

APPENDIX A: SAFE TABLES

TABLE 2-1. HISTORY OF COUNCIL ACTIONS

For history of Council actions prior to 2016, see prior SAFE documents

The Council initiated development of the FMP for northern anchovy in January of 1977. The FMP was submitted to the Secretary in June of 1978. Regulations implementing the FMP were published in the *Federal Register* on September 13, 1978 (43FR40868). This Table includes approximately the past five years of Council actions. Prior Council activities related to CPS management can be found in previous [SAFE documents](#).

- At its April 2016 meeting, the Council adopted Pacific sardine harvest specifications and management measures for the 2016 – 2017 fishery. Because the 106,137 mt estimated biomass again fell below the Cutoff of 150,000 metric tons, a directed fishery was precluded. Therefore the Council adopted an HG of zero, with a 8,000 mt ACL to allow for tribal harvest, incidental landings, live bait, research, and other minor sources of mortality. For incidental catches, the Council adopted an incremental approach, with 40% mixed loads allowed until 2,000 mt are landed. Then the mixed load amount drops to 20% until 5,000 mt are landed, and dropped to 10% until the ACL is met. The Council also adopted an OFL of 23,085 mt and an ABC of 19,236 mt.
- At its April 2017 meeting, the Council adopted Pacific sardine harvest specifications and management measures for the 2017 – 2018 fishery. The biomass estimate of again fell below the Cutoff value of 150,000 mt, thereby precluding a directed sardine fishery. The Council adopted an HG of zero and an ACL of 8,000 mt to allow for tribal harvest (up to 800 mt), incidental landings, live bait, small scale fishing, and other minor sources of mortality. For incidental catches, the Council adopted an incremental approach, with 40% mixed loads allowed until 2,000 mt are landed. Then the mixed load amount drops to 20% until 5,000 mt are landed, and dropped to 10% until the ACL is met. The Council also adopted an OFL of 16,957 mt and an ABC of 15,479 mt.
- Also at the April 2017 meeting, the Council adopted FMP Amendment 16, which allows for minor directed fishing on CPS stocks when the directed fishery is closed. A handful of operators along the west coast use beach seine nets, small purse seines, or hook and line gear to harvest small quantities of CPS, typically for bait or for the restaurant market. The landings in this sector are expected to be de minimis. The Council adopted a trip limit of one metric ton, and a limit of one trip per day.
- At its June 2017 meeting, the Council adopted Pacific mackerel harvest specifications and management measures, for two consecutive years. A projection estimate of biomass was used to estimate the second year biomass, assuming the full HG would be taken. The Council adopted the following harvest specifications and management measures:

	2017-18 (mt)	2018-19 (mt)
Biomass	143,403	131,724
OFL	30,115	27,662

ABC_{0.45}	27,510	25,269
ACL	27,510	25,269
HG	26,293	23,840
ACT	26,293	23,840
Incidental	1,000	1,000

- At its April 2018 meeting the Council adopted Pacific sardine harvest specifications and management measures for the 2018 – 2019 fishery. The biomass estimate (52,065 mt) again fell below the Cutoff value of 150,000 mt, thereby precluding a directed sardine fishery. The Council adopted an ACL of 7,000 mt to accommodate incidental landings, tribal harvest, and the live bait fishery. Further details can be found in the Council’s decision summary [document](#).
- At its November 2018 meeting the Council took final action on CPS FMP Amendment 17, which addresses live bait landings when a CPS stock is overfished. The amendment process was initiated in June 2018. Amendment 17 removes the pre-determined incidental landing limit of a maximum 15 percent in the live bait fishery. Live bait fishing will still be subject to annual catch limits and other management measures, and the Council may enact further restrictions once a stock falls below the overfished threshold.
- At its April 2019 meeting, the Council adopted the Pacific sardine update assessment, which showed a biomass estimate below the overfished threshold of 50,000 mt. The Council adopted management measures consistent with Amendment 17 to the CPS FMP, under the assumption that it would be approved by the time the fishing year began on July 1. The Council was responsible for developing a proposed rebuilding plan, and delivering to NMFS by Fall 2020.

	2018-19 (mt)	2019-2020 (mt)
Biomass	131,724	27,547
OFL	27,662	5,816
ABC_{0.45}	25,269	4,514
ACL	25,269	4,514
HG	23,840	
ACT	23,840	4,000
Incidental	1,000	

- A per-trip limit of 1 mt of sardines in the live bait fishery will apply if the live bait fishery attains 2,500 mt
- A per-trip limit of 1 mt of incidentally-caught sardines would apply to both the live bait and primary directed CPS fisheries, if the annual catch target of 4,000 mt is attained
- An incidental per-trip allowance of 2 mt of sardines applies to non-CPS fisheries
- Also at its April 2019 meeting, the Council approved two exempted fishing permit proposals, from the West Coast Pelagic Conservation Group and the California Wetfish Producers Association, for projects intended to complement the NOAA acoustic-trawl survey.

- At its June 2019 meeting, the Council adopted a biennial stock assessment prioritization process for use in 2020 to inform stock assessment priorities beginning in 2022. This process will include sufficient flexibility to allow for revisions in the intervening year based on new information. The new process is also intended to guide stock assessment priorities, survey design, and the long-term integrity and value of abundance indices. The Council also recommends a benchmark assessment for Pacific sardine in 2020 and a model-based assessment of the central subpopulation of northern anchovy in 2021.
- Also in June 2019, the adopted the 2019 Pacific mackerel stock assessment, reference points, and management measures for the 2019-2020 and the 2020-2021 Pacific mackerel fishing seasons. These include the harvest specifications below and the following management measures: the directed fishery will close if it reaches the annual catch target and shift to an incidental-only fishery for the remainder of the fishing year with a 45 percent incidental landing allowance when Pacific mackerel are landed with other coastal pelagic species (CPS) and no more than 3 mt of Pacific mackerel per landing in non-CPS fisheries.

2019-2020 Pacific Mackerel Harvest Specifications

Biomass	71,099
OFL	14,931
ABC _{0.45} (Tier 2)	13,169
ACL (=ABC)	13,169
HG	11,109
ACT	10,109
Incidental	1,000

2020-2021 Pacific Mackerel Harvest Specifications

Biomass	56,058
OFL	11,772
ABC _{0.45} (Tier 2)	10,289
ACL (=ABC)	10,289
HG	7,950
ACT	6,950
Incidental	1,000

- At its April 2020 meeting, the Council adopted harvest specifications and management measures for the Pacific sardine, based on the update assessment. The stock assessment update showed the population estimate remains below the 50,000mt overfished threshold, meaning that directed commercial harvest is largely prohibited, except live bait, minor directed, and incidental landings.

	2019-20 (mt)	2020-2021 (mt)
Biomass	27,547	28,276
OFL	5,816	5,525
ABC_{0.45}	4,514	4,288 (ABC_{0.40})
ACL	4,514	4,288
ACT	4,000	4,000

- An incidental catch allowance of 20 percent for commercial CPS fisheries, except live bait and minor directed fishing.
 - A per-trip limit of 1 mt of sardines in the live bait fishery will apply if the live bait fishery attains 2,500 mt
 - A per-trip limit of 1 mt of incidentally-caught sardines would apply to both the live bait and primary directed CPS fisheries, if the annual catch target of 4,000 mt is attained
 - An incidental per-trip allowance of 2 mt of sardines applies to non-CPS fisheries
 - The Council also supported two exempted fishing permit [proposals](#), from the West Coast Pelagic Conservation Group and the California Wetfish Producers Association, for projects intended to complement the NOAA acoustic-trawl survey.
- At its September 2020, the Council adopted a final rebuilding plan for Pacific sardine, selecting the Status Quo alternative as the preferred management alternative. The Council adopted the following rebuilding reference points:

T_{min} = 12 years

T_{max} = 24 years

T_{target} = 14 years

Rebuilding Target = 150,000mt ag 1+ biomass

- At its April 2021 meeting, the Council adopted Pacific sardine harvest specifications and management measures, based on the update stock assessment. The stock assessment update showed the population estimate remains below the 50,000mt overfished threshold, meaning that directed commercial harvest is largely prohibited, except live bait, minor directed, and incidental landings. Due to the absence of acoustic-trawl survey data, these specifications were based on the 2020 stock assessment and biomass estimate.

	2021-2022 (mt)
Biomass	28,276 (from 2020)
OFL	5,525
ABC_{tier 3}	3,329 (ABC_{0.40})
ACL	3,329
ACT	3,000

Management Accountability Measures include:

1. Incidental sardine landing limit in other CPS fisheries of 20 percent.
2. If landings in the live bait fishery attain 1,800 mt of sardine, a per-landing limit of one mt of Pacific sardine per trip will apply to the live bait fishery.
3. If the ACT of 3,000 mt is attained, a per-trip limit of 1 mt of Pacific sardine applies to all CPS fisheries.
4. An incidental per-landing allowance of 2 mt of Pacific sardine in non-CPS fisheries until the ACL is reached.

The Council also endorsed up to 830 mt of sardine to support exempted fishing permit research,

- At its June 2021 meeting, the Council adopted the 2021 Pacific mackerel stock assessment, reference points, and management measures for the 2021-2022 and the 2022-2023 fishing seasons. These include the harvest specifications below and the following management measures: the directed fishery will close if it reaches the annual catch target and shift to an incidental-only fishery for the remainder of the fishing year with a 45 percent incidental landing allowance when Pacific mackerel are landed with other coastal pelagic species (CPS) and no more than 3 mt of Pacific mackerel per landing in non-CPS fisheries.

2021-2022 Pacific Mackerel Harvest Specifications

Biomass	57,832
OFL	12,145
ABC _{0.45} (Tier 3)	9,446
ACL (=ABC)	9,446
HG	8,323
ACT	7,323
Incidental	1,000

2022-2023 Pacific Mackerel Harvest Specifications

Biomass	45,925
OFL	9,644
ABC _{0.45} (Tier 3)	7,501
ACL (=ABC)	7,501
HG	5,822
ACT	4,822
Incidental	1,000

TABLE 2-2. REGULATORY ACTIONS SINCE 2015

For regulatory actions prior to 2016, see prior SAFE documents

June 23, 2016. NMFS issued a proposed rule on annual specifications and management measures for Pacific mackerel under the CPS FMP. The proposed 2016-2017 HG for Pacific mackerel was 21,161 mt, with an ACT of 20,161 mt. The directed fishery would be closed if the ACT was attained, with the remaining 1,000 mt representing a set aside for incidental landings in other CPS fisheries and other sources of mortality (81FR40844).

