



9th Annual

Oregon Department of Fish and Wildlife • Marine Resources Program

Dungeness Crab Fishery Newsletter

November 2017

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Have Questions?

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Visit Our Website:

<http://www.dfw.state.or.us/MRP/shellfish/commercial/crab/index.asp>

Great Ex-Vessel Value, Big Harvest

The 2016-17 Oregon Dungeness crab season brought in the highest ex-vessel value ever, totaling \$62.7 million dollars! Landings totaled 20.4 million pounds, about 22% above the 10 year average of 16.0 million pounds. For a second year in a row, the season opening was delayed due to elevated levels of domoic acid detected in crab viscera. The area south of Cape Blanco opened on Dec. 18th and the rest of the state started Jan. 1st, 2017. The average price per pound peaked at \$5.55 in May and came in at \$3.08 across the entire season, down from the past three seasons' record highs. Landings into Oregon ports from the ocean and Columbia River were made by 320 different permit holders in 5,954 separate landings.

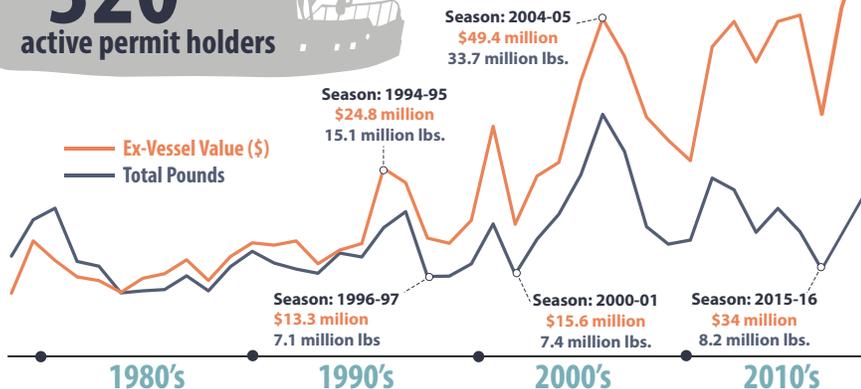
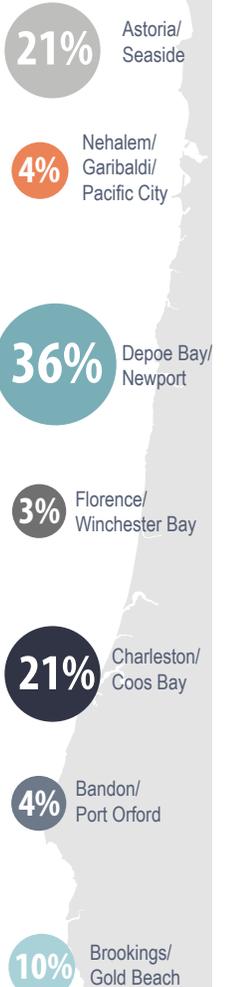
As usual, the vast majority (84%) of crab were caught in the first eight weeks of the fishery. This is on par with recent seasons that ranged from 83%-89% landed in the first eight weeks. The Newport area had the most total pounds landed with more than 7.4 million pounds, followed by the Astoria and Coos Bay (continued on p. 2)

How'd it GO?

2016-17 Season Summary



Pounds Landed

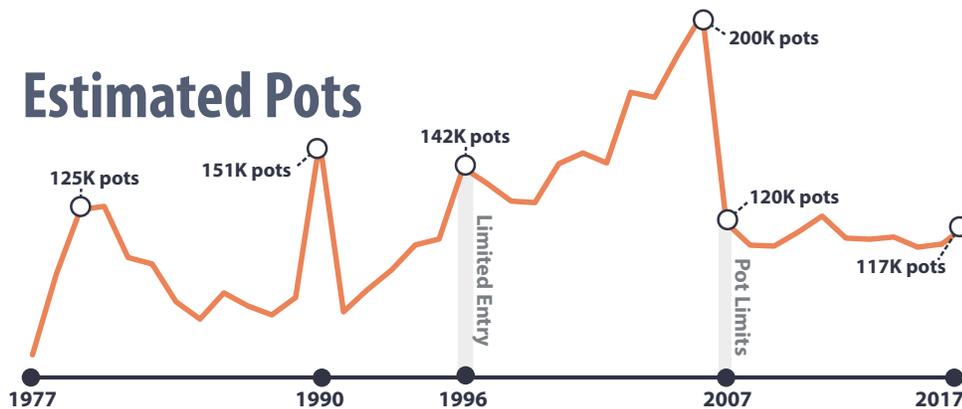


Season Summary (cont'd)

