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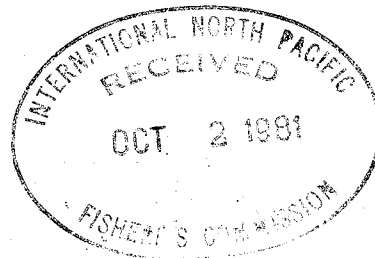
Observations of Foreign and Joint Venture Fishing Fleets Off the Coast  
of Washington, Oregon, and California, 1980

by

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The foreign fishing season of 1980 off Washington, Oregon, and California (WOC region) marked the fourth year that the Northwest and Alaska Fisheries Center placed observers on foreign vessels following implementation in the spring of 1977 of the Magnuson Fishery Conservation and Management Act of 1976 (MFCMA). Provisions of that Act require that foreign vessels accept U.S. observers, and during the season 16 observers were placed for various periods with the Polish fleet and with Soviet and Polish vessels of the U.S.-USSR and U.S.-Polish joint venture fisheries.

The purpose of observers is to collect data which allow the United States to estimate the foreign catch, determine the incidence and total catch of prohibited species, help assess the biological status of various stocks of fish, and report on suspected violations of U.S. regulations.

This report summarizes observer schedules and the results of data collections from the foreign and joint venture fisheries in 1980.

#### Observer Schedules and Coverage

The observer's schedule by nation and fishery is listed in Table 1. The target species for all foreign vessels and the joint venture fisheries was Pacific whiting (hake), Merluccius productus. During 1980 a total of 9 observers sampled on 14 of the 24 Polish vessels participating in the fishery on that nation's quota. One of the observers also sampled on the one vessel engaged in the U.S.-Polish joint venture fishery. In the U.S.-USSR joint venture fishery 10 observers sampled on 9 of the 10 Soviet vessels participating

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in the fishery. In 1980 the USSR was not given a fisheries quota in the Washington, Oregon, and California (WOC) region, and their vessels were not permitted to fish on their own.

Coverage of the vessels engaged in the Polish quota fishery by observers was 330 observer days out of 1554 vessel days on the grounds or 21.3 percent; coverage by observers of the U.S.-Polish joint venture fishery was for the entire 31 days of the fishery. For the U.S.-USSR joint venture fishery, coverage by observers was 610 observer days out of 806 vessel days on the grounds or 75.7 percent.

#### Observer Sampling Procedures

Sampling procedures were designed, as in past years, to provide data on the species composition of the catch, the incidence of prohibited species (salmon, Oncorhynchus spp. and Pacific halibut, Hippoglossus stenolepis) and to obtain biological data on important species. The observers used the same procedures whether sampling tows made by foreign vessels or the codends delivered to foreign processing vessels by U.S. fishing vessels.

The conduct of the observer program and sampling procedures were detailed by French, Nelson, and Wall (1980). Essentially, the methods of the program consisted of a training session for observers in Seattle in shipboard sampling procedures, species recognition, and the proper way to complete data forms. On board the vessels, the observers used the prescribed methods for sampling trawl hauls or the delivered codends for determining the species composition of the catch, including the take of prohibited species, and took biological data as requested.

### Estimates of Foreign and Joint Venture Fishery Catches

The U.S. estimates of foreign catches were obtained by applying average daily catch rates from observers on host vessels to the total number of vessels on the grounds (vessel days). Data on fleet vessel days on the grounds were obtained from the summary of vessel check-in and check-out as required by the United States from all foreign fishing vessels. In order to provide an estimate of all foreign catches, we used a blend of estimates from observer data and the foreign reported data. In this technique we arbitrarily used observer data (catch rates) when observer coverage of the fleet was at least 20 percent and the foreign reported catch when observer coverage was less than 20 percent. Because all reported catches were only estimates of the true tonnage landed, we further qualified the U.S. estimated catch by accepting the foreign reported data when the reported data were within 10 percent of the estimate based on observer data. The U.S. estimate was summarized biweekly in reports, then totaled to form the estimated catch for the season.

For the joint venture fisheries the estimated catch by species was derived from observers' estimates for the vessel on which observers sampled and from the Soviet and Polish reported catches for vessels not carrying observers. The variation in number of U.S. vessels delivering catches to various foreign processors precluded our making catch estimates for the non-observed vessels.

