

1996 Pacific Whiting Shoreside Observation Program

prepared by

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INTRODUCTION

The Pacific Whiting Shoreside Observation Program was established in 1992 to provide information for evaluating bycatch in the directed Pacific whiting fishery and for evaluating conservation measures adopted to protect salmon and other prohibited species. The program has been continued annually in order to develop an accounting of all catch in targeted whiting trips and to accommodate the landing of non-sorted catch from these trips. In 1995, the program changed its emphasis from a high rate of observation and a focus on prohibited species to a lower rate of observation (10%) and the collection of biological samples and information (otoliths, length, age, weight, sex, maturity) from Pacific whiting and selected bycatch species (yellowtail and widow rockfish, Pacific mackerel, jack mackerel and prohibited species). The program emphasis this year was very similar to 1995.

The program is a cooperative effort between the fishing industry and management agencies to observe and collect information on directed Pacific whiting landings at shoreside processing plants. Participants are mid-water trawlers delivering whiting to shoreside processing plants in California, Oregon and Washington (43 vessels participated in 1996, compared to 35 vessels in 1995), shoreside processing plants receiving whiting, the Pacific Fishery Management Council (PFMC), the National Marine Fisheries Service (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).

1996 RESULTS

The 1996 directed whiting fishery began on 24 March 1996 in California, and on 15 May 1996 in Oregon and Washington. The latter date represents a one-month delay from the season opening date in 1995. Forty three mid-water trawlers, fishing with experimental fishing permits issued NMFS, landed approximately 84,680 mt of unsorted whiting at shoreside processing plants in 1996 through the fishery closure on 10 September 1996. (At-sea processors took 112,776 mt of whiting in 1996 between 15 May and 1 June.) This compares to 35 vessels and about 74,000 mt whiting delivered to shoreside processors in 1995, and 33 vessels and 72,000 mt whiting delivered to shoreside processors in 1994.

Pacific whiting landings in 1996 were observed in the Crescent City, Eureka, Newport, Astoria, Ilwaco and Westport areas. Most mid-water trawlers targeting whiting and delivering fish to onshore processing plants, and most onshore processing plants receiving

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The Pacific Whiting
Shoreside Observation

whiting participated in the observation program. We surpassed our observation goal of 10%; 11.9% of directed whiting landings at shoreside plants were observed in 1996, compared to 14% in 1995.

W landings at shorebased plants were irregular during the first few weeks of the season, as large numbers of small whiting were encountered. The pace of landings picked up and continued at rates comparable to 1995 from late June through the closure of the fishery on 10 September. (Table 1a - d; Figure 1 a - d)

BYCATCH OF GROUND FISH AND PROHIBITED SPECIES

Tables 2 through 5 summarize 1996 landed catch and bycatch by state; for Oregon this information is broken down by port. Each table presents landings and rates from observations in the left column, and landings and rates for the entire fishery based on fish tickets in the right column. In some cases, sharp differences can be noted between observed rates of bycatch and rates calculated from fish tickets. This is a consequence of the programmatic change initiated in 1995 to reduce observation rates from 50% to 10% and to increase effort on enumeration of groundfish species bycatch and biological sampling.

Rockfish bycatch

Bycatch of rockfish was substantially higher in 1996 than 1995, both as an absolute quantity and as a rate based on volume of whiting landed. The largest quantities of bycaught rockfish, as with other bycaught groundfish, were landed in Oregon; this reflects the large proportion of whiting landed in Oregon. Bycatch rates of yellowtail and widow rockfish were highest in Washington and lowest in California in 1996; this is the same pattern as observed in 1995. (Tables 2 - 5) Bycatch rates of rockfish landed in Washington, and Newport and Astoria, Oregon (Figures 2 a - d, 3 a - c) showed significant variability through the course of the 1996 whiting fishery.

Sablefish and Mackerel bycatch

Overall, sablefish landed as bycatch in the shoreside whiting fishery was relatively low and declined by 12% from 1995 to 1996, despite a 14% increase in whiting landings. Interestingly, sablefish bycatch rates increased in California and Washington. Oregon landings of sablefish dropped nearly 50%, and this reduction generates most of the change for the overall fishery given the proportion of whiting landed in Oregon.

Mackerel bycatch information lumps Pacific mackerel and Jack mackerel, which are taxonomically distinct. Overall mackerel bycatch increased by 22% in absolute terms relative to 1995. (Figure 4 a - c)

Salmon bycatch

A total of 651 chinook salmon were taken as bycatch in 1996 directed whiting fisheries landing at shoreside processing plants and turned over to state agencies by the processors: 642 in Oregon, 3 in California and 6 in Washington. This compares with 2972 salmon provided to state agencies by processors in 1995. Overall, this is an incidental catch rate of 0.008 salmon per metric ton of whiting for the entire fishery. Observers at shoreside plants noted 186 salmon incidentally taken in observed landings of 9919 mt whiting which results in a rate of 0.019 salmon/mt whiting. These 186 fish are included in the total of 651 turned over to state agencies. The 1996 incidental catch rates are sharply lower than the incidental catch rates of salmon in 1995: 0.032 salmon/mt whiting based on observed landings and

0.04 salmon/mt whiting based on salmon turned over to state agencies by processors. (Table 6, Figure 5)

High salmon bycatch rates observed during the first three weeks of the 1995 season led to a one month delay in the opening of the directed whiting fishery in Oregon and Washington in 1996 and the delay seems to have accomplished its purpose. (Table 6, Figure 5) Salmon bycatch rates were highest early in the season; 535 of 642 bycaught salmon landed in Oregon were taken prior to 1 June. Initial bycatch rates in the fishery's first two weeks were approximately 0.1 salmon per metric ton of whiting. This compares to initial 1995 bycatch rates of up to 0.4 salmon per mt whiting in late April. However, it should be noted that salmon bycatch rates during late May were higher in 1996 (0.1 salmon/mt whiting) than in 1995 (approx. 0.05 salmon/mt). The significance of this particular observation - in light of lower overall salmon bycatch and higher whiting landings - is unclear.

Inspection of the length frequency of bycaught salmon landed in Astoria (Figure 6) suggests that many of these fish were recent ocean entrants. In contrast, incidentally caught salmon landed in Newport showed a much more even size distribution. (Figure 7)

Figure 8 compares the rate of salmon bycatch based on observations of whiting landings at shorebased processing plants to the rate of salmon bycatch calculated from salmon turned over to state agencies by those plants.

All of the salmon taken and landed incidentally in the 1996 shoreside whiting fishery and turned over to state agencies were chinook salmon. Of the 642 salmon landed in Oregon and turned over to ODFW, nine were marked hatchery chinook - information on the origins of these fish is not available at this time. Most incidentally taken salmon could not be sexed (n=444); of those which could be sexed, 116 were male and 82 were female. All but twelve of the salmon turned over to state agencies by shoreside processors were subsequently turned over to hunger relief agencies; the remaining twelve fish were destroyed due to poor condition.

Halibut Bycatch

Five Pacific halibut were landed in Oregon by the 1996 whiting shoreside fishery and turned over to ODFW: three in Astoria and two in Newport. These fish were provided to hunger relief agencies.

PROGRAM COSTS

In 1996, the cost of the Oregon-Washington portion of the shoreside observation program was approximately \$60,000 (approximately \$31,000 for coordination and data processing costs, and an estimated \$29,000 for observers). This compares to an overall industry cost of \$57,000 in 1995; the difference is due principally to the longer season and larger volume of whiting harvested. As in 1995, most program funding was provided by industry. Government costs were relatively minor in 1996, as in 1995, and are not included in the above summary. Oregon shoreside processing plants hired four observers to provide observations for five processors. The Washington Department of Fish and Wildlife and the California Department of Fish and Game provided shoreside landing observations with existing staff.

Original estimates of 1996 program fixed costs (\$35,698) were based on the fishery running through the full month of September. The coordinator and data entry technician were shifted to other funding in mid-September 1996, and this saving was passed on to industry in the form of reduced billings.

1997 PACIFIC WHITING SHORESIDE OBSERVATION PROGRAM

In October 1996, the Pacific Fishery Management Council will be considering adoption of amendments to both the salmon and groundfish management plans; these amendments could eliminate that need for experimental fishing permits (EFPs) in 1997. At this time, we are uncertain how this might change the nature of the shoreside observation program in 1997.

Table 1A. 1996 OREGON, WASHINGTON, AND CALIFORNIA, WEEKLY WHITING LANDINGS AND BYCATCH

FISHING WEEK	START DATE	END DATE	WHITING LANDINGS	WHITING MT	TRIPS OBS.	MT		YTAIL MT	WIDOW MT	SABLE MT	WACKEREI MT	MISC ROCK MT	MISC FISH MT
						WHITING OBS.	SALMON OBS.						
1	3/24/96	3/30/96	7	154.54	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
2	3/31/96	4/6/96	2	77.66	1	24.70	0	0.00	0.00	0.00	0.00	0.00	0.00
3	4/7/96	4/13/96	7	302.33	2	82.00	1	0.00	0.00	0.01	0.00	0.22	0.04
4	4/14/96	4/20/96	4	105.22	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.02
5	4/21/96	4/27/96	4	155.61	1	24.73	0	0.00	0.11	0.00	0.00	0.00	0.04
6	4/28/96	5/4/96	7	270.84	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
7	5/5/96	5/11/96	9	352.76	1	49.36	0	0.00	0.02	0.00	0.00	0.00	0.01
8	5/12/96	5/18/96	26	1,117.61	4	195.64	5	7.93	1.70	1.03	0.27	0.12	4.36
9	5/19/96	5/25/96	54	3,227.01	11	650.37	163	12.95	6.03	3.30	49.68	2.49	11.88
10	5/26/96	6/1/96	45	2,663.02	5	325.27	0	5.67	11.64	4.70	4.96	0.69	1.25
11	6/2/96	6/8/96	37	2,403.95	3	209.14	0	2.02	25.24	1.02	0.65	13.61	0.74
12	6/9/96	6/15/96	38	2,148.46	4	168.77	3	3.15	25.40	0.93	26.33	0.31	1.89
13	6/16/96	6/22/96	79	4,648.39	15	756.99	2	27.32	28.67	0.83	7.01	2.65	3.21
14	6/23/96	6/29/96	95	6,177.70	5	261.31	0	21.40	44.09	2.85	11.34	13.85	0.74
15	6/30/96	7/6/96	82	5,538.95	9	750.20	1	13.98	10.46	2.50	4.73	3.97	0.69
16	7/7/96	7/13/96	82	5,121.36	10	677.52	0	33.83	14.90	0.70	18.60	3.76	0.60
17	7/14/96	7/20/96	94	6,013.18	8	454.89	0	73.68	81.47	0.34	9.85	4.23	0.85
18	7/21/96	7/27/96	100	6,813.68	12	812.87	0	49.50	95.03	1.37	4.18	1.74	0.97
19	7/28/96	8/3/96	96	6,357.15	6	309.26	0	36.53	56.87	0.97	4.66	2.08	3.38
20	8/4/96	8/10/96	88	5,428.82	10	729.73	1	78.62	68.92	1.18	9.10	4.03	7.82
21	8/11/96	8/17/96	100	6,745.48	16	1,061.84	1	49.68	46.98	2.77	44.34	3.01	16.41
22	8/18/96	8/24/96	80	5,511.31	8	627.38	0	39.49	36.51	9.96	17.39	5.71	6.46
23	8/25/96	8/31/96	87	5,567.87	12	674.55	2	20.49	28.91	0.66	31.97	0.52	23.98
24	9/1/96	9/7/96	86	5,130.52	11	702.50	7	32.81	10.24	1.96	70.98	0.45	4.71
25	9/8/96	9/14/96	39	2,646.45	5	370.47	0	5.43	8.31	0.12	18.44	0.41	1.24
	YEAR	TOTAL	1348	84,679.83	159	9,919.46	186	514.48	601.49	37.21	334.48	63.84	91.25

