pups. The spiny dogfish has a similarly long growth period to reproductive maturity and produces 2-15 young every second year. The Atlantic cod, by contrast, reaches reproductive maturity in only 2-4 years, produces 2 million to 11 million eggs, and reproduces every year.

The impact of catching even a few of the really large predatory species of sharks, such as the bull (Carcharlinus leucas), tiger (Galeocerdo cuvieri) and white shark (Carcharodon carcharias) can be even greater. When four large white sharks were caught on October 5, 1982, close to shore at the South Farallon Islands near San Francisco, the number of attacks on prey animals observed in local waters dropped by half during the next two years.

Why would the white shark be so vulnerable to fishing pressure? First, it is an apex predator, occupying the pinnacle of the food chain. Individuals of these species are never very common. The white shark feeds on seals and sea lions; they in turn feed on smaller prey such as fish and squid; these feed on even smaller planktonic animals; and these feed on plantonic plants. At each link in the chain some energy is lost, resulting in less animal mass.

The size of the local white shark population has been estimated in only two geographical areas, South Africa and South Australia. The centers of the range of estimation were 1,279 and 191.7, respectively. Naturalists at the Point Reyes Bird Observatory and I have identified nine to 14 white sharks over a 5-year period of observation each October and November at the South Farallon Islands. The same sharks often returned to the island year after year.

There are several reasons that white sharks are so rare. First, individuals of the species grow slowly. Male white sharks become sexually mature at a length of 4 meters, when they first develop rigid claspers or intromittent organs. A male of this size has 10 concentric growth rings on each cartilaginous element of the vertebral column, indicating an age of 10 years. Females mature at a larger size, between 4.5 and 5.0 meters long, and at an age of 14 years. It is probable that the white shark resembles most other sharks that do not give birth yearly, but every second or third year. Finally, the maximum size to a litter of pups is only 10 per female. In the context of this life history, it is not surprising that the capture of four white sharks at a single site would reduce the local population to half its former level. The fear of the negative impact that thrill-seeking fishers might have on the white shark population off California led during the first week of October 1993 to the passage of a bill in the California legislature protecting white sharks.

Sharks for the Future

By the end of the 1980s, scientists such as Jack Musick of the Virginia Institute of Marine Science and Sonny Gruber of the Rosenstiel School of

Marine and Atmospheric Sciense began to voice concern over the unmanaged expansion of the shark fisheries in the Atlantic Ocean, considering the vulnerability of the species to overfishing. In 1989, the National Marine Fisheries Service (NMFS) began to develop a management plan for the sharks of the Atlantic Ocean and Gulf of Mexico. This plan was implemented in 1993 as the Fishery Management Plan for Sharks of the Atlantic Ocean. The plan was directed at the management of 39 species in three categories: large coastal sharks, small coastal sharks and pelagic sharks.

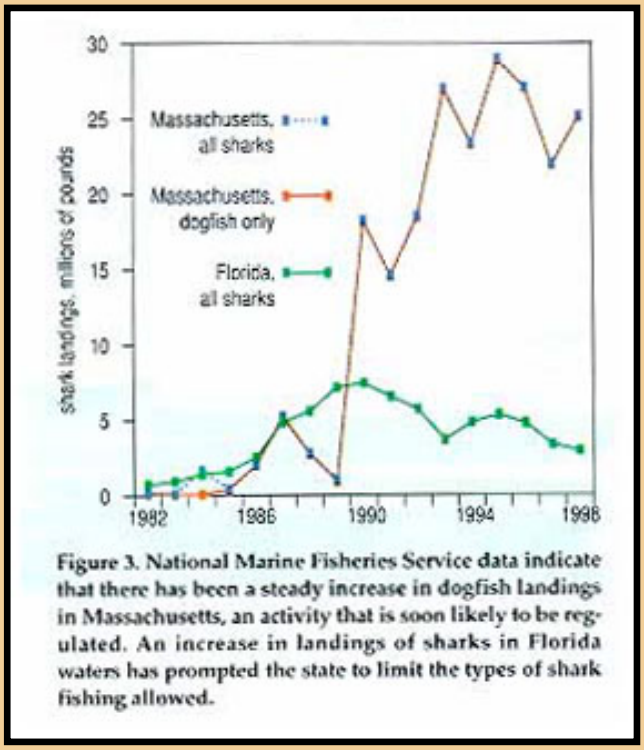


Figure 3. National Marine Fisheries Service data indicate that there has been a steady increase in dogfish landings in Massachusetts, an activity that is soon likely to be regulated. An increase in landings of sharks in Florida waters has prompted the state to limit the types of shark fishing allowed.

The spiny dogfish, though captured in great numbers, was not included in this plan. This is unfortunate, as the species has the same life-history properties as many of the species listed. However, the state Fisheries Management Councils have put together a management plan for this species during the past two years. Quotas have been set for the commercial fisheries and bag limits for the recreational fisheries for the large coastal and pelagic sharks to lessen the fishing pressure on these species. Commercial fisheries are required to hold a federal permit to fish for sharks. Importantly, fishers are required to report the number of each species captured each fishing trip. This latter regulation will permit the NMFS to monitor catch per unit on an annual basis and regulate fishing pressure based upon knowledge of whether catch is increasing or decreasing annually. Finally, the plans prohibit the wasteful practice of "finning," by which only the fins are retained and the rest of the body is discarded as bycatch. Merry Camhi's Sharks on the Line gives a summary of these regulations and a discussion of intricacies of managing shark fisheries state by state along the eastern coast of the U.S.

The state of our knowledge about sharks must improve if the growth of fisheries is to continue rather than collapse. First of all, adequate species-identification guides are needed so that accurate fisheries statistics can be collected. Management must be international in nature as many of the species are highly migratory and travel across jurisdictional boundaries, making the collection of standardized fisheries statistics difficult. Finally, the long life span and slow growth of the species make it impossible to assess the effect of management strategies until they have been in place for decades. Many management tools are available and currently being used in different countries, yet management plans for sharks and rays are only in place in a few countries. These tools include the establishment of quotas, restriction of entry into the fisheries by issuing licenses, closures of geographical areas used as shark nurseries, fishing seasons, shark-size and gear restrictions, and bag limits. I hope that in the future we will carefully manage these important fisheries so that we do not repeat our mistakes of the past.

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Longlines Off California? Time to Say NO!

By Doug Olander, Editor-in-Chief
From Sport Fishing magazine - Editorial November - December 2000

No method of commercial fishing has come under more intense fire in recent years in all oceans than longlining. And with good reason.
These "curtains of death," with literally thousands of hooks stretched over 40 or more miles, are indiscriminate killers that rapidly, demonstrably, decimate the ocean's large predators. In the Atlantic and Gulf of Mexico, longlines have reduced marlin stocks to just 12 percent (for whites) and 15 percent (blues) of historic abundance. Swordfish, which used to be common from 100 to 200 and more pounds, now average a mere 30 to 50 pounds. As a result, Congress is considering various legislative approaches to limiting or even ending the practice. Meanwhile, the National Marine Fisheries Service has initiated its own plan to severely curtail longlining in the Atlantic and Gulf. Still, lawsuits by some conservation groups proceed because, they insist, the government is not going far enough fast enough to limit longlines. And still more waters around the Grand Banks may be closed to longlines to protect sea turtles. In the central Pacific, a federal judge has put a huge chunk of ocean off-limits to longline fishermen because of the bycatch of endangered leatherback turtles.
One of the few places where populations of billfish, large tunas and sharks are not being wiped out by longlines is off Southern California. Why? Because longlines are forbidden in these waters.

In fact, the federal government has allowed the state of California to manage both coastal and U.S. waters (out to 200 miles). In 1992, the California Fish and Game Commission, faced with a decision about whether or not to grant permits for longline fishing off the state's coast, heard all the evidence, pro and con, from all sides regarding longlines. Their decision was unequivocal - and unanimous: There would be no longlines. Many in the recreational fishing community - some who were there during the hearings - say this decision was clearly based on an exhaustive report by California Department of Fish and Game biologist Greg Walls. That report offered information on longlining from 53 studies/sources.

Now, eight years later, you'd figure state and federal managers must be reveling in that shrewd decision, seeing how longlines are laying waste to pelagics elsewhere, and how much litigation, legislation and general controversies have resulted wherever longlining is permitted. You might think that. You'd be wrong.
Amazingly, astoundingly, the federal agency responsible for approving the Pacific Coast's first Highly Migratory Species management plan has agreed with an advisory panel to consider longlining as an

acceptable form of harvest in the Pacific off California. That panel-specifically, the Highly Migratory Species Advisory Subpanel first entertained a suggestion by some commercial fishermen to swap their drift-gill-net permits for longline permits. Of course, the court rulings expected to curtail or end gill-netting in the near future weren't a factor. No, the rationale was: Longlines are more environmentally friendly (less harmful to marine mammals) than gill nets.

Why didn't the advisory subpanel immediately table such a clearly outrageous suggestion to permit at least 80 active gill-netters (or perhaps 138 gill-net-permit holders) to start operating longlines here? For starters, consider the makeup of 11 of 13 members: 9 from the commercial fishing industry, one from the recreational fishing industry and one a private recreational angler! I've been assured there's no bias on the panel.
For some reason, I have a very hard time believing that.
At a mid-September meeting, the Pacific Fisheries Management Council (PFMC) saw enough merit in this longline proposal to ask its Plan Development Team to study it further. That's the same team that gets advice from a nine-to-two/commercial-to-recreational advisory panel. And this is the same panel that convinced the PFMC that "further study" is needed to show longlines are harmful and that "the need for a scientific evaluation" remains. But the panel has yet to cite the Walls Report, which its proponents insist is one of the most thorough reports on longlining.
Of course, just about anyone familiar with basic marine issues who hasn't been away from the planet lately shouldn't need any study to just say no to longlines. Yet fishery managers, whose salaries are paid by taxes of all citizens and not by the commercial-fishing industry, seem to want to just say yes.

If you have an opinion and want to make it heard - public pressure can be a powerful motivator for public officials-do it NOW. Over coming weeks, the longline issue will be in play.

Contact:

Dr. Donald O. McIsaac, executive director, Pacific Fishery Management Council, 503-326-6352, fax 326-6831, e-mail pfmc.comments@noaa.gov
Tom Raftican, United Anglers of Southern California, 714-840-0227, fax 840-3146, www.unitedanglers-sc.com.
Jim Donofrio, Recreational Fishing Alliance, 888-564-6732, www.savefish.com.

Also, visit www.envirowatch.org to see how "friendly" longlines are to marine mammals

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Harpoon Swordfishing In The Bight Of California

PREPARED FOR:

PACIFIC FISHERIES MANAGEMENT COUNCIL

IN REFERENCE TO THE

Highly Migratory Species Fishery Management Plan

A POSITION PAPER

Researched and written by:

LARRY E. MEBUST

SPOTTER PLANE PILOT AND HARPOON FISHERMAN/BOAT OWNER

This paper is a discussion of the history and future of Harpoon Swordfishing in Southern California. It covers how the fishery operates and how it has been affected by the introduction of new technology and by other fishing methods. Also included is a discussion of the unlimited fishing pressure applied by the Mexican near shore Swordfish fleet. More importantly, the paper compares the current state of Swordfishing in California and Mexico with the collapse of the Swordfish industry in Chile. The parallels are too frightening to ignore when discussing the future of this fishery. They dramatically show how indiscriminant fishing techniques such as gillnetting and long lining destroy a priceless fishery resource. The conclusions offer some disturbing news. The recommendations offer stringent but necessary management tools for consideration.

HARPOONS…THE ORIGINAL ROD AND REEL!

"Harpoon Swordfishermen today, as in the past, use their eyes to find the fish. It follows that they see every kind of life that swims on or just below the surface while they fish. It also follows that when they see very little life swimming around their boat they know something is very definitely wrong. The boat is in the wrong place, or the life is gone!" *Larry E. Mebust*

INTRODUCTION and SUMMARY

THE CALIFORNIA HARPOON FISHERY for SWORDFISH

The Harpoon Swordfishery in California is a traditional fishery. It is documented as having been practiced by West Coast Indian fishermen dating back as far as 3,000 years. Modern commercial Harpoon fishing in California began around 1900 utilizing sail powered sloops or schooners. The gear in use today has changed little since then except for the materials from which it is made. With the advent of new fishing methods, harpoon swordfishing will probably never again be the primary way to catch swordfish; but it will always be the leading indicator, or bellwether, by which to measure the health of the stock and thus the performance of those who manage that stock.

TROUBLING LANDINGS DATA

Until the deployment of Drift Gillnets in the late 1970's, the harpoon was the primary gear type in use in California. Since the deployment of the Driftnet, the landing statistics indicate to us that a classic "boom/bust" scenario has already occurred in California's near shore fishery with swordfish landings steadily decreasing since they peaked in1985.

DRIFT GILLNETS AND LONGLINES ARE TOO EFFECTIVE

Unmanaged or under-managed fishing with both Drift Gillnets and Longlines has been proven to lead to overfishing and ultimately to failed fisheries. Our near shore fishery has for the past ten years, exhibited all classic signs of excessive fishing for swordfish and other species. These gear types have also been proven to produce unacceptable levels of by-catch and discarded catch. These gear problems must now be dealt with objectively; they can no longer be ignored. I tenaciously support every commercial fisherman's right to fish for a living and to feed his family. However, I believe that this right comes with the direct responsibility to fish in a manner that shows concern for the fish stock as well as the entire ecosystem.

THE WRITING IS ON THE WALL

The California/Mexico near shore fishery for swordfish parallels that of Chile in its evolution: Harpoons to Driftnets to Longlines. Chile began introducing stringent management measures far too late in the evolution to prevent the collapse of its swordfishery. The new measures may someday allow the rebuilding of the Chilean fishery, but for now it is commercially unviable. The recent introduction of Pelagic Longlines into our off shore fishery (outside the 200 mile Exclusive Economic Zone, EEZ) in California is the final requirement for us to evolve into a mirror image of Chile.