Although the total allowable level of foreign fishing (quotas) were set for Pacific whiting, catches of other species were limited to a percentage of the Pacific whiting total. These percentages were as follows:

<u>Species</u>	<u>Percentage allowance</u>
Flounders	0.1
Jack mackerel	3.0
Rockfishes (excluding Pacific ocean perch)	0.738
Pacific ocean perch	0.062
Sablefish	0.173
Other species	0.500

For the joint venture fisheries percentage limitations on retention were applied to each 5,000 mt of Pacific whiting received in the fishery conservation zone from U.S. vessels. If the percentage limitation of a particular species was reached before the initial 5,000 mt of Pacific whiting was reached by a nation, that species had to be discarded until 5,000 mt of Pacific whiting was received. The percentage limitation on retention of a species applied to each succeeding 5,000 mt of Pacific whiting received by a nation's processing vessels. The reason for these retention limitations for the joint venture fisheries was that although foreign fishery regulations did not apply to U.S. fishermen, fishery managers desired to maintain some control over the retention of incidental species. This procedure would help insure controlled harvest levels of bycatch species throughout the season.

During 1980 Pacific whiting formed about 94 percent of Poland's catches and about 99 percent of the catches of the joint-venture fisheries, Table 2. The total catch of approximately 74,000 mt of Pacific whiting was far short of 153,000 mt established as the allowable level of fishing for foreign and joint-venture fisheries in the region. Because Poland had reached the allowable catch of rockfish prior to the end of the established fishing season, October 31, the fishery was ordered closed effective October 22. Catches of other species, of course, were limited by restrictions placed on their catch. Jack mackerel, Trachurus symmetricus, and rockfish predominated among these species. The majority of of the discards were rockfish (excluding Pacific ocean perch, Sebastes alutus) and sablefish, Anoplopoma fimbria.

#### Incidence and Estimated Catches of Salmon

The incidence of salmon (number of salmon per metric ton of catch and their average weight kg) for foreign trawlers and the joint venture fisheries is given in Table 3. Area divisions of the region off Washington, Oregon, and California are shown in Figure 1. Salmon occurred in the trawl catches in all

months of the fishery in the Columbia area and most months in the Eureka area. They also occurred in the Monterey area in September, the only month in which observers sampled the fishery in that area. The seasonal average incidence of salmon ranged from 0.010 salmon per mt of catch to 0.159 salmon per mt with the highest incidence occurring in the U.S.-USSR joint venture fishery in the Eureka area. The salmon averaged from about 4 to 8 kg (9 to 18 lbs.) in the Polish fishery and from about 2 to 4 kg (4 to 9 lbs.) in the joint venture fisheries.

Salmon were taken coastwide in the fishery, Figure 2. Highest incidence rates among the  $1/2^\circ$  lat. by  $1^\circ$  long. areas were off southern Oregon in blocks  $41^\circ 30'$  to  $42^\circ\text{N}$  (0.395) and  $42^\circ 30'$  to  $43^\circ\text{N}$  (0.211), and off Washington in block  $47^\circ$  to  $47^\circ 30''\text{N}$  (0.212). The high incidence rate of 0.319 salmon per metric ton of catch off southern Oregon along  $126^\circ\text{W}$  in block  $42^\circ 30''$  to  $43^\circ\text{N}$  resulted from an observation of 3 salmon in one trawl haul taken in that area.

The estimated incidental catch of salmon by foreign and joint venture fisheries was computed by multiplying the average incidence rate for each month/area by the estimated foreign or U.S. vessel catches for the appropriate month/area. The results, Table 4, show an estimated salmon catch of about 8,400 fish (25.7 mt) with about 4,800 fish estimated to have been taken by Polish trawlers and about 3,600 fish by U.S. trawlers in the joint venture fisheries. This total is very similar to the total of about 8,700 salmon estimated to have been taken by foreign and joint venture fisheries in 1979 (French, Nelson and Wall, 1980).

The majority of the incidental catch of salmon, 73 percent, were taken in the Columbia area; about 22 percent were taken in the Eureka area, and 4 percent came from the joint venture fishery in the Vancouver area.

The species composition of salmon taken in the trawl fishery was approximately 98 percent chinook salmon, O. tshawytscha, and 2 percent coho salmon, O. kisutch. A single chum salmon, O. gorbuscha, was recorded. The chinook salmon averaged about 55 cm (22 in) long; the coho salmon averaged about 58 cm (24 in) long.

#### Incidence and Incidental Catch of Pacific Halibut

The incidental catch of Pacific halibut remained low in 1980 as was observed in previous years (Table 5). An estimated 135 halibut with an average weight of 6.3 kg (14 lbs.) were taken by Polish trawlers in the Columbia area. Halibut were not noted by the observers in trawl catches in the other areas, nor were they observed in the catches by U.S. trawlers that were delivered to foreign processors.

