

*Profile of the  
CA/OR Drift Gillnet Fishery  
and its  
Impacts on Marine Biodiversity*

*Todd Steiner  
Turtle Island Restoration Network*

# History of CA/OR Drift Gillnet Fishery

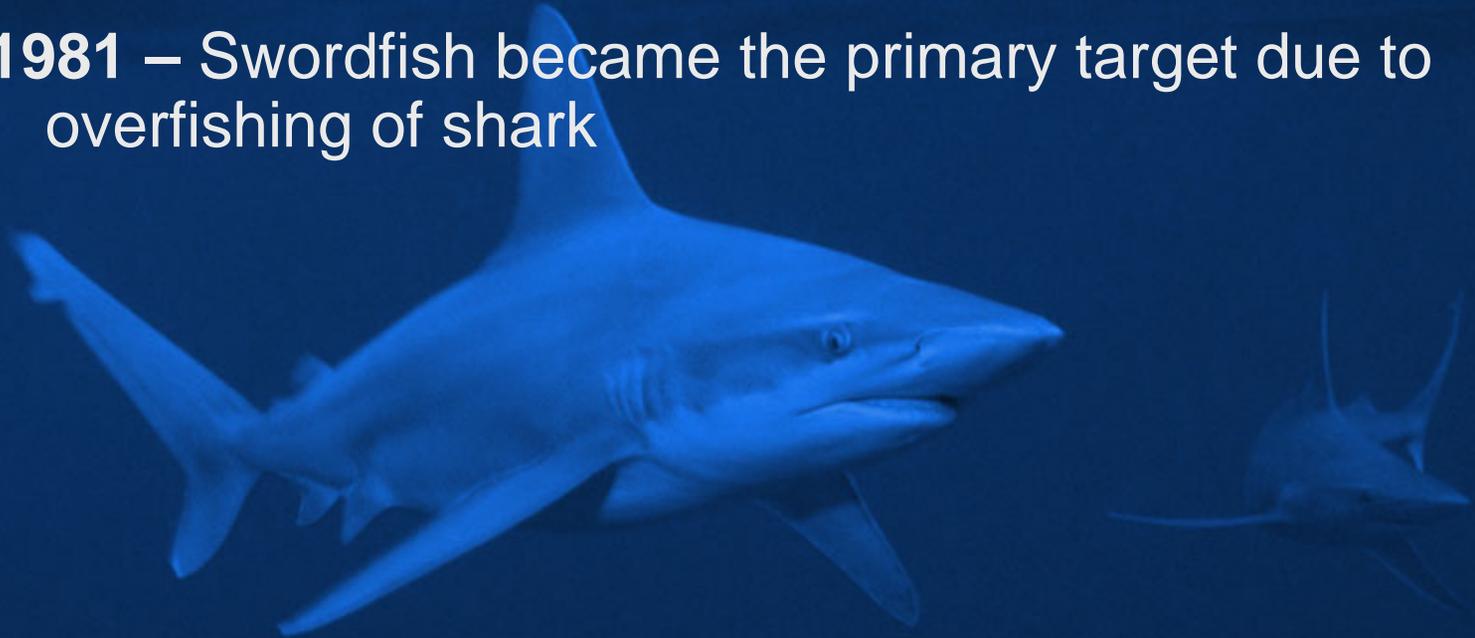
**1977** – S. CA coastal harpoon & set net fishery adopted large nets to target the thresher shark

(Began as State managed fishery)



# History of CA/OR Drift Gillnet Fishery

**1981** – Swordfish became the primary target due to overfishing of shark



QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

## *Alopias vulpinus* • *Thresher Shark*

- The California drift gill net fishery provided strong evidence that *A. vulpinus* is highly vulnerable to overfishing in a short period of time, with the subpopulation having an estimated reduction of > 50% over three generations.

# History of CA/OR Drift Gillnet Fishery

**1982** – CA adopts time area closures to protect pinnipeds (Channel Islands) and harpoon and sports fisheries (mainland southern CA)