Hopefully the conservation and management measures evolving from the current efforts of the Council will preclude that evolution.

MORE EFFECTIVE MANAGEMENT IS REQUIRED

My specific concerns are itemized and quantified in this document, as are recommendations for change. New national and international conservation and management measures are desperately needed if swordfishing, and especially Harpoon swordfishing is to remain a commercially viable fishery in California.

THE CALIFORNIA HARPOON FISHERY for SWORDFISH

Today's harpoon swordfishery in California was clearly and in the main, accurately described from both a technical and historical stand point by ATILIO L. COAN JR., MARIJA VOJKOVICH, AND DOUG PRESCOTT in their paper, The California Harpoon Fishery for Swordfish, Xiphias gladius. The historical description in the introduction and many of the statistics utilized in the writing of our paper were obtained from this work. Credits for the usage of their information in are given and herein, their work is referred to as Coan et al, 1994. I disagree with some of Coan's conclusions regarding the California harpoon fishery and discuss these later.

Harpoon fishing pressure is limited by nature

Harpoon swordfishing in California is limited annually by two major factors. First, swordfish are only found in fishable numbers in the calmer waters of the Bight between June and November. This is due to the annual northwesterly push of the North Equatorial Counter Current. Secondly, the winter and spring weather in the area tends to be too rough to operate in with a harpoon pulpit extended. These two conditions levy a natural, seasonal closure on the harpoon fishery. The other gear types fish in all but the worst of weather conditions.

Boat / Airplane "team fishing"

The *boat/airplane team* harpoon fishery, as it is today, began to evolve in the early 1970's when airplanes were introduced. Initially, infighting between the purists and those intent on modernization caused the airplanes to be a very limited factor in the fishery for over ten years. The planes were banned by the DFG for one year during 1976. In 1984, airplanes were finally allowed full time in the fishery. This only occurred after many of the boats had been converted to fish drift gillnets. The modern, I believe technically correct, boat/plane team-fishing model for swordfishing never had a real opportunity to show what it could accomplish in the market place before the near shore swordfish stocks began to show a serious decline in numbers.

The harpoon swordfishery produces zero by-catch

By-catch in any fishery describes those non-targeted animals that are incidentally or accidentally taken by the fishing gear while fishing for the target species. Harpoon swordfishing produces absolutely zero by-catch! A harpooner intentionally takes every single fish landed by his boat.

Average weight of landed harpooned swordfish

Coan et al, 1994, describes the average landing weight of harpooned swordfish during the period 1981 - 1993 as being 85 kg (187.4 lbs.) and explains that they did not have total numbers of fish, only total weight with which to calculate the number. Coan's average is low when compared to average weight per fish data reported by harpoon boats from landing receipts. My calculations of annual average dressed weight per fish taken by harpoon over the past ten years averages approximately 90.7 kg (200lbs.). This varies from about 195lbs to well over 200lbs on a boat-to-boat basis over the same ten-year period. The primary reason for this higher average weight (than other gear types) is selectivity. Harpooners seldom take juvenile swordfish.

***Intentional take* of secondary species**

Some harpoon boats take Mako sharks as a secondary species due to its readily marketable meat. Makos in the one hundred to one hundred fifty pound range tend to be the shark most likely to be taken due to the steak quality of that size fish. In recent years, however, sharks of this size are seldom seen in the Bight. My boat quit taking shark's altogether due to a combination of low price and the modern knowledge about the animals'

limited ability to reproduce.

Erroneous harpooned shark landings disputed.

The data indicate that in the late 1960's sharks were not routinely targeted or landed by Harpooners (Coan et al, 1994); this is the norm for the fishery. Table 1 in Coan's work shows that between 1969 and 1974 harpooners landed only 53 Mako sharks, all in 1970. Beginning in 1977, the data show a massive increase in shark landings by harpooners including hundreds of metric tons of Thresher, Mako, Blue and other sharks.

These dramatic numbers are undoubtedly accurate, however harpooners did not take these sharks! The beginning of these landings coincides precisely with the beginning of the drift gillnet fishery. The driftnet fishery was originally licensed as an "Experimental near shore Shark fishery" targeting Threshers and Makos with swordfish as by-catch. By rule, swordfish landings could not exceed shark landings. Coan theorizes that those boats with both permits (harpoon and drift gillnet) simply assigned enough of their sharks to their harpoon catch in order to make their high percentage of swordfish landings appear legal.

At this writing, I understand that due to Coan's work, the Department of Fish and Game and NMFS both understand why these old figures are erroneous. They are, however, part of the record and I mention them for the benefit of others who may read this paper. This "unexpectedly high by-catch problem" must become a lesson learned for those who evaluate future requests for "experimental fisheries."

Harpooners service a demanding niche market

Harpooners have developed a specialty customer base in the high quality seafood restaurant market. The Department of Fish and Game licenses many of these first quality restaurants as fish receivers. A direct sale to this market produces better income for the fisherman. It rewards his efforts to deliver truly fresh fish to the end user, and assures the customer of a consistently high grade of product.

Only when the fisherman-direct market is satisfied do the harpooners begin to deliver to wholesale buyers. Even wholesale buyers will generally pay more per pound for the harpoon product than for swordfish caught by other gear types. As a general rule, when a harpooner calls a wholesale buyer to sell fish, those fish are already sold to restaurants by the time of delivery to the buyer. Harpooned swordfish are often referred to by the wholesalers as "cherries" thus acknowledging the high quality of the product.

Our markets demand top product quality

Harpooners pride themselves on the high quality of their product. This notable quality is due the handling of the fish after it is harpooned. Once aboard, the fish are bled immediately. This single action improves the color and quality of the meat markedly. (The meat from any fish that dies with its blood in the meat will be darker and stronger tasting than that from a fish which has been bled. Side by side, a steak from a bled fish appears pink or white, while a steak from a fish that died without being bled will appear brown in color.)

After bleeding, the fish are immediately finned, gutted, trimmed and the body cavity thoroughly scrubbed before they are placed in the refrigerated fish hold and iced down. The fish are re-iced after about 12 hours to replace the ice lost in the cooling process.

Most harpooners try to unload their fish within 1 to 3 days after catching them. Although refrigerated swordfish

does hold very well, the harpoon customer base generally wants the fish as soon as they can have them.

Harpooning is a bellwether fishery

Harpooning on the California coast is a fishery in decline. This is because it is becoming more difficult to make a profit with every passing year. The foregoing statement poses the question: "why is it harder to be profitable"?

Coan's work states "competition from the more efficient drift gillnet fishery since 1980 has resulted in decreases in harpoon catches." I strongly disagree with this statement in two important ways. First, the term *efficient* cannot be applied to the use of gillnets to catch swordfish. They are certainly *effective* at catching sea animals, but efficiency requires getting the job done without creating damage. Secondly, harpooners do not and cannot compete with the drift net fishermen in numbers of fish caught! Harpooners pride themselves on catching and delivering only one thing - high quality fresh swordfish! They are, I believe, willing to live with a Catch Per Unit of Effort (CPUE) that I below that of the other available gear types in order to be selective. However, harpooners, myself included, must remain profitable to continue fishing.

The steadily decreasing catch levels and resulting limits on profitability result directly from a steadily declining stock of fish! It's simple: less fish available to catch = less fish caught = less profitability!

There is only one reason for this: the swordfish stocks have diminished due to excess fishing in the near shore waters of both Mexico and the Bight of California, our primary fishing grounds.

Harpooners only fish in the top layer of water where the fish fin or bask. It stands to reason that we only see a percentage of the fish in a given area on a given day. If the stock of fish in that area is healthy, we see plenty of fining fish. If the stock is small, we see very few. Unfortunately, even with the use of airplanes, "very few fish" is becoming the norm.

The near shore harpoon fishery for swordfish is in trouble because the near shore swordfish stocks are in trouble! We are the same bellwether that first forecast the demise of both the North Atlantic and Chilean swordfisheries - the Harpooners.

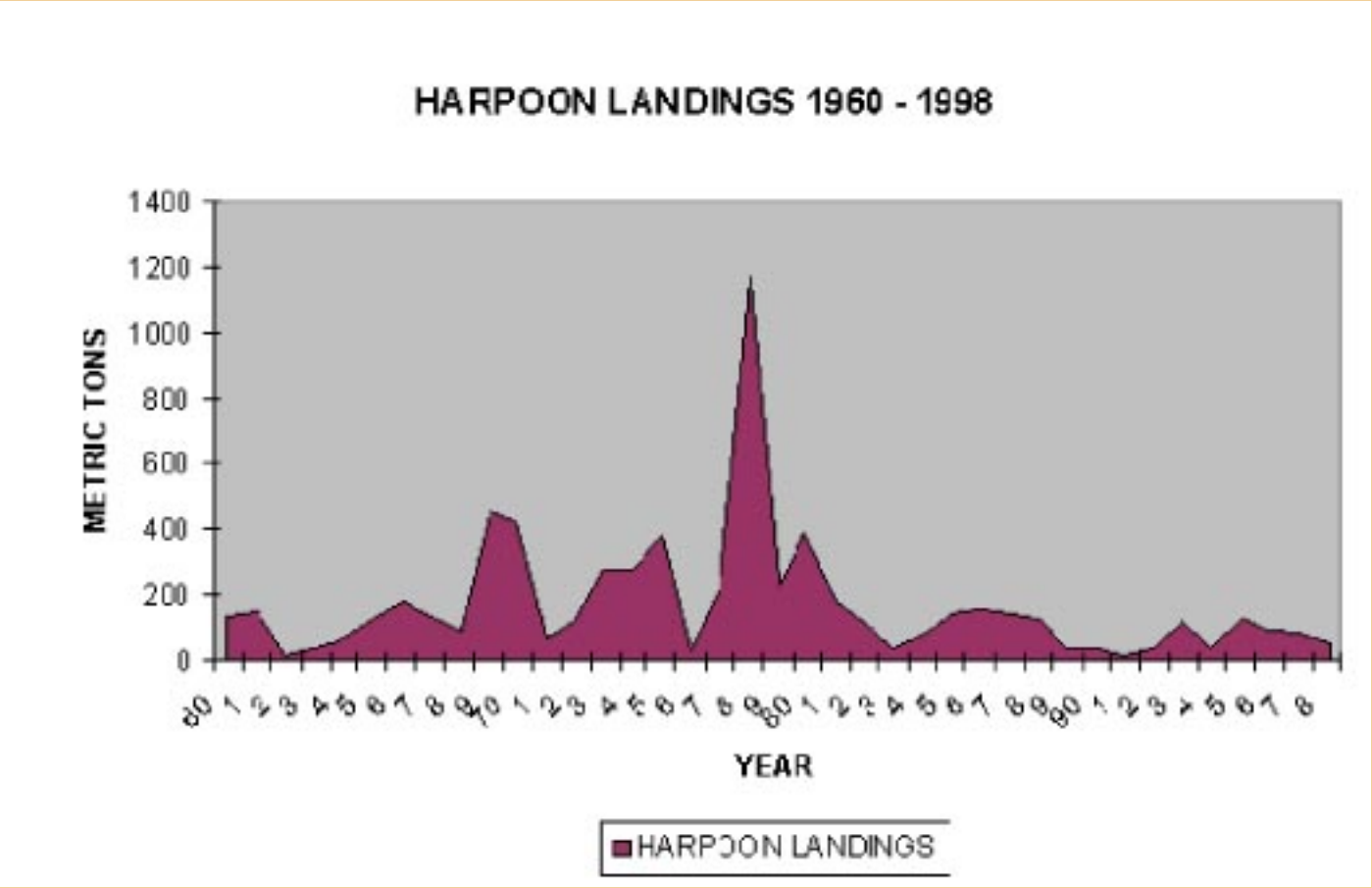
The U.S. drift gillnet boats are by no means completely responsible for this decline in the near shore stocks. The U.S. flagged driftnet boats are managed to an extent by the CDFG by means of time/area closures. The virtually unmanaged Mexican near shore drift gillnet/longline fleet has landed (and imported to the U.S.) all the swordfish it was capable of catching over the past 15 years. These Mexican landings must be included in any future studies of the health of near shore swordfish stock. The Mexican fleet must also be included by treaty or other means in any viable fisheries management plan affecting California based swordfishermen.

TROUBLING LANDINGS DATA

A NOTE ON DATA

The graphs in this section were created using thirty-nine years of landings data obtained from the NMFS database. It should be noted that an average of one metric ton per year of landings shown as "Harpoon" can be attributed to unknown gear types. These are the occasional landings made by purse seine boats and other gear types not normally associated with swordfish.

FIGURE 1



Actual harpoon landings - Figure 1

Figure 1 shows the record of landings by the California harpoon fleet for this thirty-nine year (39) period. At first glance the chart would indicate that swordfish just come and go haphazardly in the waters of the California Bight. There is no information to explain the low catch recorded for 1962 except to say, "the fish just didn't show up." An over reaction to mercury levels in some international fish stocks caused the 1971 dip; many boats just didn't fish that year. The 1976 dip was also primarily man-made due to airplanes being totally disallowed by the DFG for that year.

1978 - THE UNEXPLAINABLE YEAR

During this period came the fishing season that no one could have believed and many still don't -1978. The harpoon boats could go anywhere in the Bight of California and find between ten and twenty fining swordfish in any given day. They could return to the same little piece of water every day with the same results - more fish. From San Diego to Santa Cruz Island the ocean was alive with swordfish for the taking. Airplanes were the last thing on anyone's mind during this season. There is no harpooner alive today who, having experienced that season, won't tell you that it was a one in a million year**. *The current belief about 1978 is that it gave a one-season look at the large stock of* swordfish that once populated the near shore waters of southern California and Mexico.**

I have created a five-year moving average of harpoon landings to produce a long-term trend analysis of the data. In the interest of smoothing out the radical three year peak in the harpoon graph which was caused by the

astounding landings in 1978, the actual data point for 1978 (1171 mt) was replaced with the arbitrary figure of five hundred metric tons (500 mt). This figure serves to acknowledge a great year without creating a misleading three-year peak for the harpoon fleet. The blue (diamond) aircraft data points are arbitrary and only serve to show limits and closures placed on aircraft use.