#### Species Composition and Estimated Catch of Rockfish

By regulations, the catch of rockfish by Poland was restricted to 960 mt (a rockfish catch excluding Pacific ocean perch of 0.738 percent of the Pacific whiting allocation and a Pacific ocean perch catch of 0.062 percent of the Pacific whiting catch). The total catch by Poland of all species of rockfish of about 990 mt slightly exceeded the quota when the fishery was ordered closed (Table 6). The joint venture fishery took about 478 mt of rockfish including those fish that were discarded. Approximately 78 percent of the total rockfish catch was taken in the Columbia area and about 18 percent in the Eureka area. Only joint venture vessels were permitted in the U.S. section of the Vancouver area and that fishery took the remaining 4 percent of the rockfish catch.

In 1980 a total of 31 species of rockfish were identified by observers in the WOC region. The predominant species of rockfish in the catch were the widow rockfish, S. entomelas, and the yellowtail rockfish, S. flavidus. These two species made up about 81 percent of the rockfish catch. The catch of about 62 mt of Pacific ocean perch made up 4 percent of the rockfish catch.

#### Species Composition and Estimated Catch of Flatfish

The catch of flatfish by vessels targetting on Pacific whiting was small, amounting to about 48 mt (Table 7). Most flatfish were taken by the U.S.-USSR joint venture fishery. Nearly all of the catch was made in the Columbia area, less than one percent was taken in the Eureka and Vancouver areas. The predominant species among the 13 that were identified by observers were the petrale sole, Eopsetta jordani, the English sole, Parophrys vetulus, Dover sole, Microstomus pacificus, rex sole, Glyptocephalus zachirus, and arrowtooth flounder, Atherestes stomias. These species made up about 96 percent of the flatfish catch.

#### Biological Characteristics of Pacific Whiting

While on board foreign trawlers or processors of the joint venture fisheries, each observer measured length samples of Pacific whiting and collected stratified otolith samples for aging the species. Ages from the otolith samples were determined by the Age Reading Unit at the Northwest and Alaska Fisheries Center.

The average length of all Pacific whiting samples from which nearly 78 percent of the catch was made was 49.3 cm, or very similar to the average size of the fish (about 48 cm) sampled in 1977-79 (French, Nelson, and Wall, 1980).



The age composition of Pacific whiting sampled in the Columbia area is illustrated in Figure 3. Fish of year class 1973 continued to dominate among the catches in 1980 as 7 year-old fish. This year class had also predominated in 1977, 1978, and 1979. The 9 year-old fish were second in dominance in the catch in 1980; this group as 8 year-olds also was second in dominance in 1979. The 3 year-old fish which made up 4 percent of the catch in 1979 made up 7 percent in 1980 and were more abundant than the 4 year-old fish.

#### Literature Cited

French, Robert, Russell Nelson, Jr., and Janet Wall. 1980.

Observations of foreign and joint venture fishing fleets off the coast of Washington, Oregon, and California, 1979. (Document submitted to the annual meeting of the International North Pacific Fisheries Commission, Anchorage, Alaska, October 1980. 27 p. Northwest and Alaska Fisheries Center, Nat'l. Mar. Fish. Ser., NOAA, 2725 Montlake Blvd. E., Seattle, WA 98112.

Table 1.--Observer schedule by nation, Washington-Oregon-California foreign trawl and joint-venture fishery, 1980.<sup>1/</sup>

Nation	Vessel name <sup>2/</sup>	Sampling period - 1979	Observer
<u>Foreign Fishery</u>			
Poland	Saturn	06/25 - 07/30	L. Kaskan
	Lepus	06/27 - 07/15	P. Dean
	Perseus	06/24 - 07/16	J. Beyer
	Humbak	07/18 - 07/31	J. Beyer
	Hajduk	07/18 - 07/31	P. Dean
	Delfin	08/17 - 09/03	W. Floering
	Walen	08/14 - 08/21	R. Brooks
	Lepus	08/18 - 09/13	M. Jaqua
	Denebola	08/22 - 09/22	C. Ralston
	Sirius	08/22 - 09/20	R. Brooks
	Kolias	09/05 - 10/16	W. Floering
	Orcyn	09/19 - 10/22	M. Jaqua
	Kalmar	10/03 - 10/20	C. Cheatham
	Rekin	10/04 - 10/22	C. Wespestad
Sagitta	10/19 - 10/23	W. Floering	
<u>Joint Venture Fishery</u>			
U.S.-USSR	18 Siezd Vlksm	05/25 - 06/07	M. Dawson
	Posyet	06/03 - 07/13	K. Sjogren
	Mark Reshetnikov	06/10 - 07/29	S. Maupin
	Fyodor Krainov	06/04 - 07/29	D. Erickson
	Armenia	06/06 - 07/31	M. Warp
	Iuzhnomorsk	06/11 - 07/07	M. Dawson
	Mys Lopatka	07/10 - 07/31	M. Dawson
	Fyodor Krainov	08/05 - 08/12	C. Cheatham
	Mys Lopatka	08/08 - 10/30	B. Brenton
	Nadezhdinsk	08/08 - 10/25	J. Sassano
	Posyet	08/07 - 08/13	V. Murdoch
	Iuzhnomorsk	08/12 - 09/10	C. Wespestad
	Armenia	08/17 - 09/25	C. Cheatham
	Planerest	08/18 - 10/30	V. Murdoch
	Mark Reshetnikov	09/15 - 09/19	C. Wespestad
	U.S.-Poland	Orcyn	09/18 - 10/17