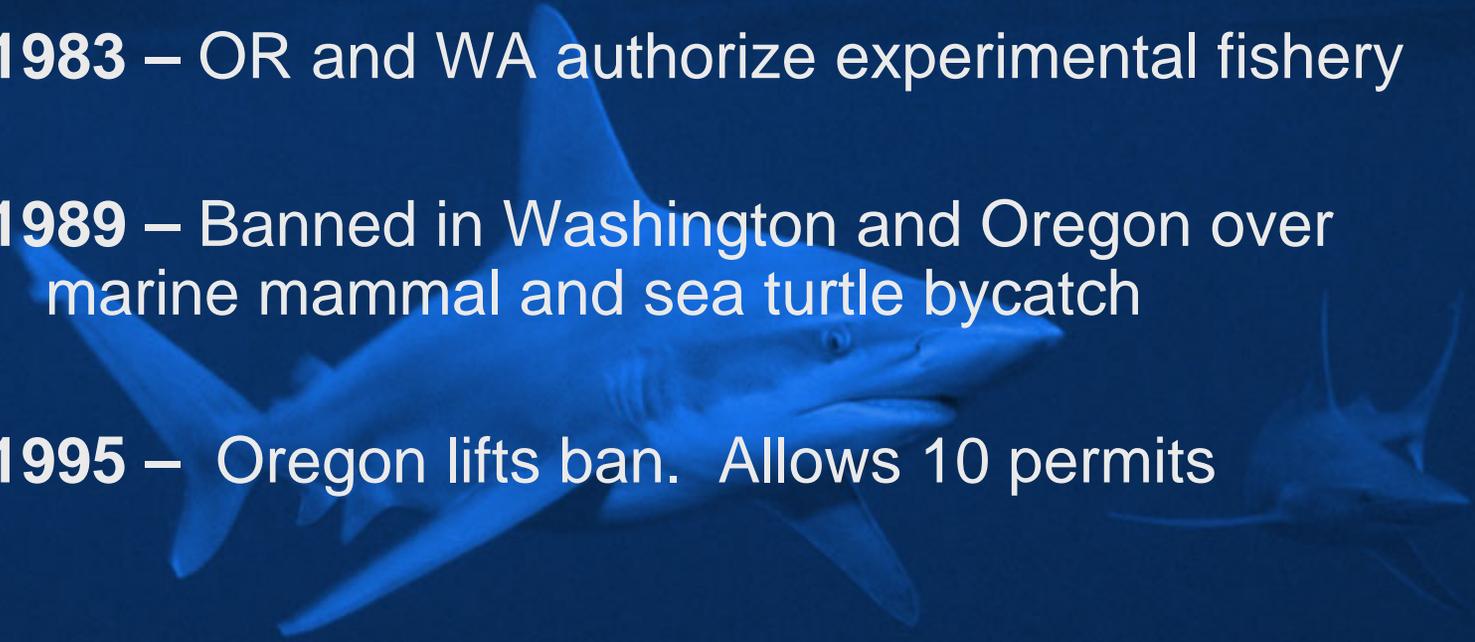


# History of CA/OR Drift Gillnet Fishery

**1983** – OR and WA authorize experimental fishery

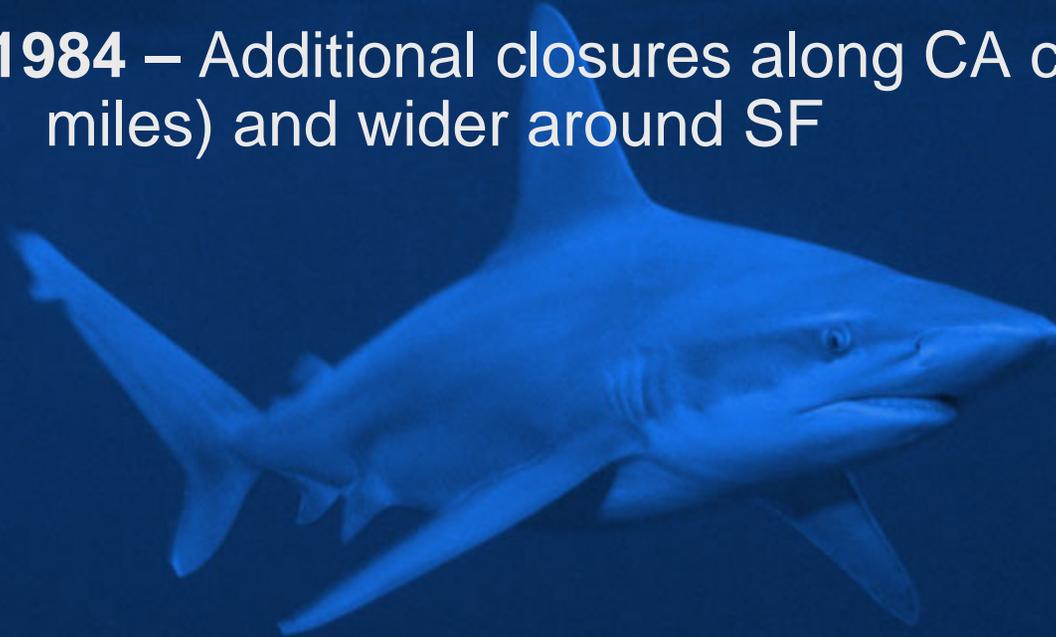
**1989** – Banned in Washington and Oregon over marine mammal and sea turtle bycatch