Table 1B. 1996 OREGON WEEKLY WHITING LANDINGS AND BYCATCH

FISHING WEEK	START DATE	END DATE	WHITING LANDINGS	WHITING MT	TRIPS OBS.	MT		YTAIL MT	WIDOW MT	SABLE MT	MACKEREL MT	MISC ROCK MT	MISC FISH MT
						WHITING OBS.	SALMON OBS.						
8	5/12/96	5/18/96	22	890.41	4	195.64	5	2.50	1.24	0.92	0.27	0.11	0.34
9	5/19/96	5/25/96	47	2,609.80	10	538.48	162	11.02	2.79	1.92	49.63	0.58	11.87
10	5/26/96	6/1/96	35	1,909.57	4	220.58	0	1.39	10.06	0.78	4.24	0.22	0.64
11	6/2/96	6/8/96	27	1,744.85	2	127.63	0	0.66	3.53	0.57	0.46	12.90	0.03
12	6/9/96	6/15/96	23	1,315.63	2	86.24	1	0.43	0.50	0.77	0.43	0.18	0.07
13	6/16/96	6/22/96	67	3,839.69	12	591.38	0	16.91	28.62	0.70	6.72	1.54	3.18
14	6/23/96	6/29/96	83	5,186.36	5	261.31	0	8.22	18.08	1.18	10.74	13.45	0.74
15	6/30/96	7/6/96	70	4,638.23	7	569.76	1	5.29	9.26	2.50	3.13	2.49	0.69
16	7/7/96	7/13/96	68	4,097.20	8	569.18	0	28.05	14.57	0.64	17.89	2.86	0.54
17	7/14/96	7/20/96	80	5,024.58	7	409.53	0	46.55	73.98	0.30	8.85	4.02	0.83
18	7/21/96	7/27/96	84	5,590.84	9	580.74	0	31.72	63.86	1.31	3.55	0.86	0.96
19	7/28/96	8/3/96	85	5,657.48	6	309.26	0	33.71	54.32	0.32	4.27	0.94	2.09
20	8/4/96	8/10/96	78	4,572.58	8	543.95	0	69.71	64.29	0.57	7.22	1.04	7.34
21	8/11/96	8/17/96	87	5,615.50	16	1,061.84	1	27.66	41.25	2.77	44.34	3.01	16.41
22	8/18/96	8/24/96	75	5,246.57	8	627.38	0	38.90	36.51	9.96	17.39	5.71	6.46
23	8/25/96	8/31/96	78	5,148.97	12	674.55	2	18.04	28.53	0.66	31.97	0.52	23.98
24	9/1/96	9/7/96	80	4,824.38	11	702.50	7	30.98	9.97	1.96	70.98	0.45	4.45
25	9/8/96	9/14/96	39	2,646.45	5	370.47	0	5.43	8.31	0.12	18.44	0.41	1.24
	YEAR	TOTAL	1128	70,559.06	136	8,440.40	179	377.14	469.64	27.93	300.52	51.29	81.85

Table 1C. 1996 WASHINGTON WEEKLY WHITING LANDINGS AND BYCATCH

FISHING WEEK	START DATE	END DATE	WHITING LANDINGS	WHITING MT	TRIPS OBS.	MT					MISC	MISC	
						WHITING OBS.	SALMON OBS.	YTAIL MT	WIDOW MT	SABLE MT	MACKEREL MT	ROCK MT	FISH MT
8	5/12/96	5/18/96	2	197.30	0	0.00	0	5.43	0.46	0.11	0.00	0.02	4.00
9	5/19/96	5/25/96	7	617.21	1	111.89	1	1.93	3.24	1.38	0.05	1.91	0.01
10	5/26/96	6/1/96	10	753.45	1	104.69	0	4.28	1.57	3.92	0.72	0.48	0.61
11	6/2/96	6/8/96	8	605.51	1	81.51	0	1.37	21.72	0.46	0.18	0.71	0.69
12	6/9/96	6/15/96	10	655.87	1	48.68	2	2.72	24.85	0.12	24.77	0.13	1.77
13	6/16/96	6/22/96	8	635.69	2	132.78	0	10.41	0.03	0.07	0.26	1.11	0.00
14	6/23/96	6/29/96	10	906.38	0	0.00	0	13.18	21.23	1.67	0.40	0.40	0.00
15	6/30/96	7/6/96	9	754.26	2	180.44	0	8.70	1.19	0.00	1.51	1.48	0.00
16	7/7/96	7/13/96	9	724.86	1	43.38	0	5.76	0.31	0.04	0.71	0.90	0.06
17	7/14/96	7/20/96	10	844.94	1	45.35	0	27.13	7.48	0.02	0.97	0.21	0.00
18	7/21/96	7/27/96	11	949.06	2	187.12	0	17.78	31.15	0.03	0.57	0.88	0.01
19	7/28/96	8/3/96	9	633.17	0	0.00	0	2.83	1.71	0.65	0.40	1.14	1.28
20	8/4/96	8/10/96	10	856.24	2	185.77	1	8.90	4.62	0.61	1.88	2.98	0.48
21	8/11/96	8/17/96	13	1,129.98	0	0.00	0	22.03	5.73	0.00	0.00	0.00	0.00
22	8/18/96	8/24/96	5	264.75	0	0.00	0	0.59	0.00	0.00	0.00	0.00	0.00
23	8/25/96	8/31/96	9	418.90	0	0.00	0	2.45	0.39	0.00	0.00	0.00	0.00
24	9/1/96	9/7/96	6	306.14	0	0.00	0	1.83	0.27	0.00	0.00	0.00	0.26
	YEAR	TOTAL	146	11,253.70	14	1,121.62	4	137.32	125.95	9.09	32.42	12.33	9.17

Table 1D. 1996 CALIFORNIA WEEKLY SHORESIDE WHITING LANDINGS AND BYCATCH

FISHING WEEK	START DATE	END DATE	WHITING LANDINGS	WHITING MT	TRIPS OBS.	MT						MISC	MISC	
						WHITING OBS.	SALMON OBS.	YTAIL MT	WIDOW MT	SABLE MT	MACKEREL MT	ROCK MT	FISH MT	
1	3/24/96	3/30/96	7	154.54	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	3/31/96	4/6/96	2	77.66	1	24.70	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	4/7/96	4/13/96	7	302.33	2	82.00	1	0.00	0.00	0.01	0.00	0.22	0.04	0.04
4	4/14/96	4/20/96	4	105.22	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.02
5	4/21/96	4/27/96	4	155.61	1	24.73	0	0.00	0.11	0.00	0.00	0.00	0.00	0.04
6	4/28/96	5/4/96	7	270.84	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	5/5/96	5/11/96	9	352.76	1	49.36	0	0.00	0.02	0.00	0.00	0.00	0.00	0.01
8	5/12/96	5/18/96	2	29.90	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.01
9	5/19/96	5/25/96	0	0.00	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	5/26/96	6/1/96	0	0.00	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	6/2/96	6/8/96	2	53.59	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.01
12	6/9/96	6/15/96	5	176.96	1	33.85	0	0.00	0.05	0.05	1.13	0.00	0.04	0.04
13	6/16/96	6/22/96	4	173.02	1	32.83	2	0.00	0.03	0.06	0.03	0.00	0.03	0.03
14	6/23/96	6/29/96	2	84.95	0	0.00	0	0.00	4.78	0.00	0.20	0.00	0.01	0.01
15	6/30/96	7/6/96	3	146.46	0	0.00	0	0.00	0.01	0.00	0.08	0.00	0.00	0.00
16	7/7/96	7/13/96	5	299.30	1	64.96	0	0.02	0.03	0.02	0.00	0.00	0.00	0.00
17	7/14/96	7/20/96	4	143.66	0	0.00	0	0.00	0.01	0.02	0.03	0.00	0.02	0.02
18	7/21/96	7/27/96	5	273.78	1	45.02	0	0.00	0.03	0.04	0.06	0.00	0.01	0.01
19	7/28/96	8/3/96	2	66.50	0	0.00	0	0.00	0.85	0.00	0.00	0.00	0.00	0.00
	YEAR	TOTAL	74	2,867.06	9	357.45	3	0.02	5.90	0.19	1.54	0.22	0.23	0.23

Table 2.

**Cumulative Shoreside Whiting Fishery
Final Report. Midwater Trawl Only
OREGON, WASHINGTON, & CALIFORNIA
(Best Available Data as of 9/27/96)**



All Ports and Plants Cumulative Whiting Report, 3/24/96 thru 9/11/96

	Shoreside Observations	EFP Total	Fishery Total*
Whiting Harvest (mt)	9,919	84,680	84,731
Number of Deliveries**	160	1,348	1,399
Salmon Catch (no)	186		
Misc Rockfish (lb)	12,299	140,735	140,755
Yellowtail Rockfish (lb)	91,595	1,134,217	1,136,639
Widow Rockfish (lb)	78,139	1,326,048	1,366,689
Sablefish (lb)	7,685	82,037	82,040
Mackerel (lb)	194,017	737,401	737,619
Misc. Other Fish (lb)	50,343	201,158	201,247
Salmon Rate (no/mt)	0.019		
Rockfish Rate (lb/mt)	1.24	1.662	1.661
Yellowtail Rate (lb/mt)	9.234	13.394	13.415
Widow Rate (lb/mt)	7.877	15.66	16.13
Sablefish Rate (lb/mt)	0.775	0.969	0.968
Mackerel Rate (lb/mt)	19.559	8.708	8.705
Other Fish Rate (lb/mt)	5.075	2.376	2.375
% of Deliveries Observed	11.9		

* this column includes all deliveries > 0 lbs. & non EFP trips.

** number of deliveries based on fish ticket information

Table 3A.



1996 Cumulative Shoreside Whiting Fishery Final Report
OREGON Shoreside Fishery, Midwater Trawl Only
 (Best Available Data as of 9/27/96)

All Ports and Plants Cumulative Whiting Report, 4/1/96 thru 9/11/96

	Shoreside Observations	EFP Total	FISHERY *TOTAL
Whiting Harvest (mt)	8,440	70,559	70,581
Number of Deliveries**	137	1,128	1,138
Salmon Catch (no)	179		
Misc Rockfish (lb)	4,275	113,063	113,083
Yellowtail Rockfish (lb)	62,309	831,446	833,868
Widow Rockfish (lb)	57,493	1,035,375	1,076,016
Sablefish (lb)	6,498	61,579	61,582
Mackerel (lb)	187,189	662,531	662,749
Misc. Other Fish (lb)	31,037	180,443	180,532
Salmon Rate (no/mt)	0.021		
Rockfish Rate (lb/mt)	0.506	1.602	1.602
Yellowtail Rate (lb/mt)	7.382	11.784	11.814
Widow Rate (lb/mt)	6.812	14.674	15.245
Sablefish Rate (lb/mt)	0.770	0.873	0.872
Mackerel Rate (lb/mt)	22.178	9.390	9.390
Other Fish Rate (lb/mt)	3.677	2.557	2.558
% of Deliveries Observed	12.1		

* Includes all deliveries with whiting > 0 LBS. and non-EFP landings.

** Number of deliveries based on fish ticket information

Table 3B.

Cumulative, Shoreside Whiting Fishery, Final Report
 NEWPORT Shoreside Fishery, Midwater Trawl Only
 (Best Available Data as of 9/27/96)



*All Ports and Plants Cumulative Whiting Report, 4/1/96 THRU 9/11/96

	Shoreside Observations	Fishery Total
Whiting Harvest (mt)	4,788	38,767
Number of Deliveries**	69	529
Salmon Catch (no)	4	
Misc Rockfish (lb)	525	39,407
Yellowtail Rockfish (lb)	20,888	253,867
Widow Rockfish (lb)	40,444	674,119
Sablefish (lb)	987	10,997
Mackerel (lb)	75,499	373,386
Misc. Other Fish (lb)	2,120	9,463
Salmon Rate (no/mt)	0.001	
Rockfish Rate (lb/mt)	0.110	1.017
Yellowtail Rate (lb/mt)	4.363	6.548
Widow Rate (lb/mt)	8.447	17.389
Sablefish Rate (lb/mt)	0.206	0.284
Mackerel Rate (lb/mt)	15.769	9.631
Other Fish Rate (lb/mt)	0.443	0.244
% of Deliveries Observed	13.0	

* Includes all trips with whiting lbs>0

** Number of deliveries based on fish ticket information

Table 3C.