<sup>1/</sup> The target species of all fisheries was Pacific whiting (hake) Merluccius productus.

<sup>2/</sup> The vessels were all large trawlers, greater than 1,500 gross tons.

Table 2.--Estimated groundfish catch by the foreign and joint-venture fisheries off the Washington, Oregon, and California coast, 1980.<sup>1/</sup>

Species groups	Estimated Catch <sup>1/ 2/</sup>								
	Foreign Fishery			Joint Venture Fishery					
	Poland			Poland		USSR		Discards	Total
	(mt)	Percent <sup>3/</sup> (of total catch)	(of hake <sup>4/</sup> quota)	(mt)	Percent <sup>3/</sup>	(mt)	Percent <sup>3/</sup>		
Pacific whiting (hake)	44,023	93.8		984	99.8	28,553	99.2		73,560
Jack mackerel	1,725	3.7	1.44	T	T	5	T	70	1,800
Rockfish (excluding Pacific ocean perch)	958	2.0	0.80	2	0.2	141	0.5	306	1,407
Pacific ocean perch	32	0.1	0.03	T	T	T	T	29	61
Sablefish	93	0.2	0.08	T	T	37	0.1	175	305
Flounders	2	T	T	0	0	40	0.1	6	48
Other fish	95	0.2	0.08	T	T	17	T	104	216
TOTAL	46,928			986		28,793		690	77,397

<sup>1/</sup> Figures rounded to nearest mt.

<sup>2/</sup> See text for explanation of limits on catches and of discards.

<sup>3/</sup> T indicates trace, less than 0.5 mt and 0.05 percent.

<sup>4/</sup> The Pacific whiting quota for Poland was 120,000 mt.

Table 3.--Average incidence (no. per metric ton of catch) and average weight (kg) of salmon taken in the Polish, and U.S.-Polish joint venture, and U.S.-USSR joint venture fisheries off Washington, Oregon, and California, 1980.

Month	Statistical Areas							
	Monterey		Eureka		Columbia		Vancouver <sup>1/</sup>	
	Incidence	Ave. wt(kg)	Incidence	Ave. wt(kg)	Incidence	Ave. wt(kg)	Incidence	Ave. wt(kg)
	<u>Foreign Fisheries - Poland</u>							
June	-	-	-	-	0.126	4.6		
July	-	-	0	-	0.158	3.7		
August	-	-	0.057	9.3	0.041	4.0		
September	-	-	0	-	0.046	3.3		
October	-	-	0.015	3.0	0.183	3.3		
Season	-	-	0.010	7.7	0.094	3.5		
	<u>Joint Venture Fisheries U.S.-Poland</u>							
September	-	-	0.043	3.4	0.006	2.6	-	-
October	-	-	0.010	4.9	0.044	2.9	-	-
Season	-	-	0.019	4.0	0.019	2.8	-	-
	<u>Joint Venture Fisheries U.S.-USSR</u>							
May	-	-	0	-	0.063	4.1	-	-
June	-	-	0.013	3.6	0.095	2.4	-	-
July	-	-	-	-	0.153	3.3	0.147	3.8
August	-	-	0.254	1.5	0.480	1.9	0.042	2.2
September	0.103	2.2	0.072	2.6	0.020	2.0	-	-
October	-	-	0.295	1.6	0.050	2.4	-	-
Season	0.103	2.2	0.159	1.8	0.102	2.8	0.136	3.7

<sup>1/</sup> Only joint venture fisheries were permitted in the Vancouver area in U.S. waters.

