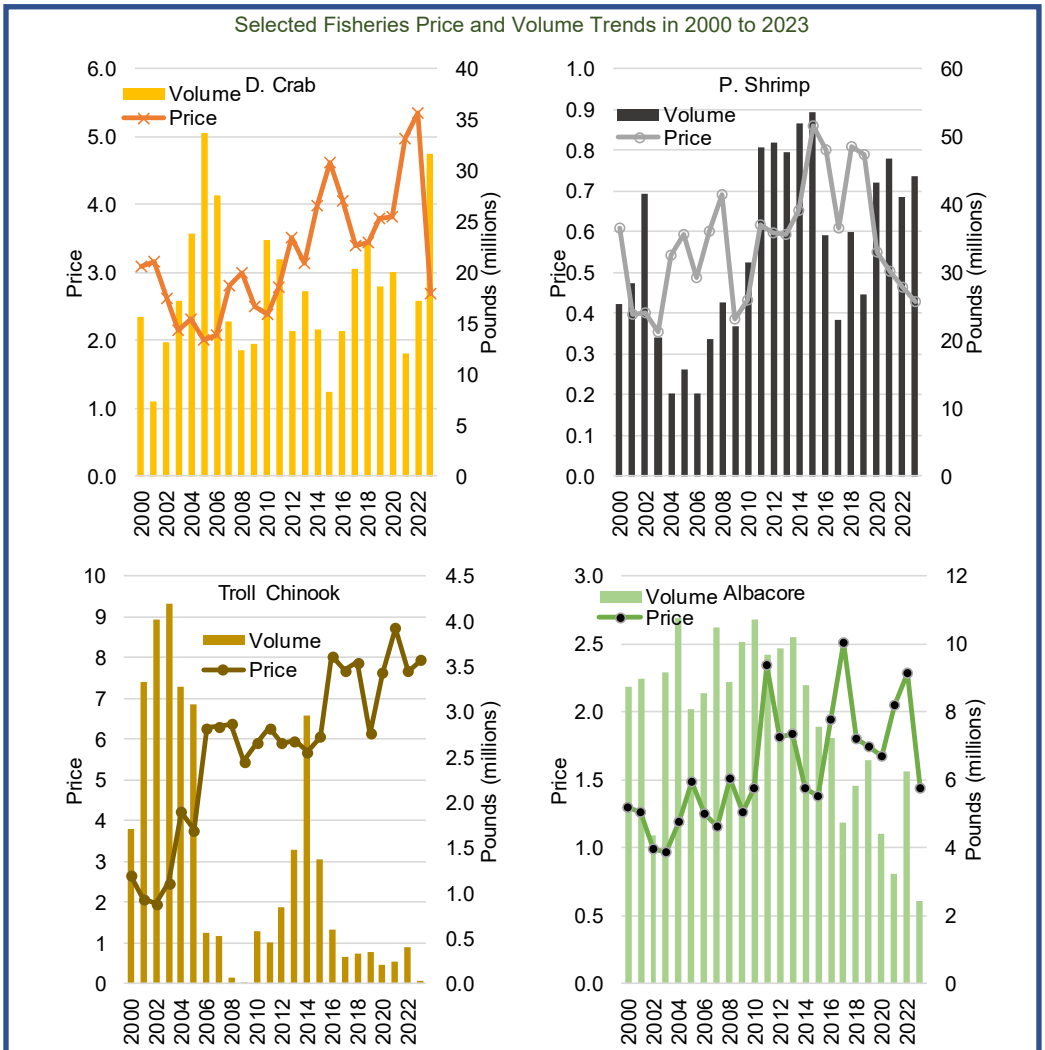
# Oregon Commercial and Marine Recreational Fishing Industry Economic Activity for Years 2020 and 2021

## Addendum 2023




*Note: Trends are for selected onshore fisheries prices (real dollars) and volume (round pounds). Calendar years except Dungeness crab is season. Real dollars are 2021 except years 2022 and 2023 are nominal.*

## Oregon Department of Fish and Wildlife

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# Oregon Commercial and Marine Recreational Fishing Industry Economic Activity for Years 2020 and 2021

## Addendum 2023

prepared by

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Corvallis, Oregon

prepared for

Oregon Department of Fish and Wildlife
Marine Reserve Program and Marine Resource Program

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## Preface

This report was sponsored by the Marine Reserve Program (MR Program) and Marine Resources Program (MRP), Oregon Department of Fish and Wildlife (ODFW). The report was prepared by The Research Group, LLC, Corvallis, Oregon. Shannon Davis was the lead author who was greatly assisted by Kari Olsen. Hans Radtke (natural resource consulting economist), Gil Sylvia (marine resource economist and retired OSU Coastal Oregon Marine Experiment Station Director), and Chris Carter (retired ODFW economist) provided valuable guidance and insight in the development of methods and review of draft material.

The author and not the sponsors is solely responsible for analysis methods, interpretations, and conclusions. The author has completed other MR effect analysis projects for ODFW. This report advances material from those projects in a paraphrasing and non-attributed writing style for readability reasons. When other reports are referenced, full citations are included in a bibliography chapter.

The ODFW MRP fish managers and staff need to be acknowledged for their help in generating the summary fisheries descriptions. Tommy Swearingen (MR Program human dimension project leader and now retired) and Troy Buell (MRP fisheries management project leader) were especially helpful. Lindsay Aylesworth (recently appointed MR program leader) and Justin Ainsworth (recently appointed the MRP manager) expertly coordinated the project for MRP. Data was provided by Eric Schindler (Ocean Recreational Boat Survey), Shari Beals (Salmon-Steelhead, Halibut, and Sturgeon Tag Return Program), Jimmy Watts (Columbia River Creel Program), and Brian Riggers and Shelly Miller (both from the Coastal Chinook Research and Monitoring Program). ODFW coastal district fish biologists also assisted. Julie Shryock and Chris Tortorelli from ODFW and Savannah Grove from ADFG provided respective state vessel and crewmember license data. Pacific Fishery Management Council (PFMC) people providing information and advice include Robin Ehlke (salmon fishery officer), John Devore (groundfish fishery officer), and Jim Seger (economist). Brad Stenberg and Yan Jiang (Pacific States Marine Fisheries Commission PacFIN representatives) provided fish ticket data. Alex Manderson (Oregon Department of Agriculture, Food Safety Program) provided Oregon aquaculture information. Allen Chen (Economist, Northwest Fisheries Science Center) transferred IO-PAC economy response factors. Rob Flemming and John Davidson (both from Fisheries and Oceans, Canada - Pacific Region) provided British Columbia landing information.

This report should prove helpful to understand and better deal with the challenges facing the fishing industry. Contents characterize the social and economic importance of the different fishing industry sectors. There is some information about marine related and connected business activity that benefits from having sustainable fisheries and share access to ocean and inriver locations. When it becomes necessary, results can be used by stakeholders and management agencies to shape and prioritize conservation and allocation decisions. Communities and others will be able to better plan for infrastructure necessary to gain access to the resources. Finally, contents will help design regulatory and promotional material for users and the public.

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Appendix

## Glossary

Acronyms

| | |
|---|---|
| ACS | U.S. Census Bureau, American Community Survey |
| ADFG | Alaska Department of Fish and Game |
| BEA | U.S. Bureau of Economic Analysis |
| CCRMP | Coastal Chinook Research and Monitoring Program |
| CFEC | Alaska Commercial Fisheries Entry Commission |
| CFF | Commercial Fish Fund |
| CRCP | Columbia River Creel Program |
| CROOS | Collaborative Research on Oregon Ocean Salmon |
| CSF | community supported fisheries |
| DFO | Department of Fisheries and Oceans, Canada |
| EIA | U.S. Energy Information Administration |
| FEAM | Fisheries Economic Assessment Model |
| GDP | Gross Domestic Product |
| GDPIPD | Gross Domestic Product Implicit Price Deflator |
| IO-PAC | input-output model for Pacific Coast fisheries |
| MR's | Oregon marine reserve system sites |
| MRFSS | Marine Recreational Fisheries Statistics Survey |
| NPFMC | North Pacific Fishery Management Council |
| NWFSC | Northwest Fisheries Science Center |
| ODA | Oregon Department of Agriculture |
| ODFW | Oregon Department of Fish and Wildlife |
| ORBS | Ocean Recreational Boat Survey |
| OSU | Oregon State University |
| PacFIN | Pacific Coast Fisheries Information Network |
| Port group | AST - Astoria, TIL - Tillamook, NPT - Newport, CSB - Coos Bay, PRD - Port Orford, BRK - Brookings |
| PFMC | Pacific Fishery Management Council |
| PSMFC | Pacific States Marine Fisheries Commission |
| RecFIN | Recreational Fisheries Information Network |
| SEBS | Shore and Estuary Boat Survey |
| SSHSTRP | Salmon-Steelhead, Halibut, and Sturgeon Tag Return Program |
| TRG | The Research Group, LLC |
| TS | Oregon Territorial Sea |
| USDA | U.S. Department of Agriculture |
| WDFW | Washington Department of Fish and Wildlife |

Data Provenances

1) PacFIN annual vessel summary data, APEX reports, West Coast offshore data, and RecFIN data from the PSMFC.
2) ORBS effort and catch from ODFW.
3) SSHSTRP recreational catch from ODFW.

4) Fisheries logbook program records from ODFW.
5) Creel surveys on Elk River and Salmon River performed annually for the CCRMP from ODFW.
6) CRCP surveys on lower Columbia River performed annually from ODFW and WDFW.
7) Area income from BEA.
8) Demographic and well-being indicator data from ACS.
9) Alaska earnings by permit residency from CFEC
10) Alaska crewmember licenses, salmon and other fisheries landings from ADFG.
11) British Columbia landings from DFO.
12) Groundfish landings from NPFMC.
13) Fuel prices from U.S. Energy Information Administration.
14) Columbia River salmon landings from PFMC.
15) Aquaculture production in Oregon estuaries from ODA.
16) IO-PAC economy response coefficients from NWFSC.

Terms

| | |
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| Angler day | Sometimes the word "trip" is used in this report's narrative, but the unit of measurement for effort is an angler day. Trip expenditures for overnight lodging is factored into the average angler day spending. The hours actually spent fishing in a calendar day are not a consideration. The amount of money spent for the fishing experience is not appreciably different whether fishing was for a few or many hours. Literature use of the word trip is usually associated with a fishing experience duration that may be more or less than a calendar day. Trip counts in this study have been adjusted to account for multiple days when fishing occurred during a single trip. |
| Catch recreational | The term catch used in this study is retained fish. Catch is expanded to include non-retained fish counts using angler preference survey factors in order to calculate total effort using success rates. Success rates are angler days per retained and non-retained catch. Catch per unit effort is the multiplicative inverse of success rates. |
| Distant water fisheries | The distant water fisheries are the West Coast offshore fishery, Alaska fisheries, western Pacific highly migratory species fishery, fisheries in Washington and California, and elsewhere. Revenue generated from vessel deliveries in Oregon is referenced in this report as "onshore." Revenue returned to Oregon in the form of wages and salaries or profits and revenue derived from expenditures made in Oregon for repairs, provisioning, or moorage is referenced in this report as "distant water" fisheries revenue. For example, the revenue generated from the at-sea deliveries for the Pacific whiting fishery is categorized as distant water fishery revenue. Another example is Oregon residents own harvesting permits in Alaska, but keep vessels year around at Alaska ports. Sometimes owners will lease permits for others to harvest the permit quota shares. Distant water fisheries income can be centered at coastal communities where businesses sell goods and services to |

participants and the business labor has residency in those communities. Some income for distant water fisheries is directly returned to Oregon via crewmember and permit/vessel owner participant earnings. Participants may live on the Oregon Coast or elsewhere in Oregon.

Dollar adjustments

Where dollar values are noted to be real, the adjustment index was the Gross Domestic Product Implicit Price Deflator (GDPIPD) developed by the U.S. Bureau of Economic Analysis.

Economic contribution

Economic contributions include effects of harvesting and primary processing. The estimates include direct, indirect, and induced impacts, therefore include "multiplier effects." New fishing vessel construction, fishery management, and fishery research and education are not included.

An economic contribution metric relates to a short-term perspective for how an industry is represented in the local economy. If there is a change in the economy's industry activity, there may very well be adjustments in the longer term that may cause increased economic contributions. For example, a tourism business start-up may replace a fishing industry business closure.

Economic contributions and economic impacts are sometimes used interchangeably in literature. Other authors will differentiate the two terms - the latter being reserved for defining a short term disruption in economic activity. An example would be the lost commercial fishing economic activity due to implementing marine reserves if there was no replacement activity.

The economic contribution measurements selected for this study are income, jobs, and output. It could just as well have been other metrics that would describe the same economic direct and secondary effects, but in a different dimension. Other example metrics are taxes generated.

Economic modeling

Prior to 2016, the model used to calculate economic contributions was the Fisheries Economic Assessment Model (FEAM). The FEAM was originally developed by Hans Radtke and William Jensen for the West Coast Fisheries Development Foundation in 1988. The estimates include direct, indirect, and induced impacts, therefore include "multiplier effects." The FEAM relies on response coefficients from IMPLAN to estimate household income generated from harvester and processor activities. The FEAM has been useful because much of the commercial fishing industry information is not described in published employment data. Participants are mostly contractors that are not covered in employment insurance programs and do not show up in employment by industry data. They are included in BEA data in the general self-employed category. The Research Group, LLC updated the FEAM periodically using new fleet and processor structural information, changed industry cost-earnings profiles, and new data IMPLAN models. The FEAM methods are described in Seung and Waters (2006). Application of the FEAM

adjusts fisheries' multipliers to the current year's harvest prices. IMPLAN is a product of IMPLAN Group LLC, 16740 Birkdale Commons Parkway, Suite 212, Huntersville, NC 28078.

Starting in 2016, the economic model used to calculate economic contributions is the input-output model for Pacific Coast fisheries (IO-PAC), which is maintained by the NMFS Northwest Fisheries Science Center. The model was designed to estimate the changes in economic contributions and economic impacts resulting from policy, environmental, or other changes that affect fishery harvest. IO-PAC was built by customizing IMPLAN software. The development and design of IO-PAC is documented in detail in Leonard and Watson (2011). Discussions about the similarities and differences between FEAM and IO-PAC are found in SSC (2009). The PFMC now uses the IO-PAC instead of the FEAM for analyzing management alternatives.

Basic economic impact analysis attempts to sort out the driving economic activities in regional economies (Scott 1984). Local industries with markets outside of the region bring new money into the region and are called basic industries. Industries with markets within the region are called secondary or support industries. Thus, when there is an increase in spending in basic industries, there is a resultant increase in secondary industries. Trade leakage occurs when spending and respending for labor, supplies, and services occurs outside the region. The relationship between an activity's total impact on the region's economy that includes the effect from the secondary industries, and the basic industry, is known as the "multiplier effect." In the vernacular of input-output modeling terminology, the total impact on an economy included the direct, indirect, and induced effects of the activity. Economic contribution results are reported at the coastwide and statewide economy level. The statewide income and output measured economic contribution will be higher because of reduced trade leakage. See glossary description of jobs for an explanation why statewide equivalent jobs may be lower than coastwide. One-off capital purchases and construction type projects are precluded in the economic contribution modeling.

Fisheries engagement

While this report's purpose is to describe commercial and recreational fisheries economic activity, a broader context for how the activity is embedded in the social fabric of communities is offered. The brief context is provided using secondary demographic and well-being indicators (source is ACS) and three indexes of fisheries engagement. The demographic and well-being indicators at port groups are generally: population (age, ethnicity), households (numbers, size), housing (costs, vacancy, second-home, tenure), labor force (employment in occupations and industries, unemployment), wealth (income sources, poverty), and education. Fisheries engagement is measured by the economic contribution generated (measured by income including multiplier effect) from commercial and recreational fishing activity. The fisheries engagement indexes are regional economy reliance (measured by economic contribution

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| | divided by area total earnings), fisheries dependency (measured by the ratio of nearshore fisheries commercial landings divided by total landings), and social vulnerability (measured by the Shannon Index of occupational diversity). Index port group rankings are described. |
| Harvester and processor revenue | Harvest value and price (sometimes called ex-vessel revenue) is the amount paid to fishers at the time of fish delivery to processors or when sold directly to the public. The term is analogous with farm-gate value which is revenue received by growers for agricultural products. The term ex-processor revenue is from the wholesale price fetched by processors for manufactured seafood products. |
| Homeport vessels | Homeport vessels are where a majority of landings measured by ex-vessel revenue occurs. Oregon homeport vessels can deliver to other states (such as Astoria area vessels delivering to Ilwaco processors) and other state homeport vessels can deliver to Oregon processors. |
| Output | Industry output is a technical term that is not analogous to sales. It is a measure of annual production with only the margins of some sectors included. For manufacturers, the value would be sales plus/minus change in inventory. For service sectors production would be sales. For retail, wholesale, and transportation, output is margins. Margins represent the value in delivering commodities from producers' establishments to purchasers. The output measurement tends to convey an inflated notion of economic activity by including non-local cash flows and is subject to double counting. The term does not provide meaningful insight on what might be a change to the size of the economy. For understanding change and using measures to compare alternative actions or policies, the more appropriate terms are income and jobs. |
| Income | Income accrues to households in the form of net earnings (sometimes called earned income) from wages, salaries, proprietorship income, etc. For example, it can include the contract payments based on share of catch value that is paid to a commercial fishing vessel crewman/skipper and the net income after operating and fixed expenses for the vessel owner. Total household income would include other sources such as transfer payments (e.g. social security, unemployment insurance, etc.) and investments (e.g. rental income, dividends, interest, etc.). There can be small differences between total income in area that is from households and the area's total personal income because of how BEA calculates the income. |
| Inriver | Coastal rivers' inriver trips are in lower rivers or bays. Columbia River inriver trips are in the estuary, tributaries to the estuary, and the mainstem Section 10. The popular "Buoy 10" fishery is included in Columbia River trips. The only trips included at inriver locations are when the catch was Chinook or coho salmon, steelhead, sturgeon, or other marine species. Trips when trout and other resident species are not included. |

Jobs

Statewide and regional average annual earnings per job are computed by dividing the economies all industry earned income estimates by total full-time and part-time jobs estimates. Average earnings per job within industries involving more part-time work is lower than industries involving more full-time work, although there could be little difference in the underlying wage of full-time workers. Since average earnings per job are just a simple average, it does not account for variations in the distribution of earnings among high-pay vs. low pay jobs. Jobs at the statewide level include jobs within all coastal communities plus jobs in the rest of the state. Since average earnings statewide are much higher than coastwide, the reported statewide jobs may be lower than coastwide despite income being higher.

The Oregon Employment Department annually estimates direct employment for the harvest and processor sectors. The estimating methods using survey data and harvest deliveries are necessary since harvest sector captain and crew positions are exempt from unemployment insurance coverage programs. Moreover, processor worker positions are sometimes provided by temporary labor service firms which do not report employment in a seafood industry category.

Value added

Input-output modeling value added equals output (sales or receipts and other operating income plus inventory change) minus intermediate inputs (consumption of goods and services purchased from other industries or imported). Value added will be from direct, indirect, and induced business activity. It is a measure of the contribution to GDP made by an individual producer or industry. A value added calculation for this study was made only for the processor sector direct impacts. The calculation for indirect and induced impact value added was not made.

Multiplier effect

Basic economic impact analysis attempts to sort out the driving economic activities in regional economies (Scott 1984). Local industries with markets outside of the region bring new money into the region and are called basic industries. Industries with markets within the region are called secondary or support industries. Thus, when there is an increase in spending in basic industries, there is a resultant increase in secondary industries. Trade leakage occurs when spending and respending for labor, supplies, and services occurs outside the region. The relationship between an activity's total impact on the region's economy that includes the effect from the secondary industries, and the basic industry, is known as the multiplier effect. In the vernacular of input-output modeling terminology, the total impact on an economy included the direct, indirect, and induced effects of the activity.

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| Marine reserve system | Ocean areas within the Territorial Sea set aside for research and management effectiveness monitoring. Oregon's five legislatively recognized areas have unique management specifications for non-take zones (referred to as marine reserve area) and selective take zones (referred to as marine protected area). |
| Nearshore area | The part of the continental shelf closest to shoreline and includes an intertidal zone. The intertidal zone extreme is the high tide splash zone and includes lower bay saline dominated estuarine waters. Some nearshore fisheries have management specifications using depth restrictions. Management depth closures can vary during the year. |
| Nearshore species | The fisheries chosen to represent nearshore fisheries are Dungeness crab, salmon troll, and nearshore groundfish. Nearshore groundfish species include selections of rockfish, roundfish, and flatfish. An estimate of the nearshore harvested portion of lingcod is included. The landings for lingcod were determined using species and gear filter queries to include open access landings with longline, other hook and line, or pot gear; and limited entry landings with longline, other hook and line, or selective FF trawl (small footrope) if it was on the same fish ticket with black or blue rockfish or certain other nearshore species. The criteria used to select species that are nearshore groundfish is discussed in TRG and GMC (2012). The selection is inclusive of State managed nearshore species for which an Oregon Nearshore Fishery Permit is needed. There are other federal managed species in the selection that are typically caught in nearshore areas. Some report tables only show nearshore species harvests for vessels that have an Oregon Nearshore Fishery Permit. Other tables' content is for all selected nearshore species determined without filtering on vessels associated with permits. |
| LE and OA groundfish permits | Limited entry and open access refer to federal permit types that allow nearshore groundfish to be harvested either as a directed fishery or incidental in other fisheries. The LE permit types have gear restrictions for being trawl (bottom net, mid-water net, etc.) or fixed gear (longline, pot, etc.). Only a prior qualified vessel can be used to hold a LE permit. Open access is a misnomer in that a permit still needs to be acquired and associated with a vessel. An Oregon Nearshore Fishery Permit is required to harvest certain groundfish species up to maximum bimonthly limits set by ODFW. There can be small harvests per trip made without the permit. The permit is limited entry. |
| Oregon Territorial Sea | The Territorial Sea west boundary is three nautical miles seaward of shoreline. The seaward extent can be approximated to be the 30 fathom depth contour along the Oregon Coast (ODFW 2016). |
| Shannon index | The Shannon index is a measure of the occupational diversity within a community. Occupation data is compiled at the ACS 17 categories level. Less occupational diversity would mean higher vulnerability for accommodating |

worker adaption change. With little occupational diversity, community members may be forced to look for work elsewhere when there are job losses within their particular occupation. The index was originally proposed by Claude Shannon to quantify entropy (Shannon 1948). It is more commonly used to describe diversity in physical systems, such as species in a given marine environment.

Commercial fishing trips

Trips are approximated using fish tickets. A fish ticket represents the landing of fish or shellfish product from one fishing trip. Ticket counts may not reflect fishing trips, because multiple tickets can be issued for a single trip when a vessel delivers to more than one dealer after returning to port, and vessels issue tickets when a sale is made directly to the public. Trip undercounts could occur in the occasion when tendering services are used because more than one vessel's harvest could be combined onto a single fish ticket. Delivery counts are not additive across fisheries because a fish ticket may include more than one species.

Recreational fishing trips

Sometimes the word "trip" is used in this report's narrative, but the unit of measurement for effort is an angler day. The hours actually spent fishing in a calendar day are not a consideration. The amount of money spent for the fishing experience is not appreciably different whether fishing was for a few or many hours. Literature use of the word trip is usually associated with a fishing experience duration that may be more or less than a calendar day. The data source for ocean trips is ORBS which is a sampling program for boat trips. An angler day is the result of counting the anglers on the boat trip and expanding the sampled trips to represent all ocean fishing trips. The data source for inriver trips is translating catch using representative success rates. Success rates are from literature supplemented from ODFW annual creel surveys.

Recreational fishing mode

The mode can be charter boat, private boat, shore/bank fishing, or diving. A charter boat is owned by a private business which provides for-hire services on daily and fishing season schedules. The services are usually recreational fishing, but can for non-angling trips such as whale watching or just touring. The boat may make more than one trip per day depending on the distance to fishing grounds. Private boats do not provide for-hire services, although it is not uncommon that friends and relatives on the trip contribute to cost reimbursement. Shore/bank fishing distinguishes an angling trip when the fishing opportunity will not rely on a boat. It can occur on piers and water shorelines. Dive trips can originate from a boat or shore. There are very few ocean bank or dive fishing trips in Oregon and they are not included in the analysis.

Recreational target fishery

Trips are categorized by which species groups comprise retained catch. If there is a plurality of groups in the catch, then assumptions are made which group defines the target category. For example, trips resulting in a catch of both salmon and bottomfish are in the salmon category. The data source for

ocean trips identifies trips when crabbing occurred. However, most of the those trips are made in combination with other target fisheries. It is assumed the finfish catch in the other fisheries defines the target category.

Spillover effect — Increased fish production from ecological functions occurring within MR sites that may result in increased recreational angler and commercial catch outside of a MR site.

Typical and representative averages — Typical are averages for only the actual number of vessels that had landings in a particular fishery. Representative are averages for all vessels regardless of whether they had landings in a particular fishery.

Port group — The following table lists the major ports, acronyms, Census Bureau geographic areas (cities, counties, and zip code areas), and river/streams that are mapped to port groups. Area economic data is used for showing commercial fisheries (distant water fisheries are included) representation in local economies. Demographic and well-being data is used to show an area's commercial (distant water fisheries are excluded) and recreational fisheries engagement. Both measures have their unique purpose in showing the importance of fisheries in an area and how different Oregon Coast areas contrast. Discussions of fisheries importance include showing historical trends and variability for the measures.

| Port Group | Area Economic Data | Cities and Source of Demographic/Well-being Data | Major Rivers and Streams |
|---|---|---|---|
| Astoria (AST) | Clatsop County | Astoria, Hammond/Warrenton, Gearhart, Seaside, and Cannon Beach. Clatsop County used for Census Bureau data. | Columbia, Klaskanine, Lewis and Clark, Youngs, and Necanicum rivers; Big Creek, Gnat Creek, and Bear Creek |
| Tillamook (TIL) | Tillamook County | Tillamook, Garibaldi, Netarts, and Pacific City. Tillamook County used for Census Bureau data. | Tillamook, Kilchis, Miami, Nehalem, Nestucca, Trask, and Wilson rivers |
| Newport (NPT) | Lincoln County | Newport and Depoe Bay. Lincoln County plus zip code 97439 used for Census Bureau data. | Yaquina, Siletz, Alsea, and Salmon rivers; Big Elk Creek, Drift Creek |
| Coos Bay (CSB) | Coos County | Coos Bay, Florence, Winchester Bay, and Charleston. Coos County plus zip code 97467 used for Census Bureau data. | Siuslaw, Umpqua, Smith, Coos, Slough |
| Port Orford (PRD) | | Port Orford. Zip codes 97465, 97476, and 97450 used for Census Bureau data. | Elk and Sixes rivers |
| Brookings (BRK) | Curry County | Brookings and Gold Beach. Curry County less Port Orford zip codes used for Census Bureau data. | Chetco and Rogue rivers |

## I. Introduction

This report was prepared for the Oregon Department of Fish and Wildlife (ODFW), Marine Reserve Program (MR Program) and Marine Resource Program (MRP). The MR Program is responsible for monitoring the effects of establishing five marine reserve areas (MR's) in the Oregon Territorial Sea (TS). The MRP provides management and research services for ocean and estuary fish, wildlife, and habitat resources. The information in this report updates information about overall trends in the Oregon fishing industry, and more specifically, describes the nearshore fisheries that would most likely be affected by MR management.

This report contents are economic activity descriptions for Oregon commercial fisheries (Chapter II) and marine recreational fisheries (Chapter III). The commercial fisheries activity descriptions are for recent year trends that are through 2023 and economic contribution trends are through 2021. Consistency in data source periods makes the latest recreational fisheries activity and economic contribution trends current through 2021. The commercial and recreational nearshore fisheries receive a more detailed description (Chapter IV) in order to provide updated information about possible effects caused by managing the Oregon Marine Reserve (MR) system. The nearshore fisheries chapter contains an estimate of the maximum potential economic impact due to Oregon marine reserve system management. There is a nearshore fisheries fleet description section within the chapter that describes the heterogeneity of participating vessel and processor sectors. The chapter also contains some comments about whether fleet response to marine reserve management is subsumed by other fishery participation decision criteria. Supplemental socio-economic information is provided (Chapter V) about regional fishing industry engagement and the social fabric in port groups where the fisheries occur.

*Dungeness crab juveniles in a photo taken near Port Orford, Oregon. Photo credit Aaron Galloway, Assistant Professor, University of Oregon, Oregon Institute of Marine Biology.*

This report is an update to TRG (June 2021) that was done for the previous biennium years 2018-2019. More complete related reports that have glossaries, methods descriptions, and additional analysis results are TRG (September 2015a and September 2015b) for commercial and marine recreational fisheries, and TRG (February 2018) for nearshore fisheries.

The descriptions include estimates for economic contributions which include the "multiplier effect." The economic contributions are measured by household income, equivalent full and part-time jobs, and output. Jobs are spread across all sectors of the economy. For commercial fisheries, the economic activity is from harvesting and primary processing sectors. For recreational fisheries, the economic activity is from angler trip expenditures.[1] In years prior to

1. See the glossary entry "recreational fishing trips" for an explanation of recreational effort measurement.

2016, commercial fisheries economic contribution estimates in such publications as TRG (September 2015a) came from an economic impact model titled FEAM. For this report, a new model titled IO-PAC is used to provide the commercial and recreational fisheries economic contribution estimates starting in 2016.[1]

Commercial fisheries activity information is from logbook programs and fish ticket programs. The fish ticket data was received in downloads from PacFIN. Landing volume is expressed in round pound equivalents. This is an adjusted weight to account for some fish being partially processed (such as headed and gutted) prior to making a delivery (selling to a processor or selling directly to the public). All fisheries values (such as ex-vessel revenue and angler trip expenditures) are expressed in 2021 dollars for years up to 2021 and are nominal for 2022 and 2023 except where noted otherwise. The dollars have been adjusted using the Gross Domestic Product Implicit Price Deflator (GDPIPD) developed by the U.S. Bureau of Economic Analysis.

Two levels of economic contribution are estimated. The first is for Oregon coastal economies and the second is for the whole Oregon economy. Since the State-level economy is much larger and actually includes the seven coastal counties, the economy will capture a much greater portion of total expenditures and realize greater economic contributions.

Commercial and recreational fisheries vicinity maps are shown in Appendix B. Map B.1 shows port group regions and salmon management areas. Maps B.2 and B.3 show watersheds included in compiling recreational trips in lower estuaries that target anadromous fish on the Columbia River and Oregon Coast. The location of the MR sites are shown on Map B.4. Map B.5 shows the TS boundary and 30 fm isobath.

1. See the glossary entry "economic modeling" for a description of the FEAM and IO-PAC models.

## II. Commercial Fisheries

### A. Onshore and Distant Water Fisheries Economic Activity

The Oregon commercial fishing industry onshore landings in 2023 were 301.4 million pounds worth $177.0 million in harvest value (Table II.1).[1,2,3] The 2023 harvest value was an increase from 2022 (286.5 million pounds and $130.5 million) and a decrease from 2021 (317.8 million pounds and $205.4 million), but above the pre-pandemic five-year (2016-2020) average (304.3 million pounds and $168.0 million).[4]

Different commercial fisheries had ups and downs compared to previous years.

- The *ocean troll salmon fishery* off the central and southern Oregon Coast was closed in 2023 except for a late (September and October) season. Landings from north of Cape Falcon catch areas were allowed. Total Oregon harvest volume Chinook and coho was 72.0 thousand pounds. Year 2023 was a continuation for eight years of depressed landings. Aggregate real ocean troll Chinook salmon prices have fluctuated in recent years. The pre-pandemic five-year average was $7.47 with a range of $6.13 in 2019 and $8.04 in 2016. The prices were $8.73 in 2021, $7.66 in 2022, and $7.93 in 2023. The *non-Indian plus treaty Columbia River gillnet Chinook fisheries* landings in 2023 were 1.2 million pounds. The *non-Indian and treaty Columbia River gillnet coho fisheries* landings in 2023 were 443.1 thousand pounds. The non-Indian Chinook price in 2023 was $3.94 which was a price drop from $4.47 received during pre-pandemic five-year average. The non-Indian coho price decreased to $1.45 in 2023 from the pre-pandemic average $1.99. Anecdotal data indicates treaty commercial fisheries Chinook and coho prices similarly fell. Oregon wild capture salmon is a specialty product and can be sensitive to price increases when supplies are low. Early ocean and Columbia River spring Chinook prices can be much higher than when higher volume fall Chinook supplies hit the market. Summing the ocean troll and Columbia River net salmon fisheries results in a harvest value of $5.2 million ($0.4 million for the ocean salmon fishery and $4.8 million for the Columbia River salmon fishery) in 2023. The ocean Chinook salmon fishery north of Cape Falcon is usually constrained by contributing stocks weakness from: Lower Columbia River natural tule Chinook and Snake River fall Chinook. The south of Cape Falcon is usually constrained by contributing stocks weakness from: Klamath and Sacramento rivers runs of fall Chinook. Chinook and coho

1. Harvest value (sometimes called ex-vessel revenue) is the amount paid to fishers at the time of fish delivery to processors or when sold directly to the public. The term is analogous with farm-gate value which is revenue received by growers from selling agricultural and aquaculture products.
2. Landings are for calendar year summations. Year-to-year landing comparisons can be confounded by the Dungeness crab fishery season start date. The regulatory start date is December 1, however the season can be delayed due to crab quality status, harvest price disagreements, and bad winter weather. This will push the beginning month catch (which is sometimes three-quarters of the total season) into the next calendar year. This was the case for 2023.
3. Volume is expressed as round pounds. Weight for species delivered dressed is converted to a round weight equivalent. Prices are averaged across fishery seasons and across delivery size and condition.
4. COVID pandemic years declared by the World Health Organization are partial 2020 (March) through partial 2023 (May). For simplicity, the comparative averaging period used in the analysis includes all of 2020.

fisheries are also shaped by considering Endangered Species Act (ESA) consultation standards for ESA listed salmon stocks. The U.S. Secretary of Commerce declared Oregon ocean troll fishery failures due to fishery resource disasters in years 2018 through 2020 and in 2023. A disaster declaration releases financial assistance for participants.

- Many ocean salmon fishery vessels also participate in the troll gear *albacore tuna fishery* (275 vessels participated in the ocean salmon fishery in 2023, 175 vessels had deliveries of tuna, and 31 vessels participated in both the ocean salmon fishery and the tuna fishery). Tuna volume was down considerably in 2023 (2.5 million pounds) as compared to 2022 (6.3 million pounds). Prices decreased in 2023 ($1.44) as compared to 2022 ($2.29). The harvest value of the fishery was $3.5 million in 2023 and $14.3 million in 2022.

- The *Dungeness crab fishery* is usually the highest vessel revenue generating fishery for Oregon. Dungeness crab volumes were up in calendar year 2023 partially due to the 2022-2023 season opening being delayed until January/February 2023 and the 2023-2024 season having partial openings in December 2023. Delays can be due to crab price strikes, health and minimum meat recovery rates, and bad winter weather. Based on the fishery's regulation dates (December 1 through August 14), the landings for the 2021-2022 season were 17.2 million pounds when prices were high ($5.33 per pound) and for the 2022-23 season 31.7 million pounds when prices were low ($2.70 per pound). The high volume in the Dungeness crab fishery during the 2022-23 season was not enough for harvest value ($85.5 million) to be greater than the record 2021-22 season ($91.8 million). There are market signals that Dungeness crab fishery harvest price downturn influenced from hold-over inventories, weakened demand, lingering consumer pandemic changed consumption patterns, and other effects will have bottomed the prices in 2023. Dungeness crab has a large Asian market for a live product (can be as high as 40 percent of landings). Other product forms are whole fresh/frozen for the end-of-year holiday market. There is a large domestic market for sections and clusters. Frozen wholes are exported to China for a picked product form and re-imported to the U.S.

- The *pink shrimp fishery* landings in 2023 were 44.1 million pounds which was 34 percent higher than the pre-pandemic five-year (2016-2020) average. However, the real price was at a twelve-year low $0.43 in 2023. Seventy-eight vessels participated in the pink shrimp fishery in 2023. Despite the pink shrimp higher volumes, the lower price made the harvest value ($18.7 million) the second lowest in the last thirteen years. Oregon pink shrimp has had a large European export market although competitive pricing with Canadian and other coldwater shrimp fisheries has lowered market share. Poor recruitment in certain year classes are expected to lower volumes in the near term.

- The *groundfish fishery* (other than sablefish and whiting) landings in the last seven years have been in the 30-34 million pound range. This was partially due to lifting restrictions on some species previously classified for being in overfished status. Landings in 2023 slightly decreased to 40.2 million pounds compared to 43.4 million pounds in 2022. Prices for nearshore groundfish landed live increased a little in 2023 ($3.42 per pound) compared to 2022 ($3.35). Aggregate prices for flatfish (soles, flounders, etc.) and rockfish landed dead also slightly increased in 2023 from 2022. With the mix of volume and price differences, the harvest value was lower in 2023 ($18.3 million) than in 2023

($19.4 million). The overall groundfish group real price remained steady in 2023 as compared to the last five years, but was a significant decrease to prices received in the 2015-2016 time period. Some species management quota volumes were not attained due to fleet and processing capacity issues and vessels having difficulty covering bycatch and non-target species catch quotas in this mixed stock fishery. Dover sole is one example of a higher volume, lower price species that was harvested far below the allowable quota due to low availability of sablefish quota as well as market issues.

- The trawl and fixed gear sectors allocated *sablefish* (also called black cod) fisheries comprise about half the harvest value of the overall non-whiting groundfish fishery. Sablefish volume was about the same in 2023 (6.6 million pounds) as compared to 2022 (6.7 million pounds), while the two-gear harvested average price was less ($1.21 versus $1.63). The sablefish price has not returned to the record level prices received in 2011. Sablefish harvest size in six categories sets the ex-vessel price with fish up to four pounds fetching higher prices. Sablefish harvests are exported to Japan, however there is some resurgence in domestic food service markets.
- Pacific whiting onshore volume in 2023 continued a four-year downward trend. The real landing price was 9.4 cents per pound in 2023. Whiting can be processed into a variety of forms including whole, H&G, fillets, and surimi depending on market demands. Carcasses are used in making fish meal. There has been a market in recent years for wholes in Africa and a market for H&G in northern Europe. The markets are volatile. Ukraine imports have been down due to their war with Russia.
- There were no landings in the *market squid fishery* in 2023 as compared to 7.8 million pounds 2021 followed by 5.5 million pounds in 2022. Fleet test fisheries showed abundances did not financially justify a directed fishery in 2023. Prices have been around $0.60 in the last few years. Market squid is harvested using purse seine gear with lights to attract the fish. Oregon does not have other fisheries prosecuted with purse gear, although several Oregon based vessels are investing in the gear specifically to take advantage of the market squid fisheries opportunity. Harvests are largely trucked to southern California to be processed into bait. The processed bait is used in the Oregon Dungeness crab fishery.
- *Coastal pelagic species fisheries* have had significant landings in the past. However, other than market squid in some years and jack mackerel in 2023 (1.4 million pounds and $19 thousand), no other species were significant. It could be abundances did not make targeting viable or processors were reluctant to purchase harvests. The *Pacific sardine fishery* was restricted to a research and incidental fishery in 2023 as resource abundances have disappeared from what they were a few years ago.
- The other notable Oregon fisheries in 2023 were *hagfish,* also called slime eel (426 thousand pounds, $0.5 million harvest value), *Pacific halibut* (309 thousand pounds, $1.6 million), *red sea urchin* (252 thousand pounds, $0.7 million), basket cockle (295 thousand pounds, $0.5 million), razor clams (69 thousand pounds, $0.2 million), gaper clams (209 thousand pounds, $0.2 million).[1]

1. Commercially harvested shellfish (such as razor clams, gaper clams, and basket cockle) is included in onshore delivery data, therefore included in economic contribution estimates.