Cumulative, Shoreside Whiting Fishery, Final Report
ASTORIA Shoreside Fishery, Midwater Trawl Only
 (Best Available Data as of 9/27/96)



*All Ports and Plants Cumulative Whiting Report, 4/1/96 THRU 9/11/96

	Shoreside Observations	Fishery Total
Whiting Harvest (mt)	3,653	31,814
Number of Deliveries**	68	609
Salmon Catch (no)	175	
Misc Rockfish (lb)	3,750	73,676
Yellowtail Rockfish (lb)	41,421	580,001
Widow Rockfish (lb)	17,049	401,897
Sablefish (lb)	5,511	50,585
Mackerel (lb)	111,690	289,363
Misc. Other Fish (lb)	28,917	171,069
Salmon Rate (no/mt)	0.048	
Rockfish Rate (lb/mt)	1.027	2.316
Yellowtail Rate (lb/mt)	11.34	18.231
Widow Rate (lb/mt)	4.668	12.633
Sablefish Rate (lb/mt)	1.509	1.590
Mackerel Rate (lb/mt)	30.578	9.095
Other Fish Rate (lb/mt)	7.917	5.377
% of Deliveries Observed	11.2	

* Includes all trips with whiting lbs>0

** Number of deliveries based on fish ticket information

Table 4.

Cumulative, Shoreside Whiting Fishery, Final Report
 WASHINGTON Shoreside Fishery, Midwater Trawl Only
 (Best Available Data as of 9/27/96)



*All Ports and Plants Cumulative Whiting Report, 4/1/96 THRU 9/11/96

	Shoreside Observations	Fishery Total
Whiting Harvest (mt)	1,122	11,254
Number of Deliveries**	14	146
Salmon Catch (no)	4	
Misc Rockfish (lb)	7,541	27,188
Yellowtail Rockfish (lb)	29,286	302,729
Widow Rockfish (lb)	20,351	277,661
Sablefish (lb)	1,051	20,036
Mackerel (lb)	5,978	71,481
Misc. Other Fish (lb)	19,220	20,211
Salmon Rate (no/mt)	0.004	
Rockfish Rate (lb/mt)	6.724	2.416
Yellowtail Rate (lb/mt)	26.111	26.900
Widow Rate (lb/mt)	18.144	24.673
Sablefish Rate (lb/mt)	0.937	1.780
Mackerel Rate (lb/mt)	5.329	6.352
Other Fish Rate (lb/mt)	17.136	1.796
% of Deliveries Observed	9.6	

* Includes all trips with whiting lbs>0

** Number of deliveries based on fish ticket information

Table 5.



Cumulative Shoreside Whiting Fishery, Final Report
CALIFORNIA Shoreside Fishery, Midwater Trawl Only
 (Best Available Data as of 9/27/96)

All Ports and Plants Cumulative Whiting Report, 3/24/96 thru 9/11/96

	Shoreside Observations	EFP Total	FISHERY *TOTAL
Whiting Harvest (mt)	357	2,867	2,895
Number of Deliveries**	9	74	115
Salmon Catch (no)	3		
Misc Rockfish (lb)	482	484	484
Yellowtail Rockfish (lb)	0	42	42
Widow Rockfish (lb)	295	13,012	13,012
Sablefish (lb)	136	422	422
Mackerel (lb)	851	3,389	3,389
Misc. Other Fish (lb)	86	504	504
Salmon Rate (no/mt)	0.008		
Rockfish Rate (lb/mt)	1.350	0.169	0.167
Yellowtail Rate (lb/mt)	0.000	0.015	0.015
Widow Rate (lb/mt)	0.827	4.538	4.494
Sablefish Rate (lb/mt)	0.381	0.147	0.146
Mackerel Rate (lb/mt)	2.379	1.182	1.170
Other Fish Rate (lb/mt)	0.240	0.176	0.174
% of Deliveries Observed	12.2		

* Includes all deliveries with whiting > 0 LBS. and non-EFP landings.

** Number of deliveries based on fish ticket information

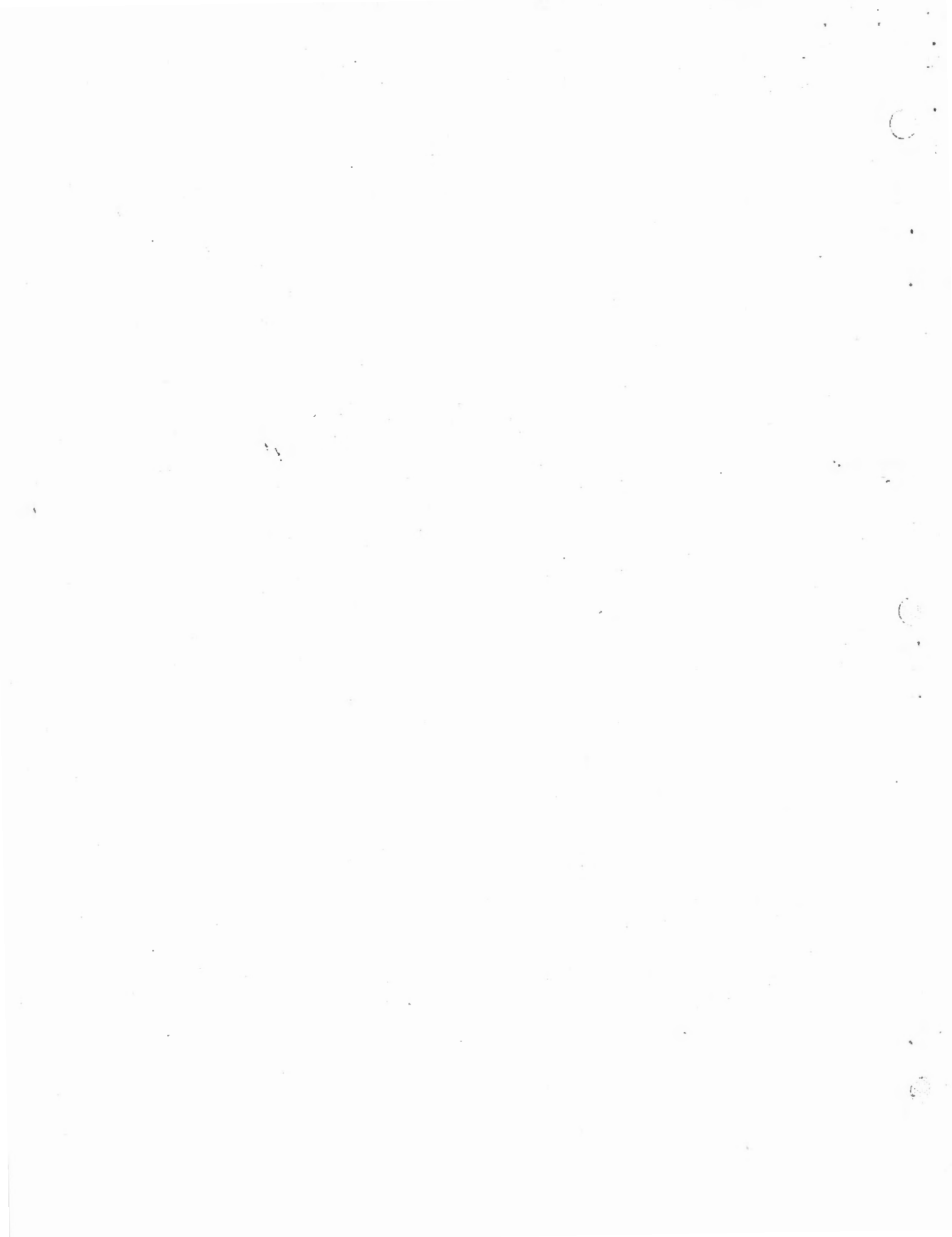
Table 6. Weekly bycatch rate of salmon (# salmon / mt whiting) in the shorebased whiting fishery, 1992-1996. Rates for 1992-1994 are based on observations. Rates for 1995 and 1996 are based on salmon turned over to state agencies by processors.

	WEEK*	1992**	1993	1994	1995***	1996***
MARCH	1					0.000
APRIL	2		0.088	0.042	0.069	0.000
	3		0.076	0.074	0.398	0.003
	4		0.019	0.052	0.422	0.000
	5		0.135	0.031	0.018	0.000
	6		0.038	0.015	0.041	0.000
MAY	7	0.019	0.034	0.002	0.040	0.000
	8	0.097	0.054	0.004	0.019	0.029
	9	0.056	0.014	0.003	0.011	0.136
JUNE	10	0.028	0.019	0.000	0.004	0.024
	11	0.015	0.021	0.017	0.008	0.007
	12	0.004	0.000	0.007	0.032	0.007
	13	0.001	0.001	0.007	0.013	0.000
JULY	14	0.000	0.001	0.001	0.035	0.001
	15	0.000	0.011	0.001	0.024	0.000
	16	0.002	0.010	0.003	0.011	0.004
	17	0.003	0.004	0.001		0.003
	18	0.008	0.002	0.001		0.002
AUGUST	19	0.002	0.003	0.003		0.001
	20	0.004	0.008	0.002		0.001
	21	0.005	0.003	0.001		0.000
	22	0.014	0.003	0.000		0.000
	23	0.015		0.002		0.000
SEPTEMBER	24	0.002		0.004		0.000
	25	0.009		0.008		0.000
	26	0.017		0.001		
	27	0.005		0.003		
OCTOBER	28	0.016		0.010		
	29	0.012		0.000		
	30	0.001		0.002		
	31	0.003		0.039		
	32	0.014				
Rate for year=		0.010	0.010	0.008	0.032	0.008

*Week 1 was 9 days in 1994 (April 15-23) and 8 days in 1995 (April 15-22).

**Oregon Only

***Salmon from all landings



METRIC TONS WHITING

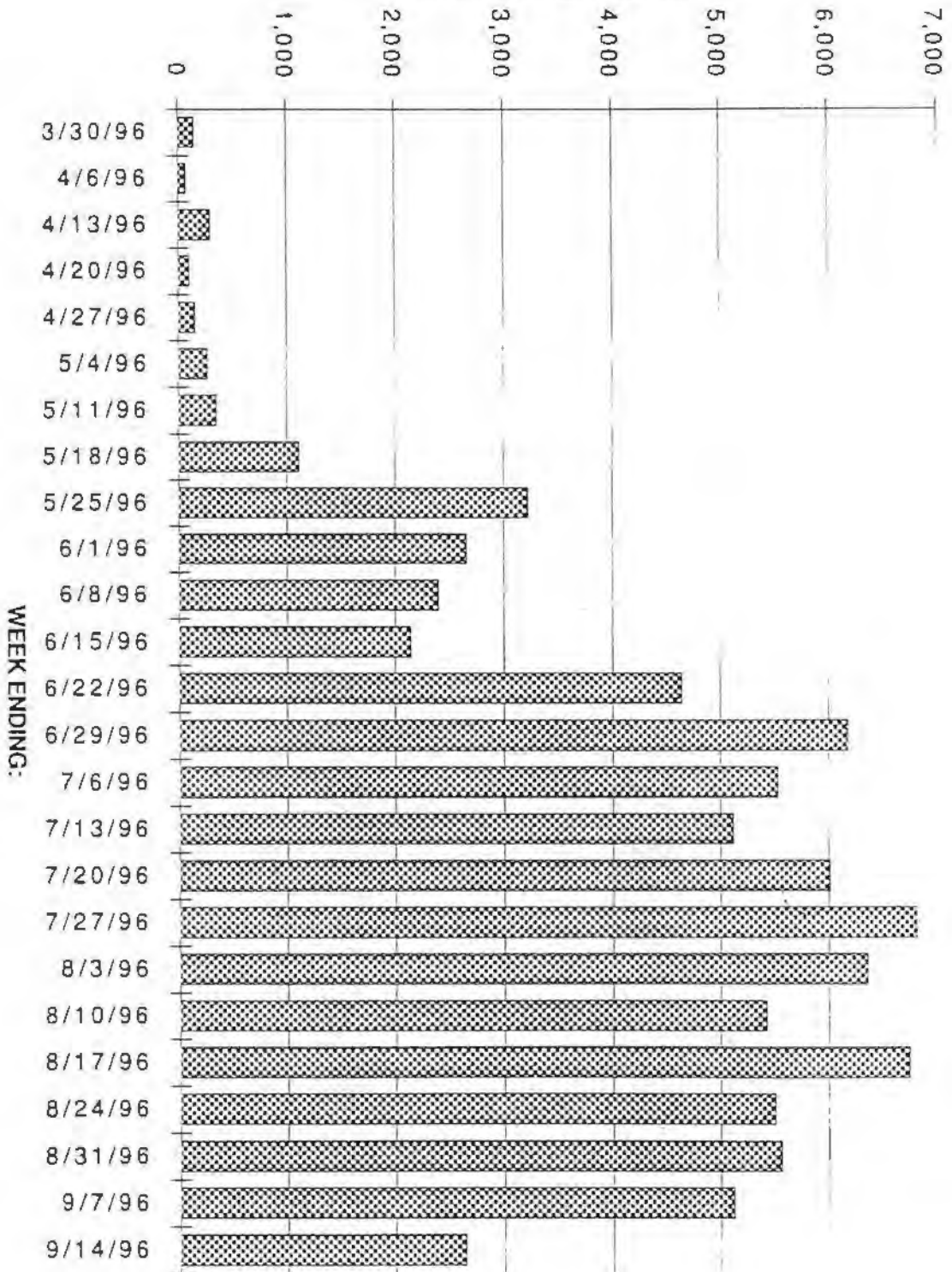


Fig. 1A. 1996 Weekly shoreside whiting landings: Oregon, Washington, and California.

