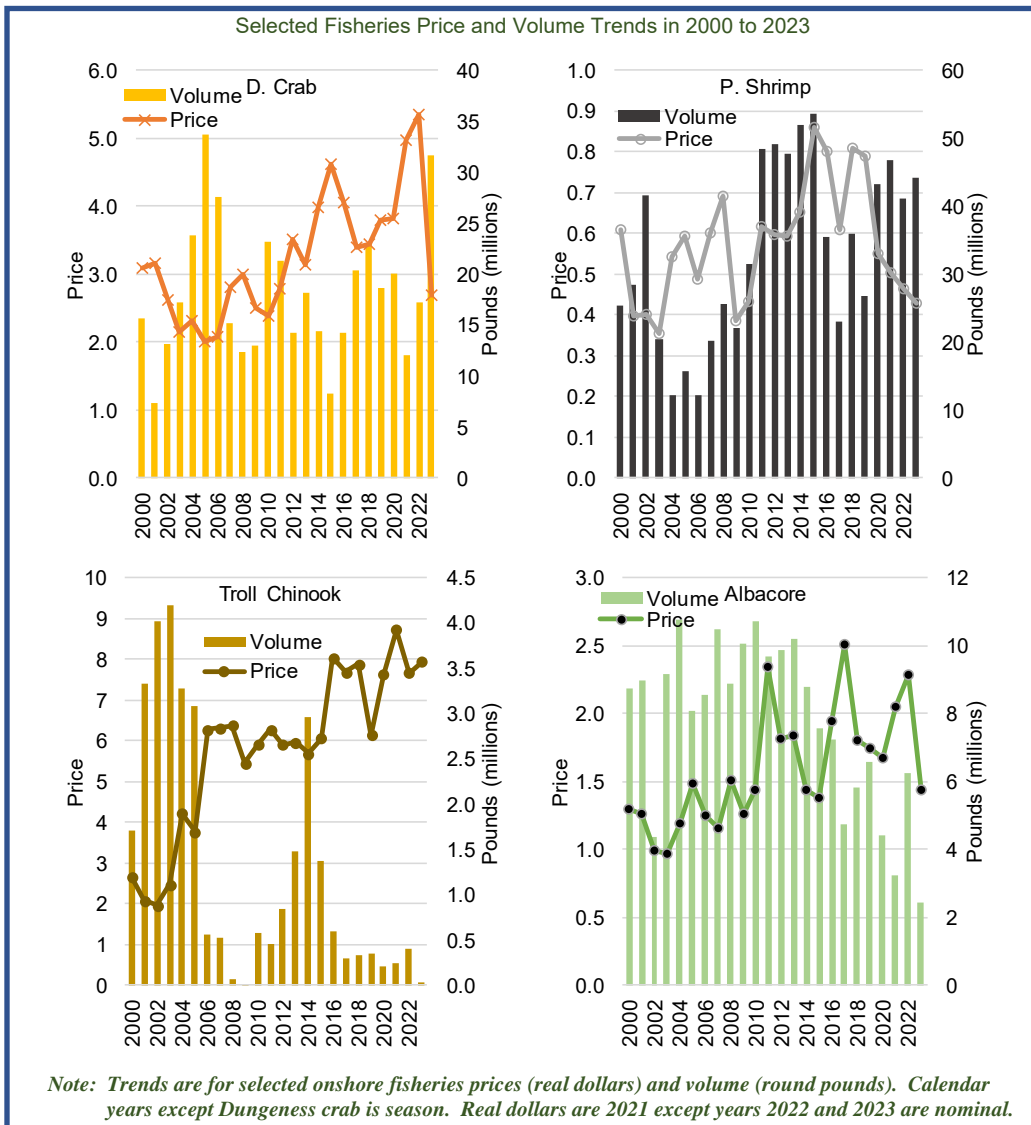


Oregon Commercial and Marine Recreational Fishing Industry Economic Activity for Years 2020 and 2021

Addendum 2023 Executive Summary



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 Executive Summary

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prepared for

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

June 2024

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Executive Summary

Background

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 is about overall trends in the Oregon fishing industry, and more specifically, describes the nearshore fisheries that would most likely be affected by MR management.

The following discusses activity trends and economic contributions for Oregon fisheries in three respective sections: commercial, marine recreational, and nearshore. The last section gives an outlook of challenges facing the fishing industry.

The activity trends are described through 2023 for commercial fisheries and through 2021 for marine recreational fisheries. The description measures are commercial landings (volume, harvest value, and prices) and marine recreation effort (angler days).¹ The economic contributions trends described through 2021 are measured by annual income, jobs, and output.² The estimates include the "multiplier effect." Estimates are reported for the statewide and coastwide economy level. Prices, harvest revenue, and economic contributions are expressed in 2021 dollars for years up to 2021 and are nominal for 2022 and 2023 unless otherwise noted.³

Commercial Fisheries

The Oregon commercial fishing industry economic contribution trends for major fisheries from 1973 through 2021 are shown on Figure ES.1. The fisheries generated an estimated \$642 million income to the statewide economy in 2021 which is equivalent to about 9,200 jobs (Table ES.1). Output is estimated to be \$1.2 billion. The pre-pandemic five-year (2016-2020) average annual