areas with 4.3 and 4.2 million pounds landed respectively. The Brookings area had over 2.1 million pounds landed for the season. Pots used in the fishery this season totaled an estimated 116,600 pots, which is slightly above the estimated average of 115,000 pots utilized each season since pot limits were implemented.

Graph: Estimated pots declared, per year, in the Oregon commercial Dungeness crab fishery. The number of pots used have stabilized since the implementation of pot limits.

Estimated Pots



Fishery Monitoring Update

In recent years, ODFW has implemented multiple monitoring and research projects to collect information on the crab resource and commercial fishery. This past season, with reduced sampling staff, we continued our preseason test fishery sampling, dockside sampling on the north coast and a research project to investigate crab behavior inside crab pots (summaries provided below). For the 2017-18 season we will have samplers back on both the central and south coast for coast-wide sampling coverage through the majority of the season. These samplers will be focusing on our at-sea monitoring efforts to continue to assess and quantify bycatch rates of female crab, undersize crab and other species caught throughout the season. If you are interested in participating in the at-sea portion of the sampling program please contact us soon so we can start lining up trips. ODFW samplers will also be out sampling at the docks as resources allow.

Crab Behavior in Pots

For the past two crab seasons we have been deploying crab pot time-lapse camera systems to monitor crab behavior and other activity within crab pots. We've been using these systems to investigate crab mortality due to cannibalism or predation that may be occurring within pots. Our crab pot camera systems, developed in-house in collaboration with the Shellfish Program, are operational down to 60+ fathoms, have a synchronized LED flash, and are capable of recording for multi-day periods without any surface maintenance.

This past season we modified the picture and video intervals to extend our deployment periods (soak times), and our systems at times successfully monitored fishing crab pots for over two weeks uninterrupted! We were able to get our systems deployed earlier this past season and completed 18 at-sea trials. Preliminary results from our 2016 trials show very low mortality rates of crab and non-target species. We will be analyzing all of 2017 data this fall/winter and will be discussing plans to expand this research with interested collaborators.



Top: View of a lingcod inside a pot after a 2-day soak. Lingcod and other fish were frequently observed in or near the pots, but most seemed to escape before retrieval.

Bottom: A Cabezon munching on an adult Dungeness crab - one of the rare crab mortality events caught by the research pots.



Preseason Testing

In November 2016, we sampled a subset of pots on every preseason test trip to evaluate bycatch of crab and non-crab species just before the season opens. In total we sampled 79 pots and measured 1,697 crab. Results of this sampling continue to indicate catch per unit effort (CPUE) of sub-legal male Dungeness crab is the highest of all the categories of bycatch, followed by female Dungeness crab, other invertebrates (sea stars, etc.) and fish species at this time of year.

Dockside Sampling

During the 2016-17 crab season, due to resource constraints, we had limited seasonal sampling coverage on the north coast resulting in reduced sampling catch at the docks. Sampling consisted of measuring carapace widths and sample weights from a certain number of crabs, based on offload size. We sampled 21 offloads from 19 different vessels. Carapace widths averaged 170 mm for the period sampled (Jan. through April). This data helps us evaluate stock trends and keep tabs on the resource.

Logbooks: What's the Gain for All the Pain?

Another primary tool we use to monitor the fishery are logbooks. Even though mandatory logbooks have only been around for a relatively short time they have already been valuable in many ways to help learn more about the crab resource and fishery. In addition to the Department's own uses (see newsletters 2013, 2014 and 2016), logbook data has been actively used this year in research projects (described briefly below) that help us gain more knowledge about the crab resource and the fishery you participate in. The release of all crab logbook data is preceded by an official data request process and development of a Confidential Data Use and Non-Disclosure Agreement between all parties.

