

**Gulf of the Farallones National Marine Sanctuary  
Sanctuary Advisory Council  
August 13, 2009**

***U. S. Swordfish Consumption:  
Best Choices for Sustainable  
Seafood***

**National Marine Fisheries Service  
Southwest Region  
Long Beach, California**



# Background

- **U. S. Swordfish Consumption:** 21,831 metric tons consumed in 2008; 84 % from imports
- **U.S. Swordfish Fisheries:** Atlantic and Hawaii use longlines; California primarily uses drift gillnets, some harpoon
- **North Pacific Swordfish:** 2009 stock assessment - stock very healthy
- **Primary Importers:** Mexico, Taiwan, Panama, Japan; lesser amounts from China, Columbia, El Salvador, Guatemala, Nicaragua, S. Korea, and Spain



# Exempted Fishing Permit

- **Issue:** DGN fishery is phasing out (average age is 58; few fishermen entering fishery); California losing a source of domestic swordfish
- **Potential Solution:** Evaluate gear switching: determine if longline in California Current is sustainable alternative to DGN
- **Requirements:** Selective fishing techniques (circle hooks/ mackerel bait); release gear (dehookers; line cutters); vessel owner required training (safe handling/release; use of required release gear; sea turtle resuscitation requirements).
- **100 % Observer Coverage**
- **Distance Offshore:** EFP application lists 50 n mi



# Shallow-Set Longline Facts

## ➤ **Comment: Longline Fishing Gear is Non-Selective**

- **Fact:** Studies demonstrate selective fishing techniques can be developed that are capable of reducing the unintended ecological impact of pelagic longlines

## ➤ **Comment: EFP Fishing Would Likely Hook/ Entangle Leatherbacks**

- **Fact:** Circle hooks and mackerel bait significantly reduced leatherback/ loggerhead catch rates; long leaders allow turtles to reach surface

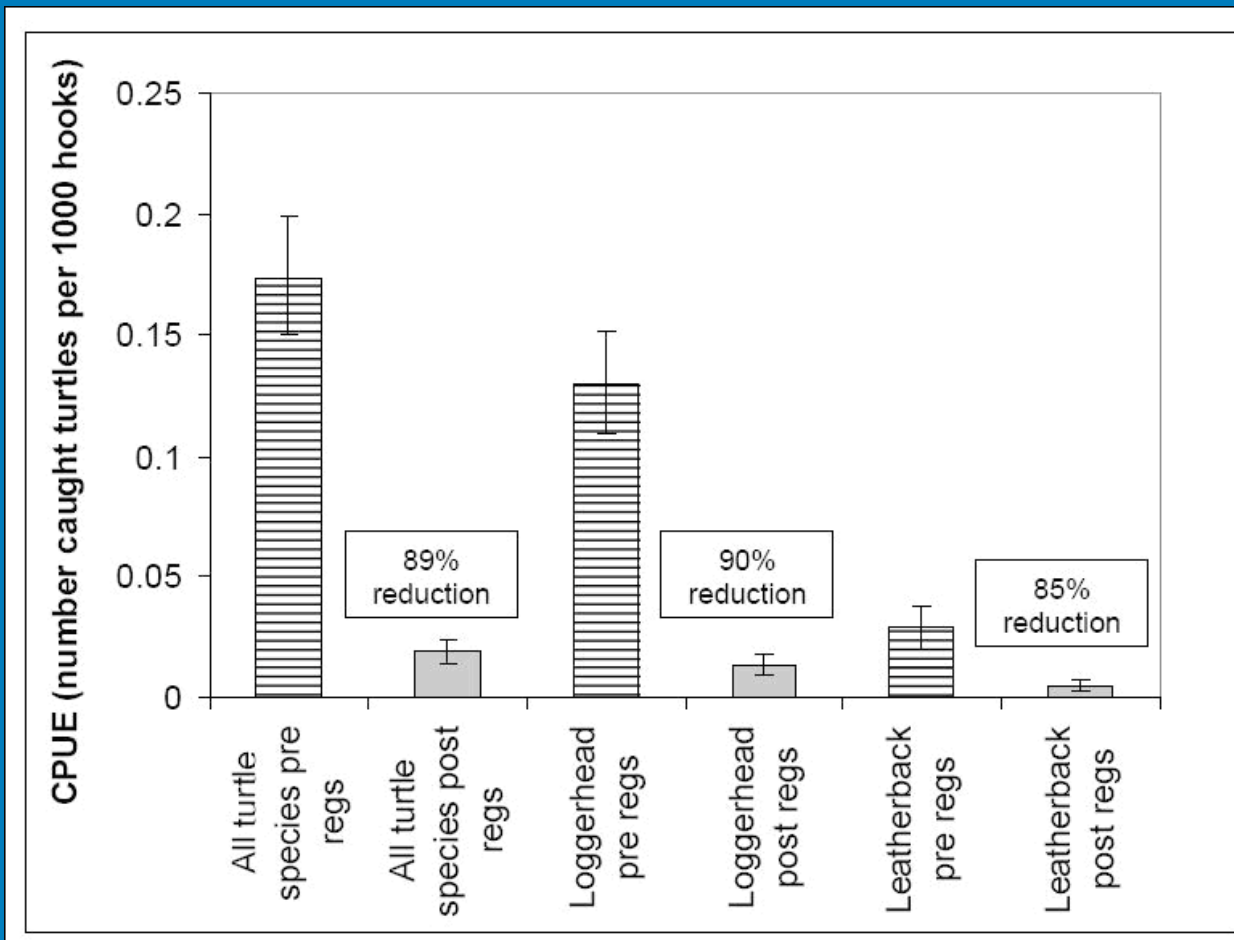
## ➤ **Comment: Apply Leatherback Conservation Area to EFP**