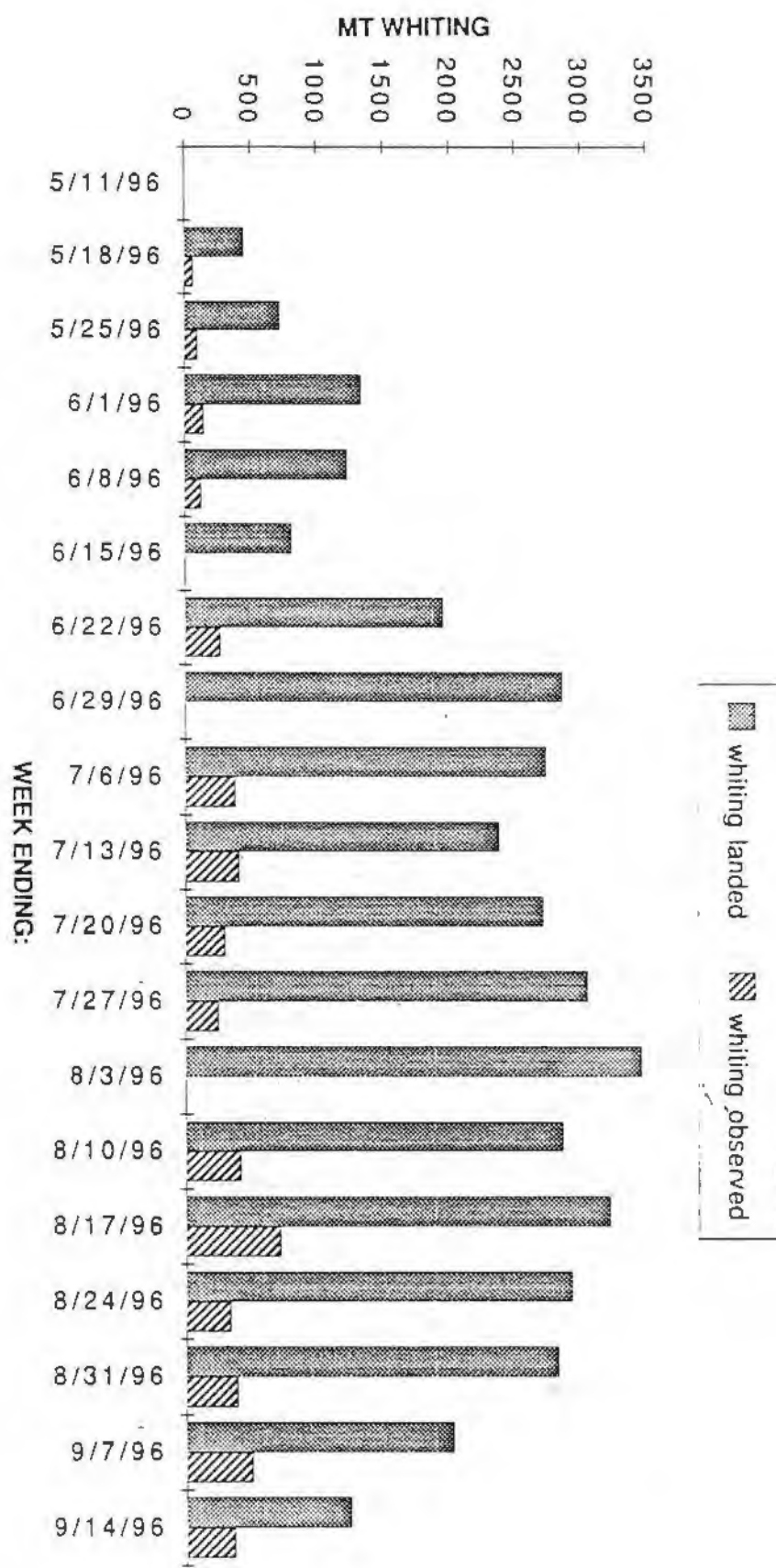


Fig. 1B. Weekly metric tons of whiting landed and observed, Newport, 1996

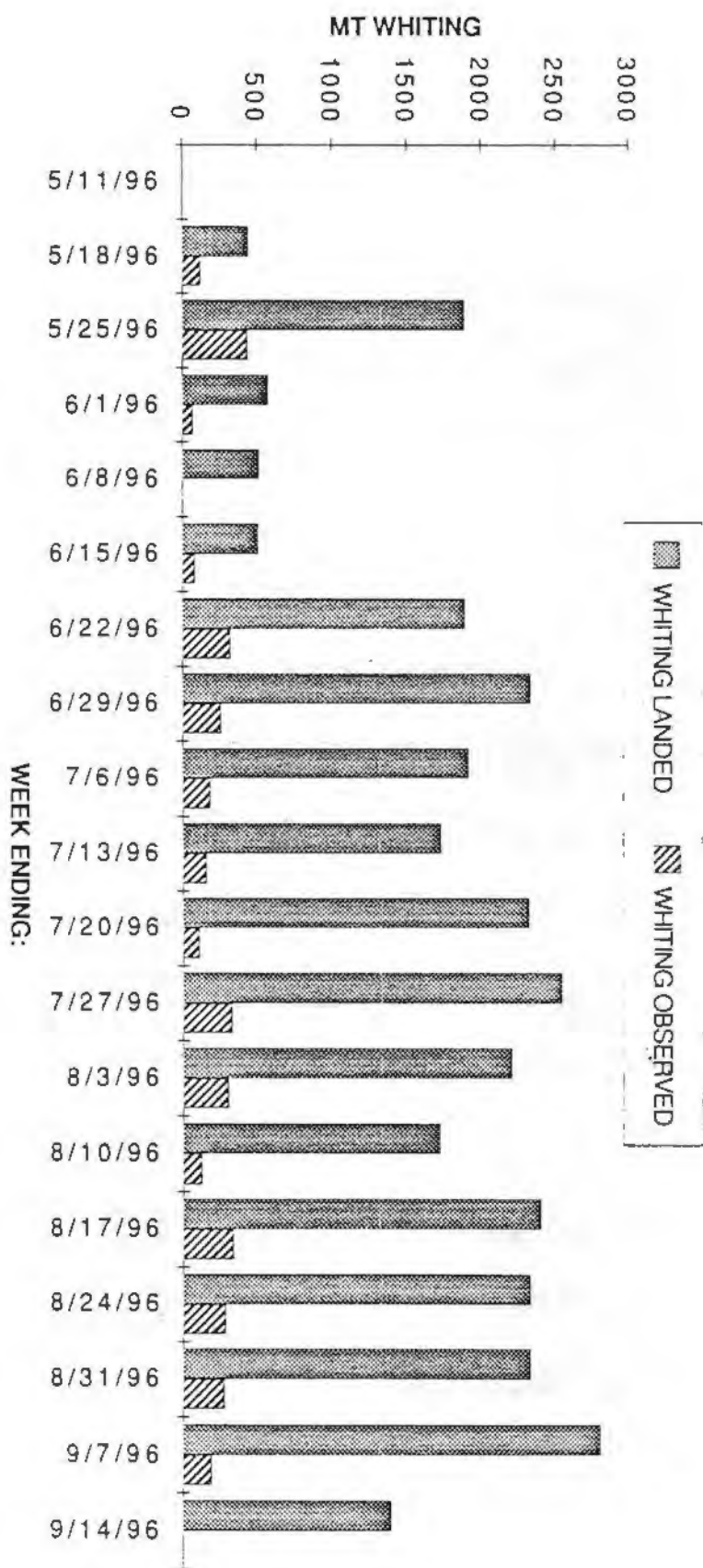


Fig. 1C. Weekly metric tons of whiting landed and observed, Astoria, 1996

MT WHITING

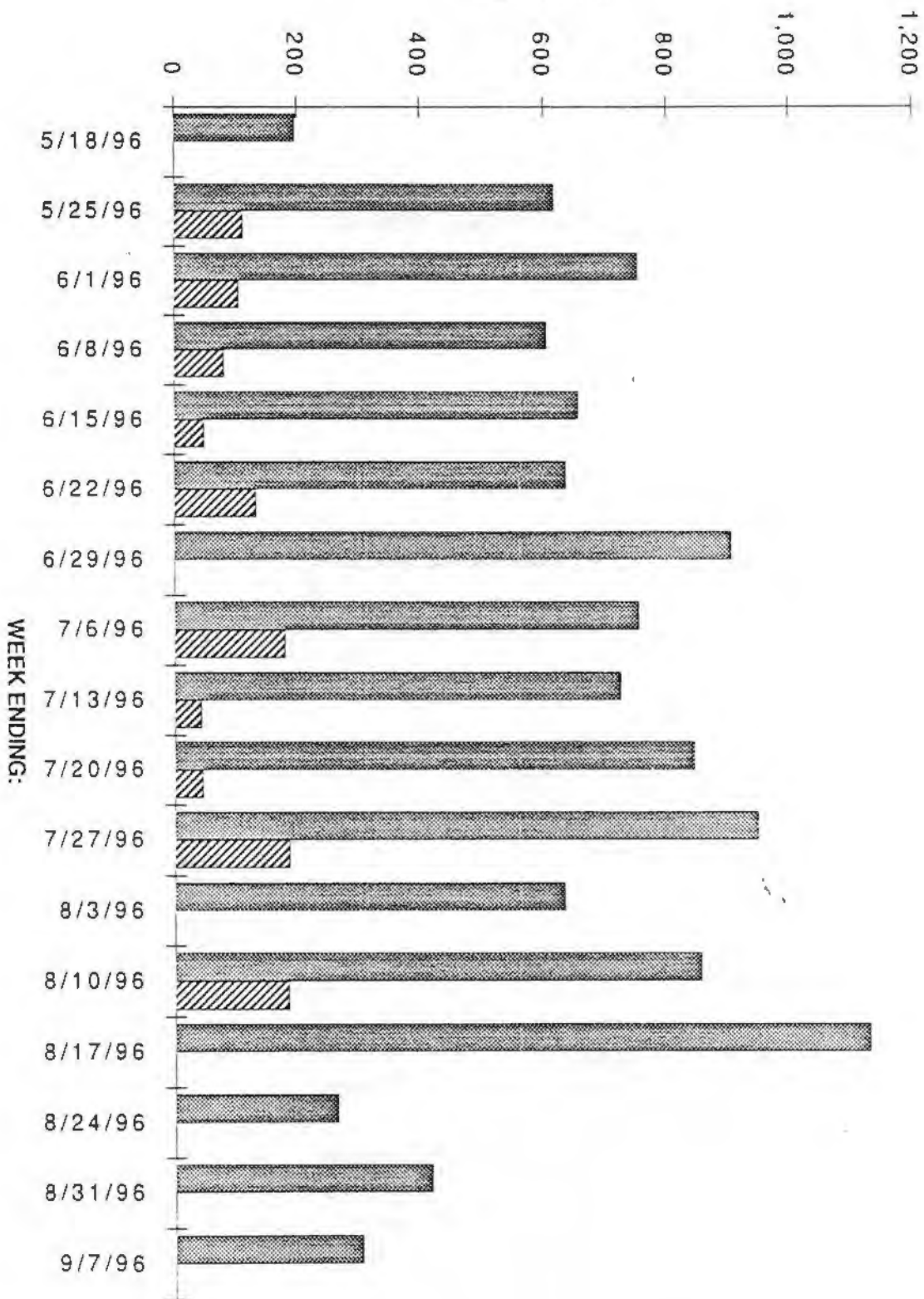


Fig. 1D. Weekly metric tons of whiting planned and observed, Washington, 1996

LBS./MT WHITING