-
1. Commercial 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). 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. The economic contribution measurement for *income* is household earnings and includes wages/salaries as well as proprietorship net earnings. *Jobs* are equivalent full and part-time positions that would be spread across all sectors of the economy. *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.
 3. Dollars are adjusted to be real using the Gross Domestic Product Implicit Price Deflator (GDPIPD) developed by the U.S. Bureau of Economic Analysis.

income was \$498 million with range of \$464 million in 2017 to \$527 million in 2018.¹ 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). The proportion from distant water fisheries economic contribution trends has been decreasing in recent years. There are ups and downs in specific Oregon fisheries and in fishing dependent communities, but the consistency in industry activity overall has allowed related businesses (provisioning, repair, gear manufacturing, etc.) to develop.

The Oregon commercial fishing industry onshore landings in 2023 were 301.4 million pounds worth \$177.0 million in harvest value.² 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 five-year (2016-2020) average (304.3 million pounds and \$168.0 million). Figure ES.2 shows selected fisheries and other protein landing trends in 2000 to 2023.

Some notable commercial fisheries landing trends are:

- Salmon volumes remained at low levels in the last eight years. The 2023 ocean troll salmon fishery was closed south of Cape Falcon except for a late (September and October) season. Because of the ocean troll closure, salmon landings ex-vessel value was 92 percent Columbia River non-Indian and tribal net fisheries in 2023. Some ocean troll landings were made when the catch area was north of Cape Falcon. 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. Wild caught Chinook salmon (particularly Columbia River spring Chinook) has a niche luxury food market that sustains a high price. 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.
- Pink shrimp and Dungeness crab fisheries price declines rather than harvest volume characterized these fisheries harvest value in 2023. Pink shrimp volume in 2023 was 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. Despite the pink shrimp higher volumes, the lower price made the harvest value (\$18.7 million) the second lowest in the last thirteen years. Dungeness crab volumes were up in calendar year 2023 partially due to the 2022-2023 season opening being delayed until January and February 2023 and the 2023-2024 season having partial openings in December 2023. Based on the fishery's regulation dates, the landings for the 2021-2022 season were 17.2 million pounds when prices were high (\$5.33 per pound) and for the 2022-2023 season 31.7 million pounds when prices were low (\$2.70 per pound). The high volume in the Dungeness crab fishery during the 2022-2023 season also was not enough for harvest

1. 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.

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 ocean start date is December 1 and closure is August 14. However the season can be delayed until January or later of the following year due to crab quality status, harvest price disagreements, and bad weather. This will push the beginning month catch (which is sometimes two-thirds of the total season) into the next calendar year. This was the case for 2023.

value (\$85.5 million) to be greater than the record 2021-2022 season (\$91.8 million). There are market signals that Dungeness crab fishery 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.

- 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 up in 2022 and 2023 as compared to 2021. The two-gear harvested average price was down in 2023 (\$1.21) as compared to 2022 (\$1.63). The sablefish price has not returned to the record level real price of \$4.14 received in 2011. 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.
- Groundfish (other than sablefish and whiting) harvest volumes in the last seven years have remained in the 45-50 million pounds range. 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. It is harvested by bottom trawl gear which also catches sablefish. 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.
- Other fisheries news for 2023 besides the general downturn in prices was the void in the market squid fishery. Landings in 2021 were 7.8 million pounds 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. Harvests are largely trucked to southern California to be processed into bait. The processed bait is used in the Oregon Dungeness crab fishery.
- Oregon coast aquaculture is principally Pacific oysters. The U.S. Department of Agriculture 2018 Census of Aquaculture 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 also annually tracks production.

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.

Recreational Fisheries

Commercial wild 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.

There is scattered and disparate information available about the economic contributions from marine recreational finfish and shellfish fisheries in Oregon's coastal areas. This report pulls together existing economic information and provides additional economic analysis results so that magnitudes and trends can be discerned. The accounting is selective leaving out trips targeting freshwater resident fish. The most recent data overlapping participation year for modeling the selective fisheries is 2021.

Total trips for the selective finfish fisheries increased in the late 2000's through 2015 (Figure ES.3).¹ Trips for years 2016 through 2019 were in a downward trend mostly due to decreased participation in the inriver fall salmon and steelhead fisheries. There has been a slight increase following 2019 due to an increase in ocean trips for salmon. There were about 968 thousand total trips in 2021. The resulting trip spending for finfish target species trips was \$275.0 million in 2021. The spending generated an estimated \$134 million income to the statewide economy in 2021 which is equivalent to about 1,910 jobs (Table ES.1 and Figure ES.4). 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. Bay crabbing and clamming are from other ODFW pressure studies that have single year counts. It is assumed the various years apply to 2021. Ocean crabbing trips not in combination with trips where finfish are targeted had 5.6 thousand angler days. (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. 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. 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 (Table ES.1). Output is estimated to be \$39 million.

Economic contribution summation from both finfish and shellfish trip spending generated \$150 million income to the statewide economy in 2021 which is equivalent to about 2,150 jobs (Table ES.1). Output is estimated to be \$361 million. The economic contribution of commercial fishing in relation to the select recreational fishing by port groups is shown on Figure ES.5.

