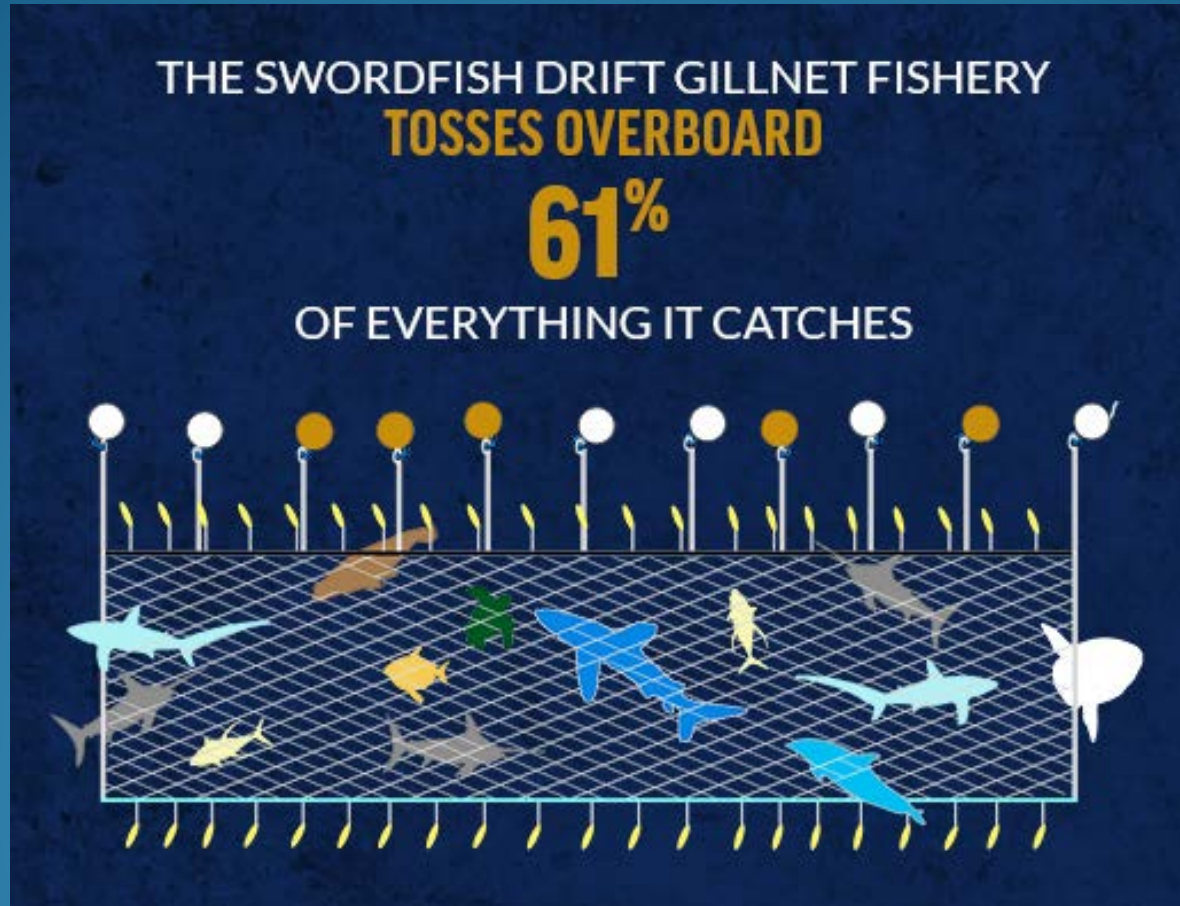


Swordfish Management and Monitoring



Agenda Item J.2
Public Comment
Geoff Shester, Ph.D.