June 24, 2016. NMFS issued a final rule to implement annual harvest specifications and management measures to establish the allowable catch levels of Pacific sardine in waters off the U.S. West Coast for the 2016-2017 fishing year. The annual biomass estimate of 106,137 mt fell below the Cutoff value of 150,000mt, thereby precluding directed non-tribal harvest. NMFS set an ACL of 8,000 mt to account for incidental harvest, tribal harvest, live bait, and other minor sources of mortality. NMFS implemented an OFL of 23,085 mt, an ABC of 19,236 mt and the following conservation measures: incidental catch shall not exceed 40 percent by weight until 2,000 mt of sardine are harvested, at which time the incidental allowance will become 30 percent. When 5,000 mt has been harvested, the percent allowance will be reduced to 10 percent for the remainder of the fishing year (81FR41251).

August 25, 2016. NMFS issued a final rule to implement annual specifications and management measures for Pacific mackerel under the CPS FMP. The 2016-2017 HG for Pacific mackerel was 21,161 mt, with an ACT was 20,161 mt. The directed fishery would be closed if the ACT was attained, with the remaining 1,000 mt representing a set aside for incidental landings in other CPS fisheries and other sources of mortality (81FR57489).

June 30, 2017. NMFS issued a final rule to implement annual harvest specifications and management measures to establish the allowable catch levels of Pacific sardine in waters off the U.S. West Coast for the 2017-2018 fishing year. The annual biomass estimate of 86,586 mt fell below the Cutoff value of 150,000mt, thereby precluding directed non-tribal harvest. NMFS set an ACL of 8,000 mt to account for incidental harvest, tribal harvest, live bait, and other minor sources of mortality. NMFS implemented an OFL of 16,957 mt, an ABC of 15,497 mt and the following conservation measures: incidental catch shall not exceed 40 percent by weight until 2,000 mt of sardine are harvested, at which time the incidental allowance will become 20 percent. When 5,000 mt has been harvested, the percent allowance will be reduced to 10 percent for the remainder of the fishing year (82FR29777).

August 1, 2017. NMFS issued a final rule changing the management framework for Pacific mackerel so harvest specifications are set biennially instead of on an annual basis (82FR35687).

November 28, 2017. NMFS issued a proposed rule on annual specifications and management measures for Pacific mackerel under the CPS FMP. The proposed 2017-2018 HG for Pacific mackerel was 26,923 mt, with an ACT of 25,293 mt. The proposed 2018-2019 HG for Pacific mackerel was 23,840 mt with an ACT of 22,840 mt. The directed fishery would be closed if the ACT was attained in either fishing year, with the remaining 1,000 mt representing a set aside for incidental landings in other CPS fisheries and other sources of mortality (82FR56204).

January 9, 2018. NMFS issued a proposed rule to amend the regulations governing the fisheries for CPS off the West coast to include ACLs for certain monitored finfish stocks (jack mackerel, central population of northern anchovy, northern subpopulation of northern anchovy) under the CPS FMP. A final rule published October 26, 2016, established these ACLs for the 2017 fishing year only; the purpose of this proposed rule was to codify these ACLs so they would remain effective until revised through some future rulemaking (83FR1009).

February 14, 2018. NMFS published a final rule implementing Amendment 16, which allows for very small amounts of directed, non-live bait fishing (referred to as “minor directed fishing”) on CPS finfish to occur when a fishery is otherwise closed to directed fishing. Prior to this amendment, when directed fishing was closed, a small sector of the CPS fishery that is not part of the primary commercial directed fishery was precluded from landing even minor amounts because this activity does not fall under the existing exemptions for incidental harvest or for harvesting CPS to be sold as live bait. This rule allows this sector to continue directed fishing after other directed fisheries are closed, unless otherwise specified in a closure notice published by NMFS or if an applicable ACL is anticipated to be exceeded. To prevent exploitation of this rule to make large aggregate harvests, “minor directed fishing” is not allowed to exceed landings of 1 mt per day per vessel or person or one fishing trip per day by any vessel. The purpose of this rule is to provide greater flexibility to small fishing operations, while continuing to conserve the target CPS fish stocks. The Notice of Availability for Amendment 16 (82FR29777) was published on November 6, 2018, and the proposed rule to implement Amendment 16 (82FR55551) was published on November 22, 2018.

June 21, 2018. NMFS issued a final rule to implement biennial specifications and management measures for Pacific mackerel under the CPS FMP. The 2017-2018 HG for Pacific mackerel was 26,293 mt, with an ACT was 25,293 mt. The 2018-2019 HG for Pacific mackerel was 23,840 mt with an ACT of 22,840 mt. The directed fishery would be closed if the ACT was attained in either fishing year, with the remaining 1,000 mt representing a set aside for incidental landings in other CPS fisheries and other sources of mortality (83FR28783).

June 25, 2018. NMFS issued a final rule to implement annual harvest specifications and management measures to establish the allowable catch levels of Pacific sardine in waters off the U.S. West Coast for the 2018-2019 fishing year. The annual biomass estimate of 52,065 mt fell below the Cutoff value of 150,000mt, thereby precluding directed non-tribal harvest. NMFS set an ACL of 7,000 mt to account for incidental harvest, tribal harvest, live bait, and other minor sources of mortality. NMFS implemented an OFL of 11,324 mt, an ABC of 9,436 mt and the following conservation measures: incidental catch shall not exceed 40 percent by weight until 2,500 mt of sardine are harvested, at which time the incidental allowance will become 20 percent for the remainder of the fishing year (83FR29461).

May 31, 2019. NMFS issued a final rule (84 FR 25196) establishing an OFL, ABC, and ACL for the central subpopulation of northern anchovy pursuant to a Court-ordered deadline. NMFS set the OFL at 94,290 mt, and the ABC/ACL at 23,573 mt. The proposed rule (84 FR 13858) was published on April 8, 2019, with a public comment period that ended April 23, 2019.

July 1, 2019. NMFS issued a final (84 FR 31222) to implement annual harvest specifications and management measures for Pacific sardine in waters off the U.S. West Coast for the 2019-2020 fishing year. The annual biomass estimate of 27,547 mt fell below the Cutoff value of 150,000 mt, thereby precluding directed non-tribal harvest. NMFS set an ACL of 4,514 mt to account for incidental harvest, live bait, and other minor sources of mortality. NMFS implemented an OFL of 5,816 mt, an ABC of 4,514 mt, and an incidental catch allowance not to exceed 20 percent by

weight. NMFS also set a 2-mt incidental per landing allowance in non-CPS fisheries. The proposed rule (84 FR 24459) was published on May 28, 2019, with a public comment period that ended June 12, 2019.

August 14, 2019. NMFS announced the approval of Amendment 17 to the CPS FMP. Amendment 17 removed the pre-specified incidental landing limit for overfished stocks for vessels fishing for live bait. Prior to Amendment 17, if a CPS stock were to become overfished, and even prior to adoption of a rebuilding plan, the FMP automatically limited retention of the live bait fishery of that stock to only incidentally caught fish with no more than 15 percent of any load being from the overfished stock.

December 2, 2019. NMFS issued a final rule (84 FR 65926) to implement biennial specifications and management measures for Pacific mackerel under the CPS FMP. The 2019-2020 HG for Pacific mackerel was 11,109 mt, with an ACT of 10,109 mt. The 2020-2021 HG for Pacific mackerel was 7,950 mt with an ACT of 6,950 mt. The directed fishery would be closed if the ACT was attained in either fishing year, with the remaining 1,000 mt representing a set aside for incidental landings in other CPS fisheries and other sources of mortality. The proposed rule (84 FR 44272) was published on August 23, 2019, with a public comment period that ended September 23, 2019.

July 6, 2020. NMFS issued a final rule (85 FR 40135) to implement annual harvest specifications and management measures for Pacific sardine in waters off the U.S. West Coast for the 2020-2021 fishing year. The annual biomass estimate of 28,276 mt was below the Cutoff value of 150,000 mt, thereby precluding directed non-tribal harvest. NMFS set an ACL of 4,288 mt to account for incidental harvest, live bait, and other minor sources of mortality. NMFS implemented an OFL of 5,525 mt, an ABC of 4,288 mt, and an incidental catch allowance not to exceed 20 percent by weight. NMFS also set a 2-mt incidental per landing allowance in non-CPS fisheries. The proposed rule (85 FR 31733) was published on May 27, 2020, with a public comment period that ended June 11, 2020.

December 31, 2020. NMFS issued a final rule (85 FR 86855) to revise annual reference points, including the OFL, ABC and ACL, for the central subpopulation of northern anchovy in waters of the U.S. West Coast, effective February 1, 2020. This action was in response to a September 2020 court decision (*Oceana, Inc. v. Ross et al.*) that vacated the previously established annual reference points (84 FR 25196) and ordered NMFS to promulgate a new rule in compliance with the Magnuson-Stevens Act and the Administrative Procedures Act. NMFS implemented an OFL of 119,153 mt, an ABC of 29,788 mt, and an ACL of 25,000 mt.. The proposed rule (85 FR 73446) was published on November 18, 2020 with a public comment period that ended December 3, 2020.

June 24, 2021. NMFS announced approval of Amendment 18 to the CPS FMP (86 FR 33142), implementing the rebuilding plan for Pacific sardine, which NMFS declared overfished in June 2019. The rebuilding plan used the existing management framework, as it had built in measures to severely restrict fishing during times of low abundance. The management strategies maintained in Amendment 18 included the Council's annual harvest specifications process, harvest control rules, closure of the primary directed fishery when the biomass is at or below 150,000 mt, and restrictions on incidental landings of Pacific sardine. Amendment 18 preserved the Council's ability to annually adjust the incidental harvest percentages or other accountability measures for the various sectors based on new information or changes in the fishery dynamics, if necessary. Amendment 18 was approved on June 16, 2021. NMFS published notice of availability (86 FR 14401) on March 16,

2021 and provided a deadline for comments on Amendment 18 of May 17, 2021 and comments on the associated Environmental Assessment were due on April 15, 2021.

July 9, 2021. NMFS issued a final rule (86 FR 36237) to establish harvest specifications and management measures for Pacific sardine in waters of the U.S. west coast for the 2021-2022 fishing season. The annual biomass estimate of 28,276 mt was below the Cutoff value of 150,000 mt, which precluded opening of the primary directed fishery. NMFS set incidental catch allowances in other CPS fisheries to no more than 20 percent by weight and limited non-CPS fisheries to 2 mt per landing. The ACT was set to 3,000 mt to allow for year-round harvest opportunity. NMFS implemented an ACL and ABC of 3,329 mt, an OFL of 5,525 mt. NMFS published a proposed rule for this action on May 26, 2021 (86 FR 28325) and solicited for public comments with a deadline of June 10, 2021.

November 19, 2021. NMFS issued a final rule (86 FR 64825) to implement harvest specifications for Pacific mackerel in U.S. west coast waters for the 2021-2022 and 2022-2023 fishing seasons. The HG and ACT for the 2021-2022 fishing season was set at 8,323 mt and 7,323 mt, respectively and the HG and ACT for the 2022-2023 fishing season was set at 5,822 mt and 4,822 mt. If the directed fishery were to attain the ACT in either fishing season, the directed fishery would close, reserving the 1,000 mt difference between the ACT and HG for incidental landings and other sources of mortality. The 2021-2022 OFL was set at 12,145 mt and the ABC and ACL were set at 9,446 mt. The 2022-2023 OFL was set at 9,644 mt and the ABC and ACL were set at 7,501 mt. NMFS published the proposed rule (86 FR 48969) on September 1, 2021 with a public comment period ending on October 1, 2021.