Recreational anglers make additional contributions to local economies in ways other than trip spending, such as purchasing fishing equipment and boats, and owning second homes. Vibrant

1. The words angler "trips" and angler "days" are synonymous descriptions of the measurement for effort in this report. This can differ from other literature descriptions where trips can include multiple fishing days.

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 prospective employees. The attraction will be an important business location decision variable, along with more straightforward considerations such as the markets and suppliers logistics, and labor costs.

Nearshore Fisheries

Economic activity descriptions are provided for nearshore fisheries, i.e. commercial and recreational fisheries that take place within the TS and adjacent bays. The descriptions are provided to assist in characterizing the potential economic impact from marine reserve management. The nearshore fisheries commercial and recreational statewide economic contribution was \$288 million income to the statewide economy in 2021 which is equivalent to about 4,120 jobs (Table ES.1). The estimated output is \$625 million. The nearshore commercial and recreational fisheries economic contribution share was 38 percent of the total fishing industry income in 2021 (Figure ES.6).

A spatial model was developed in another ODFW sponsored project whose purpose was to estimate the economic contributions from fisheries within alternative MR boundary designs. The model informed decision making in the geographic shaping and fisheries management plan formulation process that ultimately led to the existing system of marine reserves. The model shows, based on three-year average 2019-2021 harvesting, that the maximum potential economic impact (i.e. no displaced fishing would occur elsewhere) from marine reserve management is 3.8 percent of all nearshore commercial and recreational fishing economic contributions annual income which take place in the TS (Table ES.2). Since the marine reserve system area is about 10 percent of the TS area, it would seem likely that the 90 percent area 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. The 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 both concluded and planned that address the extent of effort shift and leaving fisheries brought about by MR establishment. The problem is finding the degree and outcome of any influence from marine reserve implementation given that fishers are also responding to such factors as fish resource conditions, other regulations, economic and market conditions, personal investment choices, and even weather.

Outlook

Total fishing industry generated economic contribution is \$792 million income in 2021 for the statewide economy which is equivalent to about 11,300 jobs. Output is estimated to be \$1.6 billion. (The total includes commercial onshore, distant water fisheries, recreational ocean fisheries, recreational selective finfish fisheries that are located in bays and lower rivers, and recreational ocean and bay crabbing and clamming.) 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. 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, inter-industry structure challenges, and environmental conditions change.

The 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 overall Oregon commercial fisheries harvest price recent trends are consistent with national seafood retail value 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. 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.

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. 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. 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. Vigilance on how stocks are responding to conditions is required for long term fisheries species protection. 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. 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.

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, Oregon Coast Visitors Association, 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.

There are pressures from fish resource users to shift management specifications for making operations more efficient and alter opportunities for fisheries access. Fishery managers are often presented with economic effects information from different user groups wanting more favorable access to fisheries. There are different ways to measure economic effects and misuse of information can occur. Economic information can be valuable to decision making when there is forethought in proper data collection, economic modeling, and tradeoff discussions.

This report should prove helpful to understand the challenges facing the fishing industry. Contents characterize the social and economic importance of the different fishing industry sectors. 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.

Table ES.1
Commercial and Recreational Fishing and Nearshore Fisheries
Coastwide and Statewide Economic Contributions in 2021

	Onshore				Distant Water			Total				
	<u>Ex-vessel</u>	<u>Income</u>	<u>Jobs</u>	<u>Output</u>	<u>Income</u>	<u>Jobs</u>	<u>Output</u>	<u>Income</u>	<u>Jobs</u>	<u>Output</u>		
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			
	<u>Spending</u>	<u>Income</u>	<u>Jobs</u>	<u>Output</u>	<u>Spending</u>	<u>Income</u>	<u>Jobs</u>	<u>Output</u>	<u>Spending</u>	<u>Income</u>	<u>Jobs</u>	<u>Output</u>
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
						<u>Ex-vessel/ Spending</u>			<u>Total</u>			
								<u>Income</u>	<u>Jobs</u>	<u>Output</u>		
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. 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.
3. Trip spending is regardless of where (trip origin, enroute, or destination) purchases occurred nor is spending differentiated for residents and non-residents.