- **Fact:** NMFS identified time/area closure as most appropriate bycatch reduction strategy for DGN; gear selectivity is strategy for EFP

## ➤ **Comment: Longline Fishing Has High Fish Bycatch**

- **Fact:** Studies show circle hooks reduce fish bycatch mortalities (e.g., blue shark; marlin)



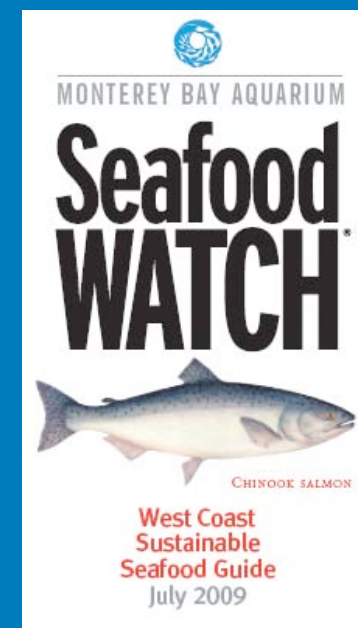


**Figure 7. Leatherback and Loggerhead sea turtle take rates in the Hawaii-based longline swordfish fishery 1994-2001 (pre-regulations) and 2004-2007 post-regulations) (adapted from Gilman and Kobayashi 2007)**



# Consumer Choices

SEAFOOD	RATING	MARKET NAMES	WHERE CAUGHT	HOW CAUGHT
Swordfish	BEST CHOICE	Broadbill, Espada, Emperador, Shutome	Hawaii	Harpoon, Handline
Swordfish	BEST CHOICE	Broadbill, Espada, Emperador	U.S., Canada	Harpoon, Handline
Swordfish	GOOD ALTERNATIVE	Broadbill, Espada, Emperador	California, Oregon	Drift Gillnet
Swordfish	GOOD ALTERNATIVE	Broadbill, Espada, Emperador, Shutome	U.S.	Longline
Swordfish	AVOID	Broadbill, Espada, Emperador	Imported	Longline



## Question:

*Does California want local U. S. fishermen or foreign fleets to supply its swordfish?*







