Shoreside Whiting Observation Program: 2002

prepared by

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INTRODUCTION

The Shoreside Whiting Observation Program (SWOP) was established in 1992 to provide information for evaluating bycatch in the directed Pacific whiting (*Merluccius productus)* fishery and for evaluating conservation measures adopted to limit the catch of salmon, other groundfish and prohibited species. Though instituted as an experimental monitoring program, it has been continued annually to account for all catch in targeted whiting trip landings, enumerate potential discards, and accommodate the landing and disposal of non-sorted catch from these trips. In 1995, the SWOP's emphasis changed from a high observation rate (50% of landings), to a lower rate (10% of landings) and increased collection of biological information (*e.g.*, otoliths, length, weight, sex, and maturity) from Pacific whiting and selected bycatch species (yellowtail (*Sebastes flavidus*), widow rockfish (*S. entomelas*), sablefish (*Anopaploma firmbria*), chub (Pacific) mackerel (*Scomber japonicus*), and jack mackerel (*Trachurus symmetricus*)). The required observation rate was decreased as studies indicated that fish tickets were a good representation of what was actually landed. Focus shifted again due to 1997 changes in the allocation of yellowtail rockfish and increases in yellowtail bycatch rates. Since then, yellowtail and widow bycatch in the shoreside whiting fishery has been dramatically reduced because of increased awareness by fishermen of the bycatch and allocation issues involved in the SWOP program. An increase in juvenile sablefish catch has focused some concern on bycatch in 2002.

The SWOP is a cooperative effort between the fishing industry and state and federal management agencies to observe and collect information on directed Pacific whiting landings at shoreside processing plants. Participating vessels apply for and carry

exempted fishing permits (EFPs) issued by the National Marine Fisheries Service (NMFS). Permit terms require vessels to land unsorted catch at designated shoreside processing plants. Permitted vessels are not penalized for landing prohibited species (*e.g.*, Pacific salmon, Pacific halibut, Dungeness crab), nor are they held liable for overages of groundfish trip limits. Participants in the SWOP are mid-water trawlers carrying EFPs, designated shoreside processing plants in California, Oregon, and Washington, the Pacific Fishery Management Council (PFMC), the NMFS, the Pacific States Marine Fisheries Commission (PSMFC), the Oregon Department of Fish and Wildlife (ODFW), the California Department of Fish and Game (CDFG), and the Washington Department of Fish and Wildlife (WDFW).

Beginning in 1999, written agreements were made with designated processors to provide a better understanding of the roles and responsibilities of the processors and agencies involved, and to provide a mechanism to enforce bycatch reduction measures, specifically for yellowtail rockfish. The agreements set a vessel-specific maximum rate for yellowtail rockfish bycatch at 12 kg of yellowtail rockfish per metric ton of whiting. Non-cumulative bycatch rate check points were set for when 30, 55, and 85 percent of the shoreside Pacific whiting quota had been landed. If a vessel exceeded the 12-kg/mt-bycatch-rate cap at any of these points it was not permitted to participate in the shoreside Pacific whiting fishery for one day for each kg/mt it was over the bycatch rate cap (*i.e.* no whiting could be landed by this vessel for a set period of time) (for previous annual bycatch rates see Parker (2001) or the website listed in the references). The processors enforce these penalties through their operating agreements with the vessels. Bycatch rates were calculated using fish ticket information on landings. This strategy, especially knowledge of the operating requirements of the EFP and the fishery goals, has dramatically reduced yellowtail rockfish and widow rockfish bycatch.

2002 WHITING FISHERY

The PFMC's optimum yield (OY) decreased from 190,400 mt to 129,600 metric tons (mt) (Table 1) due to a lower stock biomass and an official determination of whiting as overfished (NMFS/NWR 2002). The tribal fishery was allocated 17.5% of the OY (22,680 mt) and began harvesting on June 22nd in 2002. Commercial fishery allocations were 42% of the remaining allocation to vessels landing at shoreside processing plants (44,906 mt) (down from 72,618 mt in 2001), 34% to catcher/processors (36,353 mt), and 24% to catcher vessels delivering to motherships (25,661 mt). The 2002 directed shoreside whiting fishery began on 01 April 2002 off California (south of 42^{o} N), and on 15 June 2002 off Oregon and Washington (north of 42^{o} N). To avoid pre-empting more northerly segments of the fishery, the California component of the whiting fishery is limited to 5% of the total shoreside allocation until the northern component of the shoreside fishery begins. The directed season for at-sea processors (north of 42^{o} N) began on 01 May 2002 for catcher/processors and on 15 May for motherships.

The mothership fishery closed on June 6, 2002 and exceeded their allocation by 3.6% with a total harvest of 26,593 mt. The catcher-processor fishery closed on October 16 with a total harvest of 36,341 mt of whiting (100% of the allocated amount) (Whiting Report #5, NMFS, Seattle; www.nwr.noaa.gov). The tribal fishery harvested 21,789 mt (96.1% of its allocation) and closed on August 23. The 31-day shoreside season was the shortest season since 1992 or program inception (Table 1). The shoreside directed fishery closed on 17 July at 08:00 with landings of 45,276 mt (0.8% over the allocated amount) (Table 2). The total commercial catch of 108,339 mt exceeded the commercial OY by 1.3%. A catch of 129,999 for the entire fishery in 2002 was 0.3% over the US OY of 129,600 mt. (Whiting Report #5, NMFS, Seattle). Landings of sorted whiting were disallowed from 10/1-12/31 to minimize overharvest.

Twenty-nine midwater trawlers and eight processors participated in the SWOP in 2002 and unsorted EFP Pacific whiting landings were observed at processing plants in Eureka (1), Charleston (1), Newport (3), Astoria (2), and Westport (1). The number of participating vessels was the same as 2001, compared to the usual number in the middle to upper thirties. There were only 3 non-EFP whiting deliveries in 2002, but 627 EFP landings (Table 3). Most of the midwater trawlers targeting whiting and delivering shoreside, and onshore processing plants receiving whiting, participated in the SWOP. The average size of a landing was 158,575 pounds of Pacific whiting and landing-weight distributions of 150,000 pounds occurred 50 times throughout the primary season. (Figure 1.) The percentage of trips observed varied with state and port, with a low of 11% in Eureka and 12% in Westport, and a high of 92% in Charleston. Overall, 35% of Pacific whiting landings at shoreside processors were observed in 2002, exceeding the 10% program goal (Tables 3, 4, 5, and 6). Only 39 mt of whiting was delivered in the non-EFP fishery and all landings occurred in Eureka. With only three vessels participating in the California portion of the shoreside season, whiting was landed at a fairly constant pace (Table 2). When the northern portion opened, the pace increased each week. The vast majority of Pacific whiting (71%) was landed in Oregon; Washington landings represented 23% of the total, and California landings represented 6% (Tables 4, 5 and 6). Within Oregon, 57% of the whiting catch was delivered to Newport, with Astoria at 38% of the total and 5% in Charleston. Within the state of Oregon there was 0.17% weighbacks of whiting (whiting with no marketable value). The percentages of weighbacks were greater in ports to the south, possibly indicating the harvest of smaller fish in those areas.

