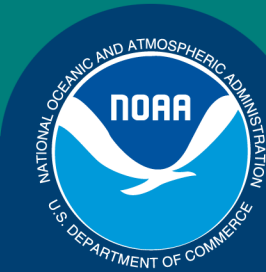


Science, Service, Stewardship



Management of Whale Entanglements on US West Coast

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Protected Resources Division

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**NOAA
FISHERIES
SERVICE**



CA/OR/WA (877) SOS-WHALE

- Phone number to call and report whales in distress (injured, entangled, stranded or ship-struck)
- Outreach: Reporting cards & Gear Guide
 - *Need photos and/or video & information on date, GPS location, species, nature of distress*

Entangled Whale Hotline: (877) SOS-WHALE (767-9425)

Marine Mammals in Distress Reporting Card

Report injured, entangled, stranded, and ship-struck whale concerns as soon as possible. Reports will be relayed to responders. Authorized personnel will guide you as to what to do next. Prompt reporting is the best way to help distressed animals. The following information will aid responders in mounting an appropriate response.

DATE: _____ TIME OF LAST SIGHTING: _____

YOUR NAME: _____

VESSEL NAME/CALL SIGN: _____

PHONE NUMBER (Cell): _____

GENERAL LOCATION (Landmarks): _____

SPECIFIC LOCATION: _____ °N _____ °W

SPECIES (If known; use a guide): _____

APPROXIMATE SIZE/AGE CLASS: _____

NATURE OF THE DISTRESS (Describe what you see): _____

GENERAL CONDITION OF THE WHALE: _____

WEATHER/SEAS (Wind, swell, visibility): _____

IS THE ANIMAL MOVING? Y / N speed _____ heading _____

CAN YOU STAND BY? Y / N HOW LONG? _____ PHOTOS? Y / N VIDEO? Y / N

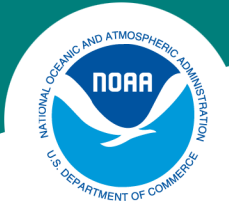
Report incidents of marine mammal harassment to NOAA's Office of Law Enforcement at (800) 853-1964. In Northern California, report live stranded marine mammals (on the beach) to The Marine Mammal Center at (415) 289-SEAL (7325). Report injured/stranded sea turtles to the Moss Landing Marine Lab Turtle Research Program at (831) 771-4422. Report dead marine mammals to California Academy of Sciences at (415) 379-5381. There are ten other organizations authorized to respond to stranded marine mammals in California. The W.E.T. Hotline operator will be able to route the report to the appropriate responder(s).



Marine Mammal Stock Assessment (SARS)

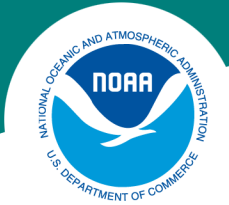
Each report includes:

- a description of the stock's geographic range
- a **"minimum population estimate"**
- current population trends
- current and maximum net productivity rates
- "Potential Biological Removal"** levels
- status of the stock
- estimates of annual human-caused mortality and serious injury by source
- descriptions of other factors that may be causing a decline or impeding the recovery of **"strategic stocks"**



What do we do with the entanglement data – marine mammal stock assessment

- Annually updated review
- SWFSC make “serious injury” determination for each report, using guidelines/criteria spelled out NMFS 2012 -deep lacerations, constricting wraps are serious injury
- Reviewed each year by formal Scientific Review Group
- Compare estimates of human caused mortalities and serious injuries to Potential biological removal level or “PBR” (i.e. how many animals per year can be removed from stock by human activities without effecting recovery)



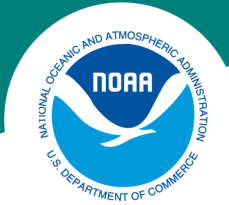
Questions about stock assessment

How often are stock assessments performed?

- attempt to update each species every 3 years or when significant update warranted
- NMFS marine mammal surveys far more infrequent (just completed one 2014 first since 2008)
- specific surveys used when available, reliable, and current

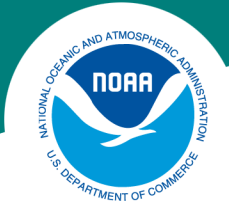
How is PBR calculated?

- Min pop estimate x growth rate x recovery factor
- CA/OR/WA Humpback whale ($1855 \times 0.08 \times 0.3 = 11.0$)



Marine Mammal Protection Act List of Fisheries

- **Required to assess status of ALL U.S. commercial fisheries - updated on annual basis**
- **Each fishery placed into 1 of 3 categories based on level of marine mammal take (SI/M)**
- **Categorization determines requirements**
 - Category I – “frequent” takes (> 50% PBR)
 - Category II – “occasional” takes (> 1% and < 50%)
 - Category III – “rare or no known takes (< 1%)



U.S West Coast Fixed Gear Fisheries 2009 LOF

Category II Fisheries – based on instances where origins of entanglement confirmed