- Oregon coast aquaculture is principally Pacific oysters. USDA (December 2019) reported farm-gate value was $19.6 million (nominal price) in 2017. There was a 2023 census whose results will be published in late 2024. The Oregon Department of Agriculture also annually tracks shellfish production. There has been experimentation with raising other mollusks in the past. There are also initial current attempts for land-based seaweed and sea urchin aquaculture in Oregon. The seaweed growing is at two sites in Garibaldi and Bandon that grow dulse seaweed. The sea urchin growing site is at Bandon where wild capture sea urchins are reared for a uni market.[1]

Table II.2 shows harvest value by port groups in 2020 and 2021. All of the port groups increased harvest value in 2021 compared to 2020 mostly due to increased prices during this period. Newport is the highest harvest value landings port group in Oregon and 15th in the nation in 2021 (Table C.10).

Table II.2 shows the 2021 harvest value is the revenue for 885 different vessels making 22,196 deliveries to Oregon ports.[2] The 2021 counts are about the same as vessels and deliveries (900 and 23,052) in 2020. Of those unique vessels making deliveries, 838 were active vessels. There were 1,359 vessels (some vessels did not have landings in 2021) and 1,105 crew licensed in 2021 (Table C.11). The port with the highest ratio for "staying-at-homeport" is Astoria. Coos Bay has a lower ratio being a regional fisheries center that vessels with other homeports will make deliveries. Astoria and Newport would also be considered regional fisheries centers. Some vessels participating solely in distant water fisheries use the regional fisheries centers for moorage, provisioning, and repairs, but do not show up in homeport vessel statistics because most of their landings are not in Oregon.

Table II.3 shows trends (2017 through 2021) in vessel counts and deliveries by fisheries. The overall number of deliveries has been fairly steady over the last five years, however the new market squid fishery deliveries did jump in the years when landings were high. The ocean troll salmon fishery closure in 2023 will lower vessel counts and delivery numbers. The deliveries in the last five years are about half of the 1980's averages.

The average revenue for active vessels (harvest revenue more than $500) was $242,381 in 2021 (Figure II.1). The active vessel median revenue was $52,679 in 2021. The significant differences between the average and the median indicate that the industry is comprised of mostly lower revenue producing vessels and lesser numbers of high revenue producing vessels.[3] There

1. Aquaculture products such as Pacific oysters grown in estuaries are not included in the fish ticket database and must be treated separately for modeling economic contributions.
2. The commercial fishing vessel fleet can be described in terms of total unique vessels making deliveries, whether the deliveries are being done by active vessels, and the number of homeport vessels making deliveries. An arbitrary choice of $500 harvest revenue is used to define active and inactive. The active and inactive category is an attempt to sort out whether there was a serious choice based on economic criteria to participate in a directed fishery and make landings at an Oregon port. A homeport vessel is the port group where a plurality of Oregon harvest value is delivered. Another category would be a vessel licensed and having attached fishery permits, but does not make deliveries for a variety of reasons such as breakdowns. The category might also be out-of-state registrants who simply want the flexibility to make landings at Oregon ports.
3. Another statistic showing revenue heterogeneity is 65 percent of vessels had less than $200 thousand ocean harvest value in 2021 and their landings were 11 percent of all ocean harvest value (Table C.4). Conversely,

have been increasing and decreasing years for average revenue which is partially explained by participation in salmon fisheries. For example in 2014, there was increased salmon abundance, more vessels returned to the fishery, and the revenue average decreased.

There were 123 processing plants, restaurants, etc. that each purchased at least $10 thousand of Oregon landings in 2021. There were 27 first buyers that purchased more than $1 million (Table C.5). The top five parent processing companies purchased 65 percent of landings measured by harvest value in 2021. The new processor facility at the Port of Brookings Harbor with a pink shrimp line constructed by BC Fisheries, LLC was recently being operated by Pacific Seafood Group. Landings at ports do not always correspond with processing occurring at those ports. Buyers will transport the landings to central processing facilities that can be in Oregon or other states. The economic value added from processing is estimated to be $138 million (Table C.6).[1]

Oregon onshore landings from harvests in the ocean and Columbia River catch areas are processed into seafood products that are sold locally or are shipped to high volume processing and distribution centers. The seafood products enter niche or commodity markets, both domestic and global. Those commodity markets include product substitutes that influence the price paid to processors and distributors that buy from Oregon harvesters. For example, many of the species landed in Oregon also are landed in greater numbers in Alaska and British Columbia (BC). For a comparison, Oregon's harvest value in 2021 was only seven percent of all U.S. West Coast, Alaska, and BC landings. Some Oregon fisheries have high harvest value proportion in this northern Pacific Ocean area, such as Dungeness crab at 31 percent and pink shrimp at 67 percent in 2021 (Appendix Table C.12).

The Oregon commercial fishing industry is an important contributor to the State's economy. The industry's onshore fisheries (not including distant water fisheries) generated $465 million income in 2021. This is down from $368 million income in 2020 (Table II.5 and Figure II.3), but above the pre-pandemic five-year average $341 million income. Table C.7 shows economic contributions by major onshore fisherie in 2020 and 2021. The economic contribution share for processing onshore harvests, hauled-in fish, and manufacturing fishmeal is 43 percent.

Distant water fisheries are a significant component of the commercial fishing industry's total economic effects in Oregon. More than a quarter of the income in 2021 is generated by distant water fisheries (such as the West Coast at-sea fishery and Alaska fisheries). This is a decrease from about one-third in the previous five-year (2016-2020) average (Table II.5). Most of the distant water fisheries contributions are from participation in Alaska fisheries. Real harvest value trends for the West Coast offshore fishery and Alaska fisheries compared to Oregon fisheries are shown on Figure II.2. The West Coast at-sea fishery has been up and down since 2002. The Alaska fisheries overall have generally had steady value in recent years.

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the other 35 percent of the vessels in 2021 had 89 percent of all harvest value. Other heterogeneity measures could be vessel physical size and the number of fisheries in which a vessel participates.

1. The added value estimate is stylized and not supported with actual production data. Processor product forms, yields, distributions to warehousing/markets, fish purchase and production costs, financial returns, etc. will change year-to-year. Assumptions for Year 2021 were spot checked for reasonableness through unstructured interviews with industry representatives.

Oregon resident participation (crew member and vessel permit license counts) in Alaska fisheries for 2011, 2017, 2019, and 2021 are shown on Appendix Table C.10. Vessel license counts were down over this period. Crewmember licenses decreased about one-third (from 1,348 to 838) during this period. CFEC data shows fisheries permit holders residency in Oregon decreased from 438 in 2011 to 360 in 2021 and earnings decreased from $149.3 million to $108.2 million during the period (nominal dollars). It is not clear the influencing factors for the decreasing effects from distant water fisheries. It could be with rising fuel costs to commute and tax incentives to use Alaska business address registration, that ownership residence may not reflect where Alaska earnings are spent. More investigative studies are needed to determine if there are indicator data anomalies or underlying causes for the apparent decrease.

The estimated economic contribution generated by the Oregon commercial fishing industry (includes distant water fisheries) to the statewide economy in 2021 is $642 million income and $1,242 million output which is equivalent to about 9,200 jobs (Table II.6).[1] This 2021 job estimate is an increase from the 2020 estimate and an increase over the previous five-year average 7,700 job estimate (Table II.5). Table C.8 shows the commercial fishing economic contributions for port groups in 2021 at the coastwide level.

The stated economic contributions for Year 2021 would be less if modeled for Year 2023. The lower prices received by harvesters in 2023 would mean reduced payments to labor and supplies and the lessened expenditures would reverberate through the economy.

The economic contribution income measure allows comparison to other Oregon industries and gives a sense of the size of the fishing industry within the Oregon Coast and statewide economies.[2] The fishing industry share of the coastwide economy's net earnings is 11.5 percent and statewide economy is 0.5 percent in 2021. The local share varies between 6.0 percent (Curry County) and 17.4 percent (Lincoln County). Maintenance of this level of commercial and recreational fishing economic activity will depend on the ability of the fishing industry and management agencies to cope with market trends, interindustry structure challenges, and environmental conditions change.

Another economic measurement that can be used to characterize the commercial and recreational fishing industry is the generation of government fees and taxes. At the local government level, the fishing industry pays fees for moorage, rental of upland property, landing poundage fees, etc. There are many vessel, crew member, limited entry fishery permit, processor, and other fees. The industry's general and personal tangible assets would add to the local property assessed value. Industry participants and businesses pay State personal and corporate income taxes and fees. There are a host of State level harvest landing and license fees and marine fuel taxes. The fees and taxes offset State and local government costs for services provided to the industry. Government not only provides physical infrastructure (maintained navigation channels and jetties, wharves, moorages, upland storage and work areas, launch facilities, etc.), but also

1. Shellfish aquaculture is not included in the economic contribution estimates. Oregon coast aquaculture is principally Pacific oysters. Oregon aquaculture production reported by USDA (December 2019) for 2017 was $19.9 million (nominal) for mollusks. The growing and processing would generate about $22.4 million income to the State's economy.
2. A description of the fishing industry importance among other coastal Oregon industries was completed by OCVA (January 2024).

provides other services such as fish hatchery programs. Local governments and port districts serve as advocates for the industry so as to ensure its continued viability.

The commercial fishing industry generated (including multiplier effects) an estimated $70 million in state and local taxes in 2021 based on the assumption that there is a causal and integral relationship to income generated from the industry. (State and local taxes includes personal and corporate income taxes, property taxes, fuel taxes, selective sales taxes, etc.)

The harvest and processing sectors are assessed ad valorem fees and license/permit fees at the state level. Table F.1 shows recent five-year estimated fee collections. The fees are for contributions to the Commercial Fish Fund (CFF) used to help reimburse the ODFW costs for management, enforcement, and research. A significant portion of the CFF receipts are used to fund the ODFW MRP. The expected CFF revenue receipts represent less than half of the MRP budget. The balance of the MRP funds come from federal sources, State general funds, and other funds. The other funds include sport angling and shellfish license fees and lottery dollars. The CFF also is used in the other ODFW programs, such as propagation. There are more ODFW commercial fishing oriented programs and services costs other than reflected in MRP expenditures. Associating the projected CFF revenue with the MRP expenditures is to illustrate the importance of the revenue source for providing management and research that benefit both commercial and recreational fisheries.

Assessments are also collected to support four seafood commodity commissions. The commodity commission fisheries are salmon, albacore tuna, Dungeness crab, and trawl gear (groundfish, whiting and shrimp). Estimated collections for 2021 through 2023 are shown on Table F.2. The seafood commodity commissions participate in marketing programs, sponsor research, provide respective fisheries advocacy during management proceedings, disseminate information to inform the public and provide advice on state and local policy deliberations.

Commercial and sometime recreational fishing businesses can receive direct payments for fishery failures due to a fishery resource disaster. Recent approvals of fishery resource disasters by the U.S. Secretary of Commerce include: 2023 troll salmon fishery, 2018-2020 troll salmon fishery, and 2016-2017 Oregon and California Klamath River fall Chinook fishery. Congress appropriates funds for financial assistance to accompany commercial fishery failures, and in Oregon, funds have been distributed by the PSMFC using spending plans helped developed by ODFW. Distribution to Oregon commercial fishing businesses (vessel and processor owners) is to be determined for 2023, $7.1 million for 2018-2020, and $2.1 million for 2016-2017. Fishery participants may also qualify for disaster assistance from the Small Business Administration in the form of low-interest business loans. Another direct payment program for participants is the USDA Seafood Trade Relief Program if there is evidence of loss from retaliatory tariffs.

Processors and distributors doing business in Oregon have benefited from recently increased amounts in the USDA Commodity Purchase Program. The USDA Commodity Purchase Program is administered by the Agricultural Marketing Service who issues bid specifications, generally for processed products, for deliveries to specific locations. The solicited purchases are over and above what Oregon Department of Agriculture may be purchasing fish using USDA funds from the Local Food Purchase Assistance Cooperative Agreement Program. The

Program's solicitation for Oregon's processed frozen products are whiting fillets, rockfish fillets, and salad shrimp. There are many other solicited ocean fish products such as for salmon canned and fillets, but Oregon fisheries are not a large enough source to fulfill the offerings. The Program's Oregon fisheries related solicitation announcements were $16 million in 2021, $30 million in 2022 and $52 million in 2023 (USDA 2023 and Intrafish June 2024).

Related to direct payments is mitigation for lost fishing opportunities due to adverse impacts from other ocean and freshwater activities. There are already examples of mitigation in Oregon from the placement of undersea cables. The Bandon Submarine Cable Council and the Oregon's Fisherman Cable Committee oversee distributions of funds for communication, research, and damaged gear settlements. Another example of mitigation is the annual payment by the Bonneville Power Administration for fish and wildlife restoration programs (including foregone hydropower sales). The issue for compensatory direct payments to industry or indirect fishery benefit payments for mitigating lost fishing opportunity may become more important as alternative uses for ocean space increase, such as for energy generation sites and restricted energy transmission and navigation corridors. Questions will have to be addressed on impact assessment methods and how long term costs are included in mitigation. There may be lost or gained society values from potentially affected resources and ecosystem services. Whether perceived benefits are lesser or greater will influence permitting and political support for the impact activities (NRC 2001).

Economic contribution due to the commercial fishing industry may also be generated from many activities other than just harvesting and seafood processing – for example, visitors attracted to food service and retail markets selling local harvests, and tourists drawn to working waterfronts. There are boat building and gear manufacturing businesses at some ports. Management, enforcement/safety, research, education, and training are related economic contributors. The commercial fishing industry is one component in a larger context maritime industry that would include these additional economic contribution activities.

While individual fisheries harvest value and economic contributions are important indicators for showing commercial fishing industry trends, the health of the industry has a social context for the well-being of harvesters, processor workers, affected communities, and ultimately the public. Studies show Oregonians not only care about natural resource conservation, but have empathy and appreciate the life style of the participants. Those involved in the industry know its vagaries: part-time employment, changes in abundances, dangerous weather conditions, volatile prices, and seeming unending surprises in management and regulations. Families and businesses must be dynamic and flexible to survive and prosper. Their resilience and innovation is celebrated by those that enjoy Oregon seafood.

## B. Fishing Industry Challenges

The commercial fishing industry is a thriving and important economic sector for many communities along the Oregon Coast, but there are certain segments of the industry that are experiencing severe disruption. The long-term viability of all segments may need new thinking about the challenges posed changing environmental conditions, agile market competitors,

increased regulation, changes in consumer tastes, and new technologies. This section discusses market trends and general structural issues that are challenging the industry.

General worldwide economic conditions can bring down demand for seafood products (and ultimately influence harvest level prices) because consumers view seafood as a discretionary purchase. Improving general economic conditions and certain situations of fish supply constraints can increase Oregon fisheries prices. The expanded markets for Pacific whiting fillets were not as great as expected partially due to the ongoing Ukraine war, and gains in the eastern European market for H&G products have diminished. The strong U.S. dollar currency exchange in recent years reduces demand for U.S. harvests and lowers prices when there are international fisheries that have product substitutions.

The overall commercial onshore fisheries harvest price recent trends are consistent with national seafood retail values directions. The directions were influenced by demand/supply relationships and the economy's aggregate inflation during the years of onset and then recovery from the COVID pandemic (FMI 2023 and Rubbo 2024). Broadly speaking with the acknowledgment there are regional nuances, increased demand nationally for seafood at-home cooking along with inflationary pressures drove prices higher in 2021. Seafood production responded and inventories increased at the new price levels in 2022. However, there was a general economy purchasing power tightening and since seafood is viewed as an upmarket good, consumer demand waned in 2022. Processors and distributors were stuck with the freezer stockpiles and were forced to cut prices to move the inventories in 2023. Offerings to harvesters reflected the new lower price levels in 2023.

The domestic seafood marketplace prices are interconnected to the global seafood import and export situation. Oregon fisheries production is a very small contributor to the global seafood supply chain. There are market substitutions from Alaska other world fisheries. Prices in the global market will influence what can be expected for Oregon harvest prices. There are tariffs placed on some imports by the U.S. to assist the financial viability of domestic production, and in-turn importing countries will place retaliatory tariffs on U.S. exports. The global market has been de-stabilized in recent years due to some countries ban on selling to and purchasing from Russia. The bans are in response to Russia's invasion of Ukraine. This has forced Russia to dump production at low prices into countries that are not banning purchasing such as China. China has been a large importer of U.S. production in the past, but the flooded market from Russia at low prices can preclude purchasing from the U.S. for some species.

A point of optimism may come from demand for some specialty products from Oregon fisheries. Using the market demand for the specialty products along with traceability technology address consumer concerns for food safety and awareness about fish resource conservation (Petersen and Green 2006). The traceability technology allows seafood product to be marketed according to where, when and how they were caught. The authenticity of claims or certifications, such as wild fish harvested only from sustainable stocks, is backed-up with proper and easily accessed documentation about the product's supply chain.

Seafood markets and food service establishments suffering from post-pandemic years lower demand will be looking to regain consumer purchase behavior. There was only a slight increase in per-capita consumption in 2021 after stagnant trends going into the pandemic (Table C.13). Consumer resistance to seafood higher prices will drop the per-capita consumption in 2022.

Other issues that the commercial fishing industry is facing are:

- Pressure to set aside areas for: (1) no-take marine protection areas for conducting research and/or preserving their intrinsic values, and (2) other conflicting spatial uses of the ocean, such as wave/wind energy generation, telecommunication seabed cables, and whale migration routes.

- Allocations among user groups (commercial, recreational, and tribal fishermen) and communities to meet legal requirements and social objectives.

- Judicial decisions on habitat protection and incidental take issues brought to the forefront by conservation organizations, including protection of sea birds and mammals either impacted by fishing techniques or dependent on protein from the same fish species now being fished; compacts and international treaties, including treaties with Canada for allocation of Pacific whiting, salmon, and tunas; and, multi-national interests in highly migratory fish stocks in the western and central Pacific Ocean.

- Better understanding in the science of ecosystem interactions and improved stock assessments that may cause fishery management agencies to reduce exploitation rates, control fishing gear, reduce trip limits, or additional restrictions including time/area closures through new initiatives to develop an ecosystem fishery management plan. Stock building programs calculated using variables with large uncertainties; rebuilding programs will take many years for slow growing rockfish species to return to maximum sustainable harvest levels because of life cycle characteristics of these fish.

- Restrictions on harvests for species in a healthy stock status condition due to fishing techniques that have unavoidable mortalities on species in a depleted stock status where species occupy the same space at the same time. There is a need to develop innovative methods to share real time information among vessels to avoid hotspots where the depleted species are congregating.

- For the most part, there are not major populations of underutilized species which harvesters can exploit, but new fisheries may develop around some minor opportunities for developing niche markets.

- Increasing costs for prosecuting fisheries, such as for fuel, safety equipment, insurance, moorage, etc. New, more selective management tools requiring different gear, area/time closures related to ocean depth, and more intrusive harvest verification techniques (log books, observers, satellite signal location registry programs, electronic monitoring, etc.) will add to operation costs.

- Implementation of the Magnuson-Stevens Act reauthorization. Congressional reauthorization will undoubtedly include new definitions and processes for avoiding species overfishing; contain new procedures for stakeholder involvement; require new regulations for climate-ready fisheries; advance fisheries science and data; and, give new attention to ecosystems planning. The laudable goals will place new demands on fishing

industry interests to watchdog implementation for making sure new regulations are balanced and efficient.

- Expanded use of ITQ programs with transferable quotas for vessels, processors, and cooperatives. Additional fisheries being managed using property rights approaches, such as now is being used in the trawl groundfish fishery. The management approach has the potential for greater individual economic profits and greater community benefits. However, poorly crafted rights may result in unintended consequences, including over-consolidation, unbalanced bargaining power favoring one sector over another, or asymmetrical redistribution of vessels and processors among coastal communities.

- The proliferation of certification programs for seafood product quality and capture fisheries sustainability has burdened harvesting associations and processors. The certification concept has merit, but there is considerable expense in trying to meet certifying conditions and science and management requirements. There may also be confusion on the part of consumers given duplicate and conflicting certification systems.

- Consumer concerns about quality (freshness, inclusions of toxics, etc.) will affect seafood product demands. Considerations about health and wholesomeness of natural coldwater fish could be a marketing advantage to Oregon's industry.

- Climate variability, as tracked by the Pacific Decadal Oscillation, El Niño/Southern Oscillation, and Oceanic Niño Index indexes, has effects on fish habitat that harm some species and boost populations of other species.

- Vessels in Oregon depend on public agencies to provide adequate moorage, upland facilities, and safe passage from harbors to the ocean. Unsure federal funding of the Corps of Engineers operation and maintenance budgets will mean smaller ports not meeting waterborne commerce volume standards will not be dredged. Public ports have increasing demands for devoting scarce revenue sources for other than commercial fishing industry uses.

- Federal budgets for fishery management and science are challenged, and attendant federal support of state agency programs are being more closely scrutinized for cost savings. Some federal programs have opportunities for cost-recovery assessments on industry, but states can be locked into statutory limits on industry assessments.

The Oregon commercial fishing industry is mature, having beginnings in the late 1800's utilizing the amazing salmon returns to the Columbia River. In consideration of this report's landing trends and in light of the above mentioned current issues, it is a prudent assessment that commercial harvesting and processing of marine resources will not be a major growth industry in Oregon. Goals for the industry should include extracting more value from the fishery resources that are available through better resource management, utilization, and marketing. Raising value has obstacles. There will be continuing price pressures on seafood products from substitute aquaculture products. The fall-out from lower values will be disruptive to a fleet where profitability already suffers due to, among other influences, excess capacity.

Modernization of vessels for improved gear selectivity, better handling capabilities, modernization of processing plants will improve seafood products. Assistance through commodity commissions and other entities for developing marketing strategies should help the industry raise value at all levels of seafood production.

Vessels can receive revenue from participating in cooperative research projects and exempted fishing permits. Pursuing such private-government collaborative programs can be of immediate and long term benefit to the industry.

The fishing industry receives support from marketing, academic, and inter-industry trade associations. Under the auspices of the Oregon Department of Agriculture, there are four seafood commodity commissions (trawl, Dungeness crab, albacore tuna, and salmon). Oregon State University administers several programs supporting the industry, including Sea Grant Extension Service, Astoria Seafood Laboratory, Coastal Oregon Marine Experiment Station, Food Innovation Center Agricultural Experiment Station, and the interests from several academic departments. The Oregon Department of Agriculture, Oregon Sea Grant, and Oregon State University Extension Service in cooperation with Oregon's commodity commissions have launched the #EatOregonSeafood initiative to encourage purchase and preparation of local harvests. Oregon and Washington groundfish fishery participants have formed a non-profit trade association called Positively Groundfish. Its members are fishermen, fish processors, environmental advocates, certifiers, academic researchers and state agencies. The Oregon Coast Visitors Association started an initiative for better local utilization of local catch. There are several community supported fisheries (CSF) organizations available to Oregon residents. CSF's deliver catch directly from fishermen to households using central pickup locations. Local governments and coastal port districts provide public services and advocate causes. There have been enormous efforts from government and many watershed protection groups to restore anadromous fish freshwater habitat and passage. There have been commitments to research and improvements in hatchery operations to lower impacts from artificial propagation on wild stocks.

Oregon State University (OSU) has furthered their leadership in education and research responsibilities related ocean resources and seafood. OSU created the Marine Studies Initiative (now titled the Marine and Coastal Opportunities (MACO) Program). The MACO Program is based at the Hatfield Marine Science Center in the new 70,000-square-foot Gladys Valley Marine Studies Building with laboratory, office, classroom, auditorium, and innovation spaces. A supporting 34,000-square-foot students and visiting professionals housing project is scheduled for completion in 2025. An OSU-owned field station in Port Orford supports studies in gray whale ecology, kelp forest health, and other topics. OSU is already home since 1982 to the Cooperative Institute for Marine Resource Studies to be named Cooperative Institute for Marine Ecosystems and Resource Studies. It is one of 16 National Oceanic and Atmospheric Administration (NOAA) Cooperative Institutes located in the United States. These programs build on a history of nationally ranked marine and agricultural programs and its rich heritage of research, outreach, education, and service.

Industry trade associations like the Western Fishboat Owners Association, Fishing Vessel Owners Association, Fishermen's Marketing Association, West Coast Seafood Processor's Association, Newport Fisherman's Wives Association, Coos Bay Trawlers Association,

Midwater Trawlers Cooperative, and other associations and cooperatives are all working on behalf of the industry. Research agencies (like those located at the Hatfield Marine Science Center in Newport, OSU Seafood Lab in Astoria, and the Oregon Institute of Marine Biology located at Charleston) provide support for better management, science, and development of seafood products. These marketing, management, and research efforts are needed to assist the industry compete in constantly changing harvest management regimes and changing seafood markets.

## C. Fishing Industry Outlook

Commercial and recreational fishing participants have always been subject to catch and access variability due to changing environmental conditions. Increasing biophysical effects from climate change are predicted to exacerbate the variability.[1] Businesses within the fishing industry need to be resilient to downturns and take advantage of favorable stock sizes when they exist and plan for declines during low abundance seasons. Fisheries diversification is key to commercial fisheries businesses success.[2] The recreational fishing industry especially needs stability in fishing opportunity and may require allocation transferability when abundances are low. Management also needs to have the adaptive capacity to nimbly fit conservation and development measures to different conditions (Melnychuk et al. 2014). Vigilance on how stocks are responding to conditions is required for long term fisheries species protection (NOAA Fisheries 2019, Vogel et al. 2023). Flexible management processes and techniques need to be built into fishery management plans to deliver desired social, ecological, and economic outcomes.

Challenges facing the fishing industry include shifting stocks due to climate change. Change includes extreme weather and ecological surprises the nature, location, and effect are difficult to predict (Filbee-Dexter et al. 2017). There will be other conflicting spatial uses of the ocean, such as wave/wind energy generation, telecommunication seabed cables, and whale migration routes. Also facing the industry are foreign agile market competitors, increased regulation, changes in consumer tastes, new technologies, and changing societal values toward natural resources protection. Fewer vessels are participating in commercial fisheries and those that do participate require higher annual revenues to be a viable business. The trend in processor ownership consolidation and centralization of operations continues. Some landings are hauled out-of-state, precluding the need for local labor and support businesses. These are efficiency moves by industry, but can hurt small fishing communities.

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1. The PFMC decided at its September 2017 meeting to embark on a Climate and Communities Initiative pursuant to its Fishery Ecosystem Plan. The Nature Conservancy (TNC) assisted the PFMC by providing planning documents and partially funding workshops. TNC counseled over the next 20 years climate change will create numerous biophysical changes that will impact fishing communities. The period will also be a time of significant socio-economic and political change, partly driven by climate issues, but also driven by other factors. The Council intends to use the Ecosystem Workgroup recommendations on potential activities that may be incorporated into the ongoing work of the Council under its Fishery Management Plans or other Council-relevant activities.
2. While economic theory shows strong justification for diversification strategies, planning and implementation requires practical tools to aid in discovering the best diversification choices (Burgess 2015, Holland et al. August 2017, and Anderson et al. 2017).

Goals for the industry would be to extract more value from the fishery resources that are available. Raising resource value has obstacles. There will be continuing price pressures on seafood products from substitute aquaculture products. Consumer concerns about quality (freshness, inclusions of toxics, etc.) will affect seafood product demands. Considerations about health and wholesomeness of natural coldwater fish could be a marketing advantage to Oregon's industry. Modernization of vessels for better handling capabilities and initial onboard processing, and modernization of processing plants will improve seafood products. Community based programs to own and lease access rights to fisheries and programs to direct market local catch to consumers are examples of cooperative and collaborative initiatives to promote the industry. Assistance through industry trade associations, Oregon Department of Agriculture commodity commissions, Oregon State University Sea Grant and Extension Service, and other entities for developing marketing strategies that will gain market power for Oregon seafood products should help the industry raise value at all levels of seafood production.

Table II.1
Harvest Volume and Value by Fishery for Five-Year Average and 2020 to 2023

| Fishery | 2016-2023 Value | 2016-2020 Five Year Average Volume | 2016-2020 Five Year Average Value | 2016-2020 Five Year Average Price | 2020 Volume | 2020 Value | 2020 Price | 2021 Volume | 2021 Value | 2021 Price | 2022 Volume | 2022 Value | 2022 Price | 2023 Volume | 2023 Value | 2023 Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Salmon |  | 1,315 | 6,244 | 4.75 | 1,552 | 5,320 | 3.43 | 1,790 | 6,526 | 3.65 | 2,158 | 7,664 | 3.55 | 1,751 | 5,245 | 3.00 |
| Troll Chinook |  | 360 | 2,705 | 7.52 | 208 | 1,589 | 7.63 | 252 | 2,196 | 8.73 | 411 | 3,149 | 7.66 | 40 | 320 | 7.93 |
| Troll coho |  | 3 | 7 | 2.13 | 1 | 3 | 2.99 | 15 | 53 | 3.58 | 21 | 57 | 2.65 | 32 | 94 | 2.98 |
| Net Chinook |  | 719 | 3,079 | 4.28 | 924 | 3,007 | 3.25 | 726 | 2,816 | 3.88 | 1,067 | 3,340 | 3.13 | 1,191 | 4,144 | 3.48 |
| Net coho |  | 201 | 392 | 1.95 | 359 | 615 | 1.71 | 786 | 1,435 | 1.83 | 568 | 981 | 1.73 | 443 | 611 | 1.38 |
| Other species/gear |  | 32 | 62 | 1.91 | 60 | 106 | 1.77 | 13 | 25 | 2.00 | 90 | 138 | 1.53 | 45 | 75 | 1.67 |
| Dungeness crab |  | 19,323 | 70,841 | 3.67 | 20,030 | 76,086 | 3.80 | 12,177 | 60,563 | 4.97 | 17,228 | 91,826 | 5.33 | 31,704 | 85,464 | 2.70 |
| Pink shrimp |  | 32,889 | 23,190 | 0.71 | 43,133 | 23,594 | 0.55 | 46,670 | 23,360 | 0.50 | 41,218 | 18,789 | 0.46 | 44,148 | 18,723 | 0.42 |
| Albacore tuna |  | 5,759 | 11,067 | 1.92 | 4,419 | 7,370 | 1.67 | 3,220 | 6,608 | 2.05 | 6,269 | 14,343 | 2.29 | 2,451 | 3,525 | 1.44 |
| Groundfish (other than sablefish and whiting) |  | 39,597 | 19,334 | 0.49 | 36,912 | 14,364 | 0.39 | 40,124 | 15,961 | 0.40 | 43,378 | 19,397 | 0.45 | 40,191 | 18,315 | 0.46 |
| Trawl gear LE |  | 38,849 | 17,467 | 0.45 | 36,223 | 12,617 | 0.35 | 39,426 | 14,179 | 0.36 | 42,487 | 17,013 | 0.40 | 39,331 | 16,139 | 0.41 |
| Fixed gear LE |  | 144 | 209 | 1.45 | 130 | 204 | 1.57 | 129 | 193 | 1.50 | 159 | 255 | 1.60 | 185 | 233 | 1.26 |
| Fixed gear OA |  | 586 | 1,640 | 2.80 | 552 | 1,533 | 2.78 | 564 | 1,578 | 2.80 | 721 | 2,104 | 2.92 | 673 | 1,940 | 2.88 |
| Sablefish |  | 5,354 | 12,383 | 2.31 | 4,159 | 4,922 | 1.18 | 5,236 | 6,579 | 1.26 | 6,666 | 10,846 | 1.63 | 6,584 | 7,956 | 1.21 |
| Trawl gear LE |  | 2,334 | 3,535 | 1.51 | 1,611 | 974 | 0.60 | 2,590 | 1,789 | 0.69 | 3,171 | 2,623 | 0.83 | 2,658 | 2,087 | 0.79 |
| Fixed gear LE |  | 2,768 | 8,123 | 2.93 | 2,419 | 3,745 | 1.55 | 2,460 | 4,468 | 1.82 | 3,024 | 7,142 | 2.36 | 3,624 | 5,367 | 1.48 |
| Fixed gear OA |  | 251 | 722 | 2.88 | 129 | 203 | 1.57 | 187 | 321 | 1.72 | 469 | 1,081 | 2.30 | 302 | 502 | 1.66 |
| Pacific whiting |  | 188,381 | 16,896 | 0.090 | 219,617 | 15,901 | 0.072 | 184,089 | 17,479 | 0.095 | 170,337 | 18,913 | 0.111 | 164,005 | 14,924 | 0.091 |
| Pacific sardine |  | 12 | 2 | 0.132 | 1 | 0 | 0.000 | 26 | 2 | 0.061 | 16 | 0 | 0.001 | 3 | 0 | 0.115 |
| Pacific halibut |  | 251 | 1,403 | 5.59 | 255 | 1,239 | 4.86 | 255 | 1,579 | 6.20 | 254 | 1,579 | 6.22 | 309 | 1,608 | 5.21 |
| Other |  | 11,389 | 6,392 | 0.56 | 14,666 | 9,729 | 0.66 | 12,079 | 7,299 | 0.60 | 11,282 | 7,566 | 0.67 | 4,733 | 2,519 | 0.53 |
| Market squid |  | 5,074 | 2,780 | 0.55 | 10,297 | 6,269 | 0.61 | 7,838 | 4,545 | 0.58 | 5,521 | 3,377 | 0.61 | 0 | 0 | 0.00 |
| Hagfish |  | 1,479 | 1,555 | 1.05 | 1,209 | 1,242 | 1.03 | 786 | 791 | 1.01 | 701 | 851 | 1.21 | 426 | 523 | 1.23 |
| Red sea urchin |  | 257 | 526 | 2.05 | 238 | 714 | 3.01 | 248 | 725 | 2.92 | 252 | 704 | 2.79 | 252 | 652 | 2.59 |
| Pacific (chub) mackerel |  | 140 | 4 | 0.026 | 223 | 2 | 0.011 | 134 | 1 | 0.006 | 807 | 67 | 0.083 | 356 | 10 | 0.027 |
| Total |  | 304,270 | 167,752 | 0.55 | 344,744 | 158,525 | 0.46 | 305,666 | 145,955 | 0.48 | 298,806 | 190,923 | 0.64 | 295,877 | 158,278 | 0.53 |

Notes:
1. Volume and value are in thousands. The harvest value and prices are in 2021 dollars, except 2022 and 2023 are nominal.
2. Prices are annual and sometimes are averaged across harvests made using different gear types. Prices are expressed in round weight equivalents. Average prices for salmon are across seasons and sizes.
3. Acronyms: LE - limited entry, OA - open access.
4. D. crab is shown seasonally by December to November for each year, for example 2021 D. crab includes December 2020 to November 2021.
5. Starting in 2011 a small amount of sablefish in the LE trawl individual transferable quota (ITQ) program is harvested with fixed gear.
6. "Other" includes (thousands of pounds, thousands of dollars) basket cockle (295, $492), razor clams (69, $235), gaper clams (209, $215), walleye pollock (1,001, $26), jack mackerel (1,367, $19), and other species in 2023.

Source: PacFIN fish ticket data, March 2017, June 2018, July 2019, March 2023, and February 2024 extractions.

Table II.2
Commercial Fishing Characteristics by Port Groups in 2020 and 2021

| | Port Group | | | | | | |
|---|---|---|---|---|---|---|---|
| | Astoria | Tillamook | Newport | Coos Bay | Port Orford | Brookings | Total |
| 2020 | | | | | | | |
| Volume | 190,520 | 2,239 | 118,870 | 20,037 | 1,417 | 11,521 | 344,604 |
| Value | 49,025 | 6,609 | 62,794 | 25,499 | 4,298 | 10,280 | 158,505 |
| Share | 31% | 4% | 40% | 16% | 3% | 6% | 100% |
| Vessel counts | | | | | | | |
| Unique landing | 311 | 115 | 305 | 219 | 64 | 116 | 900 |
| Homeport | 254 | 92 | 249 | 157 | 54 | 94 | 900 |
| Ratio homeport to unique | 82% | 80% | 82% | 72% | 84% | 81% | 100% |
| Active landing | 285 | 102 | 291 | 199 | 62 | 105 | 840 |
| Active homeport | 228 | 82 | 242 | 147 | 53 | 87 | 839 |
| Deliveries | 8,733 | 2,927 | 4,824 | 2,209 | 2,457 | 1,902 | 23,052 |
| 2021 | | | | | | | |
| Volume | 165,868 | 2,983 | 114,577 | 22,289 | 1,333 | 10,740 | 317,790 |
| Value | 57,489 | 11,428 | 74,609 | 43,161 | 5,091 | 13,622 | 205,400 |
| Share | 28% | 6% | 36% | 21% | 2% | 7% | 100% |
| Vessel counts | | | | | | | |
| Unique landing | 300 | 129 | 301 | 212 | 71 | 93 | 885 |
| Homeport | 260 | 97 | 239 | 159 | 56 | 74 | 885 |
| Ratio homeport to unique | 87% | 75% | 79% | 75% | 79% | 80% | 100% |
| Active landing | 284 | 113 | 288 | 199 | 68 | 87 | 838 |
| Active homeport | 246 | 85 | 232 | 150 | 54 | 70 | 837 |
| Deliveries | 7,422 | 2,977 | 4,916 | 2,835 | 2,498 | 1,548 | 22,196 |

Notes:
1. Volume and ex-vessel value are in thousands. Values are in 2021 dollars.
2. See the glossary for which individual ports are included in the different port groups.
3. Onshore landings includes the Oregon side landings in the Columbia River non-Indian and tribal salmon fishery. All Columbia River landings are included in the Astoria port group.
4. Amounts are for landings during calendar year, including Dungeness crab.
5. Vessel counts exclude landings with vessel identification of "MISSING", "UNKNOWN", or blank. An active vessel is any identifiable vessel that landed over $500 in Oregon in a year.
6. A vessel's homeport is the port group where a plurality of Oregon harvest value is delivered.
7. Homeport vessel counts can be distorted by out-of-state vessels making landings at Oregon ports and Oregon based vessels making landings at out-of-state ports. An example of the former are vessels from Puget Sound, southern California, and Alaska participating in the Oregon market squid fishery. An example of the latter are vessels that deliver their whiting catch to processors in Westport, Washington.

Source: PacFIN fish ticket data, June 2023 extraction.

Table II.3
Vessel Counts and Deliveries by Fishery in 2017 to 2021

| | 2017 | | | 2018 | | | 2019 | | | 2020 | | | 2021 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Vessel Counts | | Deliveries | Vessel Counts | | Deliveries | Vessel Counts | | Deliveries | Vessel Counts | | Deliveries | Vessel Counts | | Deliveries |
| Fishery | Total | >$500 | Total | Total | >$500 | Total | Total | >$500 | Total | Total | >$500 | Total | Total | >$500 | Total |
| Salmon | 319 | 267 | 5,869 | 383 | 309 | 6,393 | 388 | 296 | 5,309 | 343 | 242 | 5,479 | 361 | 280 | 5,708 |
| Ocean troll | 171 | 151 | 1,094 | 230 | 194 | 1,496 | 218 | 189 | 1,400 | 175 | 135 | 1,145 | 187 | 155 | 1,162 |
| CR net Chinook | 123 | 110 | 4,184 | 129 | 110 | 4,273 | 126 | 100 | 3,036 | 142 | 92 | 3,472 | 128 | 107 | 3,523 |
| CR net coho | 110 | 76 | 1,549 | 104 | 54 | 1,229 | 124 | 68 | 1,301 | 103 | 81 | 1,841 | 134 | 107 | 2,391 |
| Dungeness crab | 362 | 345 | 6,535 | 357 | 335 | 6,129 | 356 | 336 | 5,829 | 384 | 331 | 6,079 | 383 | 350 | 5,211 |
| Pink shrimp | 63 | 62 | 754 | 70 | 70 | 994 | 78 | 78 | 970 | 76 | 74 | 1,101 | 73 | 72 | 989 |
| Albacore tuna | 301 | 288 | 1,098 | 276 | 266 | 983 | 329 | 314 | 1,303 | 209 | 205 | 665 | 191 | 179 | 555 |
| Groundfish (other than sablefish and whiting) | 312 | 227 | 6,010 | 340 | 228 | 5,736 | 334 | 236 | 5,901 | 328 | 225 | 5,095 | 289 | 204 | 4,669 |
| Trawl gear LE | 56 | 55 | 1,687 | 59 | 58 | 1,572 | 61 | 61 | 1,640 | 53 | 53 | 1,486 | 51 | 51 | 1,288 |
| Fixed gear LE | 40 | 34 | 496 | 43 | 29 | 463 | 35 | 32 | 419 | 42 | 31 | 364 | 32 | 26 | 301 |
| Fixed gear OA | 198 | 137 | 3,702 | 212 | 138 | 3,565 | 201 | 141 | 3,667 | 187 | 141 | 3,044 | 170 | 124 | 2,892 |
| Sablefish | 169 | 156 | 1,732 | 162 | 148 | 1,566 | 154 | 140 | 1,579 | 134 | 109 | 1,315 | 125 | 108 | 1,206 |
| Trawl gear LE | 55 | 45 | 910 | 58 | 47 | 874 | 59 | 50 | 958 | 52 | 33 | 876 | 48 | 37 | 787 |
| Fixed gear LE | 40 | 40 | 415 | 42 | 42 | 382 | 37 | 37 | 361 | 40 | 39 | 275 | 32 | 32 | 261 |
| Fixed gear OA | 76 | 73 | 407 | 66 | 63 | 309 | 59 | 55 | 259 | 42 | 37 | 163 | 45 | 39 | 158 |
| Pacific whiting | 57 | 22 | 1,308 | 61 | 21 | 1,188 | 63 | 22 | 1,349 | 50 | 22 | 1,282 | 49 | 20 | 1,008 |
| Pacific sardine | 12 | 0 | 62 | 17 | 0 | 103 | 29 | 0 | 134 | 18 | 0 | 44 | 31 | 0 | 177 |
| Pacific halibut | 121 | 68 | 275 | 101 | 59 | 237 | 156 | 98 | 411 | 117 | 63 | 353 | 123 | 73 | 277 |
| Market squid | 3 | 0 | 3 | 13 | 10 | 115 | 32 | 26 | 205 | 49 | 39 | 244 | 41 | 31 | 270 |
| Other | 171 | 65 | 4,696 | 191 | 60 | 5,790 | 239 | 97 | 5,683 | 216 | 73 | 6,637 | 238 | 90 | 5,046 |
| All fisheries | 894 | 859 | 23,060 | 949 | 884 | 24,528 | 962 | 905 | 23,147 | 900 | 840 | 23,052 | 885 | 838 | 22,196 |

Notes: 1. "Vessel counts" include those that landed at Oregon ports and had a valid vessel identification number. Vessels or non-vessels (such as from a dock) with identification of "NONE", "ZZ...", "MISSING", "UNKNOWN", or blank are excluded. "Delivery counts" include those with no valid vessel identification number. These are typically vessels delivering in tribal fisheries.