- indicates no sampling in area/month.

Table 4.--Estimated catch of salmon (in numbers of fish and metric tons) by foreign trawlers and joint venture vessels off Washington, Oregon, and California, 1980.

Month	Statistical Area									
	Monterey		Eureka		Columbia		Vancouver <sup>1/</sup>		All Areas	
	No. Salmon	Weight mt	No. Salmon	Weight mt	No. Salmon	Weight mt	No. Salmon	Weight mt	No. Salmon	Weight mt
<u>Foreign Fisheries - Poland</u>										
June	-	-	5	0.04	256	1.18			261	1.22
July	-	-	0	-	1,444	5.34			1,444	5.34
August	-	-	10	0.09	295	1.18			305	1.27
September	-	-	0		700	2.31			700	2.31
October	-	-	1	T	2,120	7.00			2,121	7.00
Total	-	-	16	0.13	4,815	17.01			4,831	17.14
<u>Joint Venture Fisheries - U.S.-Poland<sup>2/</sup></u>										
September	-	-	7	0.02	1	T	-	-	8	0.02
October	-	-	4	0.02	11	0.03	-	-	15	0.05
Total	-	-	11	0.04	12	0.03	-	-	23	0.07
<u>Joint Venture Fisheries - U.S.-USSR<sup>2/</sup></u>										
May	-	-	0	-	15	0.06	-	-	15	0.06
June	-	-	12	0.04	481	1.15	-	-	493	1.19
July	-	-	0	-	715	2.36	338	1.28	1,053	3.64
August	-	-	915	1.37	59	0.11	18	0.04	992	1.52
September	-	-	386	1.00	20	0.04	-	-	406	1.04
October	-	-	540	0.86	80	0.19	-	-	620	1.05
Total	-	-	1,853	3.27	1,370	3.91	356	1.32	3,579	8.50
Total All Fisheries	-	-	1,880	3.44	6,197	20.95	356	1.32	8,433	25.71

1/ Only joint venture fisheries were permitted in the Vancouver area in U.S. waters.

2/ U.S. fishing vessels delivering groundfish catches to foreign processing vessels.

- indicates no fishing in area/month.

Table 5.--Average incidence (no. per metric ton of catch), average weight (kg), and estimated catch of Pacific halibut taken by Polish trawlers off Washington, Oregon, and California, 1980.

Month	Columbia area <sup>1/</sup>			
	Incidence	Ave. wt(kg)	No. halibut	Weight (mt)
June	0.045	1.4	89	0.12
July	0.003	6.1	27	0.16
August	0.001	13.3	7	0.09
September	0	-	0	-
October	0.001	25.4	12	0.30
Season	0.002	6.3	135	0.67

<sup>1/</sup> No halibut were observed in catches in other areas or in the joint venture fisheries off Washington, Oregon, and California.

Table 6.--Estimated catch of rockfish (mt) by species in the foreign and joint-venture fisheries off Washington, Oregon, and California, 1980.

Species of rockfish	Statistical Area					Total	Percent
	Poland		Joint Venture				
	Eureka	Columbia	Eureka	Columbia	Vancouver		
Aurora		0.01	0.13			0.14	0.01
Black				0.35		0.35	0.02
Blackgill			0.03			0.03	T
Blue				0.80		0.80	0.05
Bocaccio		4.21	39.66	2.79	0.28	46.94	3.20
Canary	T	28.65	0.45	2.09	0.10	31.29	2.13
Chilipepper		0.01	0.04			0.05	T
Copper			0.01			0.01	T
Dark blotched	0.53	48.01	5.97	0.48	4.01	59.00	4.02
Dusky			0.01	0.46		0.47	0.03
Flag		0.02				0.02	T
Greenspotted		0.02			T	0.02	T
Greenstriped		0.55	0.42	0.09		1.06	0.07
Pacific ocean perch	1.62	30.80	21.41	0.01	8.18	62.02	4.23
Pygmy		0.01	0.10	0.01		0.12	0.01
Red banded	0.01	0.10	T	0.13		0.24	0.02
Redstripe		23.88	0.08	2.51	0.01	26.48	1.80
Rougheye		0.28	T	0.13		0.41	0.03
Sharpchin		0.27	2.28		T	2.55	0.17
Shortbelly		0.02				0.02	T
Shortraker		0.16	0.03	0.07		0.26	0.02
Shortspine thorneyhead	0.03	1.98	0.04			2.05	0.14
Silvergray		0.11	T		0.01	0.12	0.01
Splitnose	5.63	28.67	1.31	0.04		35.65	2.43
Stripetail		0.02	6.47	0.03		6.52	0.44
Tiger		0.01				0.01	T
Vermillion					T	T	T
Widow	0.01	525.92	163.37	27.54	12.12	728.96	49.67
Yelloweye		1.05	T	0.01		1.06	0.07
Yellowmouth		0.64	0.01			0.65	0.04
Yellowtail	T	286.79	8.90	126.81	37.94	460.44	31.37
TOTAL	7.83	982.19	250.72	164.35	62.65	1,467.74	