**1995** – Oregon lifts ban. Allows 10 permits



# History of CA/OR Drift Gillnet Fishery

**1984** – Additional closures along CA coast (out to 12 miles) and wider around SF



# History of CA/OR Drift Gillnet Fishery

**1986** – New time/area closures to protect gray whales



# History of CA/OR Drift Gillnet Fishery

**1990** – Additional time/area closures enacted over juvenile shark catch



# History of CA/OR Drift Gillnet Fishery

**1991** – UN Bans Drift Nets (High Seas >2.5 km or 1.55 mi.)



# History of CA/OR Drift Gillnet Fishery

**1997** – Marine Mammal regs. require net extenders to lower 36 feet, and pingers



# History of CA/OR Drift Gillnet Fishery

**2001** – Federal Bi-Op states Leatherback Take Likely to “Jeopardize” Continued Existence, limits take to 3/yr.

L’back Conservation Zone adapted as Reasonable & Prudent Alternative

*(Reducing leatherback take to zero, so far )*

Addl. time/area closure for loggerheads in El Nino years

# History of CA/OR Drift Gillnet Fishery

**2004** – Fishery management falls to PFMC

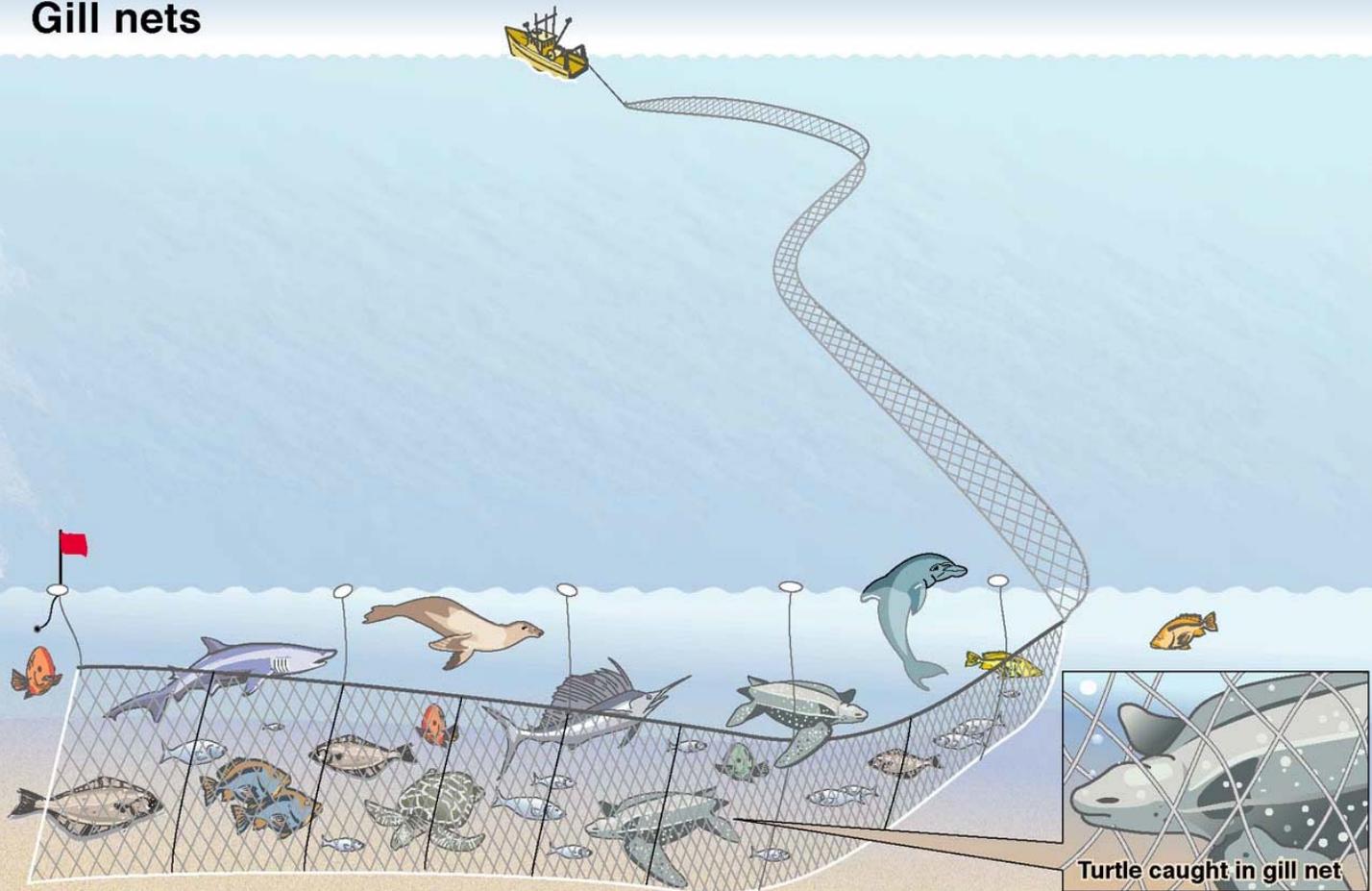


# History of CA/OR Drift Gillnet Fishery

**2006** – PFMC recommends ending L'back closure



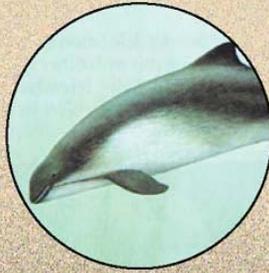
# Gill nets



Gillnets, with nearly invisible monofilament mesh, entangle and kill a wide range of marine species, including the critically endangered Pacific leatherback sea turtle.