Ongoing bycatch concerns



Data source: NMFS DGN Observer data summaries 2004-2017

**REGRESSION TREE AND RATIO
ESTIMATES OF MARINE MAMMAL, SEA
TURTLE, AND SEABIRD BYCATCH IN
THE CALIFORNIA DRIFT GILLNET
FISHERY: 1990-2015**

**Caretta, Moore, & Forney. 2017
NOAA-TM-NMFS-SWFSC-568**

JANUARY 2017

Between 2001 and 2015, the California-based swordfish drift gillnet fishery caught:


- 753 dolphins
 - 507 seals and sea lions
 - 112 seabirds
 - 53 whales
 - 35 sea turtles
-
- Over 140,000 fish discarded over this period (NMFS observer data summaries)



Short-finned pilot whale killed in
CA DGN, NOAA



Estimating Limit Reference Points for Western Pacific Leatherback Turtles (*Dermochelys coriacea*) in the U.S. West Coast EEZ

2015  PLOS ONE

K. Alexandra Curtis^{1,2*}, Jeffrey E. Moore², Scott R. Benson²



- Limit reference point: limiting delay of population rebuilding: **0.8 turtles per five years** (less than 1 per 6 years)
- **1.5 leatherback turtles killed/seriously injured** in DGN 2011-2015 (*Carretta et al. 2017*)
- >80% population decline since 1980s (5.9% decline/yr) (*Tapilatu et al. 2013*)

A Comprehensive Vision

- Implement 100% DGN monitoring requirement
- Conservation measures: effort limits, bycatch limits, time/area closures
- Permitting: retire latents, prohibit issuance of new DGN permits, sunset active permits
- DSBG authorization, permitting (DGN trade-ins), and EFPs
- Marketing and promoting DSBG-caught swordfish
- Import standards/restrictions through MSA and MMPA

100% Monitoring

- **Purpose and Need:**

- To obtain accurate and precise accounting of 100% of all animals caught as bycatch (finfish and protected species), including rare bycatch events.
- Inform measures to conserve and manage the fishery resource and marine environment.
- Evaluate fishery performance in relation to Council performance standards and population reference points for protected species.
- Reduce uncertainty in bycatch estimates for rare event bycatch.