Reconstructing a Historical Time Series of West Coast Dungeness Crab Abundance

Over the last year, NOAA's Northwest Fisheries Science Center has used both fish ticket data and logbook data to estimate the pre-season abundance of legal-size male Dungeness crabs going back to 1981. Their preliminary results indicate that (in accordance with the conventional wisdom) the large majority of legal crabs are caught each season. They found that estimates using fish ticket data alone tend to underestimate pre-season abundance by about 5-15% relative to estimates using logbook data. This seems to be due to the fact that catchability is not constant over the season, and instead appears to be density-dependent. Finally, NOAA's preliminary results indicate that over the long term (since 1981), pre-season populations of legal-size males appear to be stable or increasing on the West Coast. Final results and documentation of this research is planned to be available by late 2018.

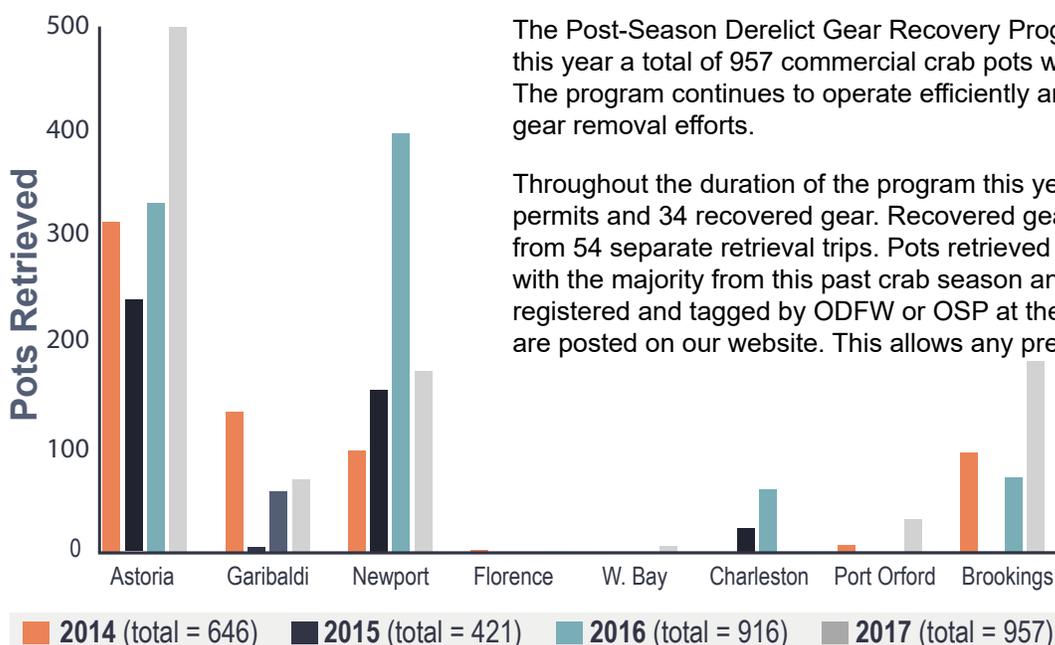
Bio-Economic Model of Differential Mortality Rates

Oregon State University and The Research Group investigated the potential biological and economic impacts of differential bycatch mortality rates in the Oregon commercial crab fishery. Their project used crab logbook data for both effort and spatial components of their model. The project was funded by the Oregon Dungeness Crab Commission and a copy of the final report (March 2017) can be found at <http://oregondungeness.org/crabbers/>.

Analysis of Marine Protected Areas Via the Investigation of Ecosystem Services

In partnership with Oregon State University, ODFW's Marine Reserves Program has continued to update and further develop a bioeconomic model to help determine the likely impacts of Oregon's marine reserves in the next decade. The project is using a variety of social, economic, and catch data, including crab logbook data to model the efficacy of Oregon's Marine Reserves in providing ecosystem services. In the past year the function of the model has improved and is now more useful to model alternatives for planning purposes. Next steps include focus groups among various stakeholders to review the utility of the model in reflecting perceived benefits (ecosystem services) derived from specific areas around the reserves.

Derelict Gear Program Summary



The Post-Season Derelict Gear Recovery Program was first implemented in 2014 and this year a total of 957 commercial crab pots were removed from waters off Oregon. The program continues to operate efficiently and raise awareness about derelict crab gear removal efforts.

