



State of Washington  
**DEPARTMENT OF FISH AND WILDLIFE**

Mailing Address: P.O. Box 43200, Olympia, WA 98504-3200 • (360) 902-2200 • TDD (360) 902-2207  
Main Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia, WA

March 20, 2019

Dear Coastal Dungeness Crab Fishery Participant:

The Washington Department of Fish and Wildlife (WDFW) staff held its first of two workshops yesterday to review and discuss potential new measures to avoid whale entanglements in crab gear and electronic monitoring tools to assess where the coastal crab fishery occurs.

The presentations and handouts provided at the workshop are available on WDFW's website at: [https://wdfw.wa.gov/fishing/commercial/crab/coastal/letters\\_notices.html](https://wdfw.wa.gov/fishing/commercial/crab/coastal/letters_notices.html)

As we have previously indicated, reports of whale entanglements in the Washington coastal Dungeness crab fishery have increased in recent years. Based on NOAA annual large whale entanglement reports, from 2000-2013, the West Coast average was about ten confirmed large whale entanglements per year across all fisheries. The number of confirmed large whale entanglements in West Coast fisheries increased to 50 in 2015, 48 in 2016, 31 in 2017, and a preliminary estimate from NOAA indicates that there were 37 confirmed entanglements in 2018.

More information on West Coast whale entanglements is available on NOAA's website: [https://www.westcoast.fisheries.noaa.gov/stories/2018/05\\_10052018\\_entanglement.html](https://www.westcoast.fisheries.noaa.gov/stories/2018/05_10052018_entanglement.html)

The number of confirmed large whale entanglements in the Washington coastal crab fishery was four in 2017 (one gray and three humpback whales) with a preliminary estimate of five in 2018 (three gray and one humpback whale in the state fishery, and one humpback whale in the tribal crab fishery). These increases can be attributed to a variety of factors including: increasing whale populations, changes in fishing effort distribution, changes in patterns of distribution and movement of whales, varying environmental conditions that influence the distribution of the whale's preferred prey, and increased public awareness relative to whale conservation and how to report whale entanglements. While these factors make whale interactions in the crab fishery difficult to estimate and predict, the increasing whale populations and changing ocean conditions will likely continue.

To ensure compliance with the Endangered Species Act as well as the Marine Mammal Protection Act, WDFW indicated our intent to apply for an Incidental Take Permit (ITP) from the National Marine Fisheries Service; however, developing the ITP application will take some time. At the workshop, WDFW presented a proposed process and timeline for the ITP application, which is posted on the WDFW website noted above.

WDFW believes it is prudent to consider management measures to reduce the risk of whale entanglements in this fishery, and notes that absent an ITP permit, the coastal crab fishery is vulnerable relative to being out of compliance with the Endangered Species Act.

Coastal Dungeness Crab Fishery Participants

March 20, 2019

Page 2

From our discussion yesterday, we have compiled a list of potential management measure alternatives (copy enclosed), including season and area closures, reduced pot limits, and revised gear configurations, which can be considered in combination.

We intend to present a preliminary analysis of these alternatives at the next workshop, solicit feedback on them, and discuss which ones we may consider for implementation this season. As we are already midway through this season there may be some actions that we would propose delaying until next year and others for the longer term.

In addition to these measures specific to addressing whale entanglements, workshop participants also discussed the available electronic monitoring (EM) tools. These range from relatively simple, inexpensive models that can record fishing location to more sophisticated models that include crab buoy-specific identification tags and camera systems. Depending on the features selected, these EM tools could help ensure compliance with area closures, replace the paper logbook with an electronic version, and reduce pot theft. More discussion on the specific EM options will occur later this summer as we develop the coastal crab regulatory package for the 2020 season.

The second whale entanglement workshop is on **April 24, 2019, from 9:00 am to 3:30 pm** at Montesano City Hall, which is located at 112 North Main Street in Montesano.

If you have any questions regarding the proposed process or management measure alternatives, please contact Heather Hall at 360-902-2487 or [Heather.Hall@dfw.wa.gov](mailto:Heather.Hall@dfw.wa.gov).

**If you have questions regarding the different EM systems, please contact Jessi Doerpinghaus at 360-902-2675 or [Jessi.Doerpinghaus@dfw.wa.gov](mailto:Jessi.Doerpinghaus@dfw.wa.gov).**

Sincerely,



Michele K. Culver  
Intergovernmental Ocean Policy

Enclosure

cc: Dan Ayres  
Captain Dan Chadwick  
Jessi Doerpinghaus  
Heather Hall

**WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW)  
MANAGEMENT MEASURE ALTERNATIVES TO ADDRESS WHALE ENTANGLEMENTS IN COASTAL  
DUNGENESS CRAB FISHERY FROM CRAB INDUSTRY WORKSHOP ON March 19, 2019**

The following list of management measure alternatives to address whale entanglements were discussed at the coastal Dungeness crab industry workshop. WDFW will present a preliminary analysis of these alternatives at the next workshop on April 24, 2019.

**SHORT-TERM MEASURES:**

The intent is to have management measures to avoid or effectively minimize whale entanglements in the coastal crab fishery, which would be in place beginning this season and remain in effect until WDFW secures an Endangered Species Act Incidental Take Permit from NOAA for this fishery. Modifications to and/or additional measures may be needed in the future, depending on the effectiveness of the actions and the timing of implementation.