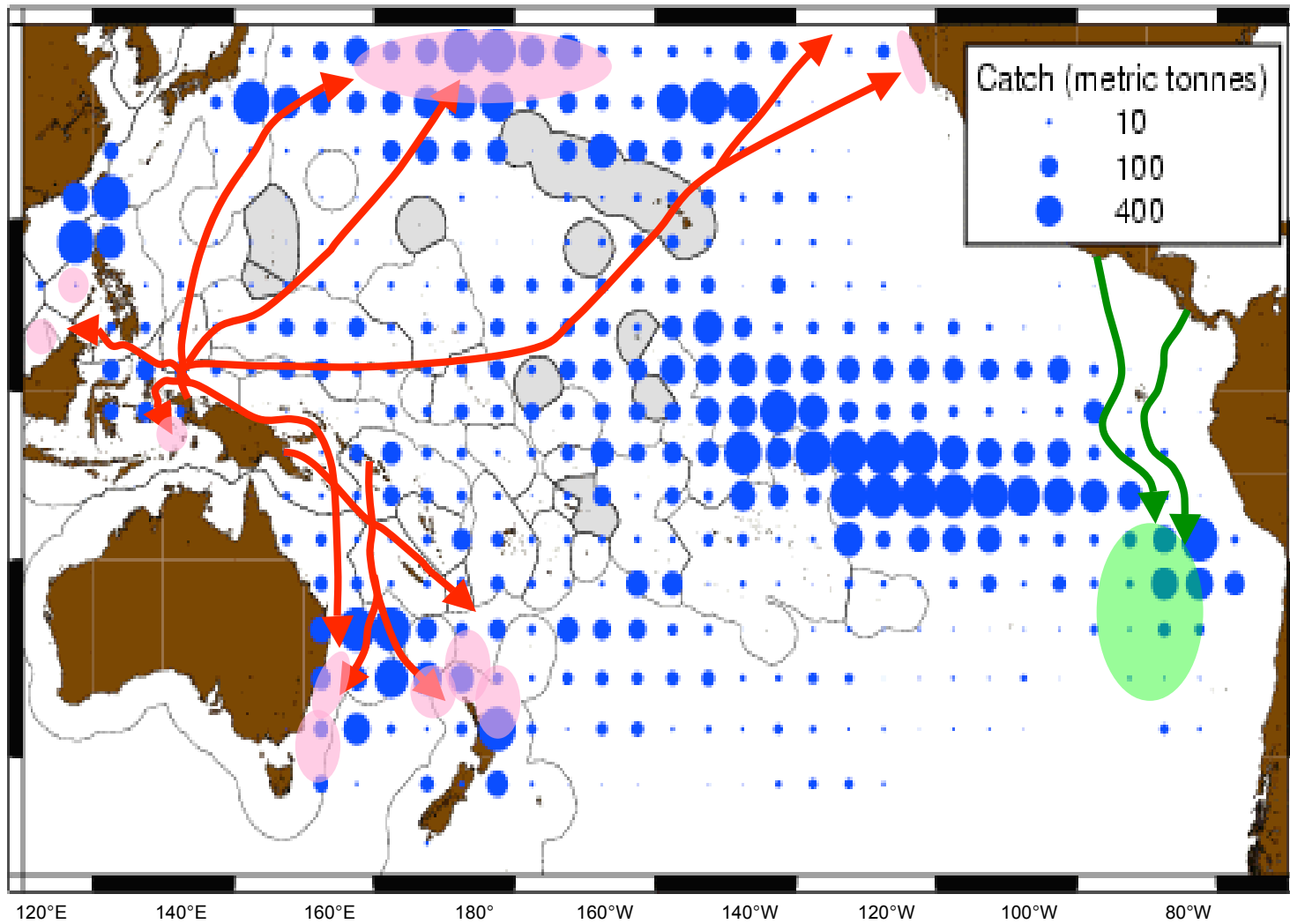
40°N

20°N

0°

20°S

40°S



# Primary Swordfish Imports

- **Major Importers: Mexico, Panama, Chinese-Taipei, and Japan**
- **Lesser amounts from: China, Colombia, El Salvador, Guatemala, Nicaragua, South Korea, and Spain**