Airplanes - The key to the harpooners success

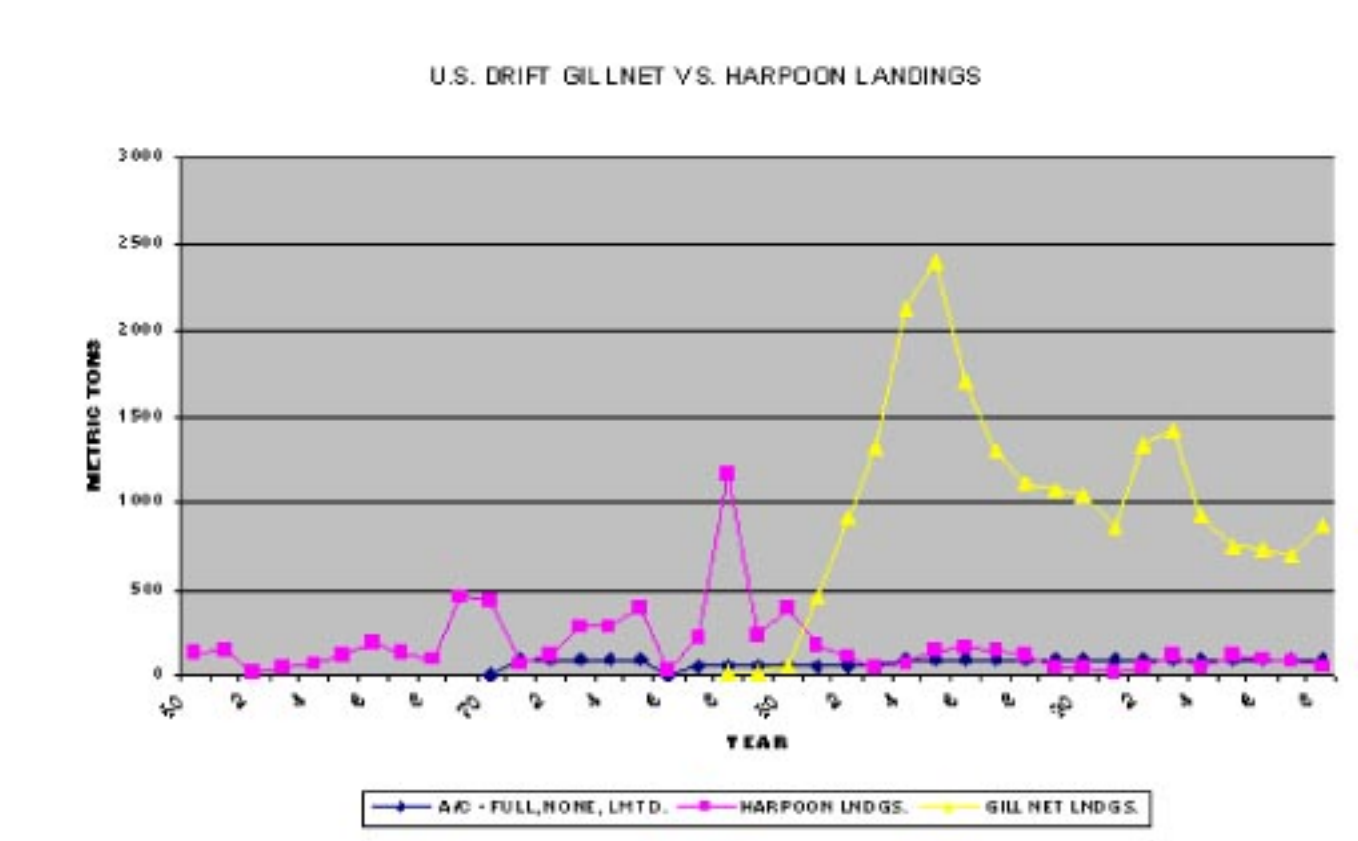
Even with limited ability to use spotter planes, the landings for the harpoon fishery were trending upwards. Experience dictates a harpoon boat with a spotter plane will catch approximately three times the swordfish than a boat with no airplane. This is due to the plane's ability to see sub-surface fish and those fining fish that are beyond binocular range. Airplanes were finally allowed into the fishery full time in 1984, one year before the drift gillnet fishery peaked and began a precipitous decline in landings.

Drift Gillnets - the new swordfishing gear - Figure 3

During the mid-1970's a few harpoon swordfishermen began to experiment with using drift gillnets to catch sharks. To say the least, this gear proved to be highly effective at catching anything that swam into it, especially sharks and swordfish. They were issued experimental gear permits as a shark fishery. This group of boats generally had drift net gear on the aft deck and a harpoon pulpit on the bow - the best of both worlds. The boats began fishing the nets in 1978, steadily increasing their annual catch of swordfish by an average of nearly five hundred metric tons (500 mt) per year by 1980. This success peaked in 1985 with landings of over twenty four hundred metric tons (2,400 mt) of swordfish alone.

This dramatic success was followed by an almost equally dramatic decline in landings beginning in 1986 when landings fell to just under seventeen hundred metric tons (>1,700 mt) beginning a precipitous slide. By 1991 annual drift net landings had fallen to less than eight hundred fifty two metric tons (>852 mt) for the fleet! This rise followed by a continuing decline, points toward a classic case of exceeding the maximum sustainable yield for a species in a given geographic area.

FIGURE 3



The graph (Figure 3) clearly shows a precipitous drop in swordfish landings beginning in 1986. It also clearly shows no signs of recovery for the near shore stock in the Bight. I am quite certain, although *location of catch data* is not available, the sub-peak shown for drift gillnets occurring in 1992 and '93 includes many metric tons of fish that were actually caught outside and above the Bight. I can say this because the drift gillnet fleet fished along side of us until late October for these two seasons and then moved to northern waters. 1993 was the last profitable year for many harpoon boats.

Where did they fish?

Most of this early catch came from the Bight of California. This was where these new gill-netters had grown up fishing as harpooners so this is where they fished with their driftnets. When, in just a few years, the Bight quit producing swordfish in the quantities they had become accustomed to the larger drift net vessels moved outside the Bight and North, working between the Cortez Bank and central California. By doing so they were able to continue fishing on the near shore stocks of fish that move north from Mexican waters each year. (See also the discussion of the California Bight as a fishery later in this document.)

Where do they fish now?

A group of smaller near-shore San Diego and Los Angeles based drift net boats still fish along the border and in the waters of the Bight. However, because they have had such limited success fishing within the Bight over the past ten years, most of the larger Southern California based drift net boats travel directly to the outer edges of the Bight or to the escarpment between Pt. Conception and Morro Bay when the season opens in August. These boats now follow the fish into northern California and sometimes Oregon state waters before their near shore season ends in January, or when they are forced to move south due to weather.

The development of the Mexican fleet.

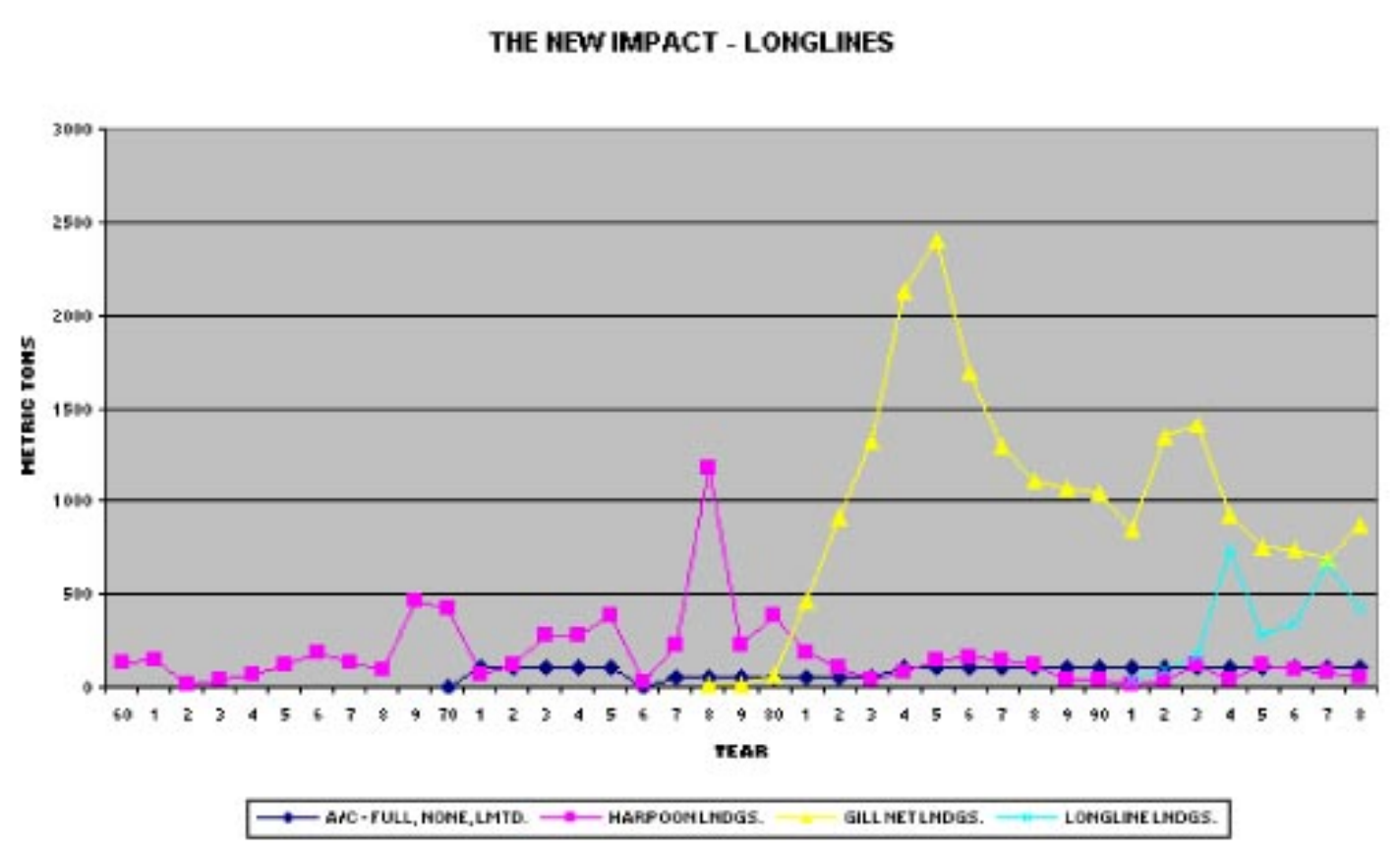
In 1985 two of these California drift gillnet fishermen theorized that they could catch more fish in Mexican waters if they could only fish there. With swordfish available year round, they would only have to limit their fishing time during hurricane season. These Americans approached the Mexican government with a proposal to fish in Mexican waters. In return for their permits they would teach the Mexicans how to fish for swordfish using drift nets. The program was a rousing success. The Mexican fleet of swordfish boats grew dramatically and is still fishing today. Most of the fish caught by this fleet is imported to the United States after being landed in Mexico. Although only one American captain remains fishing in Mexico today, the fleet is now modernizing itself. **The Mexican fleet, as of this writing, has converted all of its approximately 50 near shore driftnet boats to longline gear** because it is more effective in terms of Catch Per Unit of Effort (CPUE). To my knowledge, Mexico still doesn't impose closures or limits of any kind on its swordfish fleet.

Longline fishing - The newest technology

In 1991, three Gulf of Mexico based longliners arrived in southern California and began test fishing for swordfish and tuna. This fishing was reportedly to be carried out outside of the 200-mile U.S. Exclusive Economic Zone, EEZ. Without observers aboard, it is impossible to tell exactly where the fishing was, or is being, done.

Longline landings

According to VOJKOVICH et al 1994, during 1991 and 1992 respectively, these three boats landed 27.5 and 28.8 metric tons of swordfish. In August of 1993, numerous longline vessels from the Gulf of Mexico began arriving in southern California. Landings for 1993 jumped to 101.3 metric tons. In 1994, with thirty-one boats in California, landings were reported to be 496.7 metric tons. Also stated in the Vojkovich paper is the fact that by sampling the catch, **the average weight of the fish being caught was 139 lbs.** The actual sample breakdowns were 13% under 55lbs. with the smallest of these weighing 13 lbs., 35% weighed between 55 and 110lbs., 35% weighed between 110 and 220lbs., with the remaining 17% weighing over 220 lbs. This is the same experience the Chilean longline fleet had just a few years before the fishery collapsed.



Updated longline landings information is plotted in Figure 4

The information contained in Figure 4 is the latest available NMFS data and indicates a much higher success rate during the test fishing and early fleet fishing years. The latest data available shows the 1991 landings to be 39.4 metric tons followed by 95.5, 165.5 and 739.7 for 1992, '93 and '94 respectively. I have plotted the available NMFS landing data for this fishery through 1998.

In addition to the Gulf of Mexico-based fleet fishing off of California, a large group of Hawaiian based longliners set up their operations in Los Angeles harbor in 1999. These boats are now fishing the eastern Pacific stocks that annually feed the California in-shore fishery. I believe the final boom of the classic boom-bust cycle that occurred in Chile is now or soon will be, in full swing in California and Mexico.

DRIFT GILLNETS AND LONGLINES - TOO EFFECTIVE AND TOO INEFFICIENT

EFFECTIVENESS

I created a five-year moving average (not shown) of landings for each of the three fisheries to produce a long-term trend analysis of the data. Again in the interest of smoothing out the three-year peak in the harpoon graph caused by 1978, the actual data point for 1978 (1171 mt) was replaced with the arbitrary figure of five hundred metric tons (500 mt).