**1. Seasonal Closures**

- a. Close area or season effective July 1, 2019
- b. Close area or season effective August 1, 2019
- c. Close area or season during the month of May
- d. Inseason monitoring and consider the need for closures based on current observations

**2. Area Closures**

- a. Close coastal crab fishery shoreward of 30 fms
- b. Close fishery seaward of 4 miles
- c. Coastwide
- d. Inseason monitoring and consider the need for closures based on current observations

**3. Gear Requirements**

- a. Reduce pot limit
  - i. 500 to 350 pots; 300 to 200 pots
  - ii. 200 pots for everyone
  - iii. 500 to 250 pots; 300 to 150 pots
- b. Require line between pot and main buoy be kept taut and vertical
- c. Require ropeless gear as an inseason requirement in lieu of a season or

### **3. Gear Requirements Continued**

- d. Require “best practices”
  - i. Reduce scope (i.e., length of line? amount of loose line?)
  - ii. Avoid floating line  
(Note: There was some discussion relative to whether this would be helpful or potentially harmful without any solid conclusions)
  - iii. Minimize knots and splices in the line, which could harm whales
- e. Require line marking to identify gear if buoy is missing
- f. Require different seasonal buoy tags to fish during the summer months
- g. Require summer tags and additional measures
  - i. Summer tags by June 1 and remove all other gear by July 1
  - ii. One shot per pot, no more than x amount of scope
  - iii. Require breakaway device in the line
- h. Allow up to two pots per line and buoy (i.e., effectively reduce number of lines and buoys by 50% but allow same number of pots to be fished)
  - i. Restrict length of line allowed between pots

### **4. Derelict Gear Removal**

- a. Provide more opportunity to remove stray gear, particularly during the summer months

### **MEDIUM/LONGER TERM MEASURES:**

The intent is to continue to minimize whale entanglements in the coastal crab fishery, and refine regulations as we learn more about whale population status and distribution and develop effective finer-scale management tools.



# Whale Entanglements in the Coastal Dungeness Crab Fishery

*Coastal Dungeness Crab Industry Workshop – March 19, 2019*



Michele Culver and Heather Hall  
Intergovernmental Ocean Policy

# Overview

- **Status of Whale Populations**
- **NOAA Summary of Large Whale Entanglements**
- **Whale Entanglements off West Coast**
- **Confirmed Whale Entanglements in Washington Coastal Dungeness Crab Fishery**
- **Proposed Next Steps**



# NOAA Protected Species

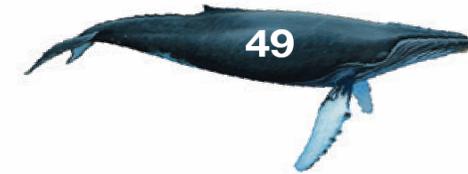
- **Marine Mammal Protection Act (MMPA)**
  - All Marine Mammals
- **Endangered Species Act (ESA)**
  - Threatened and Endangered Species
- **Focused on Whales (MMPA and Some Listed Under ESA):**
  - Gray Whales – ESA-Listed in 1970; Eastern North Pacific Population De-Listed in 1994
  - Humpback Whales – ESA-Listed in 1970; Different Sub-Populations
  - Washington Reports Include Fin Whale (2006) and Unidentified Whale (2007)



**Table 1: The number of confirmed entanglements in 2017 and the 10-year average number of entanglements for each large whale species**

Species	Confirmed Entanglements in 2017	10-Year Average (2007-2016)
Humpback Whale	49	47.6 ± 19.5
Gray Whale	11	6.3 ± 4.2
Minke Whale	7	5.0 ± 1.5
Blue Whale	3	0.4 ± 0.9
North Atlantic Right Whale	2	4.6 ± 2.6
Unidentified Whale	2	2.1 ± 1.8
Fin Whale	1	2.9 + 1.5
Sei Whale	1	0.3 + 0.5
Bowhead Whale	0	2.1 + 1.8
Sperm Whale	0	0.4 + 0.9

