

STATUS OF THE PACIFIC COAST GROUND FISH  
FISHERY THROUGH 1989 AND RECOMMENDED  
ACCEPTABLE BIOLOGICAL CATCHES FOR 1990



Pacific Fishery Management Council  
Metro Center, Suite 420  
2000 SW. First Avenue  
Portland, Oregon 97201

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STATUS OF THE PACIFIC COAST GROUND FISH FISHERY THROUGH 1989  
AND RECOMMENDED ACCEPTABLE BIOLOGICAL CATCHES FOR 1990

This is the sixth of a series of documents which review past years' fishery performance and Council management actions, in addition to assessing the status of a number of groundfish stocks off Washington, Oregon, and California.

Several of the appended reports were prepared by scientists other than Groundfish Management Team members. The Groundfish Management Team is deeply indebted to these individuals and gratefully acknowledges the excellent cooperation and diligent efforts that resulted in these documents.

Groundfish Management Team (1989)

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# PACIFIC FISHERY MANAGEMENT COUNCIL

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November 2, 1988

Dear Reviewer:

At its November 15-17, 1989 meeting, the Pacific Fishery Management Council (Council) will establish 1990 catch limits for several groundfish species managed under the Pacific coast groundfish fishery management plan. The Council's Groundfish Management Team has prepared a document entitled "Status of the Pacific Coast Groundfish Fishery Through 1989 and Recommended Acceptable Biological Catches for 1990," for the Council to use in establishing these catch quotas. The Council is distributing a summary of this document to the groundfish industry and other interested persons so that you may review the available information on the fishery and various species. The Council will set acceptable biological catches (ABC) for all species and numerical quotas (called optimum yields) for six species: (1) Pacific whiting, (2) sablefish, (3) Pacific ocean perch, (4) shortbelly rockfish, (5) widow rockfish, and (6) jack mackerel.

New stock status reports, which provide the technical documentation for most changes from the 1989 ABC estimates, were prepared for Pacific whiting, sablefish, widow rockfish, and shortbelly rockfish. Additional reports provide information on foreign fishing and the economic status of the fishery. These reports are included as appendices in the Council's document and are available upon request from the Council office.

Comments on this document and recommendations to the Council will be accepted until November 15. Written comments may be sent to the Council headquarters and should arrive no later than November 9. The public will also have an opportunity to comment to the Council in person on November 16. If you have any comments, recommendations, questions concerning this document, or if you would like a copy of the complete document, please contact the Council office at Metro Center, Suite 420, 2000 SW. First Avenue, Portland, Oregon 97201; telephone: (503) 326-6352.

Sincerely,

Lawrence D. Six  
Executive Director

JWG:plb  
Enclosure



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LIST OF ACRONYMS AND ABBREVIATIONS CONTAINED IN THIS DOCUMENT

ABC	acceptable biological catch
CDFG	California Department of Fish and Game
Council	Pacific Fishery Management Council
EY	equilibrium yield
EEZ	exclusive economic zone
FMP	Pacific Coast Groundfish Fishery Management Plan (January 1982)
GMT	Groundfish Management Team
GSG	Groundfish Select Group
HG	harvest guideline
INPFC	International North Pacific Fishery Commission
MFCMA	Magnuson Fishery Conservation and Management Act
MSY	maximum sustainable yield
mt	metric ton
NMFS	National Marine Fisheries Service
ODFW	Oregon Department of Fish and Wildlife
OY	optimum yield
PacFIN	Pacific Coast Fisheries Information Network
WDF	Washington Department of Fisheries

STATUS OF THE PACIFIC COAST GROUND FISH FISHERY ADJACENT  
TO WASHINGTON, OREGON, AND CALIFORNIA

Introduction

This is the sixth annual status of the Pacific coast groundfish fishery document prepared for the Council. The purpose of this report is to briefly summarize the development of the FMP and to describe the history of the fishery and its management since enactment of the MFCMA in 1976.

Included in this report is a description of landings, fishing patterns, estimates of the status of stocks (including appended status of stocks analyses for major species), ABCs for 1984, 1985, 1986, 1987, 1988 and 1989 as well as those proposed for 1990.

History of the Fishery

Domestic groundfish landings in the Pacific Region (Washington, Oregon, and California) are reported by INPFC statistical areas (Figure 1). Landings were relatively stable, averaging about 30,000 mt until the early 1970s when they began a steady increase (Figure 2). Pacific ocean perch stocks were depleted in the late 1960s by foreign fishing, but other groundfish stocks were apparently healthy. By 1977, when work on the FMP was initiated, landings had increased to 60,000 mt and by 1982 they peaked at 116,000 mt (Figure 2).

During the last few years there have been major changes in the fishery. The fishery has matured and landings of several species have reached or exceeded maximum sustainable production levels. Although landings increased in several management areas, the greatest and most rapid growth occurred in the large Columbia Area (Figure 1 and Table 1 through Table 6). Annual domestic landings of groundfish in the Columbia Area were approximately 14,000 mt in 1977 and by 1982 had increased to about 47,000 mt--an increase of 33,000 mt (Figure 3).

During this period the species composition of landings changed notably. Rockfish landings increased from 42 percent of total landings to 70 percent; flatfish landings increased but decreased in percent composition of total landings; and roundfish (e.g. lingcod, Pacific cod, sablefish) landings actually doubled but decreased as a percentage of the total.

Although the rockfish group provided most of the increased landings, widow, canary, and yellowtail rockfish were the major contributors. By 1982 widow and yellowtail rockfish appeared to be overharvested in some areas and the GMT declared these species biologically stressed.<sup>1/</sup> The GMT predicted continued biological stress in 1983 and recommended that landings of these species be reduced. An analysis by the GMT indicated canary rockfish landings also should be reduced in 1983, since the annual catch exceeded the ABC in the Columbia Area.

1/ GMT report to Groundfish Task Group. January 1983.

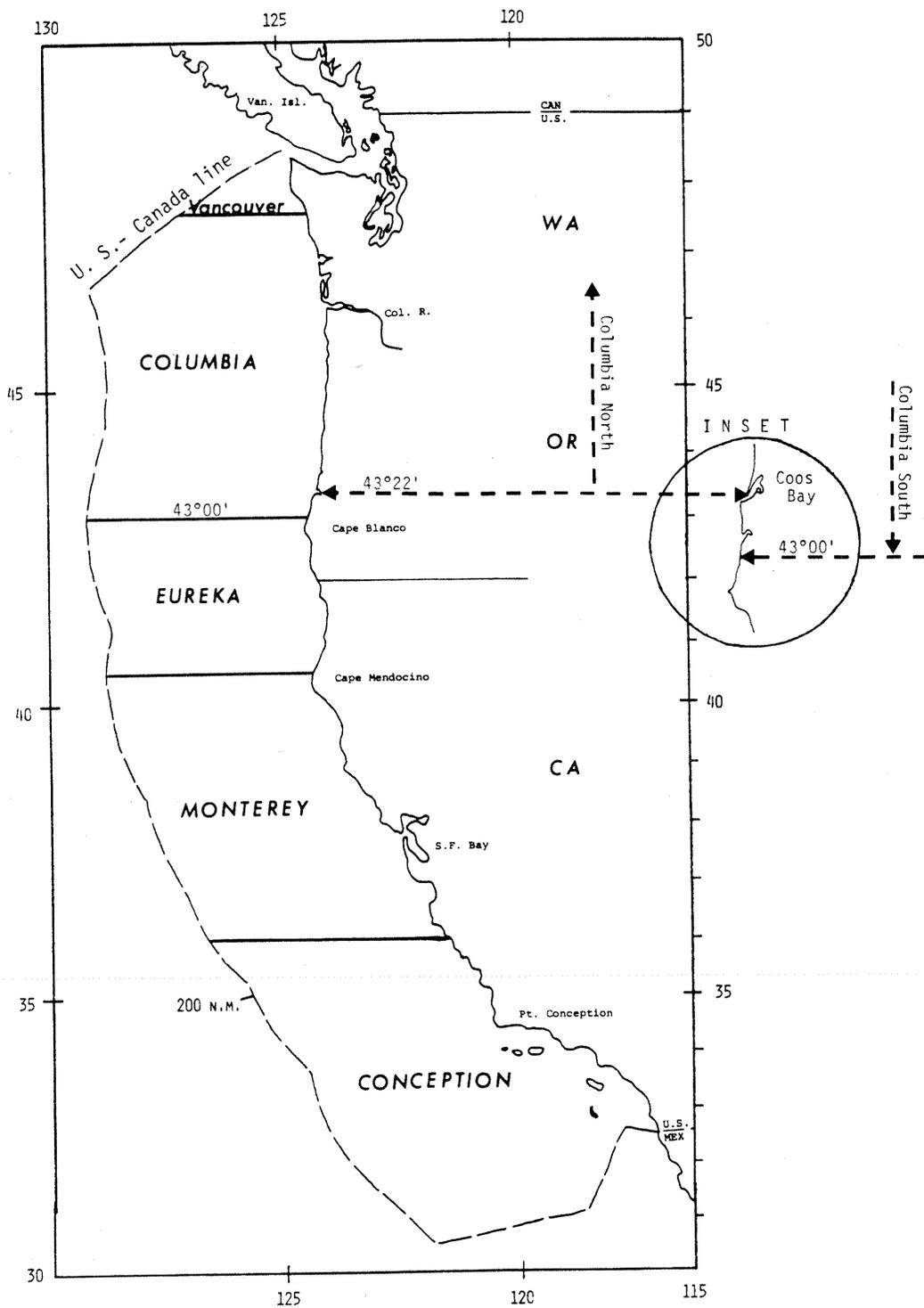


Figure 1. INPFC statistical areas in the U.S. EEZ seaward of Washington, Oregon, and California. Inset: Description of Columbia North and Columbia South.

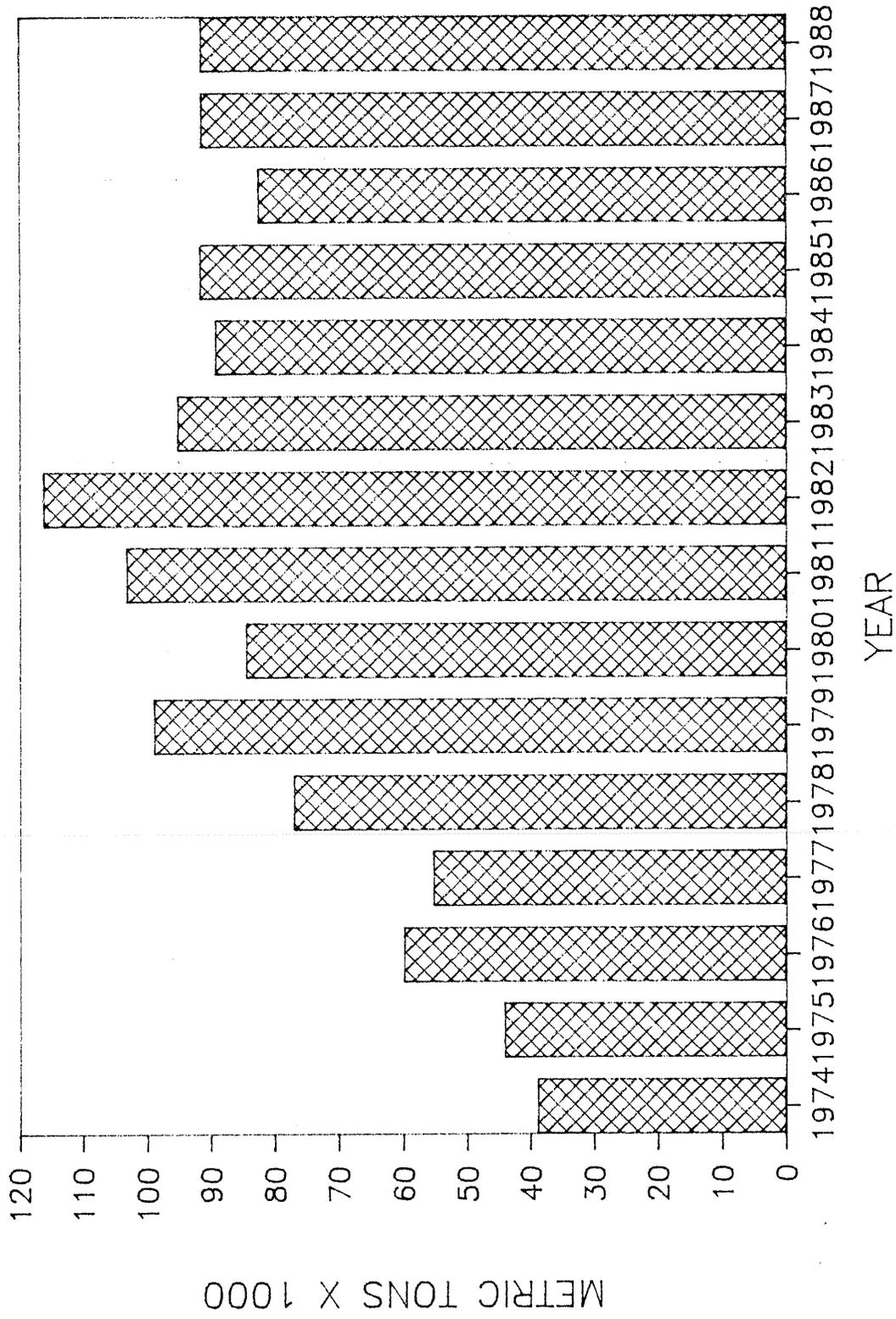


Figure 2. Pacific coast domestic commercial groundfish landings, 1975-1988.

Table 1. Estimated commercial groundfish landings (mt) for all INPFC areas, 1981-1988.<sup>a/</sup>  
(Excludes joint venture and foreign catches.)

Species	All Areas							
	1981	1982	1983	1984	1985	1986	1987	1988
<b>Roundfish</b>								
Lingcod	3,331	3,733	4,088	4,043	3,906	1,882	2,585	2,628
Pacific Cod	1,242	909	597	576	460	333	2,270	3,332
Pacific Whiting	838	1,021	1,026	2,718	3,893	3,462	4,768	6,876
Sablefish	11,413	18,379	14,059	13,929	14,283	13,144	12,794	10,789
<b>Total Roundfish</b>	<b>16,824</b>	<b>24,042</b>	<b>19,770</b>	<b>21,266</b>	<b>22,542</b>	<b>18,821</b>	<b>22,352</b>	<b>23,625</b>
<b>Rockfish</b>								
Pacific Ocean Perch	1,234	1,035	1,621	1,553	1,273	1,431	1,010	803
Shortbelly	18	4	0	1	11	2	0	0
Widow	28,248	25,954	10,482	9,759	8,915	9,358	12,231	10,887
<b>Other Rockfish</b>								
Bocaccio	3,831	3,669	4,237	2,992	1,421	1,033	1,264	1,307
Canary	2,420	5,200	3,983	2,081	2,245	1,910	2,751	1,699
Chilipepper	2,016	1,496	1,423	1,665	1,315	669	971	1,194
Thornyhead	2,343	2,143	2,654	3,144	4,113	3,638	3,739	5,592
Yellowtail	8,152	8,101	8,722	4,963	3,062	3,970	3,950	4,652
Remaining Rockfish <sup>b/</sup>	4,981	6,121	7,400	4,735	5,872	4,232	5,446	9,889
Unspecified Rockfish	6,519	6,961	5,246	9,090	9,579	10,686	9,008	4,571
<b>Total Rockfish</b>	<b>59,762</b>	<b>60,684</b>	<b>45,768</b>	<b>39,983</b>	<b>37,806</b>	<b>36,929</b>	<b>40,370</b>	<b>40,594</b>
<b>Flatfish</b>								
Dover Sole	16,251	19,928	19,604	18,940	20,719	17,286	18,442	18,002
English Sole	2,701	2,712	2,272	1,716	1,947	2,029	2,472	2,094
Petrale Sole	2,032	2,086	2,194	1,724	1,869	1,732	2,204	2,131
Other Flatfish <sup>c/</sup>	3,617	3,950	3,205	2,654	3,486	3,279	2,916	2,711
<b>Total Flatfish</b>	<b>24,601</b>	<b>28,676</b>	<b>27,275</b>	<b>25,034</b>	<b>28,021</b>	<b>24,326</b>	<b>26,034</b>	<b>24,938</b>
<b>Other Fish</b>								
Jack Mackerel	97	4	0	0	0	0	0	65
Others	2,123	2,924	2,577	3,086	3,448	2,646	3,502	2,499
<b>Total</b>	<b>103,407</b>	<b>116,330</b>	<b>95,390</b>	<b>89,369</b>	<b>91,817</b>	<b>82,722</b>	<b>90,918</b>	<b>91,719</b>

a/ The data in Table 1 through Table 6 are preliminary. There are minor discrepancies in landings due to deficiencies in data supplied by the three states, difficulties in determining where actual catches were made when the port of landing was in another catch reporting area, adjustments made on the basis of logbook information, inaccuracies in estimates of rockfish species composition, and other factors. Minor corrections may be necessary each year.

b/ Remaining rockfish are all species of rockfish not specifically listed on this page.

c/ Except arrowtooth flounder which are recorded under other fish.

Data Source: These data represent the sum of the estimated landings reported on Table 2 through Table 6, extracted from PacFIN 10/6/89.