Harpoon landings

The graph (not shown) clearly shows that until the deployment of drift gillnets, harpoon landings were slowly

rising. With what is now known (after 1984) about the effectiveness of airplanes in the fishery, a fleet of fifty airplane/boat harpoon teams would have easily stabilized the harpoon landings well above 700 metric tons of swordfish per year with the previously healthy fish stocks.

Drift gillnet Landings

My graph (not shown) clearly shows a sharp decline in catch after just 10 years of targeted fishing with drift gillnets in the near shore waters of the California Bight. The actual peak of this fishery occurred in 1985, the year that Mexico first deployed drift gillnets. The chart shows a continuing, long-term trend toward further decline in the fishery. I feel this continuous decline in landings must be addressed by the Council as evidence of exceeding the Maximum Sustainable Yield in any plan development process.

Longline landings

It is apparent from the sharp rise of the graph that the longline fleet has targeted the pelagic population of swordfish that exists off our coast and which feeds the near shore and Bight fishery. The graph is almost as vertical as that of the early gillnet efforts. Based upon harpooners visual observations of these longliners unloading, it is logical to forecast the graph will rise much more steeply after the 1999 counts are tallied. It can also be forecasted with certainty that its eventual fall will come, and that its fall will be every bit as precipitous as was its rise. While these predictions are dire they are easy to substantiate. One need only review the landing data, which shows that 50% of the fish being landed are sub-adult pups, not swordfish!

EFFICIENCY

Drift gillnets and longlines are not efficient!

Targeting brother Commercial fishermen for additional grief based upon their levels of by-catch and discarded catch is not the intent in the discussion that follows. The intent is simply to reiterate concerns about the use of the term *efficient* to describe both drift gillnets and longlines as gear types. Coan et al, 1994 states that drift gillnets are efficient. Lindgram Pittman, the producers of a major amount of the pelagic longline gear in use today also brag about the efficiency of their gear. I absolutely disagree with the use of this term to describe these gears.

Both gear types are extremely ***effective*** at catching a wide array of sea life. Anything that swims in the ocean at the depths these gears are fished is liable to be caught by them. This statement alone belies the efficiency of the equipment. Efficiency in a gear type requires the ability to routinely target one species or specific size of that species while avoiding the catch of another. Neither of these gear types has been able to stand this test.

My purpose in this paper is to discuss the history and future of harpoon swordfishing. I pointedly leave the discussions about the obviously unacceptable levels of by-catch and discarded catch associated with these gears to others.

THE WRITING IS ON THE WALL

Chile - An object lesson for the California/Mexico near shore fishery.

The boom-bust scenario has been played out again and again in swordfishing all over the world as is well

known. The current collapse in the Chilean fishery is one that parallels the Southern California/Mexico situation closely enough to deserve special note. At first it was a highly selective harpoon fishery that exported its' swordfish to the United States. As in California, harpooning swordfish in Chilean near shore waters has been documented as being practiced for hundreds, if not thousands of years.

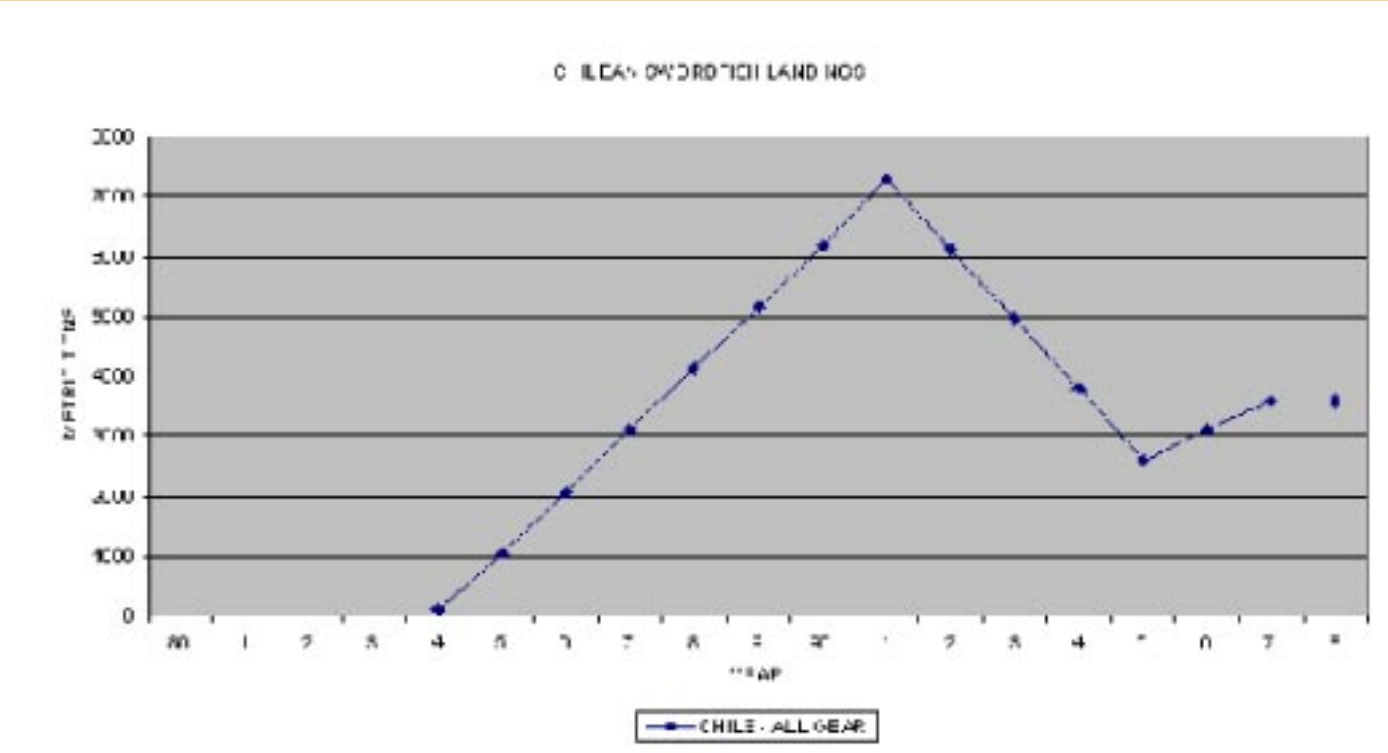


FIGURE 6

NOTE ON DATA - FIGURE 6

There are hard data points for 1984,1991, 1995 and 1996. There are approximate data points for 1997 and 1998. The rise and fall of the data between 1984 and 1995 was shown as linear due to a lack of precise data. However, this rise and subsequent fall are both described as "steady" by NMFS Swordfish Links, Latin American Swordfish Page, Chilean summary, 1/18/2000. The rise in landings after 1995 reflects a change to fishing outside of the Chilean 200 mile EEZ and off other countries while still landing in Chile.

When man's inventiveness came into play and drift gillnets were put to sea in 1982, Chile became a major player in the world swordfish export market, again shipping much of its product to the U.S. This driftnet fishery was composed mainly of former harpooners and targeted the near shore coastal waters. The dramatic success of this fishery led to the introduction of pelagic longlines in the mid-1980's. As in California today, Chilean regulations limited the use of longlines to waters outside of 200 miles. From the start however, as in California today, the longliners reported catching large quantities of juvenile fish. The Chilean near shore fishery peaked in 1991 and has been in a precipitous decline since. By 1995, the international pelagic longliners were finished working Chilean off shore waters because they became economically non-viable. Since 1996, former near shore fishermen now fish pelagic longline gear off other countries.

California - A mirror image of Chile

1st A Harpoon fishery with long history

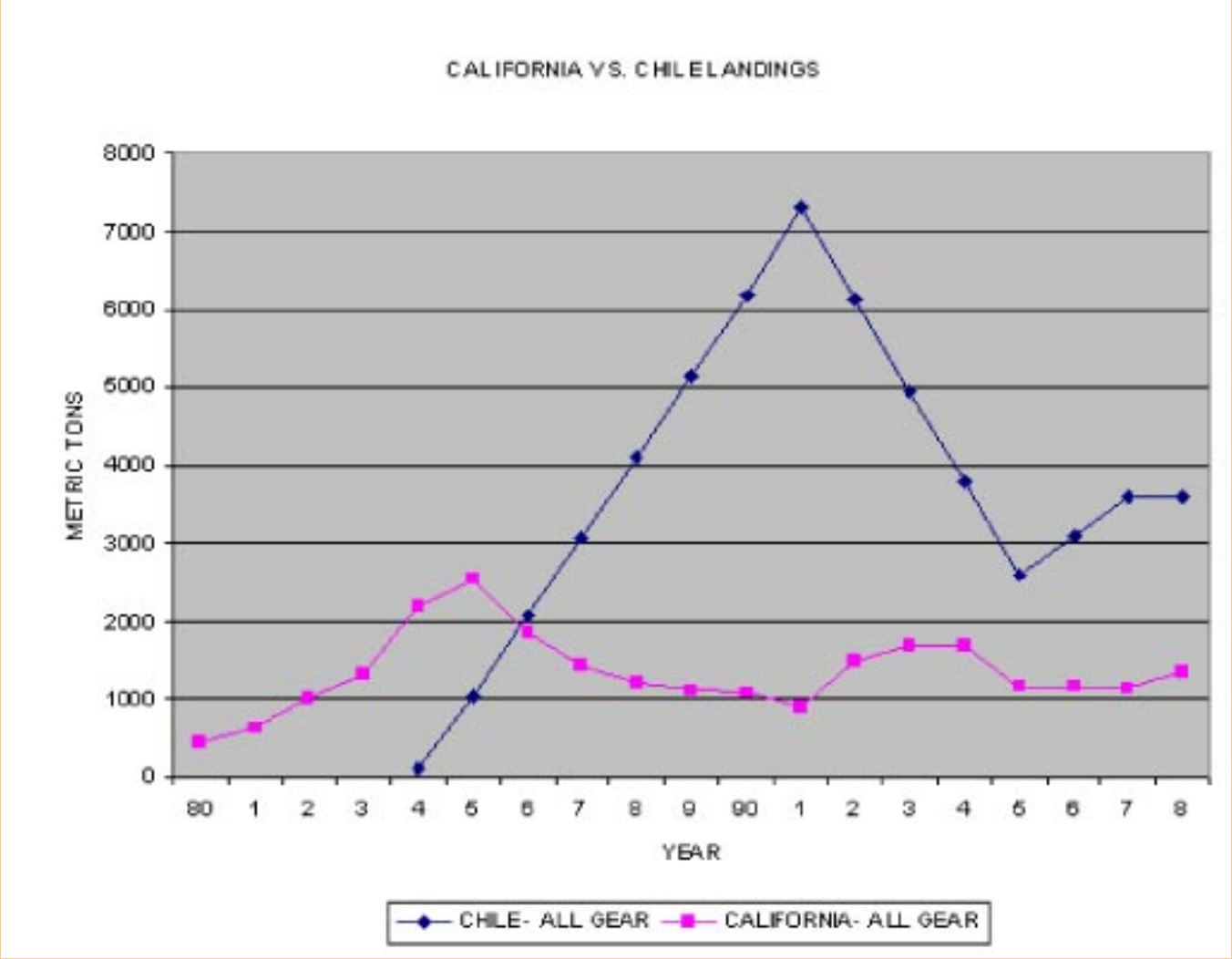
2nd A shift to Drift Gillnets for higher production

3rd Introduce Pelagic Longlines for yet higher production

Next…

THE WRITING IS ON THE WALL!

Fishery Collapses due to overfishing **Then - Pelagic longliners move on, Locals go broke!**



NOTE ON DATA FIGURE 7

California swordfish landings for all gear types were totaled to produce this chart comparing the Chilean

situation to our own. **If the California numbers are moved six years to the right to create a ten-year overlap presentation, the comparison is chilling.** Only the numbers are different. Attempts to obtain Mexican landing figures for this time period to show the California/Mexico totals were unsuccessful.

Prior to the use of drift gillnets beginning in 1978, the Southern California near shore harpoon fishery for swordfish was viable, healthy and growing. Further, through the use of spotter planes, it was evolving into a technically correct model for the selective, sustainable harvest of swordfish. Drift gillnetting for swordfish in both California and Mexico has now severely diminished our near shore stock. With the introduction of a longline fishery off both California and Mexico (near shore in Mexico), I am convinced that we are witnessing the final few years, if not months, of this fishery's viability unless emergency international measures are taken. Ladies and gentlemen, the crisis is not approaching, it is upon us. A repeat of the Chilean debacle is on our doorstep! Conservation and management measures to prevent such an occurrence are needed immediately.

The Bight of California as a swordfishery

The waters of the Bight are unique. They are not, during our summer, part of the waters of the northeast Pacific, which are fed by the cold California Current. The Bight is annually washed by a swirling influx of warm water from the southeast that in turn displaces the California Current to the west. This annual push is caused by the northern reaches of the North Equatorial Countercurrent that flows northwest up the coast from the Gulf of Panama. In late summer and fall, we know by experience, this push can extend all the way to the Washington border (Jimmy Cornell, North Pacific Currents, WORLD CRUISING ROUTES, 1987).

The waters of the Bight and its outer banks were prime groundfish habitat in the 1960's and `70's. The fishing out of the groundfish from these banks by gear that was too effective has been well documented, is now regulated, and hopefully will be rebuilt. Once these stocks are rebuilt, this habitat will hopefully be managed as the long term, sustainable fishery it should be. The availability of on-board infrared sea surface temperature SST charts since the late 1980's has allowed us, the fishermen, to watch the ebb and flow of the counter current on an annual basis. By watching this picture change in late spring we can know exactly when to put our boats to sea in search of fish. This knowledge has also led us to the question of why we used to see swordfish all year and now we don't.