TABLE 2-3. Coastal pelagic species 2021 federal limited entry permit vessel listing⁴ with calculated gross tonnage (GT) values for each vessel. (Page 1 of 2)

Vessel Name	Permit No.	Coast Guard Number/ Vessel ID	Calculated Vessel GT/1	Permit GT Endorsement	Permit Transfer Allowance/2
PROVIDER	1	572344	70.1	63.8	70.2
MERVA W ³	2	532023	82.9	43.5	47.9
INVINCIBLE	3	12244073	101.4	98.4	108.2
BARBARA H	4	643518	121.1	121.1	133.2
KAREN MARIE	5	593871	64.8	82.0	90.2
CACHALOT	6	654091	106.8	98.1	107.9
SAN PEDRO PRIDE	7	549506	182.5	160.7	176.8
FERRIGNO BOY	8	602455	139.3	139.3	153.2
KING PHILIP	9	1061827	156.9	156.9	172.6
SEA WAVE	10	951443	115.0	206.9	227.6
UNASSOCIATED	11	---	---	56.2	61.8
OPTIMU	12	1244552	89.0	114.8	126.3
OCEAN ANGEL iii	13	OR108ADL	82.0	141.9	156.1
TRITON	14	CF7218UH	92.2	89.3	98.2
SAINT JOSEPH	15	633570	84.4	84.4	92.8
----	16	---	---	137.5	151.3
RISING SPIRIT	17	WN0416RK	60.2	61.9	68.1
ST KATHERINE	18	542513	59.9	63.8	70.2
PACIFIC JOURNEY	19	OR661ZK	107.8	124.6	137.1
UNASSOCIATED	20	---	---	111.9	123.1
SPERANZA MARIE	21	643138	77.0	77.0	84.7
OCEAN ANGEL IV	22	OR868ADK	74.1	63.5	69.9
MONA LISA	23	28853288532	34.3	97.7	107.5
OCEAN ANGEL I	24	584336	63.8	63.8	70.2
SEA DIAMOND	25	509632	68.1	68.1	74.9
MANANA	26	253321	26.7	23.8	26.2
LAKE BAY	27	563965	58.8	55.5	61.1
MINEO BROS. ⁴	28	CF0163TF	104.0	73.4	80.7
UNASSOCIATED	29	---	---	42.0	46.2
MINEO BROS. ⁴	30	CF0163TF	104.0	40.8	44.9
SEA VENTURE	31	WN4232NW	118.2	340.2	374.2
ELDORADO ⁵	32	690849	79.1	54.9	60.4
SEA PRINCESS	33	630024	81.1	194.0	213.4
SOUTHERN PACIFIC	34	CF0504VJ	70.6	125.6	138.2
ENDURANCE	35	613302	42.0	42.0	46.2
EL DORADO ⁵	36	690849	79.1	27.0	29.7
CALOGERA A	37	984694	85.7	85.3	93.8
EILEEN	38	252749	119.9	119.9	131.9
PAMELA ROSE	39	693271	61.9	61.9	68.1
NEW STELLA	40	598813	71.8	71.8	79.0
TRAVELER	41	661936	44.0	44.0	48.4
RISING STAR	42	1081263	44.8	41.5	45.7
OCEAN ANGEL II	43	622522	176.6	149.5	164.5
CRYSTAL SEA	44	1061917	142.1	137.0	151.7
TRIONFO	45	625449	96.8	79.2	87.1
RELENTLESS	46	CF2009TK	78.3	85.0	93.5
HEAVY DUTY	47	655523	84.4	84.4	92.8
NATALIE ROSE	48	685870	107.2	107.2	117.9
LADY J	49	647528	60.2	40.7	44.8
UNASSOCIATED	50	---	---	50.2	55.2
BUENA VENTURA	51	CF159VH	55.6	72.3	79.5

TABLE 2-3. Coastal pelagic species 2021 federal limited entry permit vessel listing⁴ with calculated gross tonnage (GT) values for each vessel. (Page 2 of 2)

Vessel Name	Permit No.	Coast Guard Number/ Vessel ID	Calculated Vessel GT ¹	Permit GT Endorsement	Permit Transfer Allowance ²
ANTOINETTE W	52	606156	37.0	37.0	40.7
CAPE BLANCO	53	648720	158.2	158.2	174.0
ALICE ANN	54	cf2514up	84.05	126.5	139.2
NAVIGATOR	55	596222	38.8	40.4	44.4
CRYSTAL BAY	56	1293821	89.8	86.3	95
MERVA W ³	57	532023	82.9	54.4	59.8
OCEAN LEADER	58	CF6337RZ	81.92	91.1	100.2
UNASSOCIATED	59		---		
PACIFIC KNIGHT	60	CF7321UH	63.1	63.4	69.7
SPARTAN	61	607367	58.9	59.9	65.9
UNASSOCIATED	62	---	---	39.7	43.7
EMERALD SEA	63	626289	86.7	86.3	94.9
ANGEL'S GATE	64	CF1927VH	53.7	54.5	60.0
BOUNTY	65	629721	26.4	26.4	29.0

¹ Vessel Gross Tonnage GT=0.67(Length*Breadth*Depth)/100. See 46 CFR 69.209.

² Maximum transfer allowance is based on permit GT + 10%.

³ Vessel Merva W is associated with permits 2 and 57

⁴ Vessel Mineo Bros is associated with permits 28 and 30

⁵ Vessel El Dorado is associated with permits 32 and 36

TABLE 2-4. Vessel age and calculated gross tonnage (GT) for the initial and current Federal limited entry fleet.

	Initial Fleet	Current Fleet
Number of Vessels	65	55
Average Vessel Age	35 years	39 years
Range of Ages	12 to 66 years	3 to 74 years
Average GT	71.3	84.3
Range of GT	12.8 to 206.9	26.4 to 182.5
Sum of Fleet GT	4,635.9	4,887.6
Capacity Goal (GT) ^{1/}	---	5,650.9
Transferability Trigger	---	5,933.5

¹ Established in Amendment 10 to the CPS FMP.

TABLE 2-5. Oregon state limited entry sardine permit vessels landing sardine.

The directed sardine fishery has been closed since 2015. A table of Oregon LE permits will be included when the directed sardine fishery reopens.

TABLE 2-6. Washington state limited entry sardine licenses.

The directed sardine fishery has been closed since 2015. A table of Washington LE permits will be included when the directed sardine fishery reopens.

Table 2-7. Total landings (mt) of sardines and other species, and number of vessels and processors that participated under Exempted Fishery Permits in the Pacific Northwest during 2011-2020. (Source: ODFW and WDFW fish ticket records). No EFPs were issued during 2014 – 2018. An EFP was issued in 2020 for the 2020-2021 fishing year but was not used; planned surveys were cancelled due to the pandemic.

Species			2011	2012	2013	2019
Sardines			2,699.7	2,914.4	1,526.9	0
Pacific Mackerel			1.2	200.6	13.6	0
Jack Mackerel			0.0	1.5	0.0	0
Jellyfish			0.0	0.0	0.0	0
Number Vessels			4	5	2	1
Number Processors			1	3	1	0

Table 2-8. Total landings (mt) of sardines and other species, and number of vessels and processors that participated under Exempted Fishing Permits in California during 2009-2010 and 2018-2020. (Sources: Northwest Aerial Sardine Survey, LLC; * NMFS WCR; CWPA). No EFPs were issued during 2011 and 2017.

Species	2009	2010	2018	2019	2020
Sardines	1,685.0*	1,218.2	103.5	476.9	757.0
Pacific Mackerel	756.0	9.8	5.6		
Jacksmelt	40.00				
Kingfish	412.0				
Number Vessels	2	3	4	4	4
Number Processors	2	2	2	2	2

Table 4-1. Preliminary catch summary for vessels targeting Pacific sardine from NMFS-SWR coastal pelagic species pilot observer program, 2004-2008.

Target species - Pacific sardine					
Species	Target Catch	Incidental Catch	Bycatch Returned		
			Alive	Dead	Unknown
Sardine	1495 mt		80 mt	100 lbs	100 lbs
Anchovy		9 mt	82	1300 lbs	
Bat Ray		1	143	14	1
Bat Star			5		
CA Barracuda		2	1	3	
CA Halibut		9		4	
Giant Sea Bass			2		
Jacksnelt		1			
Jack Mackerel		2 mt			
Midshipman			1	13	1
Moon Jelly		1			
Pacific Bonito		10 lbs			
Pacific Butterfish		3			
Pacific Electric Ray			2		
Pacific Mackerel		1 mt	100 lbs		
Pacific Tomcod		1			
Pompano		167			
Queenfish		49			
Sanddab			25 lbs	10 lbs	
Scorpionfish		1			1
Sculpin				1	3
Shovelnose Guitarfish			1		
Spanish Mackerel		100 lbs			
Squid		1 mt	2 mt		
Starry Flounder			2		
Stingray		2			
Thornback Ray			2		
Unid. Crab			1		1
Unid. Croaker		40			
Unid. Flatfish		78	8	130	12
Unid. Jellyfish		3	3		
Unid. Mackerel		8 mt	12 mt		
Unid. Octopus					2
Unid. Ray					2
Unid. Rockfish		2	1		
Unid. Seastar			41	135	1
Unid. Scorpionfish/Sculpin					1
Unid. Shark				2	
Unid. Skate				3	
Unid. Smelt		2			
Unid. Surf Perch		1			
Unid. Turbot				60	

TABLE 4-1 (continued). Preliminary catch summary for vessels targeting Pacific sardine from NMFS-SWR coastal pelagic species pilot observer program, 2004-2008.

Species	Target Catch	Incidental Catch	Bycatch Returned		
			Alive	Dead	Unknown
White Croaker		31 lbs	50 lbs		
Yellowfin Croaker		10 lbs			
CA Sea Lion			49		
Harbor Seal			1		
Unid. Gull			3	2	4

TABLE 4-2. Preliminary catch summary for vessels targeting market squid from NMFS-SWR coastal pelagic species pilot observer program, 2004-2008.