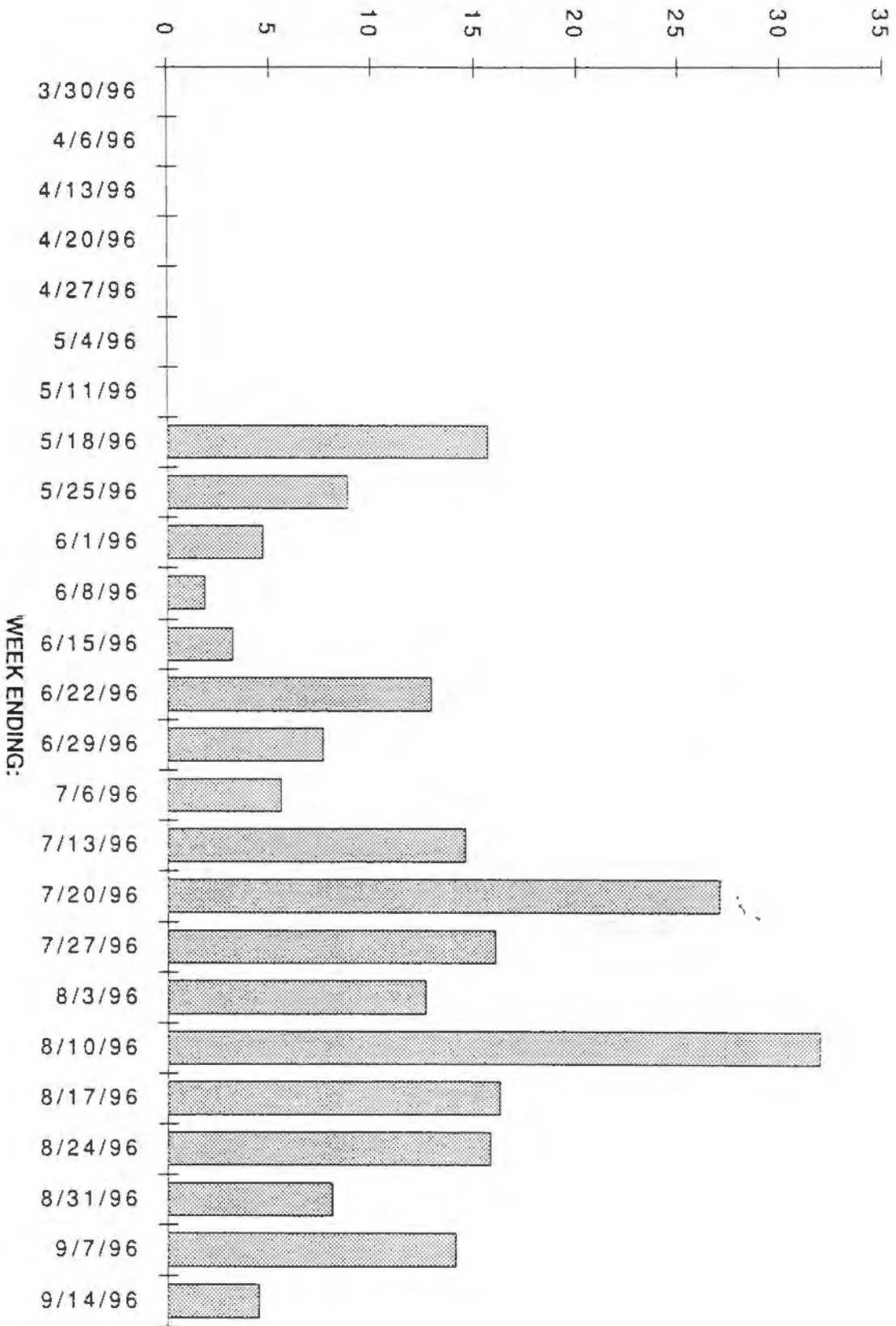


Fig. 2A. Weekly yellowtail rockfish bycatch in the shoreside whiting fishery, all ports, 1996.

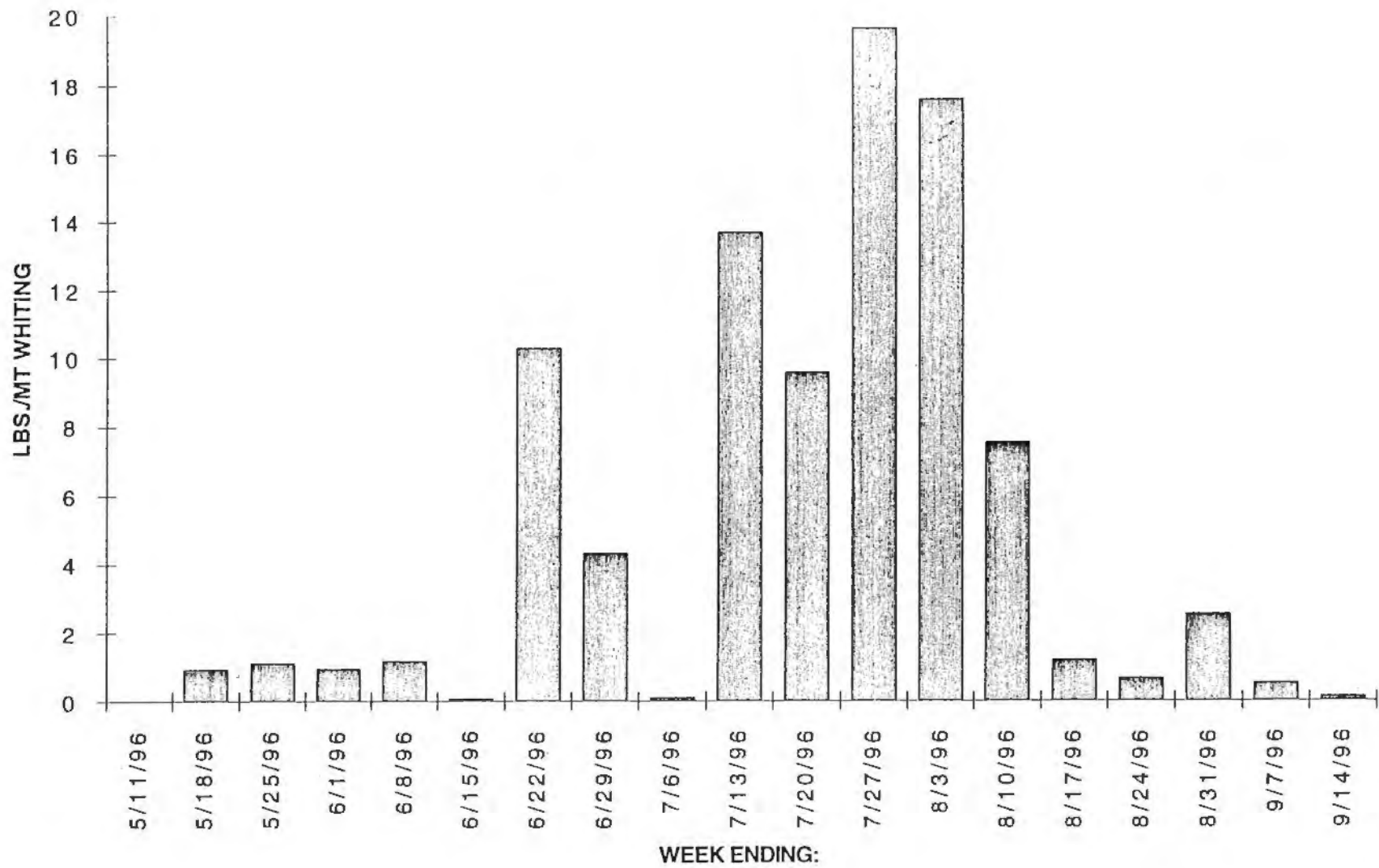


Fig2B. Weekly yellowtail rockfish bycatch in the shoreside whiting fishery, Newport, 1996

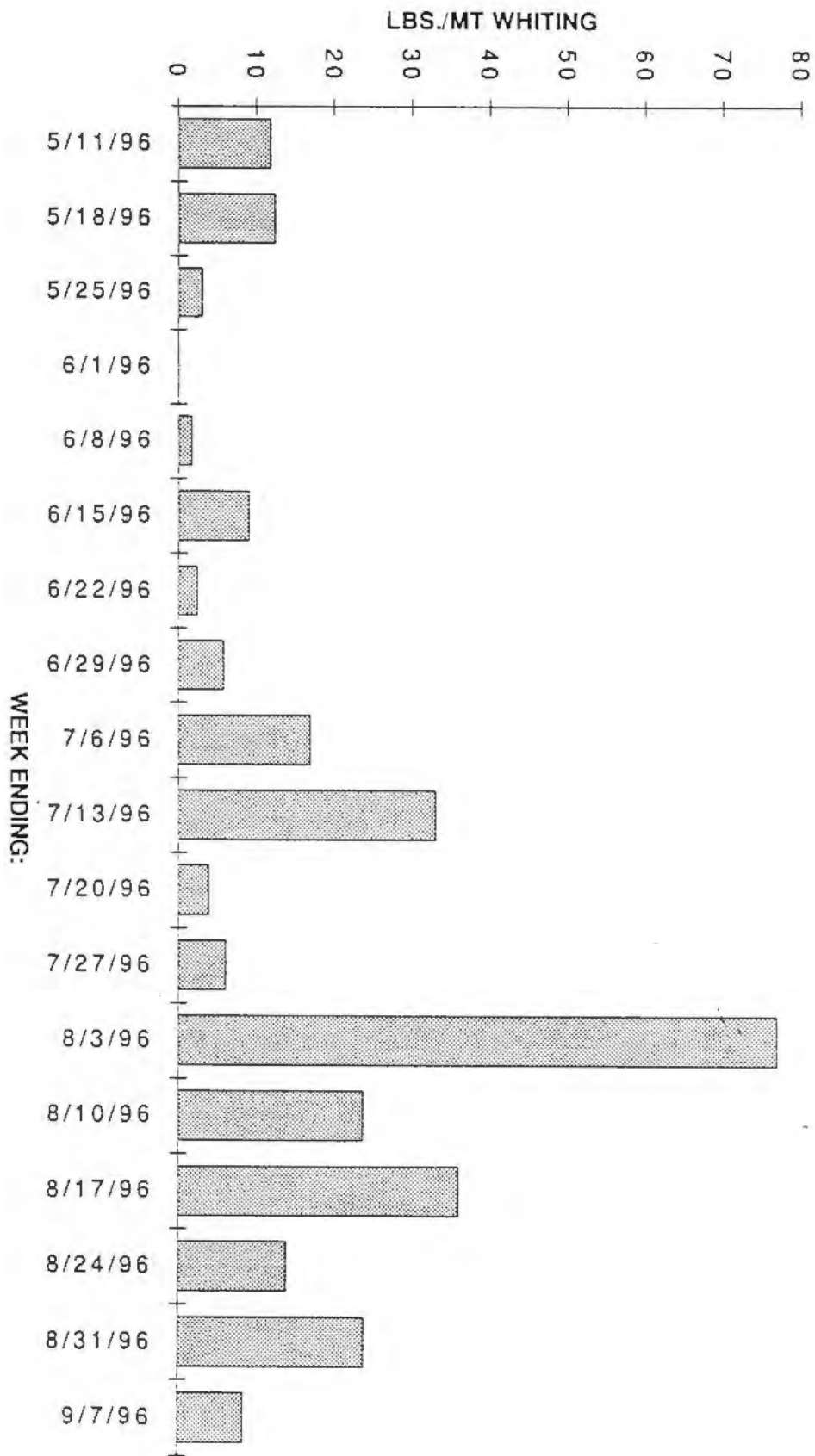


Fig. 2C. Weekly yellowtail bycatch in the shoreside whiting fishery, Astoria, 1996.