2. The columns titled ">$500" show the number of vessels that landed over $500 of ex-vessel revenue from the shown fishery in Oregon. The revenue is an arbitrary threshold to filter for vessels that are actively participating in the shown fishery. The fisheries are counted separately, so the filter is applied to each. For the "all fisheries" row, the $500 threshold may be landed at any combination of fisheries.

3. Vessel counts and deliveries across fisheries will not sum to the "all fisheries" row because vessels can participate in more than one fishery, deliveries can include more than one fishery, and/or there are other important fisheries not itemized.

4. Dungeness crab is shown seasonally by December to November for each year, for example 2021 Dungeness crab includes December 2020 to November 2021.

5. "Other" includes (parentheses list 2021 vessels, active vessels, and deliveries): ghost shrimp (0, 0, 1,138), basket cockle (9, 7, 726), jack mackerel (32, 11, 688), razor clam (0, 0, 676), white sturgeon (104, 54, 592), unsp. squid (31, 0, 543), butter clam (11, 9, 388), shad (33, c, 382), red sea urchin (c, c, 230), Pacific (chub) mackerel (24, c, 144), hagfish (8, 6, 93), and others. Counts with a "c" are not shown to avoid revealing confidential informatic

6. Ocean troll is Chinook with tiny amounts of coho from harvest areas north of Cape Falcon.

Source: PacFIN fish ticket data, March 2017, June 2018, July 2019, and June 2023 extractions.

Table II.4
Representation of the Commercial and Recreational Fishing Industry by Port Groups in Statewide and Coastwide Economies in 2021

| | Statewide | | Coastwide | | Astoria | | Tillamook | | Newport | | Coos Bay | | Brookings | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Amount | Share | Amount | Share | Amount | Share | Amount | Share | Amount | Share | Amount | Share | Amount | Share |
| All income | 261,546.5 | 0.3% | 11,167.4 | 5.2% | 2,184.6 | 8.6% | 1,433.0 | 3.5% | 2,669.4 | 7.9% | 3,624.3 | 2.8% | 1,256.2 | 2.2% |
| Earned income | 151,309.0 | 0.5% | 5,066.8 | 11.5% | 1,138.7 | 16.6% | 655.1 | 7.8% | 1,218.5 | 17.4% | 1,600.4 | 6.4% | 454.0 | 6.0% |
| Fishing income | 792.3 | | 581.3 | | 188.8 | | 50.8 | | 212.2 | | 102.4 | | 27.1 | |
| Commercial | 642.4 | 0.4% | 475.4 | 9.4% | 170.3 | 15.0% | 21.4 | 3.3% | 181.8 | 14.9% | 80.9 | 5.1% | 21.1 | 4.6% |
| Onshore | 464.9 | | 382.4 | | 144.2 | | 18.2 | | 123.0 | | 76.6 | | 20.4 | |
| Distant water | 177.4 | | 93.1 | | 26.1 | | 3.2 | | 58.8 | | 4.3 | | 0.6 | |
| Jobs | 9,196 | | 8,582 | | 2,982 | | 404 | | 3,347 | | 1,401 | | 449 | |
| Recreational | 149.9 | 0.1% | 105.8 | 2.1% | 18.5 | 1.6% | 29.4 | 4.5% | 30.4 | 2.5% | 21.5 | 1.3% | 6.0 | 1.3% |
| Ocean recreational fishing | 24.7 | | 16.9 | | 1.0 | | 2.2 | | 9.2 | | 2.8 | | 1.7 | |
| Inriver non-resident fish fishing | 125.2 | | 88.9 | | 17.5 | | 27.2 | | 21.2 | | 18.7 | | 4.3 | |
| Jobs | 2,147 | | 1,939 | | 323 | | 555 | | 560 | | 372 | | 129 | |

Notes: 1. Income is in millions. Earned income is the sum of wages and salaries, and proprietors' income. All income includes earnings, transfer payments (such as Social Security payments, etc.), and investment income (such as private pensions, etc.).

2. Earned income and all income estimates are adjusted for place of residence. Fishing income is for place of work. Fishing income comparison may overstate the calculated share since some of the income may accrue to places outside of the comparison location. Earned and all income is from households within Clatsop County for Astoria port group; Tillamook County for Tillamook port group; Lincoln County for Newport port group; Coos County for Coos Bay port group; and Curry County for Brookings port group. Fishing income is from commercial deliveries to and recreational trips at: Clatsop County for Astoria port group; Tillamook County for Tillamook port group; Lane (recreational only) and Lincoln County for Newport port group; Lane (commercial only), Douglas, and Coos County for Coos Bay port group; and Curry County for Brookings port group. Coastwide jobs are based on the average of the earnings per job for each of the five port groups.

3. Onshore fishing income is based on landings during calendar year. Sometimes annual reporting for the ocean Dungeness crab fishery is for season totals. The ocean season is December 1 through August 14 and the bay season is after Labor Day exclusive of weekends, holidays, or if the adjacent ocean is closed.

4. The recreational inriver category includes ocean and bay crabbing and clamming.

Source: Income and earnings data is from U.S. Department of Commerce, Bureau of Economic Analysis.

Table II.5
Commercial Fishing Industry Trends in Statewide Economy in 2016 to 2021

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2016-2020 Average | 2021 |
|---|---|---|---|---|---|---|---|
| Oregon | | | | | | | |
| Ex-vessel value | 167.1 | 159.2 | 185.3 | 169.8 | 158.5 | 168.0 | 205.4 |
| Landed pounds | 226.9 | 302.4 | 313.2 | 334.4 | 344.6 | 304.3 | 317.8 |
| Onshore economic contributions | 318.2 | 308.6 | 366.7 | 341.9 | 368.4 | 340.8 | 464.9 |
| Distant water economic contributions | 185.3 | 155.2 | 160.5 | 149.7 | 133.6 | 156.9 | 177.4 |
| Total economic contributions | 503.5 | 463.8 | 527.3 | 491.6 | 502.0 | 497.6 | 642.4 |
| Jobs (not millions) | 8,118 | 7,383 | 8,253 | 7,492 | 7,245 | 7,698 | 9,196 |

Notes: 1. Amounts are in millions, except for jobs. Values are in 2021 dollars.
2. Economic contributions are expressed as income.
3. Conditional methods notes from Table II.4 apply.

Sources: 1. Landing data is from PacFIN annual vessel summary data, March 2017, June 2018, July 2019, and March 2023 extractions.
2. Average earnings per job data is from BEA through 2021.

Table II.6
Commercial and Recreational Fishing and Nearshore Fisheries
Coastwide and Statewide Economic Contributions in 2021

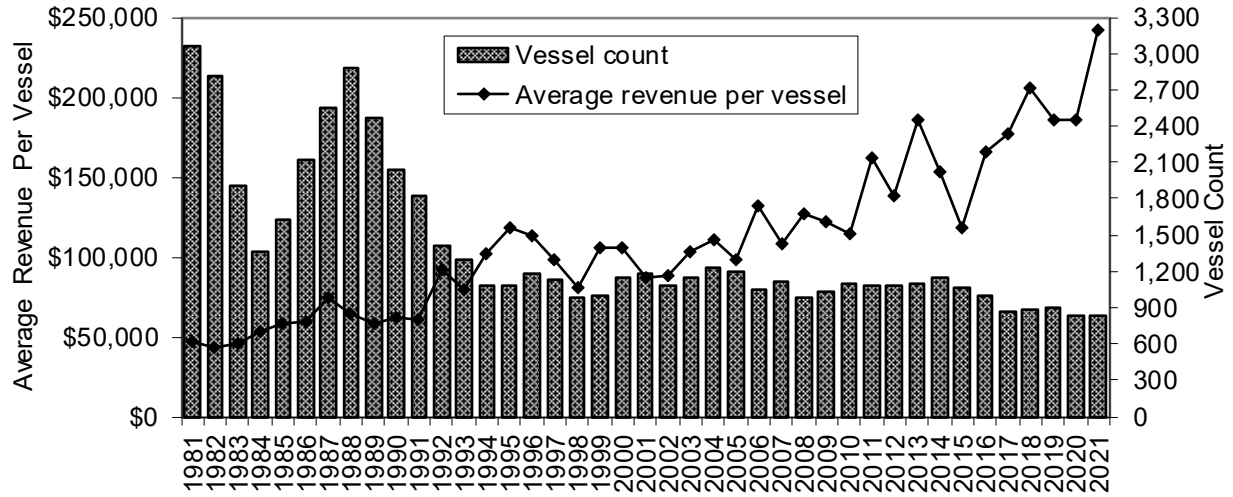
| | Onshore | | | | Distant Water | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Ex-vessel | Income | Jobs | Output | Income | Jobs | Output | Income | Jobs | Output |
| Commercial | | | | | | | | | | |
| Coastwide | | 382.4 | 6,894 | 745.4 | 93.1 | 1,688 | 182.0 | 475.4 | 8,582 | 927.4 |
| Statewide | 205.4 | 464.9 | 6,656 | 898.8 | 177.4 | 2,540 | 343.0 | 642.4 | 9,196 | 1,241.7 |

| | Ocean | | | | Coastal Inriver | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Spending | Income | Jobs | Output | Spending | Income | Jobs | Output | Spending | Income | Jobs | Output |
| Recreational finfish | | | | | | | | | | | | |
| Coastwide | | 16.9 | 314 | 46.0 | | 76.4 | 1,402 | 203.7 | | 93.3 | 1,715 | 249.7 |
| Statewide | 50.9 | 24.7 | 354 | 59.4 | 224.2 | 108.9 | 1,559 | 261.7 | 275.0 | 133.6 | 1,912 | 321.1 |
| Recreational ocean and bay crabbing and clamming | | | | | | | | | | | | |
| Coastwide | | | | | | | | | | 12.5 | 224 | 33.4 |
| Statewide | | | | | | | | | 21.6 | 16.4 | 235 | 39.4 |
| Total recreational | | | | | | | | | | | | |
| Coastwide | | | | | | | | | | 105.8 | 1,939 | 283.1 |
| Statewide | | | | | | | | | 296.7 | 149.9 | 2,147 | 360.5 |
| Total commercial and recreational | | | | | | | | | | | | |
| Coastwide | | | | | | | | | | 581.3 | 10,521 | 1,210.5 |
| Statewide | | | | | | | | | | 792.3 | 11,343 | 1,602.2 |

| | Ex-vessel/ Spending | Total | | |
|---|---|---|---|---|
| | | Income | Jobs | Output |
| Nearshore fisheries (coastwide economic level) | | | | |
| Commercial | | 115.7 | 2,089 | 225.7 |
| Recreational finfish | | 91.4 | 1,681 | 244.7 |
| Recreational ocean and bay crabbing and clamming | | 12.5 | 224 | 33.4 |
| Commercial and recreational | | 219.7 | 3,994 | 503.9 |
| Nearshore fisheries (statewide economic level) | | | | |
| Commercial | 128.5 | 139.8 | 2,001 | 270.2 |
| Recreational finfish | 270.4 | 131.3 | 1,880 | 315.7 |
| Recreational ocean and bay crabbing and clamming | 21.6 | 16.4 | 235 | 39.4 |
| Commercial and recreational | | 287.5 | 4,115 | 625.3 |

Notes:
1. Ex-vessel value, trip spending, income, and output are in millions of 2021 dollars.
2. Trip spending is regardless of where (trip origin, enroute, or destination) purchases occurred nor is spending differentiated for residents and non-residents.
3. The output calculation for distant water fisheries assumes the same spending patterns as onshore fisheries.
4. While income and output absolute values may increase at the statewide economy level due to reduced trade leakage, the calculation for the number of equivalent jobs may decrease. This is because average earnings per job are much higher in the statewide economy level.
5. Coastwide is the sum of the port groups at the coastwide economic level.
6. Commercial fishing excludes aquaculture production.
7. Recreational coastal inriver includes lower Columbia River.
8. Nearshore fisheries are a subset of overall commercial and recreational coastwide and statewide. Nearshore commercial fisheries exclude lower Columbia River salmon.

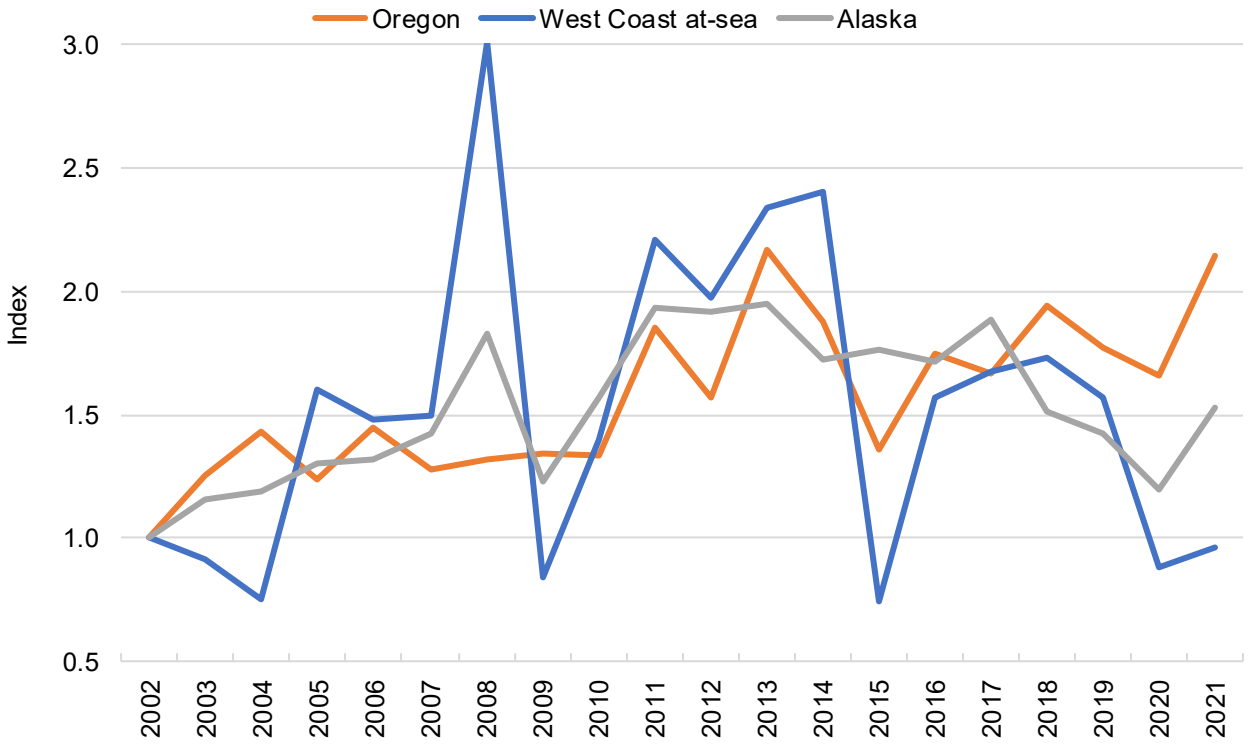
Figure II.1
Vessel Counts and Annual Average Revenue Per Vessel in 1981 to 2021




Notes: 1. Revenues adjusted to 2021 dollars using the GDP implicit price deflator developed by the U.S. Bureau of Economic Analysis.
2. Excludes vessels with identifier codes "NONE", "ZZ...", "MISSING", "UNKNOWN", or blank, which are generally attributable to deliveries made in tribal fisheries.
3. Includes only vessels with at least $500 of ex-vessel revenue at Oregon ports in a year.
4. Average revenue per vessel is for onshore landings; distant water fisheries revenue is not included.

Source: ODFW fish ticket data, March 2008, April 2009, March 2010, July 2011, April 2013, March 2014, April 2015, November 2016, March 2017, June 2018, July 2019, and June 2023 extractions.

Figure II.2
Oregon, West Coast At-Sea, and Alaska Onshore and Offshore Ex-vessel Value Trends in 2002 to 2021

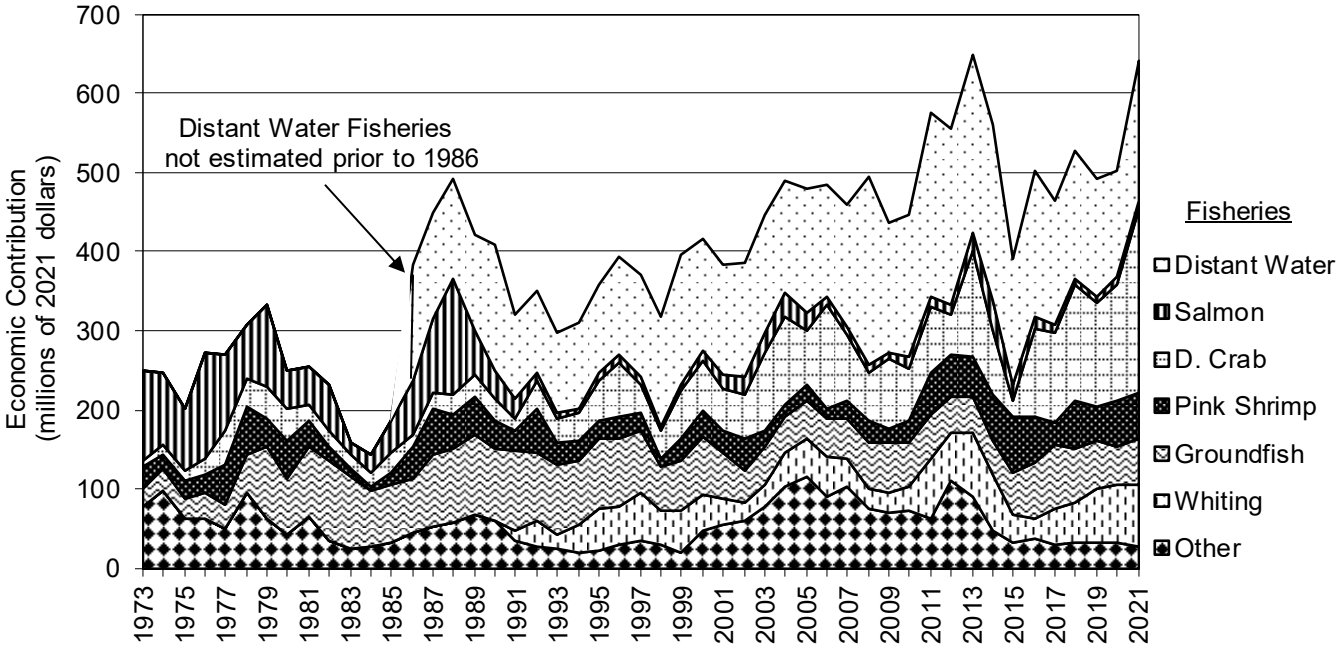



Notes: 1. Ex-vessel value is $205.4 million for Oregon, $5.8 million for West Coast at-sea, and $1,785.9 million for Alaska onshore and offshore in 2021.
2. West Coast at-sea includes catcher vessels harvests delivered to motherships and excludes catcher-processor harvests. In 2016, Oregon homeport vessels were 47% of the vessels delivering Pacific whiting to at-sea motherships. (Of the 17 catcher vessels delivering in 2016 and based on U.S. West Coast onshore landings, eight homeport in Oregon and nine homeport in Washington or homeport could not be determined because they did not have U.S. West Coast onshore landings.)
3. West Coast at-sea ex-vessel value estimated using West Coast onshore prices less 15%.

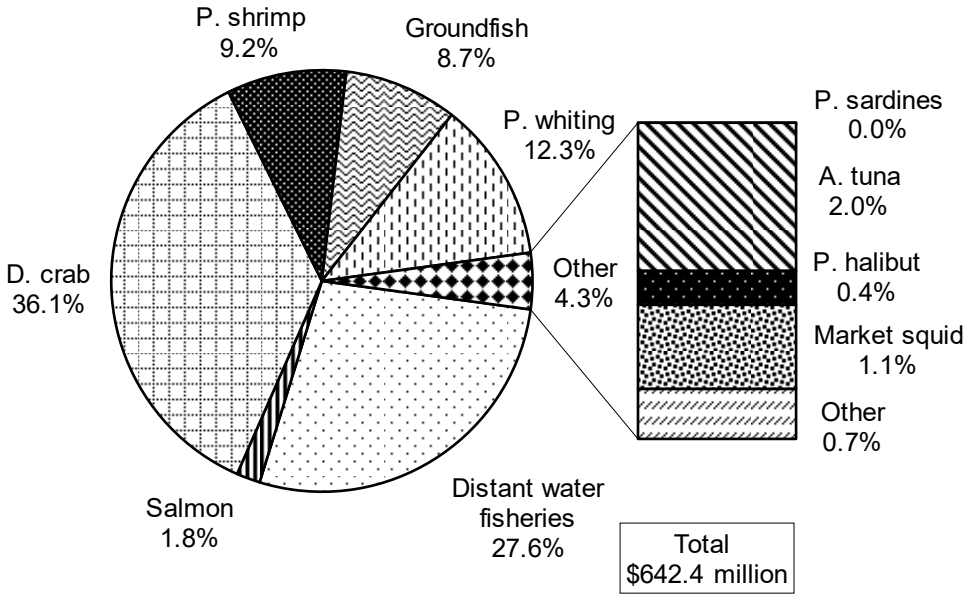
Sources: West Coast from PacFIN annual vessel summary, March 2008, April 2009, March 2010, July 2011, April 2013, March 2014, April 2015, November 2016, March 2017, June 2018, July 2019, and March 2023 extractions; and PSMFC APEX (2023) reports "ALL001" downloaded March 21, 2023 and "IFQ001" downloaded March 21, 2023. Alaska from Alaska CFEC (2023).

Figure II.3

Economic Contributions From Onshore Landings in 1973 to 2021
and Distant Water Fisheries in 1986 to 2021




Economic Contributions by Major Fishery in 2021




Notes: 1. Economic contributions are expressed as statewide income in millions of 2021 dollars.

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## III. Marine Recreational Fisheries

Commercial wild capture harvesting activities share natural resources with a large ocean and inriver recreational fisheries sector. Complex management by federal and state agencies ensure reasonable access by both sectors yet conserve the resource to achieve sustainability. This chapter discusses the economic activity of Oregon marine recreational fisheries.

Marine recreational fisheries study area and included fisheries are selective. Selection is driven by data availability and the need to assess trends within this study. The following discussions provide sufficient detail so that the reader can sort out what fisheries are and are not included in the accounting.

*Razor clam digging on Clatsop County beaches. Photo credit ODFW.*

### A. Methods

The study area is westward of the Coast Range Crest.[1] The included fisheries are all saltwater fishing in the Pacific Ocean and inriver estuaries, and freshwater fishing for some anadromous fish species. Fisheries are excluded when an angling trip's purpose is for freshwater resident species and other than the identified salmon, steelhead, and sturgeon anadromous species.[2,3] Trips for shellfish harvesting (such as for crab, clams, and mussels) are treated in a separate economic analysis.[4] The presented economic information

1. The study area can be approximated by five whole coastal counties (Clatsop, Tillamook, Lincoln, Coos, and Curry) plus the western portions of Lane and Douglas counties. Fishing trips in the Columbia River up to Puget Island (referred to as management area Section 10) that originate on the Oregon side are included.
2. Salmon and steelhead species are categorized in this study depending on their adult freshwater return timing. This is done for convenience with the acknowledgement that the species have finer biological groupings more aligned with life histories that have adapted them to localized conditions of climate and habitat. Salmon in this study have two categories: spring/summer and fall. Steelhead are lumped into one category despite life histories that show distinction in winter and summer runs. Steelhead were included with trouts in the Salmo genus until the 1990's, when they were reclassified in the Oncorhynchus genus with salmon. Oncorhynchus means "hooked snout," a physical characteristic of adult salmon when they are ready to spawn.
3. There are other anadromous fish species that are sought by anglers, such as striped bass and cutthroat trout. Trips for these species are only included in the other marine species (non-salmon) fisheries category if they occur in the lower estuaries. For example, fishing trips for the popular "half-pounders" on the Rogue River east of the Highway 101 bridge would not be included.
4. Recreational shellfish (principally Dungeness crab, but also other crabs, clams, mussels, etc.) harvesting is a popular fishing activity on the Oregon Coast. Ainsworth et al. (July 2012) provided catch and effort estimates for a five year time period ending in 2011. The greatest statewide harvest occurred in 2011 when over one million pounds of Dungeness crab were harvested by recreational crabbers. The greatest number of crabbing trips during the study period were in 2009, when an estimated 130,000 trips occurred. The study did not sort out when crabbing trips are combined with finfish angling. The crabbing trip estimates were conservative because only five of nine major bays were sampled, only boat-based crabbing effort was counted, and the time period when sampling occurred was restricted to summer and fall months. Ainsworth et al. (December 2014) described clamming fisheries. The largest clam fisheries are for razor clams and for a group of clams

includes findings from other researchers, as well as economic modeling results developed for this project.

The recreational finfish fisheries in the study area have two major segments: when salmon is the targeted species; and, when all other non-salmon species are the primary purpose for making the fishing trip.[1] These two recreational fishery segments are further defined by where fishing occurs (ocean or inriver), mode (boat or bank), and whether guide services were used. Trip expenses and consequently the local economic contributions generated are quite different for these sub-segments. Ocean boat salmon fishing has much higher spending per trip, but there are more trips for the inriver location. The primary ocean non-salmon fishery is often times referred to as the bottomfish fishery. Species targeted in this fishery are mostly bottom dwelling rockfish. A mid-water groundfish fishery using longleader gear has developed in recent years. The activity is not itemized and included in the bottomfish fishery category. There are also many charter and private boat trips for halibut and albacore tuna. Each of these non-salmon targeted species is itemized in the trip accounting for this study.

A trip made for recreation purposes may be for multiple reasons, such as fishing and visiting a museum. It could be the spending and consequently the economic contribution estimates in this study overlap with other studies of non-fishing recreational activities. Trip spending in this study for finfish is based on ratios between economic contribution and spending in a two step process. First, economic contribution is calculated using per trip IO-PAC coefficients. Second, ratios from NOAA Fisheries sponsored marine angler economic contribution studies are used to calculate spending. Recreational shellfish spending had the advantage of a recent participant economic survey. Again, ratios from the NOAA Fisheries sponsored studies were used to determine shellfish economic contributions. Trip spending is regardless of where (trip origin, enroute, or destination) purchases occurred. Readers are referred to the NOAA Fisheries sponsored studies for more information about the dissection of where spending occurs and differences between resident and non-resident spending. Citations for the studies accompany the economic contribution results descriptions below.

No differentiation is made between anglers that are resident and nonresidents. This is important to point out because non-resident spending in regional economies generates new income through their trip expenditures. Local resident fishing trip spending may or may not have been spent anyway in the regional economy, so the economic contribution estimates cannot be considered calculations of basic industry economic contribution.

The economic contribution estimates do include the multiplier effect from respending in the local economy. The calculations start with estimates of angler spending for a fishing trip's variable cost. This means the economic contributions do not include effects from capital purchase items

collectively known as bay clams found, as the name implies, within the state's many bays and estuaries. Bay clams (including cockles, butter clams, gaper clams, and native littleneck clams) are targeted for recreational and commercial harvest in Oregon.

1. There is cross over between these two fisheries' segments. When non-salmon species are caught when salmon is the primary target species, the trip is counted as a salmon trip.

like boats. There are other studies that do include fishing capital costs which might be of interest to readers of this report: Gentner and Steinback (2008) and USFWS (2023).[1]

Oregon Coast recreational fishing trips have had increasing and decreasing trends over the last 20 years especially when salmon is the targeted species (Table III.1 and Figure III.1). There is not always a direct one-to-one relationship between abundance and response of angler's trip making. It would be expected that trips would decline (increase) with decreasing (increasing) abundance, but the rate of change would not be the same, i.e. the relationship is inelastic (Andrews and Wilen 1988; Allen et al. 2013; Larson and Lew 2013). The reason has to do with the intricacies of angler motivations, such as perceived success rate, fishing trip costs, and other factors that influence angler behavior. Schramm and Gerard (2004) discuss these factors on a nationwide basis. Some anglers choose to make a fishing trip just to have an outdoor experience and others are more motivated by catch aspects (numbers and size of fish). If recreational fishers elect not to fish, they may instead spend the same trip expenditures in non-fishing activities in the local economy.

There were many data sources and economic modeling considerations used in making the economic contribution estimates.[2] The reader is encouraged to review TRG (2015b) for other discussions about data limitations. Ocean and estuary data compiled in the RecFIN database is discussed in PSMFC (2017).

For descriptions about stock conditions and management approaches used to allocate for recreational fisheries, the reader is directed to salmon, groundfish, halibut, and highly migratory species fishery management plans developed by the PFMC as a start in better understanding fishery conditions. Freshwater anadromous fish returning to the Columbia River have overwhelming libraries of past and ongoing study publications. Current inriver management regimes are described in Columbia River Compact joint state staff reports and action notices. A wealth of information about anadromous fish returning to Oregon Coast streams can be found at the ODFW conservation and recovery plan website.

1. There are modeling issues associated with determining the economic effects from capital purchases in a regional economic study such as the Oregon Coast. One issue is where the spending for capital items has occurred. Was the spending in the angler's resident economy, en route to the fishing location, or at the fishing location? Another is how much of the capital item is actually associated with fishing. A pickup truck used to pull a boat may be used for other transportation purposes too. Estimates of the economic effects from equipment and other capital items vary widely in studies. For example, Gentner and Steinback (2008) found that in 2006 63.6 percent of total economic contributions were from durable goods used for saltwater fishing in Oregon. The U.S. Fish and Wildlife Service (USFWS) National Survey in data year 2022 found total fishing nationwide spending was 68 percent for non-trip related items such as equipment, boats, licenses, and other non-durable items (USFWS 2023).
2. Coast estuary other marine species trips most complete recent year available from RecFIN is for year 2002. The ODFW has undertaken a partial Shore and Estuary Boat Survey (SEBS) program for data from July 2003 through April 2005 and conducted other research in 2016 on best survey methods to acquire effort and catch data. Whiteside et al. (2017) discuses the efficacy of using RecFIN data for estimating effort in the bay marine fishery.

B. Description

There were an estimated 98.7 thousand ocean salmon fishing angler days (includes combination with bottomfishing trips) with $17.2 million trip spending generating $6 million income economic contribution at the coastwide economy level in 2021 (Table III.1, Figure III.2, and Table A.3).[1] Ocean non-salmon (tuna, halibut, and bottomfish) angler days were estimated to be 111.8 thousand with $33.7 million spending generating $11 million income. Ocean trips when bottomfish were the target species generated the most economic contribution in 2021, but in past years when salmon alone or combination salmon and bottomfishing are target species can be the highest generator depending on management allowed fishing opportunities. Total ocean finfish fishing spending of $50.9 million generated $17 million income at the coastwide economy level in 2021 which was equivalent to about 310 jobs. Output is estimated to be $46 million.

The coastal lower river recreational fisheries (non-Columbia River) had an estimated 642 thousand angler days in the 2021 season. The lower Columbia River's estuary and tributaries and mainstem up to and inclusive of management area Section 10 are estimated to have had 115.7 thousand angler days. The lower Columbia River fall salmon fishery includes trips in the mainstem that catch Chinook and coho salmon, and steelhead. This includes the popular August 1 opening Buoy 10 fishery. Spending from all the lower river finfish fisheries was an estimated $224.2 million. The total economic contributions from all the lower river fisheries generated $76 million income at the coastwide economy level in 2021 which is equivalent to about 1,400 jobs. Output is estimated to be $204 million.

*Surf perch fishing. Photo credit Travel Oregon.*

Total trip spending for the analyzed finfish recreational fisheries was $275.0 million, generating $93 million income at the coastwide economy level in 2021 (Table III.2 and Figure III.1). The estimate at the statewide economy level is $134 million income in 2021 (Table II.6). The income translated to equivalent jobs at the statewide economy level is about 1,910. Output is estimated to be $321 million.

Accounting for recreational shellfish fisheries (defined to be ocean and bay crabbing and shore and bay clamming) activity is difficult because there is no serial data collection for all trips. Moreover, the activities will occur in combination with other finfish and shellfish fisheries so double counting is a concern. Ocean crabbing trips are reported in the ODFW Ocean Recreational Boat Survey (ORBS) results. Ocean and bay crabbing and clamming are from other ODFW pressure studies that have single year counts. It is assumed the various years apply

1. Economic contributions are from per trip IO-PAC coefficients. Conversion of economic contributions to spending based on ratios from Lovell et al. (2020).

to 2021.[1] Ocean crabbing trips not in combination with trips where finfish are targeted had 5.6 thousand angler days in 2021. (Ocean crabbing angler days total estimate when not controlling for ocean combination trips is 80.7 thousand.) It was assumed bay crabbing angler days are 70.1 thousand in 2021. Bay clamming angler days are 48.5 thousand and razor clamming at ocean beaches (Clatsop County beaches are 95 percent of the effort) is 92.0 thousand all assumed for 2021. Total crabbing (not combination trips) and clamming angler days are 216.2 thousand and the resulting spending is $21.6 million. The spending generates an estimated $16 million income to the statewide economy in 2021 which is equivalent to about 235 jobs. The estimated output is $39 million. These shellfish fisheries estimate would be in addition to the above mentioned marine recreational finfish economic contributions.

Economic contribution summation from both finfish and shellfish trip spending generated $150 million income to the statewide economy in 2021 which was equivalent to about 2,150 jobs. The estimated output is $361 million (Table II.6).

## C. Discussion

Fishery managers are often presented with regional economic contribution comparisons when trying to determine equitable assignment of fishing opportunities between commercial and recreation user groups while still ensuring fish resource conservation. As mentioned in the economic analysis methods section of this chapter, there are other economic valuation measurements which may be more appropriate for comparisons. For example, Southwick Associates (2006) uses a variety of measurement units to compare commercial and recreational fisheries on a nationwide basis. Gislason (2006) presents an interesting case study for allocating herring, salmon, and halibut between the sectors in western Canada and references several of the same measurements used by Southwick Associates (2006). Pendleton and Rooke (2006) attempted to sort out recreational resource use and non-use value measurements for California recreational fisheries and discussed allocation policy implications. Additional cautions on the use of regional economic impact assessments are in Propst and Gavrilis (1987). Hanna et al. (2006) discusses the application of economics to fishery allocation issues and they caution against misinterpretation and misuse of economic analysis. Plummer et al. (2012) cited many economic studies that discuss economic efficiency and fairness/equity concepts related to making user group allocation decisions. The report is noteworthy in the compilation of many user group allocation practices used by U.S. ocean fishery management councils.

Reducing economic measurements to a per fish value whether using regional economic contribution estimates or other economic valuation can be a misuse of economic analysis. Commercial fisheries economic contributions are a result of the total operations that transcend different fish resources found off the Oregon Coast and even include distant water fisheries in Alaska. Profit from harvest and processing revenue and operation expenditure variables change significantly from year to year. Recreational fisheries are equally complicated. Spending comes from a commitment to make the trip and not from the number of fish caught. Also, angling is

1. Trips are from Link (August 2000), Ainsworth et al. (July 2012), Ainsworth et al. (December 2014), and Ainsworth (May 2016). Economic contributions based on per trip spending are from Dean Runyan Associates (2009). Conversion of spending to economic contribution is based on ratios from Gentner et al. (2001).

one form of outdoor recreation that is tied to the more general tourism industry. The attraction of just the opportunity to fish have been one motivation to make a trip amongst other planned general tourism activities (OPRD 2013). Moreover, vibrant and year around fisheries access is an indicator of healthy natural resources and can be considered an economic development asset. Living in such an environment is attractive to entrepreneurs and employees. The attraction is an important decision variable with more straightforward business location considerations such as market and suppliers logistics, and labor costs.

Fish resource management and policy alternatives have to be weighed for their potential complex outcomes on conservation and society. Well-intended decisions can lead to unexpected effects when outcome evaluations are not provided or are specious. Economic information along with other social and environmental impact interpretations can assist the decision making process in a tractable manner. For example, policy makers might be interested when the sum of two or more user groups' net economic value is optimal when determining fisheries access allocations. If such information is to be included in decision making, a research plan that determines data collection needs and desired analyses should first be designed. Otherwise, incompatible measurements may be promulgated by interest groups to favor allocation or conservation in their direction. The intent herein is to provide sufficiently qualified descriptions in this report such that improper use of presented statistics will not occur.