BYCATCH

Rockfish

Bycatch of yellowtail rockfish is the lowest in almost a decade (see Hutton and Parker, 1999 for review). The catch in 2002 was more than a 90% drop from 1999, and the drop in 2002 was 44% of the 2001 catch. Even considering a decrease in whiting quota, the bycatch rate decreased from 1.30 to 0.91 kg/mt of whiting (Table 1) with a total catch of 41.37 mt. Compared to other commercial sectors of the fishery this number is higher than

the mothership and catcher/processor, combined (Figure 2). In the 2002 shoreside fishery, vessel bycatch rate checks were conducted and no vessel exceeded the 12-kg/mt cap.

The widow rockfish bycatch rate continued to decline from its low 2001 level, showing an 80% further reduction and is at its lowest rate ever (Figure 3). Their abundance has been the most variable over time and may be confounded by changes in whiting tow or landing locations since widow bycatch rates typically increase to the south. Surprisingly, the catch rates for widow rockfish were highest in California, but lowest in Oregon, not Washington (Tables 4, 5, and 6). The low bycatch rate for widow rockfish is welcome because of the overfished status and reductions in OY for widow rockfish in place for 2003. Bycatch rates of 5.3 mt instead of 300–500 mt in the 1990's will allow more flexibility in managing the groundfish limited entry fishery and remove some management pressure from the whiting fishery. It is likely that widow rockfish will be added to the penalty box along with it's own bycatch rate limit in 2003.

This year the SWOP focused on tracking bycatch of other species that are considered overfished (Table 7). Yelloweye rockfish (*S. ruberrimus*) and canary rockfish (*S. pinniger*) have become, increasingly, a concern for managers in the past two years. Fortunately, no yelloweye were recorded on fish tickets or by observers in the 2002 shoreside fishery and the canary bycatch was considerably low with only 0.43 mt landed. Canary OY's have continued to drop putting pressure on all midwater trawling to avoid these fish. Overall, rockfish bycatch rates decreased substantially in the past two years and helped the whiting fishery have minimal impact on other mixed-species fisheries. It is obvious that whiting fishermen are actively avoiding pelagic rockfishes coast wide and are working towards a whiting fishery with the lowest bycatch rates possible. Although there is substantial variation in bycatch rates within a port, the larger overall latitudinal trend for any species is visible (Table 7). Sustained low bycatch rates on widow, yelloweye and canary rockfish will help the fishery avoid unwanted restrictions from managers concerned with overall rockfish mortality.

Sablefish

Sablefish bycatch rate and abundance had been declining steadily and dramatically since 1995 (Figure 3). No obvious shift in fleet distribution or other whiting fishery-dependent factor has been attributed to this drop in relative abundance. However, in 2001 and 2002, sablefish bycatch dramatically increased. The catch rate in 2002 increased over 63% from 2001 (Figure 3). Most of the sablefish caught in 2002 were small; average size was ~591g with a mean length of 42 cm (Figure 4). A majority of the sablefish catch was taken off Newport (126.7 mt). The substantial increase in the landing rates occurred in fishing weeks 25 and 26 (Table 2). The "hot spots" were localized off Newport and vessels attempted to move out of those areas. Two weeks elapsed before rates fell, but in fishing week 28 numbers increased again. This cyclic increase was also observed in 2001(Parker 2001). We speculate that localized juveniles recruiting to the bottom were captured on the shelf prior to moving to deeper water. Only 1.5 mt of sablefish were landed in

Washington and no fish were landed in California (Table 2). Sizes of sablefish in Washington were similar to those landed in Oregon.

Mackerel

In 2000 and 2001, mackerel were tracked as separate categories. Mackerel bycatch information has been listed as Pacific mackerel and jack mackerel. Either jack or Pacific mackerel can be the largest single species bycatch component of the whiting fishery, with different species predominating in different years. This year jack mackerel numbers were significantly larger than Pacific mackerel (7.26 mt and 0.107 mt)(Table 3). Overall, the combined rates were lower than 2001 and are the lowest in almost a decade (Figure 3).

Other species

Other species landed in the whiting fishery are a substantial component of the bycatch as a whole. This year the SWOP split out and tracked many species previously listed in the "other" category because several species in this category are overfished and of special concern to managers (Table 2 and 7). Yelloweye rockfish, canary rockfish, darkblotched rockfish (*S. crameri*), bocaccio (*S. paucispinis*), lingcod (*Ophiodon elongatus*), Pacific ocean perch (*S. alutus*), walleye pollock (*Theragra chalcogramma*) and miscellaneous rockfish are now separate categories. Miscellaneous species such as Pacific cod (*Gadus macrocephalus*), Pacific herring (*Clupea harengus pallasi*), American shad (*Alosa sapidissima*), spiny dogfish (*Squalus ancanthias*), squids, sharks, skates, sardine, octopus and flatfish other than halibut, now constitute the "other" category (Table 3). When all categories were combined, these species totaled 165 mt in 2002, a significant drop from 450 mt mixed category in 2001. 145.8 mt of the total is walleye pollock and was mostly landed in Westport, Washington. The SWOP will continue to monitor the composition of the "other" category to insure overfished species are recorded accurately. There was some concern by managers that after the shoreside EFP season closed, fishers were targeting pollock near the Canadian border and discarding whiting over the 20,000 lb cap.

Salmon

A total of 1,148 salmon (1,062 Chinook (*Oncorhynchus tshawytscha*), 72 chum (*O. keta*), 14 coho (*O. kisutch*) salmon) were taken as bycatch in the 2002 shoreside whiting fishery and turned over to state agencies by processors: 312 in Oregon, 800 in Washington, and 36 in California. The shoreside rate represents an incidental catch rate of 0.023 salmon per metric ton of whiting for the entire EFP fishery (Table 8). This is slightly below average for the fishery between 1995-2001. The shoreside component as a whole was below the 0.050 salmon per mt whiting set as a cap by the NMFS biological opinion.

The SWOP collected biological data and checked for adipose fin clips on all salmon. Of the 312 Chinook landed in Oregon, 38 fish (12.17%) were hatchery fish as identified by an adipose clip. In Washington, 72 out of 714 Chinook were adipose clipped (10.08%). Adipose clips were not found on the 14 coho or chum landed. Port biologists in Washington scanned all salmon with a CWT wand to detect coded wire tags (CWT) and

out of the 800 fish landed 38 fish contained CWT (a mark rate of 4.8%). Only 36 Chinook were landed in California and one fish was adipose clipped (2.8%). The average Chinook size was 51.4 cm, with a mode at 43-cm (Figure 5). Fish size was similar coast wide. All fish were turned over to food share cooperatives and hunger relief agencies.

Observers at shoreside plants noted 364 salmon incidentally taken in 224 observed landings of 15,107 mt of whiting, which results in an observed rate of 0.029 salmon/mt whiting (Table 3). These 364 fish are included in the total of 1,148 made available to state agencies. The highest weekly bycatch rate occurred in the last week of the fishery (July 20th) as opposed to previous years when usually early season catches were highest (Table 8). Most of this catch occurred in just three landings in Astoria (71, 48, and 19 salmon/trip) and three trips in Washington (242, 75, and 71 salmon/trip) that totaled 526 fish. In the fourth week of the California portion, salmon inception rate hit a high of 0.102 salmon/mt whiting with 22 fish landed in three trips (Table 8). Discussions with fishers have revealed no changes in fishing behavior that would account for a change in the salmon interception rate, so it is likely that the rates reflect salmon moving through fishing areas.