# Sea Turtle Bycatch Research in the North Atlantic

By NOAA with the US Shallow-Set Fishery



## Treatments

Hook and Bait

Catch Species

Results



versus  
Control

Hook and Bait



Loggerhead Turtles **71% Reduction**  
 Leatherback Turtles **66% Reduction**  
 Swordfish **63% Increase**  
 Bigeye Tuna **90% Reduction**

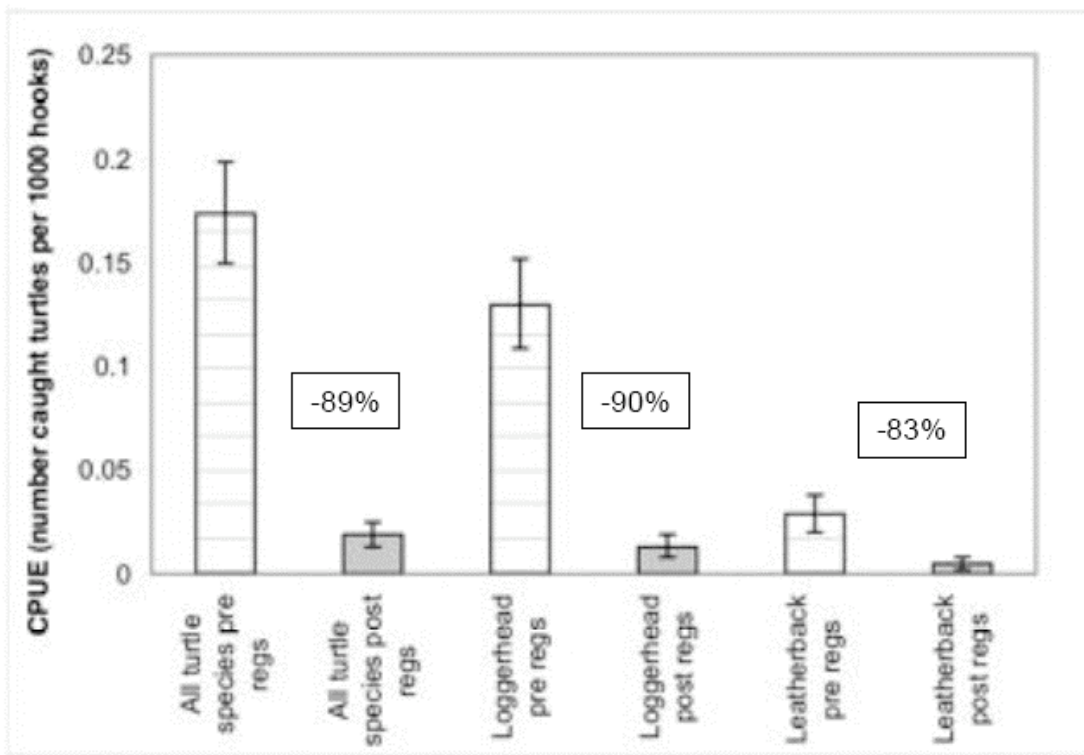


Loggerhead Turtles **74% Reduction**  
 Leatherback Turtles **75% Reduction**  
 Swordfish **30% Reduction**  
 Bigeye Tuna **24% Increase**



Loggerhead Turtles **88% Reduction**  
 Leatherback Turtles **63% Reduction**  
 Swordfish **20% Increase**  
 Bigeye Tuna **80% Reduction**

## Sea Turtle Interactions (CPUE) Pre- and Post- Hawaii Regulations



Gilman et al. 2006

# Environmental Safeguards to be Implemented

- **Use of Selective Fishing Techniques**
  - Circle hooks, 0° offset, mackerel bait
- **Use of Release Gear**
  - Dehookers
  - Line cutters
- **Vessel Owner/Operators Required Training**
  - Safe handling/release of sea turtles
  - Use of required release gear.
  - Sea turtle resuscitation requirements, as outline at 50 CFR 223.206(d)(1)
- **100 Percent Observer Coverage**