T = trace

Table 7.--Estimated catch of flatfish (mt) by species in the foreign and joint venture fishery off Washington, Oregon, and California, 1980.

Species of flatfish		Poland	U.S.-USSR Joint Venture Fishery	Total	Percent
Arrowtooth flounder	<u>Atheresthes stomias</u>	0.8	5.9	6.7	14.0
Butter sole	<u>Isopsetta isolepis</u>	0	T	T	-
Deepsea sole	<u>Embassichthys bathybius</u>	0	T	T	-
Dover sole	<u>Microstomus pacificus</u>	0.1	7.9	8.0	16.7
English sole	<u>Parophrys vetulus</u>	0.2	9.4	9.6	20.0
Flathead sole	<u>Hippoglossoides elassodon</u>	T	0.4	0.4	0.8
Greenland turbot	<u>Reinhardtius hippoglossoides</u>	0.1	0	0.1	0.2
Pacific sanddab	<u>Citharichthys sordidus</u>	T	1.2	1.2	2.5
Petrale sole	<u>Eopsetta jordani</u>	T	14.6	14.6	30.4
Rex sole	<u>Glyptocephalus zachirus</u>	0.8	6.4	7.2	15.0
Rock sole	<u>Lepidopsetta bilineata</u>	0.1	0	0.1	0.2
Slender sole	<u>Lyopsetta exilis</u>	T	0.1	0.1	0.2
Starry flounder	<u>Platichthys stellatus</u>	0	T	T	-
Total		2.1	45.9	48.0	