Pacific halibut and Dungeness crab

The 2002 whiting shoreside fishery landed only nine Pacific halibut. All fish were landed in Oregon with eight in Newport and one in Charleston. This is comparable to the 23 caught in 2001 and reflects a more normal catch rate. Dungeness crab numbers were higher in 2002 but this number resulted from a single landing in Washington that totaled 200 crabs out of 207 landed shoreside for the coast (Table 6). Aside from this landing the overall catch was considerably low for the season.

BIOLOGICAL SAMPLING

In addition to documenting bycatch composition and rates, shoreside observers collected a variety of biological information from several species and samples that are used in stock assessment analyses (Table 9). Observers in Newport and Astoria measured 1,197 Pacific whiting for length-frequency information, and collected 1,580 Pacific whiting otolith samples, along with length and weight information (Table 10). The size distribution for whiting differed by port with Eureka landing small fish and Westport landing a wide range of sizes (Figure 6). Samples were adequate to measure size for most species, although distributions for widow and canary rockfish suffered from low sample sizes (Figure 4). All distributions were unimodal except for jack mackerel, which was bimodal. Pacific whiting showed a skewed distribution towards larger fish. Pacific whiting information and samples have been provided to Michael Schirripa of the NMFS FRAM Division in Newport, Oregon for incorporation into subsequent whiting stock assessments. Yellowtail rockfish otoliths and length-frequency information are provided to Sandra Rosenfeld at the Department of Fisheries Marine Fish & Shellfish Division in Olympia, Washington for future stock assessments on this species. Biological samples of Pacific mackerel are provided to the CDFG for their stock assessment work on this

species. Biological samples of widow rockfish are sent to Don Pearson NMFS in Santa Cruz, California. Sablefish, jack and pacific mackerel, darkblotched rockfish, bocaccio and canary rockfish are also taken. These have been retained at ODFW and are available for future assessment efforts.

PROGRAM COSTS

In 2002, the cost of the Oregon-Washington portion of the SWOP was approximately $68,121 (approximately $38,318 for coordination and data processing costs, and an estimated $29,808 for observers). This has decreased from 2001 due to a shorter season. Since 1995, most program funding has been provided by industry through PSMFC. Government costs (state agencies providing sampling personnel, infrastructure, summary and analysis during winter months, data tracking, and council support on bycatch issues) are not included in the above summary. These costs have become more substantial over time due to the increasing attention paid to bycatch issues and are quite considerable now, amounting to months of staff time costing more than $20,000. Oregon shoreside processing plants hired 5 observers to make observations at 6 processors. The WDFW and the CDFG provided minimal shoreside landing observations with existing state staff. Participating processors, and those contributing to the cost of the program in 2002, are Merino's Seafood, Jessie's Ilwaco Fish, Pacific Coast Seafood, Point Adam's Packing, Pacific Whiting Producers, Pacific Shrimp, Trident Seafood, and Bandon Pacific.

AREAS FOR IMPROVEMENT IN 2003

Good communication between vessels, processors and state agency staff yielded a season with few administrative difficulties. In order to effectively reduce bycatch within the directed shoreside fishery, timely submission of high bycatch areas or "hotspots" is encouraged. We list some of the issues that need to be addressed in 2003, to keep the whiting fishery monitoring accurate and efficient.

- Continue to investigate whether it is feasible and what the obstacles are to convert the Pacific whiting EFP program into a normal monitored fishery. Several technical and legal sampling and observation issues need to be addressed for this to happen. Some progress has been made at the PFMC council level to begin this process.

- Look more closely at salmon bycatch and search for possible predictors or indicators for salmon bycatch levels for a given season prior to the start of the season.

- Look at sablefish bycatch and its impacts on the sablefish fishery as a whole.

- Develop an agreement between fish processors, vessels and the state that will include all plants as designated processors, eliminating the need for each vessel to develop multiple contracts.

- Incorporate widow rockfish into the penalty box framework to maintain incentives to minimize bycatch on these species.

References

Parker, S. 2001. Shoreside Whiting Observation Program: 2001. Newport, OR: Oregon Department of Fish and Wildlife. 19pp.

NMFS/NWR. 2002. Emergency Rule to Establish Final 2002 Specifications for Pacific Whiting; Announcement of Overfished Status of Pacific Whiting. Federal Register/ Vol 67 No. 72/ Monday, April 15, 2002/ Rules and Regulations.

Hutton, L., and S.J. Parker. 1999. Bycatch of yellowtail rockfish in the Pacific whiting fishery (1996-1999): Analysis and solutions. Oregon Department of Fish and Wildlife, Newport. 14 p.

Note: This report and past shoreside whiting observation reports are available on the internet at http://www.hmsc.orst.edu/odfw/reports/whiting.html

Table 1. Summary of the EFP shoreside component of the US Pacific Whiting fishery through 2002. Weights are in metric tons and bycatch rates are in kg/mt whiting.

Year	US optimum yield (mt)	Whiting landed (mt)	Yellowtail bycatch (kg)	Yellowtail bycatch rate	Participating vessels	Start date	End date	Season length (days)
1992	208,800	56,127	59.37	1.05	NA			NA
1993	142,000	41,926	137.89	3.29	NA	4/15/93	8/24/93	132
1994	260,000	72,367	255.5	3.53	33	4/15/94	11/23/94	223
1995	178,400	73,937	273.82	3.70	35	4/15/95	7/25/95	102
1996	212,000	84,986	521.62	6.13	37	5/15/96	9/10/96	119
1997	232,000	85,810	233.02	2.71	38	6/15/97	8/22/97	69
1998	232,000	87,387	501.06	5.73	35	6/15/98	10/13/98	121
1999	232,000	83,272	481.39	5.78	36	6/15/99	9/13/99	91
2000	232,000	85,653	189.81	2.22	36	6/15/00	9/15/00	93
2001	190,400	73,326	95.86	1.30	29	6/15/01	9/26/01	76*
2002 [1]	129,600	45,276	41.37	0.91	29	6/15/02	7/17/02	31**

* In 2001, the fishery closed on 8/21/01. The Makah tribe then returned 10,000 mt of its allocation to NMFS, which reallocated it to the other fishery sectors. The shoreside component then reopened from 9/17 - 9/26/01.

** In 2002, the fishery closed on 7/17/02 at 08:00hrs.

1 The Pacific whiting stock was officially declared overfished in 2002.

Table 2. Weekly EFP Pacific whiting (Pwht)landings and bycatch for Washington, Oregon, and California, 04/01/2002 - 07/17/2002. Data from fish tickets and observed landings in mt. The fishery closed on 7/17/02 at 08:00.