Table III.1
Marine Recreational Finfish Fisheries Trip Trends in 2010 to 2021

| Target Fishery | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ocean | | | | | | | | | | | | |
| Salmon and combination | 53.3 | 48.8 | 67.3 | 85.5 | 121.5 | 66.0 | 38.9 | 42.3 | 63.8 | 94.2 | 57.0 | 98.7 |
| Halibut | 13.8 | 16.5 | 18.0 | 19.4 | 14.2 | 17.6 | 21.6 | 21.8 | 20.0 | 16.1 | 21.4 | 12.9 |
| Tuna | 11.4 | 10.8 | 16.0 | 9.4 | 12.0 | 11.9 | 9.8 | 5.7 | 5.9 | 15.3 | 3.1 | 5.8 |
| Bottomfish | 71.3 | 69.2 | 70.3 | 85.0 | 75.6 | 100.6 | 91.9 | 101.6 | 101.2 | 97.8 | 101.1 | 93.2 |
| Subtotal ocean | 149.7 | 145.3 | 171.6 | 199.3 | 223.3 | 196.0 | 162.2 | 171.3 | 190.9 | 223.5 | 182.6 | 210.5 |
| Coast lower river | | | | | | | | | | | | |
| Fall salmon | 357.8 | 573.3 | 447.8 | 734.0 | 927.0 | 1,041.7 | 444.0 | 438.1 | 264.3 | 173.9 | 195.4 | 265.9 |
| Spr./sum. Chinook | 98.3 | 111.8 | 119.4 | 106.4 | 110.2 | 120.9 | 69.6 | 66.8 | 41.3 | 24.3 | 24.4 | 40.6 |
| Lower river steelhead | 252.4 | 196.3 | 430.0 | 213.6 | 243.8 | 330.0 | 324.2 | 182.4 | 206.8 | 205.8 | 280.1 | 202.4 |
| Other marine species | 132.9 | 132.9 | 132.9 | 132.9 | 132.9 | 132.9 | 132.9 | 132.9 | 132.9 | 132.9 | 132.9 | 132.9 |
| Sturgeon | 2.3 | 2.6 | 2.1 | 0.8 | 0.2 | 0.4 | 0.0 | 0.3 | 0.5 | 0.0 | 0.0 | 0.3 |
| Subtotal Coast | 843.7 | 1,017.0 | 1,132.2 | 1,187.7 | 1,414.2 | 1,626.0 | 970.7 | 820.5 | 645.9 | 536.9 | 632.8 | 642.1 |
| Lower Columbia River | | | | | | | | | | | | |
| Mainstem fall salmon/steelhead | 31.0 | 31.8 | 41.6 | 42.9 | 74.3 | 74.1 | 64.0 | 61.9 | 44.1 | 54.5 | 42.9 | 79.7 |
| Mainstem spr./sum. Chinook | 25.5 | 8.8 | 10.1 | 9.2 | 8.5 | 27.2 | 16.8 | 15.7 | 9.4 | 3.0 | 3.7 | 11.9 |
| Tributary fall salmon/steelhead | 13.4 | 9.4 | 10.4 | 8.9 | 23.4 | 14.0 | 12.3 | 10.9 | 9.9 | 3.4 | 4.0 | 12.4 |
| Other marine species | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| Sturgeon | 16.4 | 11.7 | 8.9 | 7.5 | 0.8 | 0.5 | 1.3 | 7.3 | 8.7 | 10.6 | 0.3 | 9.9 |
| Subtotal Lower Columbia River | 87.9 | 63.3 | 72.6 | 70.2 | 108.6 | 117.6 | 96.1 | 97.5 | 73.7 | 73.2 | 52.7 | 115.7 |
| Total | 1,081.3 | 1,225.6 | 1,376.5 | 1,457.2 | 1,746.2 | 1,939.6 | 1,229.0 | 1,089.3 | 910.5 | 833.5 | 868.0 | 968.3 |

Notes:
1. Trips are in thousands.
2. Lower Columbia River mainstem spring/summer Chinook fishery includes trips in off-channel areas.
3. Coast estuary other marine species trips most complete recent year available from RecFIN is for year 2002. The counts include trips when anadromous fish are the target species. The anadromous fish trips in 2002 based on SSHSTRP data for "bay" waterway segments are subtracted from the RecFIN derived trip data in order to avoid double counting. It is assumed that other marine species trip counts after the subtraction do not change from 2002 in subsequent years. Lower Columbia River estuary other marine trips only available from MRFSS data ending in Year 1999. The 1997 to 1999 three-year average was assumed the trip count for subsequent years.
4. Coast lower river and lower Columbia River tributary salmon and steelhead fisheries data reported by SSHSTRP is preliminary for 2021. Lower Columbia River mainstem salmon, steelhead, and sturgeon fisheries trips are reported by Watts (CRCP) and are through 2021.
5. The counts include trips when anadromous fish are the target species. The anadromous fish trips in 2002 based on SSHSTRP data for "bay" waterway segments are subtracted from the RecFIN derived trip data in order to avoid double counting. It is assumed that other marine species trip counts after the subtraction do not change from 2002 in subsequent years. Lower Columbia River other marine species trips are only shown for 1993 to 1999, with 2000 to present estimated by 1997-1999 average.

Sources: PFMC (February 2023) for salmon ocean and Columbia River mainstem; ODFW, Oregon Ocean Salmon Fisheries, Annual Status Report, for bottomfish. Watts (2023) for lower Columbia River estuary salmon and sturgeon; ODFW (SSHSTRP) for lower Columbia River off-channel and coast; RecFIN for coastal inriver other species; and MRFSS for lower Columbia River other species.

Table III.2
Marine Recreational Finfish Fisheries Economic Contributions in 2020 and 2021

Economic Contributions in 2020

| Target Fishery | Location: Ocean | Coast Lower River: Salmon/ Steelhead | Coast Lower River: Marine Species | Lower Columbia River | Total | Fishery Share |
|---|---|---|---|---|---|---|
| Total | $14.1 | $51.6 | $13.5 | $4.3 | $83.5 | 100.0% |
| Shares | 16.9% | 61.8% | 16.1% | 5.2% | 100.0% | |

Economic Contributions in 2021

| Target Fishery | Location: Ocean | Coast Lower River: Salmon/ Steelhead | Coast Lower River: Marine Species | Lower Columbia River | Total | Fishery Share |
|---|---|---|---|---|---|---|
| Total | $16.9 | $52.4 | $13.5 | $10.5 | $93.3 | 100.0% |
| Shares | 18.1% | 56.2% | 14.4% | 11.3% | 100.0% | |

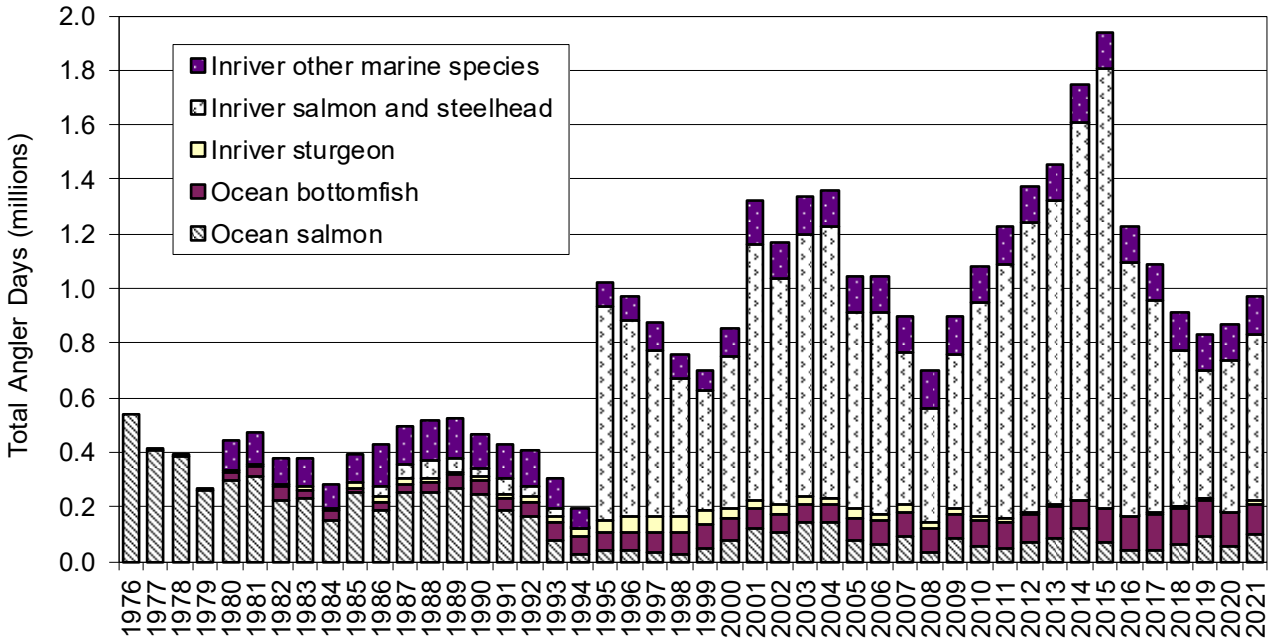
Notes: 1. Economic contributions are expressed as coastwide income in millions of 2021 dollars.
2. Other marine species is sometimes referred to as bottomfishing when it takes place in the ocean.

Table III.3
Marine Recreational Finfish Fisheries Economic Contribution at Port Groups in 2021

| Port Area | Ocean | Coast Inriver | Lower CR | Total |
|---|---|---|---|---|
| Astoria | 968 | 44 | 10,499 | 11,511 |
| Tillamook | 2,246 | 25,228 | - | 27,474 |
| Newport | 9,208 | 19,174 | - | 28,382 |
| Coos Bay | 2,810 | 17,107 | - | 19,917 |
| Port Orford | n/a | 757 | - | 757 |
| Brookings | 1,699 | 3,557 | - | 5,256 |
| Coastwide | 16,931 | 65,867 | 10,499 | 93,297 |

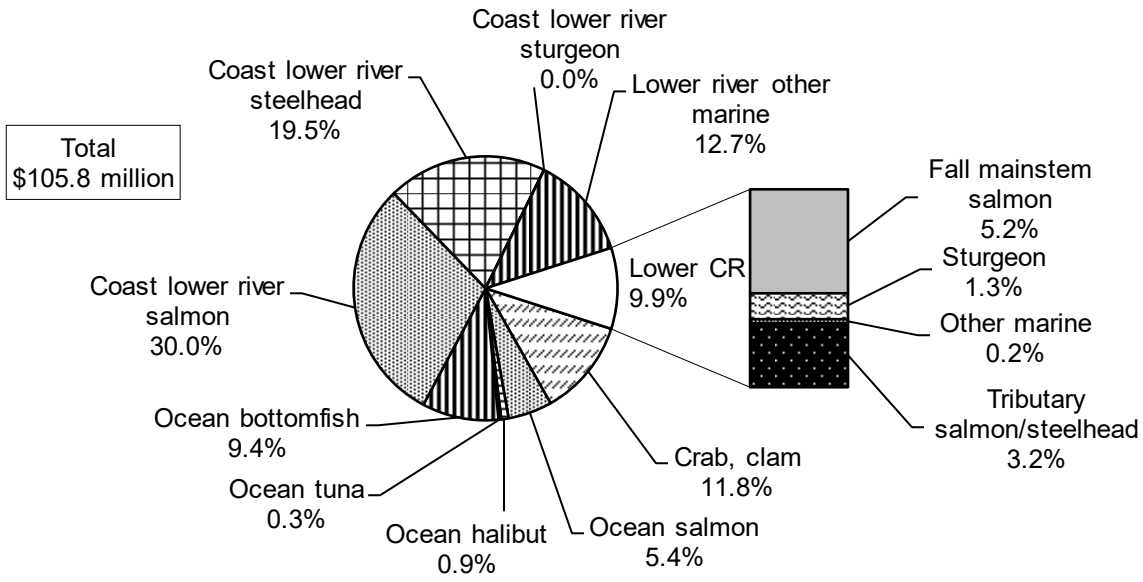
Notes: 1. Economic contributions are expressed as coastwide income in thousands of 2021 dollars.
2. Year 2021 inriver trips information is preliminary. The last year data was available for Port Orford was 2012, and the trips were 24 for salmon, eight combination, 439 bottomfish, 133 halibut, no tuna, and 74 dive. Coast inriver and lower Columbia tributary salmon and steelhead fisheries is based on 2021 catch.
3. Coast inriver locations are marine and freshwater waterways approximated for being west of the Coast Range crest, other than Columbia River. Lower Columbia River includes mainstem Section 10, Oregon side only. Lower Columbia River mainstem spring/summer Chinook fishery includes trips in off-channel areas.

Figure III.1
Recreational Angler Days for the Study Selected Finfish Fisheries in 1976 to 2021




Notes:
1. Angler days are included when the fishing trip occurs in the ocean, inriver marine areas (estuaries), and when the trip purpose is for certain species in coastal area inriver locations. The ocean fisheries are separated by trip purpose being for salmon and bottomfish. If the trip purpose is for a combination of salmon and bottomfish, then it is classified as a salmon trip. The bottomfish fishery includes halibut and tuna trips.
2. There are gaps in data for the included fisheries. Bottomfish angler days not available before 1980. Lower Columbia River fall salmon fishery trips are not included prior to 1982. Lower Columbia River estuary tributary and Coast estuaries are not included prior to 1995. Lower Columbia River sturgeon is not available prior to 1977. Lower Columbia River mainstem salmon and steelhead trips are in the Columbia River Section 10 zone and include the popular fall Buoy 10 fishery for 1982 to 2021. Coast inriver other marine species trips are only available for 1980 to 1989 and 1993 to 2002, with 1990 to 1992 estimated by 1989 and 1993, and 2003 to present estimated by 2002. Coast estuary other marine species trips most complete recent year available from RecFIN is for year 2002. Trips are for finfish. Trips when targeting crabs and clams in the ocean and bays are not included.

Figure III.2
Recreational Marine Fisheries Coastwide Economic Contribution Shares for 2021




Notes: 1. Economic contributions are expressed as coastwide income in millions of 2021 dollars.

# IV. Nearshore Fisheries

## A. Overview

An economic activity description is provided for nearshore fisheries, i.e. commercial and recreational fisheries that take place within 30 fm depth using the definition from ODFW (2016). Map B.5 shows the isobath is approximately coincident with the Oregon Territorial Sea (TS) demarcation and correspondence was assumed for this study. The potential economic impact from marine reserve management is also described in this chapter. The impact is characterized by comparing it to the economic contribution from all fisheries within the assumed TS.

Nearshore fisheries are usually defined by *place* of harvest. ODFW (2016) includes bays in the definition. Bays are the portions of estuaries where species depend on saltwater. The ODFW definition is expanded for this report by assuming bay recreational fisheries include anadromous fish harvests in coastal rivers and streams freshwater segments. Subareas for the place definition used in this report are port groupings where nearshore fisheries landings are made and recreational trips originate. This report's glossary lists the major ports, census data areas, and river/streams associated with port groups.

In order to show commercial and recreational fishing activity that occurs in nearshore waters, a vexing problem is that harvest data has poor or non-existent information about harvest location. Some, but not all, fisheries have logbook information that has harvest location. TRG (February 2024) used surficial geologic habitat (SGH) data and species habitat association information combined with landing data to pinpoint nearshore harvest location. Certain groundfish species will generally occupy shallow water or structure only found within the TS. Other species will occupy and be harvested both within the TS and beyond, such as Dungeness crab and salmon. The nearshore fisheries descriptions rely on the species identifications made in TRG (February 2018) to compile the commercial and recreational fishing activity.[1]

The most important (highest harvest revenue generating) nearshore commercial fisheries are Dungeness crab, salmon troll, and nearshore groundfish. The Dungeness crab and salmon troll fisheries fishing grounds may be within the nearshore area for some fishers for only some of the seasons.[2] Table IV.1 shows landed value for the nearshore fisheries and other major fishery categories at port groups in 2021. The coastwide total harvest value for nearshore fisheries was $128.5 million in 2021 which was 63 percent of the coastwide total of all commercial fisheries.

Nearshore commercial and recreational fisheries activity is substantial (Table II.6 and Figure IV.1). The nearshore fisheries commercial and recreational economic contribution was $288 million income to the statewide economy in 2021 which is equivalent to about 4,120 jobs. The estimated output is $625 million. This represents 38 percent of Oregon total commercial and recreational fishing industry (includes distant water fisheries) economic contribution.

1. A summary explanation of which species are included in nearshore groundfish is contained in the glossary.
2. The nearshore fisheries proportion of the commercial salmon troll fishery was estimated in the TRG (February 2018) project to be 35 percent from CROOS project results (personal communication Pete Lawson, NMFS April 2015) and the nearshore proportion of the Dungeness crab fishery was estimated to be 54 percent.

B. Fleet Characteristics

This section dwells on nearshore fisheries participant characteristics to emphasize that vessels and processors/buyers are not a homogenous group.[1] The descriptors are for all vessels that have harvested and processors/buyers that have purchased nearshore groundfish species. This includes vessels that target nearshore groundfish species as well as those with catch that is incidental to other directed fisheries. Descriptions are for processors/buyers that specialize in the nearshore groundfish fishery and others that have included the fishery in a suite of other fisheries.

Fishery participant diversity can be cast in many different dimensions, albeit the more the better to understand participation richness. For this report, just three dimensions are used to demonstrate fleet heterogeneity: permit types that allow for harvesting nearshore groundfish, average nearshore fisheries revenue, and the location where nearshore groundfish landings occur. Monitoring diversity temporally should include other dimensions, such as revenue inequality, to better illustrate how changed environmental conditions and fishery management have affected the fishery participants.

*Cape Perpetua Marine Reserve. Photo credit ODFW.*

Nearshore fishery vessel counts and revenue distribution is shown for 2021 in Table D.1.[2] There were 235 vessels that delivered nearshore groundfish species in 2021. Concerning permit types, 80 percent of all vessels are open access with the balance either LE trawl (18 percent) or LE fixed gear (three percent). The 80 percent open access vessels are 38 percent with an Oregon Nearshore Fisheries Permit and 42 percent without.

Typical and representative average revenue profiles can be used to further explain fleet diversity. (This report's glossary explains the two average types.) Using groundfish permit criteria for four categories provides some illumination of fleet diversity; more research on finding common factors for subcategories would be needed to provide a more complete portrayal of fleet diversity. A more detailed categorization scheme would ferret out vessels with similar business strategies and who are the principal nearshore groundfish harvesters.

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1. The descriptors are participant counts and harvest value, which is sometimes synonymously referred to as vessel revenue and processor purchases.
2. Vessels participating in the market squid fishery are included in Appendix Table D.1. Those vessels to-date tend to have a single business strategy. They mostly commute from out-of-state homeports in Puget Sound, southern California, and Alaska and only participate in the one fishery. A few local vessels will be or already have invested in purse seine gear and will be participating in the fishery.

Appendix Table D.1 shows how some participants are much more dependent on the nearshore groundfish fishery than others. Vessels with LE trawl and LE fixed gear permit types have significant nearshore groundfish representative average landings ($1,197, $7,431 respectively) in 2021, but are least dependent on the fishery (less than one percent and two percent respectively). Most of these permitted vessels landings are flatfish species and lingcod. Open access vessels with a permit representative average is $14,396, which is 35 percent dependency, and open access vessels without a permit representative average is $2,392, which is one percent dependency.

Typical and representative revenue averages by major fishery category for vessels participating in the nearshore groundfish fishery at port groups and coastwide in 2021 are shown on Appendix Table D.2. The table shows that vessels have a portfolio of fisheries to rely upon for operations. The port group with the highest share of vessels making landings using an open access permit type is Port Orford (73 percent) closely followed by Brookings (71 percent). Astoria has the lowest share (three percent).

Descriptions of the processing/buyer sector that purchases nearshore groundfish can be informative about other coastal businesses that are dependent on the fishery. The additional sector descriptions are helpful to show the wider picture of community sensitivity to the nearshore groundfish fishery's status. Table D.3 shows a comparison of processors/buyers that purchase more than $10 thousand of nearshore groundfish, processors/buyers that specialize in the nearshore groundfish fishery, and for comparison purposes, processors/buyers with more than $10 thousand in any fishery. Purchases are itemized by major fisheries categories. Processors/buyers that do make the large purchases of nearshore groundfish have representative average purchases five times higher than all processors making purchases over $10,000 in any fisheries ($66,096 versus $12,880). There were six processors/buyers that specialize in the nearshore groundfish fishery (nearshore groundfish fishery purchases greater than 50 percent). There are processor/buyer businesses whose only purchases are live nearshore groundfish landings. Live fish and shellfish is popular among ethnic markets, traditionally centered in urban areas catering to persons of East Asian (Chinese, Korean, and Japanese) descent. The East Asian customers perceive value in consuming fish and seafood as fresh as possible, which requires products are purchased live (Meyers et al. 2007; Thapa et al. 2015).

Not all vessels with permits in any of the three nearshore fisheries will participate in any given year. Some of the many reasons are (Holland et al. 2004; Pelletier and Mahévas 2005; Saul and Die 2016):

- Fish resource levels that will affect assumed CPUE,
- Changed distance to fishing grounds caused by modified management specifications,
- Other altered cost factors affecting perceived net revenue,
- Vessel physical problems,
- Crew labor complications,
- Unresolved processor purchasing issues,
- Personal investment choice made by the permit owner unrelated to fishing.

TRG (November 2018) explains the average annual year-over-year rate of permittee new or re-entrance in the three nearshore fisheries is 14.8 percent for Dungeness crab, 33.3 percent for salmon troll, and 25.0 percent for nearshore groundfish.[1] The Newport port group had the highest average churn and the Port Orford port group was the lowest at about half of Newport's rate.

## C. Marine Reserve Fisheries

Commercial and recreational fisheries at sites that were within the Oregon system of marine reserves were investigated for the TRG and GMC (2012) project. The project purpose was to develop a model that could be used to estimate the economic contributions from fisheries within alternative marine reserve boundary designs. The model was used to inform decision making in the geographic shaping and fisheries management plan development process that ultimately led to the existing system of marine reserves. A follow-on project generalized the model to apply to a new base period, any nearshore area, and added new MR applicable fisheries (TRG February 2024).

The estimated maximum potential economic impact (i.e. no replacement from fishing elsewhere) from marine reserve management is 3.8 percent of all nearshore commercial and recreational fishing economic contribution that takes place in the TS (Table IV.2). Since the marine reserve system is about 10 percent of the TS, it would seem likely that the 90 percent commercial harvesting and recreation angling area opportunities would provide satisfactory substitute fishing grounds for most species. (Salmon and crabbing are only restricted in the MR portion which is about three percent of the TS.) However, some individual fishermen may have experience with the bottom features and water conditions at these sites and decide not to fish elsewhere given management closures.[2] If fishing does occur at new sites, fishing costs may rise from increased transit distances and changed catch per effort. If recreational fishers do not fish in new areas, they may instead spend the same trip expenditures in non-fishing activities in the local economy. Not included in the displaced fisheries estimates are potential biological spillover effects resulting from possible increased stock abundances that might raise catch per effort in the new fishing area.

There are other MR Program human dimension investigative projects to assess effort shift that are completed, underway, or planned.[3] The new investigations will help determine and relate

1. The ten year exit/entrance analysis period was chosen to represent a pre and post design with non-equivalent control groups (i.e. ports purportedly not affected by MR locations) related to MR implementation timing.
2. Fishers in aggregate tend to continue fishing despite conditions that may affect landing success. This may reflect participant ambivalence towards entering and exiting the fishery based solely on lost revenue opportunities. This would be consistent with habit being a meaningful social/psychological factor in fishery choice models (Van Putten et al. 2012). This observation could be extended to mean fishers reaction to management restrictions on fishing grounds in one area are simply compensated at same effort levels when there are opportunities elsewhere. Compensation from other fisheries may also occur if the fisher has the capacity and permits to pursue other fishery opportunities.
3. A more thorough description of human dimensions research and monitoring plans can be found at the Oregon Marine Reserves portal.

any perturbations in fishing activity to the establishment of marine reserves.[1] The problem will be to find the degree and outcome of any influence from marine reserve implementation within harvest and participation variability given that fishers are also responding to such factors as fish resource conditions, other regulations, market conditions, personal investment choices, and even weather.


*ODFW MR Program ecological monitoring using hook and line catch surveys. Photo credit ODFW.*

1. Marine reserves management restrictions started on January 1, 2012 for Redfish Rocks (RR) and Otter Rock (OR); started on January 1, 2014 for Cascade Head (CH) and Cape Perpetua (CP); and started on January 1, 2016 for Cape Falcon (CF).

Table IV.1
Landed Value for Nearshore and Other Fisheries by Port Groups in 2021

| Fishery | Port Group | | | | | | |
|---|---|---|---|---|---|---|---|
| | Astoria | Tillamook | Newport | Coos Bay | Port Orford | Brookings | Coastwide |
| Nearshore Fisheries | | | | | | | |
| Ocean salmon | 51,906 | 161,797 | 1,385,273 | 404,398 | 187,379 | 58,409 | 2,249,162 |
| D. crab | 24,902,969 | 9,586,131 | 42,938,100 | 31,287,244 | 3,373,179 | 7,920,827 | 120,008,449 |
| Nearshore groundfish | 31,164 | 147,473 | 218,338 | 177,944 | 874,057 | 241,168 | 1,690,144 |
| Market squid | 4 | 0 | 2,527,180 | 2,017,568 | 0 | 0 | 4,544,753 |
| Subtotal | 24,986,043 | 9,895,400 | 47,068,892 | 33,887,155 | 4,434,614 | 8,220,404 | 128,492,509 |
| Other Fisheries | | | | | | | |
| Col. R. salmon | 4,276,462 | 0 | 0 | 0 | 0 | 0 | 4,276,462 |
| Other groundfish | 10,248,384 | 19,661 | 7,671,049 | 1,882,455 | 360,514 | 667,453 | 20,849,516 |
| P. shrimp | 6,202,343 | 0 | 8,762,050 | 4,461,743 | 0 | 3,934,078 | 23,360,213 |
| Tuna | 537,267 | 742,159 | 3,165,752 | 2,063,552 | 25,391 | 73,529 | 6,607,650 |
| Whiting | 10,881,916 | 0 | 6,596,626 | 0 | 2 | 0 | 17,478,544 |
| Sardine | 112 | 0 | 0 | 1,470 | 0 | 0 | 1,582 |
| Other | 356,025 | 771,118 | 1,344,184 | 865,115 | 270,010 | 726,676 | 4,333,128 |
| Total | 57,488,552 | 11,428,338 | 74,608,552 | 43,161,490 | 5,090,531 | 13,622,141 | 205,399,605 |

Notes: 1. Columbia River salmon fishery includes both non-Indian and tribal fisheries.
2. The nearshore fisheries portion of the commercial salmon troll fishery is assumed 35 percent and the nearshore portion of the Dungeness crab fishery is assumed to be 54 percent of the total amounts shown (TRG February 2018).
3. See glossary for explanation of individual ports included in port groups and species included in the nearshore groundfish category.

Source: PacFIN fish ticket data, June 2023 extraction.

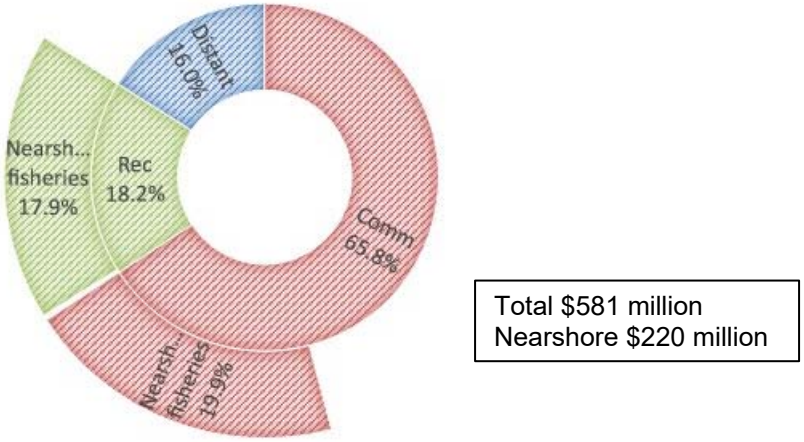
Table IV.2
Marine Reserve Sites Annual Average Regional Economic Impacts From
Assessed and Displaced Commercial and Recreational Fisheries for 2019-2021

| Harvest Area | Area Share of Territorial Sea | Assessed Fisheries REI Comm. | Assessed Fisheries REI Rec. | Assessed Fisheries REI Total | Displaced Fisheries REI Comm. | Displaced Fisheries REI Rec. | Displaced Fisheries REI Total |
|---|---|---|---|---|---|---|---|
| Marine Reserve Sites | | | | | | | |
| Cape Falcon | 1.6% | 1,274 | 95 | 1,369 | 837 | 76 | 913 |
| Cascade Head | 2.6% | 1,988 | 540 | 2,527 | 605 | 164 | 769 |
| Otter Rock | 0.1% | 65 | 27 | 91 | 64 | 27 | 91 |
| Cape Perpetua | 4.4% | 3,512 | 281 | 3,793 | 899 | 121 | 1,020 |
| Redfish Rocks | 0.6% | 195 | 64 | 259 | 103 | 60 | 163 |
| Total | 9.3% | 7,033 | 1,007 | 8,040 | 2,508 | 448 | 2,955 |

| Comparison Areas | | REI Comm. | REI Rec. | REI Total | Assess. Share | Displ. Share |
|---|---|---|---|---|---|---|
| Territorial Sea | 100.0% | 70,850 | 7,108 | 77,958 | 10.3% | 3.8% |
| Onshore landed commercial fisheries | | 320,613 | | | | |
| Ocean recreational fisheries | | | 16,985 | | | |
| Ocean commercial and recreational fisheries | | | | 337,598 | 2.4% | 0.9% |

Notes:
1. Economic impacts are expressed as coastwide income in thousands of 2021 dollars.
2. REI is regional economic impact.
3. Assessed fisheries are all of those that took place in the marine reserve and marine protected area portions. Displaced fisheries are those that are closed due to marine reserve management. Closed fisheries are all fisheries in the marine reserve portion, and only certain fisheries in the marine protected area portion. For example, salmon and Dungeness crab fishing is allowed within the marine protected area portion.
4. The economic impacts for displaced fisheries should be considered the maximum potential effects from marine reserve management. Fishermen may elect to use other locations for same fisheries or participate in other fisheries as substitutes for the marine reserve management closures.
5. Market squid distribution to catch areas is based on 2019 hailed pounds.

Figure IV.1
Oregon Fishing Industry Economic Contribution and Nearshore Fisheries Component in 2021




Notes: 1. Economic contributions are expressed as coastwide income in millions of 2021 dollars.

## V. Fisheries Engagement and Port Group Social Profiles

A brief set of community fishery engagement indicators is described in this chapter. The indicators discussion is supplemented with social/economic descriptors that show coastal area vulnerability to changes in fisheries. Fisheries engagement indicators along with social/economic descriptors can be used in trend analysis to monitor and assess social vulnerability status and risk positions. They provide a basis for retrospective and prospective investigations to determine impacts arising from changing ocean conditions, new ocean uses, and natural resource management.[1] When supplemental ocean use choices data are available, primary factors for adaptive responses can be identified and predictive models developed.[2] New management and mitigation program alternatives can be evaluated for implementation impacts and tradeoffs. Discussions can have benefits for providing conservation awareness and making natural resource planning more responsive to those most affected (Jacob et al. 2012; Poe et al. 2014).[3]

There are other related research efforts to derive and disseminate social indicators. NOAA Fisheries maintains a website offering social and economic data and a suite of indicators for the dependence of commercial or recreational fishing to coastal communities.[4]

Commercial/recreational fisheries engagement (measured by economic contribution) in 2021 is shown at port groups on Figure V.1. Fisheries engagement can be decomposed into regional economy reliance, fisheries dependency, and social vulnerability.[5] Figure V.2 shows port group rankings for these dimensions in 2021. The Astoria port group had the highest reliance on commercial onshore fisheries and Port Orford was the most dependent on commercial nearshore fisheries. (If distant water fisheries were included in Figure V.2, then the Newport port group would have had the highest reliance on commercial fisheries.) Port Orford, Newport, and Astoria are of higher social vulnerability.

Demographic and well-being indicators at port groups in 2021 is provided in Appendix E. The indicators show the social fabric backdrop of communities where fishing families live and work. The indicators are related to population (age, ethnicity), households (numbers, size), housing (costs, vacancy, second-home, tenure), labor force (employment in occupations and industries,

1. Example new ocean uses are renewable energy development. Example changed ocean conditions could be related to climate changes such as ocean acidification and hypoxia events, storm severity, etc. Example ocean resource management modifications could be the establishment of marine reserves that require implementation of no-take areas or siting energy generation equipment that displaces fishing opportunities.
2. Reimer et al. (2017) caution that accurate assessment of the impacts of fishery management intervention requires sufficient fisheries structural descriptions so as to avoid misleading predictions for even the most short-run of management changes.
3. A more in-depth ecological and fisheries engagement indicator compilation could be used (Samhouri et al. 2013).
4. The NOAA Fisheries website accessed June 2023 is: https://www.fisheries.noaa.gov/national/socioeconomics/social-indicators-coastal-communities.
5. Social vulnerability to fisheries downturns is based on Shannon index of occupational diversity.

unemployment), wealth (income sources, poverty), and education. The Oregon Coast levels and contrasts with the State are:

- Coos Bay port group has the largest population (70,074) and Port Orford the smallest (2,757).
- The Newport port group is the most racially diverse at 12.8 percent.
- All port groups (coastwide median age 50.1) are older than the State (median age 39.6) and household size is smaller (State 2.48 and coastwide 2.26).
- The ACS tourism industry category (arts, entertainment, recreation, accommodation, and food service) is higher coastwide (16.0 percent of all civilian employment age 16 and over) than the State (9.4 percent). Port Orford has the highest employment in this category at 25.0 percent.
- Coastwide housing costs (defined by median mortgage payments) are about 18 percent less than the State.
- The percentage of housing units that are second homes is six times higher on the Coast than in the State. The Tillamook port group is the highest at 35.5 percent.
- There is a dramatic difference in household mean income at the Coast ($73,620) compared to the State ($94,034). Port Orford has the lowest income ($56,615). Brookings had the highest number of households receiving social security payments (57.1 percent).
- The share of self-employed individuals such as crew and skipper jobs on fishing boats is higher on the Coast (10.0 percent) than in the State (7.1 percent).
- Port Orford is distinguished by having the highest share of individuals living under the poverty level (21.1 percent). The State individuals poverty level is 12.1 percent.

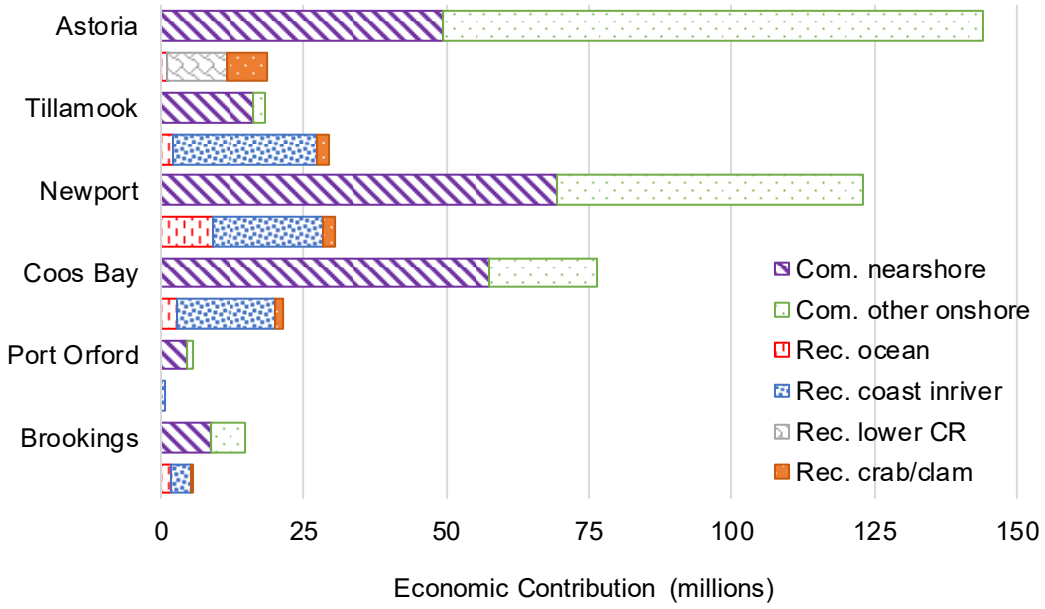
The demographic and well-being indicators are important for giving a higher-level picture of the social environment. Indicators help communicate and identify goals and objectives for natural resource management and enable decision makers to measure and monitor changes and outcomes towards meeting management goals (Poe et al. 2015). Social indicators can show disparity in impacts from marine conditions changes that are specific to communities and tribal interests (Tuler et al. 2008; Singleton 2009). However, there are two issues that will confound using the indicators to assess disparity.

First, areawide indicators and indexes may not show how individual commercial fisheries participants and families are affected. For example, fisheries reliance does not have to be high in regions where there is substantial engagement in commercial fisheries. A region can have a mature economy with other industries present so that the proportion participating in fisheries is low. Yet for those that do participate, there is a family financial dependency and social identity that is important. Usually the business participation is in a plurality of fisheries and even other businesses such as selling directly to the public. While diversification can provide a long term and sustainable lifestyle where short term revenue downturns in one staple fishery can be replaced with another revenue source, there can be cumulative impacts when one revenue

opportunity is restricted long term. It takes away the viability of the business operation and eventually there will be permanent exiting from the fishing industry. In general, the replacement business for small operations will be larger operations. Communities with a strong commercial fishing industry comprised of small operators will be left with a diluted industry presence as the larger operations are usually centralized at regional fisheries centers. In such cases, communities will have an eroded cultural identity.

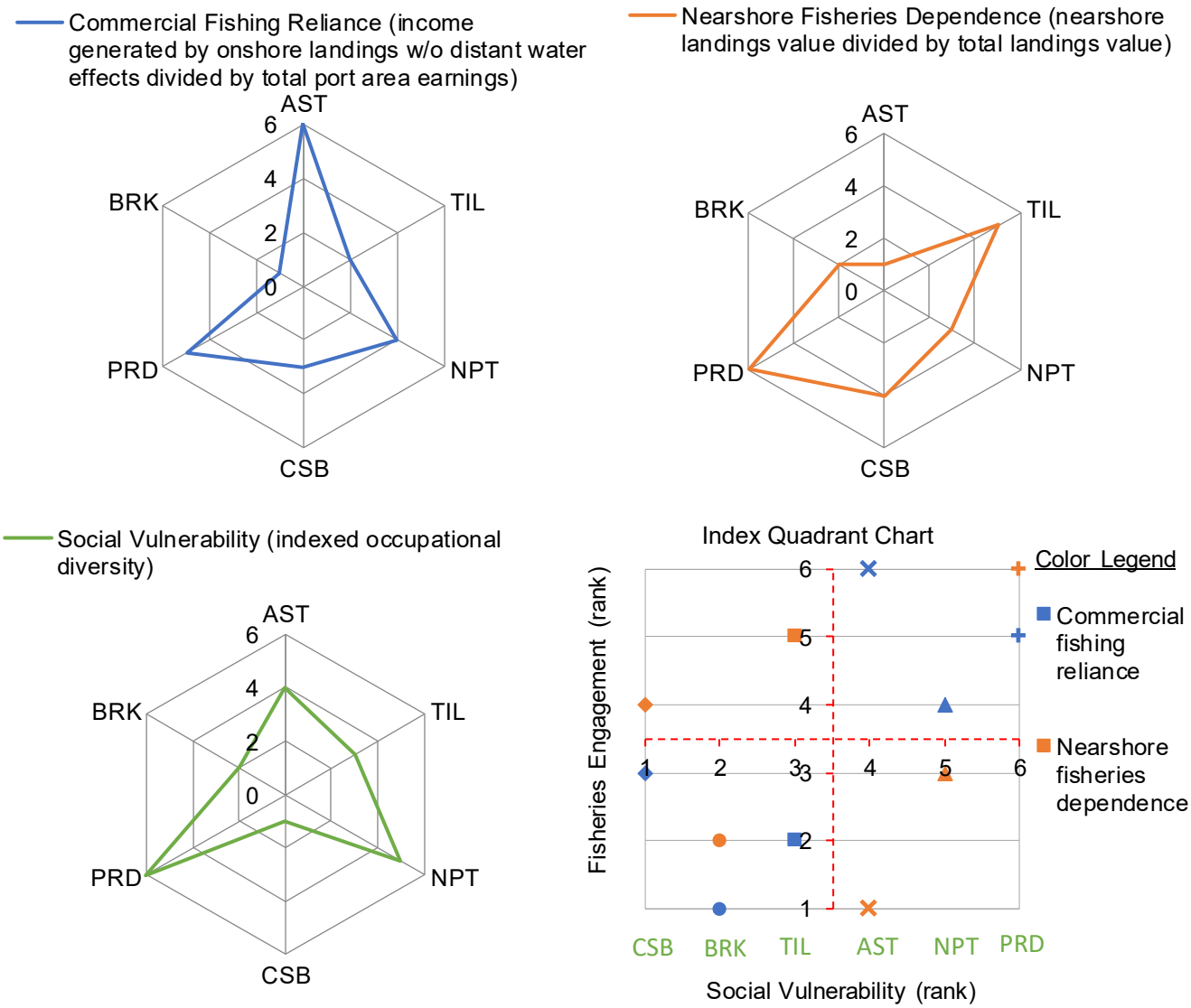
The second issue in assessing disparity is that indicators and indexes do not necessarily provide an understanding of the quality of life experienced by living on the Oregon Coast. People are drawn to the region because they cherish the natural environment living conditions (Swedeen et al. 2008). In effect, the conditions provide a "second paycheck" which complements the "first paycheck" derived from their employment and pension programs (ECO Northwest 1999). Fishing families in particular are independent minded and appreciate the importance of healthy natural environment in pursuit of livelihood opportunities. These families may be resistant to giving up their second paycheck, and therefore, would be vulnerable to abundance downturns and species range fluctuations such as being caused by climate changes (Griffis and Howard 2013; Chavez et al. 2017). Completed and planned effort shift investigations should prove helpful in better understanding the perceptions and attitudes towards changing fishing conditions and assist in developing social models to illuminate impacts and allow for development of education and mitigation programs (Swearingen 2023). Study results will help determine effects from fishing abandonment, from changing locations for same fisheries, and from switching to other fisheries.