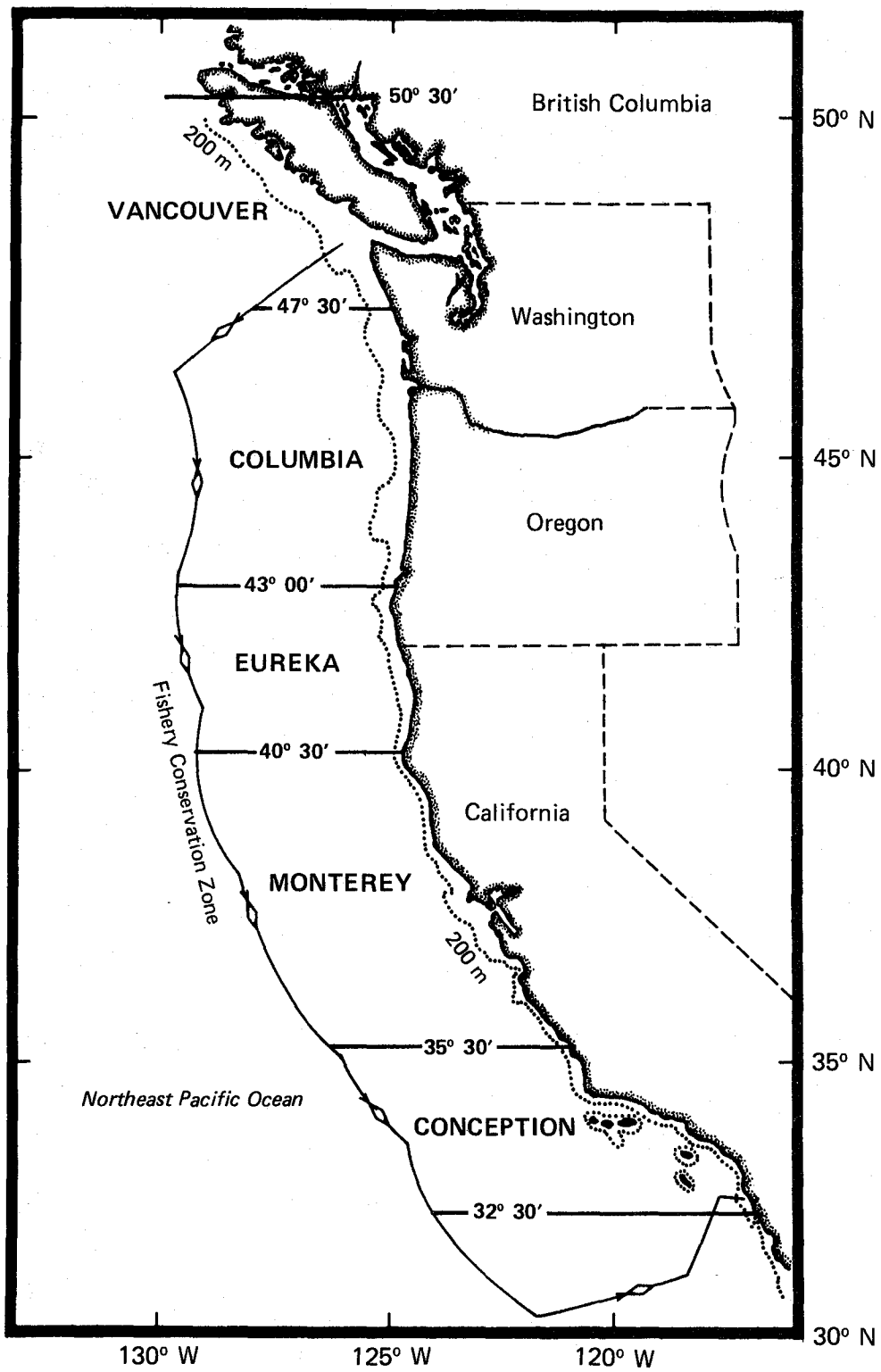


Figure 1.--Statistical areas of Washington, Oregon, and California trawl fishery region.