Elephant Seal



Harbor porpoise



Common Murre



Sea Otters



Halibut

## **Golden Gate Bridge:**

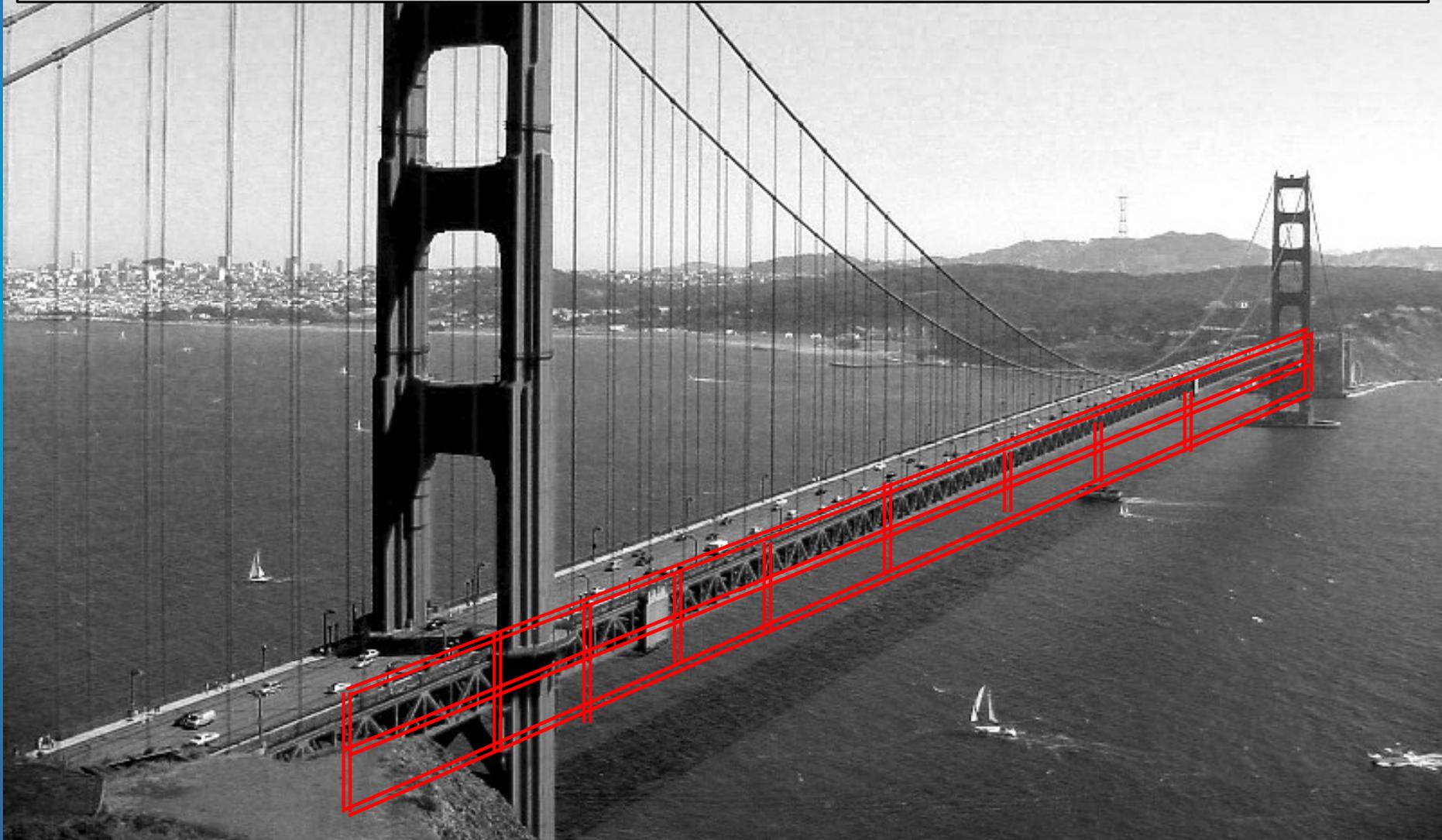
4,200 ft long (between towers)

220 ft above SF Bay

## **CA/OR Drift Gillnet:**

~ 5,700 ft long

~ 200 ft wide



# Fish Species



## Target Species Landed

Broadbill Swordfish

Common Thresher Shark

## Other Species Landed

Skipjack Tuna

Shortfin Mako Shark

Bluefin Tuna

Opah

## Species Discard

Common Mola

Blue Shark

Pacific bonito

Pacific Mackerel

Bigeye Thresher Shark

Striped Marlin

# Status of target species



•Target Species	•IUCN Red List
Broadbill swordfish	<b>Endangered</b> (N. Atlantic) Data Deficient (world)
Shortfin mako shark	<b>Near Threatened</b>
Albacore tuna	<b>Critically Endangered</b> (S. Atlantic) <b>Vulnerable</b> (N. Atlantic) Data Deficient (world)

# CA/OR Drift Gillnet Fishery 2003/04 - 2005/06

76.5% of Fish Caught  
Are Discarded!

Total Fish Caught = 7,769\*

Total Fish Kept = 1,821\*

\* 20-25% of sets observed each yr.

# Bycatch Species



## *Sea Turtles (4 species):*

Leatherback, Loggerhead, Green, Olive Ridley

## *Whales (13 species):*

Grey, Humpback, Short-finned pilot, Fin, Minke, Sperm, Killer, Cuvier's Beaked, Baird's Beaked, Hubb's Beaked, Stejneger's Beaked, Pygmy Sperm, Mesoplodont Beaked

## *Dolphins & Porpoises (8 species):*

Common, Northern right-whale dolphin, Risso's, Pacific white-sided, Long-beaked common, Striped, Bottlenose, Dall's porpoise

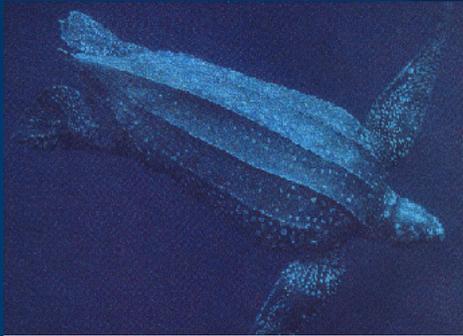
## *Seals & Sea Lions (3 species):*

California sea lion, Stellar sea lion, Northern elephant seal

## *Seabirds (2 species):*

Northern Fulmar Cassin's Auklet

# Status of bycatch species



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TIFF (Uncompressed) decompressor  
are needed to see this picture.

•Bycatch Species	•IUCN Red List
Leatherback sea turtle	Critically Endangered
Loggerhead sea turtle	Endangered
Sperm Whale	Vulnerable
Fin Whale	Endangered
Humpback Whale	Vulnerable
Blue shark	Near Threatened



QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

[http://las.pfeg.noaa.gov/TOPP\\_recent/index.html](http://las.pfeg.noaa.gov/TOPP_recent/index.html)