Throughout the duration of the program this year (Sept. 5st - 30th) we issued 63 permits and 34 recovered gear. Recovered gear was brought into 6 Oregon ports from 54 separate retrieval trips. Pots retrieved were from 215 different vessels with the majority from this past crab season and in useable condition. All gear was registered and tagged by ODFW or OSP at the dock and all gear registration forms are posted on our website. This allows any previous gear owners interested in

negotiating for retrieved pots to contact retrieving vessels. We would like to thank everyone who participated in this year's gear recovery program.

<http://www.dfw.state.or.us/MRP/shellfish/commercial/crab/psdgrp.asp>

Domoic Acid: Where Are We Now?

Over the past two years, Oregon's Dungeness crab industry has been plagued by waves of seafood toxicity from Harmful Algal Blooms (HABs) and the associated biotoxin, domoic acid, which has resulted in fishery closures and delays. The fishery for Dungeness crab in Oregon is managed by the Oregon Department of Fish and Wildlife (ODFW). However, when biotoxins are present in crab, the Oregon Department of Agriculture (ODA) has a management role based upon their obligations and authorities to ensure public health.

For the last two seasons, the commercial Dungeness crab fishery openers were delayed due to biotoxin concerns heading into the season opener. The 2015-16 season was delayed for one month, but then proceeded uninterrupted for the remainder of the crab season. The 2016-17 season also began one month late, but after being open for only one month, a single crab tested in late January was found to have domoic acid in the viscera above the Food and Drug Administration (FDA) threshold, which requires a management response. This was the first in-season biotoxin event detected in the history of the Oregon Dungeness crab fishery, and caused ODA and ODFW to curtail the fishery in multiple ways.

This past spring and summer the ODA and ODFW have worked with the Oregon Crab Commission and the commercial Dungeness crab industry through a Rules Advisory Committee (RAC) comprised of fishermen and seafood buyers/processors that developed recommendations on potential administrative rules, statutes, and non-regulatory measures to build an improved management framework for mitigating impacts of future biotoxin events on the Dungeness crab fishery. The goal of these actions is to create a management playbook that: (1) Improves traceability of crab through the market chain to protect public health as well as confidence in seafood market safety and quality, and (2) Provides certainty for the seafood industry in how harvest may be curtailed in future toxin events.

Based on recommendations that came out of the RAC public process, the agencies are pursuing a multi-prong response to manage future biotoxin events affecting the Dungeness crab fishery. They include:

1) Adopting complimentary Oregon Administrative Rules for the 2017-18 crab season.

- ODA's new crab biotoxin rules will provide transparency in biotoxin testing procedures and management responses, including when mandatory evisceration will be considered an option. This is scheduled to be in permanent rule prior to the opening of the 2017-18 crab season.

- ODFW's new record-keeping rules will improve traceability by establishing 12 new crab harvest areas and a 1-forward record-keeping requirement for all crab buyers and sellers, up to but not including the ultimate consumer (sales to restaurants do have to be tracked), in addition to the existing 1-back record-keeping requirement. The new harvest areas must be tracked on all 1-forward and 1-back records. This will be in temporary rule prior to the opening of the 2017-18 crab season and will be taken to the OFWC late/winter or early/spring for permanent rule-making.

The new rules are needed to increase ODA's ability to protect public health by helping prevent sales of adulterated crab harvested from a biotoxin management zone after elevated levels of a biotoxin are detected. The rules will also help ODA determine how much adulterated product may have reached consumers versus how much was stopped in the market chain. An industry notice detailing the new ODFW record-keeping requirements and crab harvest area map was mailed out in early November and is posted here: http://www.dfw.state.or.us/MRP/shellfish/commercial/crab/news_publications.asp. This document will also be distributed during this year's hold inspections.

- ## 2) Enhancing communication with industry.
- ODA has developed a new commercial crab webpage to better communicate with the commercial crab industry about current crab biotoxin monitoring, crab biotoxin results, and management responses during a biotoxin event. This information is available on ODA's website at: <http://www.oregon.gov/ODA/PROGRAMS/FOOD-SAFETY/Shellfish/Pages/CrabBiotoxinInfo.aspx>.

