Exhibit Overview

Issue 1 – Whale entanglement mitigation

Issue 2 – Crab biotoxin management

Issue 3 – Commercial crab season opening

Photo: ODFW
Issue 1: Whale Entanglement Mitigation Measures

- Background
- ODFW’s efforts to reduce risk
- Proposed regulatory changes
- Next steps
Confirmed Whale Entanglements on the West Coast by Year

- Humpback (n=192)
- Gray (n=110)
- Unidentified/Other (n=29)
- Blue (n=7)

Source: NMFS
Confirmed Whale Entanglements on the West Coast by Observation Month 2013-2018

Source: NMFS
Sources of entanglements on the West Coast 2013-2018

- Unidentified, 111
- CA Dungeness Commercial, 47
- CA Dungeness Recreational, 2
- OR Dungeness Commercial, 5
- WA Dungeness Commercial, 8
- WA Tribal Dungeness crab, 3
- Coonstripe and Sablefish, 1
- Commercial Dungeness Crab, State Unknown, 4
- CA spot prawn commercial, 8
- Sablefish pot, 3
- CA spot prawn recreational, 1
- Spiny lobster, 1

Source: NMFS
Entanglements Confirmed in Oregon Dungeness Crab Gear

Source: NMFS
## Entangled whales off Oregon

<table>
<thead>
<tr>
<th></th>
<th>Gray Whale Eastern North Pacific Stock</th>
<th>Gray Whale Pacific Coast Feeding Group</th>
<th>Humpback WA/OR/CA Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population trend</strong></td>
<td>increasing*</td>
<td>increasing*</td>
<td>leveling off*</td>
</tr>
<tr>
<td><strong>Population status</strong></td>
<td>delisted 1994</td>
<td>No formal status</td>
<td>Endangered/Threatened</td>
</tr>
<tr>
<td><strong>Primary activity</strong></td>
<td>migrating</td>
<td>feeding</td>
<td>feeding</td>
</tr>
<tr>
<td><strong>Known hotspots</strong></td>
<td>migratory corridors by distance from shore coastwide</td>
<td>coastal reef habitats off central and southern regions</td>
<td>Stonewall and Heceta Banks</td>
</tr>
<tr>
<td><strong>Peak timing</strong></td>
<td><strong>Northbound</strong> - late Jan-Jul, peak Apr-Jul</td>
<td>Jun-Nov</td>
<td>May-Nov</td>
</tr>
<tr>
<td></td>
<td><strong>Southbound</strong> - Oct-Dec, peak in Dec-Mar</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Area utilized</strong></td>
<td>frequently within 2.5-5 nm from shore</td>
<td>frequently within 2 nm of shore</td>
<td>most commonly inside 100 fa</td>
</tr>
<tr>
<td><strong>Prey</strong></td>
<td>na</td>
<td>epibenthic zooplankton, benthic crustaceans</td>
<td>krill and anchovy</td>
</tr>
</tbody>
</table>
ESA Compliance

• Center for Biological Diversity v CDFW lawsuit over lack of an incidental take permit (ITP) for ESA-listed species
  - March 2019 - settlement resulted in April 15 closure

• OR, WA, CA all applying for ITPs

• Development of Conservation Plan (CP) required

• Extensive multi-year process

• Proceed with state management measure development and implementation, while CP is being developed and evaluated
Existing Dungeness crab fishery regulations that reduce entanglement risk

1984-85 – Season end date Aug 14
1992-93 – 10% cap on summer fishery
1998-99 – 1200 lb trip limits on summer fishery
1995-96 – Limited entry
2004-05 – Groundfish vessel buyback
2006-07 – Pot Limits and buoy tags
  Derelict gear retrieval allowances
2007-08 – Required logbooks (accountability)
  14-day landing requirement
2010-11 – Increased derelict gear retrieval allowances
2011-12 – Incentivized derelict gear retrieval by allowing crab retention (in-season)
2013-14 – Incentivized post-season derelict gear program allowing pot ownership