Fishing week	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29			
Week ending date	4/6	4/13	4/20	4/27	5/4	5/11	5/18	5/25	6/1	6/8	6/15	6/22	6/29	7/6	7/13	7/20	**EFP Total**	**NonEFP Total**	**Fishery Total**
Number of Pwht landings	2	5	5	6	7	6	4	4	4	5	13	117	125	119	131	74	627	3	630
Pwht landed (mt)	55	146	205	245	244	196	116	170	139	261	658	8,165	9,258	9,486	10,093	5,839	45,275.84	39.00	45,314.84
Cumulative Pwht landed (mt)	55	201	407	651	895	1,091	1,208	1,378	1,516	1,777	2,435	10,600	19,858	29,344	39,437	45,276			
% of Pwht quota landed	0.12	0.45	0.91	1.45	1.99	2.43	2.69	3.07	3.38	3.96	5.42	23.61	44.22	65.35	87.82	100.82	100.82	0.09	100.91
Num. of landings observed		1		1	1		1		1		5	45	50	47	47	25	35.6%	0	224
Pwht observed at offload (mt)		33		44	58		25		40		311	2,688	3,356	3,274	3,508	1,770	15,107.26		15,107.26
Num. of salmon		1		22		4				3	17	108	149	150	64	630	1,148		1,148
Num. of Pacific halibut											5	2			2		9		9
Num of Dungeness crab													201	2	4		207		207
Yellowtail rockfish											0.02	0.53	1.78	21.04	9.82	8.16	41.35		41.35
Widow rockfish		0.01	<0.01	0.23			0.06	<0.01	0.84	<0.01	0.01	0.91	1.07	1.08	0.41	0.68	5.30		5.30
Sablefish											0.34	38.56	47.32	14.27	21.66	6.07	128.22		128.22
Pacific mackerel												<0.01	0.02	0.08		<0.01	0.10		0.10
Jack mackerel									<0.01	<0.01	0.11	0.33	1.04	2.08	0.46	3.22	7.25		7.25
Yelloweye rockfish																	0.00		0.00
Canary rockfish				<0.01					<0.01		<0.01	0.09	0.01	0.19	0.10	0.02	0.42		0.42
Darkblotched rockfish		<0.01							<0.01						<0.01		0.00		0.00
Boccacio									<0.01		<0.01	<0.01		<0.01	0.01		0.01		0.01
Lingcod										<0.01	<0.01	0.03	0.02	0.09	0.03	0.03	0.21		0.21
Pacific ocean perch												0.18	<0.01	0.03	<0.01	<0.01	0.22		0.22
Walleye pollock												131.19	3.47	11.22	<0.01	<0.01	145.88		145.88
Misc. rockfish*											0.01	0.06	0.01	0.01	0.20	0.01	0.30		0.30
Other**			0.08	0.33	0.10				<0.01	<0.01	0.04	4.74	3.77	2.00	1.67	5.34	18.07		18.07

* Misc. rockfish include Aurora, chilipepper, greenstripe, redstripe, sharpchin, shortbelley, and shortspine thornyhead.

** Other species include Pacific cod, Pacific herring, American shad, sardine, flatfish(other than halibut), squid, shark, skates, octopus and jellyfish.

Table 3. 2002 Cumulative shoreside whiting fishery report for Oregon Washington, and California. Fishery total includes non-EFP trips, but rates are calculated as the average of all the individual rates for each EFP landing. Bycatch rates for salmon, halibut, and dungeness crab are number of fish/mt whiting. All other rates are kg/mt whiting.

Best available data as of 10/09/02.

	Observed total	EFP fishery total	Non-EFP fishery total	Fishery total	Bycatch rate observed landings	Bycatch rate EFP
Whiting harvest (mt)	15,107	45,276	39	45,315		
Number of deliveries	224	627	3	630		
Percent of deliveries observed	35					
Salmon catch (no)	364	1,148	0	1,148	0.029	0.023
Pacific halibut (no)	8	9	0	9	0.000	0.000
Dungeness crab (no)	204	207	0	207	0.006	0.002
Yellowtail rockfish (kg)	7,115	41,368	0	41,368	0.381	0.748
Widow rockfish (kg)	3,320	5,319	0	5,319	0.344	0.189
Sablefish (kg)	36,077	128,218	0	128,218	2.315	2.608
Pacific mackerel (kg)	8	107	0	107	0.001	0.002
Jack mackerel (kg)	2,438	7,257	0	7,257	0.150	0.151
Yelloweye rockfish (kg)	0	0	0	0	0.000	0.000
Canary rockfish (kg)	212	432	0	432	0.021	0.008
Darkblotched rockfish (kg)	<1	10	0	10	<0.001	<0.001
Boccacio (kg)	20	24	0	24	0.001	0.001
Lingcod (kg)	92	216	0	216	0.005	0.004
Pacific ocean perch (kg)	8	221	0	221	0.001	0.005
Walleye pollock (kg)	45,122	145,883	0	145,883	2.300	2.033
Pacific herring (kg)	1	6	0	6	<0.001	<0.001
American shad (kg)	552	4,353	0	4,353	0.041	0.074
Spiny dogfish (kg)	554	11,392	0	11,392	0.033	0.178
*Misc. rockfish (kg)	273	327	0	327	0.020	0.008
**Other species (kg)	1,016	2,347	0	2,347	0.078	0.057

*Misc. rockfish include Aurora, chilipepper, greenstripe, redstripe, sharpchin, shortbelley, and shortspine thornyhead.

**Other species include: Pacific cod, squid, shark, skate, flatfish(except halibut), sardine, and octopus.

Table 4. 2002 Cumulative shoreside whiting fishery report for Oregon. Fishery total includes non-EFP trips, but rates calculated as the average of all the individual rates for each EFP landing. Bycatch rates for salmon, halibut, and dungeness crab are number of fish/mt whiting. All other rates are kg/mt whiting.

Best available data as of 10/09/02.

	Observed total	EFP fishery total	Non-EFP fishery total	Fishery total	Bycatch rate observed landings	Bycatch rate EFP
Whiting harvest (mt)	13,415	32,168	0	32,168		
Number of deliveries	204	454	0	454		
Percent of deliveries observed	45					
Salmon catch (no)	69	312	0	312	0.006	0.009
Pacific halibut (no)	8	9	0	9	0.000	0.000
Dungeness crab (no)	5	8	0	8	0.001	0.000
Yellowtail rockfish (kg)	3,037	17,540	0	17,540	0.223	0.509
Widow rockfish (kg)	2,021	2,584	0	2,584	0.255	0.129
Sablefish (kg)	35,871	126,682	0	126,682	2.534	3.566
Pacific mackerel (kg)	8	14	0	14	0.001	0.001
Jack mackerel (kg)	2,369	6,774	0	6,774	0.160	0.183
Yelloweye rockfish (kg)	0	0	0	0	0.000	0.000
Canary rockfish (kg)	180	371	0	371	0.013	0.011
Darkblotched rockfish (kg)	0	0	0	0	<0.001	<0.001
Boccacio (kg)	13	17	0	17	0.001	0.001
Lingcod (kg)	84	171	0	171	0.005	0.005
Pacific ocean perch (kg)	7	194	0	194	0.001	0.007
Walleye pollock (kg)	0	4,478	0	4,478	0.000	0.086
Pacific herring (kg)	0	1	0	1	<0.001	<0.001
American shad (kg)	280	1,541	0	1,541	0.021	0.046
Spiny dogfish (kg)	342	2,723	0	2,723	0.023	0.063
*Misc. rockfish (kg)	270	323	0	323	0.021	0.011
**Other species (kg)	539	815	0	815	0.042	0.027

*Misc. rockfish include Aurora, chilipepper, greenstripe, redstripe, sharpchin, shortbelley, and shortspine thornyhead.
**Other species include: Pacific cod, squid, shark, skate, flatfish(except halibut), sardine, and octopus.