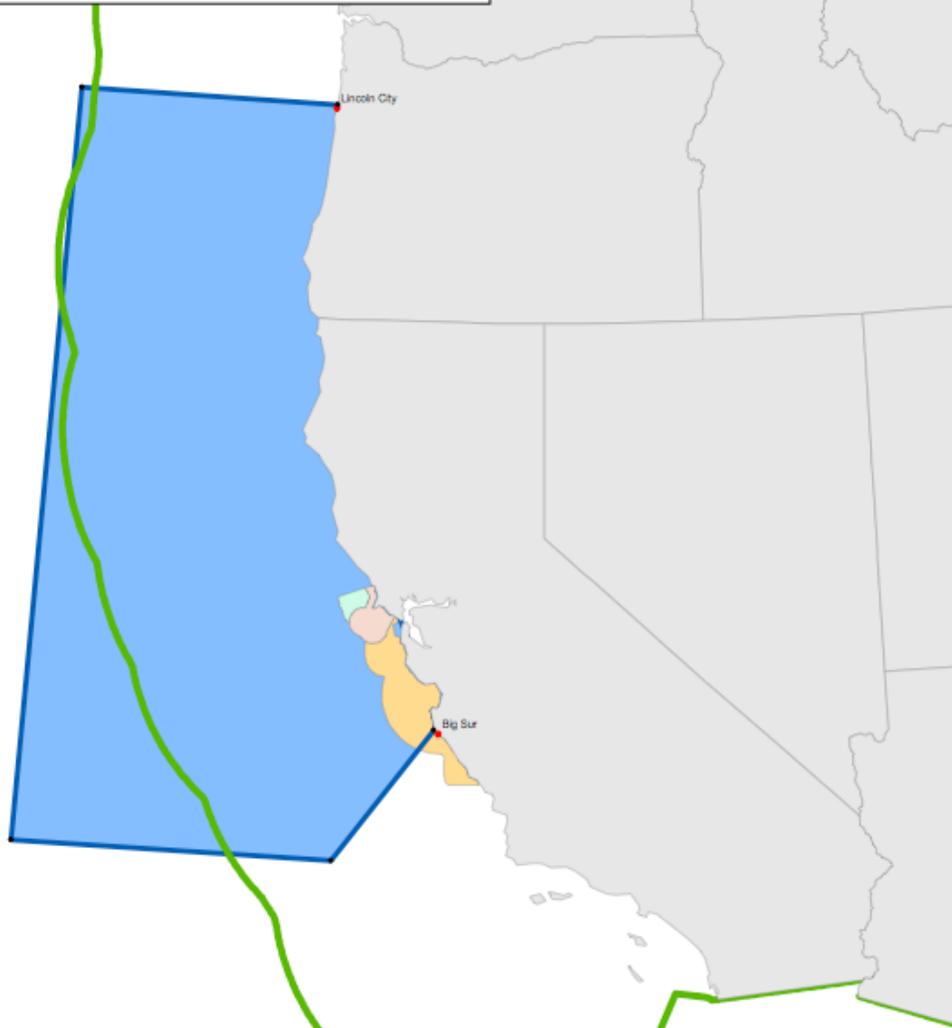
(Leatherbacks • 20 September 2006)

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TIFF (Uncompressed) decompressor  
are needed to see this picture.



## The Leatherback Conservation Area

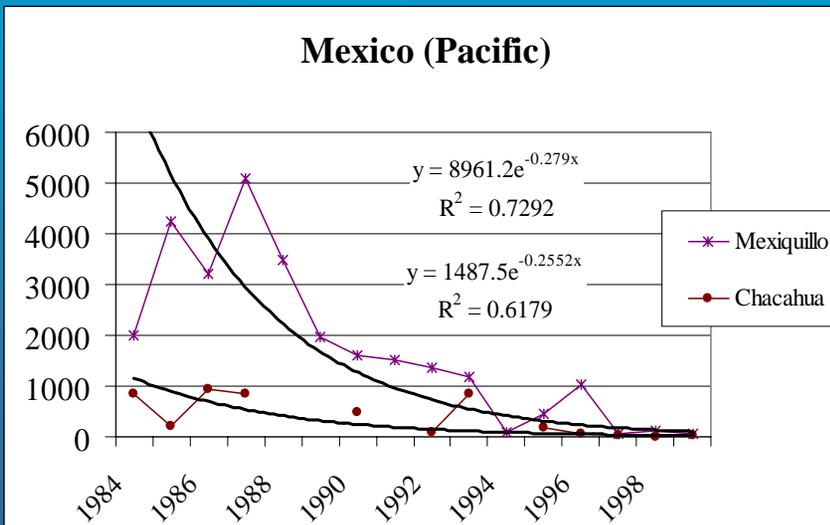
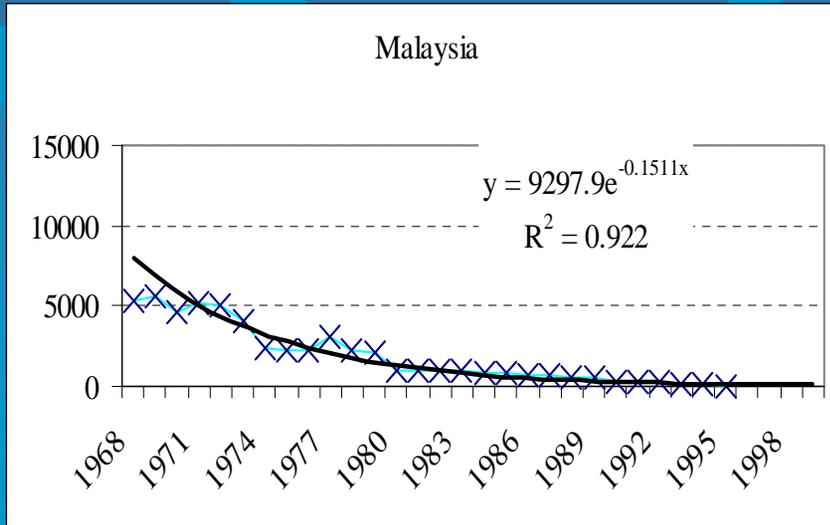
- Leatherback Conservation Area
- Monterey Bay Marine Sanctuary
- Gulf of Farallones Marine Sanctuary
- Cordell Banks Marine Sanctuary
- US EEZ