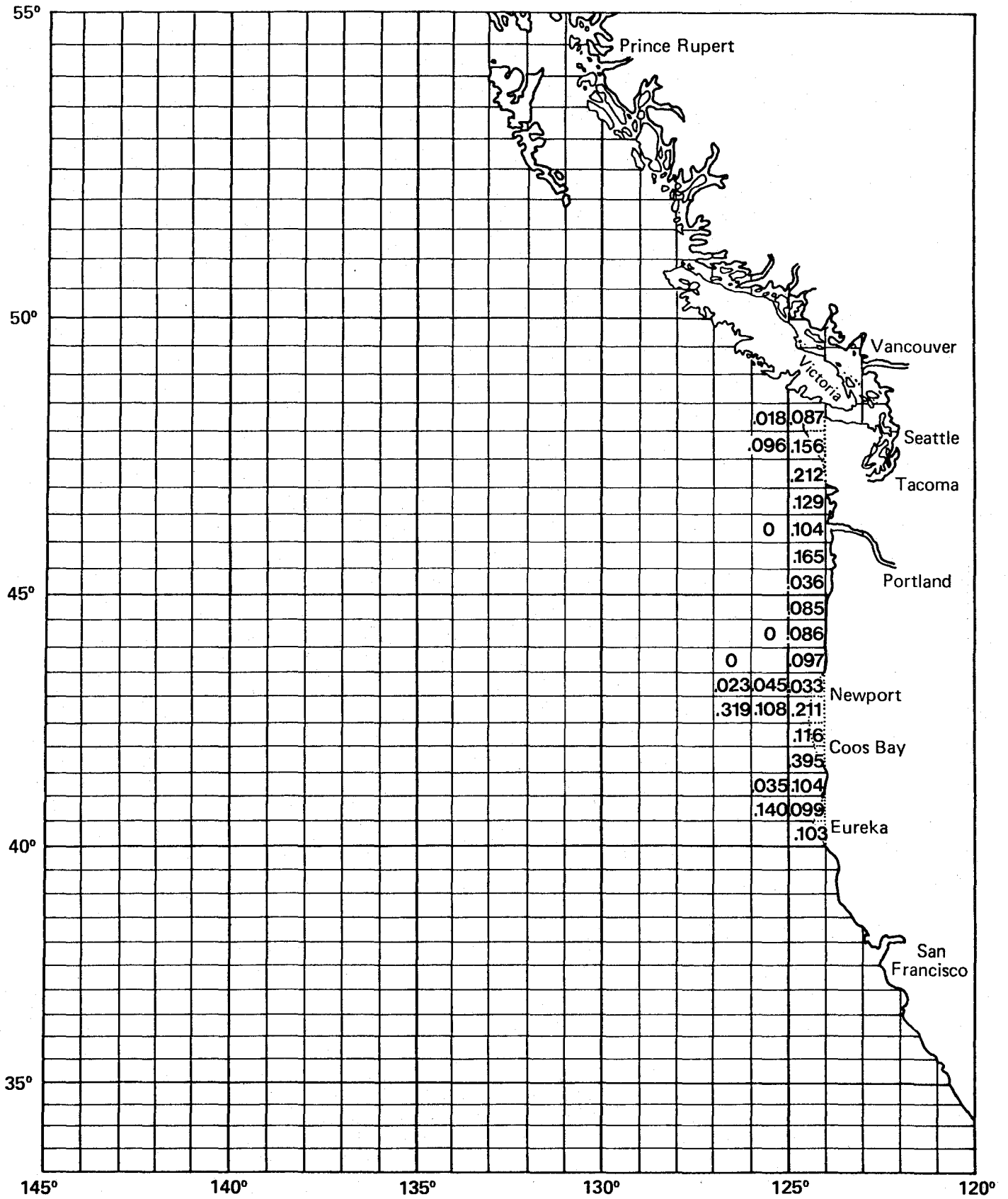


Figure 2.--Average incidence of salmon (number of salmon per metric ton of catch) in the foreign and joint-venture trawl fishery, 1980.

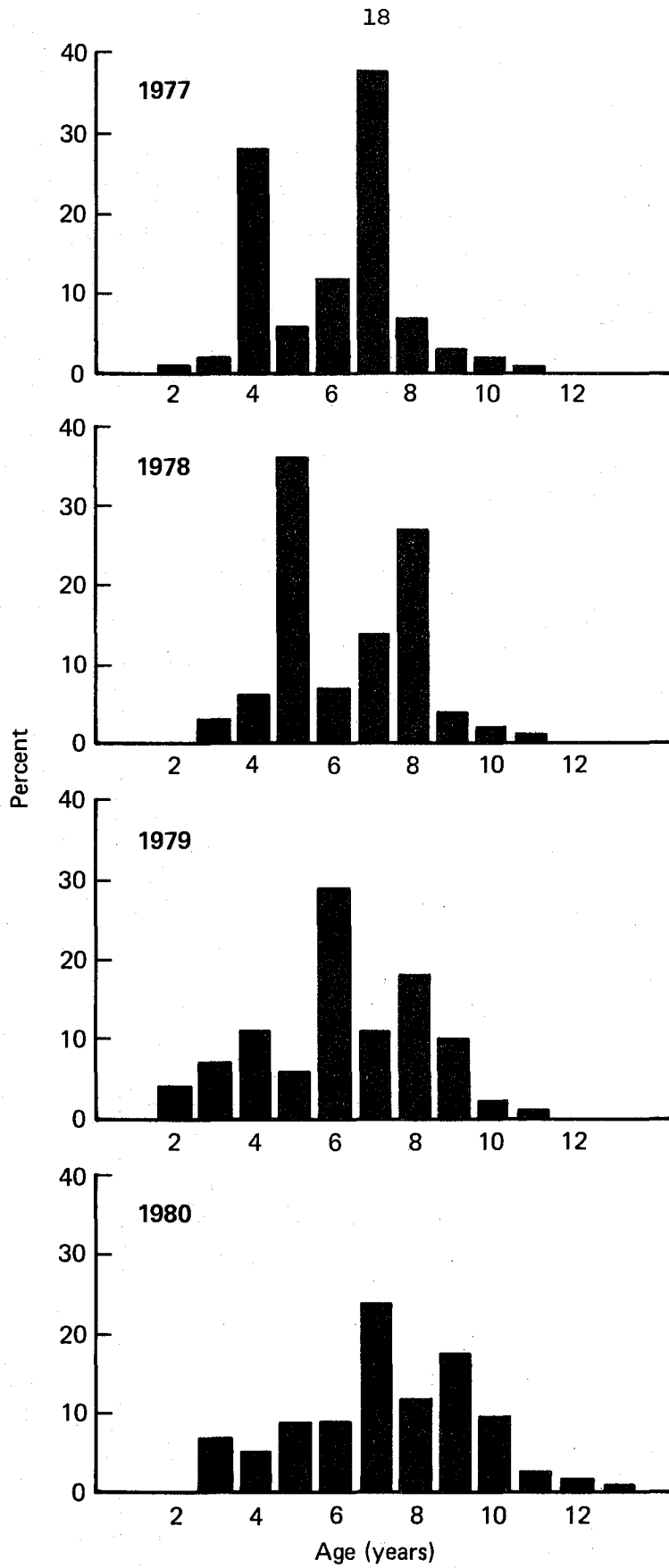


Figure 3.--Age composition of Pacific whiting taken in the Columbia area, 1977-80.