Figure V.1
Commercial and Recreational Fisheries Engagement at Port Groups in 2021




Notes:
1. Economic contribution is expressed as coastwide income in 2021 dollars. Total economic contribution is without distant water fisheries effects. Recreational is calculated using trip expenditures. No differentiation is made between trips made by anglers that are resident and nonresidents. Expenditures for capital items (purchase of vehicles, boats, rods, and other durable goods) are not included in the calculation.
2. Commercial nearshore fisheries are defined for this figure to be Dungeness crab, salmon troll, market squid, and nearshore groundfish. The nearshore fisheries portion of the commercial salmon troll fishery is assumed 35 percent and the nearshore portion of the Dungeness crab fishery is assumed to be 54 percent of the total amounts shown (TRG February 2018).
3. Recreational inriver trip data is for various years and it is assumed that all data is applicable to 2021. The last year data was available for Port Orford was 2012, and the trips were 24 for salmon, eight combination, 439 bottomfish, 133 halibut, no tuna, and 74 dive. Coast inriver and lower Columbia tributary salmon and steelhead fisheries is based on 2021 catch.
4. Angler days are included when the fishing trip occurs in the ocean, inriver marine areas (estuaries), and when the trip purpose is for certain species in coastal area inriver locations. The ocean fisheries include trip purpose being for salmon, bottomfish, halibut, tuna, or dive (but not crab only trips). The only trips included at inriver locations are when the catch was Chinook or coho salmon, steelhead, sturgeon, or other marine species. The inriver locations are waterways approximated for being west of the Coast Range crest.
5. Estimates for associated waterway recreational fishing exclude trips made for the purpose of catching resident fish. There are many coastal lakes and other streams near the communities where this occurs, but there were not consistent data sources to develop economic contribution estimates. Trips when the primary purpose is from recreational angling for cutthroat trout are not included.
6. Lower Columbia River mainstem spring/summer Chinook fishery includes trips in off-channel areas.
7. Recreational crab/clam includes ocean crabbing trips not in combination with finfish trips, bay crabbing trips, and shore and bay clamming trips.

Figure V.2
Oregon Rankings of Port Group Area Commercial Fishing Industry Reliance,
Commercial Nearshore Fisheries Dependency, and Social Vulnerability in 2021




Notes:
1. Port group acronyms are explained in the report's glossary section.
2. Nearshore fisheries are defined for this figure to be Dungeness crab, salmon troll, nearshore groundfish, and market squid. The nearshore fisheries portion of the commercial salmon troll fishery is assumed 35 percent and the nearshore portion of the Dungeness crab fishery is assumed to be 54 percent of the total amounts shown (TRG February 2018).
3. Reliance rankings are based on economic contribution (measured by income that includes the multiplier effect) from commercial fisheries (without distant water fisheries effects) divided by port group area household earnings. Port Orford area earnings are from northern Curry County zip codes.
4. Dependency rankings are from the ratio of commercial nearshore fisheries landed value divided by total onshore fisheries landed value.
5. Social vulnerability rankings are based on Shannon Index of occupational diversity.
6. The ranking 6 represents the highest commercial fishing reliance, highest commercial nearshore fisheries dependency, and highest social vulnerability.
7. Port groups within upper right quadrant would be of higher social vulnerability with greater commercial fisheries reliance and dependence on nearshore fisheries.

Sources: ACS 2017-2021 estimates.

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# Appendix A

# Recreational Finfish Fisheries
# Trips by Target Species

Table A.1
Historical and Assigned Success Rates for Inriver and Ocean Recreational Finfish Fisheries

| | | | Inriver Success Rates | | | | |
|---|---|---|---|---|---|---|---|
| | | | Chinook | | | Winter/ | |
| | | | | Spring/ | | Summer | |
| Waterway | Source | Dates | Fall | Summer | Coho | Steelhead | Sturgeon |
| ESTUARY AND LOWER RIVER | | | | | | | |
| Lower Columbia River | | | | | | | |
| Sturgeon fishery | | | | | | | |
| | Devore et al. (1999) | 1996-1998 average | -- | -- | -- | -- | 7.32 |
| Columbia River fall mainstem salmon fishery | | | | | | | |
| | Watts (CRCP) | 2002 | 3.91 | -- | 13.51 | -- | -- |
| | | 2003 | 6.13 | -- | 1.64 | -- | -- |
| | | 2004 | 3.73 | -- | 4.49 | -- | -- |
| | | 2005 | 4.95 | -- | 7.00 | -- | -- |
| | | 2006 | 19.01 | -- | 9.17 | -- | -- |
| | | 2007 | 8.32 | -- | 4.21 | -- | -- |
| | | 2008 | 3.40 | -- | 4.22 | -- | -- |
| | | 2009 | 11.58 | -- | 1.49 | -- | -- |
| | | 2010 | 6.80 | -- | 5.95 | -- | -- |
| | | 2011 | 4.43 | -- | 5.95 | -- | -- |
| | | 2012 | 3.20 | -- | 8.23 | -- | -- |
| | | 2013 | 2.75 | -- | 8.86 | -- | -- |
| | | 2014 | 3.89 | -- | 1.75 | -- | -- |
| | | 2015 | 2.90 | -- | 2.90 | -- | -- |
| | | 2016 | 4.58 | -- | 10.40 | -- | -- |
| | | 2017 | 2.87 | -- | 5.17 | -- | -- |
| | | 2018 | 5.34 | -- | 10.03 | -- | -- |
| | | 2019 | 6.31 | -- | 3.26 | -- | -- |
| | | 2020 | 4.26 | -- | 10.52 | -- | -- |
| | | 2021 | 4.46 | -- | 2.83 | -- | -- |
| | | 2002-2021 average | 4.27 | -- | 3.71 | -- | -- |
| Columbia River mainstem Section 10 | | | | | | | |
| | Watts (CRCP) | 2002 | -- | 7.65 | -- | 17.54 | 2.26 |
| | | 2003 | -- | 6.66 | -- | 16.43 | 2.53 |
| | | 2004 | -- | 4.32 | -- | 19.92 | 2.77 |
| | | 2005 | -- | 7.95 | -- | 28.92 | 3.44 |
| | | 2006 | -- | 6.76 | -- | 17.41 | 2.85 |
| | | 2007 | -- | 7.99 | -- | 13.29 | 2.60 |
| | | 2008 | -- | 10.57 | -- | 12.92 | 3.56 |
| | | 2009 | -- | 6.29 | -- | 12.20 | 3.90 |
| | | 2010 | -- | 5.93 | -- | 21.96 | 5.82 |
| | | 2011 | -- | 10.69 | -- | 8.00 | 4.31 |
| | | 2012 | -- | 6.34 | -- | 10.03 | 4.45 |
| | | 2013 | -- | 7.84 | -- | 17.81 | 3.79 |
| | | 2014 | -- | 7.82 | -- | 10.81 | -- |
| | | 2015 | -- | 3.69 | -- | 53.47 | -- |
| | | 2016 | -- | 6.65 | -- | 24.31 | -- |
| | | 2017 | -- | 4.72 | -- | 423.51 | 4.75 |
| | | 2018 | -- | 6.31 | -- | 53.05 | 7.93 |
| | | 2019 | -- | -- | -- | 6.10 | 8.04 |
| | | 2020 | -- | 49.76 | -- | 18.91 | -- |
| | | 2021 | -- | 8.03 | -- | 104.41 | 7.37 |
| | | 2002-2021 average | -- | 6.41 | -- | 18.22 | 3.41 |

Table A.1 (cont.)

| | | | Inriver Success Rates | | | | |
|---|---|---|---|---|---|---|---|
| | | | Chinook | | | Winter/ Summer | |
| Waterway | Source | Dates | Fall | Spring/ Summer | Coho | Steelhead | Sturgeon |
| Coast | | | | | | | |
| Nehalem River | | | | | | | |
| | ODFW AFS 65 | 1963-64 season | -- | -- | -- | 5.33 | -- |
| | | 1964-65 season | -- | -- | -- | 8.43 | -- |
| | | 1968-69 season | -- | -- | -- | 2.18 | -- |
| | Creel Surveys | 2010 | 10.03 | -- | -- | -- | -- |
| | | 2012 | 44.95 | -- | -- | -- | -- |
| Tillamook Bay | | | | | | | |
| | Creel Surveys | 1996 | 6.81 | -- | -- | -- | -- |
| Wilson River | | | | | | | |
| | ODFW AFS 65 | 1964-65 season | -- | -- | -- | 7.88 | -- |
| | | 1965-66 season | -- | -- | -- | 16.91 | -- |
| Salmon River | | | | | | | |
| | Creel Surveys | 1986-1989 average | 8.80 | -- | -- | -- | -- |
| | | 2002 | 6.91 | -- | 42.04 | -- | -- |
| | | 2003 | 6.70 | -- | 104.29 | -- | -- |
| | | 2005 | 5.28 | -- | -- | -- | -- |
| | | 2006 | 7.07 | -- | -- | -- | -- |
| | | 2007 | 12.61 | -- | -- | -- | -- |
| | | 2008 | 21.75 | -- | -- | -- | -- |
| | | 2009 | 14.49 | -- | -- | -- | -- |
| | | 2010 | 5.89 | -- | -- | -- | -- |
| | | 2011 | 5.20 | -- | -- | -- | -- |
| | | 2012 | 6.18 | -- | -- | -- | -- |
| | | 2013 | 2.65 | -- | -- | -- | -- |
| | | 2014 | 2.91 | -- | -- | -- | -- |
| | | 2015 | 2.45 | -- | -- | -- | -- |
| | | 2016 | 3.04 | -- | -- | -- | -- |
| | | 2019 | 5.43 | -- | -- | -- | -- |
| Siletz Estuary | | | | | | | |
| | Creel Surveys | 2010 | 14.43 | -- | 34.55 | -- | -- |
| | | 2011 | -- | -- | 21.14 | -- | -- |
| | | 2012 | 29.86 | -- | 52.48 | -- | -- |
| Yaquina Estuary | | | | | | | |
| | Creel Surveys | 2009 | -- | -- | 6.44 | -- | -- |
| | | 2011 | -- | -- | 18.07 | -- | -- |
| | | 2012 | -- | -- | 32.96 | -- | -- |
| Alsea River | | | | | | | |
| | ODFW AFS 65 | 1964-65 season | -- | -- | -- | 22.79 | -- |
| | | 1965-66 season | -- | -- | -- | 32.25 | -- |
| Alsea Estuary | | | | | | | |
| | Creel Surveys | 2011 | -- | -- | 12.05 | -- | -- |
| | | 2012 | -- | -- | 6.12 | -- | -- |
| Siuslaw River | | | | | | | |
| | ODFW AFS 65 | 1967-68 season | -- | -- | -- | 7.88 | -- |
| Siuslaw Estuary | | | | | | | |
| | Creel Surveys | 2011 | -- | -- | 10.81 | -- | -- |
| | | 2012 | -- | -- | 16.29 | -- | -- |

Table A.1 (cont.)

| | | | Inriver Success Rates | | | | |
|---|---|---|---|---|---|---|---|
| | | | Chinook | | | Winter/ Summer | |
| Waterway | Source | Dates | Fall | Spring/ Summer | Coho | Steelhead | Sturgeon |
| Umpqua River | | | | | | | |
| | Creel Surveys | 1977-1988 average | -- | 11.25 | -- | -- | -- |
| Elk River | | | | | | | |
| | Creel Surveys | 1972-1974 average | 3.53 | -- | -- | -- | -- |
| | | 1992-1998 average | 4.01 | -- | -- | -- | -- |
| | | 2007 | 4.47 | -- | -- | -- | -- |
| | | 2008 | 3.20 | -- | -- | -- | -- |
| | | 2009 | 3.71 | -- | -- | -- | -- |
| | | 2010 | 2.54 | -- | -- | -- | -- |
| | | 2011 | 2.19 | -- | -- | -- | -- |
| | | 2012 | 4.21 | -- | -- | -- | -- |
| | | 2013 | 2.30 | -- | -- | -- | -- |
| | | 2014 | 3.54 | -- | -- | -- | -- |
| | | 2015 | 2.60 | -- | -- | -- | -- |
| | | 2016 | 3.29 | -- | -- | -- | -- |
| | | 2019 | 4.01 | -- | -- | -- | -- |
| Rogue River | | | | | | | |
| | Creel Surveys | 1986 | 4.55 | 5.68 | -- | -- | -- |
| Chetco River | | | | | | | |
| | Creel Surveys | 2011 | -- | -- | -- | 3.67 | -- |
| Assigned non-Columbia River inriver 2021 | | | 6.00 | 7.50 | 15.00 | 4.00 | 7.32 |
| NON-RETAINED CATCH RATES | | | 23% | 27% | 41% | 62% winter<br>57% summer | |

OCEAN

| | | Ocean Pacific Halibut Success Rates | | | |
|---|---|---|---|---|---|
| | | Charter | | Private | |
| Pacific Ocean (north or south of Cape Falcon) | | N CF | S CF | N CF | S CF |
| ODFW ORBS | 2011 | 1.66 | 1.15 | 1.36 | 1.94 |
| | 2012 | 2.58 | 1.18 | 1.80 | 1.80 |
| | 2013 | 4.79 | 1.20 | 1.62 | 1.79 |
| | 2014 | 1.49 | 1.09 | 2.28 | 1.86 |
| | 2015 | 2.31 | 1.27 | 1.29 | 2.07 |
| | 2016 | -- | 1.61 | 1.28 | 2.20 |
| | 2017 | 1.25 | 1.31 | 1.22 | 2.10 |
| | 2018 | 1.00 | 1.65 | 1.29 | 2.27 |
| | 2019 | -- | 1.31 | 1.26 | 2.39 |
| | 2020 | -- | 1.40 | 2.60 | 2.30 |
| | 2021 | -- | 1.25 | 1.32 | 2.07 |

Table A.1 (cont.)

| Pacific Ocean (north or south of Cape Falcon) | | Ocean Salmon Success Rates | | | | | |
|---|---|---|---|---|---|---|---|
| | | Chinook Only | | Chinook or Coho | | Season | |
| | | N CF | S CF | N CF | S CF | N CF | S CF |
| PFMC annual | 2011 | 3.56 | 11.55 | 0.94 | 1.86 | 0.96 | 2.53 |
| | 2012 | 1.20 | 3.42 | 1.53 | 1.78 | 1.44 | 1.98 |
| | 2013 | 2.16 | 2.41 | 1.12 | 1.89 | 1.04 | 2.04 |
| | 2014 | 4.72 | 6.19 | 0.62 | 0.93 | 0.64 | 1.10 |
| | 2015 | 2.70 | 6.03 | 0.74 | 1.88 | 0.74 | 2.20 |
| | 2016 | -- | 7.82 | 1.17 | 3.27 | 1.17 | 3.92 |
| | 2017 | 1.78 | 9.23 | 0.98 | 1.69 | 1.01 | 1.94 |
| | 2018 | 3.17 | 12.19 | 0.96 | 2.19 | 0.98 | 2.46 |
| | 2019 | 12.83 | 18.95 | 0.81 | 1.22 | 0.79 | 1.46 |
| | 2020 | 7.82 | 8.94 | 0.87 | 2.14 | 0.89 | 2.22 |
| | 2021 | 5.08 | 16.16 | 0.78 | 0.96 | 0.79 | 1.01 |

Notes:
1. Success rates are expressed as number of days per fish retained. Non-retained catch rates were derived using Question 19a and 20a preference survey results as described in OSU (2013).
2. Non-retained catch rates apply to sum of wild and hatchery retained catch. Fisheries are inclusive of the central coast from Necanicum River in the north through the Elk River in the south.
3. The "assigned" 2021 success rate is a conservative estimate used to convert SSHSTRP catch data to angler days. The assigned success rates are used in the economic modeling for all coast and Columbia River off-channel lower estuary salmon and sturgeon recreational fisheries, except Chinook and coho caught in Youngs Bay use the Columbia River mainstem success rates.
4. Fall Chinook and coho fisheries are concurrent on some rivers and streams.
5. Columbia River fall mainstem salmon fishery includes Oregon side only, and Columbia River mainstem Section 10 includes both Oregon and Washington side.
6. Sturgeon has a catch and release regulation in some months, and trips for those months are included in success rates to account for the fishing pressure during the catch and release season. Sturgeon trips in lower Columbia River are from Watts (CRCP) data.
7. Ocean salmon 'Chinook only' includes June and October for North of Cape Falcon, and June, August, and October for South of Cape Falcon. Ocean salmon 'Chinook or coho' includes July through September for North of Cape Falcon, and July and September for South of Cape Falcon. In some years coho fisheries allowed in other months. Ocean salmon 'season" includes all months and both fisheries.
8. North of Cape Falcon (N CF) region includes Astoria area. South of Cape Falcon (S CF) region includes the south of Humbug Mt. to Oregon-California border management area.

Sources: Watts (2023); creel surveys performed by ODFW (CCRMP); ODFW (1977); Devore et al. (1999); PFMC (February 2023); ODFW (ORBS).

Table A.2
Recreational Finfish Fisheries Trips by Target Species for Ocean and Inriver Locations at Port Groups in 2021

Ocean Angler Trips (Charter and Private) by Trip Purpose in 2021

| Trips | Salmon | Combination | Bottomfish | Halibut/Tuna | Dive | Total |
|---|---|---|---|---|---|---|
| Astoria | 12,179 | 675 | 422 | 210 | 2 | 13,488 |
| Garibaldi | 11,319 | 2,027 | 9,743 | 1,483 | 0 | 24,572 |
| Pacific City | 2,259 | 3,079 | 2,761 | 314 | 4 | 8,417 |
| Depoe Bay | 6,400 | 2,046 | 21,490 | 973 | 4 | 30,913 |
| Newport | 23,856 | 7,390 | 22,778 | 7,981 | 0 | 62,005 |
| Florence | 2,320 | 32 | 0 | 86 | 0 | 2,438 |
| Winchester Bay | 14,687 | 619 | 1,305 | 1,387 | 0 | 17,998 |
| Coos Bay/Charleston | 2,557 | 1,072 | 12,504 | 3,021 | 11 | 19,165 |
| Bandon | 98 | 212 | 1,844 | 690 | 0 | 2,844 |
| Port Orford | n/a | n/a | n/a | n/a | n/a | n/a |
| Gold Beach | 97 | 50 | 1,660 | 0 | 0 | 1,807 |
| Brookings | 4,217 | 1,489 | 18,567 | 2,523 | 61 | 26,857 |
| Coastwide | 79,989 | 18,691 | 93,074 | 18,668 | 82 | 210,504 |
| Proportion that is Charter | | | | | | |
| Astoria | 3% | 0% | 0% | 0% | 0% | 2% |
| Garibaldi | 0% | 11% | 63% | 18% | n/a | 27% |
| Pacific City | 1% | 22% | 33% | 9% | 0% | 19% |
| Depoe Bay | 44% | 23% | 86% | 42% | 0% | 72% |
| Newport | 10% | 11% | 65% | 22% | n/a | 32% |
| Florence | 0% | 0% | n/a | 0% | n/a | 0% |
| Winchester Bay | 0% | 0% | 0% | 0% | n/a | 0% |
| Coos Bay/Charleston | 0% | 0% | 22% | 1% | 0% | 15% |
| Bandon | 0% | 0% | 58% | 11% | n/a | 40% |
| Port Orford | n/a | n/a | n/a | n/a | n/a | n/a |
| Gold Beach | 4% | 0% | 35% | n/a | n/a | 32% |
| Brookings | 4% | 3% | 29% | 3% | 0% | 21% |
| Coastwide | 7% | 12% | 54% | 14% | 0% | 29% |

Notes: 1. A trip is one angler day.
2. Recreational crabbing is not included.
3. Combination trips target salmon and bottomfish.
4. The last year data was available for Port Orford was 2012, and the trips were 24 for salmon, eight combination, 439 bottomfish, 133 halibut, no tuna, and 74 dive. There was no ORBS sampling at Port Orford in 2021.

Source: ODFW (ORBS).

Table A.2 (cont.)

Inriver Salmon, Steelhead, Sturgeon, and Other Marine Species Trips in 2021

| County | Community | Fall Chinook/ Coho | Spr./Sum. Chinook | Steelhead | Sturgeon | Other Marine Species | Total |
|---|---|---|---|---|---|---|---|
| Clatsop | Astoria area (excl.CR | 312 | 0 | 0 | 0 | 0 | 312 |
| Tillamook | Tillamook area | 84,464 | 25,788 | 96,800 | 0 | 65,033 | 272,084 |
| Lincoln | Newport area | 67,357 | 1,942 | 54,999 | 234 | 30,409 | 154,941 |
| Lane | Florence | 16,313 | 62 | 6,872 | 0 | 0 | 23,247 |
| Douglas | Reedsport | 31,163 | 3,749 | 3,939 | 0 | 13,602 | 52,452 |
| Coos | Coos Bay area | 40,909 | 217 | 31,278 | 22 | 14,297 | 86,724 |
| Curry | Port Orford | 6,668 | 320 | 2,196 | 0 | 0 | 9,184 |
| | Gold Beach | 16,380 | 8,318 | 3,512 | 0 | 0 | 28,210 |
| | Brookings | 2,304 | 173 | 2,852 | 0 | 9,596 | 14,925 |
| Subtotal | | 265,870 | 40,567 | 202,447 | 256 | 132,938 | 642,078 |
| Coastwide | | 354,604 | 52,509 | 205,851 | 10,189 | 134,596 | 757,749 |

Notes:
1. Estimates for associated waterway recreational fishing exclude trips made for the purpose of catching resident fish. There are many coastal lakes and other streams near the communities where this occurs, but there were not consistent data sources to develop economic contribution estimates. Trips when the primary purpose is from recreational angling for cutthroat trout and recreational crabbing/clamming are not included. Coastwide total includes lower Columbia River estuary.
2. Trips are from Salmon-Steelhead, Halibut, and Sturgeon Tag Return Program (SSHSTRP) catch times success rates in angler days per fish, and expanded for non-retention rates.
3. Lower Columbia River mainstem spring/summer Chinook fishery includes trips in off-channel areas.
4. Coast estuary other marine species trips most complete recent year available from RecFIN is for year 2002. The counts include trips when anadromous fish are the target species. The anadromous fish trips in 2002 based on SSHSTRP data for "bay" waterway segments are subtracted from the RecFIN derived trip data in order to avoid double counting. It is assumed that other marine species trip counts after the subtraction do not change from 2002 in subsequent years. Lower Columbia River estuary other marine trips only available from MRFSS data ending in Year 1999. The 1997 to 1999 three year average was assumed the trip count for subsequent years.
5. Coast inriver and lower Columbia tributary salmon and steelhead fisheries data is for 2021. Lower Columbia River mainstem salmon, steelhead, and sturgeon fisheries trips are reported by Watts (CRCP) and are for 2021.

Source: ODFW (SSHSTRP).

Table A.3
Marine Recreational Finfish Fisheries Economic Contributions by Selective Fisheries in 2020 and 2021

Economic Contributions in 2020

| | Location | | | | | |
|---|---|---|---|---|---|---|
| | | Coast Lower River | | Lower | | |
| Target Fishery | Ocean | Salmon/ Steelhead | Marine Species | Columbia River | Total | Fishery Share |
| Ocean salmon | $3.0 | | | | $3.0 | 3.6% |
| Lower river fall salmon | | $20.3 | | $0.2 | $20.5 | 24.6% |
| Lower river steelhead | | $28.9 | | $0.4 | $29.3 | 35.1% |
| Lower river spr./sum. Chinook | | $2.3 | | $0.5 | $2.8 | 3.4% |
| CR mainstem fall salmon | | | | $2.9 | $2.9 | 3.5% |
| Ocean halibut | $1.5 | | | | $1.5 | 1.8% |
| Ocean tuna | $0.2 | | | | $0.2 | 0.2% |
| Ocean bottomfish | $9.4 | | | | $9.4 | 11.3% |
| Other marine species | | | $13.5 | $0.2 | $13.7 | 16.4% |
| Sturgeon | | | $0.0 | $0.05 | $0.0 | 0.1% |
| Total | $14.1 | $51.6 | $13.5 | $4.3 | $83.5 | 100.0% |
| Shares | 16.9% | 61.8% | 16.1% | 5.2% | 100.0% | |

Economic Contributions in 2021

| | Location | | | | | |
|---|---|---|---|---|---|---|
| | | Coast Lower River | | Lower | | |
| Target Fishery | Ocean | Salmon/ Steelhead | Marine Species | Columbia River | Total | Fishery Share |
| Ocean salmon | $5.7 | | | | $5.7 | 6.1% |
| Lower river fall salmon | | $27.9 | | $1.3 | $29.2 | 31.3% |
| Lower river steelhead | | $20.6 | | $0.5 | $21.1 | 22.6% |
| Lower river spr./sum. Chinook | | $3.8 | | $1.7 | $5.5 | 5.9% |
| CR mainstem fall salmon | | | | $5.5 | $5.5 | 5.9% |
| Ocean halibut | $0.9 | | | | $0.9 | 1.0% |
| Ocean tuna | $0.4 | | | | $0.4 | 0.4% |
| Ocean bottomfish | $9.9 | | | | $9.9 | 10.6% |
| Other marine species | | | $13.5 | $0.2 | $13.7 | 14.7% |
| Sturgeon | | | $0.0 | $1.4 | $1.4 | 1.5% |
| Total | $16.9 | $52.4 | $13.5 | $10.5 | $93.3 | 100.0% |
| Shares | 18.1% | 56.2% | 14.4% | 11.3% | 100.0% | |

Notes: 1. Economic contributions are expressed as income in millions of 2021 dollars and are at the coastwide economic level.
2. Other marine species is sometimes referred to as bottomfishing when it takes place in the ocean.

Table A.4
Recreational Finfish Fisheries Economic Contribution for Oregon Ports and Coastwide in 2021

Economic Contribution From Ocean Trips in 2021 (thousands of 2021 dollars)

| Port | Salmon/Combination | Bottomfish | Halibut/Tuna | Dive | Total |
|---|---|---|---|---|---|
| Astoria | 919 | 33 | 16 | 0 | 968 |
| Garibaldi | 645 | 1,010 | 97 | 0 | 1,753 |
| Pacific City | 258 | 217 | 18 | 0 | 493 |
| Depoe Bay | 539 | 3,090 | 94 | 0 | 3,724 |
| Newport | 1,993 | 2,759 | 604 | 0 | 5,357 |
| Florence | 122 | 0 | 6 | 0 | 128 |
| Winchester Bay | 795 | 85 | 90 | 0 | 970 |
| Coos Bay/Charleston | 188 | 1,137 | 200 | 1 | 1,526 |
| Bandon | 16 | 244 | 54 | 0 | 313 |
| Port Orford | n/a | n/a | n/a | n/a | n/a |
| Gold Beach | 6 | 117 | 0 | 0 | 123 |
| Brookings | 232 | 1,228 | 114 | 3 | 1,577 |
| Coastwide | 5,714 | 9,918 | 1,295 | 4 | 16,931 |

Economic Contribution From Inriver Trips in 2021 (thousands of 2021 dollars)

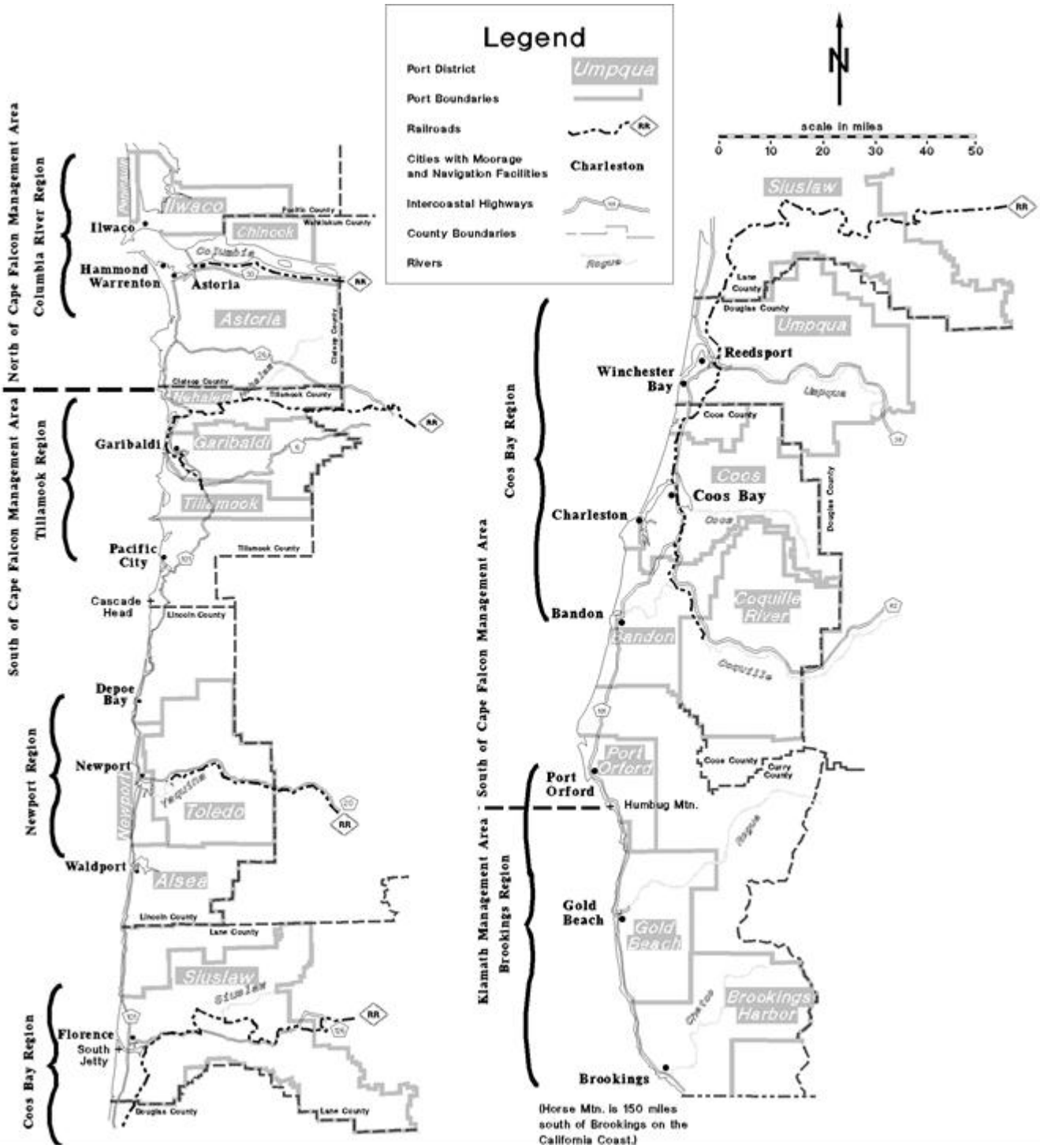
| County | Port | Fall Chinook/ Coho | Spr./Sum. Chinook | Steelhead | Sturgeon | Other Marine Species | Total |
|---|---|---|---|---|---|---|---|
| Clatsop | Lower Col. R. estuary | 6,734 | 1,669 | 476 | 1,388 | 232 | 10,499 |
| Clatsop | Astoria coast area | 44 | 0 | 0 | 0 | 0 | 44 |
| Tillamook | Tillamook area | 7,832 | 2,391 | 8,976 | 0 | 6,030 | 25,228 |
| Lincoln | Newport area | 7,093 | 204 | 5,792 | 25 | 3,202 | 16,316 |
| Lane | Florence | 2,005 | 8 | 845 | 0 | 0 | 2,857 |
| Douglas | Reedsport | 3,830 | 461 | 484 | 0 | 1,672 | 6,447 |
| Coos | Coos Bay area | 5,028 | 27 | 3,845 | 3 | 1,757 | 10,660 |
| Curry | Port Orford | 550 | 26 | 181 | 0 | 0 | 757 |
| | Gold Beach | 1,351 | 686 | 290 | 0 | 0 | 2,326 |
| | Brookings | 190 | 14 | 235 | 0 | 791 | 1,231 |
| Subtotal | | 34,657 | 5,486 | 21,122 | 1,416 | 13,685 | 76,366 |
| Coastwide | | 34,657 | 5,486 | 21,122 | 1,416 | 13,685 | 76,366 |

Notes: 1. Economic contributions are expressed as income in millions of 2021 dollars and are at the coastwide economic level.

# Appendix B

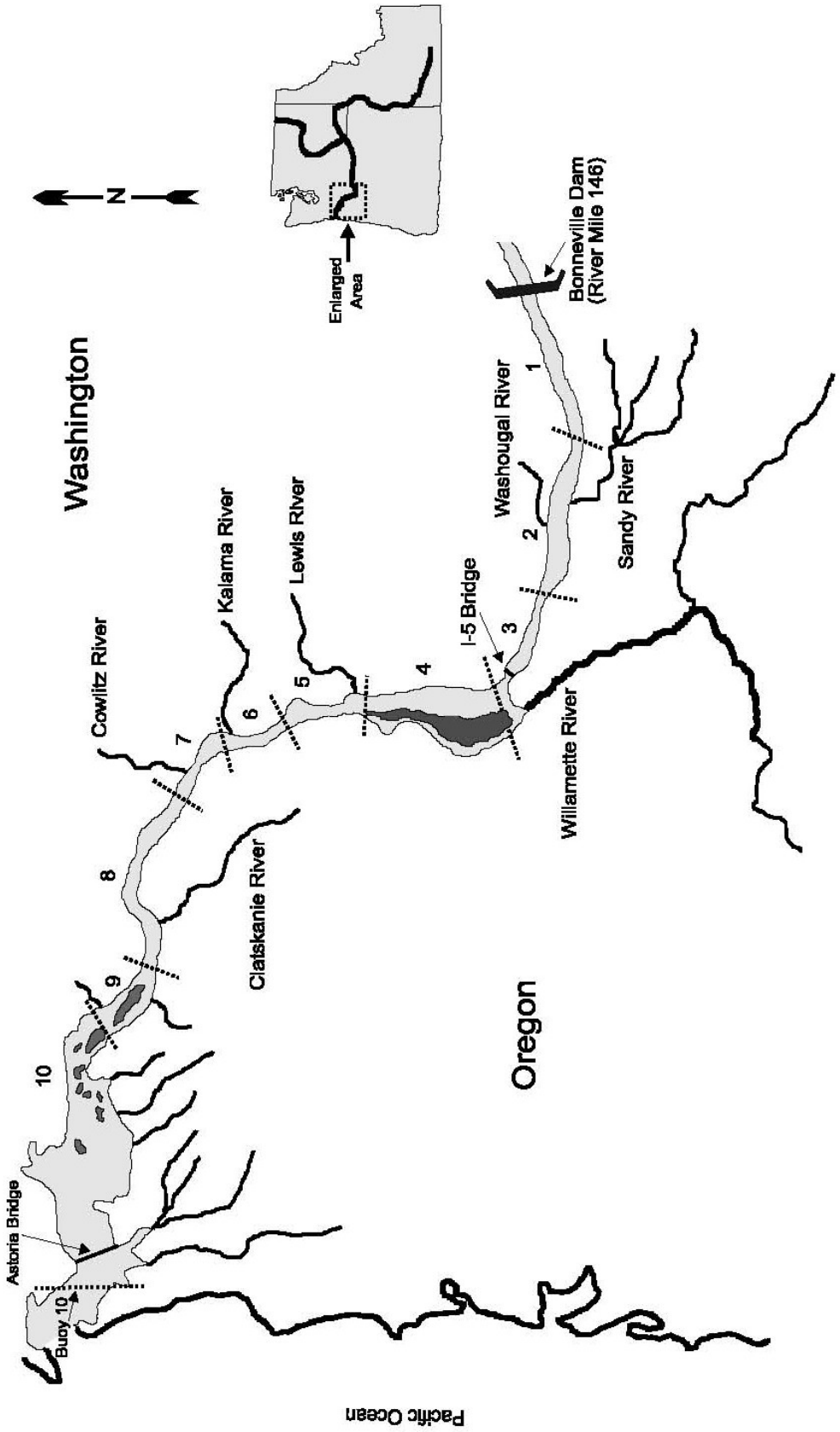
# Maps

Map B.1
Salmon Fishery Management Areas and Port Group Regions



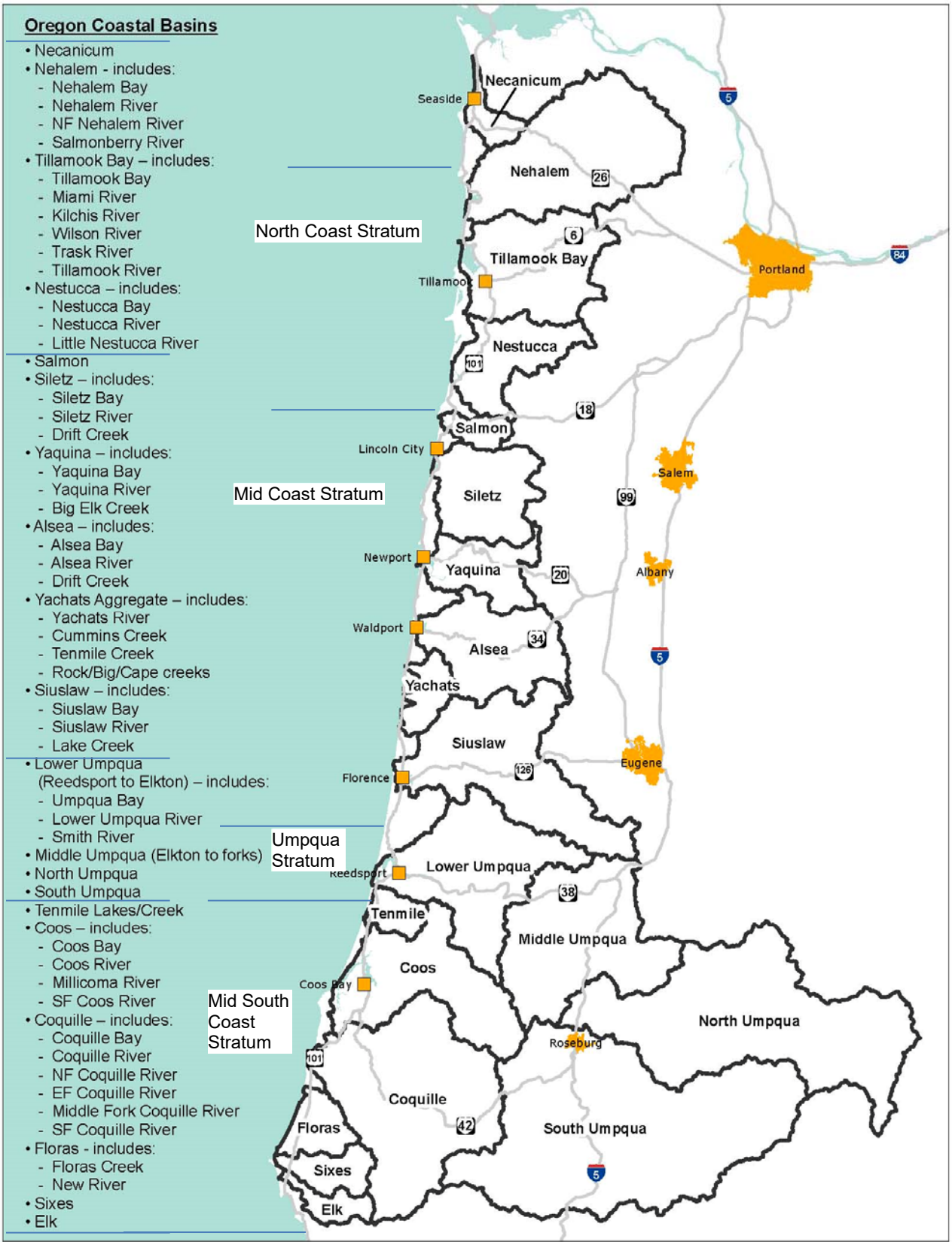

Source: The Research Group (June 2000).