Target species - Squid					
Species	Target Catch	Incidental Catch	Bycatch Returned		
			Alive	Dead	Unknown
Squid	1274 mt		28 mt	350 lbs	2 mt
Anchovy		100 lbs	120 lbs		
Jack Mackerel		2 mt	18 lbs	2 lbs	
Pacific Mackerel		20 mt	20 mt	180 lbs	1 lb
Sardine		12 mt	13 mt	1077 lbs	3 lbs
Spanish Mackerel		20 lbs			
Bat Ray			53		1
Bat Star			1		
Blue Shark			2		
Common Mola			1		
Pelagic Stingray			60		
Pacific Butterfish		19			1
Sunstar		30	4		
Squid Eggs					505 lbs
Lobster			3		
Brittle Star				3000	
Unid. Batfish				2 lbs	
Unid. Crab		1	1		93
Unid. Croaker		3	2	16 lbs	
Unid. Flatfish		1	1	6	2
Unid. Jellyfish		4			
Unid. Mackerel		2 lbs	102 lbs		
Unid. Octopus		1			
Unid. Rockfish		1	1	4	
Unid. Ray			4		1
Unid. Sanddab		4	3		4
Unid. Seastar		1			
Unid. Seaslug					21
Unid. Scorpionfish		1			
Unid. Surfperch				3	
Unid. Skate		3		1	
Unid. Smelt		49			
Unid. Stingray		9	17		
Unid. Shark					1
Thresher Shark		1			
CA Sea Lion			98		
Harbor Seal			3		
Common Dolphin				1	
Unid. Gull			16	1	

TABLE 4-3. Preliminary catch summary for vessels targeting Pacific mackerel from NMFS-SWR coastal pelagic species pilot observer program, 2004-2008.

Target species - Pacific mackerel					
Species	Target Catch	Incidental Catch	Bycatch Returned		
			Alive	Dead	Unknown
Pacific Mackerel	40 mt	16 mt			
Bat Ray			2		
CA Yellowtail			1		
Midshipman			1		
Sardine					
Sea Cucumber			5		
Unid. Crab			1		
Unid. Flatfish			3		
Unid. Jellyfish			3		
Unid. Shark			1		

TABLE 4-4. Preliminary catch summary for vessels targeting northern anchovy and northern anchovy/Pacific sardine from NMFS-SWR coastal pelagic species pilot observer program, 2004-2008.

Target species - Anchovy and Anchovy/Sardine							
Species	Target Catch	Incidental Catch	Bycatch Returned				
			Alive	Dead	Unknown		
Anchovy	373 mt	21 mt	2 mt	1 mt			
Sardine			2 mt				
Bat Ray			4				
CA Lizardfish			4				
Kelp Bass			1				
Midshipman						5	
Pacific Bonito					20 lbs		
Pacific Mackerel			2				
Queenfish			50 lbs		11 lbs		
Round Stingray					1		
Sculpin			2				
Spiny Dogfish					1		
Unid. Croaker			20		45		
Unid. Flatfish			10				
Unid. Hake			4				
Unid. Seastar					1		
Unid. Smelt			2				
Unid. Turbot					1	1	20
White Croaker			50 lbs		35 lbs		
Yellowfin Croaker			50 lbs		10 lbs		
CA Sea Lion					5		
Sea Otter					1		

Table 4-5. Percent frequency of occurrence of bycatch in observed loads of Pacific sardine, Pacific mackerel, and Northern anchovy landings, by California ports, 2016-2020. Table values represent the presence of a species in observed loads for that year. Any species with fewer than 1% occurrence during the entire timeframe is not listed. A “-” indicates that no individuals of that species were observed during that year (CDFW Wetfish Sampling Database). (Collection of Northern anchovy samples began in 2014). Note that because of a different reporting methodology, this table is not directly comparable to Tables 4-5 in previous SAFE documents.

Category/Common Name	Total All Ports					San Pedro/Terminal Island					Monterey/Moss Landing				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Finfish															
Anchovy, northern				1.3%	9.0%									1.3%	9.0%
Barracuda, California	1.7%	2.6%	3.4%	1.3%		1.7%	2.6%	1.1%	1.3%				2.3%		
Bass, barred sand	5.0%					5.0%									
Bass, kelp	1.7%	2.6%	3.4%			1.7%	2.6%	3.4%							
Blacksmith	1.7%		2.3%			1.7%		2.3%							
Bonito, Pacific	5.0%	2.6%	3.4%	1.3%	1.3%	5.0%	2.6%	3.4%	1.3%	1.3%					
Butterfish (Pacific pompano)	23.3%		5.6%	9.0%	2.6%	15.0%				1.3%	8.3%		5.6%	9.0%	1.3%
Combfish, Longspine				1.3%	2.6%				1.3%	2.6%					
Corbina, California	1.7%					1.7%									
Croaker, white	11.7%	7.9%	5.6%	3.9%	1.3%	8.3%					3.3%	7.9%	5.6%	3.9%	1.3%
Croaker, yellowfin	8.3%					8.3%									
Cusk eel, basketweave	3.3%		1.1%			3.3%							1.1%		
Eel					1.3%										1.3%
Eel, spotted cusk-	3.3%										3.3%				
Flatfish, unspecified		5.3%	7.9%	2.6%	6.4%		2.6%	1.1%		2.6%		2.6%	6.7%	2.6%	3.9%
Flounder, starry	1.7%					1.7%									

Flyingfish			1.1%	1.3%				1.1%	1.3%								
Halfmoon				1.3%											1.3%		
Halibut, California	16.7%	13.2%	3.4%		1.3%		13.3%	1.1%		1.3%		3.3%	13.2%	2.3%			
Halibut, Pacific	3.3%				1.3%		3.3%									1.3%	
Herring, Pacific	6.7%		2.3%	1.3%				1.1%				6.7%		1.1%	1.3%		
Herring, round	1.7%			5.1%	2.6%		1.7%		5.1%	1.3%						1.3%	
Jacksmelt	16.7%	5.3%	2.3%	10.3%	6.4%		11.7%					5.0%	5.3%	2.3%	10.3%	6.4%	
Kelpfish, giant			2.3%					1.1%						1.1%			
Kelpfishes					1.3%											1.3%	
Lingcod	5.0%						1.7%					3.3%					
Lizardfish, California	18.3%	5.3%	1.1%				13.3%	1.1%				5.0%	5.3%				
Mackerel, jack	23.3%	18.4%	7.9%	16.7%	12.8%		15.0%	13.2%	6.7%	6.4%	1.3%		8.3%	5.3%	1.1%	10.3%	11.5%
Mackerel, Pacific	45.0%	13.2%	10.1%	15.4%	28.2%		20.0%		2.3%	1.3%	11.5%		25.0%	13.2%	7.9%	14.1%	16.7%
Mackerel, unspecified				1.3%												1.3%	
Midshipman, plainfin	3.3%	10.5%	4.5%	5.1%	5.1%				1.1%				3.3%	10.5%	3.4%	5.1%	5.1%
Midshipman, Specklefin	3.3%		2.3%		1.3%		3.3%				1.3%				2.3%		
Midshipman, unspecified	1.7%		4.5%	1.3%			1.7%							4.5%	1.3%		
Pipefish, Kelp	1.7%						1.7%										
Pomfret, Pacific	3.3%						3.3%										
Rockfish, bocaccio	3.3%	2.6%	3.4%		3.9%								3.3%	2.6%	3.4%		3.9%
Rockfish, group red			1.1%												1.1%		
Rockfish, Halfbanded	3.3%												3.3%				

Rockfish, unspecified	1.7%		1.1%		7.7%	1.7%							1.1%		7.7%	
Salmon, Chinook		2.6%	2.3%										2.6%	2.3%		
Salmon, coho				1.3%											1.3%	
Sanddab		5.3%	4.5%	1.3%	1.3%					1.3%			5.3%	4.5%	1.3%	
Sanddab, longfin	1.7%				1.3%					1.3%		1.7%				
Sanddab, Pacific	10.0%	10.5%	15.7%	7.7%	6.4%							10.0%	10.5%	15.7%	7.7%	6.4%
Sanddab, speckled				3.9%					1.3%						2.6%	
Sardine, Pacific	56.7%	55.3%	58.4%	65.4%	30.8%	33.3%	31.6%	9.0%	5.1%	1.3%		23.3%	23.7%	49.4%	60.3%	29.5%
Scorpionfish, California	3.3%		4.5%		1.3%	3.3%		4.5%		1.3%						
Seabass, white			1.1%											1.1%		
Shad, American			2.3%		2.6%									2.3%	2.6%	
Skate, thornback	11.7%	2.6%			2.6%	10.0%	2.6%			1.3%		1.7%			1.3%	
Smelts, true		2.6%					2.6%									
Sole, Dover	1.7%			1.3%	1.3%					1.3%		1.7%			1.3%	
Sole, English	1.7%		3.4%	1.3%								1.7%		3.4%	1.3%	
Sole, fantail	3.3%					3.3%										
Sole, sand		2.6%	2.3%										2.6%	2.3%		
Sole, slender				1.3%											1.3%	
Sole, tongue	3.3%			1.3%	2.6%	3.3%			1.3%	1.3%					1.3%	
Sole, unspecified			2.3%											2.3%		
Sunfish, ocean	1.7%				5.1%							1.7%			5.1%	
Surfperch, barred	1.7%											1.7%				
Surfperch, pink		2.6%	2.3%										2.6%	2.3%		
Surfperch, shiner	1.7%											1.7%				
Surfperch, Spotfin					1.3%										1.3%	
Surfperch, unspecified	3.3%	2.6%			1.3%		2.6%			1.3%		3.3%				
Surfperch, white	5.0%											5.0%				

Topsmelt	6.7%		5.6%	1.3%		6.7%	2.3%						3.4%	1.3%		
Toungefish	13.3%	5.3%		2.6%		10.0%						3.3%	5.3%		2.6%	
Tuna, yellowfin			1.1%				1.1%									
Turbot, curlfin	3.3%											3.3%				
Turbot, diamond	5.0%					5.0%										
Turbot, hornyhead	11.7%			1.3%	1.3%	8.3%				1.3%		3.3%			1.3%	
Turbot, spotted	5.0%					5.0%										
Whitefish, ocean	5.0%		1.1%	1.3%		3.3%	1.1%	1.3%				1.7%				
Whiting, Pacific			3.4%	2.6%									3.4%	2.6%		
Wrasse, rock		2.6%					2.6%									
Elasmobranchs																
Guitarfish, shovelnose	1.7%					1.7%										
Ratfish, spotted				1.3%											1.3%	
Ray, bat	25.0%		3.4%	1.3%	2.6%	18.3%	1.1%		1.3%			6.7%		2.3%	1.3%	1.3%
Ray, California butterfly	5.0%					5.0%										
Ray, Pacific electric	6.7%	2.6%	28.1%	9.0%	6.4%							6.7%	2.6%	28.1%	9.0%	6.4%
Ray, Round	10.0%					10.0%										
Shark, horn	3.3%	2.6%	1.1%			3.3%	2.6%	1.1%								
Shark, leopard	1.7%					1.7%										
Shark, Pacific angel		2.6%					2.6%									
Shark, shortfin mako			1.1%	1.3%				1.1%	1.3%							
Shark, spiny dogfish			2.3%										2.3%			
Skate, big					1.3%										1.3%	