Table 2. Estimated commercial groundfish landings (mt) for the U.S. portion of the INPFC Vancouver Area, 1981-1988. (Excludes joint venture and foreign catches.)

Species	U.S.-Vancouver Area							
	1981	1982	1983	1984	1985	1986	1987	1988
<b>Roundfish</b>								
Lingcod	563	746	1,237	1,757	1,854	569	713	459
Pacific Cod	1,119	828	538	485	359	297	1,384	1,474
Pacific Whiting	1	0	7	2	0	0	0	0
Sablefish	1,144	2,578	2,673	3,717	2,968	1,700	1,772	1,640
<b>Total Roundfish</b>	<b>2,827</b>	<b>4,152</b>	<b>4,455</b>	<b>5,961</b>	<b>5,181</b>	<b>2,566</b>	<b>3,869</b>	<b>3,573</b>
<b>Rockfish</b>								
Pacific Ocean Perch	245	279	323	573	420	681	349	122
Shortbelly	0	0	0	0	0	0	0	0
Widow	2,002	3,918	1,646	594	449	574	501	304
<b>Other Rockfish</b>								
Bocaccio	58	47	168	148	130	84	107	47
Canary	322	504	647	567	963	850	934	154
Chilipepper	3	0	1	0	0	0	0	0
Thornyhead	16	43	105	219	89	64	71	66
Yellowtail	2,904	3,342	2,865	980	942	1,537	1,188	1,305
Remaining Rockfish <sup>a/</sup>	461	472	1,035	990	925	683	548	1,353
Unspecified Rockfish	417	251	458	229	545	598	585	138
<b>Total Rockfish</b>	<b>6,428</b>	<b>8,856</b>	<b>7,248</b>	<b>4,300</b>	<b>4,463</b>	<b>5,071</b>	<b>3,617</b>	<b>3,489</b>
<b>Flatfish</b>								
Dover Sole	1,563	2,451	3,106	3,187	2,577	1,593	1,305	1,261
English Sole	194	311	247	316	303	293	398	287
Petrale Sole	203	254	422	366	267	238	271	185
Other Flatfish <sup>b/</sup>	214	236	274	184	390	683	115	102
<b>Total Flatfish</b>	<b>2,174</b>	<b>3,252</b>	<b>4,049</b>	<b>4,053</b>	<b>3,537</b>	<b>2,807</b>	<b>2,089</b>	<b>1,835</b>
<b>Other Fish</b>								
Jack mackerel	0	0	0	0	0	0	0	0
Others	398	1,636	1,526	2,149	1,977	1,151	2,074	1,351
<b>Total</b>	<b>11,827</b>	<b>17,896</b>	<b>17,278</b>	<b>16,463</b>	<b>15,158</b>	<b>11,371</b>	<b>11,649</b>	<b>10,248</b>

a/ Remaining rockfish are all species of rockfish not specifically listed on this page.

b/ Except arrowtooth flounder which are recorded under other fish.

Data Source: PacFIN data extracted 10/6/89.

Table 3. Estimated commercial groundfish landings (mt) for the INPFC Columbia Area, 1981-1988. (Excludes joint venture and foreign catches.)

Species	Columbia Area							
	1981	1982	1983	1984	1985	1986	1987	1988
<b>Roundfish</b>								
Lingcod	1,386	1,442	1,877	1,247	1,257	734	905	1,183
Pacific Cod	123	81	59	89	30	36	794	1,843
Pacific Whiting	171	0	39	355	881	480	250	335
Sablefish	3,463	6,017	4,819	4,659	5,165	4,937	6,110	5,153
<b>Total Roundfish</b>	<b>5,143</b>	<b>7,540</b>	<b>6,794</b>	<b>6,350</b>	<b>7,333</b>	<b>6,187</b>	<b>8,059</b>	<b>8,514</b>
<b>Rockfish</b>								
Pacific Ocean Perch	986	531	1,205	924	756	714	559	650
Shortbelly	18	4	0	1	11	2	0	0
Widow	20,615	10,871	4,648	5,864	5,104	6,142	9,304	8,628
<b>Other Rockfish</b>								
Bocaccio	649	515	723	253	476	272	234	191
Canary	1,669	3,045	2,821	1,145	1,078	892	1,475	1,368
Chilipepper	3	18	11	2	3	1	0	0
Thornyhead	55	76	716	726	876	521	578	713
Yellowtail	4,557	4,324	5,383	3,421	1,824	2,336	2,592	3,182
Remaining Rockfish <sup>a/</sup>	2,441	3,163	2,749	1,988	3,080	2,304	2,296	2,808
Unspecified Rockfish	1,424	1,260	982	620	790	1,206	1,712	2,678
<b>Total Rockfish</b>	<b>32,417</b>	<b>23,807</b>	<b>19,238</b>	<b>14,944</b>	<b>13,999</b>	<b>14,390</b>	<b>18,076</b>	<b>20,218</b>
<b>Flatfish</b>								
Dover Sole	4,896	7,301	6,777	5,271	4,780	3,976	5,571	7,953
English Sole	711	825	692	357	513	641	705	708
Petrale Sole	968	991	1,001	703	617	720	979	1,111
Other Flatfish <sup>b/</sup>	1,563	2,094	1,598	1,157	1,182	892	1,058	904
<b>Total Flatfish</b>	<b>8,138</b>	<b>11,211</b>	<b>10,068</b>	<b>7,488</b>	<b>7,091</b>	<b>6,229</b>	<b>8,313</b>	<b>10,676</b>
<b>Other Fish</b>								
Jack Mackerel	0	0	0	0	0	0	0	48
Others	1,080	880	696	623	904	790	928	841
<b>Total</b>	<b>46,778</b>	<b>43,438</b>	<b>36,796</b>	<b>29,405</b>	<b>29,326</b>	<b>27,610</b>	<b>35,376</b>	<b>40,296</b>

a/ Remaining rockfish are all species of rockfish not specifically listed on this page.

b/ Except arrowtooth flounder which are recorded under other fish.

Data Source: PacFIN data extracted 10/6/89.

Table 4. Estimated commercial groundfish landings (mt) for the INPPC Eureka Area, 1981-1988. (Excludes joint venture and foreign catches.)

Species	Eureka Area							
	1981	1982	1983	1984	1985	1986	1987	1988
<b>Roundfish</b>								
Lingcod	380	553	347	282	239	207	324	316
Pacific Cod	0	0	0	0	0	0	82	15
Pacific Whiting	653	1,014	977	2,338	3,009	2,978	4,508	6,527
Sablefish	2,488	3,791	2,118	2,263	2,530	2,534	1,930	1,558
<b>Total Roundfish</b>	<b>3,521</b>	<b>5,358</b>	<b>3,442</b>	<b>4,883</b>	<b>5,777</b>	<b>5,719</b>	<b>6,844</b>	<b>8,416</b>
<b>Rockfish</b>								
Pacific Ocean Perch	2	225	93	53	97	34	101	31
Shortbelly	0	0	0	0	0	0	0	0
Widow	3,631	4,102	2,615	2,296	2,308	1,683	1,572	1,315
<b>Other Rockfish</b>								
Bocaccio	461	677	463	268	181	90	126	91
Canary	326	901	515	220	182	139	195	91
Chilipepper	22	225	22	98	75	79	82	81
Thornyhead	1,112	1,149	1,011	1,020	1,502	1,670	1,659	3,832
Yellowtail <sup>192</sup>	426	285	474	410	273	76	90	87
Remaining Rockfish <sup>a/</sup>	547	1,275	412	694	844	367	1,820	719
Unspecified Rockfish	641	0	499	359	606	542	572	959
<b>Total Rockfish</b>	<b>7,168</b>	<b>8,839</b>	<b>6,104</b>	<b>5,418</b>	<b>6,067</b>	<b>4,680</b>	<b>6,217</b>	<b>7,206</b>
<b>Flatfish</b>								
Dover Sole	6,289	5,838	5,331	4,856	5,924	5,110	5,098	4,545
English Sole	666	591	712	514	408	340	623	399
Petrale Sole	312	263	384	307	386	241	400	322
Other Flatfish <sup>b/</sup>	855	666	558	573	744	571	755	565
<b>Total Flatfish</b>	<b>8,122</b>	<b>7,358</b>	<b>6,985</b>	<b>6,250</b>	<b>7,462</b>	<b>6,262</b>	<b>6,876</b>	<b>5,831</b>
<b>Other Fish</b>								
Jack Mackerel	97	3	0	0	0	0	0	17
Others	377	157	98	94	143	123	324	174
<b>Total</b>	<b>19,285</b>	<b>21,715</b>	<b>16,629</b>	<b>16,645</b>	<b>19,449</b>	<b>16,761</b>	<b>20,261</b>	<b>21,643</b>

a/ Remaining rockfish are all species of rockfish not specifically listed on this report.

b/ Except arrowtooth flounder which are recorded under other fish.

Data Source: PacFIN data extracted 10/6/89.

Table 5. Estimated commercial groundfish landings (mt) for the INPFC Monterey Area, 1981-1988. (Excludes joint venture and foreign catches.)

Species	Monterey Area							
	1981	1982	1983	1984	1985	1986	1987	1988
<b>Roundfish</b>								
Lingcod	835	829	581	736	492	355	625	654
Pacific Cod	0	0	0	2	1	0	10	0
Pacific Whiting	13	7	3	23	3	3	9	14
Sablefish	3,768	5,047	2,526	2,220	3,221	3,570	2,807	2428
<b>Total Roundfish</b>	<b>4,616</b>	<b>5,883</b>	<b>3,110</b>	<b>2,981</b>	<b>3,717</b>	<b>3,928</b>	<b>3,451</b>	<b>3096</b>
<b>Rockfish</b>								
Pacific Ocean Perch	0	0	0	3	0	2	1	0
Shortbelly	0	0	0	0	0	0	0	0
Widow	2,000	6,997	1,554	937	1,050	953	849	634
<b>Other Rockfish</b>								
Bocaccio	2,663	2,430	2,883	2,084	569	490	761	953
Canary	103	750	0	149	21	28	138	81
Chilipepper	1,988	1,253	1,389	1,318	1,027	524	872	1,096
Thornyhead	1,160	875	726	867	1,247	1,284	1,373	980
Yellowtail	265	150	0	127	22	9	79	75
Remaining Rockfish <sup>a/</sup>	1,532	1,192	3,192	848	882	609	573	4,108
Unspecified Rockfish	224	1,112	252	5,971	5,182	5,721	4,200	678
<b>Total Rockfish</b>	<b>9,935</b>	<b>14,759</b>	<b>9,996</b>	<b>12,304</b>	<b>10,000</b>	<b>9,620</b>	<b>8,846</b>	<b>8,605</b>
<b>Flatfish</b>								
Dover Sole	3,442	4,229	4,021	4,340	5,544	6,125	6,323	4,239
English Sole	922	837	564	497	654	713	697	675
Petrale Sole	419	408	313	298	454	439	500	506
Other Flatfish <sup>b/</sup>	873	846	635	669	960	1,040	930	1,108
<b>Total Flatfish</b>	<b>5,656</b>	<b>6,320</b>	<b>5,533</b>	<b>5,804</b>	<b>7,611</b>	<b>8,317</b>	<b>8,450</b>	<b>6,528</b>
<b>Other Fish</b>								
Jack Mackerel	0	1	0	0	0	0	0	0
Others	148	141	174	113	119	85	79	68
<b>Total</b>	<b>20,355</b>	<b>27,104</b>	<b>18,813</b>	<b>21,202</b>	<b>21,447</b>	<b>21,949</b>	<b>20,826</b>	<b>18,297</b>

a/ Remaining rockfish are all species of rockfish not specifically listed on this page.

b/ Except arrowtooth flounder which are recorded under other fish.

Data Source: PacFIN data extracted 10/6/89.

Table 6. Estimated commercial groundfish landings (mt) for the INPFC Conception Area, 1981-1988. (Excludes joint venture and foreign catches.)

Species	Conception Area							
	1981	1982	1983	1984	1985	1986	1987	1988
<b>Roundfish</b>								
Lingcod	167	163	46	21	21	16	17	16
Pacific Cod	0	0	0	0	0	0	0	0
Pacific Whiting	0	0	0	0	0	1	1	0
Sablefish	550	946	1,923	1,070	269	359	64	10
<b>Total Roundfish</b>	<b>717</b>	<b>1,109</b>	<b>1,969</b>	<b>1,091</b>	<b>290</b>	<b>376</b>	<b>82</b>	<b>26</b>
<b>Rockfish</b>								
Pacific Ocean Perch	1			0	0	0	0	0
Shortbelly				0	0	0	0	0
Widow		66	19	68	4	5	0	6
<b>Other Rockfish</b>								
Bocaccio				239	65	97	34	25
Canary				0	1	1	9	5
Chilipepper				247	210	65	16	17
Thornyhead			96	312	399	98	44	1
Yellowtail				25	1	12	0	3
Remaining Rockfish <sup>a/</sup>		19	12	215	141	236	209	901
Unspecified Rockfish	3,813	4,338	3,055	1,911	2,112	2,575	1,909	118
<b>Total Rockfish</b>	<b>3,814</b>	<b>4,423</b>	<b>3,182</b>	<b>3,017</b>	<b>2,933</b>	<b>3,089</b>	<b>2,221</b>	<b>1,076</b>
<b>Flatfish</b>								
Dover Sole	61	109	369	1,286	1,576	480	134	4
English Sole	208	148	57	32	40	42	49	25
Petrable Sole	130	170	74	50	88	94	54	7
Other Flatfish <sup>b/</sup>	112	108	140	71	143	93	57	32
<b>Total Flatfish</b>	<b>511</b>	<b>535</b>	<b>640</b>	<b>1,439</b>	<b>1,847</b>	<b>709</b>	<b>294</b>	<b>68</b>
<b>Other Fish</b>								
Jack Mackerel	0	0	0	0	0	0	0	0
Others	120	110	83	107	116	91	91	65
<b>Total</b>	<b>5,162</b>	<b>6,177</b>	<b>5,874</b>	<b>5,654</b>	<b>5,186</b>	<b>4,265</b>	<b>2,688</b>	<b>1,235</b>

a/ Remaining rockfish are all species of rockfish not specifically listed on this report.

b/ Except arrowtooth flounder which are recorded under other fish.

Data Source: PacFIN data extracted 10/6/89.

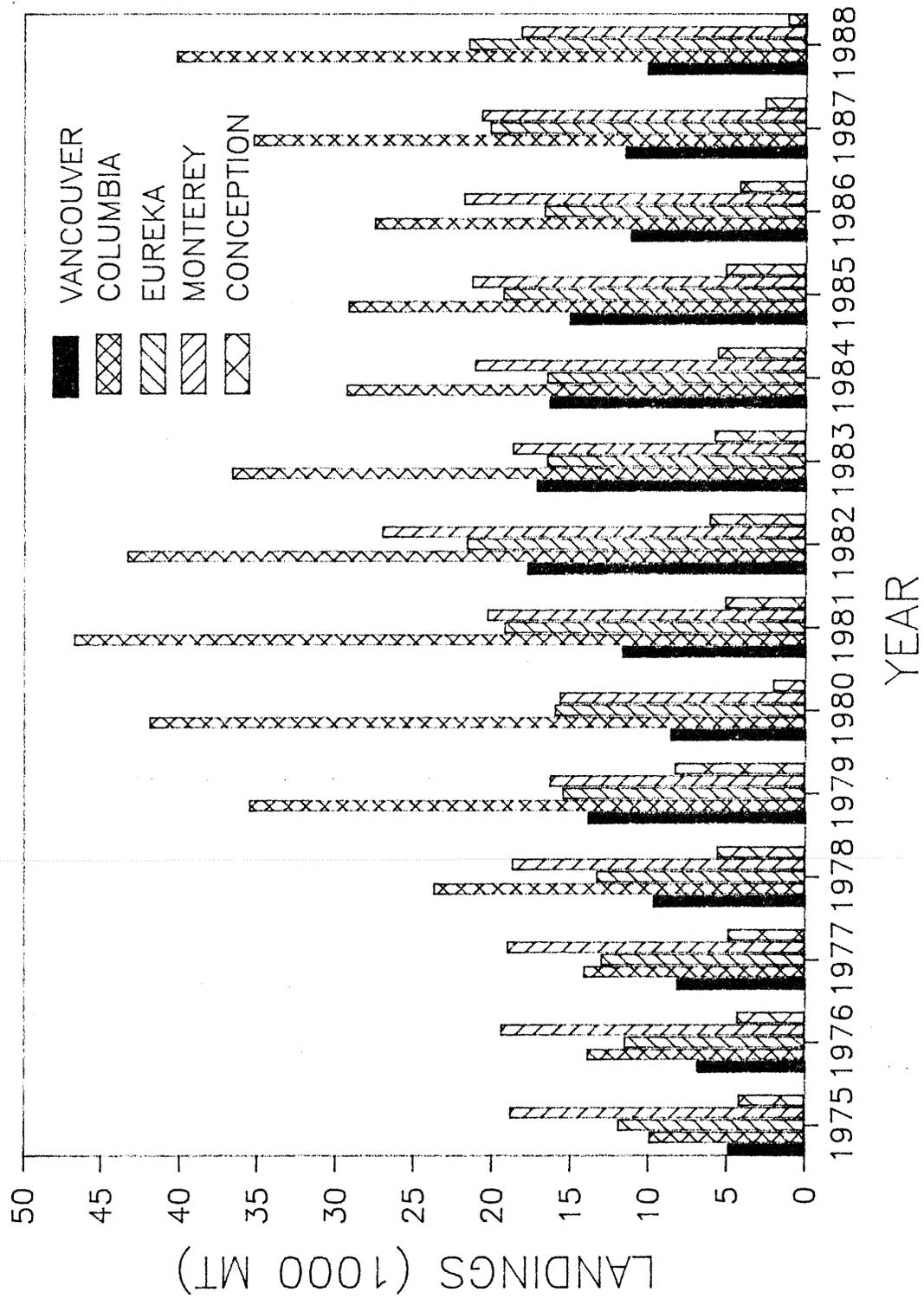


Figure 3. Pacific coast groundfish landings by area.

