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A Summary of Sablefish Catches in the Northeast Pacific Ocean, 1956-84

by Sandra A. McDevitt April 1986

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Pacific Ocean, 1956-84

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ABSTRACT

Historical sablefish (<u>Anoplopoma fimbria</u>) catch statistics have been compiled by nation and by International North Pacific Fisheries Commission (INPFC) areas for the years 1956-84. The data have been assembled from the reported annual catches believed to be the most accurate. An attempt was made to trace the reported catches back to their original sources to account for discrepancies among sources. The sources, include domestic data from the U.S. state fishery agencies, foreign data submitted to the INPFC by member nations, and reports from bilateral meetings between the United States and nonmember nations of the INPFC. Other statistics came from personal communications with various fishery agencies and reports issued by the Law Enforcement Branches of the National Marine Fisheries Service. The tables provide recently updated U.S. catches, Canadian catches, and foreign data combined with surveillance estimates. These catch tables have been compiled to provide a single summary of the best available historical sablefish catch statistics. The data sources and the inherent biases and assumptions of the data have been documented.

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INTRODUCTION

The sablefish (<u>Anoplopoma fimbria</u>) fishery is one of the oldest commercial fisheries on the Pacific coast of North America. It began at the end of the 19th century off Washington and British Columbia, and expanded to California, Oregon, and Alaska. Although U.S. and Canadian fishermen have been harvesting sablefish since the early **1900s**, the stocks were not heavily exploited until the early **1960s** when the Japanese expanded their distant water longline fleet. Japan has traditionally harvested the greatest portion of sablefish catches in U.S. waters, but U.S. catches and processing capabilities are expanding rapidly. In **1984** the United States harvested 86% of the sablefish catch from U.S. waters.

Effective management of this commercially important fishery requires compilation of the best available data. An accurate and consistent time-series of catch data can provide insight into historical trends of the stock and fishery. While no completely accurate time-series of sablefish catch data exists, an attempt was made to compile and document the best available data.

Historical sablefish catch data has been compiled by nation and by International North Pacific Fisheries Commission (INPFC) areas (Fig. 1) for the years 1956-84. These catch tables have been assembled from the reported annual catches given by the U.S. state fishery agencies, the Pacific Biological Station in Canada, INPFC documents submitted by member nations, and reports obtained from bilateral meetings between the United States and nonmember nations of the INPFC. **Most** of the U.S. catches were obtained from the Pacific Marine Fisheries Commission (PMFC) **Data** Series-Groundfish Section. An updated version of the PMFC Data Series-Groundfish Section resides in a database **at** the Northwest and Alaska Fisheries Center (NWAFC). The database incorporates updated U.S. state fishery agencies and Canada (Lynde **1985**). Other statistics came from personal communications with various fishery agencies and from reports issued by the Law Enforcement Branch of the Alaska and Northwest regional offices of the National Marine Fisheries Service (NMFS).

The most reliable and accurate catch statistics were selected and compiled, based on a comparison of the various reported catches and their original sources. The purpose of these catch tables is to provide a single summary of the best available historical sablefish catch statistics, with a documentation of sources and the inherent biases and assumptions of the data.

CATCH DATA

Sablefish catches by year, nation, and INPFC areas, for all gear types combined, are presented in Tables 1-11. Catches by longline gear are also presented for Japan, and catches by longline and trap gears are presented for the United States. The catches are given in metric tons (t) round weight.

United States

United States catches are presented in Tables 1-3. Table 1 contains catches by all gear types for the years 1956-84. Canada and the U.S. state fishery agencies submit data to the PMFC, and catches are reported by the PMFC as a total of both nations' catches by PMFC areas. The PMFC area boundaries closely correspond to INPFC area boundaries, the only discrepancies being 10 minutes of latitude in each of the Eureka, Columbia, and Vancouver areas. These differences can be considered negligible, and catches by PMFC areas were assigned to the corresponding INPFC areas as shown (Fig. 1).

United States 1956-70

Sablefish catches are available only for trawl gear from the PMFC Data Series for the years 1956-70, and only for the Conception-Charlotte INPFC areas (data for other areas are incomplete). The trawl gear category does not include shrimp trawl. In order to obtain catches by all gears for all areas (Table 11, supplemental data were obtained from the U.S. state fishery agencies.