- ## 3) Strengthen the ability of Oregon's rule-making bodies to require traceability measures.
- The RAC recommendations included multiple areas where statutory modifications should be considered to further complement and strengthen crab traceability and enhance public health protections and confidence in seafood safety and quality. These concepts are currently being fleshed out and considered for upcoming legislative sessions.

Crab Traceability: Maintain Records

During last winter, one of the key barriers to a timely management response was the lack of sufficient mechanisms to trace crab in the market chain. Traceability is needed to facilitate crab recalls, so that adulterated crab is returned to processing facilities for evisceration (if only the viscera is above the threshold) or is destroyed (if the meat is above the threshold). The stronger the traceability framework, the faster the State can act to protect public health. Increasing the number of fishery management options that can help the seafood industry adapt and manage through changing conditions while still protecting public health is especially important given the increased likelihood of future biotoxin events. **A strong seafood traceability framework includes a requirement that each seafood business in the market chain maintain records of whom they have bought seafood from (1-back records) and whom they have sold seafood to (1-forward records).**

Reducing Risk of Whale Entanglement

In recent years, NOAA Fisheries has observed an increase in the number of reported whales entangled in fishing gear from fixed gear fisheries along the West Coast, primarily in Dungeness crab gear. In some cases, entanglement in fishing gear has led to serious injury and directly caused death of whales. A summary of recent entanglement information is available on NOAA Fisheries website: http://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/fisheries_interactions.html.

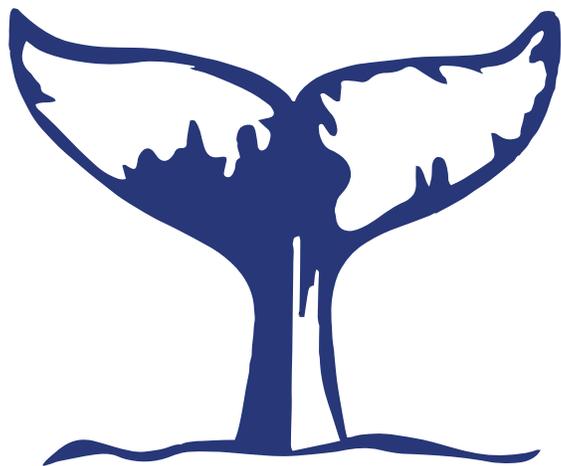
Workshop

In March 2017, the Pacific States Marine Fish Commission (PSMFC) hosted a two-day workshop with industry, marine mammal experts, environmental organizations and state and federal fishery managers from along the entire west coast region to discuss the latest in reducing risk of entanglements. Discussions focused on generating and prioritizing ideas for new gear and fishing practices to minimize whale entanglement on the west coast. A summary of the discussion and all presentations from this workshop are posted on the PSMFC website at <http://www.psmfc.org/crab/>. Since the workshop PSMFC has continued to solicit ideas on gear innovations and fishing practices to reduce risk of entanglements. PSMFC is interested in helping identify and apply for financial support for projects to help address entanglement issues. Contact Fran Reicht for more information at freicht@psmfc.org or 541-765-2229.

Summarized proceedings of the meetings held to-date, draft ideas for reducing whale entanglement risk and other pertinent information about the group and the issue at-large are on Sea Grant's website at <http://extension.oregonstate.edu/clatsop/oregon-whale-entanglement-working-group>. A California working group began meeting on this issue in 2015 and their efforts to date can be found here <http://www.opc.ca.gov/whale-entanglement-working-group/>. Also, PSMFC is establishing a Washington working group planned to begin meeting this fall.

Enhanced awareness, work and discussions towards addressing this issue will continue to strengthen the ability of Oregon's Dungeness crab fishery to adapt and thrive under changing ecological and socioeconomic conditions. We plan to continue to work closely with the Oregon working group, NOAA, the other states and the Dungeness crab industry at-large on West Coast regional efforts to minimize the risk of whale entanglements in fixed gear fisheries. We will evaluate recommendations from the working group specific to Oregon fishery management, and engage further with the broader fleet on them as they develop.

Left: Use the sticker (enclosed with this mailer) on your vessel to be prepared with who to call if you encounter an entangled whale. Immediate reporting and thorough documentation of entangled whales can enable authorities to assist whales in distress when possible and learn more about the causes of entanglements.