Reasons for increased total groundfish landings included fishing fleet harvesting capacity that far exceeded the sustainable production capacity of the groundfish resource taken in traditional fisheries. As early as 1980, the draft FMP contained the following statements:

. . . recently a series of events have occurred which are creating dramatic changes and are threatening the efficacy of the existing management regime. Regulatory and economic displacement of vessels from other fisheries and new vessels entering the fishery during the past years have resulted in substantial increases in fishing effort in the Washington, Oregon, and California groundfish fisheries . . . . New technology, improved electronic navigating, and fish-finding equipment have tended to increase harvesting ability . . . .

In addition, a 1982<sup>2/</sup> report on the development potential of the west coast groundfish industry<sup>2/</sup> concluded that:

. . . The groundfish resources in the West Coast region, with exception of Pacific whiting and shortbelly rockfish, are already heavily utilized and there is little room for expansion . . . .

In summary, the Pacific coast groundfish fishery expanded from a relatively small fishery harvesting surplus production from generally healthy or underharvested stocks of fish to one with excessive effort with limited room for long-term expansion of the traditional fisheries.

### History of Management

#### Prior to FMP Implementation

Prior to implementation of the FMP in September 1982, management of domestic groundfish fisheries was under the jurisdiction of the states of Washington, Oregon and California. Included in the FMP is a history of state management regimes. Subsequent to implementation of the MFCMA in 1977 (but prior to the implementation of the FMP in 1982), state agencies worked with the Council to address conservation issues. Specifically, in 1981 the Council proposed a rebuilding program for Pacific ocean perch. To implement this program, the states of Oregon and Washington established landing limits for Pacific ocean perch in the Vancouver and Columbia areas. These limits were revised in January 1982 prior to enactment of the FMP in September, but the 20-year rebuilding program remained unchanged.

2/ West Coast Ports and Development of the Groundfish Fishery. July 1982. A consultants report prepared by Kramer, Chin, and Mayo, Inc., Seattle, Washington.

## Under FMP Jurisdiction

The FMP became effective September 30, 1982. Management actions recommended by the Council and implemented by NMFS from September 1982 through October 1989 are summarized in Table 7. Those management actions included establishing final OYs for the six species designated for numerical OY management. OYs and the corresponding ABCs are listed in Table 8.

### 1983 Fishery

For all practical purposes, full-time active management of the Pacific coast groundfish fishery under the FMP began in 1983. The Council approved ABCs (Table 9); established regulatory management regimes for widow rockfish and sablefish for the entire region, for the Sebastes complex, and for rockfish in the Vancouver and Columbia areas; and continued the rebuilding program for Pacific ocean perch.

A coastwide OY of 10,500 mt was set for widow rockfish and a vessel trip limit of 30,000 pounds was imposed in an attempt to prevent an early closure of the fishery. A harvest guideline of 14,000 mt was established for the Sebastes complex in the combined Vancouver and Columbia areas. The Council had set an ABC of 9,500 mt as the GMT recommended. The Sebastes landings in this area in 1982 were 18,500 mt. In choosing a 14,000 mt harvest guideline halfway between the 1982 landings and the 1983 ABC, the Council acted to bring production gradually into compliance with conservation needs over a period of two to three years without undue economic hardship. In an attempt to spread the landings over the entire year, coastwide vessel trip limits of 40,000 pounds were imposed.

The fishery for the Sebastes complex in the Vancouver and Columbia areas and for widow rockfish in the entire region quickly adjusted to the new trip limits by changing traditional fishing patterns. In June the GMT projected that the Sebastes complex landings would reach the 14,000 mt harvest guideline by early August unless action was taken. The Council increased the harvest guideline to 18,500 mt (almost twice the 9,500 mt ABC) and limited vessels to one trip per week, effective June 13. Landings declined somewhat but not to levels that would allow the fishery to continue for the entire year. In September, the Council recommended that the trip limit be reduced to 3,000 pounds, effectively eliminating the directed fishery, and announced that all landings of Sebastes complex caught in the Vancouver and Columbia areas would be prohibited if the 18,500 mt HG was reached. This action drastically reduced the rate of landings; total 1983 Sebastes complex landings in the Vancouver and Columbia areas were nearly 18,000 mt.

Widow rockfish landings also proceeded at a rapid pace. The directed (target) fishery was closed on September 10 but a 1,000 pound incidental catch per trip was permitted. Total 1983 widow landings were over 10,300 mt, about 1 percent below the OY.

Pacific ocean perch landings in the Columbia Area exceeded the 950 mt OY level in November and the fishery was closed beginning December 6. Total 1983 Columbia Area Pacific ocean perch landings were 1,205 mt.

Table 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

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Regulations in a given year continue until modified, superseded, or rescinded.

Effective October 13, 1982

- Recommended 75,000 pound trip limit on widow rockfish for remainder of 1982 (coastwide OY = 26,000 mt).
- Sablefish OY exceeded; 3,000 pounds trip limit imposed (coastwide OY = 13,400 mt).

Effective November 30, 1982

- Recommended extension of widow rockfish trip limits of 75,000 pounds to January 31, 1983 (effective January 1, 1983).
- Recommended extension of sablefish trip limit of 3,000 pounds for remainder of 1982.
- Sablefish OY increased 30 percent to 17,400 mt for 1982 and recommended this to be the preliminary specification for 1983 (ABC = 13,400 mt).

Effective January 1, 1983

- Recommended extension of widow rockfish trip limits of 75,000 pounds until superseded.
- Adopted policy to continue groundfish fishery over the entire year.
- Recommended coastwide trip limit of 30,000 pounds on widow rockfish; adjust in midseason as necessary so that 10,500 mt OY is not reached prior to year end (the coastwide widow rockfish ABC and OY were 10,500 mt in 1983).
- Recommended 40,000 pound **coastwide** trip limit on Sebastes complex; adjust as necessary in midseason so that annual catch in the Vancouver and Columbia areas falls about halfway between the 1982 catch and the 1983 aggregate ABC (about 14,000 mt). (The 1983 ABC for these combined areas was 9,500 mt.)
- Recommended 22 inch total length size limit on sablefish in all areas north of Point Conception (excluding Monterey Bay). Permit incidental trip limit for fish smaller than 22 inches of 333 fish, 1,000 pounds, or 10 percent of weight of all sablefish on board. Adjust as necessary to stay within the 17,400 mt OY (ABC = 13,400 mt).

Effective June 28, 1983

- Recommended increase in Vancouver and Columbia areas Sebastes complex HG for 1983 from 14,000 mt to 18,500 mt; retain 40,000 pounds trip limit; trip frequency in Vancouver and Columbia areas set at one per week; when 18,500 mt quota is achieved, fishery closes (Vancouver and Columbia areas ABC = 9,500 mt).
- Recommended that HGs for the Vancouver and Columbia areas Sebastes complex and all flatfish managed under the FMP shall not be permitted to exceed 130 percent of the respective summed ABCs in 1984.
- Recommended retention of 22-inch size limit on sablefish as before, but set incidental allowance of small fish (<22 inches) at 5,000 pounds per trip.

Effective September 10, 1983

- Recommended 1,000 pounds trip limit on coastwide widow rockfish to avoid reaching OY; if 10,500 mt OY reached, fishery closes.
- Recommended 3,000 pounds trip limit on Sebastes complex in Vancouver and Columbia areas; if 18,500 mt quota is reached, fishery closes. One per week trip frequency limit is removed.
- Recommended continuing 40,000 pounds trip limit on Sebastes complex south of 43°N; no limit on number of trips.

Effective November 10, 1983

- Recommended closure of Columbia Area to Pacific ocean perch fishing until the end of the year as 950 mt OY for this species has been reached; retain 5,000 pounds trip limit or 10 percent of total trip weight on landings of Pacific ocean perch in Vancouver Area.

Effective January 1, 1984

- Recommended coastwide widow rockfish trip limit of 50,000 pounds; trip frequency limited to one per week; if OY of 9,300 mt is reached fishery closes.

Table 7. Council groundfish management/regulatory actions (continued).

- HG for *Sebastes* complex in the Vancouver and Columbia areas established at 10,100 mt (110 percent of the summed ABCs).
- Recommended 30,000 pounds trip limit on *Sebastes* complex from Vancouver and Columbia areas; one trip per week north of 43°N (changed to Cape Blanco, 42°50', on February 12, 1984).
- Recommended continuance of 40,000 pound trip limit on *Sebastes* complex south of 43° (changed to 42°50' on February, 12, 1984); no limit on trip frequency.
- Recommended continuance of 22-inch size limit on sablefish as in 1983; retain 5,000 pounds incidental allowance of small fish (<22 inches); fishery closes when coastwide OY of 17,400 mt is reached (ABC = 13,400 mt).
- Continuation of 5,000 pound trip limit or 10 percent of total trip weight on Pacific ocean perch as specified in FMP. Fishery closes when area OYs are reached (see action effective November 10, 1983 above).

Effective February 12, 1984

- Southern boundary of Vancouver and Columbia areas shifted south, from 43°00' to 42°50' for management of *Sebastes* complex; application of *Sebastes* complex regulations clarified.

Effective May 6, 1984

- Recommended reduction in coastwide widow rockfish trip limit from 50,000 pounds once each week to 40,000 pounds once each week.
- Recommended reduction in Vancouver and Columbia areas *Sebastes* complex from 30,000 pounds once each week to 15,000 pounds once each week; fishermen have option to land 30,000 pounds once-every-two weeks with appropriate advance declaration of intent.
- Fishing for groundfish on a *Sebastes* complex trip may occur on only one side of Cape Blanco (42°50') which allows southern caught fish to be landed north of Cape Blanco using southern trip limit of 40,000 pounds with appropriate declaration of intent.
- Recommended no change in *Sebastes* complex trip limit of 40,000 pounds in Eureka, Monterey, Conception areas.

Effective August 1, 1984

- Recommended cessation of directed fishing for widow rockfish when 9,200 mt of the 9,300 mt OY is landed. Remaining 100 mt is a quota for incidental landings, to be taken in incidental landing limits of 1,000 pounds per trip. The fishery for this species will close when the 9,300 mt quota is taken.
- Recommended immediate reduction in trip limit for Pacific ocean perch in the Vancouver and Columbia areas to 20 percent by weight of all fish on board, not to exceed 5,000 pounds per vessel per trip. When OY is reached in either area, landings of Pacific ocean perch will be prohibited in that area (Oregon and Washington implemented Pacific ocean perch recommendation in mid-July).
- Recommended reduction in landings of Vancouver and Columbia areas *Sebastes* complex to 7,500 pounds once each week or 15,000 pounds once-every-two weeks with appropriate advance declaration of intent. When the 10,100 mt HG is reached, a 3,000 pounds trip limit will be imposed.
- Recommended allowing vessel operators on combined groundfish/*Sebastes* complex trips to fish on both sides of a line at 42°50'N (Cape Blanco) but landing of *Sebastes* complex in excess of 3,000 pounds to be controlled by the trip limit/trip frequency in effect north of the line (Vancouver and Columbia areas). Appropriate advance declaration of intent is required.

Automatic Closure (effective August 16, 1984)

- Commercial fishing for Pacific ocean perch in Columbia Area closed for remainder of the year. (See items regarding this species effective January 1 and August 1, 1984 above.)

Automatic Action (effective September 9, 1984)

- Recommended cessation of directed fishing for widow rockfish; incidental catch trip limit reduced to 1,000 pounds (based on action effective August 1, 1984), fishery for this species closed on November 28.

Table 7. Council groundfish management/regulatory actions (continued).

-----  
Effective January 10, 1985

- Recommended coastwide widow rockfish trip limit of 30,000 pounds; trip frequency limited to one per week (or 60,000 pounds once-every-two weeks with appropriate declaration to state in which fish are landed); adjust after first trimester, as necessary (OY = 9,300 mt).
- HG for Sebastes complex in Vancouver and Columbia areas fixed at 10,100 mt.
- For Sebastes complex north of Cape Blanco (42°50'N): recommended 30,000 pound trip limit of which no more than 10,000 pounds may be yellowtail rockfish (or 60,000 pounds once-every-two weeks of which no more than 20,000 pounds may be yellowtail rockfish with appropriate declaration to state in which fish are landed).
- For Sebastes complex south of Cape Blanco: recommend 40,000 pound trip limit without a trip frequency.
- Recommended that if fishermen fish on both sides of the Cape Blanco line during a trip, the northern (more restrictive) limit on Sebastes complex will apply.
- Recommended that landings of Sebastes complex and widow rockfish smaller than 3,000 pounds be unrestricted.
- Recommended continuing 22-inch size limit on sablefish in all areas north of Point Conception (abolishes Monterey Bay exclusion); retain 5,000 pound limit incidental landing limit for sablefish less than 22 inches.
- Recommended Vancouver and Columbia areas Pacific ocean perch trip limit of 20 percent by weight of all fish on board (no 5,000 pound limit as specified in last half of 1984).

Effective April 28, 1985

- Recommended retention of the coastwide widow rockfish trip limit of 30,000 pounds once per week, but rescinded the option to land 60,000 pounds once-every-two weeks.
- Recommended reduction in the coastwide widow rockfish trip limit to 10 percent by weight of all fish on board not to exceed 3,000 pounds if 90 percent of the OY (about 8,400 mt) is reached before the Council's July meeting (under this incidental limit, landings of widow rockfish less than 1,000 pounds will be unrestricted).
- For the Sebastes complex north of Cape Blanco (42°50'N): recommended reduction in the current trip limit to 15,000 pounds once per week of which no more than 5,000 pounds may be yellowtail rockfish (or 30,000 pounds once-every-two weeks of which no more than 10,000 pounds may be yellowtail rockfish). Recommended a third option to land 7,500 pounds twice each week of which no more than 3,000 pounds in each landing may be yellowtail rockfish; landings declaration apply.
- Recommended the Vancouver and Columbia areas Pacific ocean perch trip limit be reduced to 5,000 pounds or 20 percent by weight of all fish on board **whichever is less**. Landings of Pacific ocean perch less than 1,000 pounds will be unrestricted. The fishery for this species will close when the OY in each area is reached.

Effective June 10, 1985

- Recommended landings of Pacific ocean perch up to 1,000 pounds per trip will be unrestricted regardless of the percentage of these fish on board.

Effective July 21, 1985

- Recommended reduction of the coastwide widow rockfish trip limit to 3,000 pounds per trip without a trip frequency.

Effective July 25, 1985

- Recommended that "tickler chains" which contact the sea floor ahead of the rollers may not be used with a roller or bobbin trawl.

Effective September 1, 1985

- Recommended changing the management boundary line separating northern and southern trip limits for the Sebastes complex from Cape Blanco (42°50'N) northward 30 miles to the north jetty at Coos Bay (43°22'N).

Table 7. Council groundfish management/regulatory actions (continued).

-----  
Effective October 6, 1985

- Recommended increasing the Vancouver and Columbia areas Sebastes complex trip limit to 20,000 pounds once per week except that no more than 5,000 pounds may be yellowtail rockfish (or one landing once-every-two weeks of 40,000 pounds of which no more than 10,000 pounds may be yellowtail rockfish, or two landings per week of 10,000 pounds each of which no more than 3,000 pounds per landing may be yellowtail rockfish; landings declaration apply).

Effective November 25, 1985

- Established that 90 percent of sablefish quota had been reached and recommended a trip limit of 13 percent sablefish in all trawl landings containing sablefish.

Effective December 6, 1985

- Established that sablefish quota (OY) had been exceeded on November 22, 1985; recommended that landings of sablefish be prohibited until January 1, 1986.