CA spot prawn pot

***humpback whales**

Eastern North Pacific gray whales

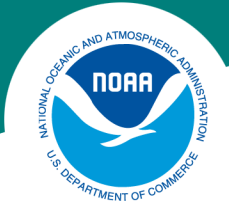
CA, OR, WA Dungeness coastal crab pot

***humpback whales**

Eastern North Pacific gray whales

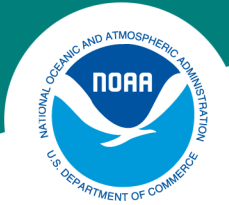
CA/OR/WA sablefish pot

***humpback whales**



Requirements for Category I and II Fisheries

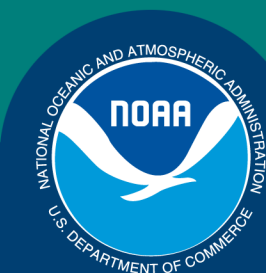
- Register with NMFS to obtain authorization for lawful incidental take of marine mammals
- Carry an observer if requested
- Subject to the Take Reduction Program as applicable – all Category I fisheries, and Category II fisheries if ESA-listed species involved, are eligible per NMFS funding/priority
- Report (via form) sent to NMFS within 48 hours following return to port – only serious injuries/mortalities of MM



Endangered Species Act

- No specific fishery management framework – general prohibition against harming individuals
- Humpback whales historically listed globally as endangered
- April 2015 NMFS proposed listing decisions for 14 distinct populations segments (DPS) based on breeding areas
 - Mexico DPS – no listing status under ESA
 - Central American DPS – threatened
- ENP gray delisted 1990s - WNP gray whale is endangered
- Recent tracking and photo ID confirm WNP gray whale presence on US west coast

Science, Service, Stewardship



Documentation of Whale Entanglements on US West Coast

**NOAA
FISHERIES
SERVICE**

NOAA



Understanding the Data

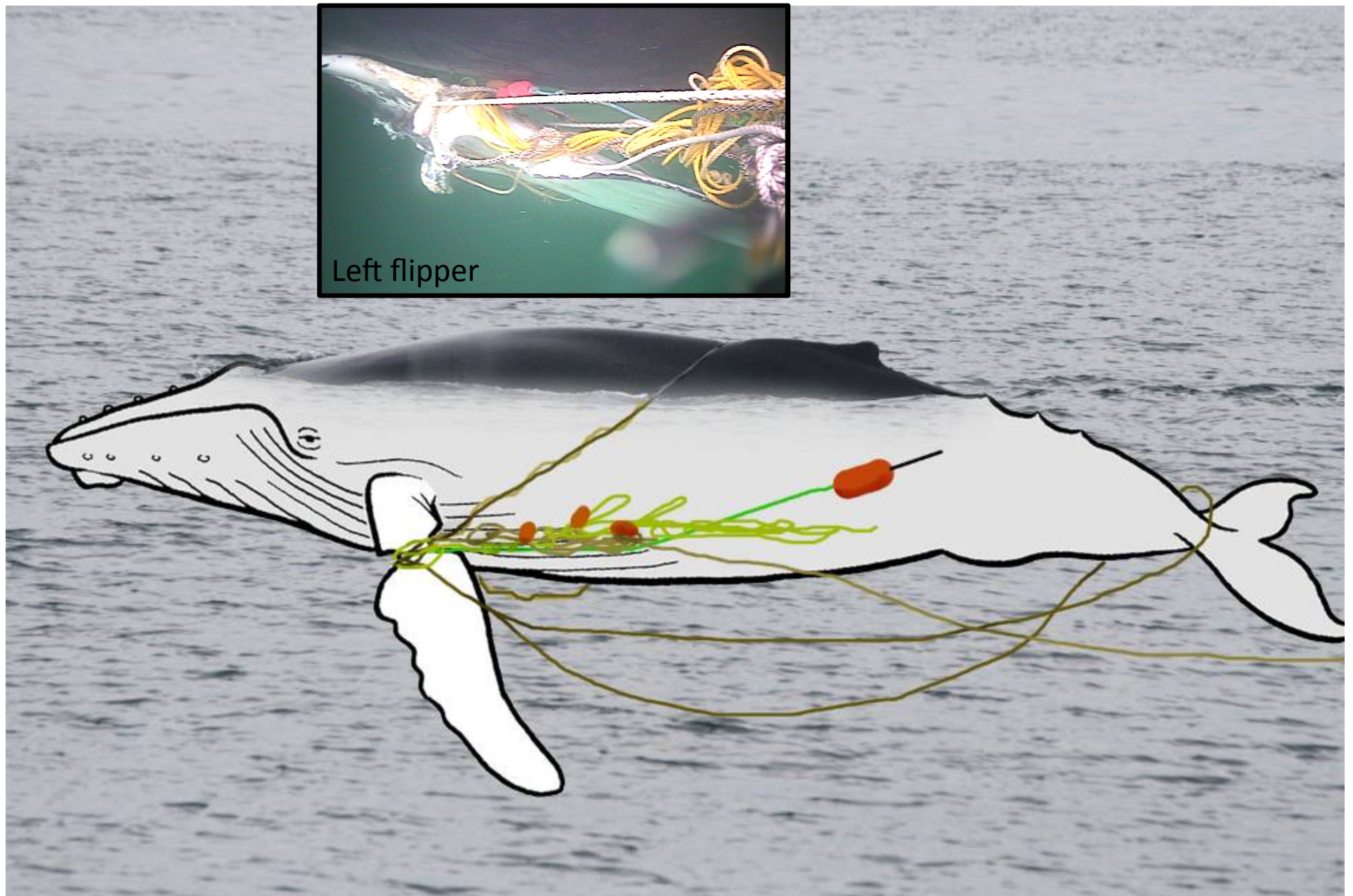
- Opportunistic – biased toward areas of high traffic
- Locations are where report/observation made
- Level of detail associated with the data recorded for each entanglement not comparable among all records – historically
- Confirmed entanglement - Reliable reporting party, documentation (picture, description), carcass with gear on it, or professional judgement.
- Confirmed fishery – fishery is confirmed by identification tag, mesh size, NMFS observer report, or professional judgement based on the information provided.
- Quality of information in our records has increased significantly over time
- Resights possible – work hard to determine if report is resight based on description of gear, animal (photo-ID is big).