**Five most frequently entangled large whale species in 2017:**



**humpback whales**



**gray whales**



**minke whales**



**blue whales**

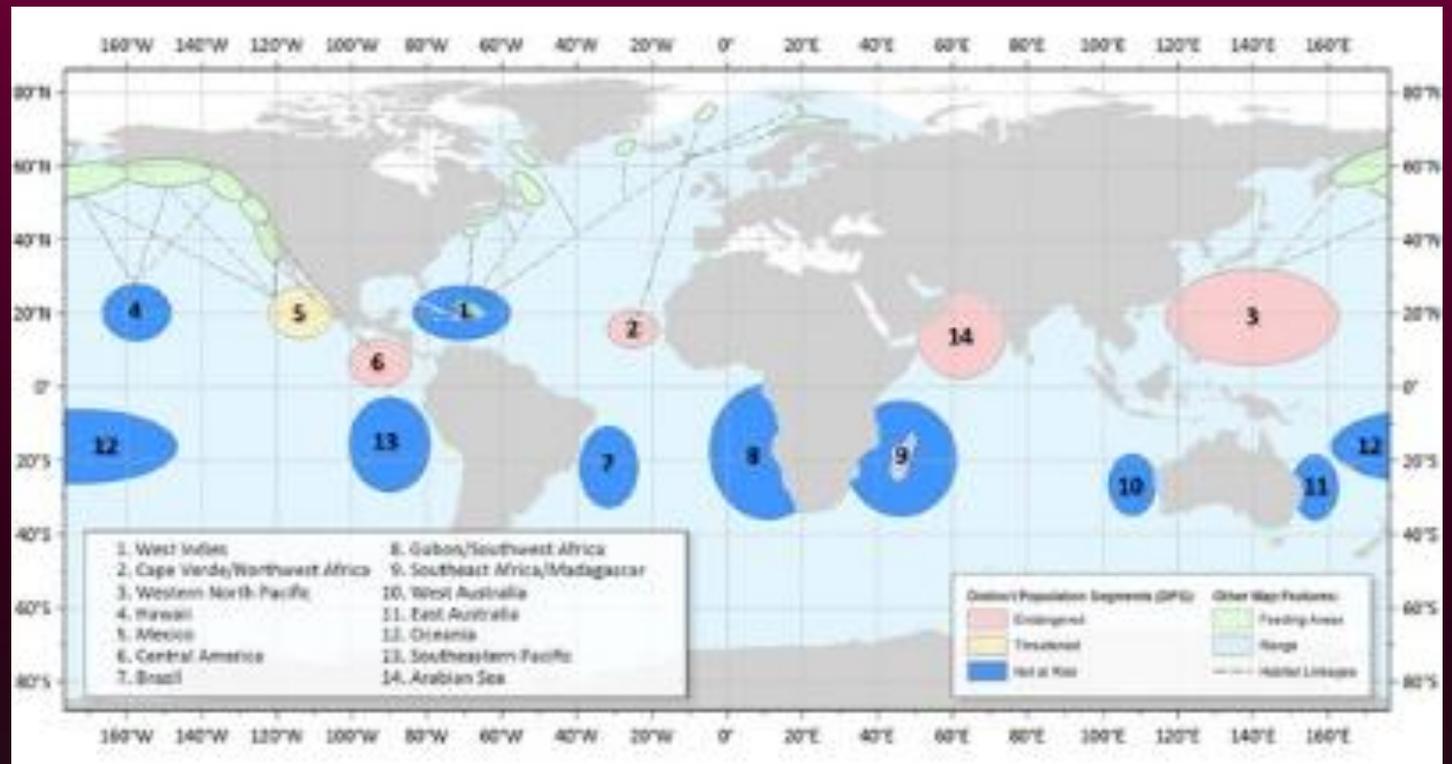


**North Atlantic right whales**

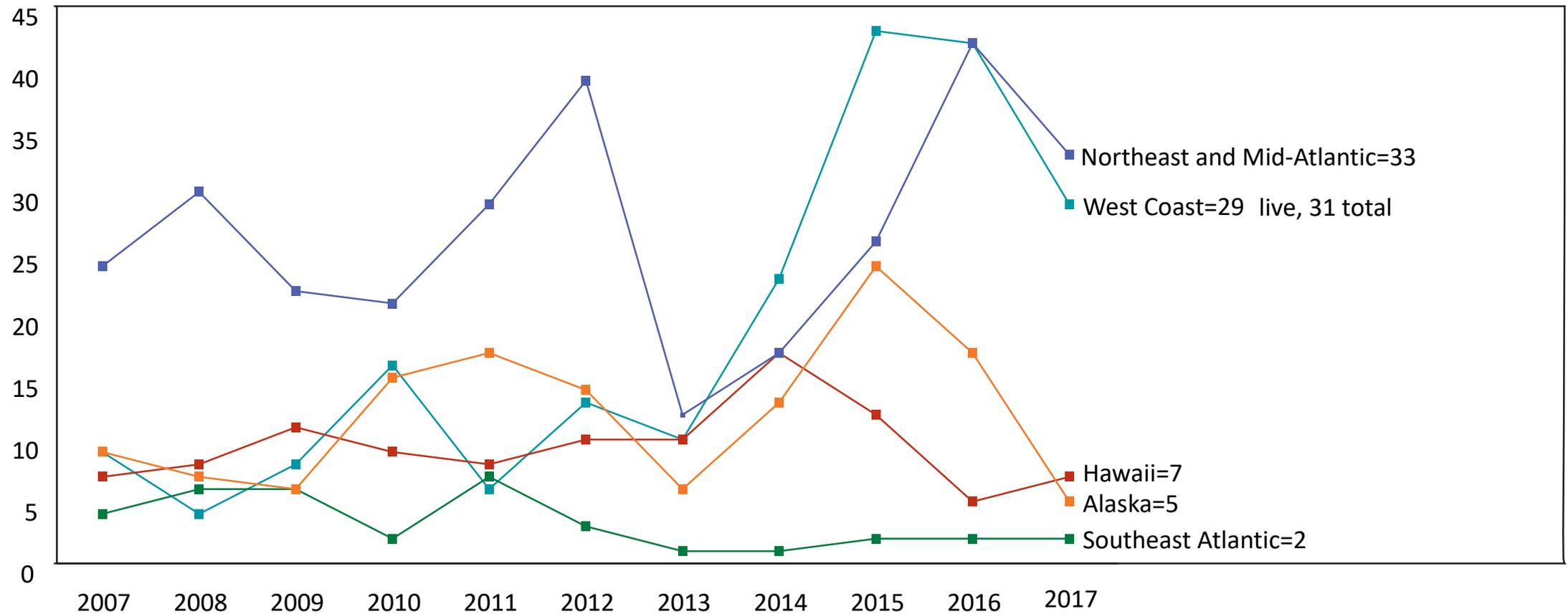
Source: NOAA 2017 National Report on Large Whale Entanglements, November 2018.

# Humpback Whale Distinct Population Segments (DPS)

- ESA Listed in 1970
- 14 DPS
  - 4 in northern Pacific waters
  - Of those, 2 off West Coast
- Status Changes in October 2016:
- Mexico DPS – Threatened
- Central America DPS – Endangered