Effective January 1, 1986

- Recommended coastwide widow rockfish (trip limit of 30,000 pounds per week; no biweekly option [coastwide OY = 10,200 mt; ABC = 9,300 mt]).
- HG for Sebastes complex north of Coos Bay, Oregon (43°22'N) fixed at 10,100 mt.
- For Sebastes complex north of Coos Bay; recommended 25,000 pound weekly trip limit of which no more than 10,000 pounds may be yellowtail rockfish (or 50,000 pounds biweekly of which no more than 20,000 pounds may be yellowtail rockfish; or 12,500 pounds twice per week of which no more than 5,000 pounds may be yellowtail rockfish--biweekly and twice weekly landings require appropriate declaration to state in which fish are landed).
- For Sebastes complex south of Coos Bay: recommended 40,000 pound trip limit; no trip frequency.
- Recommended landings of Sebastes complex and widow rockfish be unrestricted if less than 3,000 pounds.
- Recommended that fishermen fishing the Sebastes complex on both sides of the Coos Bay line during a trip must conform with the northern (more restrictive) trip limit.
- Recommended continuance of 22-inch size limit on sablefish in all areas north of Point Conception; retain 5,000 pound incidental landing limit for sablefish smaller than 22 inches; coastwide OY = 13,600 mt; ABC = 10,300 mt.
- Recommended the Pacific ocean perch limit in the area north of Cape Blanco (42°50'N) should be 20 percent (by weight) of all fish on board or 10,000 pounds whichever is less; landings of Pacific ocean perch be unrestricted if less than 1,000 pounds regardless of percentage on board; Vancouver Area OY = 600 mt; Columbia Area OY 950 mt.
- Recommended an ABC and OY of 227,500 mt for Pacific whiting.
- Recommended an ABC of 3,900 mt for yellowtail rockfish.

Effective April 11, 1986

- Recommended increasing Pacific whiting ABC and OY to 295,800 mt, up 30 percent from 227,500 mt established at the beginning of 1986.
- Recommended increasing yellowtail rockfish ABC to 4,000 mt, up 100 mt from 3,900 mt established at beginning of 1986. (Yellowtail rockfish is in the multispecies Sebastes complex and does not have a numerical OY.) The 100 mt increase is assigned entirely to the Columbia Area north of Coos Bay.

Automatic Action (See September 28, 1986 below)

- Recommended in April to impose a 3,000 pound trip limit without a trip frequency to be implemented when the widow rockfish ABC is reached.

Effective August 22, 1986 (Emergency Regulation)

- Recommended allocating the estimated remaining sablefish OY between trawl and fixed gear at 55 and 45 percent, respectively.
- Recommended an 8,000 pound sablefish trip limit on trawl gear.

Table 7. Council groundfish management/regulatory actions (continued).

- 
- Recommended retention of the current regulation of a 5,000 pound trip limit on sablefish smaller than 22 inches.
  - Recommended prohibition of any further landings of sablefish by trawl gear after trawl quota is reached.
  - Recommended prohibition of any further landings of sablefish by fixed gear after fixed gear quota is reached.
  - Recommended prohibition of any further landings of sablefish after the coastwide OY is reached.

Effective August 26, 1986 (See August 22, 1986 Emergency Regulation)

- Announced amounts of sablefish quota under emergency regulations (2,915 mt trawl; 2,385 mt fixed gear).

Effective August 31, 1986

- For Sebastes complex north of Coos Bay, Oregon: recommended the following increase in trip limits: **weekly**--30,000 pounds of which no more than 12,500 pounds may be yellowtail rockfish; **biweekly**--60,000 pounds of which no more than 25,000 pounds may be yellowtail rockfish; and **twice-weekly**--15,000 pounds of which no more than 6,500 pounds may be yellowtail rockfish.

Effective September 28, 1986

- Widow rockfish ABC reached; coastwide 3,000 pound trip limit without trip frequency imposed (see Automatic Action above).

Effective October 23, 1986 (See August 22, 1986 Emergency Regulation)

- Fixed gear sablefish quota reached; fixed gear fishery closed.
- Trawl gear trip limit increased to 12,000 pounds for remainder of year or until trawl gear quota is reached.
- Sablefish quotas revised (2,800 mt trawl; 2,300 mt fixed gear).

Effective November 20, 1986 (See August 22, 1986 Emergency Regulation)

- Extension of sablefish emergency regulation until the end of the year.

Effective December 1, 1986

- OY quota for Pacific ocean perch reached in the Vancouver subarea; fishery closed until January 1, 1987.

Effective January 1, 1987

- Recommended a coastwide widow rockfish trip limit of 30,000 pounds per week with no biweekly option. Only one landing per week above 3,000 pounds (coastwide OY = 12,500 mt; ABC = 12,100 mt).
- HG for Sebastes complex north of Coos Bay, Oregon (43°21'34"N) fixed at 10,200 mt.
- For Sebastes complex north of Coos Bay: recommended 25,000 pound weekly trip limit of which no more than 10,000 pounds may be yellowtail rockfish (or 50,000 pounds biweekly of which no more than 20,000 pounds may be yellowtail rockfish; or 12,500 pounds twice per week, of which no more than 5,000 pounds may be yellowtail rockfish--biweekly and twice weekly landings require appropriate declaration to state in which fish are landed); no restriction on landings less than 3,000 pounds.
- For Sebastes complex south of Coos Bay: recommended 40,000 pound trip limit; no trip frequency limit.
- Recommended allocating the sablefish OY between trawl and fixed gear at 52 (6,200 mt) and 48 percent (5,800 mt), respectively; if the quota for either gear type is reached, sablefish becomes a prohibited species for that gear; coastwide OY, ABC = 12,000 mt.
- Recommended 5,000 pound trawl and 100 pound fixed gear trip limits (round weights) for sablefish smaller than 22 inches total length (16 inches dorsal total length), and apply coastwide.
- Recommended the coastwide Pacific ocean perch limit should be 20 percent of all legal fish on board or 5,000 pounds whichever is less (in round weight); landings of Pacific ocean perch unrestricted if less than 1,000 pounds regardless of percentage on board; Vancouver Area OY = 500 mt; Columbia Area OY = 800 mt.

Table 7. Council groundfish management/regulatory actions (continued).

- 
- Recommended an ABC and OY of 195,000 mt for Pacific whiting.
  - Recommended an ABC of 4,000 mt for yellowtail rockfish.

Effective April 5, 1987

- Recommended that the size limit of processed sablefish be changed from 16.0 inches to 15.5 inches (dorsal total length).

Effective April 27, 1987

- Recommended that the trip limit for sablefish smaller than 22 inches (total length) caught by fixed gear be increased from 100 pounds to 1,500 pounds coastwide.

Effective May 3, 1987

- Recommended changing the definition of fishing week from Sunday through Saturday to Wednesday through Tuesday for *Sebastes* complex and widow rockfish.

Effective July 22, 1987

- Recommended that the weekly trip limit for yellowtail rockfish caught north of Coos Bay should be decreased to 7,500 pounds (or 15,000 pounds biweekly; or 3,750 pounds twice weekly).

Effective August 14, 1987

- Coastwide ABCs for widow and chilipepper rockfish increased to 12,500 mt and 3,600 mt, respectively.

Effective October 2, 1987

- Recommended that the trawl trip limit for sablefish should be 6,000 pounds or 20 percent of the legal fish on board, whichever is greater, including no more than 5,000 pounds of sablefish under 22 inches.

Effective October 14, 1987

- Recommended that the weekly trip limit for widow rockfish be reduced from 30,000 pounds to 5,000 pounds when 95 percent of the widow rockfish OY is projected to be reached (i.e., at 11,875 mt). Closure of the nontrawl (fixed gear) sablefish fishery because the nontrawl allocation of 5,800 mt was reached.

Effective October 22, 1987

- Closure of sablefish trawl fishery because the trawl allocation of 6,200 mt was reached.

Effective November 25, 1987

- Closure of widow rockfish fishery because 12,500 mt was reached.

Effective January 1, 1988

- Recommended a coastwide widow rockfish trip limit of 30,000 pounds per week. Only one landing per week above 3,000 pounds. No restriction on landings less than 3,000 pounds (coastwide OY/ABC = 12,100 mt).
- HG for *Sebastes* complex north of Coos Bay, Oregon (43°21'34"N) fixed at 10,200.
- For *Sebastes* complex north of Coos Bay: recommended 25,000 pound weekly trip limit of which no more than 10,000 pounds may be yellowtail rockfish (or 50,000 pounds biweekly of which no more than 20,000 pounds may be yellowtail rockfish; or 12,500 pounds twice per week, of which no more than 5,000 pounds may be yellowtail rockfish--biweekly and twice weekly landings require appropriate declaration to state in which fish are landed). No restriction on landings less than 3,000 pounds.
- For *Sebastes* complex south of Coos Bay: recommended 40,000 pound trip limit; no trip frequency restriction.
- Recommended allocating the sablefish OY between trawl and nontrawl (fixed gear) at 5,200 mt and 4,800 mt, respectively; if the quota for nontrawl gear is reached, sablefish becomes a prohibited species for that gear; manage the trawl fishery to achieve the trawl allocation, provided that up to an additional 800 mt may be added to the trawl allocation for unavoidable incidental catch; coastwide OY = 9,200 - 10,800 mt; ABC = 10,000 mt.

Table 7. Council groundfish management/regulatory actions (continued).

- For trawl-caught sablefish, recommended trip limit of 6,000 pounds or 20 percent of legal fish on board, whichever is greater, with only two landings above 1,000 pounds allowed per vessel per week; no restriction on landings less than 1,000 pounds.
- Recommended continuance of 22-inch total length size limit (15.5 inch dorsal length) on sablefish in all areas; 5,000 pound trawl and 1,500 pound nontrawl incidental landing limits for sablefish smaller than the minimum size limit.
- Recommended the Pacific ocean perch limit in the area north of Cape Blanco (42°50'N) should be 20 percent (by weight) of all fish on board or 5,000 pounds whichever is less; landings of Pacific ocean perch be unrestricted if less than 1,000 pounds regardless of percentage on board; Vancouver OY = 500 mt; Columbia OY 800 mt.
- Recommended an ABC and OY of 232,000 mt for Pacific whiting.
- Recommended an ABC of 4,000 mt for yellowtail rockfish.

Effective August 3, 1988

- Recommended the trawl sablefish allocation be increased to 6,000 mt; reduce the trawl trip limit to one landing per week, not to exceed 2,000 pounds (including sablefish smaller than 22 inches).
- Recommended changing the nontrawl trip limit for sablefish smaller than 22 inches to 1,500 pounds or 3 percent of all sablefish on board, whichever is greater.

Effective August 26, 1988

- Closure of the nontrawl sablefish fishery because the nontrawl allocation of 4,800 mt was reached.

Effective September 21, 1988

- Recommended lowering the trip limit for widow rockfish to 3,000 pounds (with no restriction on the number of landings per week) on September 21, the date when just enough of the OY remains to allow continuation of this trip limit through the end of the year.

Effective October 5, 1988

- Recommended lifting the restriction that no more than one landing of sablefish by trawlers may be made during any week; reduce the weekly trip limit for yellowtail rockfish north of Coos Bay from 10,000 pounds to 7,500 pounds (biweekly and twice weekly options to remain in effect).

Effective January 1, 1989

- Recommended a coastwide widow rockfish trip limit of 30,000 pounds per week. Only one landing per week above 3,000 pounds. No restriction on landings less than 3,000 pounds (coastwide OY/ABC = 12,400 t).
- HG for Sebastes complex north of Coos Bay, Oregon (43°21'34"N) set at 10,200 t.
- For Sebastes complex north of Coos Bay: recommended 25,000 pound weekly trip limit of which no more than 7,500 pounds may be yellowtail rockfish (or 50,000 pounds biweekly of which no more than 15,000 pounds may be yellowtail rockfish; or 12,500 pounds twice per week, of which no more than 3,750 pounds may be yellowtail rockfish--biweekly and twice weekly landings require appropriate declaration to state in which fish are landed). NO restriction on landings less than 3,000 pounds.
- For Sebastes south of Coos Bay: recommended 40,000 pound trip limit; no trip frequency restriction.
- Recommended managing for the low end of the OY range (10,400 - 11,000 t). After 22 t are set aside from the 10,400 HG for the Makah Indian fishery, the remaining 10,378 t will be allocated 5,397 t (52%) for trawl gear and 4,981 t (48%) for nontrawl (fixed) gear.

Recommended a coastwide trawl trip of 1,000 pounds or 45 percent of the deepwater complex (consisting of sablefish, Dover sole, arrowtooth flounder, and thornyheads), whichever is greater. Within the 45 percent trawl limit, no more than 5,000 pounds of sablefish smaller than 22 inches (total length) may be taken per trip. If fishing under the 1,000 pound limit, all sablefish not be smaller than 22 inches.

The coastwide nontrawl trip limit for sablefish smaller than 22 inches is 1,500 pounds or 3 percent of all sablefish on board, whichever is greater.

Table 7. Council groundfish management/regulatory actions (continued).

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- If necessary, the harvest guideline may be increased by up to 600 t to enable small fisheries to continue operating after a gear allocation is met and to allow for landings of sablefish caught incidentally while fishing for other species. If the upper end of the OY range (11,000 t) is reached, all further landings will be prohibited. (coastwide ABC = 9,000 t; OY = 10,400 - 11,000 t).
  - Recommended the Pacific ocean perch limit in the area north of Cape Blanco (42°50'N) should be 20 percent (by weight) of all fish on board or 5,000 pounds whichever is less; landings of Pacific ocean perch be unrestricted if less than 1,000 pounds regardless of percentage on board. (Vancouver OY = 500 t; Columbia OY = 800 t).
  - Recommended an ABC and OY of 225,000 t for Pacific whiting.
  - Recommended an ABC of 4,300 t for yellowtail rockfish.

Effective April 26, 1989

- Recommended a coastwide weekly trip limit on the deepwater complex (consisting of sablefish, Dover sole, arrowtooth flounder, and thornyheads), of only one landing above 4,000 pounds per week, not to exceed 30,000 pounds. There will be no limit on the number of landings of deepwater complex less than 4,000 pounds. For each landing of the deepwater complex, no more than 1,000 pounds or 25 percent of the deepwater complex, whichever is greater, may be sablefish. If fishing under the 25 percent limit, no more than 5,000 pounds may be sablefish under 22 inches (total length). If fishing under the 1,000 pound limit, all sablefish may be under 22 inches. Biweekly and twice weekly trip limit options for trawl-caught sablefish are available but require appropriate declaration to state in which fish are landed.
- Recommended that the gear quotas be revised for the remainder of the year by reducing the nontrawl quota 400 t (to 4,581 t) and increasing the trawl quota by 1000 t (400 t from nontrawl gear plus the 600 t reserve) so it totals 6,397 t. If either gear quota is reached, further landings by that gear will be prohibited for the remainder of the year.
- Recommended the coastwide weekly trip limit for widow rockfish be reduced to 10,000 pounds.

Effective July 17, 1989

- Recommended a nontrawl sablefish trip limit of 100 pounds with no frequency limit coastwide for the remainder of the year, until the nontrawl allocation is reached, or until OY is reached, whichever occurs first.

Effective July 26, 1989

- Recommended the trip limit for yellowtail rockfish be reduced to 3,000 pounds or 20 percent of the Sebastes complex, whichever is greater.
- Recommended the trip limit for Pacific ocean perch in the Columbia area be reduced to 2,000 pounds or 20 percent of all fish on board, whichever is less, with no trip frequency restriction.
- Recommended the Columbia area Pacific ocean perch OY be increased from 800 t up to 1,040 t.

Effective October 4, 1989

- Recommended removal of the overall poundage and trip frequency limits for the deepwater complex, while retaining the separate trip limit for sablefish at 25 percent of the deepwater complex or 1,000 pounds, whichever is greater.
- Recommended increasing the nontrawl trip limit to 2,000 pounds or 20 percent of all groundfish on board, whichever is less. This limit will be applied only if more than 100 pounds of sablefish are on board.

Effective October 11, 1989

- Recommended lowering the trip limit for widow rockfish to 3,000 pounds (with no restriction on the number of landings per week) on October 11, the date when just enough of the OY remains to allow continuation of this trip limit through the end of the year.
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Table 8. Final OY and ABC specifications made under the FMP, 1982-1989. Includes inseason adjustments, if any in thousands of metric tons.

	1982	1983	1984	1985	1986	1987	1988	1989
Pacific whiting:								
OY:	175.5	175.5	175.5	175.0	295.8	195.0	232.0	225.0
ABC:	175.5	175.5	175.5	175.0	295.8	195.0	232.0	225.0
Sablefish:								
OY:	17.4	17.4	17.4	13.6	13.6	12.0	9.2-10.8	10.4-11.0
ABC:	13.4	13.4	13.4	12.3	10.6	12.0	10.0	9.0
POP:								
OY:	1.55	1.55	1.55	1.55	1.55	1.3	1.3	1.54
ABC:	0-1.55	1.55	1.55	1.55	1.55	0.0	0.0	0.0
Shortbelly rockfish:								
OY:	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0*
ABC:	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0*
Widow rockfish:								
OY:	26.0	10.5	9.3	9.3	10.2	12.5	12.1	12.4
ABC:	18.3	10.5	9.3	7.4	9.3	12.5	12.1	12.4
Jack mackerel:								
OY:	NA	NA	12.0	12.0	12.0	12.0	12.0	12.0
ABC:	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0

\* proposed increase to 13,000 mt not final as of 10/19/89

sources:

- 1982 -- 47 FR 43964 (10/5/82) and 48 FR 8542 (2/14/83)
- 1983 -- 48 FR 6715 (2/15/85)
- 1984 -- 49 FR 1060 (1/9/84) and 49 FR 27518 (7/5/84)
- 1985 -- 50 FR 471 (1/4/85)
- 1986 -- 51 FR 1255 (1/10/86) and 51 FR 12622 (4/14/86)
- 1987 -- 52 FR 682 (1/8/87) and 52 FR 31034 (8/19/87)
- 1988 -- 53 FR 248 (1/6/88)
- 1989 -- 54 FR 32 (1/3/89)

Table 9. ABCs for 1983 in metric tons for the California-Washington region by INPFC areas.