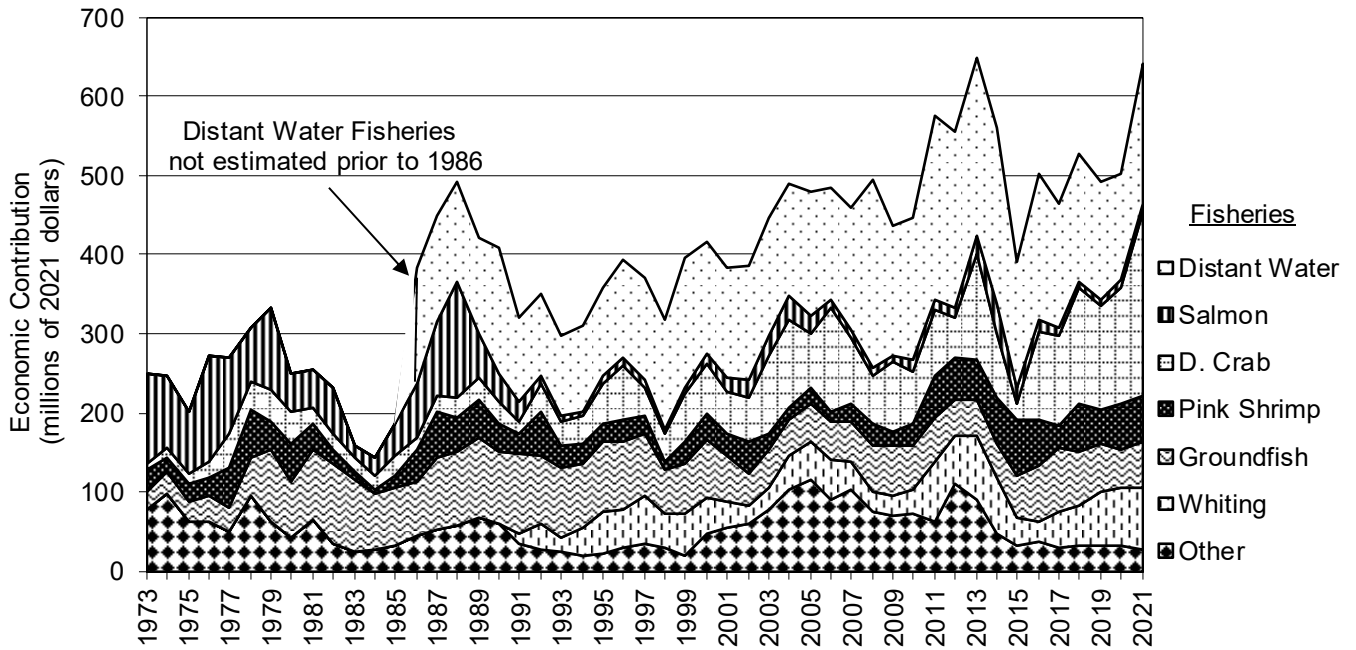
Table ES.2
 Marine Reserve Sites Annual Average Regional Economic Impacts From
 Assessed and Displaced Commercial and Recreational Fisheries for 2019-2021

Harvest Area	Area Share of Territorial Sea	Assessed Fisheries REI			Displaced Fisheries REI		
		Comm.	Rec.	Total	Comm.	Rec.	Total
<u>Marine Reserve Sites</u>							
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	<u>0.6%</u>	<u>195</u>	<u>64</u>	<u>259</u>	<u>103</u>	<u>60</u>	<u>163</u>
Total	9.3%	7,033	1,007	8,040	2,508	448	2,955
		<u>REI</u>			<u>Assess.</u>		<u>Displ.</u>
<u>Comparison Areas</u>		<u>Comm.</u>	<u>Rec.</u>	<u>Total</u>	<u>Share</u>	<u>Share</u>	
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%	

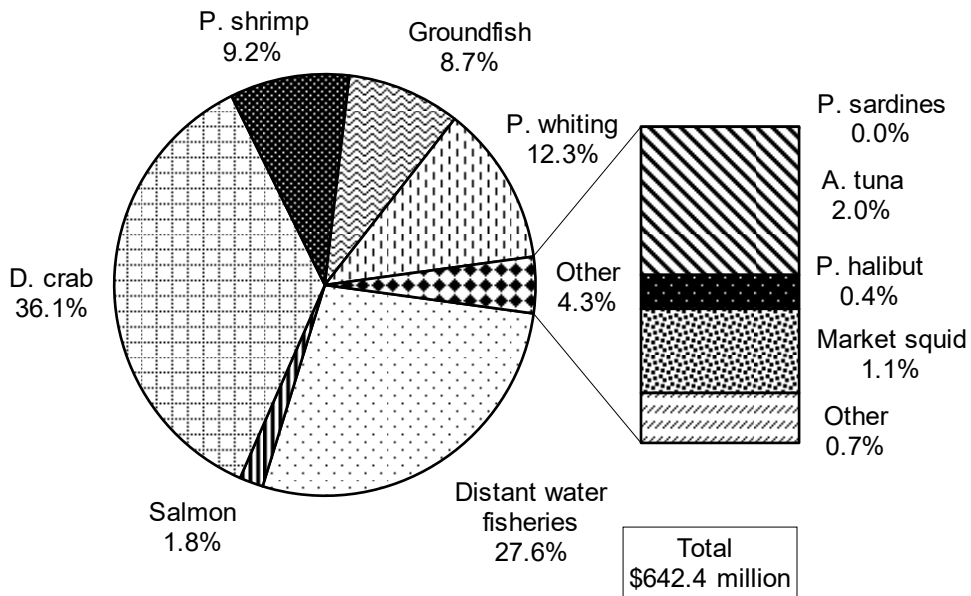
- Notes:
1. Economic impacts are expressed as coastwide income in millions of 2021 dollars.
 2. REI is regional economic impacts.
 3. Assessed fisheries are all of those that took place in the marine reserve and marine protected area portions. Displaced fisheries are those that are closed due to marine 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 hauled pounds.

Figure ES.1

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.