It is my theory that once there existed a somewhat stable, resident population of swordfish on our outer banks and those to the south of us. Despite the annual cool down of the water, swordfish were seen in these waters during every month of the year. Many of the older Harpooners can boast of having harpooned swordfish during every month of the year. While large numbers were not caught during the winter months due to weather conditions, a portion of the annual influx probably stayed because they found food in great abundance. Again, with the exception of a very few winter sightings, this has not been the case since the late 1970's. Clearly the explanation of this lies in the statistical facts presented in the portion of this paper dealing with landings over the past twenty-five years.

I also believe that this resident population of fish in the Bight was added to and mingled with, indeed replenished, by the annual push of warm water and migratory fish. Thus, when the fish moved inshore with the current change, local harpooners were actually fishing on a combination of resident and migratory fish. It is obvious from the graphs that this near shore or resident population, if it did exist, was greatly diminished by excessive fishing between 1980 and 1990. Since then, the harpooners have been fishing on the stocks that enter the Bight area from the pelagic migration.

The only alternative to the above theory is that the nearly year round fishing pressure by the Mexican near

shore drift gillnet/longline fleet coupled with the annual pressure applied by the West Coast U.S. near shore drift gillnet fleet has resulted in a near collapse of the West Coast near shore swordfish stock. Placing additional pressures on the pelagic migration that obviously feeds this West Coast near shore fishery makes no sense at all.

44 Million Additional Hooks IS NOT The Answer!

The HMS Plan Development Team is currently considering the allowance of longline fishing within the EEZ in California. This is in addition to the pelagic longline vessels currently fishing off of California. The impact of this can only be realized by doing the math.

ASSUMPTIONS:

The 80 or so currently permitted California swordfish drift gillnet boats are allowed to convert to longline gear and fish within the EEZ.

They are allowed to fish between August and January (5 months).

Their gear is limited to 25-mile long sets with 1 hook every 300 feet.

They fish 25 days per month.

IMPACTS:

Up to 2,000 miles of gear set any night containing 35,200 baited hooks.

Each boat will set up to 55,000 baited hooks per season.

Total hooks per year = 4,400,000!

Total hooks over next ten years = 44,000,000!

The primary point to be made here is that some form of sea creature will eat every one of those

millions of hooks! Which creature is simple, the first one that finds the bait.

MORE EFFICIENT MANAGEMENT IS REQUIRED

The science is in; the writing is on the wall.

In Chile, a multi-million dollar export fishery for swordfish and sharks was brought to its knees within twelve years after the unmanaged introduction of drift gillnets and longlines. Chile is no longer a much of a factor in the world market. I quote NMFS Swordfish Links, Latin American Swordfish Page, Chilean Summary, 1/18/00: "Annual results from the fishery do show the classic indicators of overfishing." If that is true, what do our dramatically similar results show?

Let the near shore swordfish stocks recover!

It is high time that we humans stop catching every fish in the ocean just because we can. Nature has repeatedly reminded us that we are capable of overfishing any region. The scorched earth, strip-mining approach to fishing must be brought to an end and replaced with fisheries that are both selective and sustainable. Harpoon swordfishing is one of these and there are many others. It is apparent however, that if harpoon swordfishing is to ever be given a chance to show itself as the model of a traditional, sustainable and profitable fishery, the near shore stocks in Bight of California and Mexico must be allowed to recover. This recovery process can only be realized by enhancing the annual escapement of swordfish into the Bight of California. The only way to accomplish this is to apply efficient conservation and management measures to current and future West Coast near shore, and now, off shore swordfishing efforts. Declining landings in the harpoon fishery were the first indicator of trouble in the near shore California swordfishery. The turn-around of this decline will also be the leading indicator, the bellwether, showing that recovery has begun.

RECOMMENDATIONS

There are numerous measures available for managing fisheries. Time-area closures that limit damage to juvenile stocks may be one answer. Another may be imposing quotas on California based boats in addition to limiting imports by Mexican based operators in this unique shared fishery. Further, limited entry to swordfishing must be considered. Finally, the Council and the HMS Plan Development Team must now directly and objectively confront and deal with the unsavory problem of by-catch and discarded catch associated with drift gillnets and longlines.

In addition to offering the above methods for consideration, the writer takes the following specific positions:

1. I strongly oppose the introduction of longline gear inside the U.S. EEZ by anyone for any purpose, experimental or otherwise.

2. I support the immediate, emergency implementation of an observer program on all U.S. flagged longliners landing fish in California coupled with the mandatory installation of electronic tracking gear on these vessels. These two measures should be paid for by a landing fee or tax on all longline fish landed in or imported into the state.\

3. In place of a quota system for swordfish take, I support the implementation of a system triggering the immediate shut down of fishing by any gear type if low landing weight averages are detected in that fishery. This trigger should occur when the Department of Fish and Game catch measurements show that thirty percent of the average landing weight has fallen below 150 lbs dressed in any gear type. Discarded juvenile swordfish must be measured at sea and their numbers and weight must be included in this average.

4. I support the establishment of a realistic, *total take* quota system for sharks of all species, including discards, that when reached by any gear type triggers the automatic shutdown of that gear type for the remainder of that season.

5. I support the establishment of a realistic, *total take* quota system for discarded marlin and for sea turtles of all species that when reached by any gear type triggers an automatic shutdown of that gear type for the remainder of that season.

6. I encourage the implementation of import restrictions on Mexican longline swordfish and sharks until the U.S. near shore stocks show signs of recovery. These management methods penalize no one. Nor do they prevent anyone from fishing. They do however specifically target most areas of concern by specifically targeting the offender on a case-by-case basis. Whatever steps are taken to reverse the obvious current damage, a rising trend in future harpoon landings will be the first indicator that a reversal has occurred and the near shore swordfish population is on the mend. This trend reversal will only be seen by first preventing a Chilean style devastation of the off shore pelagic migration which feeds and rebuilds our near shore fishery and secondly, by enlisting the help of Mexico in rebuilding our shared near shore stocks.

CLEARLY, SCIENCE MUST PLAY A LARGER ROLE

While researching this paper, I have been constantly reminded that I am not a scientist and that not enough "Science" exists to support my conclusions. My conclusions are based upon the numbers of swordfish and sharks we no longer see and they are backed up by statistics supplied by government agencies! My suspicions are that no scientist in any of these agencies has ever simply graphed out these very compelling statistics. Had this simple thing been done, the question "what's wrong with this picture?" would surely have been asked. Maybe that would have lead to some "real science". I beg the council and every member of the HMS Plan Development Team to ask that question of the scientific community now and to have it specifically and "scientifically" answered prior to the implementation of a severely flawed HMS Management Plan.

It is quite frustrating to me that yet another swordfishery might be allowed to collapse before the scientific community decides that a study is in order. If we change anything in our fisheries management practices, it must be in the area of providing timely and thorough science to those charged with creating our fisheries management plans.

I thank the Council and the members of the HMS Plan Development Team for the opportunity to present one fisherman's position. I sincerely hope that my presentation provides you with additional perspective to assist in your critical work. I welcome and look forward to your comments.

Sincerely,

Larry E. Mebust

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The Marlin Wars

A Series of Editorials
by Fred Hoctor
Western Outdoor News

The possibility of an expanded Mexican longline fleet could affect west coast anglers so much that we are beginning in this
issue to present a series of articles explaining its ramifications. A proposal for more longliners and the removal of the 50-mile limit, now before a governing body in Mexico City, is a plan which would have a direct effect on the number of marlin and other species which reach US waters on their annual migration route. It could mean the end of Los Cabos' superb marlin fishing, and we believe that ultimately it would have a profound effect on US/Mexico relations.

Mexico has every right to run its country as it sees fit. But at this particular time, during its emergence from third world status and with growing global responsibilities, it is more than ever important for Mexico to demonstrate an added measure of governmental maturity and statesmanship, to repudiate the corruption which has already invaded it's commercial fishing industry.

The expansion of longlining into one of the last bastions of great sportfishing in the world seems to us to be irresponsible
and reckless, and we are certain it will be judged as such by both American tourists and American legislators. The granting of
more permits would sacrifice an enormous source of "clean" revenue (the multi-million-dollar sportfishing industry), in
order to put money in the hands of a few powerful individuals. Mexico can not have it both ways.

Certainly, we would have no right to criticize the new Mexican policy if the new plan were to be accepted. The truth is
that we have mismanaged our own fishing resource pathetically, despite the high hopes and serious intentions of the Magnuson-
Stevens Act. In international waters, we currently have about 90 longliners laying a monofilament spiderweb across the Pacific,
and now our politicians seem intent on allowing them to begin fishing inside our own 200-mile EEZ. In addition, Cabo's Marco
Ehrenberg points out that we are a major consumer of the Mexican swordfish and we sell the monofilament lines used to catch them.

But two wrongs do not make a right. Mexico has a great opportunity to learn from our mistakes.

There is a great difference between Alta California and Baja California which Mexico's legislators should consider: The health
of the California economy does not hinge on sportfishing tourists from outside. Our sportfishing fleets rely mainly on Californians who will keep patronizing the fleets no matter what. Mexico's fleets rely on foreigners. Mostly US citizens. Alienate US sportfishermen, who detest longlining, and you jeopardize Mexico's entire sportfishing industry.

Is longlining truly dangerous to the fishery? Scientists say so. A good indicator of its very real danger in Mexico is that some of Mexico's commercial longliner owners themselves are now worried about the prospect of too many longliners. A few visionaries among them are even beginning to think about banning shark permits in Baja water entirely. They are interested in developing the skills to fish mostly outside the 200-mile mark as the US fleet does, targeting swordfish, with tuna and shark as bycatch. In desperation, they are even beginning to show signs of regulating themselves.

Well, we have seen the futility of self regulation among our own fishermen. We have seen that game played before. It is our opinion that the longliners will learn to regulate themselves at just about the same time the fish run out.

For Mexico, the possibility of expanding longlining could not come at a worse time. While crime is going down in the US, the growing corruption and lawlessness in Baja has been perceived by Californians, rightfully or wrongfully, as a good reason not to visit Mexico. It is hard to "feel the warmth of Mexico" when 80 people have been gunned down in Tijuana since January 1. It is hard to continue to patronize Mexico when Baja tourists seem to be treated worse than ever, tourist prices are through the roof and corruption is rampant. It is hard to visit Mexico when stories like the loss of American homes at Punta Banda, a
typically murky legal situation, keep turning up on the telly. It will not take much more to bring Baja tourism to a screeching halt. The granting of excessive longline permits in Baja, which will have a deleterious effect on our own fisheries, could be a final blow.
Oh, yes. One more thing. The cavalier act of continuing and even increasing longlining, threatening the welfare of tens of thousands of Mexico's own workers who make a living in tourism-related jobs, is also incomprehensible to the well- ordered mind.

We hope that Mexico will do the sensible, mature and proper thing.

The oceanic longliner Mar Flota II was put into service shortly after 12 foreign longliners, mostly Japanese, were expelled from Mexican waters in 1986. From then until now, at least 32 more Mexican vessels have been given longline permits. Not so surprisingly, the owner of this same vessel received only a slap on the wrist when the boat was detained at San Carlos in Magdalena Bay last month, caught off-loading 22 tons of swordfish and 5 tons of illegal striped marlin, an unacceptable bycatch rate. Without penalty, the boat was immediately sent back to sea with two observers aboard.

Part I - The Search For The Truth

On January 12 of this year, a notice was published in the Mexico's Diario, an official government organ much like our own Congressional Record, suggesting that a new "Experimental Shark Fishery Research Program" was being considered by SEMARNAP, that country's resource-and-ecology watchdog agency.

The proposal would grant 25 to 30 new permits to longliners ("buques palangreros") for targeting shark within Mexico's 50- mile limit, from one end of the country to the other and on both coasts. Shark fishing inside of 50

miles has always been permitted to Mexico's smaller boats, but supposedly not to large, high-production, freezer-equipped oceanic vessels which have a reputation for badly hitting billfish stocks no matter what they happen to be targeting.

"It is crazy," said Luis Bulnes, owner of the Solmar Hotel and the Solmar Sportfishing Fleet at Cabo San Lucas, second largest sportfishing fleet in Mexico. "Mexico's longliners have had permission to fish for shark outside of the 50-mile range all along. The new ruling would now give them permission to fish anywhere they please, inside or out. They could run roughshod over the marlin stocks, with nothing to hold them back."

Most conservationists do not believe the longline owners really want to target shark. It is more likely they are using shark permits to fish for marlin, they say.

Said Jorge Romano, the Ensenada owner of two swordfish longliners, "Makos are caught mainly by coastal pangas in Mexico. They are not much of a fishery for us. Threshers are seldom caught in our longline fishery either. Blue shark are the most important shark caught by our longliners."

It is important to note that blue shark is sold for machaca in Mexico for only 5 pesos a kilo (roughly 25 cents a pound). There is not much incentive to fish for it.

"There is no way to economically keep a longliner in operation by relying on shark," Romano said, adding that he personally would like to see the marlin bycatch brought down to 5 percent or less.

Bulnes, who led a conservation coalition against longlining in the '80s, (dubbed Marlin War II), has jumped into the latest controversy with both feet. One of his immediate plans is to form a Mexican Billfish Foundation similar to our own. According to Bulnes, it would allow Mexican sportfishing interests to contribute to a war chest and at least get a tax write-off on the donations.

Bulnes expects the foundation to be operational "very soon," but first he will have to get agreement from other factions in
the sportfishing coalition. Some disagree with his proposal to ally the coalition with the Ensenada owners of 22 longliners. He said that the Ensenada longliner owners were willing to make a deal to retain their existing permits and get new ones in exchange for increased self regulation.

How much damage has the longlining already done, and what is the state of the fishery? These questions have stirred a controversy on their own, not just among Baja' sportfishing and commercial interests, but between two factions within each group.

The evidence of the exact condition of the resource has been only anecdotal because no major study has been done since 1986
when marlin expert Jim Squire retired from the National Marine Fisheries Service (NMFS) in La Jolla."