Photos: ODFW
## ODFW’s Recent Efforts to Reduce Risk

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 - 2012</td>
<td>Collaborated with NOAA on co-occurrence modeling efforts and fixed gear guide</td>
</tr>
<tr>
<td>2015 - in progress</td>
<td>Targeted fleet outreach on issue</td>
</tr>
<tr>
<td>2017 - 2018</td>
<td>Participated in PSMFC whale entanglement mitigation workshops</td>
</tr>
<tr>
<td>2017 - in progress</td>
<td>Oregon Whale Entanglement Working Group (member)</td>
</tr>
<tr>
<td></td>
<td>▪ Best Fishing Practices Directive</td>
</tr>
<tr>
<td></td>
<td>▪ Oregon whale surveys and co-occurrence modelling</td>
</tr>
<tr>
<td></td>
<td>▪ Industry survey</td>
</tr>
<tr>
<td>2018 - in progress</td>
<td>Developing phased approach of potential management measures</td>
</tr>
<tr>
<td></td>
<td>▪ Learn more from each event</td>
</tr>
<tr>
<td></td>
<td>▪ Reduce risk of entanglement</td>
</tr>
</tbody>
</table>
Oregon Whale Entanglement Working Group

Cetacean sightings to date (1-May-2019) during USCG surveys

KDE of number of pots pulled per 500 m cell (2012/13 - 2015/16)

Depth (m)
- Low 1300
- High 0

Depth contour (m)
- 1000
- 200
- 50
- 20

2 Flights

3 Flights

4 Flights

Cape Blanco

Port Orford

North Bend

Winchester Bay

Depeo Bay

Newport

Pacific City

Albany

Bottlenose Dolphin

Humpback Whale

Northern Right Whale Dolphin

GME

BC

CETACEAN

Birds

Oregon

Month

Species

April

February

March

Finn Whales

Gray Whales

Unidentified Dolphins

Oregon Commercial Dungeness Crab Fishing

2017 - 2018 Directive to Minimize Whale Entanglement Risk

Reasons for Directives

National Marine Fisheries Service (NMFS) has confirmed significant increases in large whale entanglements over the last few years, and specifically in Dungeness crab fishing gear. This situation threatens the stability of the fishery and coastal fishing communities. By using these voluntary best practices, the Oregon Dungeness crab fleet can take an important step towards reducing the risk of whale entanglements.

The best known way to reduce risk of whale entanglement is to reduce the amount of gear and line in the water during the spring and summer months, when whales are in the area.

Best Practices During Crab Season

- Use the minimum amount of scope required to compensate for ridges, currents and weather. Whales are more likely to become entangled with slack lines, which can potentially create a "floating snare".
- When changing set location across depths, adjust the length of pot lines by adjusting scope (i.e., measured length of line) to maintain taut vertical lines.
- No scope lines should be floating at the surface. Floating lines should only be between the main buoy and trailer buoy(s).
- Remove any fishing gear you are not actively tending during the season.
- Avoid setting gear in the vicinity of whales whenever possible.
- Communicate the locations of high whale activity with other fishermen.
- Keep line between pot and main buoy running taut and as vertical as possible.

Why Report?

Understanding where, when, and how entanglements occur is essential to prevent future entanglements. Timely reporting is critical to facilitate response efforts, when appropriate.

Report Entangled Whales

1-877-S65-WHALE

Report entangled whales IMMEDIATELY to the NMFS whale entanglement response hotline at 1-877-S65-WHALE (1-877-765-9423) or hail the U.S. Coast Guard on Channel 16. If possible, stand by.

Photograph Entangled Whales

WHALE: side view of dorsal fin (or hump); flukes (especially if underside is visible); head, any part of the body where gear may be present.
ENGLISHMENT: buoy(s), tags, lines on the body, trailing lines (including distance from whale); naming (if present); other gear if present. Do not approach within 100 yards.

Respond Promptly if Contacted

If you are contacted about a whale entangled in your gear, please respond. You can help prevent future entanglements by providing as much information as possible about your fishing gear and practices.