What you see above the water . . .



Provincetown Center for Coastal Studies. WR-2009-09. Taken under NOAA permit 932-1489.

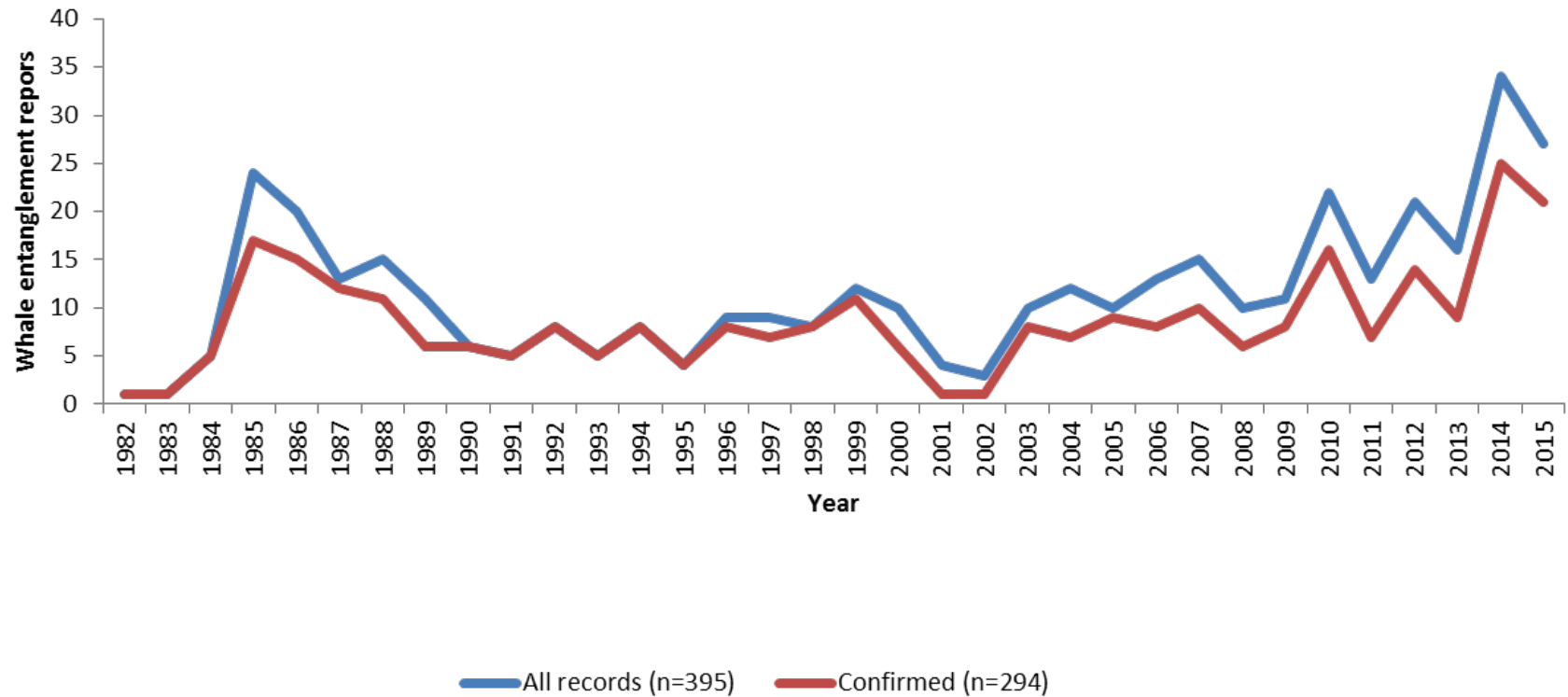
What is really happening . . .



Provincetown Center for Coastal Studies. WR-2008-09. Taken under NOAA permit 932-1489.