Figure ES.2
Selected Fisheries and Other Protein Price and Volume Trends in 2000 to 2023

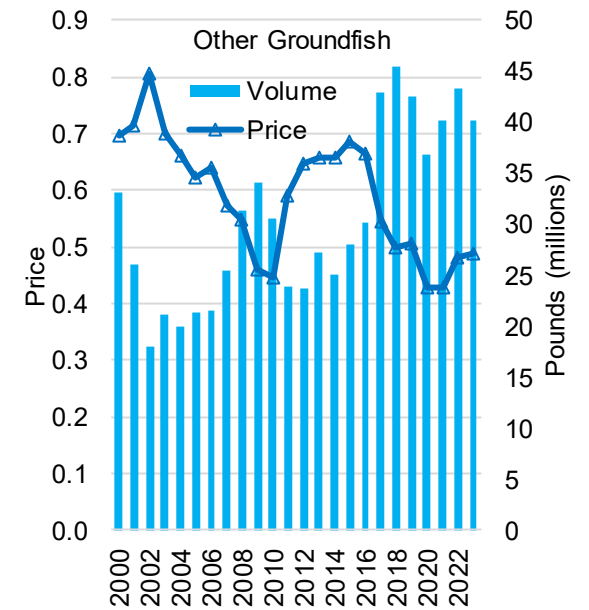
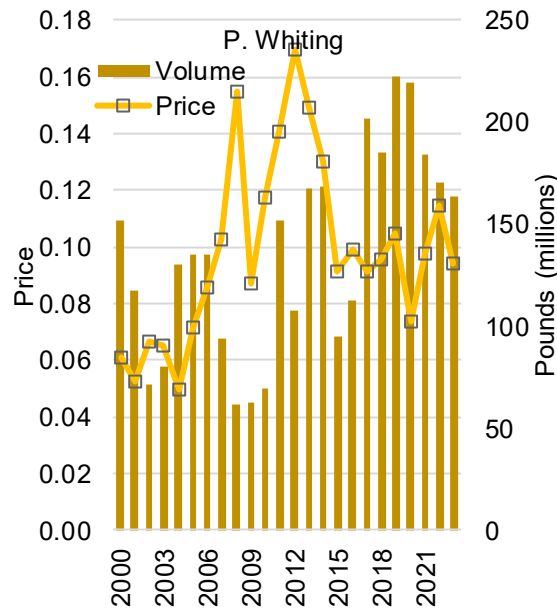
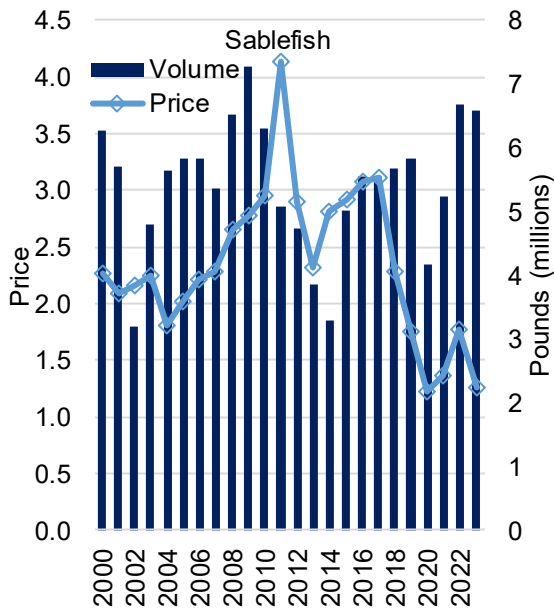