Table 7. Annual bycatch rates by port and vessel for major bycatch species in 2002. Vessel rates are calculated as the average of all individual landings, and port rates are the average of all landings for each port. Vessels landing in more than one port show rates for each port. All rates are in kg/mt whiting.

Best available data as of 10/09/02

Vessel	Yellowtail rockfish	Widow rockfish	Sablefish	Pacific mackerel	Jack mackerel	Yellowey e rockfish	Canary rockfish	Darkblotch rockfish	Boccacio rockfish	Lingcod	Pac.Ocea n Perch	Pollock	Misc. Rock	Other species*
Astoria														
GEORGE ALLEN	2.30	0.01	0.83		0.01		0.02							0.02
GRUMPY J	0.01	0.00	0.28	<0.01	0.03									0.04
PERSEVERANCE	0.87	0.00	2.24		0.18								0.01	0.58
PERSISTENCE	0.42	0.00	0.43	<0.01	0.00									0.18
PREDATOR	2.35	0.09	0.94		0.17		0.02			0.02				0.32
RAVEN	0.84	0.01	7.85		0.08		0.02			0.01	<0.01	0.59		0.34
SEA CLIPPER	3.67	0.15	5.74		0.03		0.03							0.05
SEEKER	0.37	0.00	1.78		0.02		0.02			0.01		1.32	0.01	0.81
Astoria Total	**1.37**	**0.03**	**2.59**	**<0.01**	**0.06**	**0.00**	**0.02**	**0.00**	**0.00**	**0.01**	**<0.01**	**0.27**	**0.00**	**0.28**
Newport														
BAY ISLANDER	0.00	0.00	3.16	<0.01	0.09						0.09			0.11
BLUE FOX	0.00	0.02	5.53		0.16		0.01							0.02
CAPE KIWANDA	0.00													
EXCALIBUR	0.01	0.04	3.89	<0.01	0.14		0.01		<0.01		<0.01			0.04
LAST STRAW	0.01		0.20		0.02					0.02			0.06	0.02
LISA MELINDA	0.04		3.95		0.90					0.01				0.04
MISS BERDIE	0.04	0.01	7.35		0.31		0.01		<0.01	0.01			0.06	0.08
MISS SARAH	0.01	0.01	4.84		0.03		0.01							0.07
MISS SUE	0.02	0.35	5.47		0.27		0.02		<0.01	0.01			0.01	0.07
PACIFIC	0.25	0.04	1.68		0.08		0.02			0.01				0.15
PACIFIC RAM	0.01	0.02	7.29	<0.01	0.20		0.01				<0.01			0.08
PEGASUS	0.08	0.02	3.79	<0.01	0.71		0.01							0.02
Newport Total	**0.04**	**0.06**	**4.66**	**<0.01**	**0.28**	**0.00**	**0.01**	**0.00**	**<0.01**	**<0.01**	**0.01**	**0.00**	**0.01**	**0.07**
Charleston														
JEANETTE MARRIE	0.09	0.23	0.07	0.01	0.04		0.01				<0.01		0.04	0.07
LAST STRAW	0.12	1.47	0.05		0.04						<0.01		0.05	0.04
Charleston Total	**0.44**	**0.94**	**0.06**	**<0.01**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**<0.01**	**0.00**	**0.05**	**0.05**
Oregon Subtotal	**0.51**	**0.13**	**3.57**	**<0.01**	**0.18**	**0.00**	**0.01**	**0.00**	**<0.01**	**<0.01**	**<0.01**	**0.09**	**0.01**	**0.14**
Westport														
BETTY A	2.29	0.28	0.44	0.05	0.16							2.96		0.55
BLUE HORIZON	1.09		0.05									6.76		1.15
CHELLISSA	1.69	0.01	0.02								<0.01			0.50
JAMIE MARIE	4.97	0.30	0.08	0.01	<0.01		<0.01		<0.01	<0.01		14.92	<0.01	1.19
MARATHON	1.36	<0.01	0.09		0.05							18.29		1.72
PACIFIC CHALLENGER	1.70	0.11	0.13		<0.01		0.01			0.01	0.01	21.67		1.28
Westport Total	**2.33**	**0.14**	**0.16**	**0.01**	**0.05**	**0.00**	**<0.01**	**0.00**	**<0.01**	**<0.01**	**<0.01**	**12.11**	**<0.01**	**1.14**
Eureka														
FISHWISH		0.62			0.15		<0.01							0.05
PACIFIC		0.70			<0.01		<0.01	0.01	<0.01	<0.01				0.40
WARRIOR II		0.47			0.28									0.10
Eureka Total	**0.00**	**0.64**	**0.00**	**0.00**	**0.10**	**0.00**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**0.00**	**0.00**	**0.00**	**0.22**
Grand Total All Ports	**0.75**	**0.19**	**2.61**	**<0.01**	**0.15**	**0.00**	**0.01**	**<0.01**	**<0.01**	**<0.01**	**0.01**	**2.03**	**0.01**	**0.31**

*Other species include Pacific cod, Pacific herring, American shad, sardine, flatfish(other than halibut), squid, shark, skates, octopus and jellyfish.

Table 8. Weekly bycatch rate of salmon (number of salmon/mt of whiting) in the shorebased Pacific whiting fishery, 1992-2002. Rates for 1992-1994 are based on observations. Rates for 1995-2002 are based on salmon turned over to state agencies by processors. Rates include all salmon species landed. See text for salmon species composition. Rates are the averages of all rates from induvidual landings.