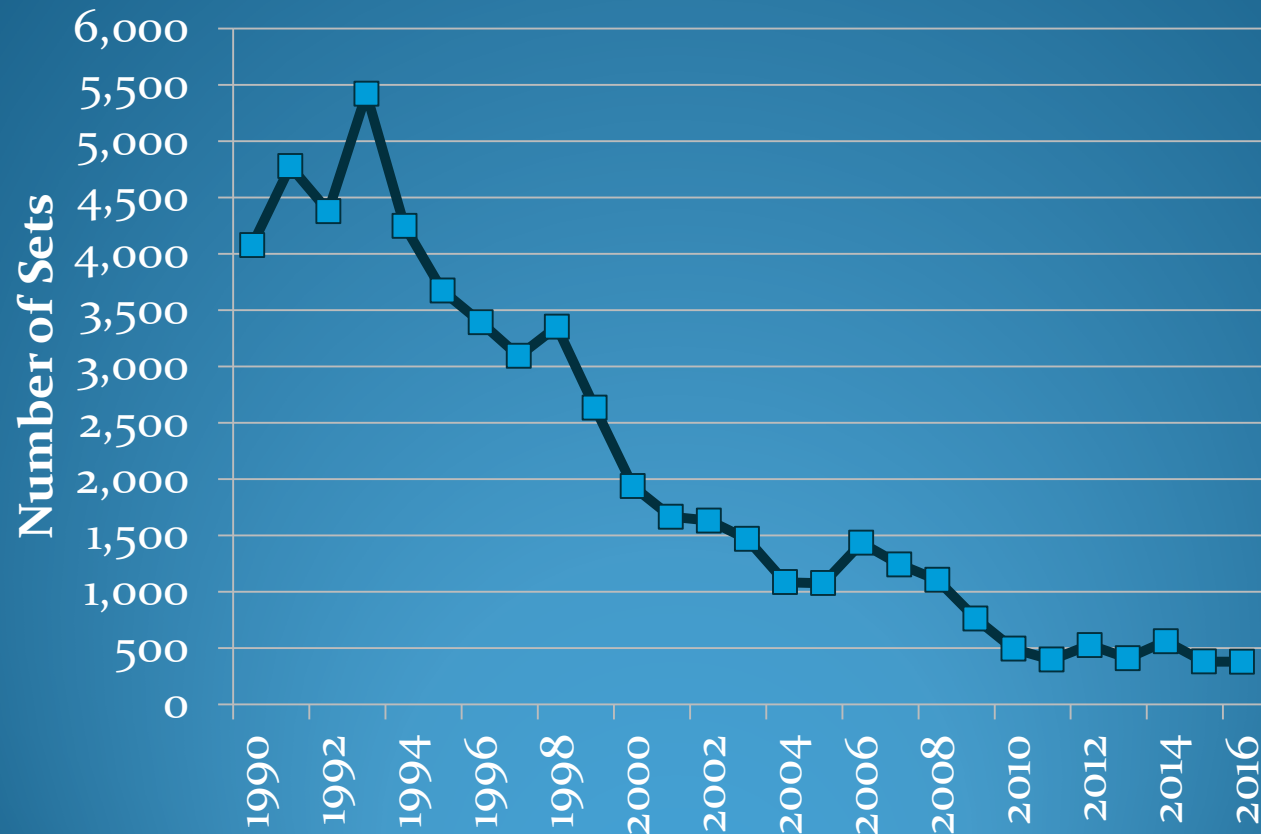
100% Monitoring

- **Objectives:**

- Accurately and precisely enumerate the total number of all animals caught, retained and discarded and discard condition (alive or dead) by species on all large mesh drift gillnet trips and sets.
-
- Evaluate total bycatch mortality estimates to the performance standards established by the PFMCI in 2015.
- Require 100% observer coverage or equivalent electronic monitoring.
- Do not allow vessels to fish if they are unobservable or do not have electronic monitoring.

Conservation measures to reduce bycatch

- Establish hard limit on DGN effort (max # of sets)



1990 to 2010 data from NOAA Biological Opinion, 2011-2016 data from observer program data summaries.

Use Performance Objectives to Set Bycatch Limits/Incentives

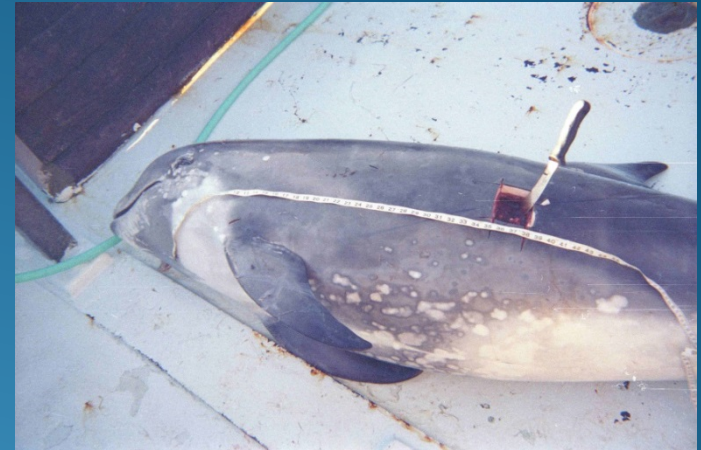
- Time/area closures
 - *NMFS June 2017: “...specifying reduced time/area closures, which could be expected to meet the purpose of the proposed regulations.”*
- Reduced duration hard caps
- Harvest priority: Vessels meeting performance objectives (i.e., retention rate) get additional fishing opportunity in following year (longer season, etc.)

Performance Objectives (PFMC 2015)

Marine Mammals	Total est annual mortality/injury
Minke whale	5
Short beaked common dolphin	66
Long beaked common dolphin	24
Risso's dolphin	7
California sea lion	97
Northern elephant seal	6
Northern right whale dolphin	11
Gray whale	5
Pacific white-sided dolphin	22

Finfish	Total est annual mortality/injury
Billfish (excl. swordfish)	26
Prohibited sharks	2
Hammerhead sharks	4
Manta ray	2

Finfish retention rate: 70%
(excluding live discards)



Risso's dolphin killed in CA DGN (NOAA)



Megamouth shark killed in CA DGN (NOAA)