# Confirmed large whale entanglements by region, 2007-2017

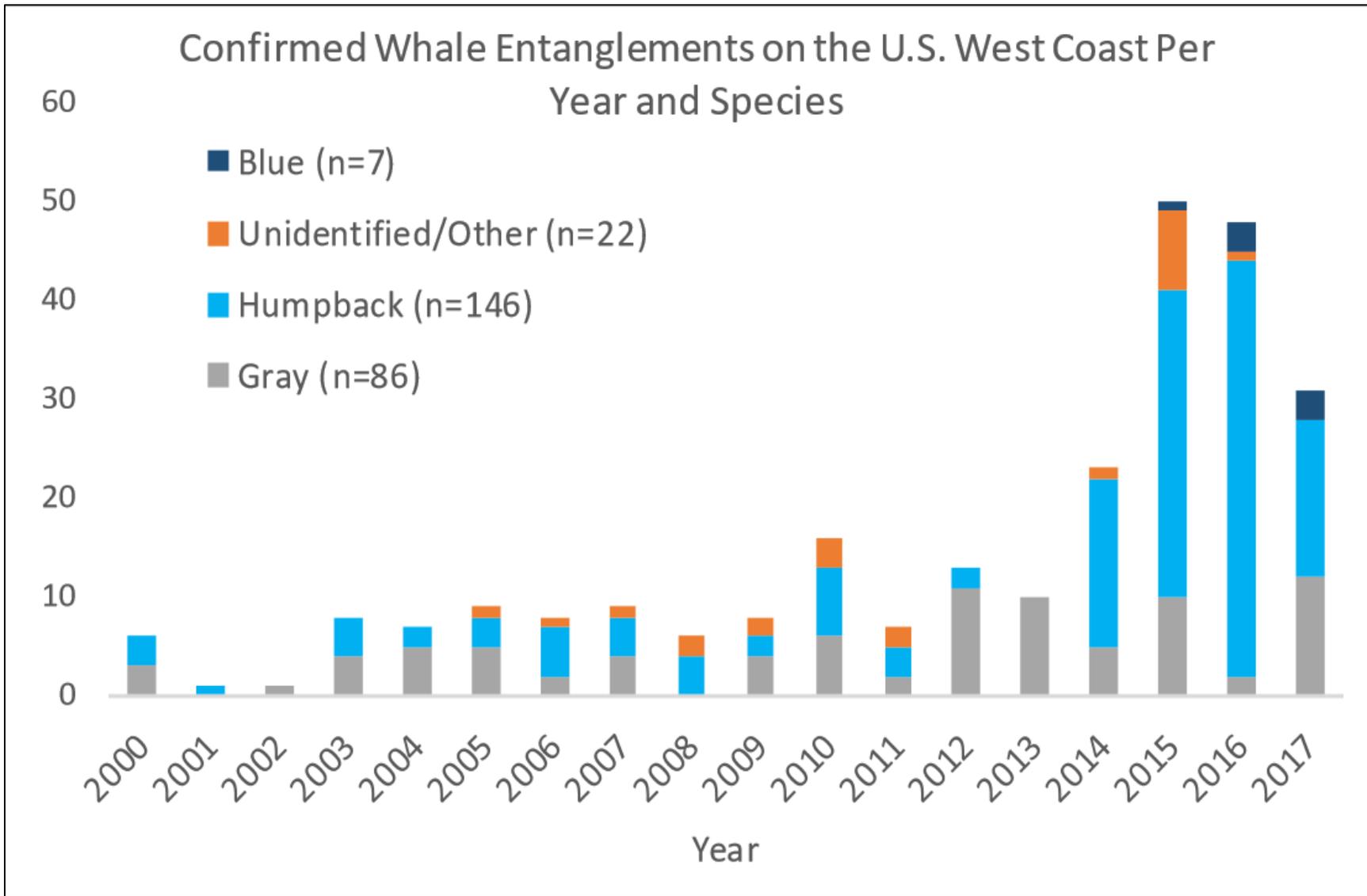


Source: NOAA 2017 West Coast and National Reports on Large Whale Entanglements

# Whale Entanglements in West Coast Fisheries

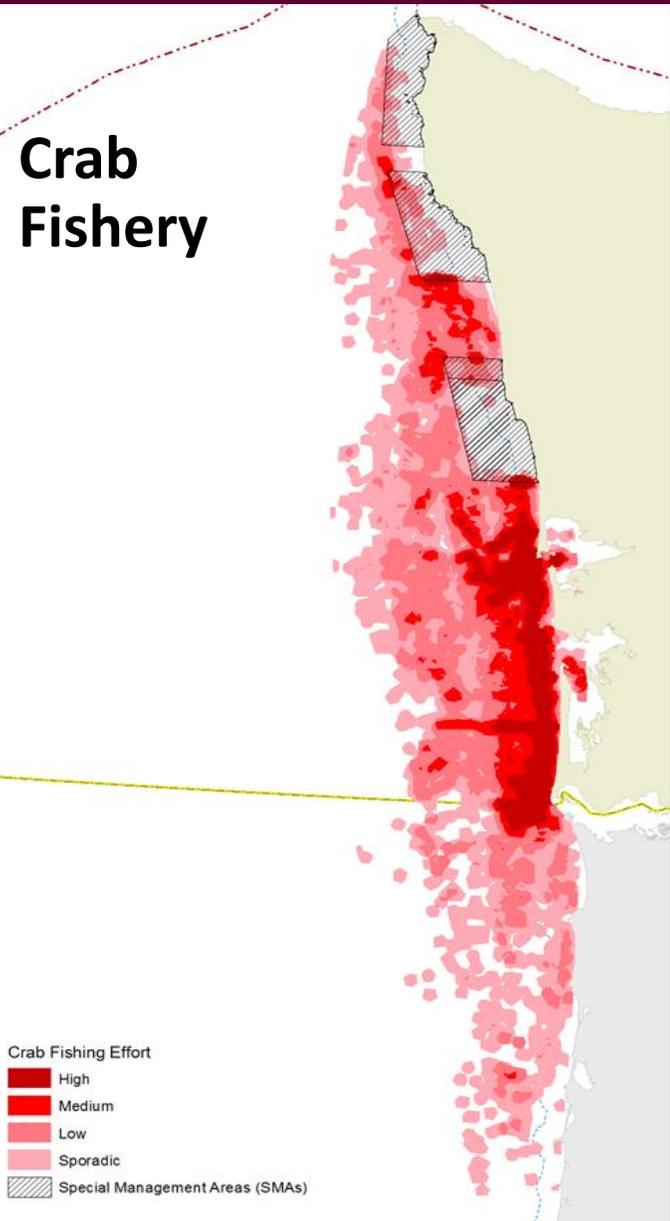
- 2000-2013: West Coast averaged ~ 10 per year
- Increased to 50 in 2015, 48 in 2016, 31 in 2017, and ~37 in 2018
- Increases attributed to:
  - Increasing whale populations
  - Changes in fishing effort distribution
  - Changes in patterns of distribution and movement of whales
  - Increased public awareness