Month	1992*	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
April		0.088	0.042	0.069	0.000		0.000				0.000
		0.076	**0.074**	0.398	0.003	0.000	0.054			0.105	0.001
		0.019	0.052	**0.422**	0.000	0.000	0.000			0.031	0.000
		0.135	0.031	0.018	0.000	0.000	0.000		0.026	0.000	0.102
		0.038	0.015	0.041	0.000	0.000	0.000		**0.298**	0.012	0.000
May	0.019	0.034	0.002	0.040	0.000	0.001	0.049	0.013	0.132	0.008	0.028
	0.097	0.054	0.004	0.019	0.029	0.010	0.101	0.000	0.022	0.058	0.000
	0.056	0.014	0.003	0.011	**0.136**	0.003	**0.205**	0.000	0.137	0.126	0.000
	0.028	0.019	0.000	0.004	0.024	0.000	0.053	0.000	0.280	0.014	0.000
June	0.015	0.021	0.017	0.008	0.007	0.000	0.041	0.000	0.186	0.000	0.011
	0.004	0.000	0.007	0.032	0.007	0.000	0.028	0.000	0.034	0.000	0.023
	0.001	0.001	0.007	0.013	0.000	0.011	0.006	0.002	0.005	0.030	0.012
	0.000	0.001	0.001	0.035	0.001	0.005	0.005	0.005	0.072	0.082	0.013
July	0.000	0.011	0.001	0.024	0.000	0.010	0.001	0.013	0.049	0.045	0.009
	0.002	0.010	0.003	0.011	0.004	0.016	0.002	0.007	0.011	0.022	0.006
	0.003	0.004	0.001		0.003	0.025	0.011	0.053	0.040	**0.227**	**0.115**
	0.008	0.002	0.001		0.002	**0.034**	0.050	**0.064**	0.018	0.027	
August	0.002	0.003	0.003		0.001	0.012	0.013	0.017	0.093	0.012	
	0.004	0.008	0.002		0.001	0.025	0.033	0.029	0.027	0.010	
	0.005	0.003	0.001		0.000	0.014	0.014	0.021	0.018	0.006	
	0.014	0.003	0.000		0.000	0.022	0.014	0.020	0.029	0.027	
	0.015		0.002		0.000		0.010	0.009	0.053	0.003	
September	0.002		0.004		0.000		0.028	0.004	0.027	NA	
	0.009		0.008		0.000		0.069	0.003	0.027	NA	
	0.017		0.001				0.094	0.011	0.008	0.001	
	0.005		0.003				0.025			0.001	
October	0.016		0.010				0.003				
	0.012		0.000				0.005				
	0.001		0.002				0.008				
	0.003		0.039								
	0.014										
Total rate (#/mt)	0.010	0.010	0.008	0.032	0.008	0.017	0.020	0.021	0.039	0.041	0.023
Total salmon landed	491	419	585	2972	651	1484	1713	1712	3345	3005	1148

*Oregon Only
Note: Bold text indicates highest weekly rate for season.

Table 9. Summary of biological sampling conducted in each port during the 2002 SWOP.

		*Length/frequency samples		Biological sampling (otoliths, length, weight, sex, maturity)		
Port	Species	Fish per sample	Number of fish	Fish per sample	Number of Samples	Fish sampled
Astoria						
	Pacific whiting	100	397	20	28	560
	Jack mackerel			30	3	74
	Pacific mackerel			30		
	Widow rockfish			30-50	2	54
	Yellowtail rockfish			30-50	14	548
	Canary rockfish			any	6	43
	Sablefish			30	7	235
	Chinook salmon		173			173
Newport						
	Pacific whiting	100	800	20	31	660
	Jack mackerel			30	9	245
	Pacific mackerel			30		
	Widow rockfish			30-50		
	Yellowtail rockfish			30-50	3	90
	Canary rockfish			any	15	36
	Sablefish			30	6	180
	Darkblotched rockfish			any	1	1
	Bocaccio rockfish			any	4	5
	Chinook salmon		133			133
Charleston						
	Pacific whiting	100	600	20		
	Jack mackerel			30		
	Pacific mackerel			30		
	Widow rockfish			30-50		
	Yellowtail rockfish			30-50		
	Canary rockfish			any	1	1
	Sablefish			30		
	Chinook salmon		6			6
Westport	Pacific whiting	100	617	30	6	180
	Chinook salmon		714	all		714
Eureka	Pacific whiting	100	201	30	6	180
	Chinook salmon		36			36
Total shoreside samples						
	Pacific whiting	100	2,615	20	59	1,580
	Jack mackerel		0	30	12	319
	Pacific mackerel		0	30	0	0
	Widow rockfish		0	30-50	2	54
	Yellowtail rockfish		0	30-50	17	638
	Canary rockfish		0	any	22	80
	Sablefish		0	30	13	415
	Bocaccio rockfish		0	any	4	5
	Darkblotched rockfish		0	any	1	1
	Chinook salmon		1,062			1,062

*Note: Data for length/frequency on Pacific whiting is from market sample data.

Table 10. Biological characteristics of species sampled in the 2002 Shoreside Whiting Observation Program. Condition factor is calculated as (W(g)/L(cm)^3)*100.

	Female				Male			
Species	Mean length (cm)	Mean weight (gm)	Condition factor	Number of fish	Mean length (cm)	Mean weight (gm)	Condition factor	Number of fish
Pacific whiting	43	563	0.714	913	43	536	0.682	658
Jack mackerel	48	1367	1.241	159	49	1451	1.249	155
Pacific mackerel	-	-	-	-	-	-	-	-
Widow rockfish	49	1595	1.400	36	40	445	0.722	18
Yellowtail rockfish	44	1371	1.565	286	41	1111	1.600	350
Canary rockfish	49	2137	1.804	45	45	1621	1.803	35
Sablefish	42	605	0.794	193	42	581	0.810	216
Chinook salmon	53	2164	1.580	394	50	1991	1.47	433

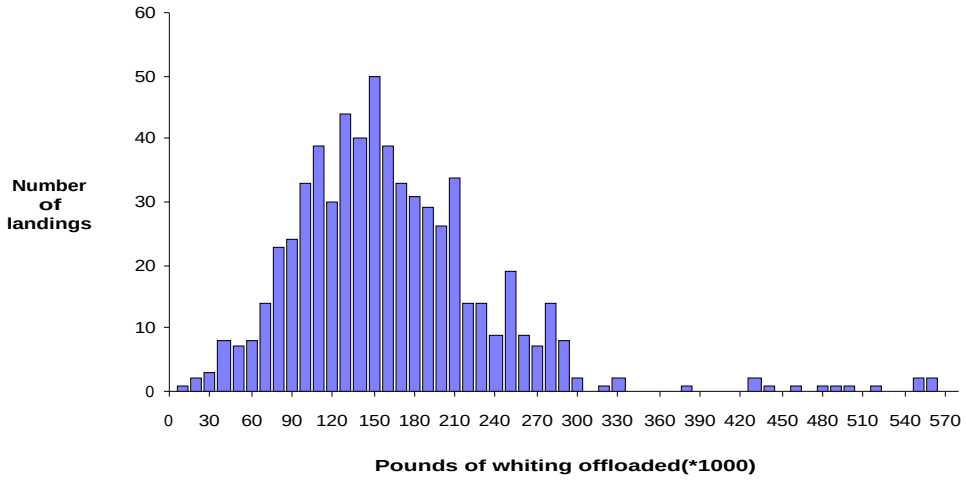
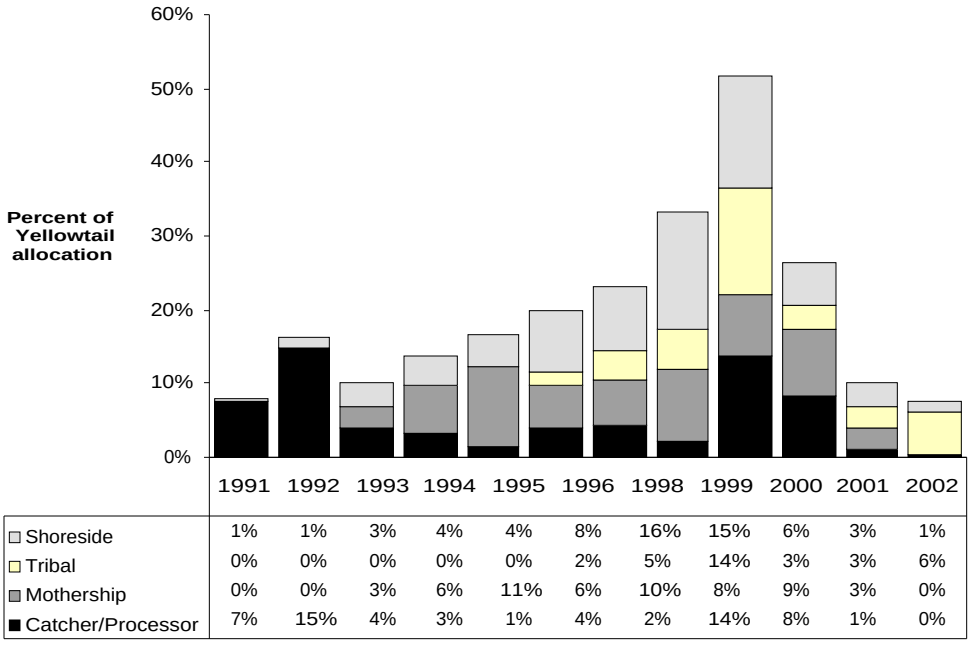