**Closed in 2001:  
15 AUG - 15 NOV**

**Zero leatherback  
takes since  
implementation**

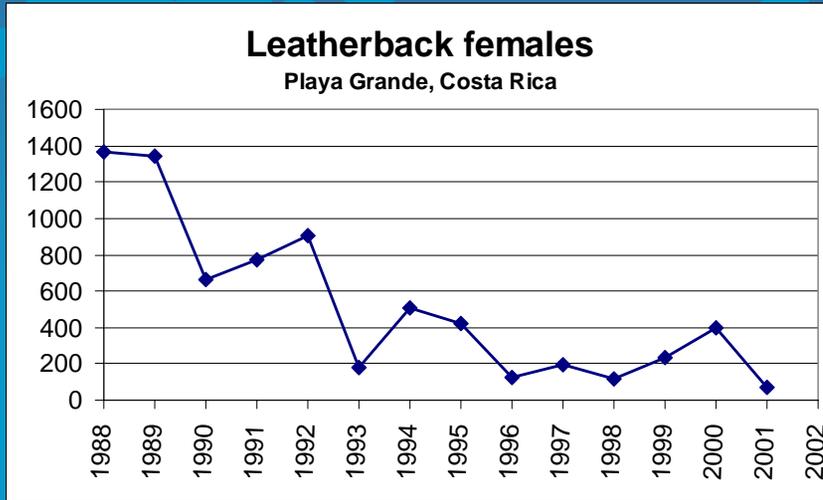
# Pacific Leatherback Decline



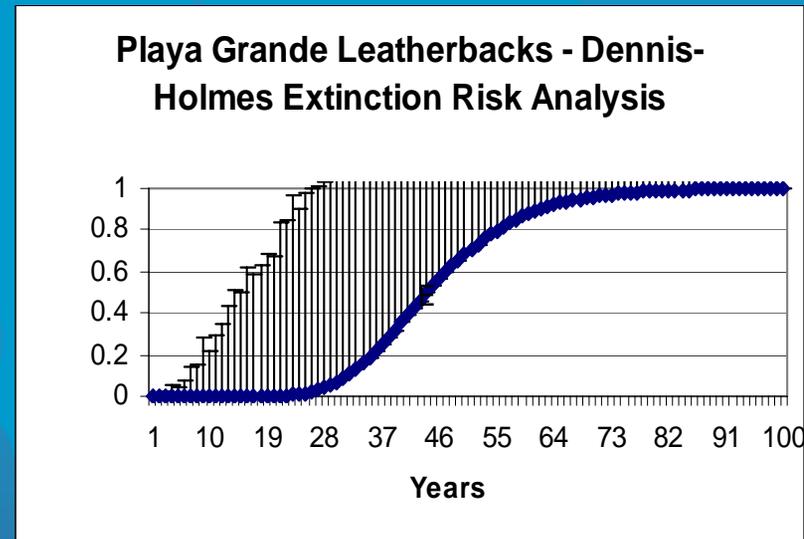
- >95% decline since 1980 at all 4 rookeries:
- Nesting females (2002):
  - Mexico ~ 45
  - Costa Rica ~ 5
  - Malaysia 2
  - Indonesia ~ 900?
- Overall fewer than 1500 estimated nesting females in the entire Pacific in 2002!

H.C. Liew, Laura Sarti, Scott Eckert, Jim Spotila

# Reality at Playa Grande



Jim Spotila, Drexel Univ.



Selina Heppell, OSU

# A CALL TO ACTION ON THE FATE OF OUR OCEANS



*An International Proposal by Leading Scientists to Save Endangered Marine Life From Extinction*

**A**s scientists concerned about the health of our oceans, we have joined together in support of fishing policies that ensure the long-term survival of targeted fish populations, ecological ocean systems and the fishing-related economy. In recent decades the impact of commercial fishing on ocean ecosystems has dramatically increased, and we are confronted with the unprecedented reality that we are rapidly depleting the ocean's resources. The oceans, once mistakenly thought to be inexhaustible, clearly are not.

Inappropriate commercial fishing practices wastefully harm and kill millions of non-targeted animals per year, causing unsustainable mortality to sea turtles, sea birds, bluefin tuna, swordfish and sharks.

The Pacific leatherback sea turtle is at the top of the list of species being driven to the brink of extinction by increased efforts of global industrial fishing. The Pacific leatherback turtle's nesting population has plummeted from 91,000 in 1960 to fewer than 5000 in 2002. Because nations were not using sustainable and logical and steps are taken, the world's largest and most self-sustaining sea turtle will soon become extinct.

The plight of the leatherback sea turtle involves a host of extinction events that may significantly alter the ocean's ecosystem structure. Leatherbacks have roamed the Earth's oceans for over 100 million years and are part of a complex web of life that is rapidly unraveling. If we allow the leatherback to vanish from the oceans, we alter the balance that exists amongst predators and prey and risk the future of a host of other marine species.

Leading sea turtle biologists and ocean experts recognize that pelagic longline and gillnet fishing pose the principal immediate threats to Pacific leatherback turtles at sea, and recognize that measures that protect leatherbacks at sea also will benefit a wide array of marine species that are either targeted or accidentally captured by these indiscriminate fishing practices.

## WE THE UNDERSIGNED

Call on the United Nations, United States and other nations to institute a moratorium on pelagic longlines, gillnets and other fishing techniques that harm Pacific leatherback sea turtles until such activities can be conducted without harm to the species.

Urges fishing nations to reduce the overall quantity of fishing effort.

Call on pelagic longline and gillnet fisheries to assess their impacts and implement precautionary fishing principles in other impacted ocean basins, to avoid similar extinction crises.