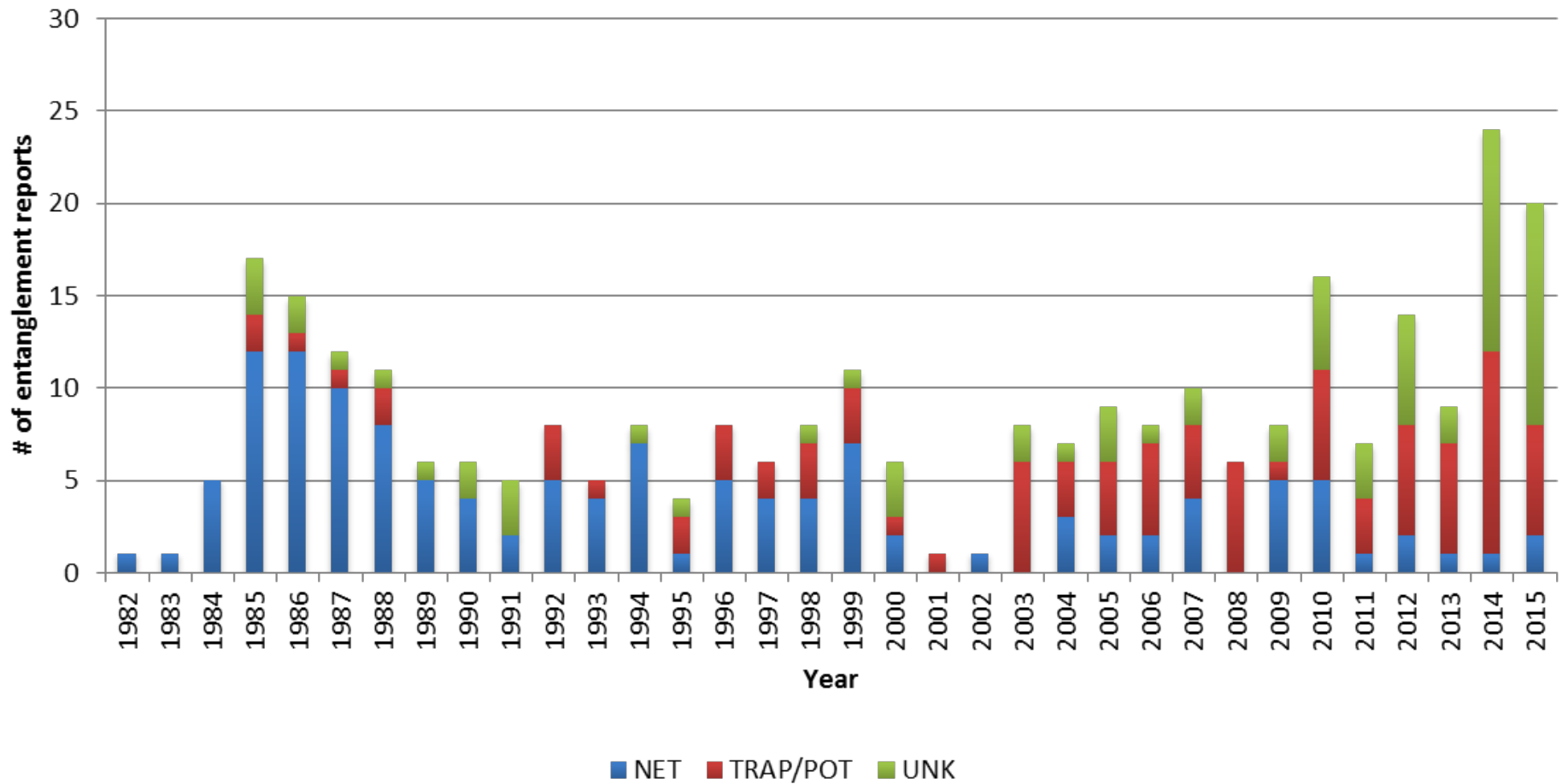
U.S. West Coast Entanglements

Whale entanglement reports
1982- July 2015

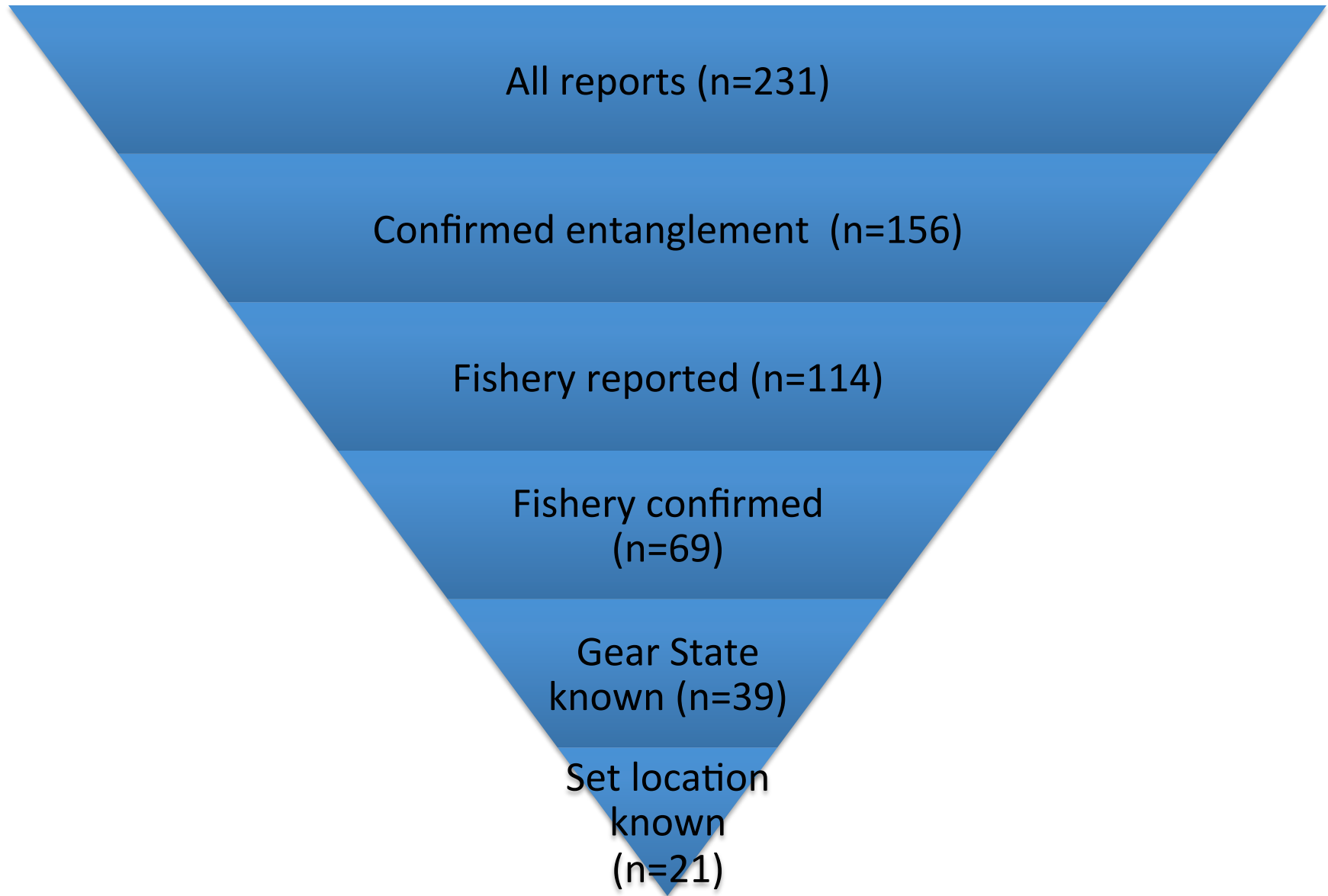


Entanglement Gear Types

Confirmed entanglement reports by gear type by year

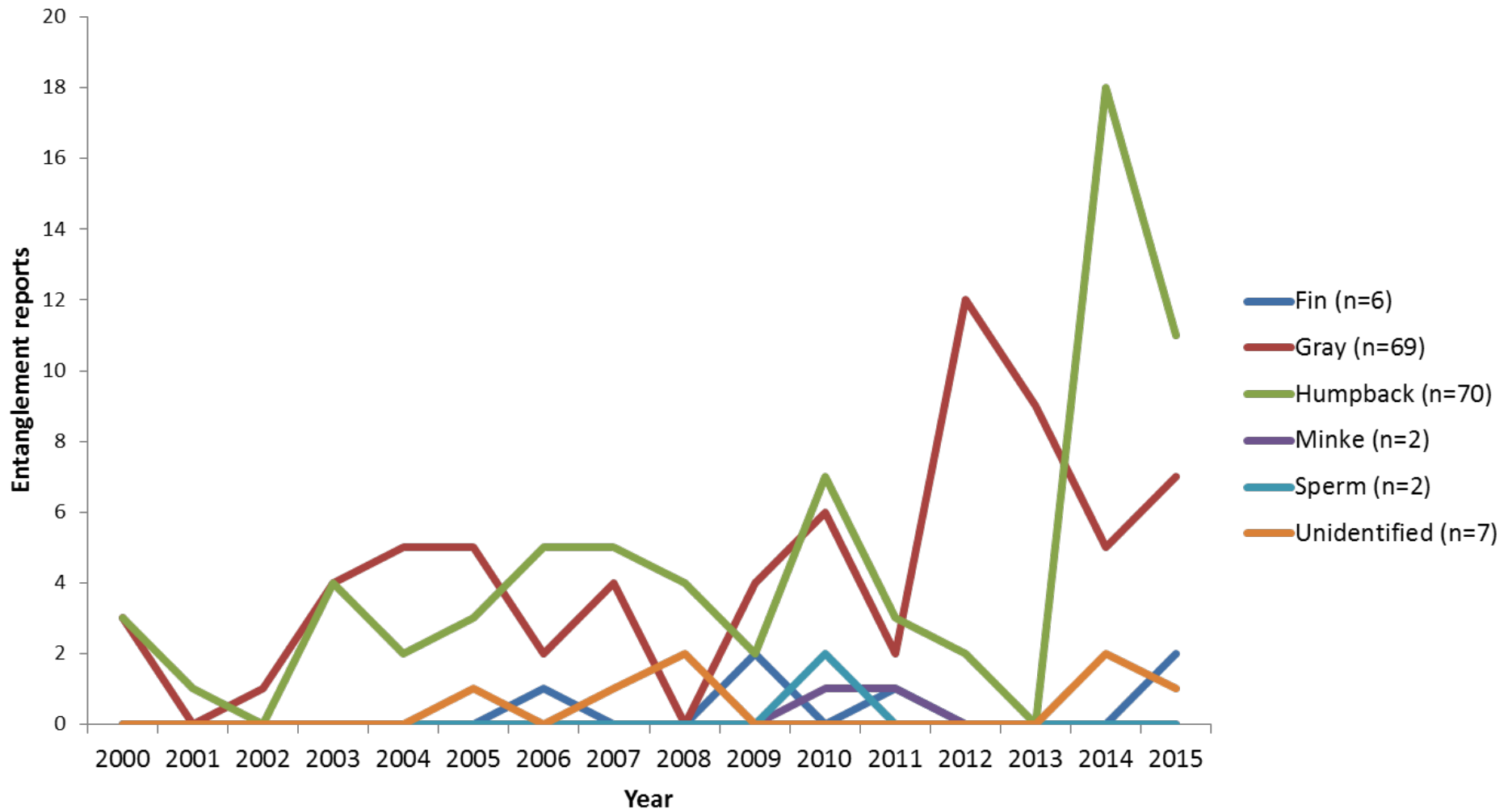


2000-2015 entanglement records