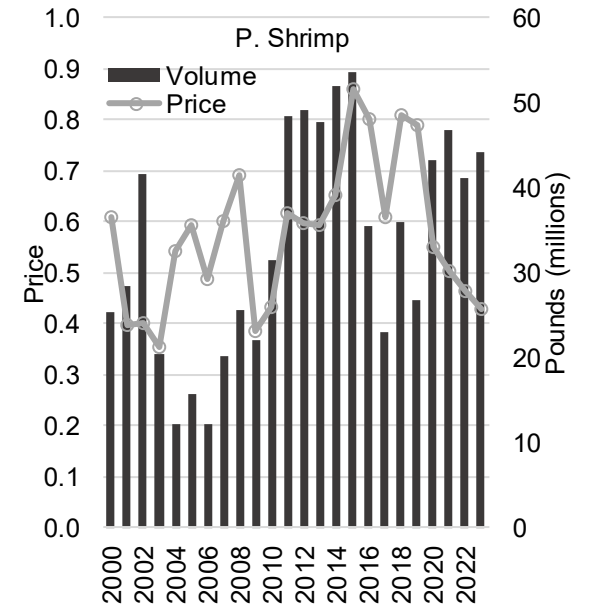
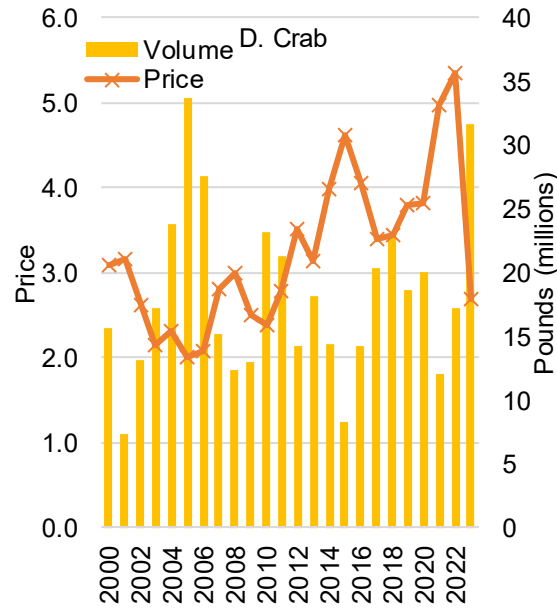
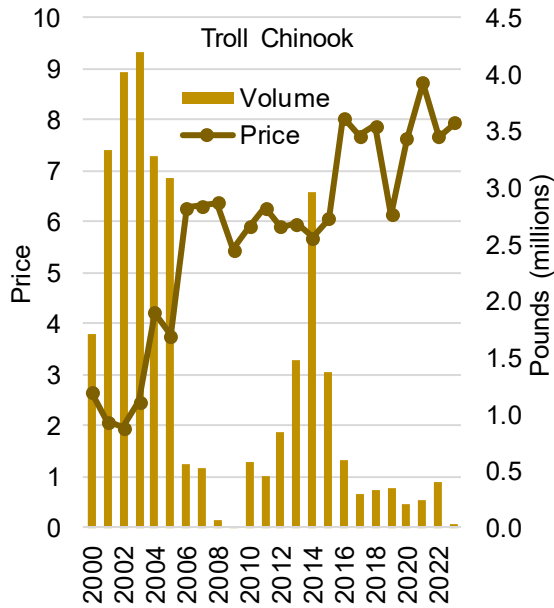
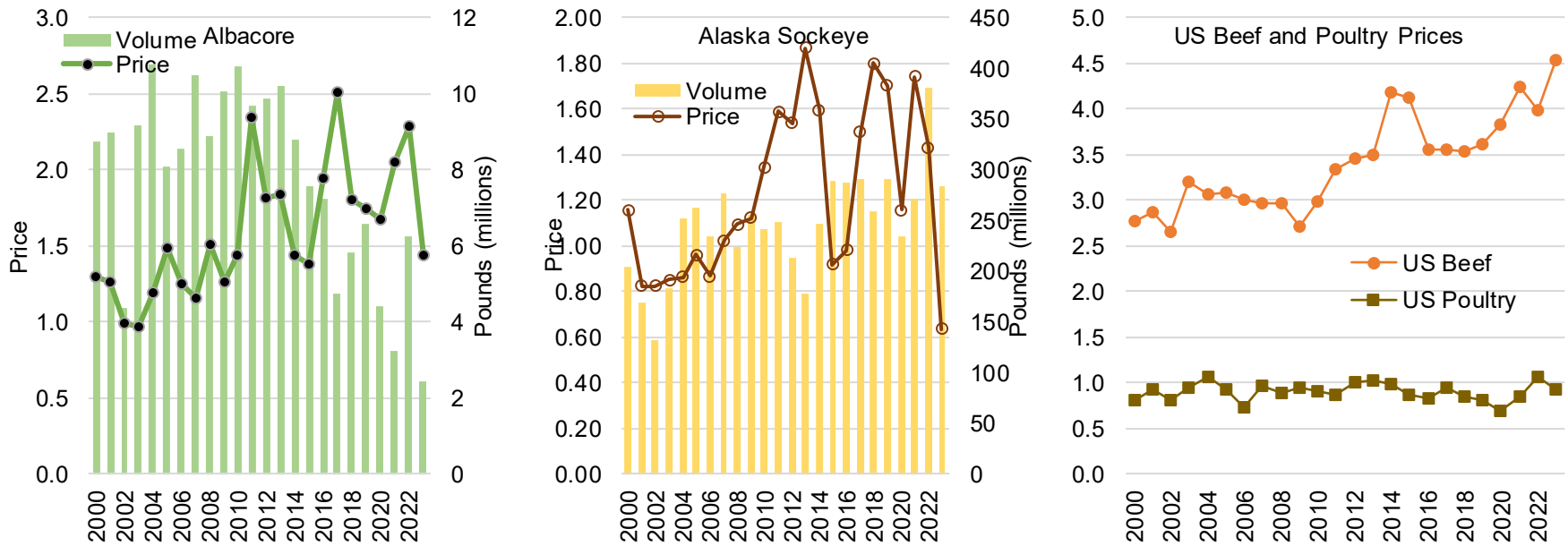
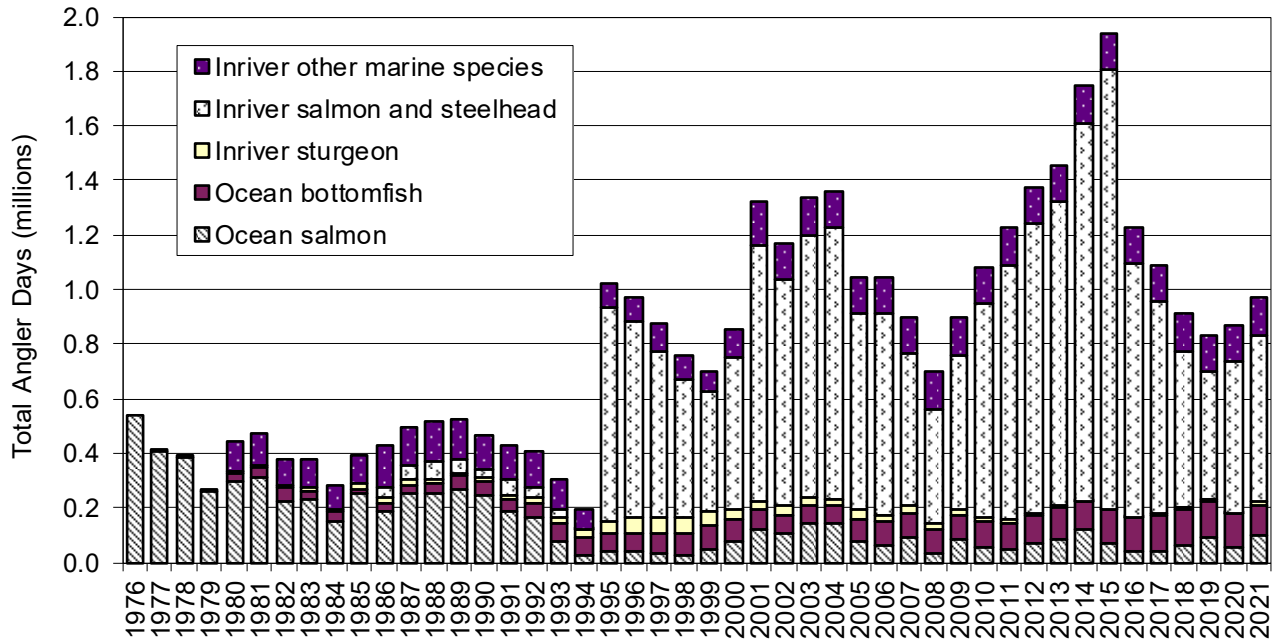