Opinions about the resource vary widely. "Our data indicates that the number of marlin has not declined substantially in the last 10 years," said Larry Edwards at Cortez Yacht Charters, the booking agent for the Gaviota Fleet, one of the leading fleets at Cabo. But according to Mike McGettigan, the maverick operator of a conservation operation called "SeaWatch," it is his feeling that the marlin populations are down as much as 70% since the late '70s.

"Any way you look at it, the marlin are in big trouble even before you bring the longlines in and put them in the path of the
migrating marlin," McGettigan wrote in a widely circulated letter on the internet last month.

In the letter, he quoted Tony Berkowitz, a Cabo fleet operator, as saying that in 1990 his fleet's "average boat

catch was over 3.2 marlin per fishing day, and it is now under 1.5 marlin per fishing day," yet curiously, according to information from the NMFS, in 1990 the average number of marlin per angler per day, strung over the course of a year, was .32 not 3.2. Neither Berkowitz nor McGettigan was available for comment.

"My goodness, an average of 3.2 fish per angler?" Jim Squire laughed. "That would be a bonanza!" Squire also noted that according to an unofficial NMFS survey, in 1999 the number per angler was .4, even better than it was in 1990. "Obviously it goes up and down from year to year and with increased or decreased longlining," he said. "As soon as the longlining starts we see the marlin fishing declining."

Norm Bartoo, a planning official in the Director's office at NMFS, points to the Billfish Newsletter which contains the survey and which he says has been put out by NMFS since 1963. It shows the results each year of the condition of the fishery based on angler reports only.

"We found that these reports were fairly accurate in reflecting fish quantities during periods of longlining and when the longlining stopped," Bartoo said. "If you draw a straight line through the middle of the peaks and valleys, it shows that the number of fish has been almost constant for the last 15 years."

The newsletter charts are available from NMFS or can be found on the internet at http://swfsc.ucsd.edu, Bartoo said.

Despite what the study shows, Marco Ehrenberg of Pisces steadfastly insists that marlin fishing at Cabo has worsened considerably in the last 10 years, and others agree with him.

"We took the time to go back in our records and check the actual numbers," Ehrenberg said. "We selected the same day each week, checked the quantity and weight of each marlin taken, including releases. The average weights have dropped of by 22 percent.

Many think that sportfishing for marlin may have especially suffered in the vicinity of Cabo in the last decade because of the number of boats fishing in the area. "Fifteen years ago, there were only 25 boats out every day," said Luis Bulnes. "Now there are 200 out fishing every day. There are just so many fish in a given area." "That is true," Ehrenberg said, "but it would not affect the weights of the fish that are taken."

Bulnes is pragmatic. He believes that the Cabo coalition should align itself with the Ensenada fleet of smaller swordfish boats in the belief that in the end such an arrangement will afford the most control over longlining, which he seems to regard as inevitable. In that respect he could be right. There seems to be no move in government circles to shrink the number of existing longliners, of which we know there are at least 33. (No one seems to know the full number, exactly, and efforts to find out have
failed.)

Bulnes believes that the Ensenada group will follow through on a tentative agreement to 1) fish only north of the 23-degree, 30' parallel, 2) stay out of the marlin "core zone," (the mid-ocean area far to the southwest of Cabo where the largest population of stripers is located), 3) voluntarily carry observers, and 4) install satellite tracking equipment known as
VMS', or Vessel Monitoring Systems. These safeguards would be in exchange for the coalition's help in fighting off 11 of the bigger transoceanic boats from Manzanillo and Colima and the issuance of any additional permits.

(The 23-degree, 30' limit would include the marlin-rich Lusitania Bank and the waters adjacent to 100 miles of shoreline below Bahia Magdalena. The area is the autumn staging ground for the marlin's migration southward to Cabo's Jaime and Golden Gate Banks.)

To a large extent, spotter planes would be unnecessary if all vessels were forced to carry the VMS equipment, as it would emit

an alarm signal whenever a vessel strayed out of its permitte zone. On Friday, Mar 4, at Ensenada, some of the boat owners were introduced to new VMS units manufactured by the Argos company of Europe. According to a fleet spokesman, the fleet will begin testing a few as soon as they can be installed.

Marco Ehrenberg is firmly opposed to making any deals.

"Cooperating with any longlining project will be the beginning of the end not only for Baja's marlin but for marlin in
California waters," Ehrenberg said. "The proposal would allow the longliners to fish all the way up to the US border, but even of they stay south, remember that marlin are migratory. Certainly the longliners could put an end to Cabo sportfishing, and if you kill the marlin here, you kill them for California."

Ehrenberg thinks the new proposal is a trial balloon sent up by the government, or something even more nefarious, to find out how much pressure there really is against longlining before deciding whether to expand the Mexican longline fleet.

"They are tossing out the rabbit," he said, borrowing a European expression akin to throwing out a "red herring."

"You know what that is? Tossing out the rabbit? They toss out the rabbit and watch who chases it. Then they shoot you in the back."

Part II - The Terrifying Danger of Longlining

In the last months of 1995, there were severe earthquakes on Mexico's west coast. Dogs barked. Mangoes swayed on the bough. Adobes crumbled. Whole families fled from their homes in terror. There was also an earthquake of sorts brewing at sea.

Two 150-foot longliners, Transoceanico I and II, each with a 250-ton fish hold, were moored in the harbor at Manzanillo. Their owners, Navieros y Consignaciones, S.A. de C.V., asked PESCA (Mexico's Department of Fisheries) for permission to temporarily move the boats, supposedly to get out of harm's way. Though it was a ridiculous premise on the face of it, the permission was given, and a temporary shark and swordfish permits were granted, presumably to make up for the inconvenience.

Acting on an inside tip, a welcoming committee from PROFEPA, the enforcement arm of PESCA, met the boats at the docks when they returned in mid February, 1996. Both had a preponderance of marlin aboard, but the Transoceanico I carried an unconscionable 220 tons of marlin and only 20 tons of swordfish.

According to Ricardo Garcia Soto, former Director of Tourism in La Paz, one kilo of marlin has been determined to produce 500 tourist dollars. That would mean that the marlin catch of that single boat took $110 million away from the Mexican tourism industry.

At 120 pounds apiece, the catch was estimated at 3666 marlin -- about half the number killed by all Cabo sportfishing-fleet boats combined in the course of an entire year. The catch was confiscated and quietly auctioned off.

The incident is just one example of how disastrous longline fishing can be for billfish stocks in general. For billfish at least, longlining is by far the most efficient way to fish -- three times more effective than gillnetting. If enough longliners replace gillnetters quickly in a fishery, the catch can conceivably be tripled almost overnight.

Most of the Mexican longliners are operating on shark and swordfish permits, but nearly all are taking large

numbers of marlin as bycatch. According to the National Audubon Society, which recently produced a thumbnail report on the state of world fisheries, "...swordfish and marlin have been over fished and severely depleted in the Atlantic." No one really knows the exact condition of swordfish stocks in the Pacific, but there are literally hundreds of longliners fishing for them without the controls needed to safeguard the resource.

Some biologists, refusing to stick their necks out, are saying privately that extensive longlining, combined with massive uncontrolled gillnetting, has the potential of bringing an end to sportfishing in Mexico, severely impacting billfishing in
California waters, putting tens of thousands of Mexican fishermen out of work, harming tourism, and collapsing a major segment of the Mexican economy before a decade is out.

"I am afraid," said scientist Julio Berdegue, owner of the sprawling, high-ticket El Cid Resort and Marina in Mazatlan,
"that before this is over, they will wipe out everything, including the billfish."

Berdegue should know what he is talking about. He is not only a marine biologist, but a protege of the famous Carl Hubbs at the Scripps Institution of Oceanography, and the former president of a major division of the commercial fisheries in Mexico. His credentials are impressive anywhere in the world.

Berdegue is intensely worried about the 50-plus longliners and 7000-plus pangas he says are now fishing on Mexico's west coast. (In 1991 the number of pangas was estimated at 1200 to 1500.)

Both large and small boats are operating on a variety of questionable government permits and for virtually all species of fish. Exact numbers and types of permits have not been made available to the public, yet a new program is now under
consideration which would allow even more longliners, including larger oceanic vessels, to fish ostensibly for shark inside the 50-mile mark where most sportfishing is done.

"They have already killed the Cortez and now they will take everything else," Berdegue said. "Most of the longliners have swordfish permits, but they do not know anything about the swordfish, and their methods are non-selective. They take
everything -- males and females, spawners and non-spawners, all sizes, with no idea of what they can safely fish, and their justification is "If we don't get them, the Americans will."

Berdegue seemed baffled by his government's stance on longlining.

"Because of the superior value-per-pound of fish caught in sportfishing, as opposed to commercial revenues, we had a
referendum before the house of delegates last year to disallow the commercial taking of marlin under any circumstances and it passed in the Chamber of Deputies by a vote of 498 to 2." Berdegue said. "Then it got to the Senate and has been stalled there ever since. (Power brokers) like Maria de Los Angeles Moreno (a former director of Mexico's fisheries, once thought to be a conservationist) are lobbying to keep the longlining permits coming. Carlos Camacho Gaos, head of PESCA, has been giving out permits like tickets to the fights, and there seems no end to it."

Moreno, Gaos and the Mexican fisheries representative in San Diego, Santiago Gomez, were all unavailable for comment last week.

Longliner owners at Ensenada were on the defensive.

"My boats are equipped with the latest gear -- 30 to 50 miles of line, beeper buoys, color sounders and video plotters," said Ensenada longline-owner Jorge Romano. "We fish the cooler temperature breaks from 60 to 90

miles out, which makes us extremely selective. Each of our boats takes only about five marlin per trip (75 marlin a year), but we are working hard to learn the ways to get the bycatch down below five percent. In the long run it is in our best interests to keep the fishery healthy."

The Ensenada fleet has been gillnetting or longlining swordfish off Magdalena Bay since 1987 and is now frantically converting all 22 of its boats to medium-range longliners.

Berdegue said that while all longlining permits are destructive in one way or another, some of the most dangerous permits in the last 15 years went to a group of large longliners built in Korea and owned by the Spanish.

"The boats, which were expelled by Guatemala, have been given Mexican-flag status to circumvent a no-foreign-longliners law, and have been put in service under a variety of permits issued to Mexicans," Berdegue said. "These boats appear to be operating with no regard for the fishery and with little attention to laws for the protection of sportfishing species."

Berdegue regards the panga threat to be as serious as the longliner threats. He said that 150 permits had been issued out of Manzanillo alone for 25- to 30-foot pangas, many with powerful inboard engines. "They fish for shark by longline, taking whatever else they can catch in their gillnets," he said, "and they are not held accountable."

How do they get away with bringing in huge quantities of marlin and swordfish when their permits only cover shark?

"They cut the head, tail and fins off in the boat and declare it at the docks as shark," Berdegue said. "We have got to get legislation to forbid cleaning of fish at sea. And we have got to put fines on anyone transporting such fish. Take their trucks away. Fine them. It is the only way we will stop the panga slaughter."

Roving bands of the pangas, sometimes with as many as 100 boats, and often with longlines, are now fishing in sportfishing areas all over Mexico, often taking sportfishing species supposedly reserved for anglers.

According to Bruce Overson of San Diego, a band of 45 pangas from Guaymas is now gillnetting at Willard Bay, south of San Felipe. Eric Brictson of Gordo Banks Sportfishing said that a dozen-or-so pangas come and go in the area just north of San Jose del Cabo, decimating the grouper and other bottom fish. Berdegue says he was cruising in his boat at San Blas below Mazatlan last week when he encountered 75 large pangas with inboard engines gillnetting the entire area and taking everything "...marlin, pargo, turtles, table fish, everything."

The pangas with longlines pose the more serious threat because they are more efficient.

Brian Wilson at Z-Pesca Fleet in Barra de Navidad said "there are 30 to 40 small (and some not so small) longliner
pangas operating out of Barra de Navidad and south down the coast from us -- more longliners than ever before. It's a real problem, and PROFEPA is doing nothing about it here."

At Ixtapa, sportfishing-fleet operator Ed Kunze said of the pangas, "The significance is the 4-mile long 'simbra' (long line) being able to be used in a small boat with a 48-hp engine and random killing of game fish close to shore," Kunze said. "There are a couple pangeros who fish these things here in Barra. If you have a few in every coastal town, it would not take many pangas to surpass a large boat with a 60-mile-long line. Just yesterday (March 4) I was out 18 miles with clients and fished alongside a line that was 4-miles long (per my GPS chart plotter). We saw one sailfish caught and flopping on the line as we trolled past. My captain said he had worked lines like this before and they average 5 to 10 sailfish a day, a few dorado, and (if they get lucky) a blue marlin."

The owners of large longliners like the Mar Flota II, which was caught with illegal marlin last month at San Carlos in Magdalena Bay, and the Yumano, which has been reported by local observers as unloading up to 12 tons of billfish a week, are displaying the same lawlessness on a grander scale by taking excessive numbers of marlin in known sportfishing areas and claiming them as bycatch. These boats often fish areas unlikely to produce swordfish, but more likely to hold marlin.

The Norwegian captain of the Yumano told IGFA representative Gary Graham at Magdalena Bay last month that he had been fishing near the Lusitania bank about 50 miles offshore. According to angler reports from the area, marlin were still plentiful there at the time, but swordfish were rare.

Part III - Big Stick

We can not tell Mexico how to handle its fisheries, but with all this crazy longliner business they are not only threatening their own tourism industry, they are especially short-stopping migrating marlin coming into US waters, a source of significant sportfishing revenues in California. That is not nice.

Because Mexico's new "Shark Research" program so profoundly affects the marlin fishery in general, it may also cause our National Marine Fisheries Service to take another look at our own marlin policy. If we were to go back to taking large numbers of marlin, our efforts, along with Mexico's efforts, would undoubtedly make short work of what marlin are left in the Pacific. Our pertinent government agencies are now aware of the developments. Added to some other recent problems, the longline issue could even spur a little screw tightening of the NAFTA agreement.