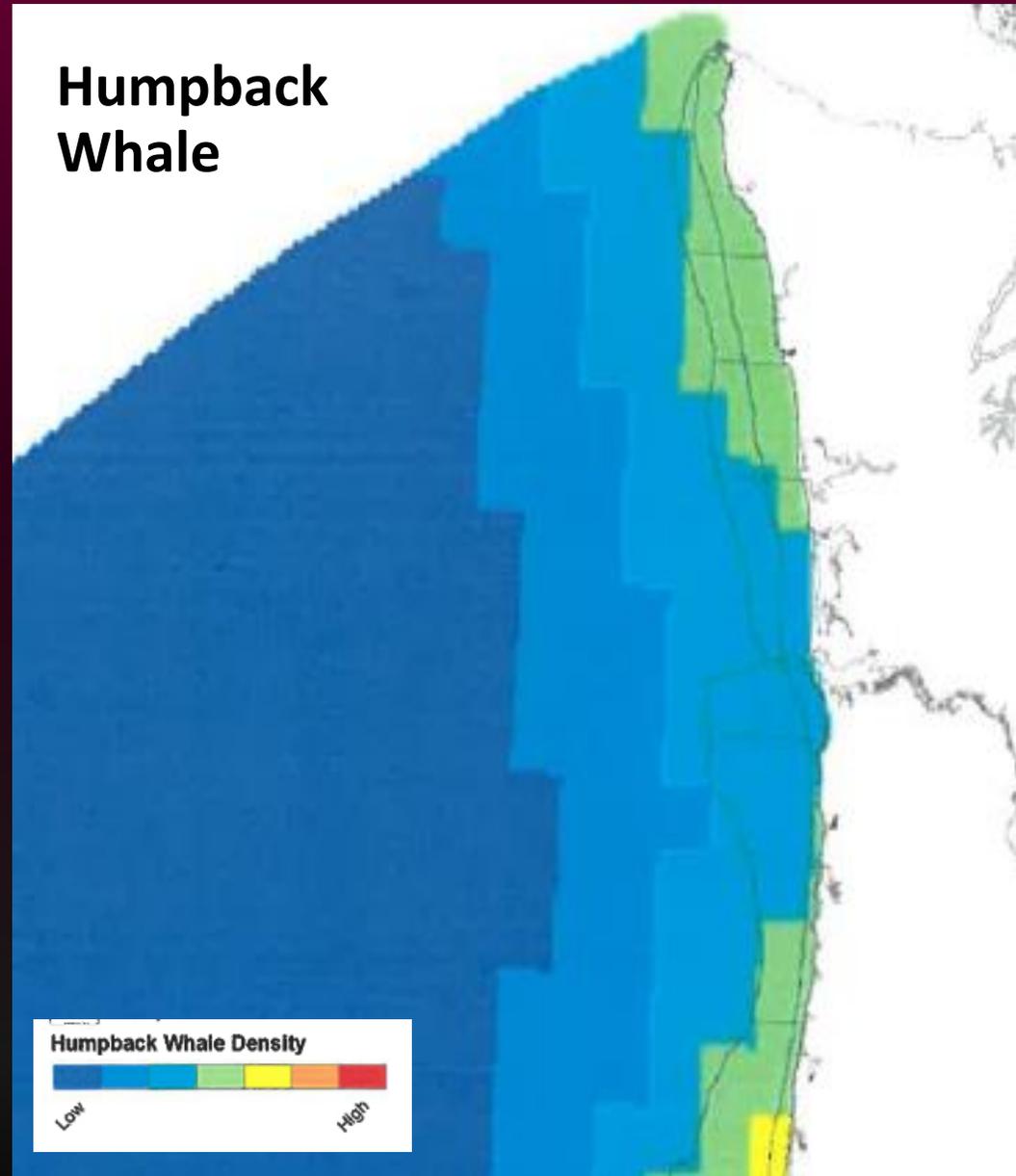


Source: NOAA 2017 West Coast Report on Large Whale Entanglements, May 2018

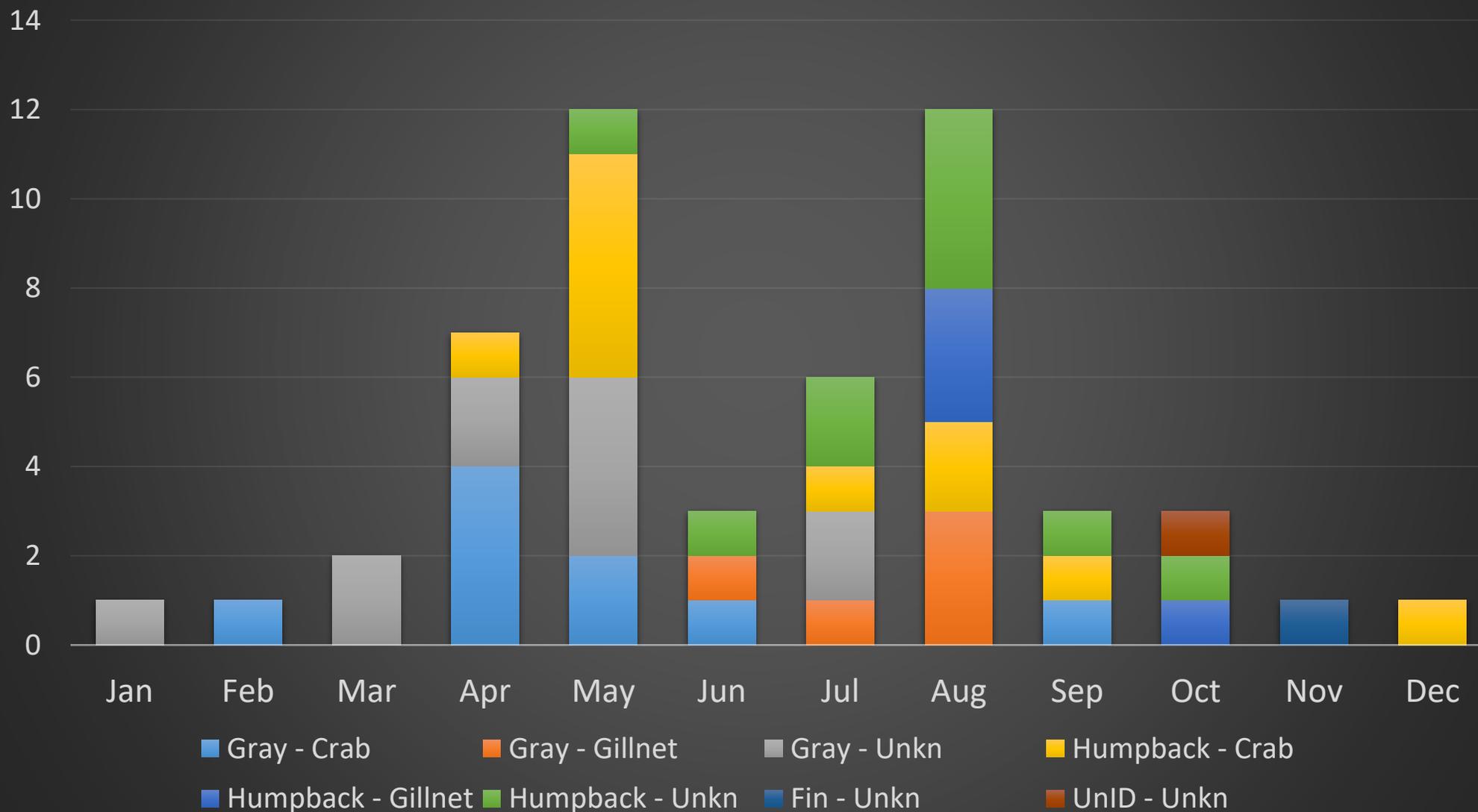
# Crab Fishery



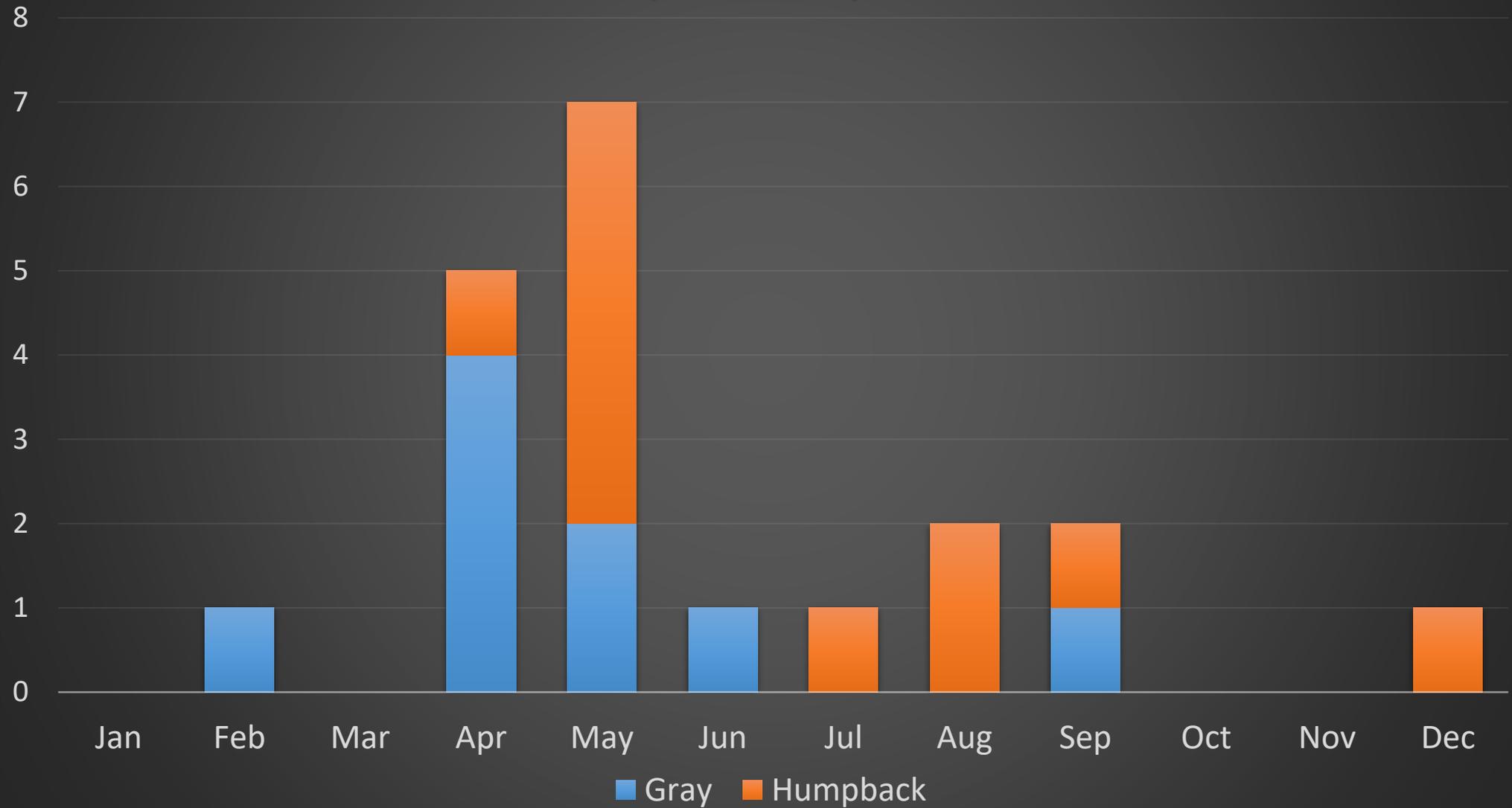
# Humpback Whale



## WA Reported Whale Entanglements by Month (1995-2018)



## Whale Entanglements with WA Coastal Crab Gear by Month (2005-2018)



# Management Considerations

1. Need to Meet ESA Requirements
2. Shifting Whale Distribution
  - Varying environmental conditions influence distribution of prey
3. Whale Interactions Difficult to Estimate and Predict
4. Likely Not a “One Size Fits All” Solution, but Have Blunt Management Tools
  - Time and Area Closures
  - Gear Restrictions



# Management Response



- Established Whale Working Group comprised of stakeholders and fishery managers
- Stakeholder gear workshops and NOAA forensic analysis of gear that entangled whales
- Distribution of “Best Practices Guide” and vessel placards
- Notified NOAA of intent to apply for Incidental Take Permit under Section 10 of the Endangered Species Act (ESA)

# Proposed Next Steps

- **Work with NOAA on ESA Incidental Take Permit Application**
  - NOAA Office of Protected Resources in Long Beach, CA – lead
- **Coordinate with Co-Managers**
  - Continue dialogue on scope of ESA Take Permit
- **Spring 2019 Workshops**
  - Discuss potential short-term regulatory actions
- **Propose Longer-Term Regulatory Actions through Fish and Wildlife Commission process**



# Questions?

---

# ELECTRONIC MONITORING IN THE COASTAL DUNGENESS CRAB FLEET



# OVERVIEW

- Goals and Objectives
- System Options
- Questions to Resolve

## GOALS AND OBJECTIVES

- Goal: Develop an electronic monitoring (EM) program for the Coastal Dungeness Crab fishery in Washington
- Objectives
  - Area Management
  - Pot Limit Management (and issues with pot theft)
  - Whale entanglement