Figure ES.2 (cont.)



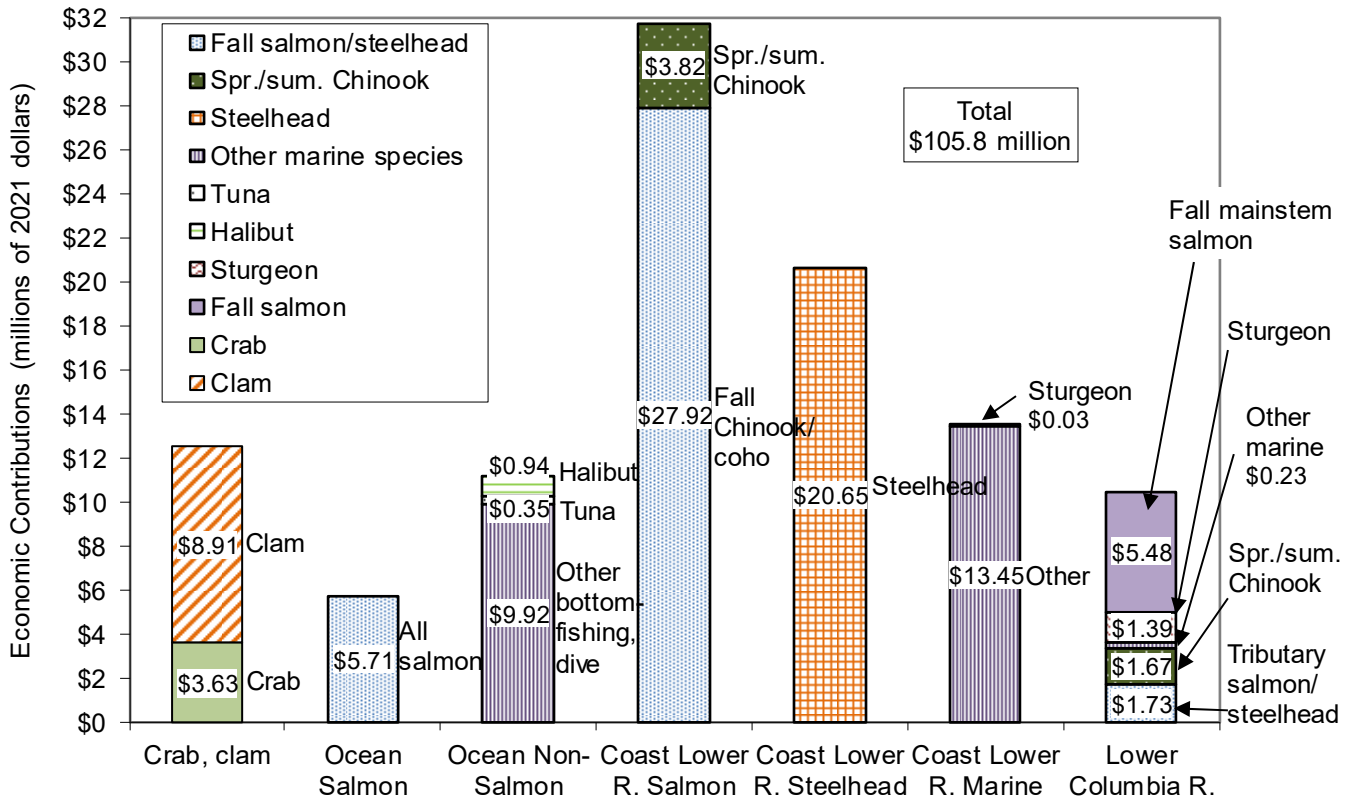
- Notes: 1. Prices are real 2021 dollars, except 2022 and 2023 are nominal.
 2. Oregon fisheries exclude offshore deliveries and aquaculture, and also exclude non-sales disposition.
 3. Fisheries except Dungeness crab are shown for calendar year. Dungeness crab is shown for December to August seasons.
 4. "Other groundfish" fishery excludes Pacific whiting and sablefish.
 5. Sablefish includes trawl and longline.