Skate, Long-nosed	1.7%		1.1%			1.7%							1.1%		
Skate, unspecified	1.7%				1.3%	1.7%									1.3%
Stingray	5.0%			3.9%	1.3%	5.0%			3.9%	1.3%					
Invertebrates															
Anemones					2.6%										2.6%
Clam, softshell	1.7%										1.7%				
Crab Shells	1.7%	2.6%	3.4%	3.9%							1.7%	2.6%	3.4%	3.9%	
Crab, brown rock	1.7%										1.7%				
Crab, claws	1.7%		2.3%	1.3%	1.3%					1.3%	1.7%		2.3%	1.3%	
Crab, Decorator	3.3%					3.3%									
Crab, Dungeness	1.7%	7.9%	4.5%	2.6%	2.6%					2.6%	1.7%	7.9%	4.5%	2.6%	
Crab, pelagic red	13.3%	2.6%	12.4%	1.3%		13.3%						2.6%	12.4%	1.3%	
Crab, Purple Globe			1.1%					1.1%							
Crab, red rock			1.1%										1.1%		
Crab, rock unspecified	1.7%					1.7%									
Crab, Sheep	5.0%					3.3%					1.7%				
Crab, shore				1.3%										1.3%	
Crab, Slender	1.7%		2.3%								1.7%		2.3%		
Crab, Swimming unspecified	20.0%	2.6%			2.6%	20.0%	2.6%			2.6%					
Crab, unspecified	1.7%	2.6%			1.3%					1.3%	1.7%	2.6%			
Jellyfish	1.7%	36.8%	64.0%	43.6%	35.9%						1.7%	36.8%	64.0%	43.6%	35.9%
Lobster, California spiny	1.7%		1.1%			1.7%		1.1%							
Mussel				1.3%					1.3%						
Octopus, unspecified	6.7%		1.1%	2.6%	1.3%	6.7%		1.1%						2.6%	1.3%
Prawn, ridgeback	13.3%					11.7%					1.7%				
Pyrosome		13.2%	6.7%	41.0%	29.5%			1.1%				13.2%	5.6%	41.0%	29.5%

Salps			5.6%	7.7%	1.3%			1.1%					4.5%	7.7%	1.3%	
Sand dollar		7.9%	4.5%	1.3%	5.1%							7.9%	4.5%	1.3%	5.1%	
Sea cucumber, unspecified			1.1%					1.1%								
Sea hare	1.7%	2.6%	1.1%				1.7%	2.6%	1.1%							
Sea stars	1.7%				1.3%		1.7%								1.3%	
Shrimp, Black-Spotted Bay	1.7%		2.3%								1.7%		2.3%			
Shrimp, coonstriped		5.3%										5.3%				
Shrimp, mantis	3.3%						3.3%									
Shrimp, ocean (pink)	5.0%	5.3%									5.0%	5.3%				
Shrimp, Target	8.3%				2.6%		8.3%				2.6%					
Shrimp, unspecified	3.3%		1.1%		1.3%		3.3%						1.1%		1.3%	
Squid Egg Cases			2.3%	1.3%	1.3%								2.3%	1.3%	1.3%	
Squid, market	23.3%	23.7%	58.4%	59.0%	33.3%		13.3%	10.5%	3.4%	1.3%	1.3%	10.0%	13.2%	55.1%	57.7%	32.1%
Tunicates	1.7%	2.6%	2.3%				1.7%		1.1%				2.6%	1.1%		
Marine Plants																
Algae, marine			1.1%	7.7%	2.6%			1.1%	7.7%	2.6%						
Grass, eel		2.6%	1.1%					2.6%					1.1%			
Kelp	28.3%	31.6%	42.7%	57.7%	46.2%		26.7%	10.5%	7.9%	10.3%	7.7%	1.7%	21.1%	34.8%	47.4%	38.5%
Kelp, Bull	6.7%			1.3%								6.7%			1.3%	
Kelp, Feather Boa	1.7%		2.3%	1.3%				1.1%	1.3%			1.7%		1.1%		
Kelp, Giant	5.0%		5.6%		1.3%		1.7%					3.3%		5.6%	1.3%	
Sea lettuce			1.1%		1.3%								1.1%		1.3%	
Surfgrass	3.3%	10.5%	28.1%	23.1%	9.0%					3.9%	1.3%	3.3%	10.5%	28.1%	19.2%	7.7%

	2016	2017	2018	2019	2020		2016	2017	2018	2019	2020		2016	2017	2018	2019	2020
Total Observed	60	38	89	78	78		39	20	10	12	18		21	18	79	66	60

Table 4-6. Incidental catch reported on California landing receipts with greater than fifty percent market squid (by tonnage per landing) from the 2016-2017 through 2020-2021 season for round haul gear.

Common Name	2016 - 2017		2017-2018		2018-2019		2019-2020		2020-2021	
	Number of Landings	Metric Tons								
Anchovy, northern	5	2	11	16	4	5	39	15	30	6
Mackerel, jack	43	58	35	21	4	3	116	16	48	5
Mackerel, Pacific	140	512	195	230	75	55	173	67	102	30
Sardine, Pacific	102	89	130	152	105	111	359	115	275	111

TABLE 4-7. Percent frequency of occurrence of bycatch in observed loads of California Market Squid from 2016 to 2020. Table values represent the presence of a species in observed loads for that year. Any species with fewer than 1% occurrence during the entire timeframe is not listed. A “-” indicates that no individuals of that species were observed during that year (CDFW Market Squid Port Sampling Database). Note that because of a different reporting methodology, this table is not directly comparable to past Tables 4-7.

Common Name/Category	Total All Ports					San Pedro/Terminal Island					Ventura/Port Hueneme					Monterey/Moss Landing				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Finfish																				
Anchovy, northern	9.5%	13.3%	26.7%	25.0%	31.3%	10.0%	5.6%	19.6%	12.3%	45.5%	7.3%	5.1%	4.4%		14.3%	33.3%	51.9%	52.6%	29.1%	
Barracuda, California	4.2%	2.2%	2.0%	2.8%	2.4%	7.5%	5.6%	3.9%	3.5%	4.6%	2.4%		2.2%	7.7%						1.8%
Bass, barred sand		0.6%					1.4%													
Bass, giant sea			0.7%	1.9%				2.0%	3.5%											
Bass, kelp		0.6%	0.7%	1.9%	1.2%		1.4%	2.0%	3.5%	4.6%										
Bass, striped				0.9%					1.8%											
Blacksmith	1.1%	0.6%	1.3%			2.5%		3.9%				1.7%								
Bonito, Pacific	3.2%	1.1%		2.8%	2.4%	7.5%	2.8%		5.3%											3.6%

Butterfish (Pacific pompano)	7.4%	8.8%	9.3%	16.7%	16.9%		4.2%	5.9%	1.8%		4.9%		2.2%				35.7%	25.5%	18.5%	44.7%	25.5%
Cabezon		0.6%	0.7%															2.0%	1.9%		
Combfish, Longspine					2.4%																3.6%
Croaker, unspcified				0.9%																	2.6%
Croaker, white	3.2%	2.8%	2.7%	5.6%	6.0%												21.4%	9.8%	7.4%	15.8%	9.1%
Eel				0.9%					1.8%												
Fish, unspcified					1.2%											16.7%					
Flatfish, unspcified		7.7%	16.0%	17.6%	14.5%		14.1%	31.4%	19.3%	13.6%				7.7%				7.8%	14.8%	18.4%	16.4%
Flounder, arrowtooth				0.9%					1.8%												
Flounder, starry	1.1%			1.9%													7.1%			5.3%	
Flyingfish	1.1%	1.7%	0.7%	0.9%		2.5%	4.2%	2.0%	1.8%												
Fringehead, Sarcastic			0.7%	0.9%	2.4%			2.0%	1.8%	9.1%											
Halfmoon	1.1%				2.4%	2.5%				9.1%											
Halibut, California		2.2%	5.3%	7.4%	4.8%		1.4%	3.9%	12.3%	13.6%								5.9%	11.1%	2.6%	1.8%
Halibut, Pacific					1.2%																1.8%
Herring, Pacific		0.6%	5.3%	1.9%			1.4%	3.9%	1.8%										11.1%	2.6%	
Herring, round	1.1%	1.1%		11.1%	1.2%	2.5%	2.8%		17.5%	4.6%											5.3%
Jacksmelt	9.5%	14.4%	10.7%	18.5%	37.4%	2.5%				4.6%	2.4%	1.7%					50.0%	49.0%	29.6%	52.6%	54.6%
Kelpfishes					1.2%																1.8%
Lingcod			0.7%		1.2%															1.9%	1.8%
Lizardfish, California	2.1%	2.2%	1.3%				4.2%	2.0%									14.3%	2.0%	1.9%		
Mackerel, jack	24.2%	24.9%	20.7%	47.2%	33.7%	37.5%	33.8%	41.2%	71.9%	27.3%	9.8%	11.9%	4.4%		16.7%		28.6%	27.5%	14.8%	26.3%	38.2%
Mackerel, Pacific	31.6%	45.3%	44.7%	52.8%	48.2%	42.5%	62.0%	56.9%	68.4%	59.1%	19.5%	47.5%	42.2%	38.5%	33.3%		35.7%	19.6%	35.2%	34.2%	45.5%

Mackerel, unspecified			1.3%										2.2%					1.9%			
Midshipman, plainfin	1.1%	3.3%	1.3%	3.7%	14.5%			2.8%		7.0%			3.4%			7.1%	3.9%	3.7%		21.8%	
Midshipman, Specklefin			0.7%						2.0%												
Midshipman, unspecified			0.7%	2.8%														1.9%	7.9%		
Needlefish, California		0.6%															2.0%				
Perch-like, unspecified		0.6%		0.9%				1.4%		1.8%											
Rockfish, black					1.2%						4.6%										
Rockfish, blue			1.3%		1.2%													3.7%		1.8%	
Rockfish, bocaccio		1.1%	3.3%	0.9%	3.6%												3.9%	9.3%	2.6%	5.5%	
Rockfish, copper		0.6%						1.4%													
Rockfish, group red		0.6%																2.0%			
Rockfish, Halfbanded	1.1%															7.1%					
Rockfish, unspecified			0.7%	2.8%	1.2%				2.0%	5.3%										1.8%	
Rockfish, yellowtail			0.7%																	1.9%	
Sablefish	1.1%	0.6%	0.7%		1.2%											7.1%	2.0%	1.9%		1.8%	
Salmon			1.3%																	3.7%	
Salmon, Chinook		0.6%	2.7%	1.9%	6.0%													2.0%	7.4%	5.3%	9.1%
Salmon, coho		2.8%																9.8%			
Sanddab	1.1%	1.1%	3.3%	6.5%	1.2%			1.4%						15.4%	16.7%		7.1%	2.0%	9.3%	13.2%	
Sanddab, longfin		1.7%	2.0%	0.9%	1.2%			4.2%	5.9%	1.8%										1.8%	
Sanddab, Pacific	5.3%	6.1%	10.0%	11.1%	27.7%				3.9%	5.3%	22.7%		1.7%	2.2%			35.7%	19.6%	22.2%	23.7%	32.7%