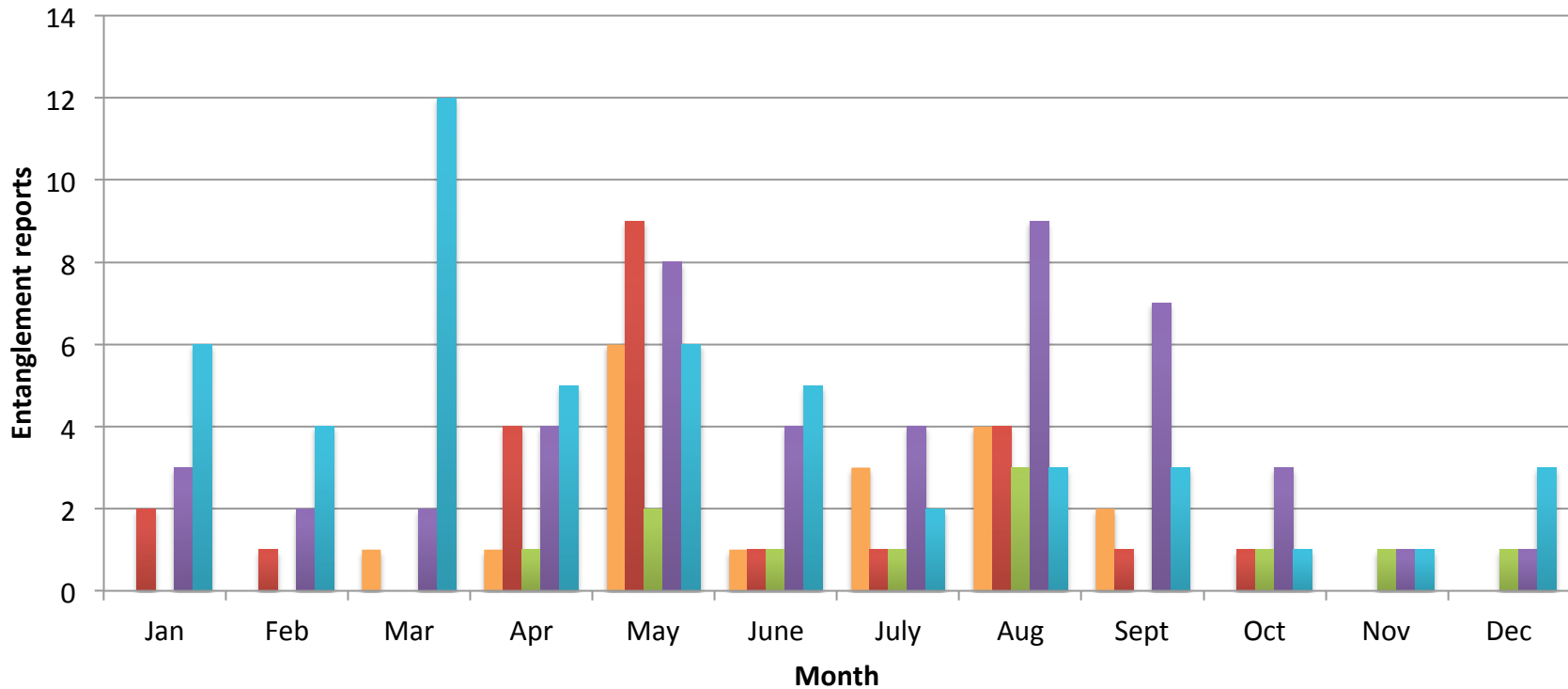


U.S West Coast Entanglements

Confirmed entanglements by species, by year (2000- July 2015)



Confirmed entanglement reports by month by area 2000- July 2015



■ Washington (n=18)
 ■ Oregon (n=24)
 ■ CA North (n=11)
 ■ CA Central (n=48)
 ■ CA South (n=51)

California: North = Del Norte to Mendocino, Central = Marin to SLO, South = SB south

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Washington	0	0	1	1	6	1	3	4	2	0	0	0	18
Oregon	2	1	0	4	9	1	1	4	1	1	0	0	24
CA North	0	0	0	1	2	1	1	3	0	1	1	1	11
CA Central	3	2	2	4	8	4	4	9	7	3	1	1	48
CA South	6	4	12	5	6	5	2	3	3	1	1	3	51