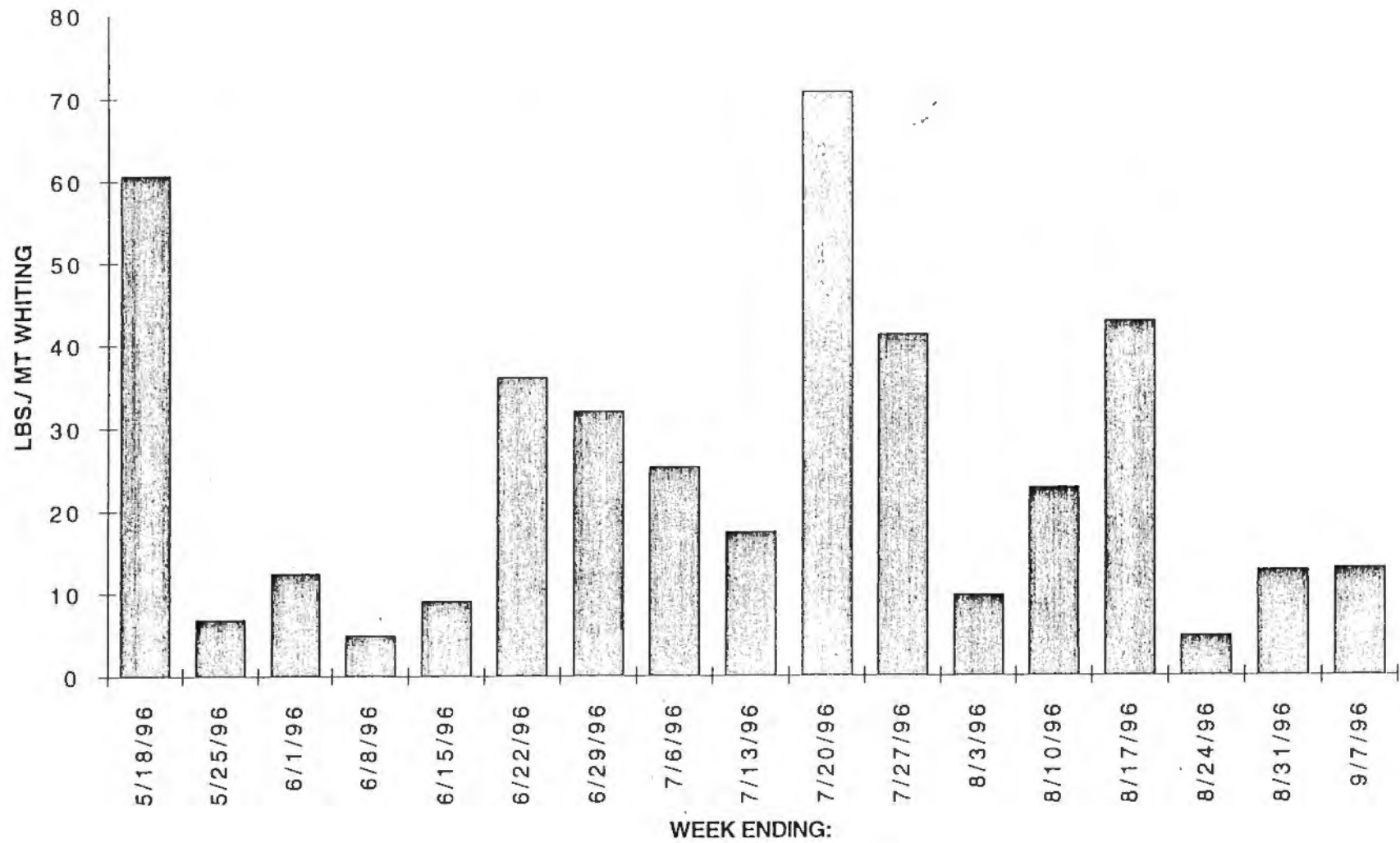


Fig. 2D. Weekly yellowtail rockfish bycatch in the shoreside whiting fishery, Washington, 1996

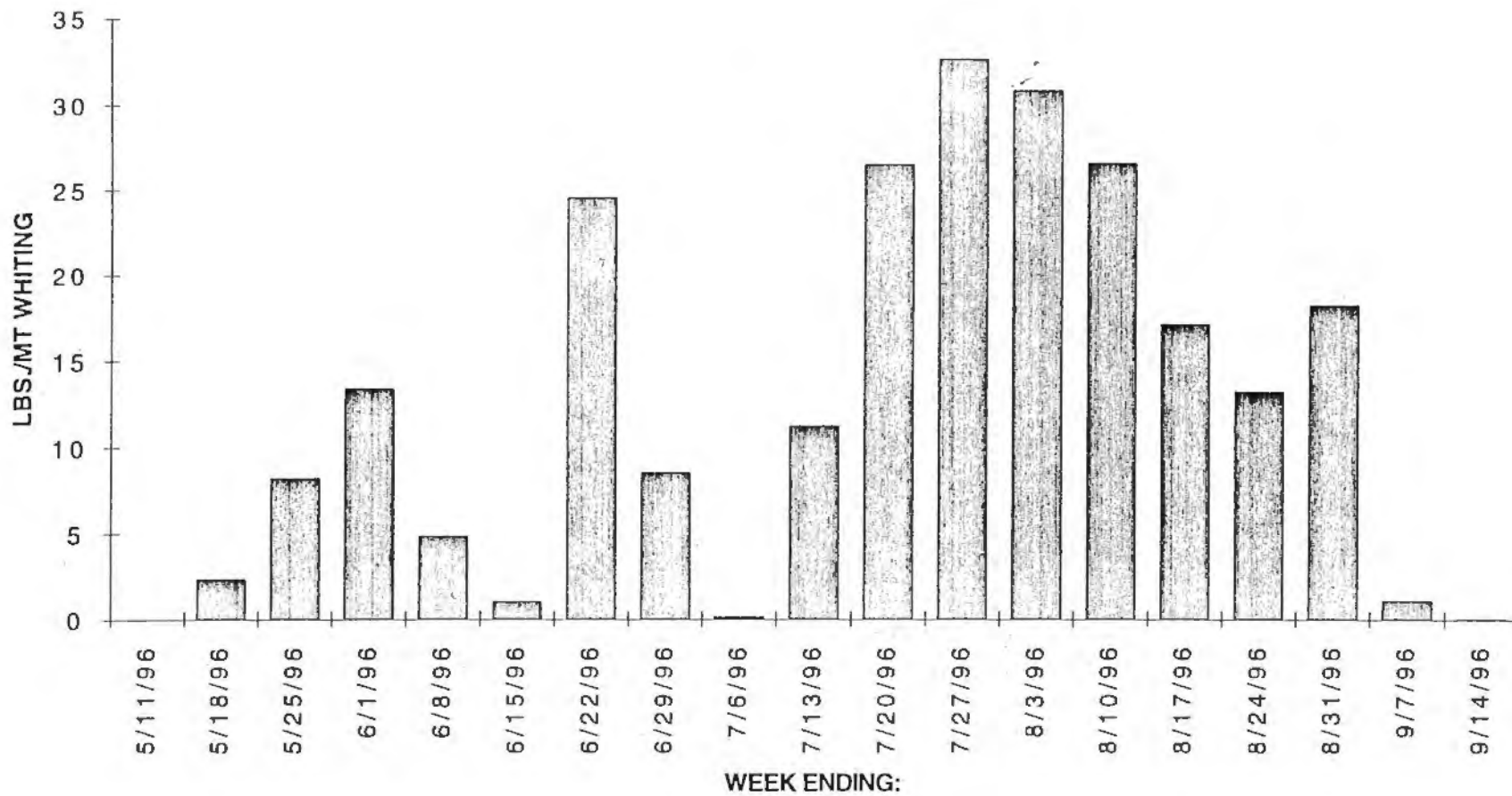


Fig. 3A. Weekly widow rockfish bycatch in the shoreside whiting fishery, Newport, 1996.

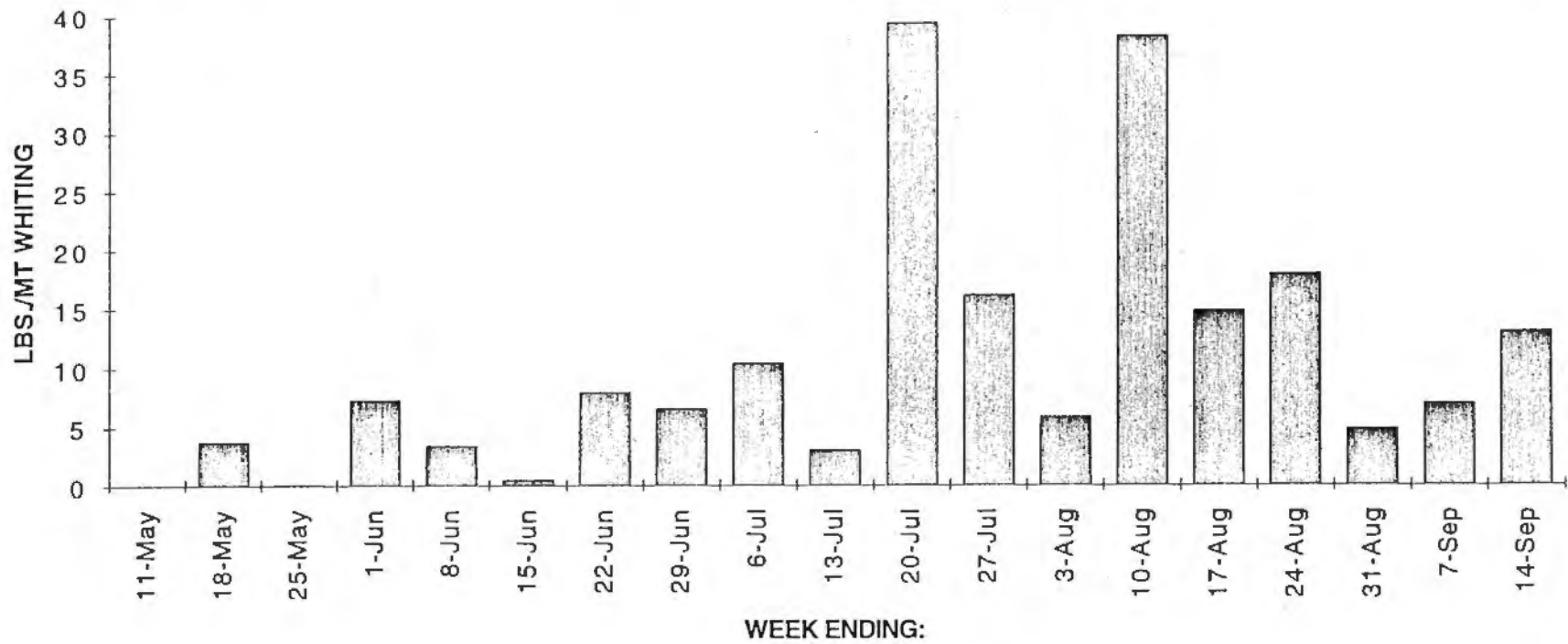


Fig.3B. Weekly widow rockfish bycatch in shoreside whiting fishery, Astoria, 1996

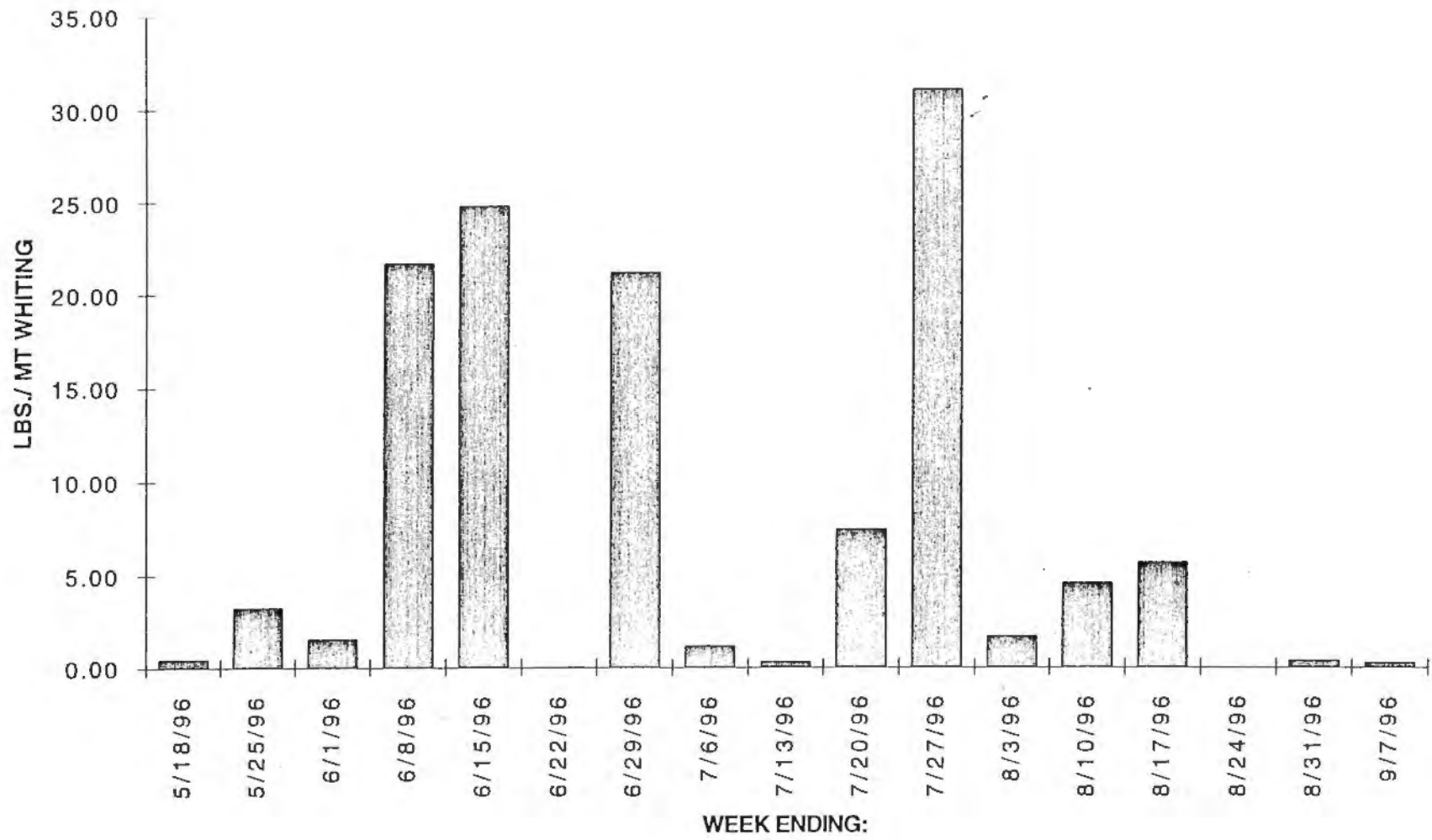


Fig. 3C. Weekly widow rockfish bycatch in the shoreside whiting fishery, Washington, 1996.