As Mexico's senate stews about how many and what kind of longline permits to issue, the boom is about to be lowered by the US press, six major conservation groups in the US, Mexican newspapers and national television, and 52 conservation groups in Mexico. It will be interesting to see how Mexican legislators handle themselves under this sudden glare of international light. They have so far been successful in keeping the issue under the rug, which is all the more reason that it will receive wide coverage in the press now.

The whole thing is a scandal which will be in the spotlight for months to come, and prosecutions will probably come out of it. Mexican laws have clearly been subverted and I predict that investigation will expose criminal acts in high places. It is corruption at its worst, at a time when Mexico is supposed to be getting its act together.

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Sea Watch

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Pacific turtle species may vanish within this decade, scientists say

Researchers report the fishing industry is wreaking havoc on giant leatherbacks

By Henry Fountain, NEW YORK TIMES NEWS SERVICE

NEW YORK – Leatherback turtles, whose numbers in the Pacific have plunged in recent years, will all but disappear within a decade unless commercial fishing practices are changed, according to a new analysis of the animals' nesting activity.

The turtles, which nest on beaches and then spend almost all of their lives in the open sea, have been dying in large numbers – at least 1,500 females every year, by some estimates. Many are caught in the long lines and nets that commercial fishers use.

This level of mortality, combined with the natural high mortality of the turtle hatchlings, means that the population is unsustainable, according to the analysis, a computer model. It was devised by scientists at Drexel University in Philadelphia who have studied the turtles' nesting activity at a site in Costa Rica since 1988.

"The rate of adult mortality is too high," said Richard Reina, a marine biologist at Drexel and an author of the study, which is being reported today in the journal Nature, "They just can't recover."

From a high of 1,367 females that nested at Playa Grande, Costa Rica, in 1988, the model forecasts that fewer than 50 will nest by 2004. That number means the turtles will be effectively wiped out in the Pacific Ocean. They already are listed as endangered by the World Conservation Union.

Efforts to protect the turtles where they nest will only delay reaching that number by about five years, Reina said. "Our model always predicted extinction," he said.

Cynthia Lagueux, a zoologist with the Wildlife Conservation Society who is working on a turtle project in Nicaragua said scientists generally agree that turtle populations are declining, particularly in the Pacific.

"But there's lots of disagreement or discussion on where the regression line will hit zero," Lagueux said.

John A. Musick, a sea turtle specialist with the Virginia Institute of Marine Science, said: "There's no doubt that something has to be done for those Pacific leatherbacks. Extirpation of those breeding populations is probably inevitable."

Leatherbacks, which can weigh 800 pounds or more, return to the same beaches to lay their eggs, on average every three years. At Playa Grande, the scientists tagged females to determine whether and with what frequency they returned.

The scientists found not only that the overall number of nesting turtles was declining sharply, but also that the number of returning females fell far below what was expected. The researchers ruled out an increase in the time between nesting. They also conducted aerial surveys of the western coastline of Central America to determine that the turtles were not nesting elsewhere.

The only explanation the researchers said, is that the turtles are dying during the years they migrate throughout the ocean.

Although the fishing industry's reports on the bycatch – unintended victims hauled in along with the fish sought – tend to be poor, particularly in Asia, the few reports available indicate that leatherbacks are killed in substantial numbers.

"All the evidence showed that this is the cause," Reina said.

Most turtle conservation efforts have involved building hatcheries and protecting nesting beaches from human activity. While these steps are important, "you're working on the wrong end of the equation," Reina said.

What is needed, he said, are several modifications of commercial fishing practices. Exclusion zones, where fishing would be banned at certain times of the year, could be established in known turtle migration corridors, he said. A limit to the length of time that lines are in the water would mean that any turtles caught would be less likely to drown.

Reina also said more independent observers are needed on boats to ensure that live turtles hauled on board are returned to the sea. Now, he said, it is more convenient and cost effective for the crew to kill or disable turtles than to get hooks out.

"It really comes down to time and effort," Reina said, "For a commercial fishing boat, time is money. Hooks are money. Nets are money. Turtles are not money."

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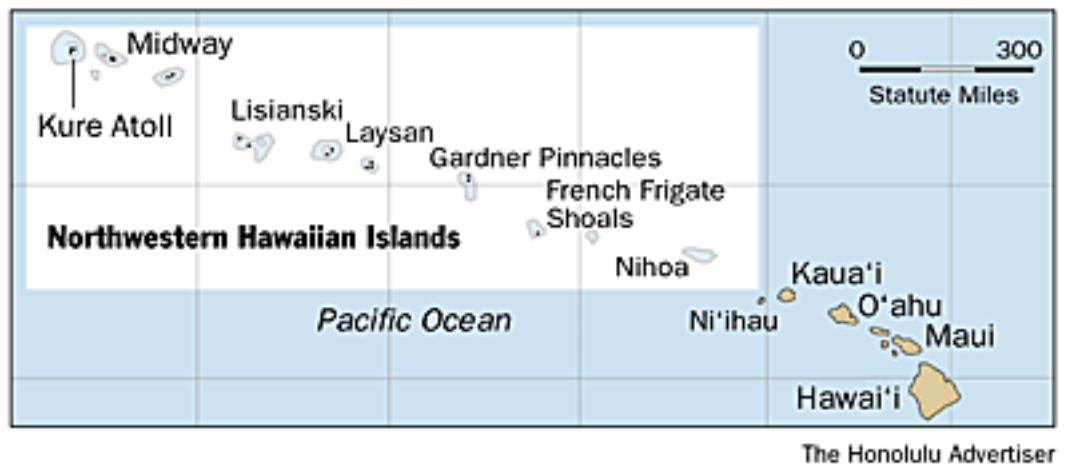
Hello, friends:

The local newspaper here in Kona carried an article today saying that the President's plan to make a monument of the Northwest Hawaiian Islands (all those islands stretching NW from Kauai/Niihau up to and past Midway) is meeting with opposition, even from our own state representatives to Congress. The major opposition is coming from the WESPAC (Western Pacific Fisheries Management Council) who wants the government to turn all management decisions over to them. This step would be a disaster since WESPAC is the fishing industry. We've heard all the same types of excuses before:

1) The overfishing isn't caused by us.
2) We have a managment plan that we agreed to voluntarily not to overfish.
3) The reasons why the lobster fishery has already crashed is related to cyclical variations in populations and is not overfishing, etc. ad nauseum.



I have read their plan and it is a joke. It says that the fishing interests should be making the decisions, that the areas to be set off limits are only a tiny fragment of the entire reef area available and that in fact, more fishing will be allowed. A first reading of the document sounds good; a second reading makes the hair stand up on your neck. Unfortunately, Senator Inoue is a big fan of the WESPAC people and apparently so are Mink, Akaka and Abercrombie. Our representatives in Congress are looking after business, not ecology. We need to write to Washington yet again (some of you have done this at least once before) and impress upon Pres. Clinton these three things:

1) That the Northwest Hawaiian Islands should be set aside as a monument for future generations. Doing so will actually enhance fishing in the surrounding regions by preserving precious fish stocks in a large area.
2) The oversight of this monument should go to the Dept. of the Interior (same as National Parks) and NOT to the Dept. of Commerce (which sees how much money they can make off of resources). And most important.
3) That WESPAC have no part in the planning or management of the area. In fact, WESPAC ought to be banned from the region.

Sorry to ask this of you again, but this could be an invaluable opportunity to get these islands protected. The president wants to do this, but he needs our input to support it (Patsy Mink has charged that there hasn't been enough public input).

For reference and to send your message, go to http://www.actionnetwork.org/campaign/NWHI.

Please pass this message on to absolutely everybody you know. Thanks again.

Tina Owens

 **Hawaiian Advertiser Article: "Protection Proposal for Reefs Opposed"**

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Sea Watch

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Protection proposal for reefs opposed

By Susan Roth
Advertiser Washington Bureau

WASHINGTON — Most of Hawai‘i’s congressional delegation opposes the proposed designation of the Northwestern Hawaiian Islands as a national monument. However, environmentalists remain hopeful President Clinton will announce the protection plan this week.

Clinton is scheduled to stop in Hawai‘i this weekend on his way to Asia. Environmental activists, including a Hawai‘i group that came to Washington last week to lobby on the issue, hope the president will take time during the visit to announce a monument designation for the ecologically fragile island chain that extends 1,400 miles northwest of Kaua‘i.

But the White House’s Council on Environmental Quality said Clinton has not yet received recommendations from administration officials and has not made a decision.

In May, Clinton directed the Commerce and Interior departments to develop a plan to protect the coral reefs of the chain of islands and atolls, which represent nearly 70 percent of the coral reefs in U.S. waters.

The president ordered the agencies to work with the state and the Western Pacific Regional Fishery Management Council to present recommendations for a "new, coordinated management regime to permanently protect the coral reefs and provide for sustainable use of their resources."

The protection plan was supposed to be completed by the end of August, but the project ignited turf battles between Commerce, which is inclined toward economic development, and Interior, which tends toward stricter protection.

Interior officials have pushed the national monument designation because it would afford greater protection for the area, banning fishing and other human involvement. Meanwhile, Commerce wants a sanctuary designation that could allow for fishing in addition to recreation and ecotourism. The Council on Environmental Quality was called in to help broker a deal.

Under the Antiquities Act of 1906, the president can name national monuments without congressional approval or local involvement.

Kahea, the Hawaiian environmental alliance whose members lobbied federal officials in Washington last week, wants a national monument possibly surrounded with a national marine sanctuary to ensure protection of the reefs, endangered monk seals and other depleted species. If the area is named a national monument, it would be the first maritime designation.

Gov. Ben Cayetano opposes a monument designation as too restrictive, instead favoring a memorandum of understanding from all parties involved outlining future management of the area.

U.S. Sen. Dan Inouye (D-Hawai‘i) and Hawai‘i’s Democratic Reps. Patsy Mink and Neil Abercrombie also oppose the monument designation, preferring a sanctuary. Sen. Daniel Akaka (D-Hawai‘i) has not taken a position, and is focusing on the need for community involvement in developing the plan.

Inouye, Mink and Abercrombie supported an amendment to the National Marine Sanctuaries Act that passed Congress last month. Clinton has not signed the bill but is expected to do so. The new provision would allow the president to create a reserve immediately in the Northwestern Hawaiian Islands for interim protection and start a process toward creation of a sanctuary.

Inouye aide Margaret Cummisky said it could take years before all the parties negotiate an acceptable deal, but the senator "wanted to maximize the opportunity for public input in the process, not have a top-down approach."

Inouye said last month on the Senate floor that public input is critical to foster local support for the protection of the islands.

"I am concerned about the administration’s interest in immediately establishing, without any public input, areas around the Northwestern Hawaiian Islands within which all activities are permanently prohibited except for Native Hawaiian access and subsistence," Inouye said. He said he was concerned about the banning of commercial, recreational and also defense activities in the area.

In recent letters to the president, Mink and Abercrombie both echoed Inouye’s concerns and support for the amendment.

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A Dream Becomes a Reality...

SeaWatch Helps Create Mexico's First Artificial Reef In The Sea of Cortez

On November 18, 1999, a project that was the brainchild of SeaWatch and consumed three years of effort became a reality when two large fishing boats were sunk in the Sea of Cortez near La Paz.

Julia Carabias, the Mexican Secretary of the Environment, Ecology and Fisheries, was master of ceremonies at the dedication celebration. The Secretary of the Mexican Navy also spoke at the dedication.

Mexican television covered the entire event and broadcast the sinking live to schools throughout Mexico.

The two boats that were sunk will create a habitat for sea life and boost the local diving business considerably, which will help boost the local economy. This was a massive undertaking and SeaWatch was happy to pass the bulk of the work down the stretch to Pronatura, one of Mexico's largest ecological organizations.

We want to thank everyone who helped in this endeavor and

Going...Going....Gone

A Useless Hulk Is Sunk to Create The First Artificial Reef in The Sea of Cortez

especially congratulate everyone involved with SeaWatch who lent their support! All of your work has spawned a new era in making the sea life in the Sea of Cortez bountiful once again. Thanks!

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SeaWatch Supported Projects

Multimedia Presentations

One of the major charges of SeaWatch is to make Mexico, the United States and the world aware of the plight of The Sea of Cortez. Creating mulitmedia presentations that can educate people throughout the world about the situation facing one the great breeding grounds of the Pacific Ocean area, can do nothing but increase the Sea's chances for survival.

Sea Watch and Santa Barbara's Brooks Institute of Photography are working on a multi-media presentation on the Revillagigedo Islands. Author and diver Carlos Eyles, who writes beautifully about the Sea, is providing the script and Brooks is producing it and providing the original musical score. It will be presented at meetings and conferences in Mexico City. The purpose is to imprint a stunning image of the Revillagigedo Islands on key decision-makers. We hope to raise their awareness and concern by revealing the unique beauty of the Islands. These officials have it within their power to protect the wild and primitive state of the Islands through enforced restrictions and careful management.

SeaWatch intends to make it happen.

Television Specials

SeaWatch has become a staple on Mexican television, thanks to the efforts of Guillermo Ortega, and his influential Mexican TV news-magazine, *Al Despartar*. SeaWatch has also commanded time on CNN and a host of local television stations surrounding Mexico in the United States. SeaWatch intends to remain a viable presence: Whenever there is news that must be brought to the attention of the world, SeaWatch will be there, reporting the facts and letting the facts sway public opinion such that it forces the protections The Sea of Cortez needs to return to its past abundance. That we need your help goes without saying.

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Winds of Change from Western Outdoor News:

The following article was written by Gene Kira who is now the Baja writer for Western Outdoor News. He is following the battle between the sportfishing interests and the commercial fishing interests in Mexico. SeaWatch is very involved in this struggle...