## SYSTEM OPTIONS

- Solar Logger
- RFID

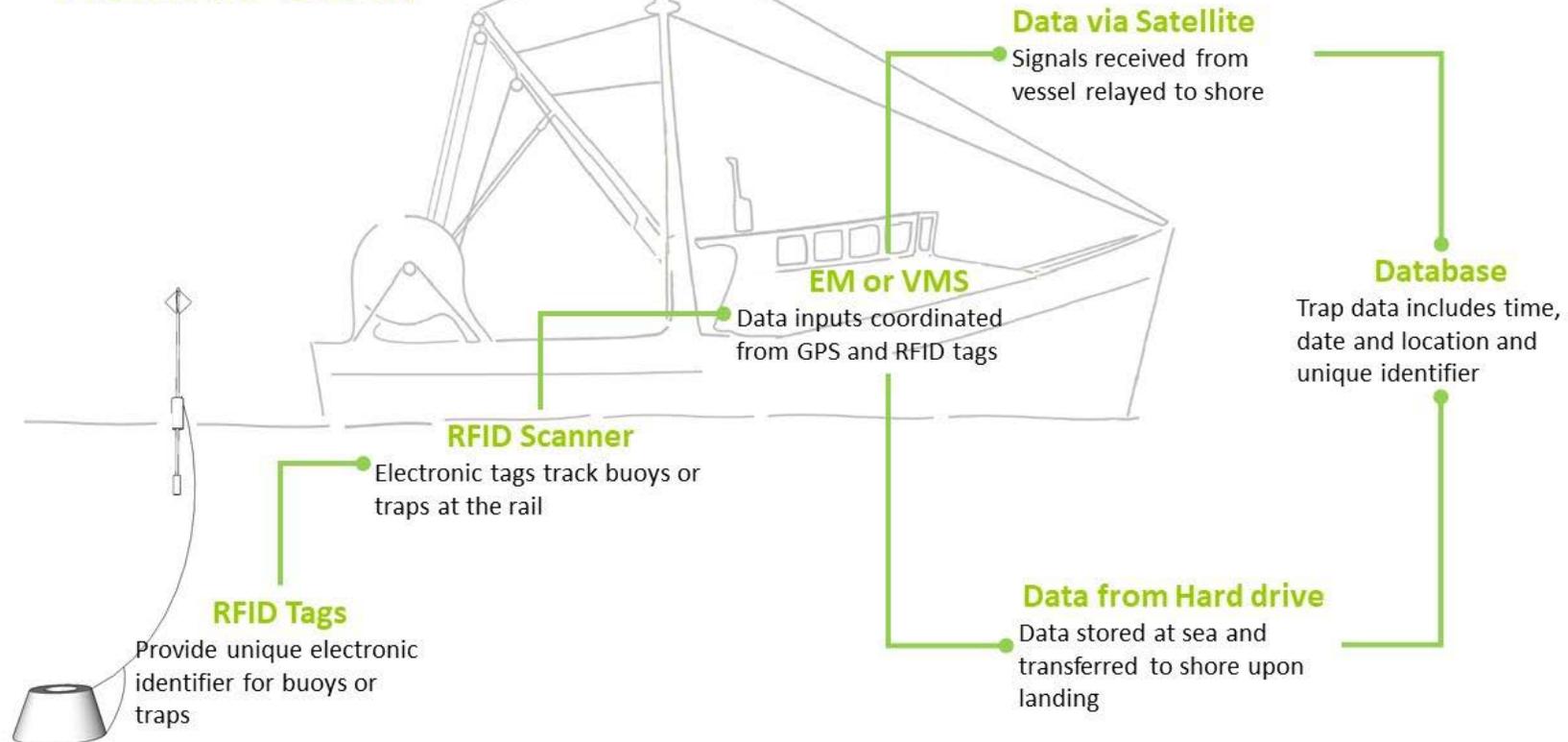
# SOLAR LOGGER

- Currently being tested off of California
- Primary function- record vessel GPS locations and store and send at specified rate
- PSMFC looking at various systems based on select criteria
- Pros: Relatively inexpensive (\$1000-2000) and easy to install
- Cons: Limited assistance with pot theft issue
- Potential to link to logbook



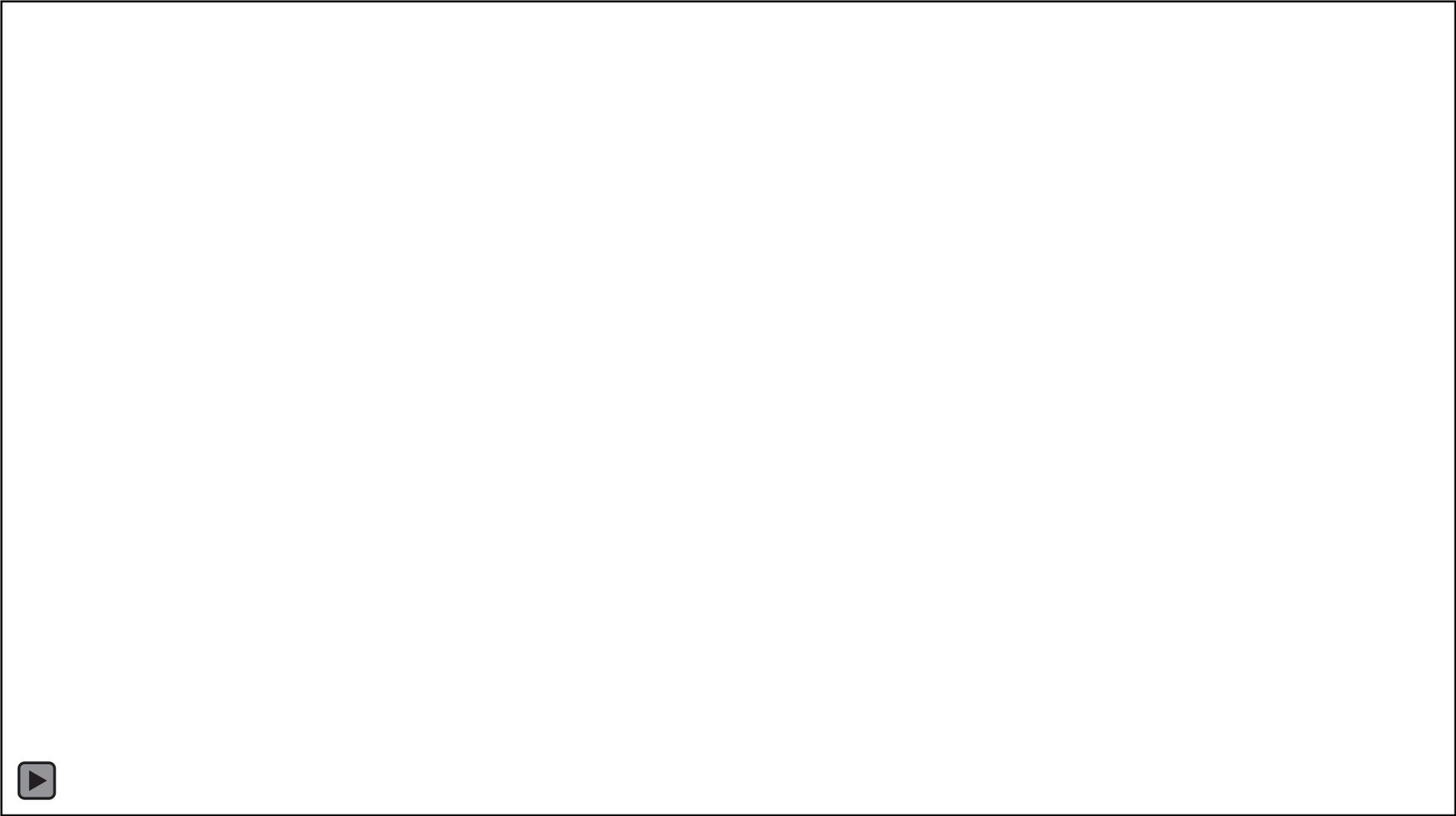
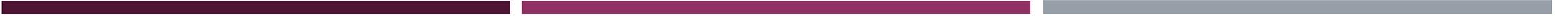
# ECOTRUST CANADA- RFID TAGGING