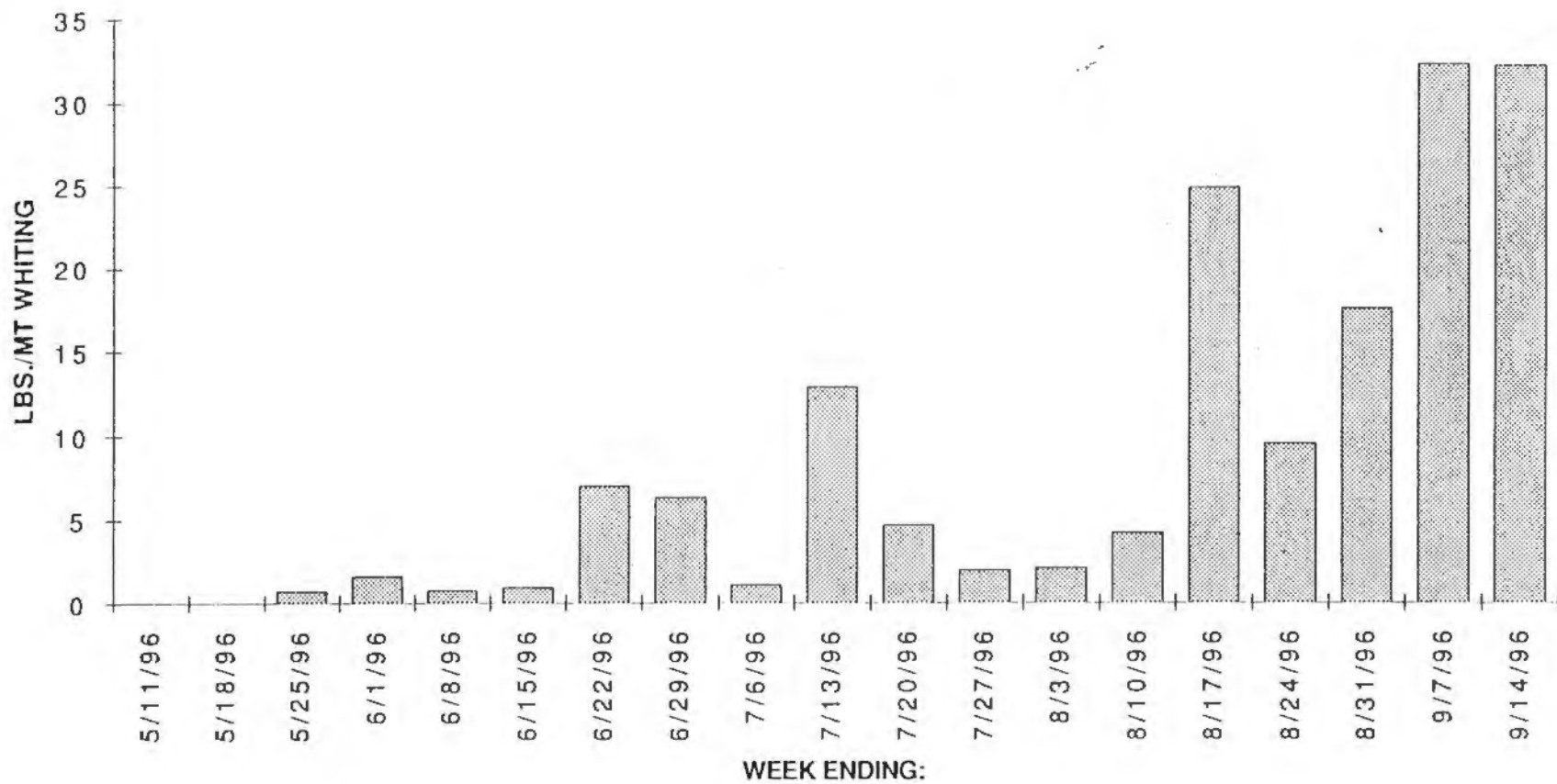
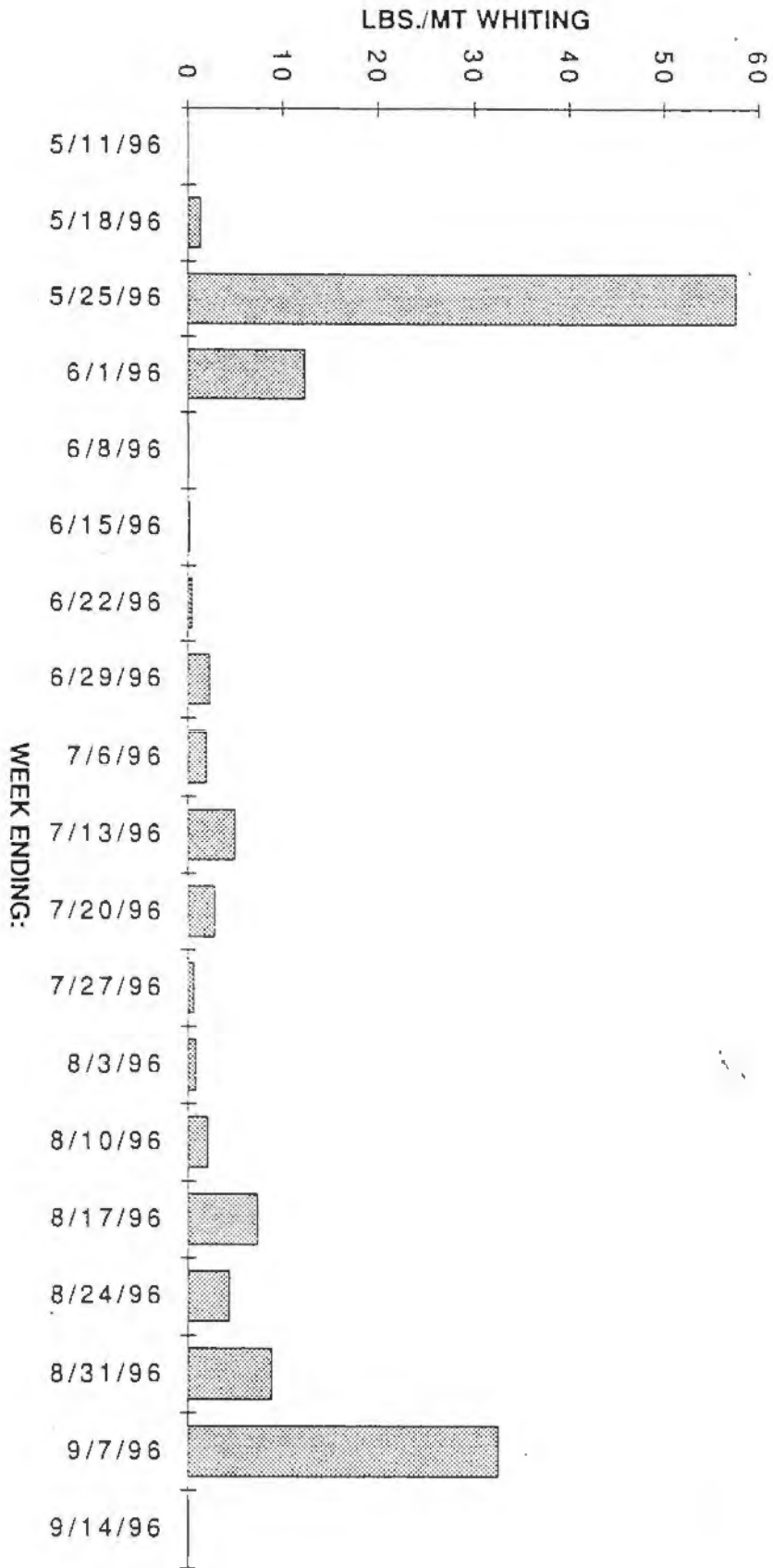


Fig. 4A. Weekly mackerel bycatch in the shoreside whiting fishery, Newport, 1996.

Fig. 4B. Weekly Mackerel bycatch in the shoreside whiting fishery, Astoria, 1996.



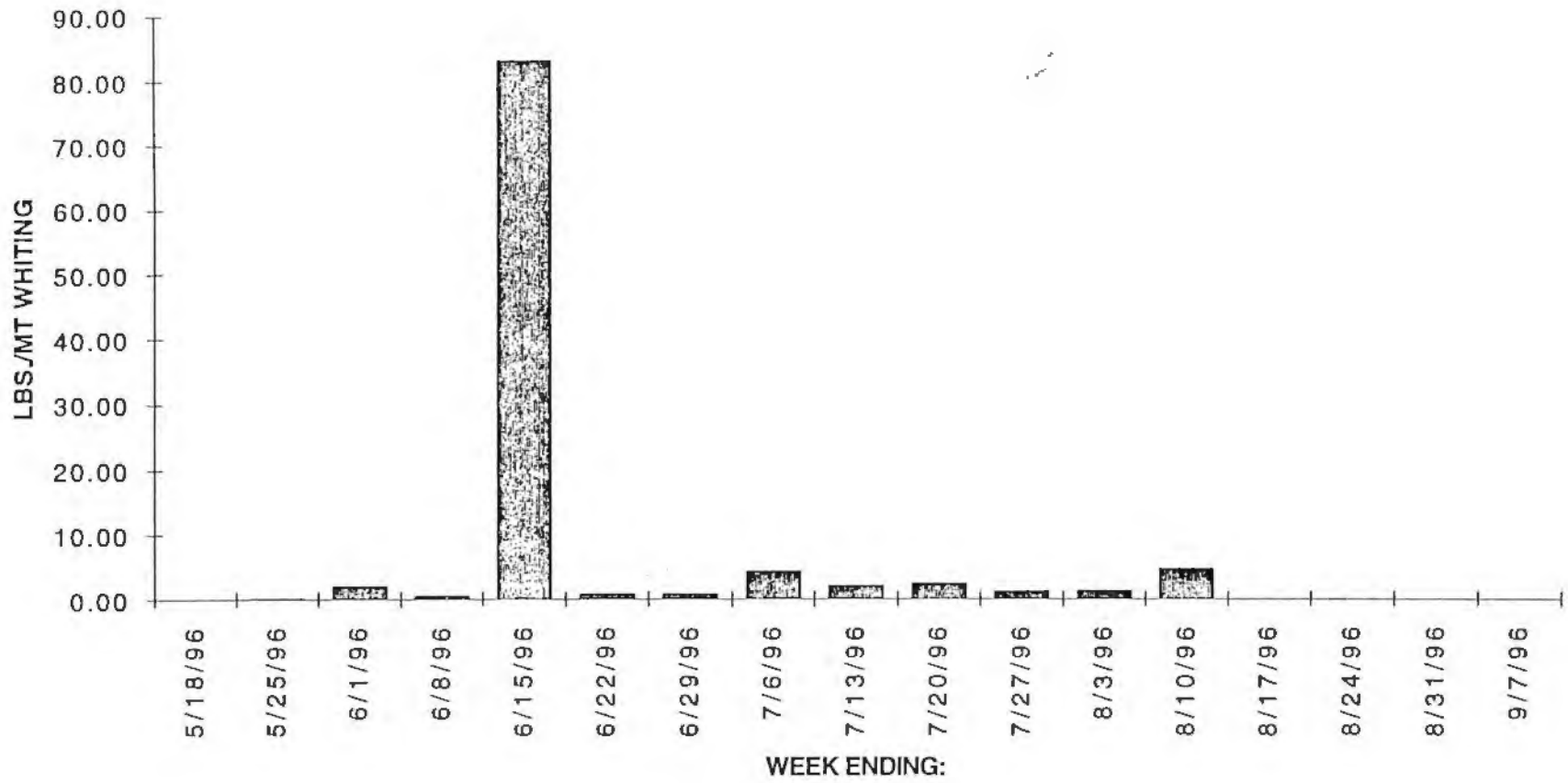


Fig. 4C. Weekly mackerel bycatch in the whiting fishery, Washington, 1996.