Oregon State University

Fish & Wildlife
• Lots of concern about entanglements amongst the fleet
• Fleet following many best practices for entanglement avoidance
• Industry is very divided on potential mitigation measures

OWEWG Whale Entanglement Survey

- No Change
- 1A. Transferable summer endorsement
- 1B. Non-transferable summer endorsement
- 2. Summer buoy tag
- 3. Summer closures around hotspots
- 4. Lower pot limit after June 15th
- 5. Eliminate lost pot tag replacement
- 6. Close the fishery on June 15th

Categories:
- No Response
- Need More Information
- Strongly Oppose
- Somewhat Oppose
- Neither
- Somewhat Support
- Strongly Support

No Change: 100%
1A. Transferable summer endorsement: 100%
1B. Non-transferable summer endorsement: 100%
2. Summer buoy tag: 100%
3. Summer closures around hotspots: 100%
4. Lower pot limit after June 15th: 100%
5. Eliminate lost pot tag replacement: 100%
6. Close the fishery on June 15th: 100%
Additional Public Involvement

• Public Meetings

• Industry Notices

• Annual Crab Newsletter

• Tri-State Dungeness Crab Committee Meeting

• Oregon Dungeness Crab Advisory Committee

• OFWC Director’s Report Briefing

• Recreational Crabber Surveys
Whale Entanglement Mitigation Management Approach

Phase 1 – Learn more about entanglements and prepare for future management measures to reduce risk

Target implementation – start of 19-20 season (commercial)
January 1, 2020 (recreational)

Phase 2 – Reduce risk of entanglements
Additional outreach – October 2019
Planned OFWC exhibit – February/March 2020
Target implementation – Spring of 19-20 season

Future Phases - Develop additional management measures as needed
Staff Recommended Requirements: (Issue 1 in Agenda Summary)

1. Commercial crab gear buoy color and pattern registration
2. Recreational crab gear marking
3. Remaining fixed-gear commercial gear marking
   ✔ Double-sided buoy tags (non-rulemaking)

**Goal:** Learn more about each entanglement

**Public Support:** OWEWG preliminary recommendations
   Strong commercial and recreational industry support
Entanglement Mitigation Measures - Phase 1

Staff Recommended Requirement: (Issue 1 in Agenda Summary)

4. Establish a control date of August 14, 2018 for potential commercial crab fishery “late season” limited entry system

Goal: Prepare option for a potential future entanglement risk reduction tool

Public Support: OWEWG preliminary recommendation
Limited industry support
Whale Entanglement Mitigation Next Steps

- Continue phase 2 development
  - October 2019 industry meetings
  - Focused on risk reduction – reduce vertical lines

- Feb/Mar 2020 OFWC: consider phase 2 measures

- Continue work on CP for compliance with ESA
  - Phase 1 and 2 measures will be foundation of plan

- Develop additional management measures as needed
Issue 2: Crab Biotoxin Management Measures

Recent crab biotoxin events

<table>
<thead>
<tr>
<th>Crab Season</th>
<th>Management Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-16</td>
<td>Season opening delays</td>
</tr>
<tr>
<td>2016-17</td>
<td>Season opening delays</td>
</tr>
<tr>
<td></td>
<td>1 in-season evisceration order</td>
</tr>
<tr>
<td>2017-18</td>
<td>Season opening delays</td>
</tr>
<tr>
<td></td>
<td>1 in-season evisceration order</td>
</tr>
<tr>
<td>2018-19</td>
<td>Season opening delays</td>
</tr>
<tr>
<td></td>
<td>2 in-season evisceration orders</td>
</tr>
</tbody>
</table>

Public Involvement

- Rules Advisory Committee
- Public Meetings
- Industry Notices
- Annual Crab Newsletter
- Tri-State Dungeness Crab Committee Meeting
- Oregon Dungeness Crab Advisory Committee
Oregon’s Recent Crab Biotoxin Management Efforts