Winds of Change: Winds of Change.pdf

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WINDS OF CHANGE...

Baja Beat Column, December 24, 2001, by Gene Kira, as orginally published in *Western Outdoor News*

One of the worst environmental malefactors of the Mexican federal bureaucracy got a well-deserved spanking a few weeks ago, at a high-level conference convened in Manzanillo by Secretary of Tourism, Leticia Navarro.

If you've never heard of Jeronimo Ramos, it's probably enough to know that he's the old-guard politico who, as a former top official in PESCA (Department of Fisheries), and now head of the National Commission of Aquaculture and Fisheries, has been a longstanding backroom proponent of such in-your-face abuses as longlining inside Baja's world-famous striped marlin core zone.
The recent Manzanillo conference was a case in point. Incredibly, Ramos reintroduced his old proposals not only to allow longlining inside Mexico's 50-mile protected coastal zone, but also to allow commercial fishing for dorado, marlin, sailfish, roosterfish, swordfish, and tarpon.

Using his favorite ploy, Ramos called for the administrative issuing of "experimental" longline permits, this time for shark fishing, that would, as in the past, actually be used to harvest a commercial "accidental bycatch" of tuna, marlin, swordfish, and other species. (This was the same device Ramos used in his defeated campaign last year to allow the unbridled longlining of Mexico's striped marlin core zone.) The problem with longlining--in case you didn't already know--is that it is "unselective"; it kills not only the target species, but anything else that happens to come by, including even sea birds and sea turtles. The effect is like spreading poison on the water.

Fortunately, this year a vocal group of Mexican and foreign conservation and sport fishing experts was ready and waiting for Ramos at Manzanillo. They slapped him down by calling his data, in so many words, a pack of lies, and his proposals were given a summary heave-ho.

With almost unfathomable chutzpah and success, Ramos has been the protector of unmonitored, sometimes illegal fishing, even within such sensitive hot spots as the Revillagigedo archipelago, a highly sensitive and threatened miracle of a marine environment that happens to be within the jurisdiction of the state of Colima (represented at the conference by Congressman Roberto Preciado), and also within the sphere of influence of the very wealthy and increasing powerful Los Cabos tourist corridor.

At Manzanillo, all hell broke loose, and Ramos' reputation and influence were severely compromised, as his Revillagigedo abuses were exposed before the federal government. Action will soon follow, and we can expect to see an honest observer program put into place for the first time.

Among the changes within the Mexican government since the election of President Fox has been the subjugation of PESCA to a watchdog agency called CONAPESCA which includes representatives of tourism, conservation, the navy, and other agencies charged with promulgating and *enforcing* measures to protect the marine environment.

This, in turn, has brought together an international coalition of conservation forces such as the Mexican Billfish Foundation, headed by Luis Bulnes Molleda, Julio Berdegue, Luis Coppola Joffroy, and Guillermo Alvarez;

Seawatch, headed by Mike McGettigan; and Amigos del Mar de Cortez, headed by John Brakey.

With growing confidence that their voices will be heard by the new government, these forces are now lobbying for the total elimination of longlines, gillnets, and FADs within Mexican waters; the permanent decommercialization of dorado, billfish, roosterfish, and tarpon; and the denial of Mexican ports to any boat fishing near the 200-mile Exclusive Economic Zone with non-selective gear.

In another development promising for Baja conservation, the Federal Department of Tourism has also named the sensitive Magdalena Bay area as Mexico's lead saltwater tourist location to be developed during the coming era. (The state of Chiapas was designated as the lead freshwater location.) And now, the powerful U.S. Billfish Foundation has agreed to ally itself with, and support these efforts financially by working together with the Mexican Billfish Foundation.

It is important to note that without the backing of the powerful Los Cabos tourist corridor, *none* of this would be happening. We mourn the beautiful "old Baja," but ironically, it is the new Baja--and specifically, the money that we tourists spend down there--that is coming to the rescue of the fish. The once-small, panga-sized movement is becoming a heavy battleship that will not be denied, and politicians such as Jeronimo Ramos are being pushed aside at last.

Read Gene's Current Baja Beat Column each week in *Western Outdoor News*

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An Important Review of the Sea of Cortez by Dr. Russ Nelson:

After SeaWatch conducted its 2001 Survey of the Health of the Sea of Cortez, Dr. Russ Nelson, an expert in the field, wrote a paper concerning what his observations on the trip meant to the future of the Sea. The paper covers a number of important topics and advances some important ideas as to how the Sea can be saved from further destruction and returned to its former glory.

Thoughts and Notes on the Sea of Cortez: Thoughts.pdf

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Thoughts and notes on the Sea of Cortez
Prepared for Sea Watch

Russell Nelson, Ph.D.
Nelson Consulting
June 2001

The Sea remains outwardly beautiful, fundamentally productive and under optimal management should be capable of providing ample harvests for domestic seafood consumption while maintaining very attractive opportunities for sport fishing and other ecotourism activities. However, as in other places around the world, the Sea of Cortez has been seriously overfished as increasing effort and gear efficiency have attempted to achieve maximum harvests in the face of stock biomass declines with little regard for future sustainability.

The escalation of gear types – from small pangas fishing handlines with multiple hooks or using spearguns to gill nets, trawls and longlines has been repeated in the U.S., the Caribbean and other insular ecosystems with productive reef or reef-like fisheries. As stocks decline in abundance and the distribution of fishes becomes sparse, fishers move to more efficient gears that can be deployed on larger scales of space and time. The impact of this race to efficiency is generally to stimulate further reductions in stock size, accelerate the use of more gear (longer lines or nets or ultimately fish traps) which fish broader areas over longer time periods and continue to push stocks to biomass lows from which recovery can be only achieved over very long time frames (if at all).

The reef fish complex

Abundant and healthy stocks of lutjanids, sparids and serranids (snappers, porgies, groupers) support healthy fisheries using minimal (i.e. hook-and-line type) gears. The evolution of most of the species in this complex has produced fishes that depend on long life spans and decades of egg production to assure persistence in a fairly stable system subject to relatively little fluctuation and environmental perturbation. The introduction of high rates of fishing mortality into this system is a substantial perturbation and generally has been seen to cause fairly rapid (over periods of years) reductions in total standing stocks, switches in species dominance and -

more importantly – the loss of larger fish (older age classes) which have evolved to supply the vast majority of the reproductive potential in the stock. For most of the species in this complex fishing mortality rates in excess of 8% to 18% annually are excessive and will ultimately cause stocks to decline to levels that will not produce maximum sustainable yields.

Given my cursory observations and discussions with persons who have a long history of experience in the Sea of Cortez, it appears to me that the extraction of reef fish stocks has produced dangerous, but perhaps not irreversible, levels of stock declines. Certainly the abundance of the larger reef predator (big snappers, groupers, jacks) has declined to levels that are unlikely to generate strong interest from sport fishing tourists.

It is encouraging to note that, for a variety of factors, reef fish harvest has not yet begun to focus on the second-order predators and omnivores (small *serranids, haemulids, chaetodonts, pomacentrids, labrids, scarids, etc*.) like butterfly fish, damselfish, parrot fish, and other smaller species which provide much of the species diversity and which generate strong interest from diving tourists because of their visual appeal. In other reef systems around the world following the depletion of the larger, more valuable fishes harvests have ultimately shifted to these smaller species and have irreparably damaged both the aesthetic value of reefs to diving tourists and the functional integrity of the reef ecosystem long after the production of desirable fish species has approached zero.

The keynote gear introduction associated with harvest at this terminal level consists of fish traps (or alternatively explosives and water-soluble poisons). This gear fishes 24 hours a day indiscriminately and is subject to loss and subsequent "ghost-fishing" for long periods of time. **The introduction of fish traps in the reef fish fishery of the Sea of Cortez would likely be final stage in a serial depletion which would leave the ecosystem with little appeal to tourism and little to offer in terms of sustainable fish production for domestic consumption.**

Pelagic fish stocks

The apex predators of the Sea of Cortez ecosystem appear to have declined to very low levels. The directed harvest and extraction of sharks has probably severely reduced these stocks in the Sea and a recovery program

would require substantial reductions in fishing mortality over a period of decades.

The highly migratory species (marlin, sailfish, tunas) stock declines are likely more the product of indirect loss to pelagic gill net and longline gear deployed both within and around the Sea. **Current levels of abundance appear capable of supporting only a second-rate sport fishery within the Sea.** It is likely that bycatch mortality of these species has seriously reduced local abundance, but it is possible that stock reserves in the eastern tropical Pacific are sufficient to restore the abundance of these species within the Sea with more modest management efforts**. The most troubling aspect of the apparent change in these stocks is the apparent loss of larger fish from the population.**
If current Mexican regulations that establish a 50 mile sport fishing conservation zone and prevent the commercial harvest and sale of billfish were effectively enforced, and the use of longline and gill net gear in these waters was reduced substantially, the recovery of billfish and other non-shark highly migratory species stocks in the Sea could be seen within a time frame of a decade.

Continued excessive mortality – either direct or indirect – on the large pelagic predators could have substantial and possibly irreversible effects on the structure and functional capabilities of the Sea of Cortez ecosystem. Ultimately the loss of a major portion of this apex predator biomass could trigger a broad expansion in the biomass of ctenophores, jellyfishes, squid and small pelagic fishes (sardines, anchovies, etc.). A shift in the biomass dominance to these largely planktivorous (including fish eggs and larvae) species could effectively preclude any recovery to a state which was similar to that of the Sea of Cortez thirty years ago.

Recommendations

1. Effective utilization of the potential productive potential of the Sea of Cortez should concentrate on low to moderate harvest levels for domestic consumption and an attempt to maximize the attractiveness of the Sea to low harvest level and non-consumptive sportfishing, diving and other ecotourism activities. Such an approach should maximize the total economic returns of the Sea to Mexico and the residents of Baja del Norte, Baja Del Sur, Sinaloa and Sonora. The Sea can likely not survive high levels of

commercial effort and fishing mortality associated with the use of longlines, gill nets and large purse seines.

2. Effective management will require effort reduction (limited entry programs) and gear restrictions in all the commercial fisheries. These measures will be socially unpopular and have short-term negative economic consequences. However, the potential long-term economic and social advantages are substantial.

3. The careful development of recreational fishing, diving, whale watching, bird watching and other low ecosystem impact activities can be used to create a new economic base and ameliorate the impacts of restrictions in commercial fishing necessary to achieve recoveries of fish stocks to high levels of abundance. Conversion of current commercial harvesting resources to use in the ecotourism industry should be a priority.

4. **I would strongly suggest that the use of fish traps be prohibited in the Sea of Cortez (if not all of Mexico) now while the gear is not commonly in use**. Such action now would generate relatively little negative social or economic impact and will prevent a tragic problem from arising. After fish trap fisheries developed in Florida, The U.S. South Atlantic and Gulf of Mexico EEZ, Bermuda and other jurisdictions action was required to prohibit them.

5. The Loreto National Marine Park might provide an effective portion of an overall fisheries management strategy, but at present it's effectiveness is questionable. A comprehensive review of the goals and objectives of the Park in the context of current management regulations and standards should be undertaken. The problem of enforcement in the Park (as elsewhere in Mexico's marine waters) needs to be addressed and effectiveness improved. The enforcement of recreational bag limits seems minimal and needs to be improved. Regulations should be reviewed to attempt to achieve maximum compliance and enforceability. Ultimately the use of marine parks will not compensate for a lack of effective conservation and management in the surrounding waters.

6. Effective management needs good data. Current information on catch and effort by area and gear type is very limited. A program for collecting and analyzing such data from both the recreational and commercial sectors is needed.

7. Licensing of recreational anglers and securing a permit to visit and use the Loreto Marine Park is a complicated and byzantine process that can consume the most part of a day. Mexico should look to simplifying this process. In my opinion there is a great loss of revenue to Mexico from anglers who either choose to fish without a license or decide not to visit and fish in Mexico because of the difficulty in obtaining a fishing license. The use of telephone or online website licensing services should be adopted. Funds derived from these licenses would be maximized if it were simple an easy for a tourist to order and receive a license prior to entering Mexico.

Moving towards these recommendations

1. Develop public educational materials (video, write, etc) which clearly show (and magnify) the negative consequences of the use of large scale longline and gill net gear on marine life.

2. **Seek legislation or regulations prohibiting fish traps. Be careful not to allow any "experimental" permitting of such gear after a ban is in place**

3. Attempt to develop an accurate inventory of commercial vessels and gear types fishing in the Sea. This should involve the use of official PESCA permit and license databases as well as attempts to do independent surveys of vessels at the numerous ports, villages and fish camps surrounding the Sea. This data would be invaluable for use in detailing the problems associated with effort expansion and overfishing.

4. Compile an historical review of the scientific and popular work and descriptive literature on the Sea of Cortez. Such written information dates back at least 50 years. This could serve to show that there has been a consistent history of concern over

the potential impacts of expanded commercial fishing and that these concerns have been proven accurate by the history that followed.

5. Support a substantive effort to develop policy and management strategies for utilizing the Sea of Cortez in a fashion that will both provide sound economic benefits to Mexico and provide for a healthy and sustainable ecosystem. Such action might be initiated at the state level (i.e. Baja California Sur).

6. Use the results of this policy initiative to develop a "model fisheries management plan" for the Sea. Utilize this plan to persuade PESCA, Congress, etc. that there is a better way to use the Sea of Cortez.

7. Attempt to increase the political recognition of the importance of sport fishing, ecotourism, etc. to Mexico's growing tourism economy. Seek to forge alliances outside the traditional fisheries and conservation realms with tourism (Mexico's Secretary of Tourism) and Chamber of Commerce-type entities.

The single most important effort to achieve recovery of fish stocks and a general conservation plan for the Sea of Cortez will be to continue to try to document and publicize the problems facing this **Mexican national treasure**. Current Sea Watch efforts in this regard must continue and will ultimately serve as the foundation for unified efforts to restore the Sea to its original state.