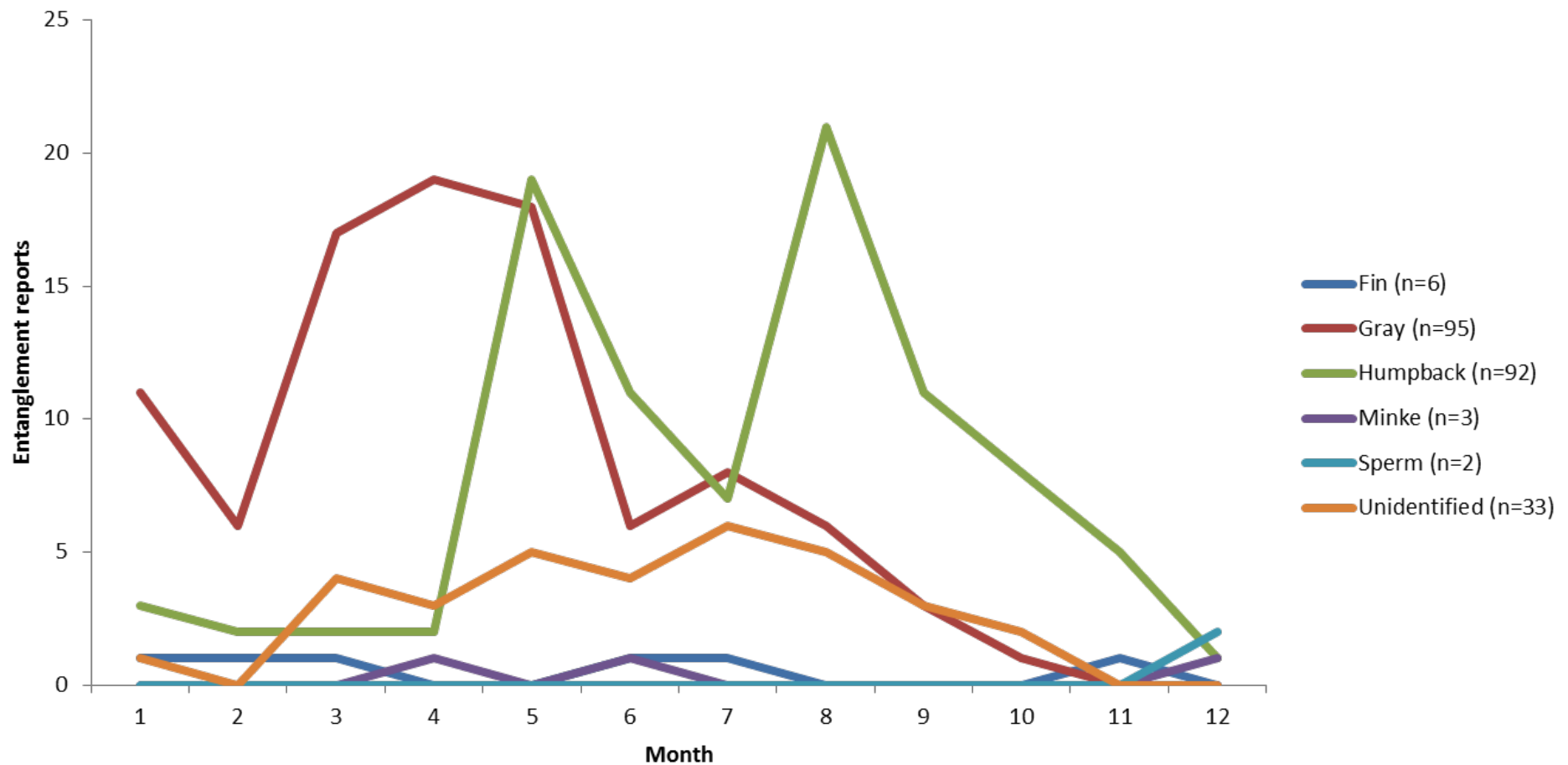
2000-2015 Confirmed Entanglement Reports by CA county

CA Humpback by county	
County	Number
DEL NORTE	1
HUMBOLDT	2
LOS ANGELES	2
MARIN	1
MENDOCINO	1
MONTEREY	25
ORANGE	3
SAN DIEGO	3
SAN FRANCISCO	3
SAN LUIS OBISPO	2
SAN MATEO	1
SANTA BARBARA	6
SANTA CRUZ	2

CA Gray Whale by county	
County	Number
HUMBOLDT	3
LOS ANGELES	9
MARIN	4
MENDOCINO	4
MONTEREY	5
ORANGE	9
SAN DIEGO	11
SAN FRANCISCO	1
SAN LUIS OBISPO	3
SAN MATEO	2
SANTA BARBARA	5
SANTA CRUZ	1
VENTURA	2

When are different species reported?

2000-2015 confirmed entanglement reports by month by species



Which fisheries have been confirmed associated with entanglements?