Figure ES.3
Recreational Angler Days for the Study Selected Finfish Fisheries in 1976 to 2021



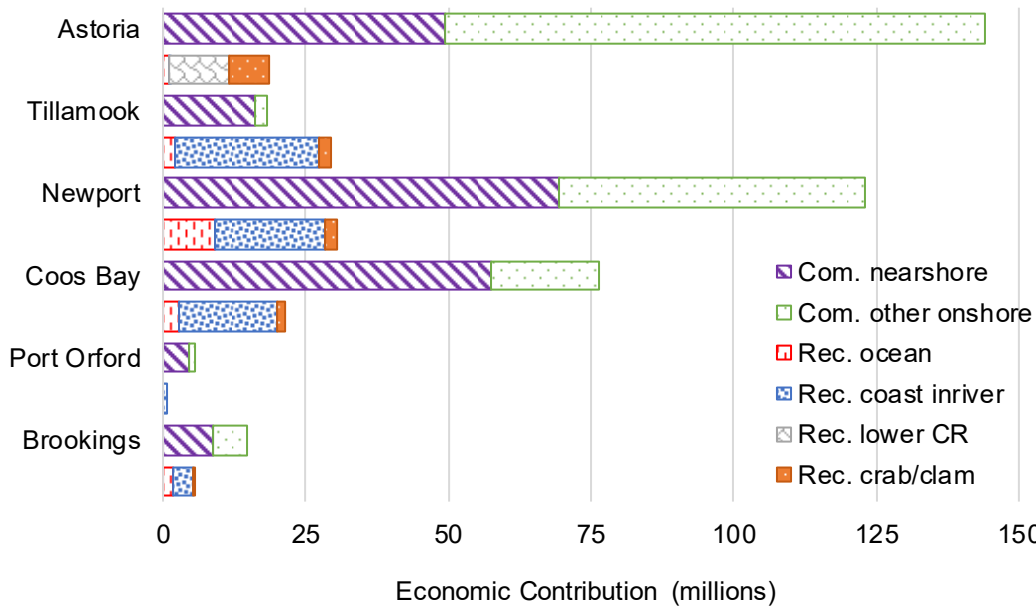
- Notes:
1. Angler days are included when the fishing trip occurs in the ocean, inriver marine areas (estuaries), and when the trip purpose is for certain species in coastal area inriver locations. The ocean fisheries are separated by trip purpose being for salmon and bottomfish. If the trip purpose is for a combination of salmon and bottomfish, then it is classified as a salmon trip. The bottomfish fishery includes halibut and tuna trips for display purposes.
 2. Trips do not include ocean and bay crabbing and clamming.

Figure ES.4
Recreational Marine Fisheries Economic Contributions in 2021



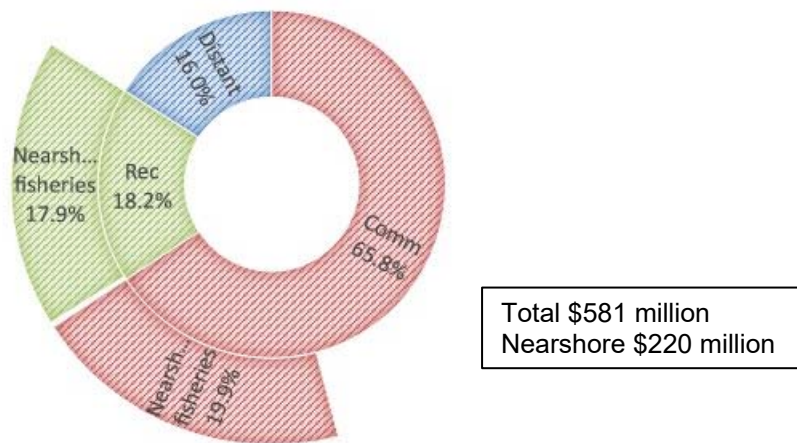
Notes: 1. Economic contributions are expressed as coastwide income in millions of 2021 dollars.

Figure ES.5
Commercial and Recreational Fisheries Engagement at Port Groups in 2021



Notes: 1. Economic contribution is expressed as coastwide income in millions of 2021 dollars.

Figure ES.6
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.