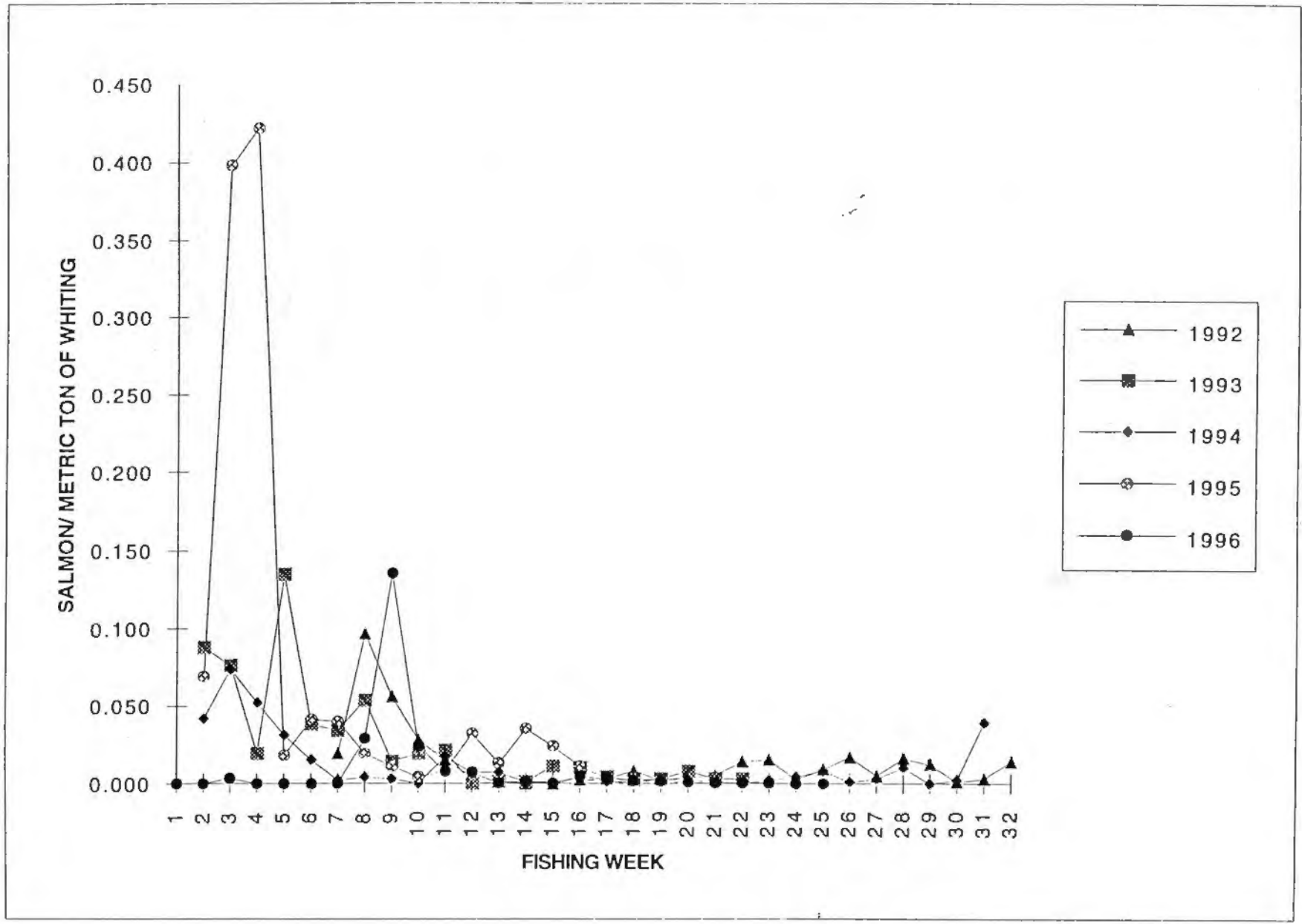


Fig. 5. Salmon bycatch rates in the shorebased whiting fishery, 1992-1996. Rates for 1992-1994 are based on observations. Rates for 1995 and 1996 are based on salmon turned over to state agencies by processors.

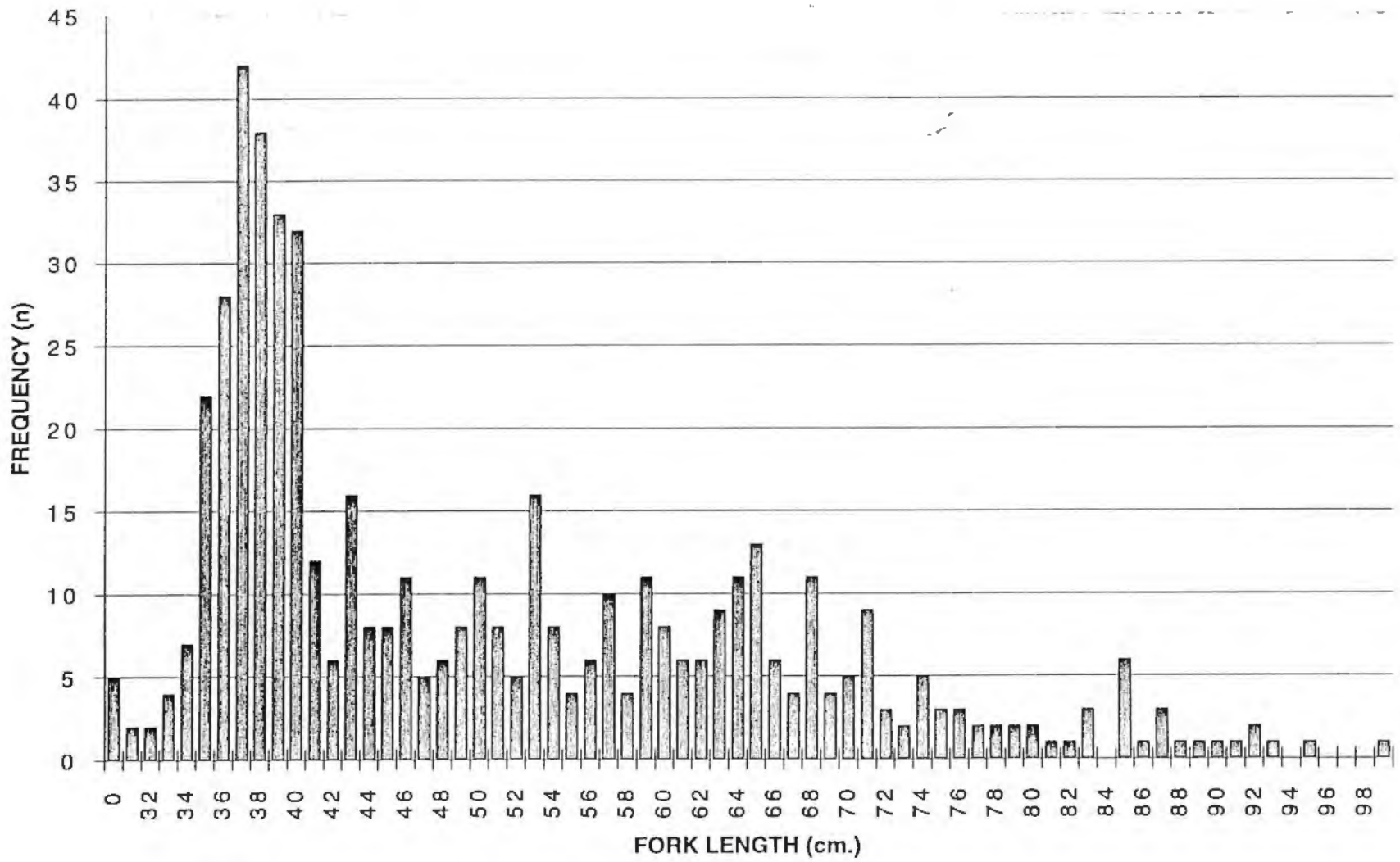


Fig. 6. Length frequency of Chinook b' tch in the whiting fishery, Astoria, 1996

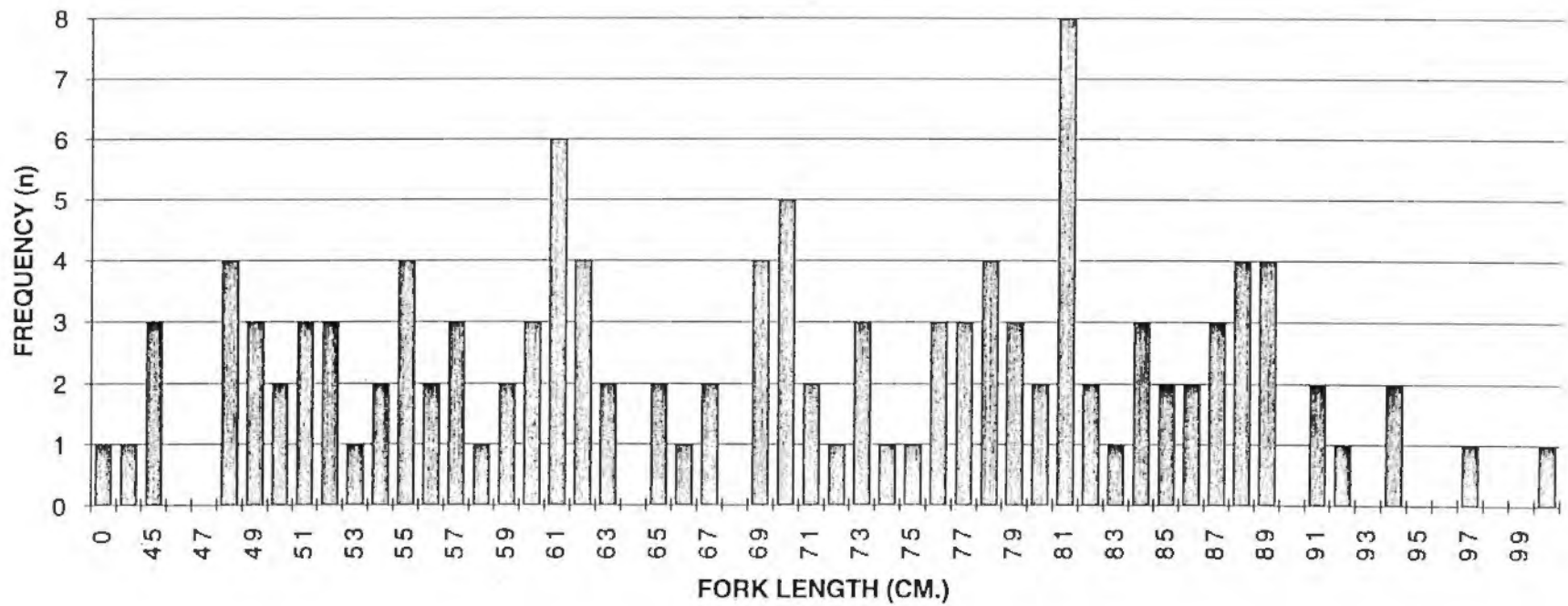


Fig. 7. Length frequency of Chinook bycatch in the whiting fishery, Newport, 1996

Fig. 8. Weekly salmon bycatch rate in the shoreside whiting fishery, 1996.