**Entangled Whale?
1-877-SOS-WHALE**

Oregon Working Group

To address the issue more directly in Oregon, Oregon Sea Grant has been convening a collaborative whale entanglement working group since May, 2017. The goal of the Oregon working group is to gather Oregon stakeholders together to develop and help prioritize options for short- and long-term modifications to gear and fishery practices to reduce the risk of whale entanglements in Dungeness crab gear and other fixed gear fisheries. The Oregon working group consists of representatives of the Oregon commercial fixed gear fisheries coastwide, a recreational crabber, a disentanglement specialist, a fishing gear specialist, NGO's, ODCC and ODFW staff. The group has worked on the following to-date:

- Established working group goals, objectives, ground rules and voting procedures for group recommendations;
- Gained a better understanding of the issue and identified information gaps;
- Developed an Oregon Dungeness Crab Best Practices Directive to provide industry with best known Dungeness crab fishing practices to reduce interactions with whales. The guide will be distributed to all vessels when it is complete;
- Helped distribute information on who to call to report entangled whales (1-877-SOS-WHALE);
- Developed ideas to reduce risk of whale and gear interactions. The working group is open to suggestions from people outside the group.

2017-18 Season Opener Info

Want Opener Updates?

Here's how you get them:



Visit Website

Starting mid-Oct we will post weekly updates on preseason testing and information about the season opening status. Updates on this webpage will continue until a decision to open the season is made.

Want opener updates? Visit: http://www.dfw.state.or.us/MRP/shellfish/commercial/crab/season_weekly_updates.asp



Sign-up for Text & Email Updates

If you would like to receive email and/or text messages with up-to-date information about the ocean commercial Dungeness fishery please visit the link below.

Want text updates? Sign-up here: <http://dfw.state.or.us/MRP/>

You can cancel your subscription at any time by logging in on the same webpage listed above.

We Want YOU!

Volunteer to collect crab for testing! If you are interested in volunteering to collect crab for quality and toxin testing in your port, call ODCC (541-267-5810) or ODFW (541-867-4741).

How's the Crab? 2017 Preseason Testing

In partnership with the Oregon Dungeness Crab Commission (ODCC), the first round of Oregon preseason Dungeness crab quality testing is targeted for completion by November 15th and no later than November 22nd. Crab will also be collected during the first round for toxin testing by the Oregon Department of Agriculture (ODA). Results of all of these tests will be reported as soon as they are available and posted on our website at http://www.dfw.state.or.us/MRP/shellfish/commercial/crab/news_publications.asp.

Signed West Coast Bill

In August of this year the West Coast Crab Management Bill was signed into law by the US Congress. This law permanently extends state management authority for the west coast states by removing its expiration date. The permanent authority will provide managers and the commercial fishing industry certainty in the management authority for Dungeness crab. Under this stable authority we can continue to work with our Tri-State partners to coordinate between the states and provide resource protection for the Dungeness crab fishery along the West Coast throughout state waters and the Exclusive Economic Zone.

Marine Reserves Fishing Regulation Reminder

A reminder that the marine reserve sites at Cape Falcon, Cascade Head, Otter Rock, Cape Perpetua, and Redfish Rocks are closed to crabbing and fishing. Crab gear that has accidentally drifted into a marine reserve can be removed with prior approval from Oregon State Police (no species may be retained).

For marine reserves rules, maps, and coordinates visit: oregonmarinereserves.com/rules or call the ODFW Newport office at 541-867-4741. To report violations or for permissions to remove derelict fishing gear contact Oregon State Police at 1-800-452-7888.



Wave Energy

As of September 2017, there are no energy facility structures in the water and no upcoming wave energy device deployments currently permitted off of Oregon. Areas targeted for research for potential wave energy development include waters off Warrenton, Newport, Reedsport, Lakeside and Coos Bay. Wave measurement devices are currently deployed in the nearshore off Reedsport and Lakeside. For more information please contact Delia Kelly, ODFW's Ocean Energy Coordinator, at 541-867-0300 ext. 292 or email her at: delia.r.kelly@state.or.us.

Have a safe and productive crab season!

We are always interested in hearing from you about your fishery and the issues that are important to you. Please give us a call or stop by our office in Newport any time.

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