Sanddab, speckled	3.2%	1.1%	2.0%	4.6%	3.6%					3.5%	4.6%		7.3%	1.7%					2.0%	5.6%	7.9%	3.6%		
Sardine, Pacific	30.5%	31.5%	33.3%	74.1%	71.1%		47.5%	45.1%	39.2%	87.7%	68.2%		17.1%	17.0%	26.7%	30.8%	66.7%		21.4%	29.4%	33.3%	68.4%	72.7%	
Scallop, unspecified		0.6%			1.2%			1.4%			4.6%													
Scorpionfish, California	5.3%	3.3%	4.0%	9.3%	9.6%		12.5%	7.0%	11.8%	17.5%	36.4%			1.7%										
Sculpin, staghorn			2.0%		1.2%																5.6%		1.8%	
Sculpin, unspecified			0.7%	0.9%	2.4%					1.8%	9.1%										1.9%			
Sculpin, yellowchin			1.3%						3.9%															
Shad, American			0.7%		1.2%																1.9%		1.8%	
Smelt, night					3.6%																		5.5%	
Smelt, surf		0.6%						1.4%																
Sole, C-O					1.2%																		1.8%	
Sole, Dover			0.7%																			1.9%		
Sole, English	1.1%	2.2%		4.6%	6.0%														7.1%	7.8%		13.2%	9.1%	
Sole, fantail	1.1%	1.1%	1.3%	0.9%			2.5%	2.8%	3.9%	1.8%														
Sole, petrale		0.6%			1.2%			1.4%															1.8%	
Sole, rex			0.7%		1.2%																	1.9%	1.8%	
Sole, rock	1.1%																		7.1%					
Sole, sand		1.1%	2.7%	1.9%	1.2%																3.9%	7.4%	5.3%	1.8%
Sole, slender				0.9%																			2.6%	
Sole, tongue		0.6%	0.7%	0.9%				1.4%	2.0%	1.8%														
Sole, unspecified				0.9%						1.8%														
Sunfish, ocean					3.6%																		5.5%	
Surfperch, pink		0.6%	0.7%		1.2%																2.0%	1.9%	1.8%	
Surfperch, shiner				0.9%	1.2%																	2.6%	1.8%	
Surfperch, Spotfin			0.7%																		1.9%			

Surfperch, unspecified	1.1%		3.3%					9.8%			2.4%									
Surfperch, white					1.2%														1.8%	
Topsmelt	1.1%	0.6%	4.0%	1.9%	4.8%		2.5%	1.4%	2.0%	1.8%	13.6%			2.2%				7.4%	2.6%	1.8%
Toungefish	1.1%	1.1%					2.5%	1.4%									2.0%			
Turbot		0.6%		1.9%						1.8%							2.0%		2.6%	
Turbot, curlfin	4.2%	1.1%	2.0%	1.9%					3.9%			2.4%				21.4%	3.9%	1.9%	5.3%	
Turbot, diamond	3.2%	0.6%	2.7%	1.9%			7.5%			3.5%							2.0%	7.4%		
Turbot, hornyhead	1.1%	3.9%	2.7%	3.7%	9.6%			5.6%	3.9%	1.8%	9.1%		1.7%			7.1%	3.9%	3.7%	7.9%	10.9%
Turbot, spotted				0.9%	1.2%					1.8%										1.8%
Whitefish, ocean	2.1%	1.1%	1.3%				5.0%	2.8%	3.9%											
Elasmobranchs																				
Ray, bat	9.5%	8.3%	10.0%	3.7%			5.0%	15.5%	23.5%	5.3%		12.2%	5.1%	6.7%		14.3%	2.0%		2.6%	
Ray, California butterfly	1.1%						2.5%													
Ray, Pacific electric	3.2%	3.9%	2.7%	8.3%	13.3%											21.4%	13.7%	7.4%	23.7%	20.0%
Ray, Round			0.7%						2.0%											
Shark Eggs					1.2%															1.8%
Shark, horn		0.6%		6.5%				1.4%		12.3%										
Shark, shortfin mako	2.1%						5.0%													
Shark, spiny dogfish		0.6%															2.0%			
Shark, thresher	1.1%						2.5%													
Skate, big	4.2%	0.6%	2.0%	2.8%	6.0%											28.6%	2.0%	5.6%	7.9%	9.1%
Skate, California		0.6%		2.8%	1.2%												2.0%		7.9%	1.8%

Skate, Long-nosed		0.6%	0.7%	1.9%	1.2%													2.0%	1.9%	5.3%	1.8%	
Skate, unspecified			1.3%		1.2%														3.7%		1.8%	
Stingray			0.7%	0.9%	1.2%			2.0%	1.8%	4.6%												
Invertebrates																						
Abalone				0.9%					1.8%													
Anemones	2.1%	1.1%			3.6%		1.4%				4.9%	1.7%									5.5%	
Clam, rosy razor					1.2%					4.6%												
Clam, unspecified					1.2%																1.8%	
Crab Shells	1.1%	1.1%	2.7%	8.3%	15.7%												7.1%	3.9%	7.4%	23.7%	23.6%	
Crab, box		0.6%		1.9%			1.4%		3.5%													
Crab, claws	1.1%		2.0%	2.8%	2.4%												7.1%		5.6%	7.9%	3.6%	
Crab, Decorator				0.9%	2.4%				1.8%	4.6%						16.7%						
Crab, Dungeness	2.1%	3.3%	5.3%	5.6%	9.6%											16.7%	14.3%	11.8%	14.8%	15.8%	12.7%	
Crab, hermit	1.1%				1.2%	2.5%										16.7%						
Crab, pelagic red	15.8%	7.7%	4.0%	3.7%		15.0%	8.5%	2.0%	1.8%		14.6%	10.2%	6.7%	7.7%			21.4%	3.9%	3.7%	5.3%		
Crab, red rock		0.6%	1.3%	5.6%	3.6%							1.7%				16.7%				3.7%	15.8%	3.6%
Crab, rock unspecified				0.9%	2.4%					4.6%											2.6%	1.8%
Crab, Sheep	1.1%					2.5%																
Crab, shore					1.2%																	1.8%
Crab, Slender	2.1%		0.7%														14.3%		1.9%			
Crab, Swimming unspecified	6.3%	1.7%	2.0%	12.0%	7.2%	10.0%	2.8%	5.9%	21.1%	27.3%	4.9%	1.7%		7.7%								
Crab, unspecified			0.7%	6.5%	12.1%				12.3%	9.1%									1.9%			14.6%
Crustacean, unspecified			0.7%					2.0%														
Echinoderm, unspecified		0.6%										1.7%										

Eel, wolf (wolf-eel)					1.2%															1.8%
Hydroids			0.7%					2.0%												
Jellyfish	6.3%	18.8%	26.0%	35.2%	49.4%			2.0%	19.3%	31.8%				7.7%		42.9%	66.7%	70.4%	68.4%	61.8%
Lobster, California spiny	2.1%	0.6%	2.0%	1.9%	6.0%		5.0%	1.4%	5.9%	3.5%	22.7%									
Mussel			2.0%	6.5%	1.2%				3.9%	10.5%	4.6%							1.9%	2.6%	
Nudibranch	1.1%			0.9%												7.1%			2.6%	
Octopus, unspecified		2.2%	0.7%	2.8%	2.4%			2.8%	2.0%		4.6%		1.7%				2.0%		7.9%	1.8%
Prawn, ridgeback		0.6%						1.4%												
Prawn, spot	1.1%			0.9%	1.2%					1.8%		2.4%				16.7%				
Pyrosome		4.4%	7.3%	27.8%	31.3%			9.9%	17.7%	38.6%	54.6%			23.1%			2.0%	3.7%	13.2%	25.5%
Salps		0.6%	5.3%	6.5%	3.6%			1.4%	7.8%	3.5%			2.2%					5.6%	13.2%	5.5%
Sand dollar			1.3%	0.9%	1.2%													3.7%	2.6%	1.8%
Sea cucumber, unspecified		0.6%	1.3%	1.9%	3.6%			1.4%	3.9%	3.5%	13.6%									
Sea cucumber, warty	1.1%						2.5%													
Sea hare		1.7%	1.3%		1.2%			2.8%	3.9%		4.6%		1.7%							
Sea stars		1.7%	2.7%		2.4%			2.8%	3.9%				1.7%					3.7%		3.6%
Shrimp, Black-Spotted Bay	3.2%	0.6%														21.4%	2.0%			
Shrimp, mantis					1.2%						4.6%									
Shrimp, ocean (pink)		0.6%															2.0%			
Shrimp, Target	6.3%	11.6%	6.0%	3.7%	7.2%		5.0%	15.5%	15.7%	7.0%	27.3%	9.8%	17.0%	2.2%						
Shrimp, unspecified	1.1%	0.6%		0.9%						1.8%						7.1%	2.0%			
Snail, sea		0.6%	0.7%		2.4%			1.4%	2.0%		9.1%									

Snail, tegula				1.9%					3.5%														
Snail, top			0.7%																1.9%				
Sponges		3.3%					8.5%																
Squid Egg Cases	16.8%	11.1%	24.7%	31.5%	45.8%	15.0%	12.7%	35.3%	22.8%	40.9%		9.8%	8.5%	20.0%	15.4%	33.3%	42.9%	11.8%	18.5%	50.0%	49.1%		
Tunicates		0.6%	1.3%		1.2%			2.0%					1.7%	2.2%		16.7%							
Whelk, Kellet's				0.9%					1.8%														
Marine Plants																							
Agar				1.9%					3.5%														
Algae, marine	1.1%	1.1%	4.0%	21.3%	13.3%		2.8%	9.8%	40.4%	50.0%							7.1%		1.9%				
Gorgonians (sea fans)				0.9%																2.6%			
Grass, eel	1.1%	4.4%	11.3%	3.7%	2.4%		11.3%	33.3%	7.0%						33.3%		7.1%						
Kelp	16.8%	49.2%	46.7%	60.2%	73.5%	30.0%	53.5%	60.8%	61.4%	77.3%		7.3%	39.0%	24.4%	38.5%	50.0%	7.1%	54.9%	51.9%	65.8%	74.6%		
Kelp, Bull	4.2%		2.0%	1.9%	2.4%				3.5%	9.1%							28.6%		5.6%				
Kelp, Feather Boa		0.6%	8.0%	7.4%	6.0%		1.4%	11.8%	10.5%	18.2%									11.1%	5.3%	1.8%		
Kelp, Giant	1.1%	1.1%	14.0%	11.1%	4.8%		1.4%	17.7%	21.1%	9.1%					16.7%		7.1%	2.0%	22.2%		1.8%		
Sea lettuce			0.7%																1.9%				
Surfgrass	4.2%	7.2%	25.3%	35.2%	57.8%			11.8%	42.1%	59.1%				15.4%	50.0%		28.6%	25.5%	59.3%	31.6%	58.2%		
	2016	2017	2018	2019	2020		2016	2017	2018	2019	2020		2016	2017	2018	2019	2020		2016	2017	2018	2019	2020
Total Observed	95	181	150	108	83		40	71	51	57	22		41	59	45	13	6		14	51	54	57	55

TABLE 4-8. Expanded salmonid bycatch in Pacific sardine fisheries in Oregon and Washington, 2011-2019-2020⁴

	Oregon ¹							Washington ²						
	Chinook		Coho		Total		Grand Total	Chinook		Coho		Total		Grand Total
	(live)	(dead)	(live)	(dead)	(live)	(dead)		(live)	(dead)	(live)	(dead)	(live)	(dead)	
2015-2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014/15					17	7	24	44	146	27	166	71	312	383
2014 ³					0	0	0	6	21	4	24	10	45	55
2013					117	81	198	207	683	125	779	332	1,462	1,794
2012					61	64	125	244	806	148	919	392	1,725	2,117

1 Oregon salmon bycatch data for 2002-2015 are from logbooks. No sardine fishery landings were made in Oregon during January 1-June 30, 2014.