Map B.2
Recreational Sampling Sections on the Columbia River Below Bonneville Dam




Source: Watts (2009).

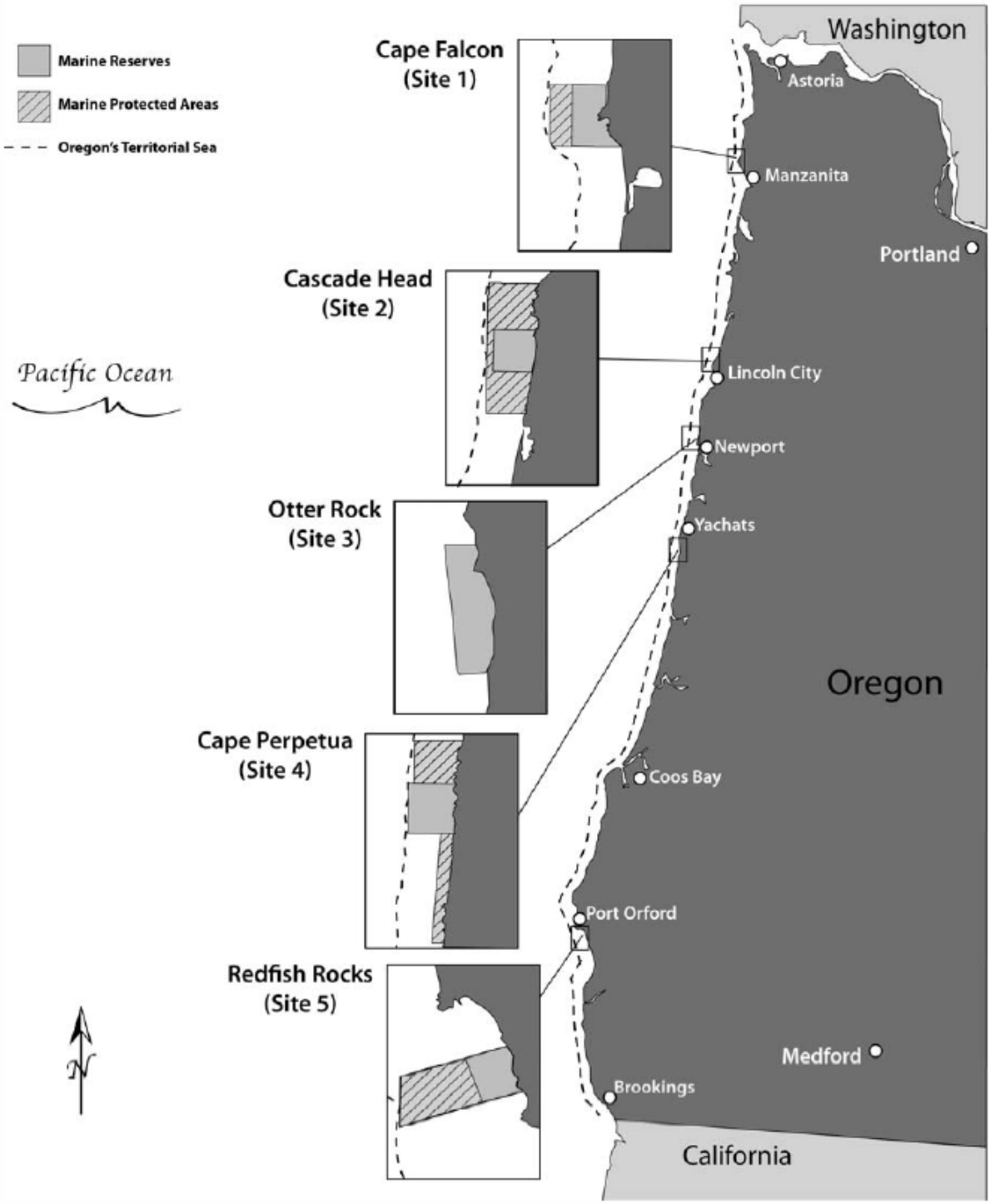
Map B.3
Coastal Basins Within the Oregon Coastal Multispecies Conservation and Management Plan Area




Notes: There are separate conservation and management plans for Columbia River tributaries in Clatsop County, and other coastal basins not shown on this map including the Rogue River. The conservation and management plans are required by the Oregon Native Fish Conservation Policy.

Source: ODFW (June 5, 2013).

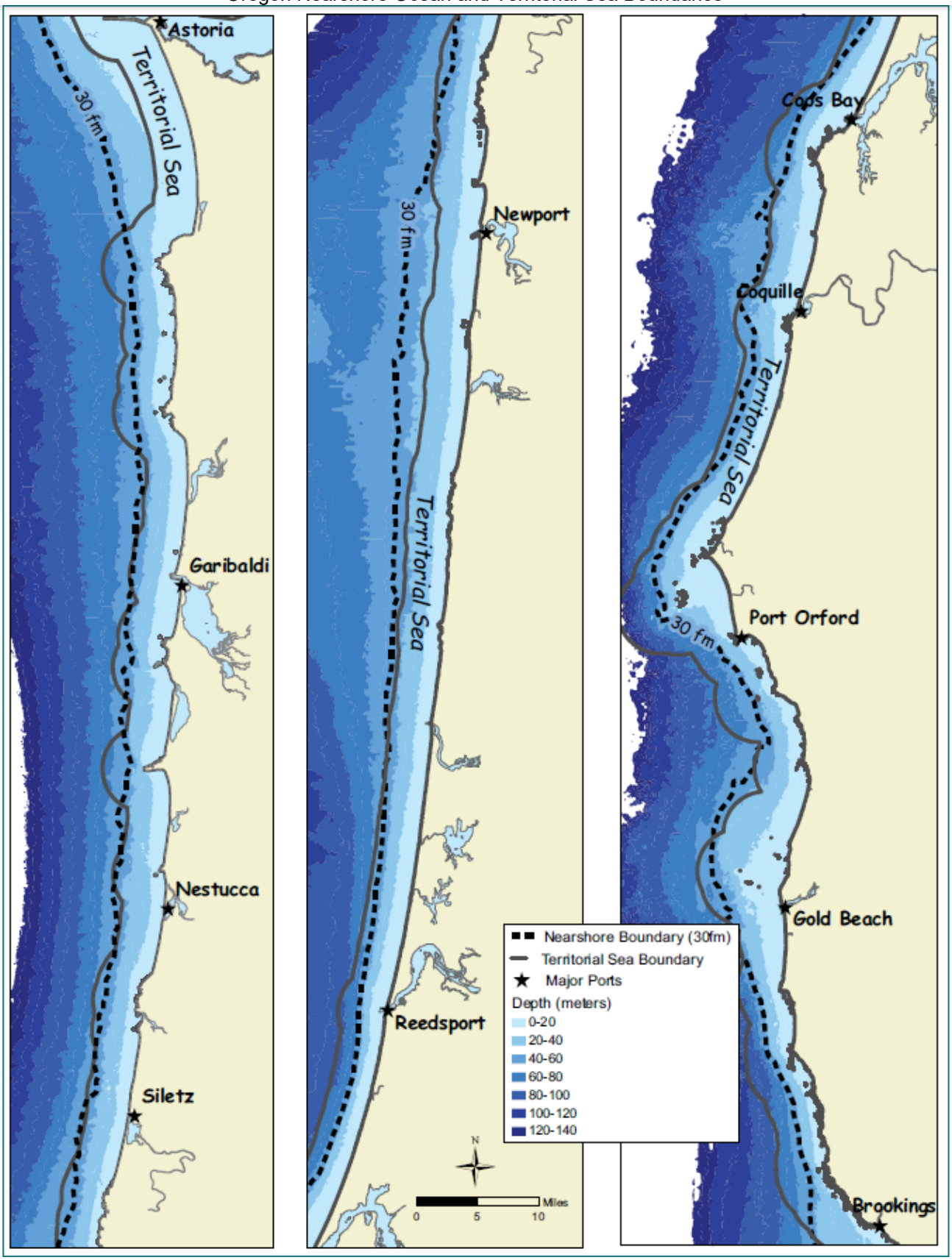
Map B.4
Oregon Marine Reserve Sites




Notes: Marine reserve sites are defined by the Oregon Ocean Policy Advisory Committee to be areas within Oregon's state territorial waters that are to be protected from all extractive activities, including the removal or disturbance of living and non-living marine resources, except as necessary for monitoring or research to evaluate reserve condition, effectiveness, or impact of stressors. The Oregon Legislature House Bill 3013 enacted in 2009 assigned the ODFW as the lead agency for establishing and implementing marine reserve sites. Two sites were designated: Redfish Rocks at Port Orford and Otter Rock near Depoe Bay. Senate Bill 1510 was enacted in 2011 requiring ODFW to evaluate, establish, and enforce regulations on three new marine reserves: Cape Falcon, Cape Perpetua, and Cascade Head. Recreational and commercial fishing was constrained within Redfish Rocks and Otter Rocks in 2012, Cape Perpetua and Cascade Heads in 2014, and Cape Falcon in 2015.

Source: Oregon Marine Reserves Website.

Map B.5
Oregon Nearshore Ocean and Territorial Sea Boundaries




Notes: 1. Oregon's nearshore ocean boundary is defined to be shoreward of the 30 fm depth contour in this map's source publication. The TS boundary is three nautical miles offshore.

Source: ODFW (2016).

# Appendix C

# Commercial Vessel and Landings Trend Information

Appendix C
Commercial Vessel and Landings Trend Information

Contents

Table C.1
Onshore Landed Volume by Major Fishery in 1985 to 2023

| Year | Salmon | D. Crab | P. Shrimp | A. Tuna | Groundfish | P. Whiting | P. Sardine | P. Halibut | M. Squid | Other | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1985 | 6,570 | 7,358 | 14,840 | 1,518 | 61,920 | 1,950 | -- | 813 | 1,752 | 2,525 | 99,245 |
| 1986 | 13,792 | 4,658 | 33,884 | 2,461 | 54,883 | 927 | -- | 1,314 | 26 | 1,573 | 113,517 |
| 1987 | 15,094 | 5,991 | 44,589 | 2,288 | 67,176 | 403 | -- | 916 | 0 | 1,925 | 138,383 |
| 1988 | 17,789 | 9,417 | 41,846 | 3,967 | 70,495 | 543 | -- | 582 | 0 | 3,486 | 148,126 |
| 1989 | 11,724 | 11,676 | 49,129 | 1,080 | 81,047 | 196 | -- | 916 | 96 | 9,544 | 165,408 |
| 1990 | 5,412 | 9,510 | 31,883 | 2,079 | 73,305 | 5,058 | -- | 622 | -- | 11,033 | 138,903 |
| 1991 | 5,344 | 4,924 | 21,711 | 1,259 | 80,847 | 29,109 | -- | 544 | 0 | 6,136 | 149,875 |
| 1992 | 2,364 | 11,908 | 48,033 | 3,896 | 75,215 | 107,939 | 9 | 712 | 13 | 6,731 | 256,820 |
| 1993 | 1,848 | 10,456 | 26,923 | 4,754 | 81,303 | 78,970 | 1 | 663 | 131 | 5,246 | 210,294 |
| 1994 | 1,285 | 10,638 | 16,386 | 4,698 | 64,265 | 143,563 | 0 | 540 | 233 | 3,993 | 245,602 |
| 1995 | 2,862 | 11,954 | 12,106 | 5,034 | 55,066 | 147,355 | -- | 543 | 246 | 3,408 | 238,574 |
| 1996 | 2,842 | 19,302 | 15,727 | 8,948 | 57,002 | 155,590 | 0 | 310 | 229 | 2,501 | 262,452 |
| 1997 | 2,245 | 7,777 | 19,560 | 9,168 | 52,703 | 162,782 | 0 | 377 | 271 | 5,996 | 260,877 |
| 1998 | 1,978 | 7,410 | 6,096 | 10,603 | 41,806 | 157,895 | 2 | 237 | 19 | 4,356 | 230,402 |
| 1999 | 1,560 | 12,347 | 20,451 | 4,553 | 44,119 | 160,965 | 1,710 | 350 | 2 | 3,337 | 249,394 |
| 2000 | 3,142 | 11,180 | 25,462 | 8,757 | 39,311 | 151,461 | 21,005 | 331 | 13 | 2,761 | 263,423 |
| 2001 | 5,266 | 9,690 | 28,482 | 8,959 | 31,645 | 117,673 | 28,176 | 253 | 4 | 3,523 | 233,671 |
| 2002 | 6,119 | 12,444 | 41,584 | 4,362 | 21,102 | 71,220 | 50,069 | 529 | 4 | 2,680 | 210,112 |
| 2003 | 6,722 | 23,930 | 20,546 | 9,165 | 25,934 | 80,648 | 55,683 | 342 | 27 | 2,635 | 225,632 |
| 2004 | 5,936 | 27,273 | 12,207 | 10,754 | 25,590 | 130,238 | 79,610 | 345 | 43 | 2,220 | 294,217 |
| 2005 | 4,688 | 17,730 | 15,784 | 8,087 | 27,231 | 135,503 | 99,450 | 357 | 32 | 3,577 | 312,439 |
| 2006 | 1,814 | 33,316 | 12,195 | 8,536 | 27,395 | 135,186 | 78,634 | 251 | 60 | 3,156 | 300,543 |
| 2007 | 1,384 | 17,026 | 20,125 | 10,468 | 30,881 | 94,360 | 92,911 | 244 | 1 | 3,596 | 270,997 |
| 2008 | 1,923 | 13,888 | 25,520 | 8,864 | 37,922 | 61,466 | 50,593 | 243 | 0 | 4,345 | 204,765 |
| 2009 | 2,312 | 21,854 | 22,153 | 10,072 | 41,400 | 62,988 | 47,357 | 234 | 0 | 2,442 | 210,811 |
| 2010 | 2,774 | 15,868 | 31,463 | 10,700 | 36,855 | 69,530 | 45,971 | 186 | 17 | 3,253 | 216,618 |
| 2011 | 2,422 | 17,260 | 48,314 | 9,682 | 28,936 | 151,464 | 24,302 | 217 | 0 | 3,222 | 285,821 |
| 2012 | 1,927 | 8,666 | 49,144 | 9,886 | 28,475 | 107,652 | 93,957 | 197 | 0 | 6,811 | 306,716 |
| 2013 | 3,513 | 26,073 | 47,629 | 10,205 | 31,111 | 167,499 | 57,956 | 205 | 0 | 5,198 | 349,390 |
| 2014 | 6,414 | 11,915 | 51,960 | 8,777 | 28,375 | 168,226 | 17,171 | 206 | 1 | 7,318 | 300,362 |
| 2015 | 3,159 | 2,287 | 53,516 | 7,577 | 32,976 | 94,907 | 4,699 | 263 | -- | 4,502 | 203,885 |
| 2016 | 1,844 | 15,716 | 35,528 | 7,250 | 35,716 | 113,035 | 9 | 248 | 2,778 | 14,793 | 226,918 |
| 2017 | 1,196 | 19,016 | 23,057 | 4,745 | 48,374 | 201,499 | 3 | 269 | 0 | 4,196 | 302,355 |
| 2018 | 980 | 23,137 | 35,873 | 5,812 | 51,167 | 185,554 | 20 | 231 | 7,046 | 3,399 | 313,219 |
| 2019 | 1,003 | 19,035 | 26,852 | 6,571 | 48,430 | 222,202 | 28 | 252 | 5,248 | 4,817 | 334,438 |
| 2020 | 1,552 | 19,890 | 43,133 | 4,419 | 41,070 | 219,617 | 1 | 255 | 10,297 | 4,369 | 344,604 |
| 2021 | 1,790 | 24,301 | 46,670 | 3,220 | 45,360 | 184,089 | 26 | 255 | 7,838 | 4,241 | 317,790 |
| Avg16-20 | 1,315 | 19,359 | 32,889 | 5,759 | 44,951 | 188,381 | 12 | 251 | 5,074 | 6,315 | 304,307 |
| 2022 | 2,158 | 4,925 | 41,218 | 6,269 | 50,045 | 170,337 | 16 | 254 | 5,521 | 5,760 | 286,503 |
| 2023 | 1,751 | 37,182 | 44,148 | 2,451 | 46,774 | 164,005 | 3 | 309 | 0 | 4,733 | 301,355 |

Notes:
1. Landings are reported in thousands of round pounds. Landing data is preliminary for 2021 to 2023.
2. Salmon includes landings of steelhead, which have come exclusively from the tribal fisheries since 1975.
3. D. crab includes only Dungeness crab; p. shrimp includes only pink shrimp; and a. tuna includes only albacore tuna.
4. Pacific whiting (also known as hake) did not emerge as a major fishery species until after 1990. Groundfish in 2021 includes (thousands of round pounds) flatfish (10,895), sablefish (5,236), thornyheads (530), rockfish other than thornyheads (26,712), cods other than sablefish (795), and other (1,192).
5. Biological studies have found the northern population of the Pacific sardine has a three decade or so abundance cycle, and did not emerge as a major fishery species until 2000 in the latest cycle.
6. "Other" in 2021 includes landings (thousands of round pounds) of jack mackerel (1,921), hagfish (786), basket cockle (310), and other species (1,224). Shellfish volume excludes aquaculture production.

Source: PacFIN annual vessel summary, March 2008, April 2009, March 2010, July 2011, April 2013, March 2014, April 2015, November 2016, March 2017, June 2018, July 2019, March 2023, and February 2024 extractions.

# Table C.2
## Onshore Landed Value by Major Fishery in 1985 to 2023

| | Price | Salmon | | D. Crab | | Pink Shrimp | | Albacore Tuna | | Groundfish | | P. Whiting | | P. Sardine | | P. Halibut | | Market Squid | | Other | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Index | Real | Nominal | Real | Nominal | Real | Nominal | Real | Nominal | Real | Nominal | Real | Nominal | Real | Nominal | Real | Nominal | Real | Nominal | Real | Nominal | Real | Nominal |
| 1985 | 45.9 | 19,750 | 9,056 | 23,233 | 10,654 | 11,419 | 5,236 | 1,787 | 819 | 36,913 | 16,927 | 378 | 173 | -- | -- | 1,741 | 798 | 695 | 319 | 3,499 | 1,605 | 99,415 | 45,587 |
| 1986 | 46.8 | 32,451 | 15,181 | 14,080 | 6,587 | 38,756 | 18,131 | 2,832 | 1,325 | 37,094 | 17,353 | 128 | 60 | -- | -- | 4,017 | 1,879 | 6 | 3 | 2,890 | 1,352 | 132,254 | 61,871 |
| 1987 | 47.9 | 56,316 | 26,994 | 17,423 | 8,351 | 63,157 | 30,273 | 3,504 | 1,680 | 50,807 | 24,353 | 71 | 34 | -- | -- | 2,970 | 1,423 | 0 | 0 | 3,311 | 1,587 | 197,558 | 94,696 |
| 1988 | 49.6 | 78,627 | 39,020 | 22,730 | 11,280 | 34,557 | 17,150 | 6,707 | 3,328 | 48,427 | 24,033 | 83 | 41 | -- | -- | 1,767 | 877 | 0 | 0 | 3,795 | 1,883 | 196,694 | 97,612 |
| 1989 | 51.6 | 27,590 | 14,228 | 26,301 | 13,564 | 34,720 | 17,905 | 1,719 | 887 | 48,905 | 25,221 | 28 | 15 | -- | -- | 2,523 | 1,301 | 15 | 8 | 7,869 | 4,058 | 149,670 | 77,187 |
| 1990 | 53.5 | 17,890 | 9,573 | 27,199 | 14,554 | 29,208 | 15,629 | 3,296 | 1,764 | 43,258 | 23,147 | 410 | 220 | -- | -- | 2,082 | 1,114 | -- | -- | 10,669 | 5,709 | 134,013 | 71,710 |
| 1991 | 55.3 | 10,537 | 5,828 | 13,491 | 7,462 | 21,833 | 12,076 | 1,771 | 979 | 52,096 | 28,814 | 2,477 | 1,370 | -- | -- | 1,847 | 1,022 | 0 | 0 | 8,193 | 4,531 | 112,245 | 62,083 |
| 1992 | 56.6 | 6,517 | 3,687 | 23,664 | 13,388 | 30,380 | 17,187 | 7,015 | 3,969 | 47,276 | 26,745 | 8,977 | 5,078 | -- | -- | 1,463 | 828 | 3 | 2 | 5,698 | 3,223 | 130,994 | 74,106 |
| 1993 | 57.9 | 4,188 | 2,425 | 20,544 | 11,898 | 15,387 | 8,912 | 6,704 | 3,883 | 47,723 | 27,638 | 3,953 | 2,289 | -- | -- | 1,489 | 862 | 54 | 31 | 5,043 | 2,921 | 105,084 | 60,859 |
| 1994 | 59.1 | 2,467 | 1,459 | 24,451 | 14,462 | 16,275 | 9,626 | 6,340 | 3,750 | 48,639 | 28,769 | 7,266 | 4,298 | -- | -- | 1,716 | 1,015 | 60 | 36 | 3,798 | 2,247 | 111,012 | 65,662 |
| 1995 | 60.4 | 5,918 | 3,574 | 33,191 | 20,044 | 14,240 | 8,599 | 6,706 | 4,050 | 51,289 | 30,974 | 11,592 | 7,000 | -- | -- | 1,558 | 941 | 69 | 41 | 3,715 | 2,243 | 128,277 | 77,467 |
| 1996 | 61.5 | 5,347 | 3,288 | 42,572 | 26,180 | 15,223 | 9,362 | 12,082 | 7,430 | 49,232 | 30,275 | 6,743 | 4,147 | -- | -- | 1,144 | 704 | 60 | 37 | 1,954 | 1,202 | 134,357 | 82,623 |
| 1997 | 62.6 | 4,431 | 2,772 | 23,395 | 14,636 | 12,645 | 7,910 | 11,735 | 7,342 | 44,736 | 27,987 | 10,906 | 6,823 | -- | -- | 1,112 | 695 | 79 | 49 | 2,170 | 1,358 | 111,209 | 69,573 |
| 1998 | 63.2 | 4,095 | 2,590 | 19,793 | 12,519 | 5,042 | 3,189 | 10,341 | 6,540 | 30,816 | 19,491 | 5,939 | 3,756 | 1 | 1 | 511 | 323 | 6 | 4 | 2,516 | 1,591 | 79,060 | 50,005 |
| 1999 | 64.1 | 3,184 | 2,042 | 36,029 | 23,107 | 14,923 | 9,571 | 5,899 | 3,784 | 34,601 | 22,192 | 9,227 | 5,917 | 134 | 86 | 1,079 | 692 | 0 | 0 | 1,637 | 1,050 | 106,714 | 68,441 |
| 2000 | 65.6 | 6,142 | 4,029 | 36,141 | 23,709 | 15,537 | 10,192 | 11,415 | 7,489 | 37,152 | 24,373 | 9,270 | 6,081 | 1,751 | 1,149 | 1,064 | 698 | 3 | 2 | 3,063 | 2,010 | 121,540 | 79,732 |
| 2001 | 67.1 | 8,712 | 5,847 | 28,752 | 19,296 | 11,265 | 7,560 | 11,263 | 7,559 | 30,404 | 20,405 | 6,157 | 4,132 | 2,412 | 1,619 | 718 | 482 | 1 | 1 | 3,300 | 2,215 | 102,984 | 69,116 |
| 2002 | 68.1 | 10,178 | 6,933 | 30,476 | 20,761 | 16,665 | 11,353 | 4,333 | 2,952 | 20,860 | 14,210 | 4,726 | 3,219 | 4,139 | 2,819 | 1,488 | 1,013 | 1 | 1 | 2,772 | 1,888 | 95,636 | 65,149 |
| 2003 | 69.5 | 12,764 | 8,869 | 53,417 | 37,117 | 7,270 | 5,051 | 8,878 | 6,169 | 25,434 | 17,673 | 5,242 | 3,642 | 4,233 | 2,941 | 1,238 | 860 | 10 | 7 | 1,664 | 1,156 | 120,150 | 83,487 |
| 2004 | 71.3 | 18,216 | 12,995 | 60,210 | 42,954 | 6,645 | 4,740 | 12,818 | 9,145 | 22,907 | 16,342 | 6,505 | 4,641 | 6,826 | 4,870 | 1,226 | 875 | 9 | 7 | 1,628 | 1,161 | 136,990 | 97,730 |
| 2005 | 73.6 | 14,188 | 10,438 | 36,153 | 26,597 | 9,381 | 6,901 | 11,983 | 8,816 | 25,113 | 18,475 | 9,660 | 7,107 | 8,426 | 6,199 | 1,217 | 896 | 10 | 7 | 2,080 | 1,530 | 118,211 | 86,965 |
| 2006 | 75.9 | 6,512 | 4,940 | 70,932 | 53,807 | 5,925 | 4,494 | 10,635 | 8,067 | 26,277 | 19,933 | 10,512 | 7,974 | 4,934 | 3,743 | 1,010 | 766 | 21 | 16 | 1,569 | 1,191 | 138,328 | 104,931 |
| 2007 | 77.9 | 5,983 | 4,662 | 49,034 | 38,202 | 12,020 | 9,365 | 12,152 | 9,468 | 26,309 | 20,497 | 8,344 | 6,501 | 5,841 | 4,551 | 1,090 | 849 | 0 | 0 | 1,763 | 1,373 | 122,537 | 95,468 |
| 2008 | 79.4 | 5,341 | 4,240 | 36,741 | 29,164 | 17,561 | 13,939 | 13,418 | 10,651 | 33,944 | 26,943 | 8,604 | 6,830 | 7,137 | 5,665 | 1,140 | 905 | -- | -- | 2,535 | 2,012 | 126,422 | 100,349 |
| 2009 | 79.9 | 4,436 | 3,544 | 53,072 | 42,404 | 8,528 | 6,813 | 12,740 | 10,179 | 35,213 | 28,135 | 4,656 | 3,720 | 6,622 | 5,291 | 839 | 670 | -- | -- | 2,033 | 1,624 | 128,137 | 102,380 |
| 2010 | 80.9 | 9,520 | 7,698 | 40,497 | 32,746 | 13,582 | 10,982 | 15,363 | 12,422 | 31,695 | 25,629 | 6,695 | 5,414 | 6,495 | 5,252 | 916 | 740 | -- | -- | 2,610 | 2,111 | 127,373 | 102,996 |
| 2011 | 82.5 | 8,163 | 6,737 | 54,145 | 44,690 | 29,814 | 24,607 | 22,736 | 18,766 | 34,456 | 28,439 | 20,012 | 16,518 | 3,867 | 3,192 | 1,382 | 1,141 | 0 | 0 | 2,902 | 2,395 | 177,477 | 146,485 |
| 2012 | 84.1 | 8,235 | 6,925 | 34,623 | 29,114 | 29,357 | 24,685 | 17,930 | 15,077 | 28,345 | 23,834 | 17,375 | 14,611 | 10,676 | 8,977 | 1,147 | 965 | -- | -- | 2,596 | 2,183 | 150,284 | 126,370 |
| 2013 | 85.6 | 14,511 | 12,418 | 83,212 | 71,209 | 28,224 | 24,153 | 18,789 | 16,079 | 26,085 | 22,322 | 23,844 | 20,405 | 7,361 | 6,299 | 1,148 | 982 | -- | -- | 4,124 | 3,529 | 207,299 | 177,396 |
| 2014 | 87.2 | 23,087 | 20,124 | 55,054 | 47,988 | 33,643 | 29,326 | 12,646 | 11,023 | 25,021 | 21,810 | 20,964 | 18,274 | 4,040 | 3,522 | 1,318 | 1,149 | 0 | 0 | 3,339 | 2,911 | 179,113 | 156,127 |
| 2015 | 88.0 | 13,481 | 11,864 | 13,535 | 11,912 | 45,920 | 40,413 | 10,467 | 9,212 | 32,711 | 28,788 | 8,120 | 7,146 | 923 | 813 | 1,611 | 1,418 | -- | -- | 3,078 | 2,709 | 129,846 | 114,274 |
| 2016 | 88.9 | 9,347 | 8,308 | 62,706 | 55,735 | 28,232 | 25,093 | 14,066 | 12,502 | 35,989 | 31,988 | 9,781 | 8,694 | 0 | 0 | 1,567 | 1,392 | 1,261 | 1,121 | 4,165 | 3,702 | 167,114 | 148,536 |
| 2017 | 90.6 | 6,133 | 5,556 | 64,822 | 58,728 | 14,005 | 12,688 | 11,924 | 10,803 | 39,375 | 35,673 | 18,085 | 16,385 | 0 | 0 | 1,559 | 1,413 | -- | -- | 3,253 | 2,947 | 159,157 | 144,193 |
| 2018 | 92.8 | 5,995 | 5,562 | 79,767 | 74,012 | 29,001 | 26,909 | 10,479 | 9,723 | 34,101 | 31,640 | 17,713 | 16,435 | 3 | 3 | 1,326 | 1,230 | 3,312 | 3,073 | 3,602 | 3,342 | 185,298 | 171,929 |
| 2019 | 94.4 | 4,426 | 4,179 | 71,935 | 67,930 | 21,116 | 19,940 | 11,496 | 10,856 | 29,839 | 28,178 | 23,000 | 21,719 | 4 | 4 | 1,323 | 1,249 | 3,056 | 2,886 | 3,581 | 3,381 | 169,774 | 160,322 |
| 2020 | 95.7 | 5,320 | 5,092 | 76,066 | 72,798 | 23,594 | 22,580 | 7,370 | 7,053 | 19,286 | 18,457 | 15,901 | 15,218 | -- | -- | 1,239 | 1,186 | 6,269 | 6,000 | 3,460 | 3,311 | 158,505 | 151,694 |
| 2021 | 100.0 | 6,526 | 6,526 | 120,008 | 120,008 | 23,360 | 23,360 | 6,608 | 6,608 | 22,540 | 22,540 | 17,479 | 17,479 | 2 | 2 | 1,579 | 1,579 | 4,545 | 4,545 | 2,754 | 2,754 | 205,400 | 205,400 |
| Avg16-20 | | 6,244 | | 71,059 | | 23,190 | | 11,067 | | 31,718 | | 16,896 | | 2 | | 1,403 | | 2,780 | | 3,612 | | 167,970 | |
| 2022 | | | 7,664 | | 31,442 | | 18,789 | | 14,343 | | 30,243 | | 18,913 | | 0 | | 1,579 | | 3,377 | | 4,189 | | 130,539 |
| 2023 | | | 5,245 | | 104,139 | | 18,723 | | 3,525 | | 26,270 | | 14,924 | | 0 | | 1,608 | | -- | | 2,519 | | 176,954 |

Notes
1. Nominal value is the revenue received by fishermen/harvesters in the landing year. Real value is in thousands of 2021 dollars adjusted using the GDP implicit price deflator developed by U.S. Bureau of Economic Analysis, except 2022 and 2023 are nominal.
2. Groundfish in 2021 includes landings (real ex-vessel value in thousands) of sablefish ($6,579), flatfish ($7,015), thornyheads ($180), rockfish other than thornyheads ($6,967), cods other than sablefish ($1,417), and other ($383). 'Other' in 2021 includes (real ex-vessel value in thousands) hagfish ($791), bay clams ($772 including basket, butter, gaper), red sea urchin ($725), white sturgeon ($184), razor clam ($111), ghost shrimp ($77), and other species ($94). Shellfish value excludes private lands harvest.
3. Notes and sources from volume table concerning species composition also apply to this table.

# Table C.3
## Fisheries Annual Ex-Vessel Prices by Selected Species and Species Groups in 1971 to 2023

| Species | 1971 | 1973 | 1975 | 1977 | 1979 | 1981 | 1983 | 1985 | 1987 | 1989 | 1991 | 1993 | 1995 | 1997 | 1999 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Troll Chinook (ocean) | 3.10 | 4.88 | 4.18 | 7.79 | 7.96 | 5.74 | 3.89 | 4.72 | 4.73 | 3.76 | 3.89 | 3.28 | 2.44 | 2.22 | 2.63 | 2.09 | 2.48 | 3.77 | 6.32 | 5.45 | 6.28 | 5.91 | 5.97 | 5.69 | 6.07 | 8.04 | 7.69 | 7.88 | 6.13 | 7.63 | 8.73 | 7.66 | 7.93 |
| Troll coho (ocean) | 1.89 | 3.73 | 3.10 | 4.79 | 6.99 | 3.73 | 1.94 | 2.86 | 3.13 | 1.80 | 1.56 | 1.70 | - | - | 1.39 | 1.02 | 1.06 | 2.21 | 2.13 | 2.22 | 2.11 | 2.28 | 2.60 | 2.00 | 1.84 | - | 2.91 | 3.42 | 2.45 | 2.99 | 3.58 | 2.66 | 2.98 |
| Net Chinook (below Bonneville Dam) | | | | | | | | | | | | | | | 2.20 | 2.11 | 1.21 | 2.28 | 4.26 | 2.54 | 2.99 | 3.13 | 3.01 | 2.13 | 3.06 | 4.14 | 4.73 | 6.34 | 4.31 | 2.83 | 3.61 | 3.20 | 3.94 |
| Spring | | | | | | | | | | | | | | | 4.42 | 4.36 | 4.03 | 4.74 | 7.15 | 6.02 | 5.94 | 7.00 | 7.40 | 6.12 | 6.44 | 8.03 | 8.32 | 11.32 | 12.12 | 7.54 | 9.36 | 5.57 | 8.39 |
| Fall | | | | | | | | | | | | | | | 1.74 | 0.97 | 0.95 | 2.06 | 3.32 | 2.43 | 2.58 | 2.52 | 2.74 | 1.97 | 2.48 | 3.38 | 3.35 | 3.47 | 2.73 | 2.68 | 3.03 | 2.64 | 3.21 |
| Net Chinook (above Bonneville Dam) | | | | | | | | | | | | | | | 0.84 | 0.61 | 0.37 | 0.82 | 2.62 | 1.67 | 1.67 | 2.71 | 2.44 | 2.08 | 2.56 | 3.26 | 3.87 | 4.38 | 3.13 | 2.72 | 3.15 | 1.90 | 2.27 |
| Spring | | | | | | | | | | | | | | | - | 1.91 | 1.58 | 2.31 | 4.80 | 3.84 | 4.24 | 5.69 | 5.38 | 5.41 | 4.53 | 6.06 | 6.10 | 7.83 | 5.89 | 5.87 | 6.55 | 5.00 | 9.46 |
| Fall | | | | | | | | | | | | | | | 0.89 | 0.36 | 0.27 | 0.79 | 2.65 | 1.35 | 0.95 | 2.18 | 2.24 | 1.69 | 2.18 | 2.76 | 3.54 | 3.76 | 2.91 | 2.48 | 2.62 | 1.66 | 1.88 |
| Net coho (below Bonneville Dam) | | | | | | | | | | | | | | | 1.30 | 0.42 | 0.77 | 1.45 | 2.09 | 1.49 | 1.94 | 1.92 | 2.13 | 1.32 | 1.74 | 2.07 | 2.24 | 2.06 | 1.84 | 1.74 | 1.89 | 1.74 | 1.45 |
| Net steelhead (above Bonneville Dam) | | | | | | | | | | | | | | | 0.65 | 0.23 | 0.11 | 0.38 | 0.84 | 0.77 | 1.37 | 1.44 | 1.25 | 1.27 | 1.51 | 1.58 | 2.38 | 2.38 | 3.03 | 1.68 | 1.67 | 1.60 | 1.66 |
| Dungeness crab | 1.49 | 2.71 | 3.19 | 1.95 | 2.28 | 2.47 | 3.46 | 3.16 | 2.91 | 2.25 | 2.74 | 1.97 | 2.78 | 3.02 | 2.92 | 2.97 | 2.23 | 2.04 | 2.88 | 2.43 | 3.14 | 4.01 | 3.19 | 4.62 | 5.95 | 3.99 | 3.42 | 3.45 | 3.79 | 3.83 | 4.96 | 6.41 | 2.81 |
| Pink shrimp | 0.64 | 1.04 | 0.54 | 0.82 | 1.18 | 1.29 | 1.66 | 0.77 | 1.42 | 0.71 | 1.01 | 0.57 | 1.18 | 0.65 | 0.73 | 0.40 | 0.35 | 0.59 | 0.60 | 0.39 | 0.62 | 0.60 | 0.59 | 0.65 | 0.86 | 0.80 | 0.61 | 0.81 | 0.79 | 0.55 | 0.50 | 0.46 | 0.43 |
| Albacore tuna | 1.45 | 1.69 | 1.27 | 0.92 | 1.62 | 2.23 | 1.29 | 1.18 | 1.53 | 1.59 | 1.41 | 1.41 | 1.33 | 1.28 | 1.30 | 1.26 | 0.97 | 1.48 | 1.16 | 1.27 | 2.35 | 1.81 | 1.84 | 1.43 | 1.38 | 1.94 | 2.51 | 1.80 | 1.75 | 1.67 | 2.05 | 2.29 | 1.44 |
| Groundfish species group | 0.43 | 0.57 | 0.56 | 0.75 | 0.83 | 0.46 | 0.55 | 0.60 | 0.76 | 0.60 | 0.64 | 0.61 | 0.96 | 0.87 | 0.81 | 0.96 | 0.98 | 0.92 | 0.88 | 0.87 | 1.24 | 1.04 | 0.87 | 0.92 | 1.04 | 1.06 | 0.85 | 0.71 | 0.66 | 0.52 | 0.53 | 0.65 | 0.60 |
| Nearshore live fishery | | | | | | - | - | - | - | - | - | - | - | 2.29 | 4.21 | 4.60 | 4.23 | 3.80 | 3.64 | 3.25 | 3.51 | 3.74 | 3.53 | 3.31 | 3.16 | 3.22 | 3.32 | 3.46 | 3.31 | 3.35 | 3.23 | 3.35 | 3.42 |
| Sablefish (black cod) | | | | | | 0.53 | 0.52 | 0.65 | 0.92 | 0.86 | 1.09 | 0.96 | 2.22 | 2.57 | 1.84 | 2.09 | 2.24 | 2.02 | 2.28 | 2.78 | 4.14 | 2.90 | 2.31 | 2.81 | 2.91 | 3.08 | 3.12 | 2.29 | 1.75 | 1.23 | 1.36 | 1.77 | 1.26 |
| Trawl gear | | | | | | 0.38 | 0.40 | 0.49 | 0.70 | 0.72 | 0.78 | 0.74 | 2.04 | 2.04 | 1.54 | 1.81 | 1.85 | 1.58 | 1.95 | 2.39 | 2.91 | 2.07 | 1.90 | 2.27 | 2.25 | 2.27 | 2.16 | 1.39 | 1.03 | 0.67 | 0.80 | 0.99 | 0.87 |
| Fixed gear | | | | | | 0.73 | 0.68 | 0.84 | 1.13 | 1.13 | 1.61 | 1.33 | 2.46 | 3.46 | 2.22 | 2.50 | 2.78 | 2.51 | 2.87 | 3.37 | 5.06 | 3.48 | 2.72 | 3.32 | 3.41 | 3.66 | 3.91 | 2.99 | 2.32 | 1.55 | 1.81 | 2.36 | 1.50 |
| Widow rockfish | | | | | | - | - | 0.55 | 0.67 | 0.50 | 0.49 | 0.48 | 0.55 | 0.48 | 0.59 | 0.61 | 0.63 | 0.59 | 0.63 | 0.54 | 0.54 | 0.52 | 0.55 | 0.51 | 0.47 | 0.49 | 0.33 | 0.29 | 0.30 | 0.24 | 0.26 | 0.30 | 0.29 |
| Yellowtail rockfish | | | | | | - | - | 0.55 | 0.67 | 0.52 | 0.55 | 0.55 | 0.61 | 0.59 | 0.61 | 0.68 | 0.69 | 0.68 | 0.67 | 0.59 | 0.63 | 0.63 | 0.60 | 0.59 | 0.55 | 0.52 | 0.39 | 0.37 | 0.39 | 0.23 | 0.24 | 0.30 | 0.28 |
| Thornyhead, longspine | | | | | | - | - | - | - | - | - | - | 1.61 | 1.19 | 1.14 | 1.31 | 0.93 | 0.79 | 0.67 | 0.40 | 0.52 | 0.54 | 0.50 | 0.47 | 0.46 | 0.48 | 0.48 | 0.42 | 0.42 | 0.24 | 0.33 | 0.33 | 0.41 |
| Thornyhead, shortspine | | | | | | - | - | - | - | - | - | - | 1.85 | 1.34 | 1.41 | 1.49 | 1.14 | 0.96 | 0.82 | 0.68 | 0.72 | 0.79 | 0.75 | 0.77 | 0.74 | 0.73 | 0.72 | 0.61 | 0.54 | 0.39 | 0.40 | 0.46 | 0.46 |
| Thornyhead, mixed | | | | | | - | - | 0.54 | 0.68 | 0.71 | 0.82 | 0.82 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pacific Ocean perch | | | | | | 0.41 | 0.50 | 0.53 | 0.66 | 0.49 | 0.53 | 0.49 | 0.52 | 0.45 | 0.55 | 0.61 | 0.63 | 0.63 | 0.62 | 0.60 | 0.61 | 0.62 | 0.59 | 0.59 | 0.60 | 0.56 | 0.48 | 0.42 | 0.42 | 0.32 | 0.27 | 0.30 | 0.28 |
| Lingcod | | | | | | 0.57 | 0.58 | 0.57 | 0.79 | 0.65 | 0.60 | 0.63 | 0.71 | 0.74 | 1.18 | 1.73 | 1.59 | 1.36 | 1.43 | 1.58 | 1.31 | 1.25 | 1.29 | 1.40 | 1.86 | 1.69 | 1.49 | 1.72 | 1.64 | 1.70 | 1.57 | 1.87 | 1.56 |
| Arrowtooth flounder | | | | | | 0.24 | 0.24 | 0.22 | 0.31 | 0.19 | 0.21 | 0.17 | 0.19 | 0.16 | 0.15 | 0.18 | 0.17 | 0.14 | 0.13 | 0.13 | 0.12 | 0.15 | 0.13 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.10 | 0.09 | 0.03 | 0.10 | 0.13 |
| Dover sole | | | | | | 0.57 | 0.53 | 0.55 | 0.65 | 0.54 | 0.56 | 0.51 | 0.58 | 0.50 | 0.53 | 0.55 | 0.53 | 0.51 | 0.49 | 0.41 | 0.51 | 0.52 | 0.54 | 0.54 | 0.53 | 0.51 | 0.48 | 0.48 | 0.46 | 0.42 | 0.42 | 0.43 | 0.45 |
| English sole | | | | | | 0.75 | 0.75 | 0.72 | 0.85 | 0.71 | 0.60 | 0.55 | 0.61 | 0.53 | 0.53 | 0.53 | 0.49 | 0.44 | 0.41 | 0.37 | 0.39 | 0.41 | 0.37 | 0.37 | 0.35 | 0.36 | 0.35 | 0.30 | 0.27 | 0.23 | 0.16 | 0.15 | 0.20 |
| Petrale sole | | | | | | 1.36 | 1.62 | 1.60 | 1.72 | 1.62 | 1.49 | 1.38 | 1.62 | 1.49 | 1.50 | 1.46 | 1.46 | 1.24 | 1.23 | 1.10 | 1.75 | 1.80 | 1.47 | 1.27 | 1.38 | 1.36 | 1.30 | 1.29 | 1.32 | 1.24 | 1.13 | 1.24 | 1.26 |
| Cod, Pacific | | | | | | 0.55 | 0.58 | 0.55 | 0.68 | 0.51 | 0.54 | 0.57 | 0.65 | 0.64 | 0.71 | 0.87 | 0.86 | 0.63 | 0.69 | 0.57 | 0.69 | 0.71 | 0.67 | 0.62 | 0.68 | 0.67 | 0.66 | 0.68 | 0.68 | 0.55 | 0.54 | 0.55 | 0.48 |
| Whiting, Pacific | | | | | | 0.180 | 0.151 | 0.194 | 0.177 | 0.145 | 0.085 | 0.052 | 0.080 | 0.070 | 0.062 | 0.052 | 0.065 | 0.071 | 0.102 | 0.087 | 0.141 | 0.169 | 0.149 | 0.130 | 0.092 | 0.099 | 0.091 | 0.096 | 0.105 | 0.073 | 0.097 | 0.115 | 0.094 |
| Sardines | | | | | | - | - | - | - | - | - | - | - | - | 0.078 | 0.086 | 0.076 | 0.085 | 0.065 | 0.144 | 0.165 | 0.117 | 0.129 | 0.239 | 0.197 | - | - | - | - | - | - | - | - |
| Halibut, Pacific | | | | | | 2.74 | 2.54 | 2.14 | 3.24 | 2.75 | 3.39 | 2.25 | 2.87 | 2.96 | 3.11 | 2.84 | 3.63 | 3.41 | 4.47 | 3.60 | 6.53 | 5.89 | 5.64 | 6.53 | 6.14 | 6.31 | 5.76 | 5.72 | 5.21 | 4.90 | 6.26 | 6.29 | 5.24 |
| Sturgeon, white | | | | | | 2.68 | 2.64 | 3.18 | 3.48 | 3.74 | 3.56 | 2.36 | 2.91 | 1.72 | 2.11 | 2.60 | 2.48 | 2.39 | 2.71 | 2.44 | 3.10 | 3.19 | 3.74 | 4.06 | 3.68 | 4.56 | 3.80 | 3.98 | 3.76 | 3.89 | 3.26 | 3.31 | 6.00 |
| Sea urchin, red | | | | | | - | - | - | 0.60 | 0.67 | 1.37 | 1.51 | 1.34 | 0.87 | 0.89 | 0.95 | 0.61 | 0.41 | 0.47 | 0.57 | 0.65 | 0.69 | 0.66 | 0.65 | 0.66 | 0.69 | 1.42 | 2.22 | 3.34 | 3.01 | 2.92 | 2.79 | 2.59 |
| Market squid | | | | | | - | 0.63 | 0.40 | - | 0.16 | - | 0.42 | 0.28 | 0.30 | - | 0.29 | 0.37 | 0.31 | - | - | - | - | - | - | - | 0.46 | - | 0.48 | 0.58 | 0.61 | 0.58 | 0.61 | - |