Request that the governments of all nations where Pacific leatherback turtles nest immediately protect these sites, stop egg collection and minimize handling, coastal, and

Urges that transitional relief be allocated to fisheries and communities who are impacted by shifts in policy that move the human species toward the sustainable use of the oceans.

The measures outlined above will help people worldwide who depend on the oceans for their livelihood and sustenance. And we feel these actions are necessary to enable marine species such as the leatherback sea turtle to survive and flourish.

(Signatures as of February 6, 2003. Affiliations for identification purposes only.)

Simon Eames, *Explorer in Residence, National Geographic Society, USA*

Humberto Amador, *President Grupo de los Clers, Mexico*

Miriam Bonn

William Conservation Society, Costa Rica

## LENN B. CANNON

Stephen Toth, *Professor of Marine Biology Duke University Marine Laboratory, USA*

Pauline Drummond, *Professor Faculty of Economics & Politics, University of Cambridge, United Kingdom*

## PAMEL K. DRUMMOND

Scripps Institution of Oceanography, USA

Dennis Emmerson, *Professor of Biology Cook College in Rutgers University, USA*

Pauline H. Emmerson, *President, Center for Conservation Biology, Stanford University, USA*

Thomas Eames, *Professor of Biology Cornell University, USA*

Dennis H. Janssen, *Professor of Biology University of Pennsylvania, USA*

## THOMAS E. LAMONTE

The Harte Center for Science, Economics and the Environment, USA

Pauline H. Ramm, *Director Missouri Botanical Garden and Washington University in St. Louis, USA*

Conn Sumner, *Vice President for Ocean Conservation National Audubon Society, USA*

Emerson O. Wronnen, *University Research Professor, Queen's University, USA*



# Scientist Letters on Leatherback Extinction Crisis

**High Seas Pacific Gillnet and Longline Fishing (6/06)-** Signed by 1,000 scientists from 100 nations, endorsed by 1280 NGOs

**CA/OR Drift Gillnet 8/06)-** Signed by 230 scientists from 43 nations, endorsed by 45 NGOs

# Why Proposed Change Now? (Exempted Fishing Permit)

**“Representatives from the DGN fishery argue this seasonal closure has made the fishery less viable, leading to a steady decline in participation.**

**Furthermore, there is new information on the incidental take rate of leatherback sea turtles in the DGN fishery and new information on leatherback distribution.”**

# The New York Times

## August 18, 2002 (full-page ad)

[ CONSUMER HEALTH ALERT ]

# SWORDFISH: DANGEROUS FOR YOU. FATAL TO SEA TURTLES.

**FDA WARNING:** Swordfish, shark, king mackerel and tilefish (also known as golden snapper) contain enough mercury to affect the central nervous system and harm developing fetuses. Pregnant and nursing women, women who might become pregnant and young children should not eat these fish. [Read a copy of the FDA's Advisory on Fish & Methylmercury at [www.seaturtles.org](http://www.seaturtles.org)]

This extraordinary warning concerns methylmercury, a toxic pollutant highly concentrated in the flesh of large fish at the top of the food chain.

Even at very low exposures, mercury permanently harms the sensitive, developing nervous systems of fetuses, infants and young children.

But everyone is vulnerable as doses increase. Symptoms of mercury poisoning include blurred vision, numbness, motor difficulties, and at high doses, as in the case with Minamata Disease, seizures and death.

The FDA recommends that all adults and children limit their consumption of swordfish, shark, king mackerel and tilefish, all of which contain high mercury levels as does tuna.

As it happens, swordfish, shark and tuna are caught in the ocean on lines up to 60 miles long, barbed with thousands of hooks. This commercial fishing technique, called longlining, is rapidly driving endangered Pacific leatherback turtles, the earth's largest reptile, to

extinction. These gentle giants can grow to 9 feet in length and weigh up to 2,000 pounds. But they will disappear from the oceans in just a few years if industrial longline fishing isn't halted now.

And sea turtles aren't the only creatures suffering from longline fishing. The 1.8 billion to 10 billion hooks set each year by industrial long-liners cruelly snag and drown seals, sharks and seabirds, including rare albatrosses.

Rarely have human self-interest and the fate of a shy and harmless species coincided so dramatically.

By protecting yourself and those you love from mercury poisoning, and not eating swordfish, shark and tuna, you also help sea turtles that survived the dinosaurs survive industrial fishing fleets.

For the ocean's health, and your own, heed the federal warnings on swordfish and other contaminated fish.

To learn more, please visit our website: [www.seaturtles.org](http://www.seaturtles.org)



Thousands of Pacific leatherback turtles have been killed by industrial fishing fleets longlining for swordfish, shark and tuna. Experts predict these rare sea turtles will vanish soon unless fishing pressure is reduced across the Pacific. You can help by sending the coupon below.



Joan Denton, PhD, Director  
California Office of Environmental Health Hazard Assessment  
cc Governor Gray Davis

The National Academy of Sciences, EPA and FDA have found serious health risks associated with methylmercury contamination of seafood, especially for pregnant women and children. In light of these warnings, I strongly urge your agency to immediately release a public health advisory regarding swordfish and other contaminated fish. In addition, your agency should launch a coordinated and comprehensive public education campaign to inform Californians about the health risks associated with eating contaminated seafood.

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_ ZIP \_\_\_\_\_  
E-MAIL/PHONE \_\_\_\_\_

Sea Turtle Restoration Project  
Turtle Island Restoration Network  
P.O. Box 400, Forest Knolls, CA 94933  
800-859-SAFE — [www.seaturtles.org](http://www.seaturtles.org)

I support your efforts to save giant, gentle sea turtles. I enclose my tax-deductible contribution, made out to Sea Turtle Restoration Project, in the amount of: \$1000 \_\_\_\_\_ \$250 \_\_\_\_\_ \$50 \_\_\_\_\_ or \$ \_\_\_\_\_  
Call us for details on credit card donations or visit our website.