2 Washington totals calculated from observed 2000-2004 observed bycatch rates.

3 January 1, 2014 – June 30, 2014.

4 The directed sardine fishery has been closed since June 30, 2015.

TABLE 4-9. Reported logbook catches of non-target species caught in Oregon sardine fishery since 2012. There were no sardine fishery landings in Oregon during the 2014 Interim Fishery, January 1-June 30, 2014. The directed fishery for sardines has been closed since June 30, 2015.

Species	2012	2013	2014 Interim Fishery	2014 - 2015	2015 - 2021
Blue Shark	0	0	0	0	-
Thresher Shark	0	0	0	0	-
Unknown Shark	0	0	0	0	-
Salmonids	125 49% alive; 51% dead	198 59% alive; 41% dead	0	24 71% alive; 29% dead	-
Mackerel	947,200 lbs	569,650 lbs	0	1,146,300 lbs	-
Anchovy	0	15,000 lbs	0	0	-
Herring	6,000 lbs	3,000 lbs	0	0	-
Hake	0	0	0	0	-
Squid	0	0	0	200 lbs	-
Jellyfish	0	0	0	0	-
Dogfish	0	0	0	0	-
Shad	0	2 lbs	0	0	-

TABLE 4-10. Recorded incidental catch (mt) in Oregon sardine fishery since 2012 (from fish ticket data). Excludes species landed under an Exempted Fishery Permit. There were no sardine fishery landings in Oregon during the 2014 Interim Fishery, January 1-June 30, 2014. The directed fishery for sardines has been closed since June 30, 2015.

Species	2012	2013	2014 Interim Fishery	2014 - 2015	2015 - 2021
Pacific mackerel	1,585.8	435.6	0	1,008.1	-
Jack mackerel	70.9	60.1	0	245.0	-
Pacific herring	0.35	0	0	0	-
Northern anchovy	0	12.5	0	0	-
American shad	0.005	0.02	0	0.001	-
Sablefish	0	0.01	0	0	-

TABLE 4-11. Recorded bycatch landings from fish tickets in the Oregon market squid fishery from 2016 to 2020. Note that no coastal pelagic species (CPS) fishery market squid landings were made in 2017. All CPS species and ecosystem components (EC) species that were recorded as bycatch are listed in the table. Additional species and species groups for which more than 0.05 mt of bycatch was landing in any given year are also listed individually. The “Other species” category includes all species for which no yearly total was greater than 0.05 mt in any given year. The number of “other species” recorded as bycatch varied each year, with the minimum being 10 in 2018 and the maximum being 29 in 2020.

Species	2016 (mt)	2017 (mt)	2018 (mt)	2019 (mt)	2020 (mt)
American shad	0.12	0	0	0	0.005
Pacific herring	0.002	0	2.62	0.89	1.44
Pacific sardine	3.18	0	0	0.04	0.06
Northern anchovy	131.40	0	0	0.002	0.01
Chinook salmon	0.02	0	0.01	0.01	0.06
Eulachon	0.007	0	0	4.5 x 10 ⁻⁴	0.03
Smelt spp.	0.25	0	0	0	0.08
Pacific pomfret	0.06	0	0	0	0
Pacific saury	0	0	0.001	0	0
Jacksmelt	0	0	0	0	0.002
Jack mackerel	0.04	0	0	0.003	9.1 x 10 ⁻⁴
Pacific mackerel	1.18	0	0	0.002	0.003
English sole	0	0	0.008	0.02	0.94
Sand sole	0	0	0	0.07	0.09
Jellyfish	4.5 x 10 ⁻⁴	0	0.002	0.70	0.10
Dungeness crab	0.33	0	0.83	0.23	1.24
Market squid	12.60	0	3.03	0.00	6.85
Squid, other sp.	0	0	0	0.005	0
Sand dollars	0	0	0.006	0.48	0.02
Other species	0.06	0	0.07	0.12	0.44
Total Bycatch	149.25	0	6.58	2.57	11.37

Table 4-12. Species noted as encountered on CDFW Live Bait Logs, 2010-2018, in units of day-encounters.

Year	Days Fished	Jack Mackerel	Pacific Mackerel	Barracuda	Herring	Grunion	Smelts (Atherinids)	Shiner Surfperch	White Croaker	Queenfish	Market Squid	Pacific Bonito
2010	673	1	69								9	1
2011	896	4	34	2			1				31	
2012	762	1	27	7							41	
2013	752	2	43				1				47	
2014	794	15	98			1	4				1	1
2015	833	20	99				4				3	6
2016	630	10	48								1	
2017	586	1	35				1				3	
2018	563	4	33									

Table 4-13. Estimates (metric tons) of Pacific sardine and Northern anchovy live bait harvest in California, 2010 - 2020. 2010-2018 data are from CDFW live bait logs. For 2010-2015, values are converted from reported scoops with the assumption that 1 scoop =12.5 lbs. Beginning in 2016, revised log forms include reported estimated catch in lbs. All live bait catch reported on electronic landing receipts beginning 2019.

Year	Anchovy	Sardine
2011	1,045	2,057
2012	350	2,497
2013	745	1,849
2014	1,142	1,562
2015	723	1,996
2016	266	1,208
2017	155	1,465
2018	114	1,531
2019	91	1,051
2020	92	1,198

Table 4-14. Ratio of anchovy to sardine in reported live bait catch in California, 2010-2020. Values are in metric tons. 2010-2018 data are from CDFW live bait logs. For 2010-2015, values are converted from reported scoops with the assumption that 1 scoop = 12.5 lbs. Beginning in 2016, revised log forms include reported estimated catch in lbs. All live bait catch reported on electronic landing receipts beginning 2019.

Year	Anchovy	Sardine	Total	Proportion Anchovy	Proportion Sardine
2011	1,045	2,057	3,102	0.34	0.66
2012	350	2,497	2,847	0.12	0.88
2013	745	1,849	2,594	0.29	0.71
2014	1,142	1,562	2,704	0.42	0.58
2015	731	1,996	2,727	0.27	0.73
2016	266	1,208	1,474	0.18	0.82
2017	143	1,442	1,584	0.09	0.91
2018	114	1,531	1,644	0.07	0.93
2019	91	1,051	1,142	0.08	0.92
2020	92	1,198	1,290	0.07	0.93

TABLE 4-15. Directed Sardine Fishery Incidental Catch (metric tons) from fish tickets in Washington.

	2011	2012	2013	2014 Interim	2014-2015	2015-2021
Arrowtooth Flounder			0.02			Fishery closed
American Shad		0.01	0.02			
Chinook		0.03	0.12		<0.01	
Chum		<0.01				
Coho		0.29	0.08		0.01	
Mackerel	0.43	636.17	195.95			
Misc			0.01			
Northern Anchovy						
Pacific Herring		<0.01	<0.01			
Pink Salmon		<0.01	<0.01			
General Shark						
Sole Rex			<0.01			
Spiny Dogfish		<0.01	<0.01			
Starry Flounder						

Table 6.1. West Coast real¹ ex-vessel revenues (2021 \$) and landings (MT) for Pacific sardine, Pacific mackerel², jack mackerel, anchovy and market squid, 2012-2021.

Year	Pacific Sardine		Pacific Mackerel		Jack Mackerel		Anchovy		Market Squid	
	Rev	MT	Rev	MT	Rev	MT	Rev	MT	Rev	MT
2012	\$25,163,862	101,449	\$1,467,337	6,126	\$46,270	271	\$537,761	2,706	\$75,660,760	97,734
2013	\$17,576,695	63,849	\$1,919,652	8,698	\$246,721	1,095	\$1,298,840	6,147	\$85,771,955	104,413
2014	\$10,122,551	23,344	\$1,957,941	7,157	\$406,932	1,837	\$1,916,342	10,625	\$83,254,294	104,094
2015	\$1,353,013	3,930	\$1,387,076	5,731	\$282,797	1,538	\$2,441,452	17,765	\$27,647,841	36,807
2016	\$117,956	522	\$541,058	1,830	\$69,821	374	\$2,682,266	13,959	\$45,072,290	38,352
2017	\$67,789	433	\$724,143	2,299	\$62,823	484	\$941,748	5,613	\$75,476,527	62,412
2018	\$86,068	338	\$1,074,691	2,591	\$31,210	205	\$2,163,573	17,515	\$41,675,044	36,375
2019	\$226,850	1,894	\$1,354,809	3,875	\$38,201	555	\$1,275,253	10,248	\$17,258,547	14,731
2020	\$516,534	2,865	\$283,696	705	\$19,358	472	\$736,442	5,712	\$33,449,194	25,121
2021	\$521,576	1,751	\$484,399	926	\$91,753	1,073	\$536,725	2,983	\$64,053,236	48,695

Source: PacFIN. Extraction dates: 5/12/2022.

¹ Revenue reported in real dollars to account for inflation using GDP implicit price deflator with a 2021 base year.

² Pacific mackerel revenues and landings also include those of unspecified mackerel.

Table 6.2. West Coast real¹ ex-vessel revenues (2021 \$) and landings (MT) for Coastal Pelagic Species by region, 2012-2021.