Notes:
1. Annual prices are in 2021 dollars, except 2022 and 2023 are nominal. Adjustment used GDP implicit price deflator developed by U.S. Bureau of Economic Analysis.
2. Prices are for onshore landings. There will be differences for the same species, such as Pacific whiting, when delivered offshore. Landings after 1980, other than inriver Chinook and coho, exclude harvests from research, discards, bait, personal use, seized, overages, live for aquariums, and unspecified disposition.
3. Prices are for round pound equivalents, except for troll Chinook and troll coho prior to 1981 which are based on dressed weight.
4. Prices where landings are less than $500 annually are shown with a dash.
5. Inriver salmon prices include Oregon and Washington side landings. Inriver steelhead includes only Oregon side in 2017 to 2022.
6. The nearshore live groundfish fishery includes seven indicator species that are typically landed live in Oregon. These include cabezon, lingcod, black and blue rockfish, greenling, and other unspecified rockfish (not uniquely identified on a fish ticket).

Source: Oregon Department of Fish and Wildlife for years prior to 1981. PacFIN March 2008, April 2009, March 2010, July 2011, April 2013, March 2014, April 2015, November 2016, March 2017, June 2018, July 2019, March 2023, and February 2024 extractions for 1981 to 2023. PFMC "Review of Ocean Salmon Fisheries," annual in February, for inriver Chinook and coho.

Table C.4
Oregon Ocean Onshore Landing Vessel Revenue Bins by Major Fisheries in 2020 and 2021

| Revenue Bin | Vessel Count Amount | Vessel Count col% | Vessel Average Revenue | Major Fisheries Revenue Salmon row% | D. crab row% | P. Shrimp row% | Tuna row% | Groundfish row% | P. Whiting row% | Other row% | Total row% | Total Amount | Total col% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2021 | | | | | | | |
| $0-1,499 | 81 | 11% | $605 | 40% | 13% | 1% | 9% | 33% | 0% | 3% | 100% | $48,984 | 0% |
| $1,500-4,999 | 56 | 7% | $3,186 | 22% | 15% | 0% | 27% | 35% | 0% | 0% | 100% | $178,412 | 0% |
| $5,000-14,999 | 79 | 11% | $8,818 | 21% | 19% | 0% | 19% | 29% | 0% | 13% | 100% | $696,645 | 0% |
| $15,000-29,999 | 62 | 8% | $22,173 | 25% | 22% | 0% | 21% | 29% | 0% | 4% | 100% | $1,374,720 | 1% |
| $30,000-59,999 | 80 | 11% | $43,713 | 12% | 38% | 3% | 25% | 10% | 0% | 12% | 100% | $3,497,065 | 2% |
| $60,000-119,999 | 65 | 9% | $86,596 | 11% | 49% | 1% | 24% | 8% | 0% | 7% | 100% | $5,628,736 | 3% |
| $120,000-199,999 | 62 | 8% | $158,511 | 2% | 64% | 3% | 7% | 11% | 0% | 13% | 100% | $9,827,672 | 5% |
| $200,000-499,999 | 117 | 16% | $316,765 | 1% | 72% | 11% | 4% | 4% | 1% | 7% | 100% | $37,061,526 | 18% |
| $500,000-2,700,000 | 149 | 20% | $953,686 | 0% | 58% | 13% | 1% | 13% | 12% | 3% | 100% | $142,099,276 | 71% |
| All | 751 | 100% | $266,862 | 1% | 60% | 12% | 3% | 11% | 9% | 4% | 100% | $200,413,036 | 100% |
| | | | | | | 2020 | | | | | | | |
| $0-1,499 | 95 | 12% | $614 | 33% | 6% | 0% | 13% | 44% | 0% | 5% | 100% | $58,360 | 0% |
| $1,500-4,999 | 61 | 8% | $2,990 | 20% | 15% | 0% | 20% | 39% | 0% | 6% | 100% | $182,393 | 0% |
| $5,000-14,999 | 97 | 13% | $8,869 | 24% | 15% | 0% | 18% | 37% | 0% | 6% | 100% | $860,291 | 1% |
| $15,000-29,999 | 73 | 9% | $20,854 | 15% | 32% | 1% | 25% | 22% | 0% | 5% | 100% | $1,522,341 | 1% |
| $30,000-59,999 | 78 | 10% | $42,410 | 10% | 33% | 0% | 41% | 9% | 0% | 7% | 100% | $3,307,964 | 2% |
| $60,000-119,999 | 100 | 13% | $87,772 | 3% | 49% | 3% | 24% | 7% | 0% | 14% | 100% | $8,777,193 | 6% |
| $120,000-199,999 | 54 | 7% | $155,258 | 3% | 59% | 9% | 11% | 3% | 2% | 13% | 100% | $8,383,919 | 6% |
| $200,000-499,999 | 119 | 15% | $336,356 | 0% | 61% | 15% | 3% | 9% | 2% | 10% | 100% | $40,026,324 | 27% |
| $500,000-2,700,000 | 98 | 13% | $858,453 | 0% | 45% | 18% | 1% | 15% | 17% | 4% | 100% | $84,128,437 | 57% |
| All | 775 | 100% | $189,996 | 1% | 49% | 15% | 5% | 13% | 10% | 7% | 100% | $147,247,221 | 100% |

Notes: 1. Excludes vessels with identification "MISSING", "UNKNOWN", or blank. This identification is usually associated with vessels making tribal commercial fisheries deliveries.
2. Revenue filtered for ocean area-of-catch.

Source: PacFIN annual vessel summary, June 2023 extraction.

Table C.5
First Purchasers by Purchase Value and Species Categories by Port Groups in 2021

| Port Group/ Purchase Value | Count | Species Group Purchases at Port Group (thousands of dollars) Salmon | D. Crab | Pink Shrimp | Alb. Tuna | Ground-fish | Sable-fish | Pacific Whiting | Market Squid | Other | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Astoria | | | | | | | | | | | |
| Less than $1 K | 11 | 1.4 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 2.9 | 4.5 |
| $1 K to $10 K | 18 | 30.4 | 10.8 | 0.0 | 13.4 | 0.7 | 0.0 | 0.0 | 0.0 | 13.6 | 68.9 |
| $10 K to $100 K | 16 | 70.8 | 118.5 | 0.0 | 85.0 | 2.4 | 0.3 | 0.0 | 0.0 | 70.1 | 347.1 |
| $100 K to $5 M | 15 | 2,843.6 | 3,725.0 | 364.4 | 74.3 | 1,222.6 | 147.2 | 3,803.6 | 0.0 | 140.8 | 12,321.5 |
| $5 M plus | 3 | 1,382.2 | 21,048.7 | 5,837.9 | 364.6 | 7,612.0 | 1,294.2 | 7,078.3 | 0.0 | 128.7 | 44,746.6 |
| Total | 63 | 4,328.4 | 24,903.0 | 6,202.3 | 537.3 | 8,837.8 | 1,441.7 | 10,881.9 | 0.0 | 356.1 | 57,488.6 |
| Tillamook | | | | | | | | | | | |
| Less than $1 K | 5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.3 | 1.3 |
| $1 K to $10 K | 11 | 3.2 | 0.0 | 0.0 | 4.7 | 18.7 | 0.0 | 0.0 | 0.0 | 9.5 | 36.2 |
| $10 K to $100 K | 14 | 46.7 | 92.9 | 0.0 | 25.7 | 63.3 | 0.0 | 0.0 | 0.0 | 252.0 | 480.6 |
| $100 K to $1 M | 7 | 13.1 | 1,249.1 | 0.0 | 49.4 | 26.0 | 0.4 | 0.0 | 0.0 | 308.7 | 1,646.6 |
| $1 M plus | 3 | 98.6 | 8,244.1 | 0.0 | 662.3 | 25.1 | 32.8 | 0.0 | 0.0 | 200.6 | 9,263.6 |
| Total | 40 | 161.8 | 9,586.1 | 0.0 | 742.2 | 134.0 | 33.2 | 0.0 | 0.0 | 771.1 | 11,428.3 |
| Newport | | | | | | | | | | | |
| Less than $1 K | 8 | 1.6 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 2.8 |
| $1 K to $10 K | 21 | 16.8 | 15.3 | 0.0 | 40.4 | 19.1 | 0.1 | 0.0 | 0.0 | 0.8 | 92.6 |
| $10 K to $100 K | 18 | 121.8 | 202.0 | 0.0 | 77.3 | 65.2 | 47.3 | 0.0 | 0.0 | 60.3 | 573.9 |
| $100 K to $5 M | 17 | 1,169.6 | 3,953.7 | 866.7 | 893.0 | 240.3 | 144.9 | 0.0 | 1,813.0 | 1,003.9 | 10,085.0 |
| $5 M plus | 6 | 75.6 | 38,767.1 | 7,895.4 | 2,154.4 | 4,245.6 | 3,126.8 | 6,596.6 | 714.1 | 278.7 | 63,854.2 |
| Total | 70 | 1,385.3 | 42,938.1 | 8,762.0 | 3,165.8 | 4,570.3 | 3,319.1 | 6,596.6 | 2,527.2 | 1,344.2 | 74,608.6 |
| Coos Bay | | | | | | | | | | | |
| Less than $1 K | 6 | 0.0 | 1.4 | 0.0 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.2 | 2.7 |
| $1 K to $10 K | 20 | 8.4 | 13.7 | 0.0 | 33.4 | 1.9 | 0.0 | 0.0 | 0.0 | 18.8 | 76.1 |
| $10 K to $100 K | 26 | 188.7 | 281.6 | 0.0 | 197.2 | 98.8 | 3.7 | 0.0 | 4.3 | 92.9 | 867.1 |
| $100 K to $5 M | 9 | 155.7 | 6,110.4 | 148.0 | 1,504.6 | 55.3 | 357.8 | 0.0 | 1,834.6 | 293.1 | 10,459.5 |
| $5 M plus | 4 | 51.6 | 24,880.1 | 4,313.7 | 327.8 | 697.4 | 845.0 | 0.0 | 178.7 | 461.7 | 31,756.0 |
| Total | 65 | 404.4 | 31,287.2 | 4,461.7 | 2,063.6 | 854.0 | 1,206.4 | 0.0 | 2,017.6 | 866.6 | 43,161.5 |
| Port Orford | | | | | | | | | | | |
| Less than $2 K | 3 | 2.3 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 |
| $2 K to $10 K | 6 | 16.9 | 0.4 | 0.0 | 2.3 | 10.3 | 0.0 | 0.0 | 0.0 | 4.7 | 34.6 |
| $10 K to $100 K | 9 | 30.5 | 79.7 | 0.0 | 9.3 | 179.4 | 0.6 | 0.0 | 0.0 | 128.9 | 428.5 |
| $100 K to $5 M | 5 | 137.7 | 3,293.1 | 0.0 | 13.8 | 717.8 | 326.1 | 0.0 | 0.0 | 136.4 | 4,624.8 |
| $5 M plus | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 23 | 187.4 | 3,373.2 | 0.0 | 25.4 | 907.9 | 326.7 | 0.0 | 0.0 | 270.0 | 5,090.5 |
| Brookings | | | | | | | | | | | |
| Less than $1 K | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| $1 K to $10 K | 6 | 3.8 | 2.2 | 0.0 | 6.7 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.6 |
| $10 K to $100 K | 5 | 6.1 | 171.3 | 0.0 | 1.7 | 132.9 | 6.6 | 0.0 | 0.0 | 0.0 | 318.6 |
| $100 K to $1 M | 5 | 38.9 | 807.4 | 0.0 | 6.0 | 88.6 | 5.4 | 0.0 | 0.0 | 726.6 | 1,673.0 |
| $1 M plus | 4 | 9.7 | 6,939.9 | 3,934.1 | 59.2 | 432.8 | 239.3 | 0.0 | 0.0 | 0.0 | 11,615.0 |
| Total | 20 | 58.4 | 7,920.8 | 3,934.1 | 73.5 | 657.2 | 251.4 | 0.0 | 0.0 | 726.7 | 13,622.1 |
| Statewide | | | | | | | | | | | |
| Less than $1 K | 17 | 1.7 | 0.0 | 0.0 | 0.9 | 1.3 | 0.0 | 0.0 | 0.0 | 3.3 | 7.2 |
| $1 K to $10 K | 55 | 27.6 | 20.5 | 0.0 | 97.1 | 27.9 | 0.2 | 0.0 | 0.0 | 42.2 | 215.3 |
| $10 K to $100 K | 59 | 207.9 | 495.1 | 0.0 | 310.9 | 137.5 | 51.5 | 0.0 | 1.3 | 571.6 | 1,775.8 |
| $100 K to $5 M | 49 | 4,647.6 | 16,657.2 | 364.4 | 2,655.5 | 2,766.9 | 784.8 | 3,803.6 | 1,916.9 | 2,433.6 | 36,030.5 |
| $5 M plus | 15 | 1,640.9 | 102,835.6 | 22,995.8 | 3,543.2 | 13,027.6 | 5,742.1 | 13,674.9 | 2,626.6 | 1,284.1 | 167,370.8 |
| Total | 195 | 6,525.6 | 120,008.4 | 23,360.2 | 6,607.7 | 15,961.1 | 6,578.5 | 17,478.5 | 4,544.8 | 4,334.7 | 205,399.6 |

Notes: 1. Species group purchases are values in thousands of dollars.
2. Purchase values are amounts purchased at the indicated port group. Purchasers may also purchase from other port groups.
3. "Groundfish" excludes sablefish and Pacific whiting, which are shown separately.
4. Excludes aquaculture production.
5. Astoria port group includes Columbia River purchases.

Source: ODFW fish ticket data, June 2023 extraction.

Table C.6
Processor Value Added by Species Groups in 2021

| Species Group | Round Pounds (thousands) | Ex-Vessel Price | Product Analysis Form | Yield | Use | Processor Costs/Sales Price Per Finished Pound Raw | Other | Sales Price | Finished Pounds (thousands) | Ex-Processor Sales (thousands) | Value Added (thousands) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Salmon | 1,790 | $3.65 | Gutted | 83% | | 4.40 | 1.20 | 5.60 | 1,485 | 8,309 | 1,783 |
| Dungeness crab | 7,290 | $4.94 | Whole | 92% | 30% | 5.37 | 1.22 | 6.59 | 6,707 | 44,185 | 8,183 |
| | 3,645 | $4.94 | Sections | 58% | 15% | 8.51 | 1.42 | 9.93 | 2,114 | 21,003 | 3,002 |
| | 4,860 | $4.94 | Meat | 25% | 20% | 19.75 | 5.17 | 24.92 | 1,215 | 30,284 | 6,282 |
| | 8,505 | $5.14 | Live | 95% | 35% | 5.41 | 1.12 | 6.53 | 8,080 | 52,754 | 9,050 |
| Pink shrimp | 46,670 | $0.50 | Cooked | 31% | | 1.61 | 1.40 | 3.01 | 14,468 | 43,615 | 20,255 |
| Albacore tuna | 3,220 | $2.05 | Mixed2 | 85% | | 2.41 | 1.06 | 3.47 | 2,737 | 9,509 | 2,901 |
| Groundfish | 45,360 | $0.50 | Mixed3 | 36% | | 1.39 | 1.25 | 2.64 | 16,256 | 42,869 | 20,329 |
| Pacific whiting | 46,022 | $0.095 | Surimi | 25% | 25% | 0.38 | 0.62 | 1.00 | 11,506 | 11,503 | 7,133 |
| | 82,840 | $0.095 | H&G/etc. | 61% | 45% | 0.16 | 0.56 | 0.72 | 50,532 | 36,163 | 28,298 |
| | 55,227 | $0.095 | Whole | 95% | 30% | 0.10 | 0.40 | 0.50 | 52,465 | 26,230 | 20,986 |
| Pacific halibut | 255 | $6.20 | Mixed4 | 74% | | 8.38 | 1.08 | 9.46 | 189 | 1,783 | 204 |
| Other | 12,104 | $0.60 | Mixed4 | 60% | | 1.00 | 1.01 | 2.01 | 7,304 | 14,657 | 7,356 |
| Fish meal | 78,453 | | | 10% | | - | 0.33 | 0.33 | 7,845 | 2,589 | 2,589 |
| Total | | | | | | | | | 182,903 | 345,452 | 138,352 |

Notes:
1. Round pounds shown are net processed pounds, which is landed less haul-outs. Ex-processor sales include this effect.
2. Sales price is estimated using cost calculation from the FEAM model or using published market sales price information for the product form.
3. Ex-vessel prices are in round pound or round pound equivalents. Other costs include labor, taxes/fees, other production costs, and contribution to margin. Processor costs/sales price are per finished pound.
4. There are many final product forms manufactured within species groups. The following discusses how some of these forms affect species group yields.
   - D. Crab. Crab tends to start out "whole" during the year-end holidays and then move to "picked" meat later in the season. Over the last few years, "sections" have also become a product form. Distribution of pounds to product forms assumes 30% whole, 15% sections, 20% meat, and 35% live. Final product proportions for landed weight have a weighted average of 75% yield.
   - Mixed2. Albacore tuna assumes 75% "whole frozen" yield, 25% "fillet" yield, or about 85% mixed yield.
   - Mixed3. Groundfish generally is processed as a fillet; however, several species, such as sablefish and thornyheads are marketed fresh, whole. Example yields are lingcod and rockfish fillet yield 29%; sablefish and thornyheads H&G yield 55%; and sharks and skates fillet yield 60%. The shown mixed yield is a weighted average for all of these different products.
   - Mixed4. Other species have many end products, including frozen and fresh whole, fillets, and roe for the species sea urchin. Example yields are sea urchins roe yield 7%; other crab and shrimp, clams and mussels, other echinoderms, and shad whole yield 100%; mackerel, market squid, and herring frozen yield 99%; other sharks fillet yield 60%; octopus frozen yield 100%; sturgeon fillet yield 64%; and halibut fillet yield 72%. This category also includes oysters and other shellfish in 2003 at $4.2 million. Because "other" includes a variety of different products, the throughput is evaluated on an ex-vessel basis.
   - Pacific whiting. Primary products using Pacific whiting are headed and gutted, surimi, and frozen whole. Surimi processing requires expensive equipment and established marketing channels.
5. Fish meal volume is estimated from non-yield of groundfish and Pacific whiting landed volume, except cod/rockfish including sablefish non-yield goes to lobster bait instead of fish meal.

Table C.7
Economic Contributions by Major Onshore Fisheries Statewide and Coastwide in 2020 and 2021

| | Statewide Economic Level | | | | | |
|---|---|---|---|---|---|---|
| | Income | | Output | | Jobs | |
| Fishery | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 |
| Salmon | 9.5 | 11.7 | 19.3 | 23.7 | 137 | 167 |
| Dungeness crab | 147.0 | 231.8 | 271.6 | 428.5 | 2,121 | 3,319 |
| Pink shrimp | 59.5 | 58.9 | 117.2 | 116.1 | 859 | 844 |
| Groundfish | 48.0 | 55.9 | 96.8 | 112.6 | 692 | 801 |
| Nearshore | 3.4 | 3.5 | 6.9 | 7.0 | 49 | 50 |
| Pacific whiting | 71.7 | 78.9 | 152.8 | 168.0 | 1,035 | 1,129 |
| Market squid | 10.2 | 7.4 | 15.9 | 11.5 | 147 | 106 |
| Other | 22.6 | 20.3 | 42.7 | 38.3 | 326 | 291 |
| Total | 368.4 | 464.9 | 716.3 | 898.8 | 5,317 | 6,656 |

| | Coastwide Economic Level | | | | | |
|---|---|---|---|---|---|---|
| | Income | | Output | | Jobs | |
| Fishery | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 |
| Salmon | 9.0 | 10.9 | 18.4 | 22.4 | 161 | 194 |
| Dungeness crab | 122.8 | 195.3 | 230.4 | 366.6 | 2,251 | 3,534 |
| Pink shrimp | 48.4 | 48.3 | 96.7 | 96.8 | 890 | 878 |
| Groundfish | 38.8 | 44.5 | 78.1 | 89.5 | 704 | 800 |
| Nearshore | 2.8 | 2.8 | 5.6 | 5.6 | 50 | 50 |
| Pacific whiting | 56.4 | 61.3 | 119.6 | 130.1 | 1,016 | 1,088 |
| Market squid | 8.0 | 5.8 | 11.7 | 8.4 | 144 | 103 |
| Other | 18.3 | 16.3 | 35.2 | 31.5 | 334 | 298 |
| Total | 301.6 | 382.4 | 590.1 | 745.4 | 5,500 | 6,894 |

Notes: 1. Income and output are in millions, adjusted to 2021 dollars using the GDP implicit price deflator developed by the U.S. Bureau of Economic Analysis.

Table C.8
Commercial Fishing Economic Contributions for Port Groups in 2021

| | Onshore | | | Distant Water | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| Port Group | Income | Jobs | Output | Income | Jobs | Output | Income | Jobs | Output |
| Astoria | 144,179 | 2,524 | 286,016 | 26,142 | 458 | 51,860 | 170,321 | 2,982 | 337,876 |
| Tillamook | 18,201 | 343 | 36,315 | 3,199 | 60 | 6,383 | 21,400 | 404 | 42,698 |
| Newport | 122,989 | 2,264 | 239,323 | 58,777 | 1,082 | 114,374 | 181,766 | 3,347 | 353,697 |
| Coos Bay | 76,564 | 1,326 | 146,565 | 4,300 | 74 | 8,231 | 80,864 | 1,401 | 154,796 |
| Brookings | 20,437 | 436 | 37,173 | 632 | 13 | 1,150 | 21,069 | 449 | 38,323 |
| Coastwide | 382,370 | 6,894 | 745,392 | 93,051 | 1,688 | 181,998 | 475,421 | 8,582 | 927,389 |
| Statewide | 464,934 | 6,656 | 898,753 | 177,417 | 2,540 | 342,961 | 642,351 | 9,196 | 1,241,713 |

Notes:
1. Income and output are in thousands.
2. Economic contributions for port groups are expressed at the coastwide economic level.
3. The output calculation for distant water fisheries assumes the same spending patterns as onshore fisheries.
4. Coastwide is the sum of the port groups.
5. Excludes aquaculture production.

Table C.9
Recreational Fishing Economic Contributions for Port Groups in 2021

| | Ocean | | | Coastal Inriver | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| Port Group | Income | Jobs | Output | Income | Jobs | Output | Income | Jobs | Output |
| Astoria | 968 | 17 | 2,233 | 17,505 | 306 | 40,376 | 18,473 | 323 | 42,609 |
| Tillamook | 2,246 | 42 | 6,217 | 27,183 | 513 | 75,237 | 29,429 | 555 | 81,454 |
| Newport | 9,208 | 170 | 25,069 | 21,193 | 390 | 57,698 | 30,401 | 560 | 82,767 |
| Coos Bay | 2,810 | 49 | 7,224 | 18,686 | 324 | 48,046 | 21,496 | 372 | 55,270 |
| Brookings | 1,699 | 36 | 5,267 | 4,334 | 92 | 13,430 | 6,033 | 129 | 18,696 |
| Coastwide | 16,931 | 314 | 46,009 | 88,901 | 1,625 | 234,787 | 105,832 | 1,939 | 280,796 |
| Statewide | 24,698 | 354 | 59,407 | 125,249 | 1,793 | 301,087 | 149,948 | 2,147 | 360,495 |

Notes:
1. Income and output are in thousands.
2. Economic contributions for port groups are expressed at the coastwide economic level.
3. Coastal inriver includes lower Columbia River.
4. Coastal inriver includes ocean and bay crabbing and clamming in the inriver estimates.

Table C.10
Top 30 Commercial Fishery Landings by Port Ranked by Dollars in 2021

| Rank | Port | Millions of Pounds | Millions of Dollars |
|---|---|---|---|
| 1 | New Bedford, MA | 104.0 | 569.7 |
| 2 | Reedville, VA | 301.3 | 466.5 |
| 3 | Dutch Harbor, AK | 745.0 | 249.0 |
| 4 | Naknek, AK | 160.6 | 245.2 |
| 5 | Pascagoula-Moss Point, MS | 205.5 | 210.5 |
| 6 | Aleutian Islands (Other), AK | 499.3 | 168.4 |
| 7 | Bristol Bay (Other), AK | 51.4 | 148.8 |
| 8 | Cape May-Wildwood, NJ | 113.5 | 147.7 |
| 9 | Kodiak, AK | 299.1 | 121.2 |
| 10 | Honolulu, HI | 27.1 | 118.5 |
| 11 | Empire-Venice, LA | 302.6 | 102.3 |
| 12 | Alaska Penninsula (Other), AK | 127.6 | 94.5 |
| 13 | Gloucester, MA | 47.1 | 80.3 |
| 14 | Bayou La Batre, AL | 29.2 | 77.3 |
| 15 | Newport, OR | 112.6 | 74.2 |
| 16 | Sitka, AK | 78.5 | 73.4 |
| 17 | Stonington, ME | 11.8 | 73.2 |
| 18 | Point Judith, RI | 44.1 | 72.1 |
| 19 | Westport, WA | 132.6 | 71.5 |
| 20 | Cordova, AK | 122.7 | 69.7 |
| 21 | Key West, FL | 10.8 | 66.9 |
| 22 | Galveston, TX | 17.0 | 62.8 |
| 23 | Vinalhaven, ME | 8.1 | 55.8 |
| 24 | Dulac-Chauvin, LA | 30.6 | 53.6 |
| 25 | Astoria, OR | 154.5 | 52.7 |
| 26 | Pago Pago, AS | 82.2 | 52.4 |
| 27 | Brownsville-Port Isabel, TX | 16.4 | 50.1 |
| 28 | Port Arthur, TX | 18.8 | 48.3 |
| 29 | Palacios, TX | 17.1 | 48.1 |
| 30 | Ketchikan, AK | 59.5 | 44.3 |

Source: NMFS Commercial Fisheries Statistics, downloaded November 2023.

Table C.11
Oregon and Alaska Crewmember and Boat Licenses for Port Groups in Select Years

Crew Member Licenses

Oregon

| Port Group | 2012 | 2017 | 2019 | 2021 |
|---|---|---|---|---|
| Astoria | 90 | 96 | 82 | 75 |
| Tillamook | 56 | 70 | 70 | 80 |
| Newport | 123 | 200 | 198 | 201 |
| Depoe Bay | 4 | 2 | 3 | 2 |
| Newport | 63 | 100 | 116 | 113 |
| Waldport | 2 | 8 | 5 | 10 |
| Other | 54 | 90 | 74 | 76 |
| Coos Bay | 156 | 174 | 172 | 94 |
| Brookings | 103 | 118 | 146 | 133 |
| Coastwide | 528 | 658 | 668 | 583 |
| All Oregon addresses | 658 | 771 | 778 | 686 |
| All addresses | 955 | 1,116 | 1,237 | 1,105 |

Notes: 1. Includes licenses with status "A."
Source: ODFW (Feb. 2013, Mar. 2018, Dec. 2020, and Mar. 2023).

Alaska

| Port Group | 2011 | 2017 | 2019 | 2021 |
|---|---|---|---|---|
| Astoria | 160 | 97 | 108 | 87 |
| Tillamook | 4 | 5 | 11 | 5 |
| Newport | 115 | 126 | 115 | 109 |
| Depoe Bay | 3 | 2 | 2 | 2 |
| Newport | 45 | 55 | 41 | 47 |
| Waldport | 8 | 7 | 7 | 13 |
| Other | 59 | 62 | 65 | 47 |
| Coos Bay | 86 | 40 | 29 | 46 |
| Brookings | 8 | 9 | 12 | 10 |
| Coastwide | 373 | 277 | 275 | 257 |
| All Oregon addresses | 1,348 | 982 | 993 | 838 |
| All addresses | 23,755 | 21,244 | 20,505 | 17,805 |

Source: ADFG (Dec. 2012, Jan. 2019, Nov. 2020, and Mar. 2023).

Boat Licenses

Oregon

| Port Group | 2012 | 2017 | 2019 | 2021 |
|---|---|---|---|---|
| Astoria | 211 | 219 | 193 | 182 |
| Tillamook | 108 | 90 | 94 | 100 |
| Newport | 195 | 196 | 189 | 151 |
| Depoe Bay | 12 | 10 | 9 | 4 |
| Newport | 86 | 98 | 98 | 72 |
| Waldport | 12 | 10 | 12 | 9 |
| Other | 85 | 78 | 70 | 66 |
| Coos Bay | 217 | 209 | 203 | 167 |
| Brookings | 156 | 153 | 145 | 130 |
| Coastwide | 887 | 867 | 824 | 730 |
| All Oregon addresses | 1,148 | 1,112 | 1,058 | 937 |
| All addresses | 1,556 | 1,581 | 1,570 | 1,359 |

Notes: 1. Includes licenses with status "A."
Source: ODFW (Feb. 2013, Mar. 2018, Dec. 2020, and Mar. 2023).

Alaska

| Port Group | 2012 | 2017 | 2019 | 2021 |
|---|---|---|---|---|
| Astoria | 70 | 56 | 53 | 50 |
| Tillamook | 0 | 1 | 1 | 2 |
| Newport | 34 | 27 | 23 | 20 |
| Depoe Bay | 3 | 2 | 1 | 1 |
| Newport | 24 | 20 | 18 | 14 |
| Waldport | 2 | 2 | 1 | 0 |
| Other | 5 | 3 | 3 | 5 |
| Coos Bay | 10 | 8 | 8 | 7 |
| Brookings | 4 | 3 | 2 | 2 |
| Coastwide | 118 | 95 | 87 | 81 |
| All Oregon addresses | 294 | 276 | 273 | 251 |
| All addresses | 9,995 | 9,200 | 8,813 | 8,295 |

Notes: 1. Vessels filtered by ADFG vessel number.
Source: Alaska CFEC (Feb. 2013, Jan. 2019, Jan. 2021, and Apr. 2023).

Table C.12
Northeastern Pacific Ocean U.S. and Canada Harvest Value in 2021

| | All Fisheries | | Selected Fisheries | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Salmon | | Dungeness Crab | | Trawl Shrimp | |
| Region | Amount | Share | Amount | Share | Amount | Share | Amount | Share |
| Alaska | 1,939.5 | 66% | 752.3 | 93% | 38.0 | 10% | 0.9 | 3% |
| British Columbia | 327.3 | 11% | 15.9 | 2% | 57.3 | 15% | 0.2 | 0% |
| Washington onshore | 235.1 | 8% | 15.5 | 2% | 121.2 | 31% | 10.5 | 30% |
| Oregon onshore | 205.4 | 7% | 6.5 | 1% | 120.0 | 31% | 23.4 | 67% |
| California onshore | 202.5 | 7% | 17.5 | 2% | 53.0 | 14% | n/a | |
| West Coast at-sea | 23.1 | 1% | | | | | | |
| Total | 2,932.8 | 100% | 807.6 | 100% | 389.5 | 100% | 34.9 | 100% |

Notes:
1. Values are in millions of U.S. dollars (nominal).
2. Alaska and Canadian at-sea fisheries harvest value are included in their respective table rows.
3. Alaska trawl shrimp is sidestriped shrimp harvested with beam trawl gear in southeast Alaska. The Alaska table's value is for harvest in the preliminary 2021-22 season using statewide price in 2020. Canadian trawl shrimp is mostly pink shrimp and sidestriped with some coonstripe shrimp and humpback shrimp. Table's values for British Columbia, Washington, Oregon, and California are all pink shrimp.
4. Aquaculture production is not shown in the table. California onshore salmon is partial and trawl shrimp is not available due to confidentiality.
5. The all fisheries and selected fisheries harvest values except for Alaska trawl shrimp are for the calendar year.

Sources: Alaska harvest value from NOAA Fisheries, Fisheries Statistics Division, Annual Commercial Landing Statistics (NMFS 2023), except Alaska trawl shrimp from ADFG commercial fishing information by area and by fishery. British Columbia harvest value from Fisheries and Oceans Canada (DFO), Economic Analysis and Statistics, commercial fisheries landings. West Coast onshore and at-sea harvest value from PacFIN fish ticket data, March 2023 extraction, and APEX data, downloaded April 2023. British Columbia harvest value converted to U.S. dollars using Bank of Canada exchange rates.

Table C.13
U.S. Annual Per-Capita Consumption of Fish and Shellfish in 2016 to 2021

| | Per Capita Consumption (pounds) | | | |
|---|---|---|---|---|
| | Primary Product | | | |
| Year | Fresh and Frozen | Canned | Cured | Total |
| 2016 | 14.4 | 3.6 | 0.3 | 18.3 |
| 2017 | 15.1 | 3.9 | 0.3 | 19.1 |
| 2018 | 15.0 | 3.6 | 0.3 | 19.0 |
| 2019 | 15.1 | 3.8 | 0.3 | 19.3 |
| 2020 | 14.6 | 4.3 | 0.3 | 19.0 |
| 2021 | 16.4 | 3.7 | 0.3 | 20.5 |

| | Species | | | | | |
|---|---|---|---|---|---|---|
| Year | Salmon | Sardines | Tuna | Shellfish | Other | Total |
| 2016 | 0.0 | 0.2 | 2.1 | 0.5 | 0.8 | 3.6 |
| 2017 | 0.3 | 0.3 | 2.1 | 0.5 | 0.7 | 3.8 |
| 2018 | 0.1 | 0.2 | 2.1 | 0.5 | 0.7 | 3.7 |
| 2019 | 0.3 | 0.2 | 2.2 | 0.4 | 0.7 | 3.9 |
| 2020 | 0.2 | 0.3 | 2.6 | 0.4 | 0.8 | 4.2 |
| 2021 | 0.3 | 0.2 | 1.9 | 0.5 | 0.8 | 3.7 |

| | Secondary Product | | |
|---|---|---|---|
| Year | Fillets and Steaks | Sticks and Portions | Shrimp, including all Preparations |
| 2016 | 5.8 | 0.5 | 4.1 |
| 2017 | 5.8 | 0.6 | 4.6 |
| 2018 | 5.8 | 0.5 | 4.7 |
| 2019 | 5.7 | 0.5 | 4.7 |
| 2020 | 5.7 | 0.5 | 5.0 |
| 2021 | 6.3 | 0.5 | 5.9 |

Notes: 1. Annual per capita consumption of seafood products represents the pounds of edible meat consumed from domestically-caught and imported fish and shellfish adjusted for exports, divided by the civilian resident population of the United States as of July 1 of each year.

Source: NOAA Fisheries.