## RFID TAGGING OF FISHING GEAR



## RFID SYSTEM- HOW IT WORKS

- System turned on when vessel leaves “home bubble” on GPS
- System captures hydraulic activity, if vessels are far from where pots were set, etc.
- Vessels scan pots when setting and retrieving



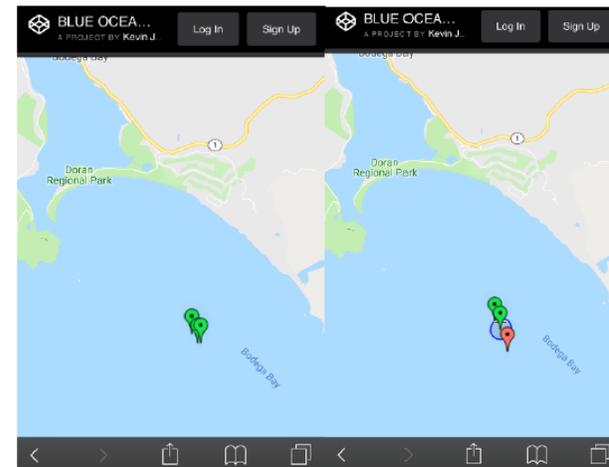
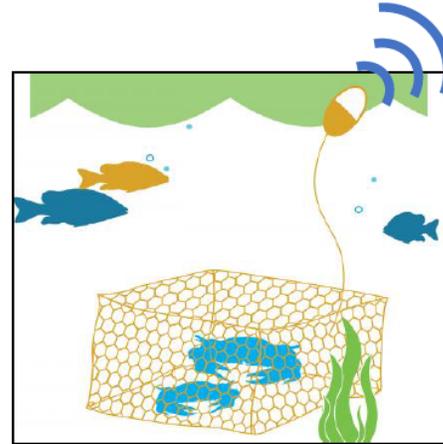
# ECOTRUST CANADA DRAFT BUDGET

Cost Breakdown		
<b>Start-up costs</b>		Per vessel
Time	\$ 37,980.00	\$ 199.89
Equipment (fleet)	\$ -	\$ -
Equipment (vessel)	\$ 593,570.00	\$ 3,124.05
Travel	\$ 20,000.00	\$ 105.26
Installs (vessel)	\$ 570,000.00	\$ 3,000.00
Installs (fleet)	\$ 15,200.00	\$ 80.00
	<b>\$ 1,236,750.00</b>	<b>\$ 6,509.21</b>
<b>Annual Costs</b>		Per vessel
Time	\$ 64,000.00	\$ 336.84
Equipment (fleet)	\$ 40,365.00	\$ 212.45
Travel	\$ 3,500.00	\$ 18.42
	<b>\$ 107,865.00</b>	<b>\$ 567.71</b>
<b>Data Storage</b>		
Sending VMS data via satellite	\$50 per month per vessel	
	Storage fee included in the VMS satellite transmission costs above as long as send for 4 months	
	If vessel stops participating in fishery and is no longer paying monthly fees for data transmission (<4 months) then costs goes to \$20 per month for maintenance of data on database	

Based on 190 active vessels all buying solar VMS units, with 125 @ 500 tags, 65 @ 300 tags

# ADDITIONAL OPTIONS

- Smart Buoys
  - Track gear with GPS on each buoy
  - Sends alerts if gear moved due to loss/entanglement
  - Have been tested with commercial fishermen in Northern CA and New Brunswick



## INDUSTRY CONTACT INFO

Paul Edwards

Telephone: (250) 230-0701

[npedwards@citywest.ca](mailto:npedwards@citywest.ca)

# QUESTIONS TO RESOLVE

- System
  - Do we want to capture vessel location only?
  - Do we want pot/string location tracking?
- Logbook
  - What do we want this to capture?
  - How do we want it to work?
- Data Confidentiality
  - Do we want the EM company (companies) involved in inseason meetings, analysis, reporting, etc.?
  - Who would be responsible for data analysis?

# QUESTIONS TO RESOLVE

- Regulations
  - What happens if EM breaks down on trip?
  - Require single system or allow multiple systems as long as meet standards? \$\$\$ implications
- Should we consider a pilot program then move on to fleet wide?
  - PSMFC willing to purchase solar loggers to test from multiple companies to test out
  - Any interest in RFID pilot study?