Please send me more information about your ongoing projects and how I can help.

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_ ZIP \_\_\_\_\_  
E-MAIL/PHONE \_\_\_\_\_

**URGENT!** Fill out and mail or fax to: Sea Turtle Restoration Project, P.O. Box 400, Forest Knolls, CA 94933 Fax (415) 488-0372. We will forward your message to Joan Denton and Governor Gray Davis directly! Thank you.

# WARNING!

Nearly all fish and seafood contain some amount of mercury and related compounds, chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm. Certain fish contain higher levels than others.

Pregnant and nursing women, women who may become pregnant, and young children **should not eat** the following fish:

**SWORDFISH · SHARK · KING MACKEREL · TILEFISH**

They should also limit their consumption of other fish, including **fresh or frozen tuna**.

**Fish and seafood** can be an important source of nutrients and an important part of a balanced diet. However, the federal Food and Drug Administration advises pregnant and nursing women and women who may become pregnant to limit their consumption of fish to no more than 12 ounces per week.

Fish that tend to have little or no mercury include salmon (fresh, frozen, or canned), shrimp, and scallops. Mercury levels in canned tuna vary, but on average are lower than levels in many other fish. Chunk or chunk light tuna has less mercury than solid white or chunk white tuna.

The California Department of Health Services ("DHS") recommends certain steps you can take to reduce mercury exposure:

- Eat a variety of different types of fish;
- Eat smaller fish rather than older, larger fish;
- Begin following these guidelines one year before becoming pregnant.

For more information consult the following websites:

U.S. Food and Drug Administration ("FDA")

[www.cfsan.fda.gov](http://www.cfsan.fda.gov)

U.S. Environmental Protection Agency

[www.epa.gov/mercury](http://www.epa.gov/mercury)

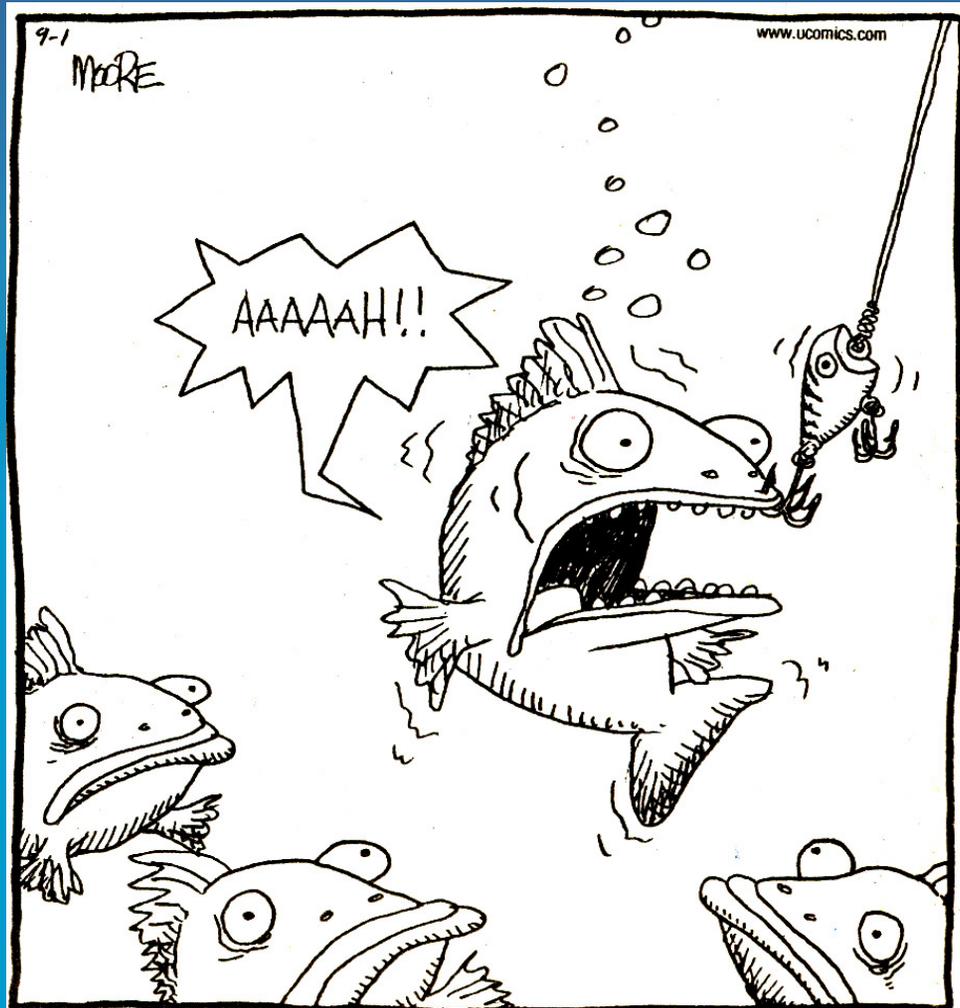
California Department of Health Services

[www.dhs.ca.gov/ps/deodc/ehib/ehib2/topics/mercury\\_in\\_fish.html](http://www.dhs.ca.gov/ps/deodc/ehib/ehib2/topics/mercury_in_fish.html)

or call the FDA toll-free at **1-888-SAFEFOOD (1-888-728-3366)**.

Leatherbacks outlasted the dinosaurs—Will they outlast us?





**Witnesses later told police that they didn't help the victim because they 'didn't want to get involved.'"**