Species	Vancouver	Columbia	Eureka	Monterey	Conception	Total
<b>Roundfish</b>						
Lingcod	1,000	4,000	500	1,100	400	7,000
Pacific Cod	2,200	900	a/	a/	a/	3,100 <sup>b/</sup>
Pacific Whiting						175,500 <sup>b/</sup>
Sablefish			2,500 <sup>c/</sup>			13,400 <sup>b/</sup>
<b>Rockfish</b>						
Pacific Ocean Perch	600	950	a/	a/	a/	1,550 <sup>b/</sup>
Shortbelly						10,000 <sup>b/</sup>
Widow	<b>400</b>	<b>N 1,600*</b> <b>S 4,900</b>	<b>1,500</b>	<b>2,100</b>	d/	<b>10,500</b>
<b>Other Rockfish<sup>e/</sup></b>						
Bocaccio	a/	a/	a/	4,100	2,000	6,100
Canary	800	1,300	600	a/	a/	2,700
Chilipepper	a/	a/	a/	1,300	1,000	2,300
Yellowtail	<b>1,400</b>	<b>1,500</b>	300	a/	a/	<b>3,200</b>
Remaining Rockfish	2,000	2,500	1,900	4,300	3,300	14,000
<b>Flatfish</b>						
Dover Sole	1,000	4,000	8,000	5,000	1,000	19,000
English Sole	600	2,000	800	900	200	4,500
Petrale Sole	600	1,100	500	800	200	3,200
Other Flatfish (except arrowtooth flounder)	700	3,000	1,700	1,800	500	7,700
<b>Other Fish<sup>f/</sup></b>						
Jack Mackerel						12,000 <sup>g/</sup>
Others	3,000	7,000	2,000	2,000	2,000	16,000

\* Split into northern and southern Columbia subareas. **Bold denotes changes.**

a/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

b/ Total all areas.

c/ Monterey Bay only.

d/ There are insufficient data to calculate an ABC.

e/ "Other Rockfish" means rockfish species which do not have a numerical OY.

f/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrowtooth flounder.

g/ All areas north of 39°N latitude.

Because it was feared that excessive amounts of juvenile sablefish were being landed, a 22-inch size limit was imposed on sablefish caught north of Point Conception (except Monterey Bay). About 14,500 mt of sablefish were harvested in 1983, about 1,100 mt above the 13,400 mt ABC and 2,900 mt below the 17,400 mt OY. A much reduced market in Japan during 1983 helped to reduce the 1983 catch below the 1982 catch.

#### 1984 Fishery

The ABCs for the 1984 fishery were approved by the Council at the November meeting (Table 10). Management actions in 1984 (Table 7) involved widow rockfish, the Sebastes complex (rockfish), and Pacific ocean perch. The size and trip limits set for sablefish in 1983 continued throughout 1984.

The OY for widow rockfish was reduced to 9,300 mt in 1984 from 10,500 mt in 1983. On January 1, 1984, the trip limit was set at 50,000 pounds. In addition a trip frequency limit was set allowing only one landing of widow rockfish above 3,000 pounds in a week. In early May, the trip limit for widow rockfish was reduced to 40,000 pounds and the trip frequency restriction (one landing per week above 3,000 pounds) was maintained. The Council announced in July that when 9,200 mt of widow rockfish were landed, a trip limit of 1,000 pounds would be imposed (with no frequency restriction) for the remaining 100 mt of the quota. In early September, the 1,000 pound trip limit was imposed, and all landings for widow rockfish were prohibited on November 28 when the quota was expected to be reached.

After having been closed the last two months of 1983 in the Columbia Area, the Pacific ocean perch fishery resumed January 1, 1984 in both the Vancouver and Columbia areas under the 5,000 pounds or 10 percent by weight (whichever is greater) trip limit established in the FMP. Projections made in July indicated landings under this limit would exceed the 950 mt Columbia Area OY by the first week in August if current landing rates continued. On July 16, the States of Oregon and Washington changed the Pacific ocean perch trip limits to 20 percent of all fish on board (by weight), not to exceed 5,000 pounds. Despite these restrictions landings were not adequately slowed. The Columbia Area was closed for Pacific ocean perch on August 16 when OY was reached. The Vancouver Area OY, however, was not reached before year's end.

Management of the Sebastes complex of rockfish was the most complicated groundfish issue facing the Council in 1984. South of the Columbia Area, the species' ABCs were unchanged from 1983. The 40,000 pound trip limit (with no trip frequency restriction) was constant throughout 1984 and was the same as in 1983. However, in the Vancouver and Columbia areas, the summed ABCs were lower in 1984 and trip limit and trip frequency restrictions changed twice during the year. The way these limits were applied changed three times.

The sum of the ABCs for the Sebastes complex in the Vancouver and Columbia areas was set at 9,200 mt. The Council acknowledged the industry's difficulty in adjusting to such a sharp decline (from 1983) and set an HG of 10,100 mt as the goal for 1984 landings from the Vancouver and Columbia areas. On January 1, 1984, a trip limit of 30,000 pounds was imposed and allowed only 1 landing per week above 3,000 pounds for the Sebastes complex in the Vancouver and Columbia areas. The trip limit was reduced by half in May and again in August in an attempt to keep landings from exceeding the HG

Table 10. ABCs for 1984 in metric tons for the California-Washington region by INPFC areas.

Species	Vancouver <sup>a/</sup>	Columbia	Eureka	Monterey	Conception	Total
<b>Roundfish</b>						
Lingcod	1,000	4,000	500	1,100	400	7,000*
Pacific Cod	2,200	900	b/	b/	b/	3,100*
Pacific Whiting <sup>c/</sup>						175,500*
Sablefish			2,500 <sup>d/</sup>			13,400*
<b>Rockfish</b>						
Pacific Ocean Perch	600	950	b/	b/	b/	1,550*
Shortbelly <sup>c/</sup>						10,000*
Widow	300	5,400	1,800	1,800	b/	9,300
<b>Other Rockfish</b>						
Bocaccio	b/	b/	b/	4,100	2,000	6,100*
Canary	800	1,300	600	b/	b/	2,700*
Chilipepper	b/	b/	b/	1,300	1,000	2,300*
Yellowtail	1,400	1,500	300	b/	b/	3,200
Remaining Rockfish	500	3,700	1,900	4,300	3,300	13,700
<b>Flatfish</b>						
Dover Sole	2,400	7,200	8,000	5,000	1,000	23,600
English Sole	600	2,000	800	900	200	4,500*
Petrable Sole	600	1,100	500	800	200	3,200*
Other Flatfish	700	3,000	1,700	1,800	500	7,700*
<b>Other Fish<sup>e/</sup></b>						
Jack Mackerel <sup>f/</sup>						12,000*
Others	2,500	7,000	1,200	2,000	2,000	14,700*

\* No change change from 1983.

a/ U.S. portion.

b/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

c/ Total all areas.

d/ Monterey Bay only.

e/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrow-tooth flounder.

f/ All areas north of 39°N latitude.

in 1984. To soften the impact of these severe restrictions, fishermen were given the choice of reducing either the size or the frequency of their Sebastes landings. (Throughout the year, landings less than 3,000 pounds were not counted toward trip frequency limits to minimize discards of rockfish caught incidentally while targeting on other species.) No further regulations were promulgated for the Sebastes complex in the Vancouver and Columbia areas.

### 1985 Fishery

The ABCs for the 1985 fishery were approved by the Council at the November 28-29, 1984 meeting in Seattle (Table 11). OY levels were set equal to ABC for all species except widow rockfish and sablefish. The coastwide widow rockfish OY was set at 9,300 mt, compared with an ABC of 7,400 mt and the sablefish OY was set at 13,600 mt, or approximately 10 percent above the 12,300 mt ABC.

Vessel trip limits were once again the basic regulatory mechanism preferred by fishing industry representatives advising the Council. Accordingly, the Council adopted trip limits (Table 7) in an effort to extend the fishery throughout the year without exceeding quotas or HGs.

Coastwide widow rockfish trip limits were set at 30,000 pounds once per week with an option to land 60,000 pounds once every two consecutive weeks (biweekly). The biweekly trip limit option was rescinded by the Council effective April 28, 1985 in an attempt to reduce the rate of landings. Effective July 21, 1985 the trip limit for widow rockfish was reduced to 3,000 pounds, without a limit on the frequency of landings. The trip limit was imposed to discourage directed fishing while permitting retention and sale of fish caught incidental to fishing for other species. Total landings of widow rockfish for 1985 were 9,087 mt, slightly below the 9,300 mt quota.

Management of the Sebastes complex was again the most complicated groundfish management issue in 1985. In the Vancouver and Columbia areas more restrictive trip limits were implemented to reduce yellowtail rockfish landings and encourage landings of "remaining rockfish." A Sebastes complex trip limit of 30,000 pounds, one landing per week, was imposed, of which no more than 10,000 pounds could be yellowtail rockfish. An option of one landing once every two consecutive weeks of double the amount was also adopted, but the fishermen were required to notify in writing seven days prior to fishing the state in which landings would occur.

Effective April 28, 1985, the Council reduced the weekly trip limit to 15,000 pounds, of which no more than 5,000 pounds could be yellowtail rockfish. The biweekly landing option of double the amount was again adopted as was a third option to land 7,500 pounds twice each week (semiweekly) of which not more than 3,000 pounds in each landing could be yellowtail rockfish.

By early September, GMT projections indicated that yellowtail rockfish landings would approximate the ABC and that Sebastes complex landings as a whole would fall about 1,000 mt below the HG. Effective October 6, the Sebastes complex trip limits were increased to 20,000 pounds per trip with respective biweekly and semiweekly adjustments. Yellowtail rockfish trip limits were not changed.

Table 11. ABCs for 1985 in metric tons for the California-Washington region by INPFC areas.

Species	Vancouver <sup>a/</sup>	Columbia	Eureka	Monterey	Conception	Total
<b>Roundfish</b>						
Lingcod	1,000	4,000	500	1,100	400	7,000
Pacific Cod	2,200	900	b/	b/	b/	3,100
Pacific Whiting <sup>c/</sup>						175,000
Sablefish				2,500 <sup>d/</sup>		12,300
<b>Rockfish</b>						
Pacific Ocean Perch	600	950	b/	b/	b/	1,550
Shortbelly <sup>c/</sup>						10,000
Widow					b/	7,400
<b>Other Rockfish</b>						
Bocaccio	b/	b/	b/	4,100	2,000	6,100
Canary	800	2,100	600	b/	b/	3,500
Chilipepper	b/	b/	b/	1,300	1,000	2,300
Yellowtail	600	2,100	300	b/	b/	3,000
Remaining Rockfish	800	3,700	1,900	4,300	3,300	14,000
<b>Flatfish</b>						
Dover Sole	2,400	11,500	8,000	5,000	1,000	27,900
English Sole <sup>c/</sup>						1,500
Petrale Sole	600	1,100	500	800	200	3,200
Other Flatfish	700	3,000	1,700	1,800	500	7,700
<b>Other Fish<sup>e/</sup></b>						
Jack Mackerel <sup>f/</sup>						12,000
Others	2,500	7,000	1,200	2,000	2,000	14,700

a/ U.S. portion.

b/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

c/ Total all areas.

d/ Monterey Bay only.

e/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrow-tooth flounder.

f/ All areas north of 39°N latitude.

The size and trip limits specified for sablefish in 1984 continued until November 25. At that time it was determined that 90 percent OY had been reached October 21. As specified in the plan the remaining portion of the OY was allocated on a 50:50 basis to the fixed gear and trawl fleets (680 mt to each gear type). The trawl fleet was put on a trip limit of 13 percent total round weight on board. By December 6 the OY had been reached and all landings of sablefish were prohibited.

Pacific ocean perch landings in the Columbia Area exceeded the 950 mt quota in 1983 and 1984 under a trip limit of 5,000 pounds or 10 percent of the total weight of fish on board, whichever was greater. Landings of Pacific ocean perch were prohibited during the latter part of both years. Beginning in 1985 the trip limits were changed to a maximum of 20 percent of the total weight of the fish on board in an effort to discourage targeting and thus reduce landings. The regulation was effective in the Columbia Area, but not in the Vancouver Area. Effective April 28, 1985 the Council modified the Pacific ocean perch trip limit regulation to 5,000 pounds or 20 percent of the total weight of the fish on board, whichever was less, thus prohibiting large landings of these species. This regulation was effective in reducing landings, and total landings of Pacific ocean perch were 424 mt in the Vancouver Area and 886 mt in the Columbia Area. The 1985 landings of Pacific ocean perch were below OY in both areas.

On September 1, 1985 the management boundary line separating northern and southern trip limits for the Sebastes complex was shifted approximately 30 miles northward to the jetty on the north side of Coos Bay, Oregon. The move was approved by the Council to minimize management and catch reporting problems which arose earlier when the management line was moved to Cape Blanco, Oregon. Coos Bay fishermen testified that moving the line to the north jetty of Coos Bay would simplify and enhance the operations of fishermen who were required to contend with two different trip limits and trip frequencies adjacent to their port of landing.

In March 1985, the Council provisionally approved issuance of up to 18 experimental setnet permits for sablefish. Two permits were issued by NMFS in 1983 and three in 1984 despite recommended disapproval by the Council. The expanded experimental fishery was intended to evaluate gear conflicts and the effects of the setnet fishery on fully utilized stocks of fish. Twelve vessels actually fished in 1985 with most of the effort centered off northern Washington.

### 1986 Fishery

The ABCs for the 1986 fishery were approved by the Council at the November 13-14, 1985 meeting in Seattle, Washington (Table 12). As in previous years, the OY was set at ABC except for widow rockfish and sablefish. The coastwide widow rockfish OY was set at 10,200 mt compared with an ABC of 9,300 mt. The coastwide OY for sablefish was set at 13,600 mt, or about 30 percent above the 10,600 mt ABC.

Management measures established by the Council (Table 7) were similar to those of the past three years. Industry advisors to the Council reaffirmed their support of vessel trip limits for the few species which require regulation to

Table 12. ABCs for 1986 in metric tons for the California-Washington region by INPFC areas.

Species	Vancouver <sup>a/</sup>	Columbia	Eureka	Monterey	Conception	Total
<b>Roundfish</b>						
Lingcod	1,000	4,000	500	1,100	400	7,000
Pacific Cod	2,200	900	b/	b/	b/	3,100
Pacific Whiting <sup>c/</sup>						300,000
Sablefish <sup>c/</sup>						10,600
<b>Rockfish</b>						
Pacific Ocean Perch	600	950	b/	b/	b/	1,550
Shortbelly <sup>c/</sup>						10,000
Widow <sup>c/</sup>						9,300
<b>Other Rockfish</b>						
Bocaccio	b/	b/	b/	4,100	2,000	6,100
Canary	800	2,100	600	b/	b/	3,500
Chilipepper	b/	b/	b/	1,300	1,000	2,300
Yellowtail	1,100	2,600	300	b/	b/	4,000
Remaining Rockfish	800	3,700	1,900	4,300	3,300	14,000
<b>Flatfish</b>						
Dover Sole	2,400	11,500	8,000	5,000	1,000	27,900
English Sole <sup>c/</sup>						1,500
Petrale Sole	600	1,100	500	800	200	3,200
Other Flatfish	700	3,000	1,700	1,800	500	7,700
<b>Other Fish<sup>d/</sup></b>						
Jack Mackerel <sup>e/</sup>						12,000
Others	2,500	7,000	1,200	2,000	2,000	14,700

a/ U.S. portion.

b/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

c/ Total all areas.

d/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrow-tooth flounder.

e/ All areas north of 39°N latitude.

prevent overexploitation. It was their view that vessel trip limits are more likely to achieve the objective of extending the fishery throughout the year without exceeding quotas or HGs.

Coastwide domestic commercial groundfish landings were down slightly from 1985. A decline in Dover sole landings accounted for the majority of the decrease but rockfish and lingcod landings also were down. The decrease in rockfish landings was attributed to regulatory actions. Directed effort for Dover sole decreased in 1986 as many trawlers shifted to the rapidly improving coastal pink shrimp fishery. Lack of availability also was a factor in the Vancouver Area with many fishermen reporting poor success for Dover sole.

A coastwide widow rockfish trip limit was set at 30,000 pounds once per week. The option to permit one 60,000 pound landing once every two consecutive weeks was rejected because industry advisors and the Council concluded this option would increase landings early in the season and result in a premature closure of the fishery. Good fishing during the early part of the year precluded the intent to extend the fishery throughout the year. GMT landing projections in early April indicated that the ABC would be reached by late summer or early fall. After hearing industry testimony that smaller trip limits were not practicable, the Council opted to retain the 30,000 pound trip limit until the ABC was reached. At that time, the trip limit would be reduced to 3,000 pounds per trip without a limit on the frequency of landings. The Council reaffirmed the regulation at its September 17-18 meeting and the 3,000 pound trip limit was imposed on September 28.