Modified hard caps

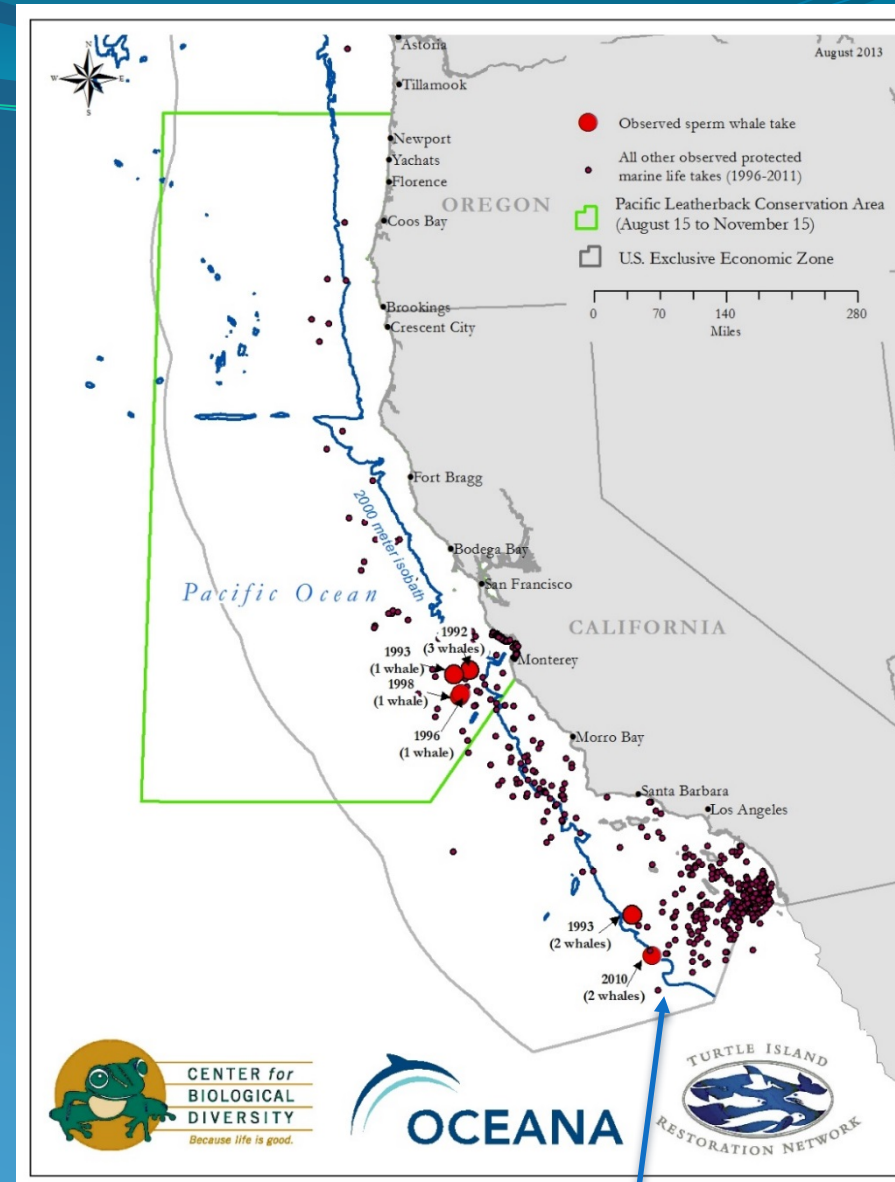
- Clarify purpose and need:
 - Reduce/prevent increases in bycatch, create incentives to change fishing methods/behavior, incentive to change to DSBG
- Base on previous hard caps: Explore options for shorter duration closures: 3 months, 6 months, 1 year
- Include these species in performance objectives

PFMC 2015 - recommended 2 year hard caps

Species	Observed 2-year mortality/injury
Leatherback sea turtle	2
Loggerhead sea turtle	2
Olive ridley sea turtle	2
Green sea turtle	2
Sperm whale	2
Humpback whale	2
Fin whale	2
Common bottlenose dolphin	4
Short-finned pilot whale	4

Time/area closures

- Example: 2013 Emergency rule for sperm whales
 - “Zone” deeper than 2000 m
 - 100% observer coverage
 - Fishery closes for season if 1 sperm whale killed or injured



Sperm whale “zone” outside 2000 m depth contour

Permitting

- Prohibit issuance of new DGN permits
- Capacity reduction: Retire all latent DGN permits
- Sunset all active DGN permits (e.g., 3-5 years)
- Make active DGN permits non-transferable
- Allow DGN permit-trade ins for DSBG permits