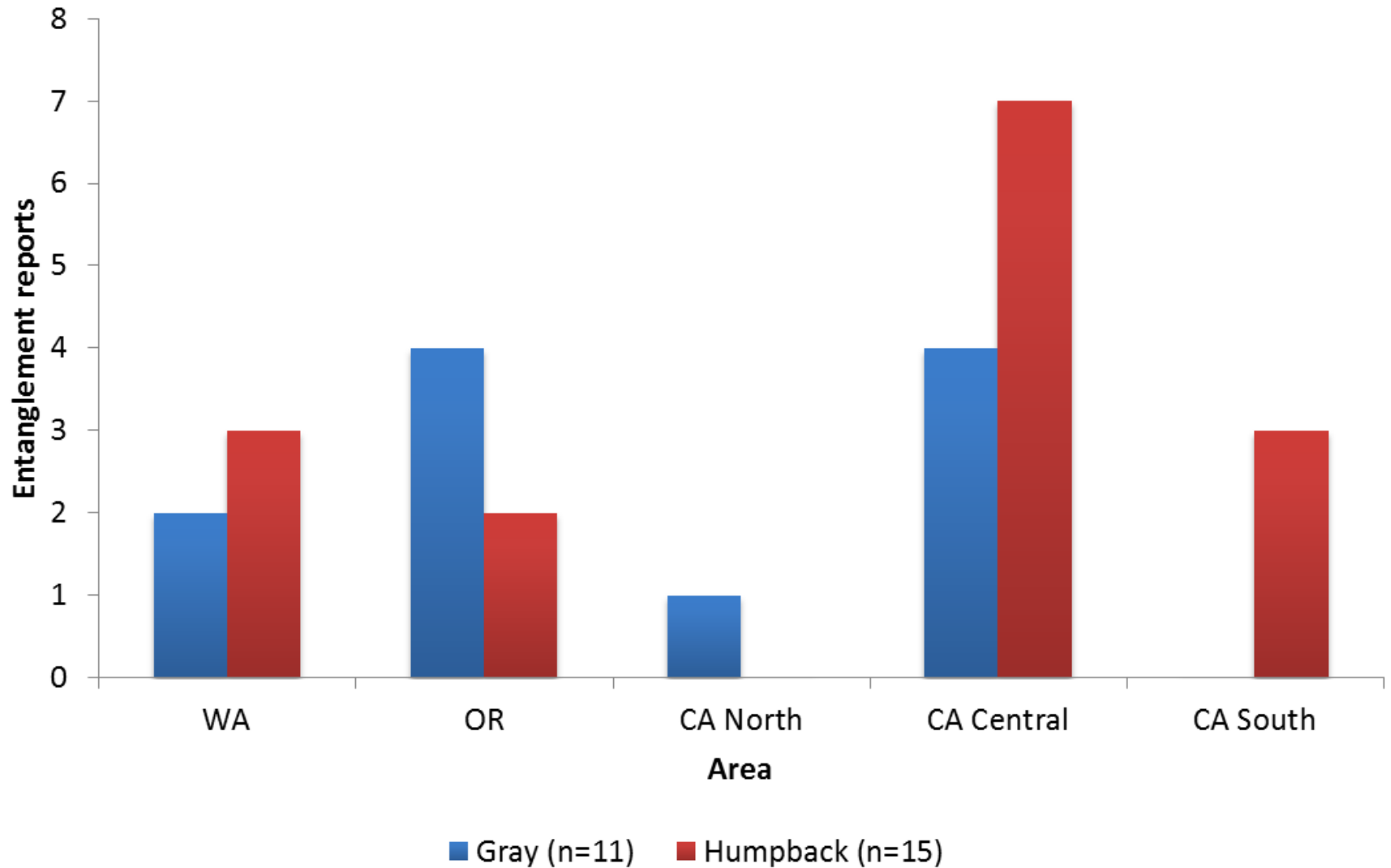
Confirmed entanglement, confirmed fishery, 2000-2015

	Gray	Humpback	Minke	Sperm	Unidentified	Total
Dungeness	17	20	0	0	2	39
Gillnet	12	4	1	2	0	19
Lobster	1	0	0	0	0	1
Rock crab	1	0	0	0	0	1
Sablefish pot	0	3	0	0	0	3
Spot prawn	0	5	0	0	0	5

231 total reports - 156 confirmed

Report Location of Entanglement with Dungeness crab gear

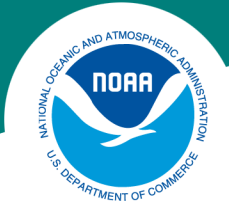
Confirmed Dungeness crab entanglements 2000-2015





Silver and Gold Star Records

- Confirmed entanglement, confirmed fishery, state of gear license known (silver), gear set location known (gold)
- CDFW
 - Dungeness crab (10 humpbacks, 5 gray)
 - Spot prawn (5 humpbacks)
 - Rock crab (1 gray)
- ODFW
 - Dungeness crab (2 humpbacks, 3 gray)
 - Sablefish pot (1 humpback)
- WDFW
 - Dungeness crab (3 humpbacks, 2 gray)
 - Set net (1 gray whale)
- Washington tribal
 - Dungeness crab (1 gray whale)
- NMFS
 - California drift gillnet (1 gray, 2 humpback, 2 sperm whales)



Entanglement Response

2000-2015: 193 whales reported alive,

- 71 rescues initiated (36%),
 - 25 full releases (7 self releases), 13 partial releases,
 - 37 were unsuccessful (didn't find, too dangerous, determined no need)

Animals found dead account for ~16% of all entanglement reports (stranding reports and observer reports)