- **May 2017** – Convened Rules Advisory Committee
- **Sep 2017** – Adoption of a new ODA rule that clarifies procedures for testing crab for biotoxins and biotoxin management options
- **Nov 2017** – Implemented temporary enhanced record keeping requirements
- **Feb 2018** – Adoption of Senate Bill 1550 to clarify ODFW record keeping authority, gave ODA authority to use ODFW required records
- **Apr 2018** – Permanent adoption of ODFW record keeping requirements
- **Nov 2018** – Modified electronic fish ticket system to include new harvest areas
- **Jul 2019** – Finalized modifications to fish ticket tracking system to allow multiple crab harvest area designations on fish tickets and agency reports
Staff Recommended Requirements:

1. Require electronic fish tickets for all commercial crab landings
2. Auto-adoption of commercial in-season evisceration requirements and closures

Goals: 1. Increase efficiency, effectiveness and compliance with biotoxin management measures
2. Help inform future whale entanglement risk reduction

Public Support: RAC recommendation
Strong industry support
Issue 3: Commercial Crab Season Opening Measures

Public Involvement

- Public Meetings
- Industry Notices
- Annual Crab Newsletter
- Tri-State Dungeness Crab Committee Meeting
- Oregon Dungeness Crab Advisory Committee
Commercial Crab Season Opening Measures

Staff recommends modifying Tri-State Protocol to include:

1. Allow more than two areas with different opening dates to be established within the Tri-State region based on crab quality
2. Allow moving the latest season opening date to Feb 1, in some situations

**Goals:**

1) Allow more flexibility to open areas when ready
2) Increase market value
3) Adapt to new biotoxin and entanglement threats

**Public Support:** Tri-State adopted

Strong industry support
Commercial Crab Season Opening Measures

**Staff recommended requirement:**
3. Clarifying definition of “fishing” in relation to “fair start” regulations and align with WA and CA regulations

**Goals:** 1) Consistency of regulations across the Tri-State region
2) Administrative and enforcement efficiency

**Public Support:** no known impacts to industry
## Staff Recommendation Summary

Staff recommends adopting OARs as proposed in Attachment 3 for the following issues:

<table>
<thead>
<tr>
<th>Issue</th>
<th>Proposed management measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.  Whale entanglement mitigation</td>
<td>1. Commercial crab gear buoy color and pattern registration</td>
</tr>
<tr>
<td></td>
<td>2. Recreational crab gear marking</td>
</tr>
<tr>
<td></td>
<td>3. Remaining fixed-gear commercial gear marking</td>
</tr>
<tr>
<td></td>
<td>4. Establish a “late season” control date</td>
</tr>
<tr>
<td>2.  Crab biotoxin management</td>
<td>1. Electronic fish tickets for all commercial crab landings</td>
</tr>
<tr>
<td></td>
<td>2. Auto-adoption of in-season evisceration requirements and closures</td>
</tr>
<tr>
<td>3.  Commercial crab season opening</td>
<td>1. Adopt revised Tri-State protocol</td>
</tr>
<tr>
<td></td>
<td>2. Clarify definition of “fishing” for season opening regulations</td>
</tr>
</tbody>
</table>
Questions?

Photo: ODFW
Backup Slides
Whale Entanglements on the West Coast 2000-2018

Source: NMFS
Humpback Distinct Population Segments

1. West Indies
2. Cape Verde/Northwest Africa
3. Western North Pacific
4. Hawaii
5. Mexico
6. Central America
7. Brazil
8. Gabon/Southwest Africa
9. Southeast Africa/Madagascar
10. West Australia
11. East Australia
12. Oceania
13. Southeastern Pacific
14. Arabian Sea

Distinct Population Segments (DPSs):
- Endangered
- Threatened
- Not at Risk

Other Map Features:
- Feeding Areas
- Range
- Habitat Linkages
Oregon whale surveys and co-occurrence modeling project

- Funding – Oregon Dungeness Crab Commission; NOAA Section 6 grant
- Primary goal – better understanding of the who, when, where and why of whales off Oregon
- Survey methods - aerial surveys with USCG, small boat surveys and citizen science opportunistic whale siting data collection
## ODFW October Crab Industry Meetings