# Appendix D

# Revenue Portfolios for Vessels and Processors Participating in the Nearshore Groundfish Fishery

Table D.1
Typical and Representative Revenue Portfolio for Vessels Participating in the Nearshore Groundfish Fishery by Groundfish Permit Category in 2021

| | Vessel Category | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | OA Vessels, Permit | | OA Vessels, No Permit | | LE Trawl Permit Vessels | | LE Fixed Gear Permit Vessels | |
| Fishery | Amount | Count | Amount | Count | Amount | Count | Amount | Count |
| Average Landed Value Per Vessel, Typical | | | | | | | | |
| Nearshore Fisheries | | | | | | | | |
| Salmon troll | $5,200 | 17 | $11,917 | 51 | $0 | 21 | c | c |
| D. crab | $118,999 | 17 | $242,085 | 47 | $313,659 | 30 | $309,063 | 5 |
| Nearshore groundfish | $14,396 | 89 | $2,392 | 98 | $1,197 | 42 | $7,431 | 6 |
| Other Fisheries | | | | | | | | |
| Col. R. salmon | $0 | 0 | $0 | 0 | $0 | 0 | $0 | 0 |
| Other groundfish | $1,914 | 73 | $3,382 | 64 | $371,125 | 42 | $72,350 | 6 |
| P. shrimp | $0 | 0 | c | c | $287,543 | 12 | $0 | 0 |
| Tuna | $2,250 | 4 | $30,641 | 26 | c | c | c | c |
| Whiting | c | c | c | c | $339,230 | 41 | c | c |
| Market squid | $0 | 0 | $135,129 | 17 | $1 | 8 | c | c |
| Other | $3,966 | 24 | $6,002 | 54 | $1,027 | 39 | $29,660 | 6 |
| Total per vessel | $40,860 | 89 | $168,436 | 98 | $1,010,667 | 42 | $381,408 | 6 |
| Standard deviation | $85,387 | | $257,064 | | $553,268 | | $232,424 | |
| Number of vessels | 89 | | 98 | | 42 | | 6 | |
| | Amount | Share | Amount | Share | Amount | Share | Amount | Share |
| Average Landed Value Per Vessel, Representative | | | | | | | | |
| Nearshore Fisheries | | | | | | | | |
| Salmon troll | $993 | 2% | $6,201 | 4% | $0 | 0% | $6,854 | 2% |
| D. crab | $22,730 | 56% | $116,102 | 69% | $224,042 | 22% | $257,553 | 68% |
| Nearshore groundfish | $14,396 | 35% | $2,392 | 1% | $1,197 | 0% | $7,431 | 2% |
| Other Fisheries | | | | | | | | |
| Col. R. salmon | $0 | 0% | $0 | 0% | $0 | 0% | $0 | 0% |
| Other groundfish | $1,570 | 4% | $2,208 | 1% | $371,125 | 37% | $72,350 | 19% |
| P. shrimp | $0 | 0% | $6,660 | 4% | $82,155 | 8% | $0 | 0% |
| Tuna | $101 | 0% | $8,129 | 5% | $43 | 0% | $3,197 | 1% |
| Whiting | $0 | 0% | $0 | 0% | $331,153 | 33% | $0 | 0% |
| Market squid | $0 | 0% | $23,441 | 14% | $0 | 0% | $4,363 | 1% |
| Other | $1,069 | 3% | $3,307 | 2% | $953 | 0% | $29,660 | 8% |
| Total per vessel | $40,860 | 100% | $168,436 | 100% | $1,010,667 | 100% | $381,408 | 100% |
| Standard deviation | $85,387 | | $257,064 | | $553,268 | | $232,424 | |
| Number of vessels | 89 | | 98 | | 42 | | 6 | |
| Average vessel length (ft) | 24.9 | | 39.2 | | 74.6 | | 39.5 | |

Table D.1 (cont.)

Vessel Category

| Fishery | Coastwide Amount | Coastwide Count |
|---|---|---|
| Average Landed Value Per Vessel, Typical | | |
| Nearshore Fisheries | | |
| Salmon troll | $8,192 | 90 |
| D. crab | $246,021 | 99 |
| Nearshore groundfish | $6,853 | 235 |
| Other Fisheries | | |
| Col. R. salmon | $0 | 0 |
| Other groundfish | $88,527 | 185 |
| P. shrimp | $315,631 | 13 |
| Tuna | $25,050 | 33 |
| Whiting | $316,100 | 44 |
| Market squid | $89,361 | 26 |
| Other | $5,181 | 123 |
| Total per vessel | $276,084 | 235 |
| Standard deviation | $457,076 | |

| | Amount | Share |
|---|---|---|
| Average Landed Value Per Vessel, Representative | | |
| Nearshore Fisheries | | |
| Salmon troll | $3,137 | 1% |
| D. crab | $103,643 | 38% |
| Nearshore groundfish | $6,853 | 2% |
| Other Fisheries | | |
| Col. R. salmon | $0 | 0% |
| Other groundfish | $69,691 | 25% |
| P. shrimp | $17,460 | 6% |
| Tuna | $3,518 | 1% |
| Whiting | $59,185 | 21% |
| Market squid | $9,887 | 4% |
| Other | $2,712 | 1% |
| Total per vessel | $276,084 | 100% |
| Standard deviation | $457,076 | |
| Number of vessels | 235 | |
| Average vessel length (ft) | 40.2 | |

Notes: 1. Amounts shown as "c" are hidden for confidentiality reasons.

Table D.2
Typical and Representative Revenue Portfolio for Vessels Participating in the Nearshore Groundfish Fishery at Port Groups and Coastwide in 2021

| Fishery | Astoria | Tillamook | Newport | Coos Bay | Port Orford | Brookings | Coastwide |
|---|---|---|---|---|---|---|---|
| Average Landed Value Per Vessel, Typical | | | | | | | |
| Nearshore Fisheries | | | | | | | |
| Salmon troll | $610 | $4,827 | $9,353 | $4,019 | $10,013 | $4,004 | $8,192 |
| D. crab | $86,355 | $86,216 | $293,322 | $199,692 | $180,528 | $166,000 | $246,021 |
| Nearshore groundfish | $974 | $3,187 | $3,307 | $3,526 | $15,759 | $7,141 | $6,853 |
| Other Fisheries | | | | | | | |
| Col. R. salmon | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Other groundfish | $319,604 | $936 | $113,754 | $30,742 | $8,092 | $19,099 | $88,527 |
| P. shrimp | $154,144 | $0 | $330,277 | $282,925 | $0 | c | $315,631 |
| Tuna | $0 | $1,225 | $43,456 | $12,941 | $5,078 | $1,799 | $25,050 |
| Whiting | $354,033 | $0 | $359,213 | $0 | c | c | $316,100 |
| Market squid | $1 | $0 | $105,325 | $84,115 | $0 | $0 | $89,361 |
| Other | $698 | $603 | $3,699 | $9,481 | $9,708 | $565 | $5,181 |
| Total per vessel | $660,496 | $30,100 | $381,610 | $137,492 | $70,887 | $71,398 | $276,084 |
| Vessel Counts | | | | | | | |
| Nearshore Fisheries | | | | | | | |
| Salmon troll | 16 | 19 | 35 | 11 | 9 | 5 | 90 |
| D. crab | 17 | 11 | 35 | 16 | 13 | 7 | 99 |
| Nearshore groundfish | 32 | 40 | 62 | 45 | 55 | 31 | 235 |
| Other Fisheries | | | | | | | |
| Col. R. salmon | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other groundfish | 30 | 29 | 41 | 30 | 44 | 27 | 185 |
| P. shrimp | 3 | 0 | 5 | 4 | 0 | c | 13 |
| Tuna | 0 | 5 | 9 | 6 | 5 | 4 | 33 |
| Whiting | 27 | 0 | 12 | 7 | c | c | 44 |
| Market squid | 6 | 0 | 16 | 5 | 0 | 0 | 26 |
| Other | 25 | 6 | 43 | 25 | 22 | 6 | 123 |
| Number of vessels | 32 | 40 | 62 | 45 | 55 | 31 | 235 |
| Average Landed Value Per Vessel, Representative | | | | | | | |
| Nearshore Fisheries | | | | | | | |
| Salmon troll | $305 | $2,293 | $5,280 | $982 | $1,639 | $646 | $3,137 |
| D. crab | $45,876 | $23,709 | $165,585 | $71,002 | $42,670 | $37,484 | $103,643 |
| Nearshore groundfish | $974 | $3,187 | $3,307 | $3,526 | $15,759 | $7,141 | $6,853 |
| Other Fisheries | | | | | | | |
| Col. R. salmon | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Other groundfish | $299,629 | $679 | $75,224 | $20,495 | $6,474 | $16,635 | $69,691 |
| P. shrimp | $14,451 | $0 | $26,635 | $25,149 | $0 | $9,151 | $17,460 |
| Tuna | $0 | $153 | $6,308 | $1,725 | $462 | $232 | $3,518 |
| Whiting | $298,716 | $0 | $69,525 | $0 | $0 | $0 | $59,185 |
| Market squid | $0 | $0 | $27,181 | $9,346 | $0 | $0 | $9,887 |
| Other | $545 | $90 | $2,565 | $5,267 | $3,883 | $109 | $2,712 |
| Total per vessel | $660,496 | $30,100 | $381,610 | $137,492 | $70,887 | $71,398 | $276,084 |
| Standard deviation | $518,042 | $73,858 | $539,800 | $208,496 | $122,147 | $209,606 | $457,076 |

Table D.2 (cont.)

| Fishery | Astoria | Tillamook | Newport | Coos Bay | Port Orford | Brookings | Coastwide |
|---|---|---|---|---|---|---|---|
| Number of vessels | 32 | 40 | 62 | 45 | 55 | 31 | 235 |
| Open access | 13% | 100% | 77% | 84% | 93% | 94% | 80% |
| Permit | 3% | 55% | 11% | 18% | 73% | 71% | 38% |
| No permit | 9% | 45% | 66% | 67% | 20% | 23% | 42% |
| LE trawl | 88% | 0% | 19% | 16% | 0% | 6% | 18% |
| LE fixed | 0% | 0% | 3% | 0% | 7% | 0% | 3% |
| Shares of Landed Value Per Vessel, Representative | | | | | | | |
| Nearshore Fisheries | | | | | | | |
| Salmon troll | 0.0% | 7.6% | 1.4% | 0.7% | 2.3% | 0.9% | 1.1% |
| D. crab | 6.9% | 78.8% | 43.4% | 51.6% | 60.2% | 52.5% | 37.5% |
| Nearshore groundfish | 0.1% | 10.6% | 0.9% | 2.6% | 22.2% | 10.0% | 2.5% |
| Other Fisheries | | | | | | | |
| Col. R. salmon | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Other groundfish | 45.4% | 2.3% | 19.7% | 14.9% | 9.1% | 23.3% | 25.2% |
| P. shrimp | 2.2% | 0.0% | 7.0% | 18.3% | 0.0% | 12.8% | 6.3% |
| Tuna | 0.0% | 0.5% | 1.7% | 1.3% | 0.7% | 0.3% | 1.3% |
| Whiting | 45.2% | 0.0% | 18.2% | 0.0% | 0.0% | 0.0% | 21.4% |
| Market squid | 0.0% | 0.0% | 7.1% | 6.8% | 0.0% | 0.0% | 3.6% |
| Other | 0.1% | 0.3% | 0.7% | 3.8% | 5.5% | 0.2% | 1.0% |
| Total per vessel | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

Notes:
1. Vessel revenues are average over all vessels in 2021 making at least one delivery of nearshore groundfish at the port group or coastwide.
2. Excludes landings with no vessel identification. This results in $1,342 nearshore groundfish being excluded from the tabulations for 2021.
3. Distant water fisheries revenue is not included.
4. Amounts shown as "c" are hidden for confidentiality reasons.
5. Typical are averages for only the actual number of vessels that had landings in a particular fishery. Representative are averages for all vessels regardless of whether they had landings in a particular fishery.

Source: PacFIN annual vessel summary and fish ticket data, November 2023 extraction.

Table D.3
Typical and Representative Purchase Portfolios for Processors
and Buyers by Major Fisheries Coastwide in 2021

| Fishery | Total Purchases | Purchaser Count | Typical Average | Representative Average Amount | Representative Average Share |
|---|---|---|---|---|---|
| | Nearshore Groundfish Purchasers | | | | |
| Nearshore Fisheries | | | | | |
| Salmon troll | $1,564,366 | 16 | $97,773 | $68,016 | 3% |
| D. crab | $26,899,730 | 18 | $1,494,429 | $1,169,553 | 57% |
| Nearshore groundfish | $1,520,218 | 23 | $66,096 | $66,096 | 3% |
| Other Fisheries | | | | | |
| Col. R. salmon | $1,283,157 | 3 | $427,719 | $55,789 | 3% |
| Other groundfish | $6,082,870 | 23 | $264,473 | $264,473 | 13% |
| P. shrimp | $6,470,373 | c | c | $281,321 | 14% |
| Tuna | $2,122,633 | 15 | $141,509 | $92,288 | 5% |
| Whiting | $28 | c | c | $1 | 0% |
| Market squid | $52,389 | c | c | $2,278 | 0% |
| Other | $880,359 | 20 | $44,018 | $38,276 | 2% |
| Total | $46,876,121 | 23 | $2,038,092 | $2,038,092 | 100% |
| | Purchasers Specializing in Nearshore Groundfish (Purchases >50%) | | | | |
| Nearshore groundfish | $509,345 | 6 | $84,891 | $84,891 | |
| Total | $592,998 | 6 | $98,833 | $98,833 | |
| | All Oregon Purchasers | | | | |
| Nearshore Fisheries | | | | | |
| Salmon troll | $2,231,187 | 42 | $53,124 | $18,140 | 1% |
| D. crab | $119,990,229 | 65 | $1,846,004 | $975,530 | 58% |
| Nearshore groundfish | $1,584,218 | 48 | $33,005 | $12,880 | 1% |
| Other Fisheries | | | | | |
| Col. R. salmon | $4,265,190 | 19 | $224,484 | $34,676 | 2% |
| Other groundfish | $20,926,075 | 57 | $367,124 | $170,131 | 10% |
| P. shrimp | $23,360,213 | 10 | $2,336,021 | $189,920 | 11% |
| Tuna | $6,509,692 | 63 | $103,328 | $52,924 | 3% |
| Whiting | $17,478,544 | 9 | $1,942,060 | $142,102 | 9% |
| Market squid | $4,544,753 | 15 | $302,984 | $36,949 | 2% |
| Other | $4,289,223 | 74 | $57,962 | $34,872 | 2% |
| Total | $205,179,324 | 123 | $1,668,125 | $1,668,125 | 100% |

Notes: 1. "Nearshore groundfish purchasers" are filtered for those that purchased over $10 thousand of Oregon onshore nearshore groundfish. "All Oregon purchasers" are filtered for those that purchased over $10 thousand of Oregon onshore any fishery. There were 73 processors/ buyers whose purchases were less than $10 thousand in 2021. The sum of purchases for these processors/buyers is $230,852.

2. Amounts shown as "c" are hidden for confidentiality reasons.

Source: PacFIN annual vessel summary and fish ticket data, November 2023 extraction.

# Appendix E

# Demographic and Well-Being Indicators at Port Groups

Appendix E
Demographic and Well-Being Indicators at Port Groups in 2021

Contents



Notes: 1. Astoria port group is Clatsop County, Tillamook is Tillamook County, Newport is Lincoln County and zip code 97439 (Florence), Coos Bay is Coos County and zip code 97467 (Reedsport), Port Orford is zip codes 97465, 97476, and 97450, and Brookings is Curry County other than Port Orford.
2. The year used in table titles corresponds to the ending year in estimates sourced to the American Community Survey (ACS) 2017-2021 data.

Table E.1
Population and Housing Characteristics in 2021

| | Oregon | Coastwide | Astoria | Tillamook | Newport | Coos Bay | Port Orford | Brookings |
|---|---|---|---|---|---|---|---|---|
| Population | 4,207,177 | 226,442 | 40,720 | 27,129 | 65,285 | 70,074 | 2,757 | 20,477 |
| By age | | | | | | | | |
| Under 18 | 20.8% | 17.3% | 18.6% | 18.9% | 15.8% | 18.3% | 9.9% | 14.9% |
| Age 18 to 64 | 61.6% | 54.6% | 58.9% | 55.3% | 52.0% | 55.3% | 50.0% | 51.8% |
| 65 and over | 17.7% | 28.1% | 22.5% | 25.8% | 32.2% | 26.4% | 40.1% | 33.2% |
| Median age (years) | 39.6 | 50.1 | 44.5 | 47.7 | 53.6 | 48.9 | 59.2 | 55.8 |
| By race | | | | | | | | |
| White | 80.7% | 88.2% | 88.3% | 90.0% | 87.2% | 88.0% | 94.8% | 88.8% |
| Other | 19.3% | 11.8% | 11.7% | 10.0% | 12.8% | 12.0% | 5.2% | 11.2% |
| Housing units | 1,798,864 | 129,478 | 22,882 | 18,846 | 40,757 | 34,012 | 1,841 | 11,140 |
| Households | 1,658,091 | 98,596 | 16,649 | 11,381 | 29,721 | 30,057 | 1,455 | 9,333 |
| Average household size | 2.48 | 2.26 | 2.40 | 2.33 | 2.17 | 2.29 | 1.89 | 2.17 |

Notes: 1. Median age for port groups with multiple geographic areas is estimated to be the average of the areas weighted by population.
Source: ACS 2017-2021 estimates.

Table E.2
Civilian Employment at Port Groups by Occupation in 2021

| | Oregon | Coastwide | Astoria | Tillamook | Newport | Coos Bay | Port Orford | Brookings |
|---|---|---|---|---|---|---|---|---|
| Civilian employed population 16 years+ | 2,026,107 | 90,508 | 18,593 | 10,817 | 24,663 | 27,969 | 956 | 7,510 |
| Management, business, science, and arts occupations | 41.0% | 31.7% | 31.5% | 32.3% | 32.7% | 30.6% | 38.7% | 30.6% |
| Service occupations | 17.4% | 24.6% | 22.6% | 23.0% | 25.7% | 25.1% | 27.4% | 25.6% |
| Sales and office occupations | 20.4% | 20.9% | 22.8% | 18.2% | 21.5% | 20.0% | 24.5% | 20.7% |
| Natural resources, construction, and maintenance occupations | 8.9% | 10.9% | 10.2% | 14.0% | 9.8% | 10.9% | 5.0% | 12.2% |
| Production, transportation, and material moving occupations | 12.3% | 12.0% | 12.8% | 12.6% | 10.3% | 13.4% | 4.4% | 10.9% |

Notes: 1. Includes civilian employed population 16 years and over.
2. City of Port Orford is included in the three Port Orford zip codes, and the three zip codes are assumed to be entirely in Curry County.
Source: ACS 2017-2021 estimates.

Table E.3
Civilian Employment at Port Groups by Industry in 2021

| | Oregon | Coastwide | Astoria | Tillamook | Newport | Coos Bay | Port Orford | Brookings |
|---|---|---|---|---|---|---|---|---|
| Civilian employed population 16 years+ | 2,026,107 | 90,508 | 18,593 | 10,817 | 24,663 | 27,969 | 956 | 7,510 |
| Ag., forestry, fishing and hunting, mining: | 2.9% | 4.9% | 3.3% | 8.3% | 2.9% | 5.9% | 16.1% | 5.1% |
| Agriculture, forestry, fishing and hunting | 2.8% | 4.7% | 3.0% | 8.0% | 2.8% | 5.7% | 16.1% | 4.9% |
| Mining, quarrying, and oil and gas extract | 0.1% | 0.2% | 0.3% | 0.3% | 0.1% | 0.2% | 0.0% | 0.2% |
| Construction | 6.6% | 6.9% | 6.9% | 6.5% | 7.9% | 5.5% | 5.9% | 10.2% |
| Manufacturing | 11.0% | 7.2% | 9.9% | 10.0% | 5.7% | 5.8% | 0.9% | 7.6% |
| Wholesale trade | 2.6% | 1.5% | 1.9% | 1.7% | 1.7% | 1.3% | 0.0% | 0.4% |
| Retail trade | 11.6% | 13.1% | 16.3% | 11.6% | 13.0% | 12.9% | 15.7% | 7.9% |
| Transp. and warehousing, and utilities: | 4.6% | 4.0% | 3.9% | 5.0% | 2.9% | 4.5% | 2.4% | 4.2% |
| Transportation and warehousing | 3.8% | 3.1% | 3.4% | 2.5% | 2.1% | 4.1% | 1.2% | 3.1% |
| Utilities | 0.8% | 0.9% | 0.5% | 2.6% | 0.8% | 0.4% | 1.3% | 1.1% |
| Information | 1.6% | 1.5% | 1.1% | 1.4% | 1.7% | 1.7% | 6.1% | 1.3% |
| Fin. and ins.; real est., rental and leasing: | 5.5% | 4.3% | 3.7% | 4.8% | 5.6% | 3.6% | 3.8% | 3.6% |
| Finance and insurance | 3.5% | 2.3% | 2.5% | 1.5% | 2.8% | 2.0% | 0.9% | 2.0% |
| Real estate and rental and leasing | 2.0% | 2.1% | 1.2% | 3.3% | 2.7% | 1.6% | 2.8% | 1.6% |
| Prof., sci., mgmt.; admin., waste mgmt.: | 11.5% | 8.6% | 8.3% | 7.1% | 8.7% | 9.6% | 2.6% | 7.7% |
| Professional, sci., and tech. services | 7.4% | 3.9% | 3.7% | 3.6% | 4.1% | 4.1% | 0.0% | 4.2% |
| Mgmt. of companies and enterprises | 0.2% | 0.3% | 0.0% | 0.0% | 0.2% | 0.7% | 0.0% | 0.0% |
| Admin., support, waste mgmt. services | 3.9% | 4.4% | 4.6% | 3.5% | 4.4% | 4.7% | 2.6% | 3.5% |
| Ed. svcs., health care and social assist.: | 23.4% | 21.3% | 21.5% | 18.5% | 20.6% | 23.3% | 11.7% | 21.1% |
| Educational services | 8.5% | 7.0% | 6.7% | 6.5% | 6.7% | 7.7% | 4.6% | 7.0% |
| Health care and social assistance | 14.9% | 14.3% | 14.8% | 12.0% | 13.9% | 15.6% | 7.1% | 14.1% |
| Arts, entertain., rec.; accom., food service | 9.4% | 16.0% | 15.7% | 13.9% | 19.3% | 14.3% | 25.0% | 14.7% |
| Arts, entertainment, and recreation | 2.0% | 4.3% | 3.0% | 2.2% | 4.5% | 5.6% | 0.0% | 5.1% |
| Accommodation and food services | 7.3% | 11.8% | 12.7% | 11.7% | 14.8% | 8.6% | 25.0% | 9.6% |
| Other services, except public administratic | 4.6% | 4.1% | 3.1% | 4.3% | 3.9% | 5.1% | 3.6% | 2.9% |
| Public administration | 4.7% | 6.6% | 4.3% | 6.9% | 6.2% | 6.7% | 6.3% | 13.3% |

Source: ACS 2017-2021 estimates.

Table E.4
Housing Costs at Port Groups and Vacancy at Port Groups in 2021

| | Oregon | Coastwide | Astoria | Tillamook | Newport | Coos Bay | Port Orford | Brookings |
|---|---|---|---|---|---|---|---|---|
| Housing costs (2021 $) | | | | | | | | |
| Median gross rent | 1,250 | 954 | 994 | 1,015 | 1,011 | 858 | 813 | 936 |
| Median mortgage payments | 1,840 | 1,506 | 1,695 | 1,511 | 1,488 | 1,417 | 1,291 | 1,523 |

Notes: 1. Median mortgage payments are selected monthly owner costs for housing units with a mortgage.
2. Median gross rent for port groups with multiple geographic areas is estimated to be the average of the areas weighted by number of occupied units paying rent. Median mortgage payments is estimated to be the average of the areas weighted by number of housing units with a mortgage.

Source: ACS 2017-2021 estimates.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Housing units | | | | | | | | |
| Vacancy rate | 7.8% | 23.9% | 27.2% | 39.6% | 27.1% | 11.6% | 21.0% | 16.2% |
| Second homes (% housing units) | 3.2% | 18.0% | 22.2% | 35.5% | 21.4% | 4.4% | 11.4% | 9.6% |

Notes: Second homes are defined to be for seasonal, recreational, or occasional use.

Source: ACS 2017-2021 estimates.

Table E.5
Household Income at Port Groups in 2021

| | Oregon | Coastwide | Astoria | Tillamook | Newport | Coos Bay | Port Orford | Brookings |
|---|---|---|---|---|---|---|---|---|
| Households | 1,658,091 | 98,596 | 16,649 | 11,381 | 29,721 | 30,057 | 1,455 | 9,333 |
| Portion of households | | | | | | | | |
| With earnings | 76.2% | 62.5% | 71.1% | 64.3% | 60.3% | 61.4% | 51.3% | 56.9% |
| With Social Security | 32.9% | 49.4% | 40.7% | 47.6% | 52.6% | 48.9% | 55.7% | 57.1% |
| With retirement income | 23.1% | 32.3% | 27.8% | 32.6% | 34.7% | 31.9% | 30.0% | 33.6% |
| With food stamps/SNAP benefits | 14.7% | 17.7% | 14.1% | 16.0% | 17.0% | 22.1% | 27.8% | 12.4% |
| Mean earnings households | 94,630 | 73,551 | 78,703 | 69,235 | 69,662 | 74,363 | 57,869 | 80,532 |
| Mean household income | 94,034 | 73,620 | 79,802 | 72,344 | 72,728 | 71,212 | 56,615 | 77,389 |
| Median household income | 70,084 | 55,507 | 61,846 | 55,730 | 54,599 | 52,074 | 43,775 | 59,701 |
| Per capita income | 37,816 | 32,877 | 34,387 | 31,501 | 33,445 | 31,529 | 28,790 | 35,044 |

Notes: 1. Median household income for port groups with multiple geographic areas is estimated to be the average of the areas weighted by number of households.

Source: ACS 2017-2021 estimates.

Table E.6
Well-Being Indicators at Port Groups in 2021

| | Oregon | Coastwide | Astoria | Tillamook | Newport | Coos Bay | Port Orford | Brookings |
|---|---|---|---|---|---|---|---|---|
| Individuals below poverty level | 12.1% | 13.9% | 9.9% | 13.6% | 14.0% | 16.4% | 21.1% | 12.1% |
| Unemployment rate (16 and over) | 5.6% | 6.2% | 4.8% | 4.8% | 7.1% | 6.0% | 11.8% | 8.3% |
| Self-employed (16 and over) | 7.1% | 10.0% | 8.4% | 9.7% | 11.1% | 10.0% | 14.6% | 10.2% |
| | | | | | | | | |
| Education (percent of persons age 25+) | | | | | | | | |
| High school or above | 91.5% | 91.4% | 92.1% | 90.7% | 92.5% | 90.0% | 93.6% | 91.7% |
| Bachelor's degree or above | 35.0% | 23.9% | 25.8% | 22.4% | 28.1% | 19.4% | 30.8% | 23.1% |
| | | | | | | | | |
| Percent of population that is female householder | 20.0% | 22.7% | 20.7% | 21.7% | 24.4% | 22.8% | 24.7% | 21.6% |
| | | | | | | | | |
| Percent of owner occupied housing units with owner's monthly cost over 30% of income | 24.7% | 24.9% | 23.5% | 27.1% | 26.8% | 23.5% | 28.8% | 22.0% |
| Percent of renter occupied housing units with renter's monthly cost over 30% of income | 47.7% | 43.4% | 44.7% | 38.9% | 46.8% | 41.4% | 47.0% | 39.7% |

Source: ACS 2017-2021 estimates.

# Appendix F

# Commercial Fishing Fees and Assessments

Table F.1
Estimated Commercial Fish Fund Fees in Fiscal Years 2019 Through 2023

| Revenue Source | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|
| CRAB AD VALOREM | $1,571,828 | $1,711,308 | $1,433,871 | $2,157,826 | $2,008,556 |
| GROUNDFISH AD VALOREM | $424,844 | $314,874 | $372,297 | $444,003 | $422,519 |
| NEARSHORE AD VALOREM | $55,524 | $46,924 | $49,691 | $62,127 | $56,762 |
| MARKET SQUID AD VALOREM | $66,377 | $137,990 | $104,522 | $77,663 | $0 |
| OTHER AD VALOREM | $84,977 | $80,174 | $68,578 | $100,991 | $63,418 |
| SABLEFISH AD VALOREM | $226,117 | $113,053 | $157,884 | $260,306 | $190,929 |
| SALMON AD VALOREM | $104,011 | $110,970 | $169,279 | $202,095 | $113,314 |
| SARDINE AD VALOREM | $85 | $0 | $36 | $0 | $7 |
| SHRIMP AD VALOREM | $480,563 | $547,076 | $563,173 | $453,871 | $451,719 |
| TUNA AD VALOREM | $118,357 | $76,898 | $72,124 | $156,443 | $38,428 |
| WHITING AD VALOREM | $498,749 | $349,095 | $401,818 | $434,357 | $343,269 |
| Ad Valorem Revenue Sub-total: | $3,631,430 | $3,488,361 | $3,393,270 | $4,349,682 | $3,688,921 |
| | | | | | |
| FISHING RESIDENT | $149,124 | $137,802 | $136,068 | $126,990 | $126,684 |
| FISHING NONRESIDENT | $58,216 | $53,200 | $57,608 | $47,272 | $46,360 |
| CREW MEMBER RESIDENT | $96,901 | $98,171 | $102,235 | $99,822 | $103,378 |
| CREW MEMBER NONRESIDENT | $83,898 | $94,695 | $95,226 | $87,438 | $75,756 |
| JUVENILE RESIDENT | $1,472 | $1,344 | $1,696 | $1,184 | $1,408 |
| JUVENILE NONRESIDENT | $0 | $0 | $0 | $0 | $0 |
| JUVENILE JIG | $0 | $0 | $0 | $0 | $0 |
| BAIT FISHING RESIDENT | $2,921 | $3,175 | $3,556 | $3,810 | $3,429 |
| BAIT FISHING NONRESIDENT | $531 | $708 | $2,124 | $354 | $0 |
| ALBACORE TUNA LICENSED VESSEL | $5,643 | $5,292 | $5,508 | $5,724 | $4,563 |
| TUNA UNLICENSED VESSEL RESIDENT | $9,576 | $9,576 | $7,308 | $5,292 | $6,048 |
| TUNA UNLICENSED VESSEL NONRESIDENT | $3,624 | $906 | $2,114 | $4,228 | $604 |
| BOAT, Vessels < 50 ft RESIDENT | $290,400 | $277,728 | $278,784 | $272,096 | $268,224 |
| BOAT, Vessels < 50 ft NONRESIDENT | $134,670 | $126,630 | $118,188 | $120,600 | $123,012 |
| BOAT, Vessels > 50 ft RESIDENT | $75,174 | $73,968 | $72,762 | $75,576 | $73,566 |
| BOAT, Vessels > 50 ft NONRESIDENT | $72,320 | $75,484 | $77,292 | $72,320 | $67,348 |
| BRINE SHRIMP | $102 | $0 | $0 | $0 | $0 |
| SHRIMP RESIDENT | $21,210 | $19,190 | $18,584 | $18,988 | $19,190 |
| SHRIMP NONRESIDENT | $13,104 | $10,584 | $11,088 | $10,836 | $10,584 |
| TROLL, SALMON RESIDENT | $90,170 | $73,787 | $72,263 | $69,977 | $67,945 |
| TROLL, SALMON NONRESIDENT | $59,295 | $52,215 | $49,914 | $49,737 | $49,914 |
| GILLNET, SALMON RESIDENT | $31,115 | $27,813 | $28,321 | $27,178 | $27,051 |
| GILLNET, SALMON NONRESIDENT | $10,974 | $9,735 | $9,204 | $10,443 | $10,443 |
| SCALLOP RESIDENT | $2,159 | $1,778 | $1,651 | $1,651 | $1,651 |
| SCALLOP NONRESIDENT | $177 | $177 | $354 | $177 | $177 |
| HERRING RESIDENT | $889 | $1,016 | $889 | $762 | $762 |
| HERRING NONRESIDENT | $177 | $177 | $177 | $354 | $177 |
| CRAB RESIDENT | $78,982 | $61,004 | $61,004 | $59,186 | $58,782 |
| CRAB NONRESIDENT | $30,744 | $31,248 | $32,004 | $31,752 | $33,264 |
| URCHIN RESIDENT | $889 | $889 | $762 | $1,016 | $1,524 |
| URCHIN NONRESIDENT | $885 | $1,062 | $708 | $708 | $177 |
| BLACK/BLUE RESIDENT | $5,334 | $5,334 | $5,080 | $5,080 | $5,207 |
| BLACK/BLUE NONRESIDENT | $354 | $177 | $0 | $0 | $177 |

Table F.1 (cont.)

| Revenue Source | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|
| NEARSHORE RESIDENT | $8,001 | $8,128 | $7,747 | $8,128 | $8,255 |
| NEARSHORE NONRESIDENT | $885 | $708 | $885 | $708 | $531 |
| CLAM, COASTWIDE RESIDENT | $1,270 | $1,270 | $1,143 | $1,270 | $1,143 |
| CLAM, COASTWIDE NONRESIDENT | $177 | $354 | $177 | $177 | $177 |
| CLAM, SOUTH COAST RESIDENT | $0 | $0 | $0 | $0 | $0 |
| CLAM, SOUTH COAST NONRESIDENT | $0 | $0 | $0 | $0 | $0 |
| SARDINE RESIDENT | $381 | $381 | $381 | $381 | $381 |
| SARDINE NONRESIDENT | $4,071 | $3,186 | $3,186 | $3,009 | $3,186 |
| SHELLFISH HARVESTER RESIDENT | $0 | $0 | $0 | $0 | $0 |
| SHELLFISH HARVESTER NONRESIDENT | $0 | $0 | $0 | $0 | $0 |
| SINGLE DELIVERY RESIDENT | $0 | $127 | $0 | $127 | $0 |
| SINGLE DELIVERY NONRESIDENT | $531 | $177 | $177 | $177 | $177 |
| WHOLESALE DEALER | $72,790 | $75,300 | $74,296 | $74,296 | $82,830 |
| FISH CANNER | $0 | $0 | $0 | $0 | $0 |
| SHELLFISH CANNER | $0 | $0 | $0 | $0 | $0 |
| BAIT DEALER | $5,080 | $4,826 | $5,588 | $6,731 | $6,731 |
| FISH SELLER LIMITED RESIDENT | $10,914 | $9,078 | $8,568 | $10,200 | $10,200 |
| FISH SELLER LIMITED NONRESIDENT | $608 | $760 | $760 | $760 | $1,672 |
| FISH BUYER | $33,794 | $35,456 | $36,010 | $33,240 | $40,719 |
| ROCKFISH/NEARSHORE PERMIT LATE FEE | $1,650 | $1,200 | $900 | $750 | $1,500 |
| LICENSE/PERMIT TRANSFER FEE | $16,700 | $17,700 | $19,600 | $16,900 | $10,800 |
| Commercial License Revenue Sub-total: | $1,487,882 | $1,413,516 | $1,411,890 | $1,367,405 | $1,355,707 |
| | | | | | |
| Transfer to Nearshore Fund | $51,942 | $65,611 | $52,062 | $62,583 | $52,597 |
| Transfer to OR Hatchery Research Center Fund | $33,707 | $58,592 | $66,780 | $86,616 | $69,895 |
| Transfer to Restoration & Enhancement Fund | $135,275 | $156,081 | $153,619 | $131,915 | $110,175 |
| Total Commercial Fish Fund: | $4,898,388 | $4,621,593 | $4,532,700 | $5,435,972 | $4,811,960 |

Notes: 1. Fees and transfers are nominal.
2. Estimated landing fees are based on volume and value data reported on fish tickets and not actual dealer remittances.
3. Ad valorem landings assessment fee schedule: 3.15% salmon; 5.00% nearshore fish; 1.09% tuna; 2.35% crab; 2.40% sablefish and shrimp; 2.30% whiting; 2.25% sardines; 2.25% all other groundfish; and, 2.30% other fish species.

Source: ODFW personal communication April 2024.

Table F.2
Commodity Commission Estimated Assessment Revenue in Fiscal Years 2021 Through 2023

Trawl Gear Landings

| Trawl Fisheries | FY 2021 Round Pounds (thousands) | FY 2021 Harvest Value (thousands) | FY 2021 Price | FY 2022 Round Pounds (thousands) | FY 2022 Harvest Value (thousands) | FY 2022 Price | FY 2023 Round Pounds (thousands) | FY 2023 Harvest Value (thousands) | FY 2023 Price |
|---|---|---|---|---|---|---|---|---|---|
| Pink shrimp | 45,278 | $23,278 | $0.51 | 44,700 | $22,795 | $0.51 | 45,638 | $19,607 | $0.43 |
| Groundfish | 41,813 | $14,253 | $0.34 | 42,790 | $17,978 | $0.42 | 44,838 | $19,244 | $0.43 |
| Pacific whiting | 192,477 | $14,204 | $0.07 | 168,794 | $16,578 | $0.10 | 182,483 | $19,503 | $0.11 |
| Other | 1,867 | $10 | $0.01 | 2,488 | $51 | $0.02 | 3,732 | $171 | $0.05 |
| Total | 281,435 | $51,745 | $0.18 | 258,772 | $57,402 | $0.22 | 276,691 | $58,525 | $0.21 |

Fisheries Assessments

| FY | Species | Round Pounds (thousands) | Harvest Value (thousands) | Price | Assessment Rate (percent) | Assessments |
|---|---|---|---|---|---|---|
| 2021 | Salmon troll | 229 | $1,939 | $8.45 | 1.50 | $29,081 |
| 2021 | Albacore tuna | 4,419 | $7,052 | $1.60 | 1.00 | $70,519 |
| 2021 | Dungeness crab | 12,145 | $60,120 | $4.95 | 1.00 | $601,203 |
| 2021 | Trawl | 281,435 | $51,745 | $0.18 | 0.50 | $258,727 |
| | Total | 298,229 | $120,856 | $0.41 | | $959,530 |
| 2022 | Salmon troll | 390 | $3,204 | $8.22 | 1.50 | $48,063 |
| 2022 | Albacore tuna | 3,223 | $6,616 | $2.05 | 1.00 | $66,164 |
| 2022 | Dungeness crab | 17,291 | $92,257 | $5.34 | 1.00 | $922,571 |
| 2022 | Trawl | 258,772 | $57,402 | $0.22 | 0.50 | $287,010 |
| | Total | 279,676 | $159,480 | $0.57 | | $1,323,807 |
| 2023 | Salmon troll | 232 | $1,401 | $6.04 | 1.50 | $21,022 |
| 2023 | Albacore tuna | 6,267 | $14,347 | $2.29 | 1.00 | $143,466 |
| 2023 | Dungeness crab | 31,430 | $84,309 | $2.68 | 1.00 | $843,089 |
| 2023 | Trawl | 276,691 | $58,525 | $0.21 | 0.50 | $292,623 |
| | Total | 314,620 | $158,581 | $0.50 | | $1,300,200 |

Notes: 1. Annual landings are for fiscal year months (July 1 through June 30 following year) ending in the table's shown year. Dollars are unadjusted for inflation.

2. Trawl gear category includes any species landed with the following trawl gears: flatfish, midwater, roller, selective FF (small footrope), shrimp (double rigged or single rigged), or other trawl gear. Trawl assessment estimates starting in year 2011 exclude some non-trawl gear groundfish harvest allowed with the LE trawl permit ITQ program.

3. The four commodity commissions are the Salmon Commission (1.5 percent ex-vessel value troll caught salmon assessed to harvester), Trawl Commission (0.5 percent ex-vessel value of groundfish and shrimp caught with trawl gear assessed to harvester), Albacore Commission (one percent ex-vessel value of albacore tuna whose payment is split evenly by harvesters and processors), and Dungeness Crab Commission (one percent ex-vessel value assessed to harvester). Actual producer/handler assessments accruing to commodity commission budget revenue may be different because it depends on harvest value exemptions that can differ from fish ticket reported harvest value.

Source: PacFIN fish ticket data, February 2024 extraction.