Year	Total		Southern California		Northern California		Oregon		Washington	
	Rev	MT	Rev	MT	Rev	MT	Rev	MT	Rev	MT
2012	\$102,875,992	208,285	\$67,613,880	103,532	\$14,712,289	23,477	\$10,838,045	44,543	\$9,711,775	36,733
2013	\$106,813,864	184,202	\$72,109,293	99,060	\$18,626,035	27,409	\$7,440,220	26,864	\$8,638,315	30,869
2014	\$97,658,064	147,057	\$40,855,970	57,418	\$48,118,685	71,192	\$4,560,334	9,762	\$4,123,072	8,685
2015	\$33,112,178	65,772	\$14,301,689	23,594	\$17,617,815	39,170	\$1,017,721	2,629	\$174,954	379
2016	\$48,483,392	55,036	\$31,194,513	31,337	\$14,523,676	16,564	\$2,571,863	6,701	\$193,339	434
2017	\$77,273,032	71,242	\$66,032,540	56,706	\$11,144,090	13,967	\$9,271	350	\$87,129	219
2018	\$45,030,584	57,023	\$23,726,886	22,230	\$17,955,322	31,255	\$3,304,197	3,372	\$44,181	166
2019	\$20,153,660	31,303	\$12,583,071	15,208	\$4,426,518	12,972	\$3,090,325	2,942	\$53,747	181
2020	\$35,005,224	34,875	\$6,973,460	8,104	\$21,716,981	21,480	\$6,257,804	5,137	\$56,980	154
2021	\$65,687,688	55,427	\$32,328,730	26,440	\$28,663,562	24,228	\$4,589,691	4,499	\$105,705	260

Source: PacFIN. Extraction dates: 5/12/2022.

¹ Revenue reported in real dollars to account for inflation using GDP implicit price deflator with a 2021 base year.

Table 6.3. West Coast CPS real¹ ex-vessel revenues (2021 \$) and landings (MT) by gear, 2012-2021.

Roundhaul, Lampara, Seine	Dip Net	Trawl	Hook and Line	Other / Unknown
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Year	Rev	MT	Rev	MT	Rev	MT	Rev	MT	Rev	MT
2012	\$98,487,116	202,846	\$4,319,056	5,318	\$7,013	47	\$3,464	1	\$59,339	73
2013	\$104,064,309	180,778	\$2,668,056	3,231	\$22,206	126	\$19,616	22	\$39,677	45
2014	\$97,267,672	146,339	\$254,065	303	\$48,193	316	\$46,428	56	\$41,703	42
2015	\$32,957,247	65,400	\$69,486	70	\$41,747	257	\$5,274	1	\$38,424	43
2016	\$47,632,420	54,169	\$821,300	673	\$13,796	173	\$2,883	18	\$12,992	4
2017	\$76,079,673	69,872	\$1,121,069	942	\$16,317	407	\$18,841	5	\$37,130	16
2018	\$44,184,532	56,028	\$770,100	698	\$8,623	224	\$1,561	<1	\$65,769	74
2019	\$19,673,167	30,278	\$348,502	323	\$53,330	652	\$44,943	36	\$33,719	14
2020	\$34,793,524	34,153	\$171,582	169	\$9,485	545	\$7,237	3	\$23,397	6
2021	\$64,146,131	53,251	\$1,422,449	1,047	\$64,992	1,122	\$3,185	2	\$50,932	6

Source: PacFIN. Extraction dates: 5/12/2022.

¹ Revenue reported in real dollars to account for inflation using GDP implicit price deflator with a 2021 base year.

Table 6.4. West Coast CPS Vessel and Dealer Participants¹, 2012-2021.

Year	CPS Vessel		CPS Finfish Vessel		Market Squid Vessel		CPS Dealers	
	All	Principal	All	Principal	All	Principal	All	Principal
2012	191	138	121	40	125	98	69	22
2013	171	113	115	28	99	84	67	23
2014	169	98	135	27	84	71	73	21
2015	178	82	155	22	68	60	87	20
2016	160	84	111	11	92	73	77	21
2017	219	89	171	15	91	74	82	20
2018	180	97	119	13	98	83	74	22
2019	229	80	180	16	96	62	101	24
2020	207	83	160	12	90	70	88	20
2021	181	89	114	14	98	75	87	26

Source: PacFIN. Extraction dates: 5/12/2022.

¹ Principal vessels and dealers are defined as participants for which a majority of vessel ex-vessel revenues and dealer ex-vessel revenue expenditures correspond to the pertinent fishery.

TABLE 8-1. Commercial landings (metric tons) of CPS in Ensenada, Baja California, Mexico since 2011^{1/2}. Sardine landings include both southern and northern subpopulations.

Year	Pacific Sardine	Northern Anchovy	Pacific Mackerel	Jack Mackerel	Market Squid
2011	70,336	1,760	2,601	0	15,091
2012	59,069	1,809	186	0	4,802
2013	51,413	2,428	327	0	16,707
2014	90,396	539	975	0	2,978
2015	37,468	26,143	1,418	0	63
2016	66,069	5,008	9,880	0	294
2017	130,463	15,725	902	0	55
2018	63,770	42,171	12,468	0	30
2019	94,414	35,138	2,353	0	71
2020	155,130	40,737	4,973		1

1/ Data for 2011-2019 from CONAPESCA fisheries database: (<https://www.gob.mx/conapesca/documentos/anuario-estadistico-de-acuacultura-y-pesca>).

2/ Data for 2020 provided by Concepción Enciso-Enciso (INAPESCA-Ensenada).

TABLE 8-2. Pacific sardine northern subpopulation biomass-at-age and summary biomass since 2011 (Kuryiama et al. 2020).^{/1}

Model year (July-1)	POPULATION BIOMASS-AT-AGE (metric tons)										BIOMASS	
	0	1	2	3	4	5	6	7	8+	Ages 0+	Ages 1+	
2011	5,245	247,345	115,142	42,649	20,703	40,445	51,191	28,485	14,562	565,768	560,523	
2012	4,200	20,506	205,959	52,315	17,335	8,909	17,354	22,498	20,939	370,015	365,815	
2013	3,021	19,995	12,580	117,468	18,406	6,487	3,100	4,979	12,379	198,417	195,396	
2014	2,593	22,490	17,345	6,971	49,401	5,777	1,897	878	5,901	113,252	110,660	
2015	3,497	18,247	10,340	10,496	4,189	20,090	1,820	560	2,405	71,644	68,147	
2016	9,220	33,902	10,724	5,853	5,733	2,213	10,851	1,115	1,685	81,296	72,077	
2017	5,711	10,051	23,448	5,771	3,266	3,025	1,278	6,783	1,668	61,000	55,289	
2018	12,563	12,241	5,110	17,205	4,259	2,212	1,837	723	5,863	62,012	49,449	
2019	25,503	13,039	3,484	1,826	9,164	2,363	1,053	996	3,261	60,689	35,186	
2020	19,272	11,426	3,280	2,947	1,267	5,148	1,091	668	2,447	47,547	28,276	

/1 There were no 2020 acoustic-trawl surveys, thus no 2021 population biomass-at-age estimates

TABLE 8-3. U.S. Pacific sardine landings (PacFIN) and harvest guidelines (HG) in metric tons since 2011 under the federal CPS-FMP. Landings include both the southern and northern subpopulations. The fishery year was January 1 – December 31, until 2014 when it was changed to a July 1 – June 30 fishing year.

Management year	CA	OR	WA	U.S. Total	HARVEST LIMITS		
					OFL	ABC/ACL	ACT
2011	27,715	11,023	8,009	46,747	92,767	84,681	50,526
2012	23,044	42,666	35,739	101,448	154,781	141,289	109,409
2013	7,146	26,288	30,461	63,895	103,284	94,281	66,495
2014 (Jan-Jun)	5,647	0	908	6,555	59,214	54,052	6,966
2014-15	3,754	9,920	6,907	20,581	39,210	35,792	23,293
2015-16	164	1	66	231	13,227	12,074	7,000
2016-17	514	3	85	602	23,085	19,236	8,000
2017-18	280	3	0	283	16,957	15,479	8,000
2018-19	1,114	11	2	1,126	11,324	9,436	7,000
2019-20	2,054	9	<1	2,063	5,816	4,514	4,000
2020-21	2,493	3	<1	2,497	5,525	4,288	4,000
2021-22	---	---	---	---	5,525	3,329	3,000

TABLE 8-4. West Coast Pacific sardine landings (metric tons) by country. Landings include both the southern and northern subpopulations, since 2011.

Calendar Year	Ensenada México	United States	B.C.	
			Canada	Total
2011	70,336	46,746	20,719	137,801
2012	59,069	101,148	19,172	179,389
2013	51,413	63,892	0	115,305
2014	90,396	22,744	0	113,140
2015	37,468	3,833	0	41,301
2016	66,069	522	0	66,591
2017	130,463	433	0	130,896
2018	63,770	337	0	64,107
2019	94,414	1,610	0	96,024
2020	155,130	2,525	0	157,655

TABLE 8-5. RecFIN estimated recreational harvest of Pacific (chub) mackerel by state (type ‘A+B1’ estimate in metric tons), since 2010.

Calendar year	CA	OR	WA	Total
2011	163.96	0.00	0.00	163.96
2012	141.14	0.21	0.00	141.35
2013	108.67	0.27	0.00	108.94
2014	153.47	0.14	0.00	153.61
2015	306.94	0.59	0.00	307.53
2016	180.41	0.10	0.00	180.51
2017	260.86	0.18	0.00	261.04
2018	192.81	0.36	0.00	193.17
2019	136.47	0.55	0.00	137.02
2020	55.41	0.04	0.00	55.45

TABLE 8-6. RecFIN estimated recreational harvest of Pacific (chub) mackerel by fishing mode (type ‘A+B1’ estimate in metric tons), since 2011.

Calendar year	Beach/Bank	Man-Made/Jetty	Party/Charter	Private/Rental	Total
2011	14.47	124.70	6.51	18.28	163.96
2012	1.39	121.05	7.07	11.83	141.35
2013	2.27	77.23	16.53	12.92	108.94
2014	12.79	92.71	22.20	25.90	153.61
2015	6.32	204.33	32.51	64.37	307.53
2016	3.53	137.71	13.69	25.58	180.51
2017	17.45	209.35	8.94	25.30	261.04
2018	0.00	161.72	8.85	22.60	193.17
2019	0.00	108.74	4.74	23.55	137.02
2020	0.00	30.75	2.36	22.34	55.45

TABLE 8-7. Pacific mackerel harvest specifications and commercial and recreational landings in the U.S. (metric tons) by July-June management years since 2011-12.

HARVEST LIMITS					
Mgmt year	OFL	ABC	HG/ACL	Directed/ACT	U.S. Landings
2011-12	44,336	42,375	40,514	30,386	1,877
2012-13	44,336	42,375	40,514	30,386	5,413
2013-14	57,316	52,358	52,538	39,269	11,867
2014-15	32,992	30,138	29,170	24,170	5,335
2015-16	25,291	23,104	21,469	20,469	4,368
2016-17	24,983	22,822	21,161	20,161	2,495
2017-18	30,115	27,510	26,293	25,293	1,438
2018-19	27,662	25,269	23,840	22,840	2,317
2019-20	14,931	13,169	11,109	10,109	3,841
2020-21	11,772	10,289	7,950	6,950	605
2021-22	12,145	9,446	8,323	7,323	---
2022-23	9,644	7,501	5,822	4,822	---