In contrast to previous years, management of the Sebastes complex presented no major problems. Trip limits south of the Columbia Area were set at 40,000 pounds for the third consecutive year, with no limit on the frequency of trips. The Vancouver and Columbia areas HG was set at 10,200 mt. Weekly trip limits were set at 25,000 pounds of which no more than 10,000 pounds could be yellowtail rockfish. Biweekly and semiweekly options in the same proportions were also set to provide fishermen with additional options. From the start of the year landing rates were down from previous years. Reasons were a more normal weather pattern than the excellent weather encountered early in 1985, poorer availability of rockfish early in the year, and less directed rockfish effort later in the spring as many vessels converted to shrimp fishing or entered the joint venture fishery for whiting. On August 31, after the GMT reported the HG would not be achieved with the lower trip limits, the Council increased trip limits to 30,000 pounds once per week of which not more than 12,500 pounds could be yellowtail rockfish. Similar adjustments were made to biweekly and semiweekly options.

Several different management measures were tried for Pacific ocean perch between 1983 and 1986. The regulations implemented during those years either resulted in exceeding the OY and closing one area and taking less than the OY in the other; or underharvesting in both areas. The 1986 Pacific ocean perch trip limit was set at 10,000 pounds per trip or 20 percent of the weight on board, whichever was less. This regulation resulted in landings less than the OY in the Columbia Area. In the Vancouver Area, where large landings of other species of groundfish are common, many vessels targeted on Pacific ocean perch to bring their catches up to the maximum allowed under the regulation. As a result the OY was reached in mid-November and landings of Pacific ocean perch from the Vancouver Area were prohibited for on December 1 the remainder of the

year. It appeared from the experiences of those four years that a single trip limit regulation for both the Vancouver and Columbia areas could not meet conservation and harvest goals for each area. Conversely, regulations which differed between areas might meet the desired objective for each area but could not be effectively enforced because some vessels commonly fish both areas on a single trip.

The initial 1986 sablefish regulations were unchanged from the previous three years. The fishery was unrestricted except that landings of fish less than 22 inches were limited to 5,000 pounds per trip. During the early part of the year landings were similar to 1985 and it was evident that the 13,600 mt quota could be reached before the end of the year. In early April both trawl and fixed gear fishermen expressed an interest in revising the management regime in the FMP which required that the catch be allocated between fixed and trawl gear when 90 percent of the quota was reached, and established trip limits for trawlers by predetermined formula. There was a common desire to establish shares earlier in the year to permit fixed gear fishermen adequate time to plan vessel operations and to set trip limit regulations for trawlers which would be significantly greater than those which would be set under the FMP scenario. In July, the GSG recommended to the Council that the remaining unharvested balance of the 1986 OY be allocated between trawl and fixed gear based on the share of total sablefish landings for a five year (1981-1985) average. The GSG further proposed that fixed gear landings continue without restriction until the fixed gear allocation is reached, and that trawl trip limits be set at levels which would allow trawl fishermen to continue to land sablefish for the remainder of the year without exceeding the trawl allocation. Either gear would be prohibited from further sablefish landings after the gear allocation was reached and all landings would be prohibited when the OY was reached. The rationale for the proposals was that fixed gear fishermen landed only sablefish, had no alternative fishery, and could not operate economically under trip limits. Conversely, sablefish are primarily an incidental species in the multispecies trawl fishery, and wastage would occur if landings were prohibited and catches were discarded at sea.

The allocation proposal was adopted by the Council and implemented on August 22. GMT landing projections developed in early October indicated that the trawl landing rates were at a level which might not reach the trawl allocation by the end of the year. The fixed gear allocation, however, was reached in October, and the fishery was closed on October 23 for the remainder of the year.

The FMP prohibits the use of setnet gear for groundfish north of 38°N latitude. In an effort to evaluate the impacts and success of a setnet fishery, the director, NMFS, Northwest Region issued experimental fishing permits to harvest groundfish with setnets in the EEZ adjacent to Washington, Oregon, and California each year from 1982-1985. In March 1986, the Council reviewed the results of the experimental fishery and the implications of legalizing setnet gear in the prohibited area. The Council reaffirmed its position that setnets should be prohibited north of 38°N latitude and recommended that no experimental permits be issued in 1986. NMFS concurred with the recommendation and the experimental fishery was terminated.

## 1987 Fishery

The ABCs and numerical OYs for the 1987 fishery were approved by the Council at the November 19-20, 1986 meeting in Portland, Oregon (Table 13). For each species managed by a numerical OY, the 1987 OY was set at the estimated ABC, with the exception of Pacific ocean perch. An interim coastwide ABC/OY for sablefish was set at 12,000 mt until a review of all stock assessment data could be completed by an ad hoc stock assessment work group.

Management measures established by the Council were similar to those of the past four years (Table 7). Industry advisors to the Council reaffirmed their support of vessel trip limits for the species which required regulation to prevent overexploitation. It was their view that vessel trip limits were likely to achieve the objective of extending the fishery throughout the year without exceeding quotas or HGs. No abnormal or extreme environmental conditions were encountered in 1987 and fishing patterns, fluctuations in landings, and fleet size were well within expectations.

There were increased Pacific cod landings in the northern areas and reports of small cod as far south as northern California, indicating an increased abundance of cod after several years of apparent low abundance.

The decline in Dover sole landings for the second year in a row was attributed primarily to decreased directed effort, but a lack of availability in the northern areas also impacted the total landings. The reasons for decreases in the other species were less clear but probably were a result of decreased abundance.

Increased widow rockfish landings were directly related to the 3,200 mt increase in OY for 1987. Trip limits were once again set at 30,000 pounds, once per week. Fishing was good coastwide and many vessels consistently landed limits each week until early May when widow rockfish became less available to trawls. At the September Council meeting, the GMT projected the 12,500 mt OY would be reached in late November. The Council approved a 5,000 pound weekly trip limit when 95 percent of the OY (11,875 mt) was landed. The lower trip limit was implemented on October 14, but was not effective and landings were prohibited on November 25, 1987.

Management of the Sebastes complex was similar to 1986. South of the Columbia Area, trip limits were set at 40,000 pounds for the fourth consecutive year, with no limit on the frequency of trips. The Vancouver and Columbia areas HG was set at 10,200 mt. Weekly trip limits were set at 25,000 pounds of which no more than 10,000 pounds could be yellowtail rockfish. Biweekly and semiweekly options in the same proportions were also set to provide fishermen with an option which best fit into their overall fishing operations.

Fishing success for the Sebastes complex was improved over 1986. It was reported that because of good catch rates, some fishermen targeted on the Sebastes complex early in the year rather than fishing for widow rockfish. The greatest improvement was noted early in the year in the Vancouver Area where fishermen reported excellent availability of yellowtail rockfish and complained that they discarded fish to prevent exceeding the landing limit. In late July, the Council reduced the weekly yellowtail rockfish landing limit from 10,000 pounds to 7,500 pounds in an attempt to prevent landings from exceeding the ABC for this species in the Vancouver and Columbia areas.

Table 13. ABCs for 1987 in metric tons for the California-Washington region by INPFC areas.

Species	Vancouver <sup>a/</sup>	Columbia	Eureka	Monterey	Conception	Total
<b>Roundfish</b>						
Lingcod	1,000	4,000	500	1,100	400	7,000
Pacific Cod	2,200	900	b/	b/	b/	3,100
Pacific Whiting <sup>c/</sup>						195,000
Sablefish						12,000
<b>Rockfish</b>						
Pacific Ocean Perch	0	0	b/	b/	b/	0
Shortbelly <sup>c/</sup>						10,000
Widow <sup>c/</sup>						12,500
<b>Other Rockfish</b>						
Bocaccio	b/	b/	b/	4,100	2,000	6,100
Canary	800	2,100	600	b/	b/	3,500
Chilipepper <sup>c/</sup>						3,600
Yellowtail	1,100	2,600 <sup>d/</sup>	300	b/	b/	4,000
Remaining Rockfish	800	3,700	1,900	4,300	3,300	14,000
<b>Flatfish</b>						
Dover Sole	2,400	11,500	8,000	5,000	1,000	27,900
English Sole <sup>c/</sup>						1,900
Petrable Sole	600	1,100	500	800	200	3,200
Other Flatfish	700	3,000	1,700	1,800	500	7,700
<b>Other Fish<sup>e/</sup></b>						
Jack Mackerel <sup>f/</sup>						12,000
Others	2,500	7,000	1,200	2,000	2,000	14,700

a/ U.S. portion.

b/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

c/ Total all areas.

d/ Includes 100 mt allocated to southern most portion of Columbia Area not subject to trip limit regulations.

e/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrowtooth flounder.

f/ All areas north of 39°N latitude.

The 1987 ABC for Pacific ocean perch in the Vancouver and Columbia areas was set at zero because stocks continued to be stressed and had not recovered since being overexploited in the late 1960s. The OYs were set at 500 mt for the Vancouver Area and 800 mt for the Columbia Area to permit retention of fish harvested incidentally while fishing for other species. To discourage directed fishing, the Council established a trip limit of 20 percent of the total weight of legal fish on board, not to exceed 5,000 pounds per trip. Landings of Pacific ocean perch were well below the OY.

Difficulties with sablefish stock assessment and management continued to plague the Council in 1987. Efforts to develop scientifically credible estimates of coastwide sablefish abundance and ABC were unsuccessful, primarily due to the lack of an adequate and comprehensive historical data base. The Council established an interim 1987 ABC-OY of 12,000 mt based on the best information available. Despite several efforts by the GMT and an ad hoc stock assessment work group, no better estimate was developed and the 12,000 mt OY was not revised during the year. Trawl gear was allocated 52 percent of the OY and nontrawl gear 48 percent to assure historical and equitable sharing of the harvest. Landing by both gear types lagged behind 1986. Decreased effort early in the year by nontrawl gear and decreased trawl effort were undoubtedly major factors in decreased landings. Nontrawl fishermen, however, reported fewer large sablefish and indicated that fishing success was generally poorer than in previous years. Although landings were lower, both gear types were projected to achieve their allocations before the end of the year. A trip limit of 6,000 pounds or 20 percent of the total weight of legal fish on board was implemented for trawl gear on October 2 in an attempt to extend the fishery and to prevent discards. The reduced trip limit did not prevent attainment of the trawl quota, and the trawl fishery for sablefish was closed October 22. The nontrawl fishery reached its allocation and was closed on October 14.

### 1988 Fishery

The ABCs and numerical OYs for the 1988 fishery were approved by the Council at the November 18-19, 1987 meeting in Portland, Oregon (Table 14). Most management measures established by the Council (Table 7) were similar to those of recent years. However, for the first time, trawl trip limits for sablefish were implemented on January 1 in order to prevent the trawl fleet from exceeding its allocation quota. Industry advisors to the Council reaffirmed their support of vessel trip limits for the few species which require additional regulation to prevent overexploitation. Vessel trip limits were implemented with the objective of extending the fishery throughout the year without exceeding quotas or HGs. No abnormal or extreme environmental conditions were encountered in 1988. However, unsteady fishing patterns and landings fluctuations resulted from erratic market conditions. Fleet size was well within expectations.

One major management problem in 1988 was the temporary loss of PacFIN funding for port samplers and data processors. This impaired the accuracy of landings projections and future stock assessments which rely on biological sampling.

The continued increase in Pacific cod landings in the northern areas and reports of cod as far south as northern California were encouraging and may

Table 14. ABCs for 1988 in metric tons for the California-Washington region by INPFC areas.

Species	Source <sup>a/</sup>	Vancouver <sup>b/</sup>	Columbia	Eureka	Monterey	Conception	Total
Roundfish							
Lingcod	FMP	1,000	4,000	500	1,100	400	7,000
Pacific Cod	FMP	2,200	900	c/	c/	c/	3,100
Pacific Whiting <sup>d/</sup>	1987						327,000
Sablefish <sup>e/</sup>							10,000
Rockfish							
Pacific Ocean Perch	1987	0	0	c/	c/	c/	0
Shortbelly <sup>e/</sup>	FMP						10,000
Widow <sup>e/</sup>	1987						12,100
Other Rockfish							
Bocaccio	FMP	c/	c/	c/	4,100	2,000	6,200
Canary		800	2,100	600	c/	c/	3,500
Chilipepper <sup>e/</sup>	1986						3,600
Yellowtail	1985	1,100	2,600 <sup>f/</sup>	300	c/	c/	4,000
Remaining Rockfish	1984	800	3,700	1,900	4,300	3,300	14,000
Flatfish							
Dover Sole	1984	2,400	11,500	8,000	5,000	1,000	27,900
English Sole <sup>e/</sup>	1986						1,900
Petrале Sole	1987	600	1,100	500	800	200	3,200
Other Flatfish	FMP	700	3,000	1,700	1,800	500	7,700
Other Fish <sup>g/</sup>							
Jack Mackerel <sup>h/</sup>	FMP						12,000
Others	1984	2,500	7,000	1,200	2,000	2,000	14,700

a/ Date refers to the date of the Council status of stocks document.

b/ U.S. portion.

c/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

d/ Total U.S. and Canada all areas.

e/ Total all areas.

f/ Includes 100 mt allocated to southern most portion of Columbia Area not subject to trip limit regulations.

g/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrowtooth flounder.

h/ All areas north of 39°N latitude.

indicate that cod abundance has increased after several years of apparent low abundance.

Widow rockfish landings rates varied greatly through the season as a result of unstable market factors. Trip limits were once again set at 30,000 pounds once per week. Fishing was good coastwide and many vessels consistently landed limits. At the July 13-14 Council meeting, the GMT projected the 12,100 mt OY would be reached in early October. The Council approved a 3,000 pound trip limit to go into effect when just enough of the OY remained to allow this trip limit to remain in effect until December 31. The intent of the Council was achieved.

Management of the Sebastes complex presented no major problems in 1988. South of Coos Bay, trip limits were set at 40,000 pounds for the fifth consecutive year, with no limit on the frequency of trips. North of Coos Bay, the HG was set at 10,200 mt. Weekly trip limits were set at 25,000 pounds of which no more than 10,000 pounds could be yellowtail rockfish. Biweekly and semi-weekly options in the same proportions were also set to provide fishermen with an option which best fits into their overall fishing operations.

Fishing success for the Sebastes complex was similar to 1987. Increased landings were noted primarily in the Vancouver Area where fishermen reported excellent availability of yellowtail rockfish and complained that they discarded fish to prevent exceeding the landing limit. GMT projections in July indicated that ABC would be reached in mid-August unless effort was reduced. Preliminary assessment results indicated that ABC could increase significantly and management action was postponed pending review and approval of the new stock assessment. However, the completed assessment indicated that ABC should be increased only 300 mt. Subsequent to receiving the assessment, the Council reduced the weekly yellowtail landing limit from 10,000 pounds to 7,500 pounds. The Council's intent was to reduce targeted fishing on yellowtail rockfish in the Vancouver and Columbia areas without forcing a significant increase in discards. Despite trip limit reductions, yellowtail rockfish landings exceeded ABC.

The 1988 ABC for Pacific ocean perch in the Vancouver and Columbia areas was set at zero because stocks are stressed and have not recovered since being overexploited in the late 1960s. As in 1987, the OYs were set at 500 mt for the Vancouver Area and 800 mt for the Columbia Area to permit retention of fish harvested while fishing for other species. To discourage directed fishing, the Council established a trip limit of 20 percent of the total weight of fish on board, not to exceed 5,000 pounds per trip. Landings of Pacific ocean perch were again below OY.

Difficulties with sablefish stock assessment and management continued to plague the Council in 1988. Efforts to develop scientifically credible estimates of coastwide sablefish abundance and ABC were unsuccessful until late in the year, primarily due to the lack of an adequate model to analyze the diverse historical data base. The Council established an ABC of 10,000 mt and an OY range of 9,200 to 10,800 mt based on the best information available. Trawl gear was allocated 5,200 mt and nontrawl gear was allocated 4,800 mt in an attempt to maintain an equitable sharing of the harvest. An additional 800 mt was held in reserve in case the trawl fishery unavoidably exceeded its allocation. To achieve the 5,200 mt allocation, a trawl trip

limit of 6,000 pounds or 20 percent of the fish on board, whichever is greater, was implemented on January 1. Due to lack of PacFIN data, landings were difficult to monitor. Early in the year trawl landings were high in spite of the trip limit. The trip limit was reduced to 2,000 pounds once per week on August 3 and the 800 mt reserve was released to the trawl quota to extend the fishery throughout the year. While this trip limit substantially impacted the landing rate, fishermen reported that discards also increased significantly. Projections by the GMT in September indicated that the 2,000 pound once per week trip limit had slowed landings to the extent that the original 5,200 mt allocation would not be achieved. The Council removed the trip frequency restriction in early October in an attempt to reduce the amount of forced discarding. Nontrawl landings were also substantially above the 1987 rate and the fishery was closed on August 26.

### 1989 Fishery

The ABCs and numerical OYs for the 1989 fishery were approved by the Council at the November 16-18, 1987 meeting in Portland, Oregon (Table 15). For those species requiring a numerical OY, levels were set at the estimated ABC, except for Pacific ocean perch and sablefish, which will be discussed below.

A summary of initial and in-season management measures adopted for 1989 is included in Table 7. Most management measures established by the Council were similar to those of recent years. Industry advisors to the Council reaffirmed their support of vessel trip limits for the few species which require additional regulation to prevent overexploitation. Vessel trip limits were implemented with the objective of extending the fishery throughout the year without exceeding quotas or HGs.