<table>
<thead>
<tr>
<th></th>
<th>Reduce Risk</th>
<th>Minimize economic impact</th>
<th>Equitable fleet wide</th>
<th>Logistics</th>
<th>Industry survey support</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>Transferrable summer endorsement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1B</td>
<td>Non-transferrable summer endorsement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Summer buoy tags</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Summer closures around hotspots</td>
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<td></td>
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<tr>
<td>4</td>
<td>Lower pot limit after June 15th</td>
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<td></td>
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<tr>
<td>5</td>
<td>Eliminate lost pot tag replacement</td>
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<tr>
<td>6</td>
<td>Close fishery on June 15th</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7</td>
<td>Minimize surface gear</td>
<td></td>
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<tr>
<td>8</td>
<td>Longline</td>
<td></td>
<td></td>
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<tr>
<td>Mitigation Measure</td>
<td>Informational</td>
<td>Reduce Risk</td>
<td>OWEWG Preliminary Recommendation</td>
<td></td>
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<tr>
<td>----------------------------------------------------------------------------------</td>
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<td>-------------</td>
<td>-----------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control date for potential “late season” limited entry fishery</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Require electronic crab tickets</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buoy color and pattern registration</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double-sided buoy tags (non-rulemaking)</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Require recreational gear marking (timing is tentative)</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Require all commercial fixed-gear marking</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Eliminate the two-week gear clean-up period (timing is tentative)</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Late season” reduced pot limit/buoy tag</td>
<td>X</td>
<td>X</td>
<td>no agreement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiate “late season” derelict gear removal, once the regular season ends (requires legislative action)</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Season opening protocol changes to open earlier when possible</td>
<td></td>
<td>X</td>
<td></td>
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</tr>
</tbody>
</table>
### West Coast Potential Entanglement Mitigation Measures

<table>
<thead>
<tr>
<th>Mitigation Measure</th>
<th>Oregon</th>
<th>Washington</th>
<th>California</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control date for potential “late season” LE fishery</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Require electronic crab tickets</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Buoy color and pattern registration</td>
<td>X</td>
<td>current</td>
<td></td>
</tr>
<tr>
<td>Double-sided buoy tags (non-rulemaking)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Require recreational gear marking</td>
<td>X</td>
<td>current</td>
<td>current</td>
</tr>
<tr>
<td>Require marking all commercial fixed-gear</td>
<td>X</td>
<td>current</td>
<td>X</td>
</tr>
<tr>
<td>Eliminate the two-week gear clean-up period</td>
<td>X</td>
<td>current</td>
<td>current</td>
</tr>
<tr>
<td>“Late season” reduced pot limit and buoy tag</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>“Late season” derelict gear removal efforts</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Real-time risk assessment and area closures</td>
<td>Increasing data</td>
<td>Increasing data</td>
<td>X</td>
</tr>
<tr>
<td>Line requirements (surface, scope, break-aways or markings)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Season opening protocol changes to open earlier when possible</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Center for Biological Diversity v CDFW lawsuit

- **October 2017** – CBD filed complaint based on alleged illegal take under Endangered Species Act
  - Humpbacks, Blue whales and sea turtle interactions

- **November 2018** – CDFW announced it would apply for Incidental Take Permit

- **March 2019** – Settlement agreement was reached and resulted in April 15 closure for current season and many provisions for future seasons
Phase 2 – In Development

Staff’s preliminary proposal:

1. “Late season” reduced pot limit and buoy tag
2. Initiate “late season” derelict gear removal, once the regular season ends (requires legislative action)
3. Permanent elimination of 2-wk gear removal period

In addition, also considering including:

1. Eliminate replacement tags
2. Require gear modifications (surface gear and scope)
3. Require line marking
“Late season” Pot Limit Reduction

Development needed:

1. When to implement within the season?
2. How to reduce pot limits?

10 season average

10 yr ave. pots used per season = 115,120
Future Entanglement Mitigation Measures

Additional Outreach Planned – Oct 2019; more as needed

Planned OFWC exhibit – TBD

Target implementation – TBD

1. Near-real time vessel monitoring requirement

2. Late season limited entry

3. Others as determined necessary?