Figure 1. Landing-weight distributions of Pacific whitng in the 2002 shoreside whitng fishery.



	1991	1992	1993	1994	1995	1996	1998	1999	2000	2001	2002
Shoreside	1%	1%	3%	4%	4%	8%	16%	15%	6%	3%	1%
Tribal	0%	0%	0%	0%	0%	2%	5%	14%	3%	3%	6%
Mothership	0%	0%	3%	6%	11%	6%	10%	8%	9%	3%	0%
Catcher/Processor	7%	15%	4%	3%	1%	4%	2%	14%	8%	1%	0%

Figure 2. Percentage of the total yellowtail OY taken as bycatch in the whiting fishery, 1991-2002. 2002 data is preliminary.

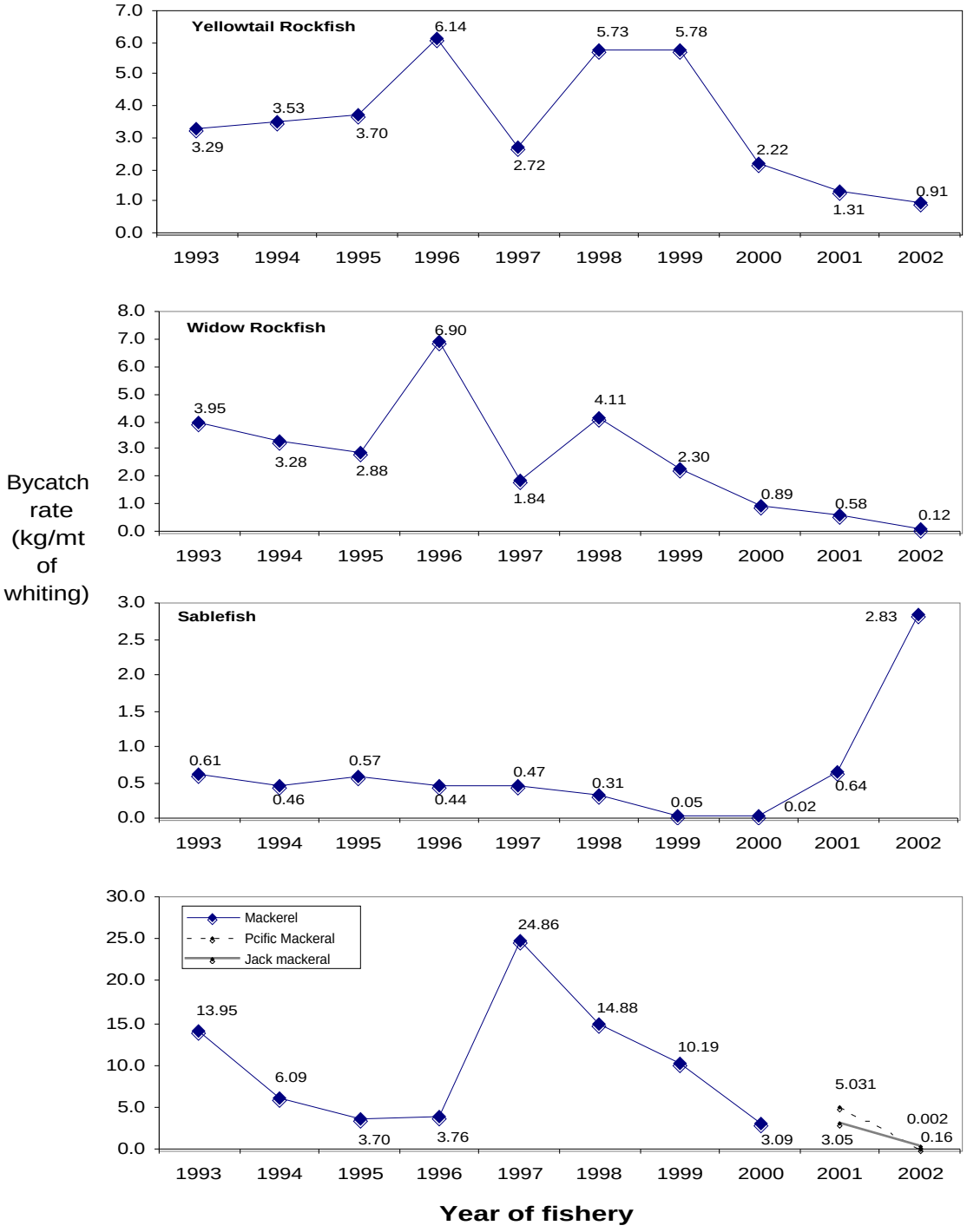


Figure 3. Bycatch rates for major components of the shoreside whiting fishery, 1993-2002.