No abnormal or extreme environmental conditions were encountered in 1989. However, there were some periods of landing fluctuations caused by erratic market conditions. Fleet size was within expectations.

Coastwide domestic commercial groundfish landings were projected to be down slightly from 1988. Lower landings are projected for Dover sole, arrowtooth flounder, yellowtail rockfish, and sablefish, due primarily to regulation changes. Increased landings are expected for thornyheads, even though landings of this species were restricted by regulation. Also in 1989, there was no foreign fishery allocation for Pacific whiting. Joint venture requests exceeded the available supply, thus no TALFF was granted.

Widow rockfish landings rates varied somewhat through the season as a result of erratic market factors. At the beginning of the fishing year, trip limits were once again set at 30,000 pounds per week. Fishing was good coastwide, especially in January and February. The GMT projected in March that a 51 percent reduction in the rate of landings would be required to extend the fishery to the end of the year. On the advice of the GSG, the Council approved a reduction in the trawl trip limit to 10,000 pounds per week or 20,000 pounds per two weeks, effective April 26. On October 11, 1989 the trawl trip limit was further reduced to 3,000 pounds per week to avoid a fishery closure.

Table 15. ABCs for 1989 in metric tons for the California-Washington region by INPFC areas.

Species	Source <sup>a/</sup>	Vancouver <sup>b/</sup>	Columbia	Eureka	Monterey	Conception	Total	1988
Roundfish								
Lingcod	FMP	1,000	4,000	500	1,100	400	7,000	7,000
Pacific Cod	FMP	-	-	c/	c/	c/	3,200	3,100
Whiting <sup>d/</sup>	1988	-	-	-	-	-	300,000	327,000
Sablefish <sup>d/</sup>	-	-	-	-	-	-	9,000	10,800
Rockfish								
Pacific Ocean Perch	1987	0	0	c/	c/	c/	0	0
Shortbelly <sup>d/</sup>	FMP	-	-	-	-	-	10,000	10,000
Widow <sup>d/</sup>	1988	-	-	-	-	-	12,400	12,100
Other Rockfish								
Bocaccio	FMP	c/	c/	c/	4,100	2,000	6,100	6,100
Canary	1986	800	2,100	600	c/	c/	3,500	3,500
Chillipepper <sup>d/</sup>	1988	-	-	-	-	-	3,600	3,600
Yellowtail	1988	1,100 <sup>f/</sup>	2,900 <sup>g/</sup>	300	c/	c/	4,300	4,000
Remaining Rockfish	1984	800	3,700	1,900	4,300	3,300	14,000	14,000
Flatfish								
Dover Sole	1984	2,400	11,500	8,000	5,000	1,000	27,900	27,900
English Sole <sup>d/</sup>	1986	-	-	-	-	-	1,900	1,900
Petrале Sole	1987	600	1,100	500	800	200	3,200	3,200
Other	FMP	700	3,000	1,700	1,800	500	7,700	7,700
Other Fish <sup>h/</sup>								
Jack Mackerel <sup>i/</sup>	FMP	-	-	-	-	-	12,000	12,000
Others	1984	2,500	7,000	1,200	2,000	2,000	14,700	14,700

a/ Date refers to the date of the Council status of stocks document.

b/ U.S. portion.

c/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

d/ Total all areas.

e/ Combined U.S. and Canadian waters. About 75 percent of the harvestable stock or 225,000 mt is expected to occur in U.S. waters in 1989.

f/ U.S. portion of the Vancouver Area, based on 50 percent of the total area stock.

g/ Includes 100 mt designated for southern-most portion of Columbia Area and subject to different trip limit regulations.

h/ Includes sharks, skates, rays, ratfish, morids, grenadiers, and jack mackerel.

i/ All areas north of 39°N latitude.

Management of the Sebastes complex was much the same as previous years. South of Coos Bay, trip limits were set at 40,000 pounds per trip. North of Coos Bay, trip limits were set at 25,000 pounds once per week of which no more than 7,500 pounds could be yellowtail rockfish. There were biweekly and semiweekly options available upon written notification. At the July 12-13 Council meeting, the GSG recommended that the trip limit on yellowtail rockfish be reduced to 3,000 pounds or 20% of the Sebastes complex on board, whichever is greater, to keep the annual harvest near the ABC of 4,300 mt for the Vancouver and Columbia areas. This restriction became effective on July 26.

Management of Pacific ocean perch in 1989 presented the Council with a challenge. The ABCs were set at 0 but the OYs were set at 500 mt for the Vancouver Area and 800 mt for the Columbia Area to allow for incidental catch. In July the GMT alerted the Council that the Columbia Area OY would be met July 31 at the current landing rate. The Council recommended that the trip limit be reduced to 2,000 pounds or 20 percent (by weight) of all legal fish on board, whichever is less, from 5,000 pounds or 20 percent (by weight) of all legal fish on board, whichever is less. Concurrently the OY in the Columbia Area was increased by 30 percent with the intent of preventing a fishery closure. The intent of the trip limit is to accomodate incidental catches of Pacific ocean perch; it is unclear what effect the reduced trip limit had on catches. These changes were effective July 26.

Sablefish presented the Council with its greatest groundfish challenge in 1989. The stock assessment indicated that ABC should be 9,000 mt. Because the stock was still above MSY, the OY was set at 10,400 mt to 11,000 mt. The intent was gradually fish the stock down to the level that produces MSY by managing for the low end of the OY, but if landings exceeded 11,000 mt, further landings would be prohibited for all gear types.

The initial allocations, excluding 22 mt for the Makah Indian tribe, were 5,397 mt (52%) for trawl gear and 4,981 mt (48%) for nontrawl gear. A 600 mt reserve was established for uncertainties in landing projections, for incidental catches, and continuation of small nontrawl fisheries that operate later in the year. The trawl fishery began the fishing year with a trip limit of 1,000 pounds or 45 percent whichever is greater, of the deepwater complex. The deepwater complex is defined as sablefish, Dover sole, arrowtooth flounder, and thornyheads. The Council, at the April 4-7 meeting, was informed that the sablefish landing rates were such that early fishery closure would occur: June 27 for nontrawl and September 21 for trawl. To minimize discards of sablefish in the trawl fishery and avoid large-scale disruption of the fishery, the Council recommended that the trawl quota be increased by 1,000 mt (400 mt from nontrawl plus the 600 mt reserve) and altered the trawl trip limit. The new trip limit placed a once per week 30,000 pound limit on the deepwater complex of which no more than 1,000 pounds or 25 percent, whichever was greater, could be sablefish. There were also biweekly and twice weekly options available. The complex limit and trip frequency restriction were removed October 4, but the separate limit on sablefish remained in place. Directed fishing by nontrawl gear ended on July 17, when an incidental trip limit of 100 pounds per trip was implemented. On October 4 this limit was relaxed to 2,000 pounds or 20 percent of all groundfish on board, whichever is less.

Economic Status of the Washington, Oregon and California  
Commercial Groundfish Fishery in 1988

Total shoreside landings decreased by less than 1 percent from 1987, while ex-vessel value was down 27 percent. Landings of lingcod, sablefish, widow rockfish, and all flatfish species declined from 1987. Joint venture landings were up about 19 percent to 138,000 mt and ex-vessel value was up about 26 percent. Total shoreside joint venture landings were up 10 percent but total landed value fell by 1.5 percent to 82.3 million. A document detailing the economic performance of the Washington, Oregon and California groundfish fishery through 1988 is provided as Appendix E.

Foreign and Joint Venture Fishing Operations

Two types of fishing operations involving foreign vessels have been conducted off Washington, Oregon, and northern California since implementation of the Magnuson Act in 1977: the foreign trawl fishery (sometimes called the "directed fishery") in which fish are both caught and processed by foreign vessels, and the joint venture fishery, a domestic fishery in which U.S. trawl vessels deliver their catch to foreign processing vessels at sea. Foreign vessels are managed according to the Groundfish Fishery Management Plan's (FMP) regulations at 50 CFR 611.70, and the conditions and restrictions attached to individual foreign vessel permits issued by the NMFS. The U.S. catcher vessels in the joint venture are managed according to the regulations at 50 CFR 663, the same as U.S. vessels delivering shore-side.

Consistent with the intent of the Magnuson Act to encourage development of domestic fisheries, joint venture and shore-based landings of whiting generally have increased since 1978 (Table 16). Although shore-based deliveries of whiting have grown, they have comprised less than five percent of the total foreign and domestic harvest of whiting each year from 1978 to 1988, and probably 1989. In spite of the opportunities for joint venture and foreign fisheries, only 58 percent of the total whiting quota between 1978 and 1988 has been landed. However, since 1987, much higher proportions have been taken. It appears that about 94 percent of the OY will be harvested in 1989. In 1989, the quota for whiting was 225,000 mt, 3 percent lower than in 1988. Joint venture requests exceeded the OY quota for all fisheries. As a result, the highly competitive joint venture was closed on June 24, 1989 after only 11 weeks of operation; whereas in previous years the joint venture lasted until September or October. The joint ventures, involving the Soviet Union, Poland, the Peoples' Republic of China, the Republic of Korea, and Japan, took about 204,000 mt of the 207,000 mt designated for joint venture processing in 1989. (An additional 2,000 mt had been set aside for incidental catches of whiting in the experimental joint venture for shortbelly rockfish. However, the shortbelly rockfish joint venture did not occur in 1989.) Because joint venture companies requested more whiting than was available for joint venture processing, there was no surplus whiting and no foreign fishery in 1989.

Table 16. Landings and quotas for Pacific whiting.

	Foreign Fishery (mt)	Joint Venture (mt)	Shore based (mt)	Total Landings (mt) <sup>a/</sup>	Optimum Yield (mt)	Quota Landed (%)
1978	96,827	856	689	98,372	130,000	76
1979	114,910	8,834	937	124,681	198,900	63
1980	44,023	27,537	793	72,353	175,000	41
1981	70,366	43,557	838	114,761	175,000	66
1982	7,089	67,465	1,024	75,578	175,500	43
1983	0	72,100	1,051	73,151	175,500	42
1984	14,772	78,889	2,721	96,382	175,500	55
1985	49,853	31,692	3,894	85,439	175,000	49
1986	69,861	81,639	3,463	154,963	295,800	52
1987	49,656	105,997	4,795	160,448	195,000	82
1988	18,041	135,781	6,876	160,698	232,000	69
1989 <sup>b/</sup>	0	204,038	7,000	211,038	225,000	94

a/ Slight differences due to rounding.

b/ Preliminary.

Foreign performance is perhaps more meaningful when compared with domestic landings of all groundfish species (Figure 4), not just whiting. The last year of foreign domination of groundfish landings was 1979. Since 1980, domestic landings (joint venture and shore-based) annually have contributed at least two thirds of the total groundfish landings, over 90 percent in 1982, 1983, 1984, and 1988. In 1985, due to the resurgence of the Polish directed fishery and diminished Soviet joint venture, about 70 percent of the total groundfish landings were made by domestic vessels. This percentage was maintained in 1986; although joint venture landings increased in 1986, foreign trawl landings also increased and shore-based landings declined, probably because U.S. fishermen turned to the more lucrative shrimp fishery that year. The proportion of domestic landings of groundfish increased to 80 percent in 1987 and 93 percent in 1988. In 1989, with no foreign trawl fishery for whiting, the groundfish fishery was 100 percent domestic.

Shore-based landings of groundfish generally increased until 1983 when the full impact of regulations to limit landings of certain species began to be felt. Even though shore-based landings of groundfish have not returned to the peak levels of 1982, they have been higher than in the years before the Magnuson Act.

From its inception in 1978 until 1984, the joint venture for whiting grew steadily, and in 1984 accounted for almost half (47 percent) of the domestic landings of all groundfish species. However, in 1985, only 26 percent of the domestic groundfish landings were attributed to joint ventures. This decline occurred from reduced Soviet participation. (When the Soviets were "certified" by the Secretary of Commerce for excessive harvest of minke whales, their potential allocations were cut in half. The Soviets responded by not accepting any allocation for directed fishing in 1985 and reducing

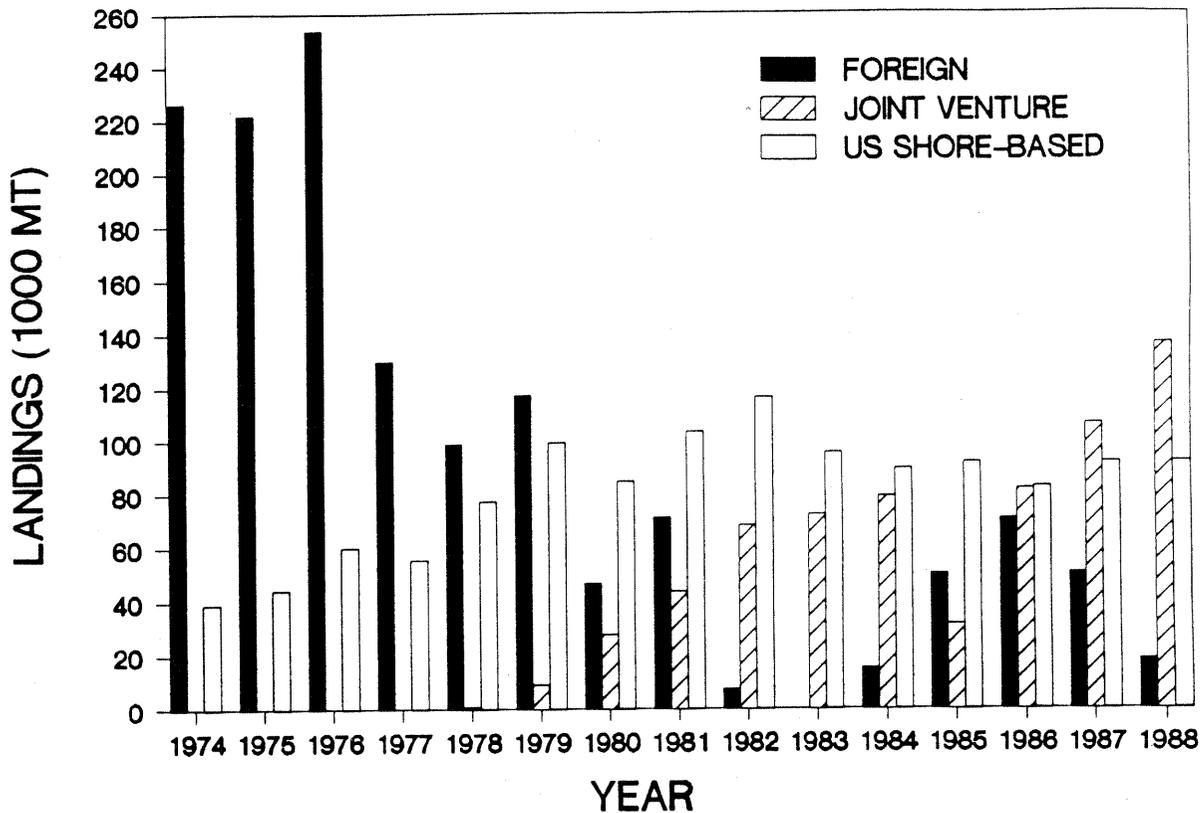


Figure 4. Pacific coast groundfish landings, 1974-1988.

their joint venture contracts by half.) However, the trend of increasing proportions of joint venture landings resumed in 1986 and has continued since then. In 1986, joint venture landings virtually equaled the shore-based landings of all groundfish species off Washington, Oregon, and California, surpassing the previous high proportion of 1984. In 1987 and 1988, joint venture landings contributed more than half of all domestic groundfish landings.

In 1983, 1984, and again in 1987, joint ventures for whiting accounted for 43 percent of all groundfish landed, foreign and domestic, off Washington, Oregon, and California. The proportion of joint venture landings reached record high levels in 1988, 57 percent of all groundfish landed in Washington, Oregon, and California.

Salmon and Pacific Halibut: Salmon and Pacific halibut are prohibited species which means they must not be retained by any vessel involved in the directed foreign or joint venture fishery. Between 1977 and 1988, the average catch rate of salmon in the foreign fishery was one salmon per 12 mt of whiting (0.086 salmon per mt of whiting, Table 17). Between 1978 and 1988, the joint venture vessels averaged about one salmon per 7 mt of whiting received (0.145 salmon per mt of whiting). Interception of salmon in joint ventures was unusually high in 1986. Although the whiting OY was at its highest level in 1986, the fish were not readily available. Joint venture trawlers had difficulty finding fishable concentrations of whiting and so fished closer to shore than in previous years. Also, the abundance and availability of some salmon stocks were quite high. These factors contributed to the unusually large interceptions of salmon in 1986. In 1987, the catch and catch rate of

Table 17. Catch of salmon in joint venture and foreign trawl fisheries for Pacific whiting.

	Salmon (no.)	Whiting (mt)	No. of Salmon per MT Whiting	MT Whiting per Salmon
Joint Venture:				
1978	19	856	0.022	45
1979	1,623	8,834	0.184	5
1980	3,602	27,537	0.131	8
1981	6,422	43,557	0.147	7
1982	11,694	67,465	0.173	6
1983	5,143	72,100	0.071	14
1984	10,192	78,889	0.129	8
1985	1,575	31,692	0.050	20
1986	32,051	81,639	0.393	3
1987	8,636	105,997	0.081	12
1988	13,984	135,781	0.103	10
Average	8,631	59,486	0.145	7
1989 <sup>a/</sup>	9,429	204,038	0.046	22
Foreign Trawl:				
1977	14,627	127,013	0.115	9
1978	5,905	96,827	0.061	16
1979	7,044	114,910	0.061	16
1980	4,831	44,023	0.110	9
1981	5,052	70,366	0.072	14
1982	104	7,089	0.015	68
1983	No foreign fishery in 1983			
1984	63	14,772	0.004	234
1985	713	49,853	0.014	70
1986	11,739	69,861	0.168	6
1987	4,649	49,656	0.094	11
1988	2,185	18,041	0.121	8
Average	5,174	60,219	0.086	12
1989	No foreign fishery in 1989			

<sup>a/</sup> Preliminary.

salmon in both fisheries were much lower than in 1986; the catch rate was about average in the foreign fishery and almost half the average in the joint venture. In 1988, the catch rate of salmon was above average in the foreign fishery and below average in the joint venture. Preliminary data for 1989 indicate that the catch rate of salmon in the joint venture was about one-third the 11-year average.

Generally over 90 percent of the salmon taken in these fisheries are chinook. In the foreign fishery in 1988, 89 percent of the salmon were chinook (average fork length of 61.0 cm or 24.0 inches) and 8.8 percent were coho (average fork length of 61.9 cm or 24.4 inches). In the joint venture in 1988, 82 percent of the salmon were chinook (average fork length of 52.4 cm or 20.6 inches) and 18 percent were coho (average fork length of 51.6 cm or 20.3 inches).

#### GMT RECOMMENDED ESTIMATES OF ABC FOR 1990

The recommended ABCs for 1990 are listed in Tables 18 and 19. In addition, comparisons of MSY, ABC, landings, stock condition, and abundance trends for Pacific coast groundfish stocks are summarized in Table 20. Following is a synopsis of ABC estimates for each principal species. The ABCs of some species have not changed from the 1989 specifications.

##### Pacific Whiting

The status of the Pacific whiting stock was assessed in 1989 using the stock synthesis model introduced in last year's assessment. As noted last year, the whiting fishery continues to be supported by the strong 1980 and 1984 year classes. By 1990, the 1980 year class will have been in the U.S. fishery for 9 years, and its contribution is expected to diminish considerably. There is no evidence of strong recruitment to the population since 1984 and, as such, spawning biomass will decline from 829,000 mt in 1989 to an estimated 599,000 mt in 1990, which is slightly below the recommended long-term average biomass. Further biomass (and corresponding yield) declines will occur through 1992. The coastwide (U.S. and Canada) ABC is 245,000 mt. The U.S. ABC is calculated to be 172,000 to 196,000 mt, depending on the negotiated allocation of the ABC with Canada.

##### Sablefish

The GMT recommends a coastwide 1990 sablefish ABC of 8,900 mt based on the recent stock assessment. The assessment concludes that the fishing down process has been completed and that ABC levels in the near future will be approximately equal to MSY. A revision in ageing criteria has caused an increase in the observed proportion of old fish and a decrease in the estimate of the natural mortality rate from 0.15 in the 1988 assessment to 0.0875. As a result, the estimate of current biomass increased, but estimates of historical recruitment and optimal fishing mortality rate decreased from previous calculations.

##### Pacific Cod

The GMT recommends no change in the 1990 coastwide ABC for Pacific cod from the 1989 level of 3,200 mt. The ABC was revised for 1989 to the highest catch of record. No MSY is specified for this species because the Washington, Oregon, and California area is the southern end of its range and because environmental factors have more significant influence on Pacific cod recruitment and stock abundance than fishing.

Table 18. Preliminary estimates of ABC for 1990 in metric tons for the California-Washington region by INPFC areas.

Species	Source <sup>a/</sup>	Vancouver <sup>b/</sup>	Columbia	Eureka	Monterey	Conception	Total	1989
Roundfish								
Lingcod	FMP	1,000	4,000	500	1,100	400	7,000	7,000
Pacific Cod	FMP	2,200	900	c/	c/	c/	3,200	3,100
Whiting <sup>d/</sup>	1989	-	-	-	-	-	245,000	300,000
Sablefish <sup>d/</sup>	1989	-	-	-	-	-	8,900	9,000
Rockfish								
Pacific Ocean Perch	1987	0	0	c/	c/	c/	0 <sup>f/</sup>	0
Shortbelly <sup>d/</sup>	1989	-	-	-	-	-	13,000	10,000
Widow	1989	-	-	-	-	-	7,900	12,400
Other Rockfish								
Bocaccio	FMP	c/	c/	c/	4,100	2,000	6,100	6,100
Canary <sup>g/</sup>		800	2,100	600	c/	c/	3,500	3,500
Chilipepper <sup>d/</sup>	1986	-	-	-	-	-	3,600	3,600
Yellowtail <sup>g/</sup>	1988	1,100 <sup>h/</sup>	2,900 <sup>i/</sup>	300	c/	c/	4,300	4,300
Remaining Rockfish	1984	800	3,700	1,900	4,300	3,300	14,000	14,000
Flatfish								
Dover Sole	1984	2,400	11,500	8,000	5,000	1,000	27,900	27,900
English Sole <sup>d/</sup>	1986	-	-	-	-	-	1,900	1,900
Petrale Sole	1987	600	1,100	500	800	200	3,200	3,200
Other	FMP	700	3,000	1,700	1,800	500	7,700	7,700
Other Fish <sup>j/</sup>								
Jack Mackerel <sup>k/</sup>	FMP	-	-	-	-	-	12,000	12,000
Others	1984	2,500	7,000	1,200	2,000	2,000	14,700	14,700

a/ Date refers to the date of the Council status of stocks document.

b/ U.S. portion.

c/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

d/ Total all areas.

e/ Combined U.S. and Canadian waters. About 70-80 percent of the harvestable stock or 172-196,000 mt is expected to occur in U.S. waters in 1990.

f/ The FMP limits ABC increases to 30 percent per year; 13,000 mt is below the ABC of 13,900-43,000 mt recommended by the GMT.

g/ Assessment under review. Changes possible in early 1990.

h/ U.S. portion of the Vancouver Area, based on 50 percent of the total area stock.

i/ Includes 100 mt designated for southern-most portion of Columbia Area and subject to different trip limit regulations.

j/ Includes sharks, skates, rays, ratfish, morids, grenadiers, and jack mackerel.

k/ All areas north of 39°N latitude.

Table 19. The 1990 Sebastes complex ABCs (mt) in Vancouver, Columbia, and Eureka areas with Columbia Area split into northern and southern subareas.

	Vancouver	Columbia North	Columbia South	Eureka
Canary Rockfish	800	1,700	400	600
Yellowtail Rockfish	1,100	2,500	100	300
Remaining Rockfish	<u>800</u>	<u>3,300</u>	<u>400</u>	<u>1,900</u>
TOTALS		10,200		3,700

NOTE: The management line separating northern and southern trip limits for Sebastes complex was moved from Cape Blanco 30 miles northward to the north jetty at the entrance to Coos Bay on September 1, 1985. The line change required a reallocation of ABC for the complex and species within the complex as shown above. Status of stocks analyses were used to develop ABCs for the entire Columbia Area. The Columbia Area ABC was prorated into Columbia north and Columbia south components by using the percentage of historic landings caught in each subarea.

Table 20. Comparisons of MSY, ABC, domestic shorebased landings, stock condition, and abundance trends for major Pacific coast coast groundfish stocks coastwide, 1988-90. Source: PacFIN October 6, 1989.

Species	COASTWIDE						Stock Condition	Abundance Trend	
	MSY	1988		1989		1990			
		Assessment Status	ABC	Landings	ABC	Projected Landings a/			ABC
Flatfish									
Dover Sole	24,400	Pending	27,900	18,002	27,900	16,325	27,900	declining	
English Sole	4,500	Needed	1,900	2,094	1,900	2,119	1,900	unknown	
Petrale Sole	3,200	Needed	3,200	2,131	3,200	1,918	3,200	"	
Remaining Flatfish b/ at least ABC		Adequate	7,700	2,711	7,700	1,645	7,700	"	
Rockfish									
Bocaccio	6,100	Needed	6,100	1,307	6,100	841	6,100	unknown	
Chilipepper	2,300	Adequate	3,600	1,194	3,600	518	3,600	stable	
Canary Rockfish	3,500	Pending	3,500	1,699	3,500	1,989	3,500	unknown	
Yellowtail Rockfish	4,500	Pending	4,000	4,652	4,300	4,554	4,300	at MSY	
Remaining Rockfish at least ABC		Adequate	14,000	9,889	14,000		14,000	unknown	
Sebastes Complex c/	Not Appl.	Not Appl.	Not Appl.	13,423	Not Appl.	11,756	0	below MSY	
Pacific Ocean Perch	2,500	Adequate	0	803	0	1,346	0	above MSY	
Shortbelly Rockfish	29,000	New	10,000	TR	10,000		13,000	at MSY	
Widow Rockfish	8,300	New	12,100	10,887	12,400	11,699	7,900	stable	
Unspecified	Not Appl.	Not Appl.	Not Appl.	4,571	Not Appl.	7,662	Not Appl.	unknown	
Thornyheads	Not Avail.	Needed	Not Avail.	5,592	Not Avail.	6,148	Not Avail.	"	
Other Species									
Jack Mackerel	12,000	Adequate	12,000	65	12,000	23	12,000	above MSY	
Lingcod	7,000	Needed	7,000	2,628	7,000	2,790	7,000	unknown	
Pacific Cod	N/A	Adequate	3,100	3,332	3,200	2,533	3,200	"	
Pacific Whiting f/	251,000 e/	New	232,000 e/	6,876	225,000 e/	7,000	172-196,000 e/	below MSY	
Sablefish	8,700	New	12,000	10,789	9,000	9,500	8,900	at MSY	
Others d/ at least ABC		Not Appl.	14,700	2,499	14,700		14,700	unknown	

a/ Projected landings for 1989 are the sum of January through August 1989, and September through December 1988.

b/ Remaining flatfish consists of all flatfish except Dover, English, petrale sole, and arrowtooth flounder.

c/ Sebastes Complex consists of all rockfish except POP, shortbelly, widow, and thornyheads.

d/ Includes sharks, skates, rays, morids, grenadiers, and arrowtooth flounder.

e/ Total stock.

f/ Domestic shorebased only unless otherwise noted. JV landings were 135,782 in 1988 and 203,561 in 1989.

### Lingcod

No changes are recommended in the area-specific ABCs for lingcod in 1990. Thus 1990 ABCs are: Vancouver-1,000 mt; Columbia-4,000 mt; Eureka-500 mt; Monterey-1,100 mt; and Conception-400 mt.

### Pacific Ocean Perch

A rebuilding program was established for Pacific ocean perch in 1981. The most recent assessment in 1987 indicated that the stock remained depleted. The GMT has no evidence that an unusually strong year class, necessary for significant stock rebuilding, has occurred in recent years. Higher landings have occurred in the Columbia Area during 1989, but this was apparently due to greater trawl effort. Nevertheless, the GMT has asked that stock status be assessed during 1990.

The GMT concludes that the Pacific ocean perch stock remains depleted and the ABC should be set at zero in both the Vancouver and Columbia areas. The GMT recognizes that incidental catches will occur and recommends that trip limits be set to allow a purely incidental fishery. With respect to remaining areas, Pacific ocean perch are neither common nor important and are included in the "Remaining Rockfish" category.

### Shortbelly Rockfish

The age, growth and potential yield of shortbelly rockfish were re-examined in 1989. The extremes of the MSY estimates from two yield calculation approaches in the 1989 assessment range from 13,900 to 47,000 mt. This range differs considerably from the 1989 ABC of 10,000 mt as a result of improved understanding of natural mortality and revised yield calculation methods. The GMT recommends a 30 percent increase in the ABC for 1990 to 13,000 mt, which is the maximum allowable between-season or in-season increase under the FMP.

Shortbelly rockfish remains an unexploited, virgin stock at present. Thus, the GMT has no objection to an additional 30 percent increase in ABC in-season, in needed.

### Widow Rockfish

The recommended 1990 ABC for widow rockfish is 7,900 mt, down substantially from 12,400 mt in 1989. The decrease from the 1989 ABC is attributable to not only the gradual fishing down process and an additional year of catch-at-age data, but also to the weak 1982 and 1983 year classes. The best estimates using cohort analysis and the stock synthesis model are that the stock has been fished down from a 1980 biomass of 150,000-250,000 mt to a 1989 level of 50,000-70,000 mt.

Both analytical techniques indicate that the stock is approximately at the MSY biomass. The widow rockfish MSY value declined in the recent assessment, as well, to 8,300 mt. Average observed recruitment is used in the MSY calculations, which decreased as a result of the addition of the poor recruitment years of 1982 and 1983 to the data set.

#### Bocaccio

No new analysis has been conducted on the status of bocaccio and the GMT recommends no change in the current ABCs of 4,100 mt and 2,000 mt in the Monterey and Conception areas, respectively. Bocaccio are relatively unimportant in other areas and are included in the "Remaining Rockfish" category.

#### Canary Rockfish

A coastwide assessment of canary rockfish has been reviewed and final changes in the assessment are expected to be incorporated in early 1990, and the Council may choose to revise the ABCs at that time. Until then, the GMT recommends continuation of the 1989 ABCs in 1990. Those ABCs are 800 mt, 2,100 mt, and 600 mt in the Vancouver, Columbia, and Eureka areas, respectively. Canary rockfish are relatively unimportant in other areas and are included in the "Remaining Rockfish" category.

#### Chilipepper

A report on the status of chilipepper in the Eureka, Monterey, and Conception areas was included in the 1986 document. No new analysis has been conducted since that time, and the GMT recommends no change in the coastwide ABC of 3,600 mt for 1990.

#### Yellowtail Rockfish

A coastwide assessment of yellowtail rockfish is expected to be available for review by December 1, 1989, in which case revised ABC recommendations will be presented for adoption at the January 1990 Council meeting. At this time, the GMT recommends no change in the ABCs of 1,050 mt, 2,950 mt, and 300 mt in the Vancouver, Columbia, and Eureka areas, respectively. Yellowtail rockfish are relatively unimportant in other areas and are included in the "Remaining Rockfish" category.

#### Remaining Rockfish

Remaining rockfish in the Vancouver and Columbia areas are defined as all rockfish in the Sebastes complex except yellowtail, canary, widow, and shortbelly rockfishes, and thornyheads. In the Eureka, Monterey, and Conception areas, bocaccio and chilipepper are excluded from this category but yellowtail and canary rockfishes are included.

There are no biological data available to assess status of stocks in these areas. Effort and catch data do not provide a good indication of condition in any of the areas. The GMT recommends the ABCs remain unchanged in 1990, that is, Vancouver-800 mt; Columbia-3,700 mt; Eureka-1,900 mt; Monterey-4,300 mt; and Conception-3,300 mt.

#### Dover Sole

A stock assessment of Dover sole in the Vancouver, Columbia, and Eureka areas is ongoing, employing the stock synthesis model. This effort represents the first comprehensive assessment effort for Dover sole. Several aspects of the

assessment are in need of further work before a definitive (clear) picture of stock status is developed for these areas. A comprehensive assessment, including the Monterey and Conception areas, will be completed during 1990. The GMT recommends no change from the 1989 ABCs until the new assessment is completed. Recommended ABCs for 1990 are: Vancouver - 2,400 mt; Columbia - 11,500 mt.; Eureka, - 8,000 mt; Monterey - 5,000 mt; and Conception - 1,000 mt.

#### English Sole

A progress report on the status of stocks for the Vancouver and Columbia areas was included in the 1986 status of stocks document. No new analysis has been conducted since that time, and the GMT recommends no change in the coastwide ABC of 1,900 mt for 1990.

#### Petrable Sole

A stock assessment for the Vancouver and Columbia areas was included in the 1987 document. No new analysis has been conducted since that time, and the GMT recommends no change from the 1989 ABC levels for 1990. Accordingly, the GMT recommends the following 1990 ABCs: Vancouver-600 mt; Columbia-1,100 mt; Eureka-500 mt; Monterey-800 mt; and Conception-200 mt.

#### Other Flatfish

The GMT recommends no change from the 1989 ABC levels. Thus, 1990 ABCs are: Vancouver-700 mt; Columbia-3,000 mt; Eureka-1,700 mt; Monterey-1,800 mt; and Conception-500 mt.

#### Jack Mackerel

The GMT recommends no change from the 1989 ABC of 12,000 mt.

#### Other Groundfish

The GMT recommends no change in the coastwide ABC of 14,700 mt for 1990.

## APPENDICES

### Status of Stocks Documents

- A. Status of the Pacific Whiting Resource in 1989 and Recommendations to Management in 1990
- B. The Status of the Washington-Oregon-California Sablefish Stock in 1989
- C. Status of the Widow Rockfish Fishery
- D. Age, Growth, Year Class Strength, and Potential Yield for Shortbelly Rockfish
- E. Washington, Oregon, and California Groundfish Fisheries
- F. Foreign and Joint Venture Fishing Operations Off Washington, Oregon and California