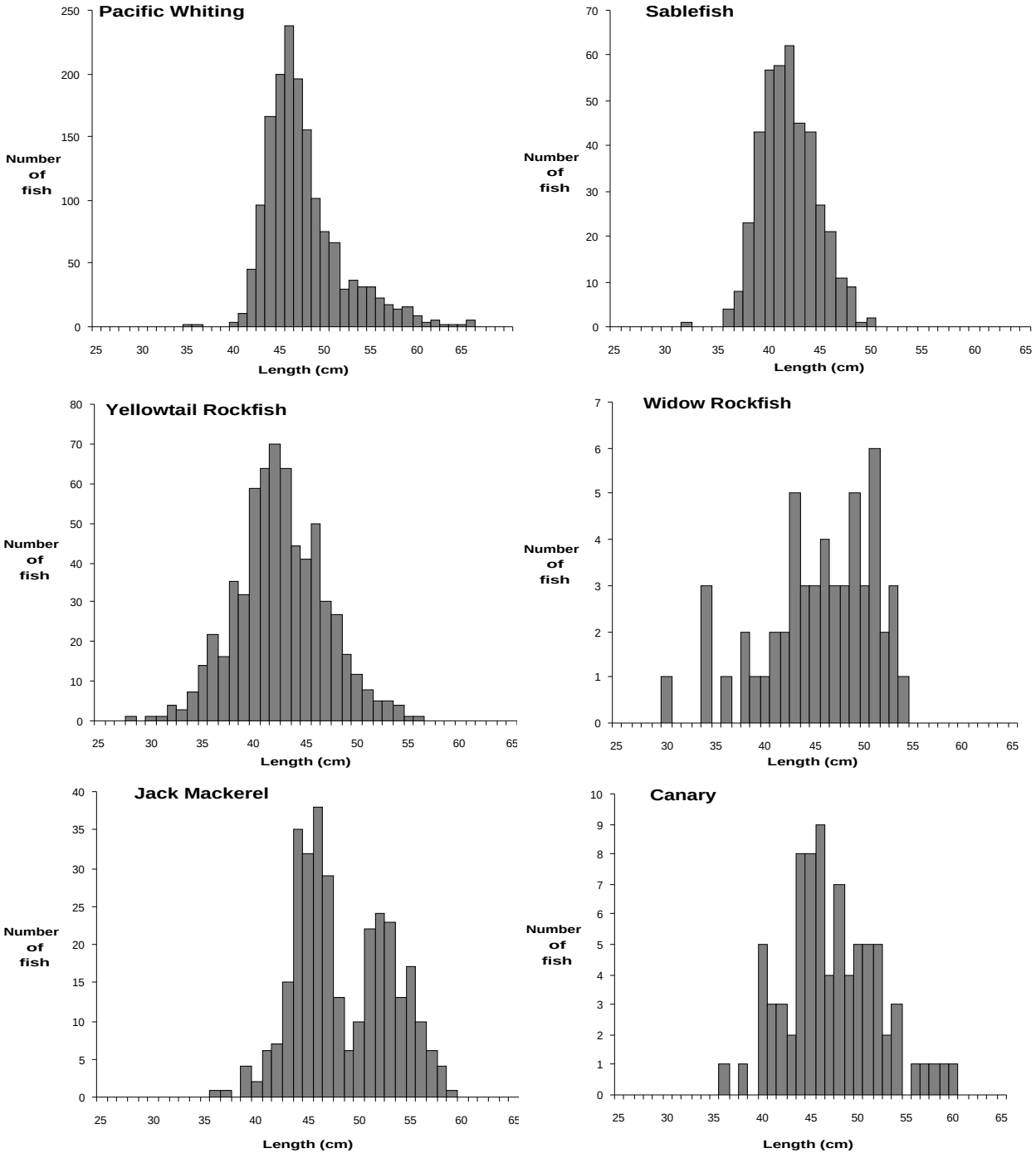


Figure 4. Length-frequency distributions for Pacific whiting and associated major bycatch species in the Oregon shoreside whiting fishery, 2002.

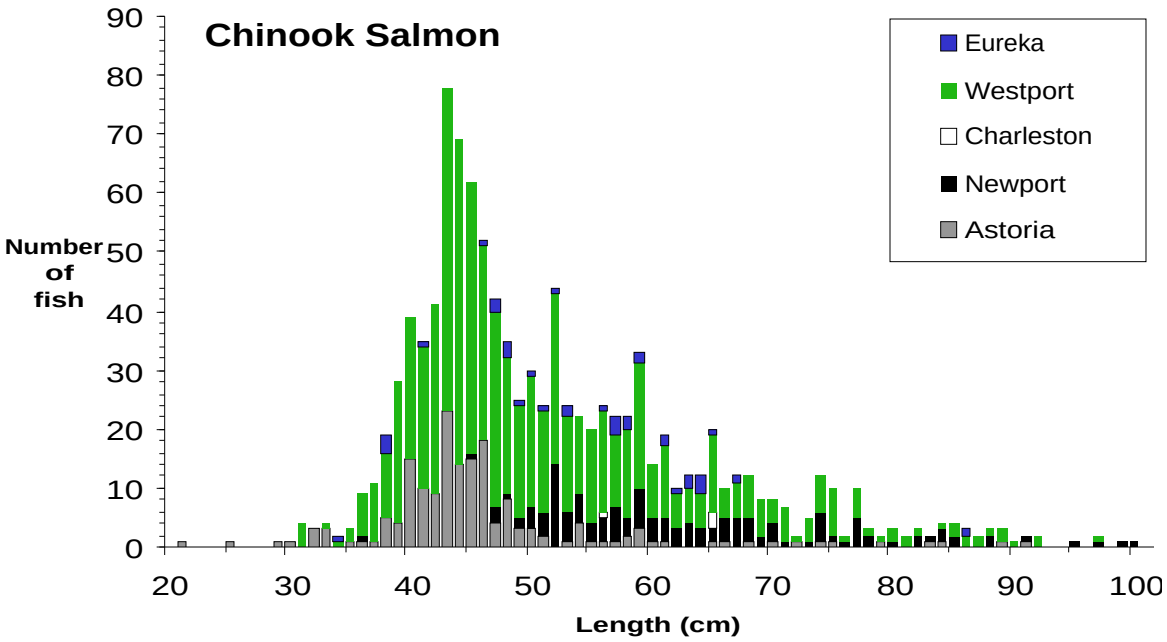


Figure 5. Length-frequency distributions of Chinook salmon by port.

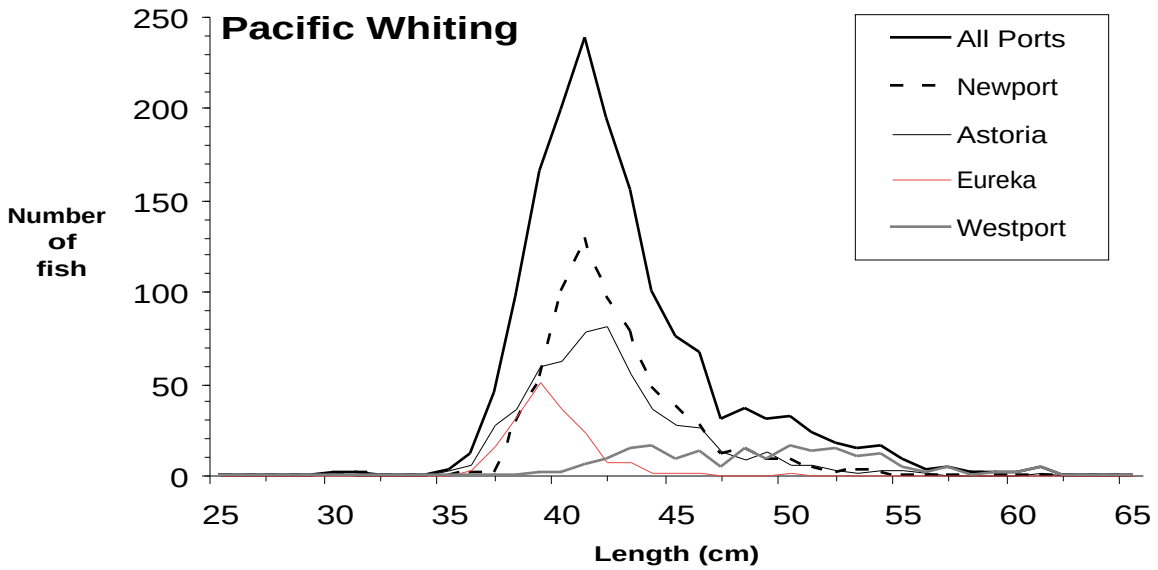


Figure 6. Length-frequency distributions of Pacific whiting by port.