Although the PMFC data are a combination of U.S. and Canadian trawl catches, the Conception-Columbia areas are fished only by the United States. The U.S. trawl catches in the Vancouver and Charlotte INPFC areas (fished by both the United States and Canada) were determined by subtracting Canadian trawl data as reported in McFarlane and Beamish (1983) from the PMFC reported trawl catches in these areas. There were small (<5 t) catches of sablefish for animal food reported from the Vancouver and Charlotte areas which cannot be assigned to either the United States or Canada. These trawl catches are included in the grand total of catches by all nations, but are not included in either nation's catches. The Vancouver INPFC area referred to in the tables includes both the U.S. and Canadian portions of the Vancouver area.

United States catches categorized as taken by "fixed gears" (longline and trap), "shrimp trawls," and "other gear types" from the Conception to Charlotte areas were obtained from the U.S. state fishery agencies. The Washington Department of Fisheries provided "fixed gear" and "other gear" catches for the years 1956-70. The Oregon Department of Fish and Wildlife provided incidental sablefish catches by shrimp trawl, the only other gear type out of Oregon (besides groundfish trawl) which had sablefish catches prior to 1971. California longline catches were obtained from Parrish (1973) for the Monterey and Eureka areas for the years 1956-69. California longline catches from the Conception area for 1956-70, and from Monterey and Eureka for 1970, are unavailable. The California trap fishery did not develop until 1970 (Hipkins et al. 1970).

United States sablefish catches from the Gulf of Alaska (Southeastern-Shumagin) for 1958-69 (Table 1) are reported by Funk and Bracken (1984). Almost all of the Gulf of Alaska catches before 1970 are assumed to have come from the Southeastern area. Other catches may have been from the Yakutat area, but the Alaska Department of Fish and Game (ADF&G) is not able to separate these catches by area. The Southeastern catches listed for the years 1956-57 are from the Fishery Statistics of the U.S. (Power 1958, 1959) as this was the original source of the Funk and Bracken (1984) catch table.

United States 1971-80

Catches by all gear types from the Conception to Charlotte areas for the years 1971-80 were taken from the PMFC Data Series-Groundfish Section. Allgear catches are presented in Table 1. Longline and trap catches are given in Tables 2 and 3, respectively, for the years 1971-84 (data for earlier years are incomplete). Beginning in 1975 catches from the PFMC Data Series are provided by reporting agencies, so U.S. catches from Vancouver and Charlotte were obtained directly. California catches for the years 1978-82 are unavailable in the PMFC Data Series and were provided by Frank Henry of the California Department of Fish and Game.

Gulf of Alaska catches from 1970 to 1974 (Tables 1-3) are a total of Alaska and Washington state catches. Alaska catches are from Rigby (1984). Fixed gear catches (reported as dressed weight) were converted to round weight by the Alaska conversion factor of 1.43 (Rigby 1984), and were added to the trawl catches (reported as round weight) to get all-gear catch totals. Washington state catches are from the PMFC Data Series. Gulf of Alaska, eastern Bering Sea, and Aleutian Island catches from 1975 to 1980 are a combination of Alaska data provided by Fritz Funk of ADF&G and Washington state catches from the PMFC Data Series.

l/Personal communication with Barry Bracken, Alaska Department of Fish and Game, P.O. Box 667, Petersburg, AK 99833.

United States 1981-84

The catches in all areas from **1981** to **1984** (Tables 1-3) are a total of each state's reported catches. Washington state catches by area were obtained from the PMFC **Data** Series. California (**1983-841**, Oregon, and Alaska state catches by area are from the Pacific Fisheries Information Network (PacFIN) reports. The U.S. catches from **1984** are those data available at the time the tables were being compiled. The states routinely update their recent statistics, so the **1984** catches provided in Tables 1-3 should be considered preliminary.

Canada

Canadian catches are given in Table 4. Catches from the Vancouver and Charlotte areas for 1956-81 are from McFarlane and Beamish (1983). The 1982-84 catches are those reported by Leaman (1983, 1984, 1985). Canadian catches from the Southeastern area for 1956-71 were obtained from <u>British</u> <u>Columbia Catch Statistics</u> (Department of Fisheries and Oceans, 1959-72). All sablefish catches reported in the <u>British Columbia Catch Statistics</u> were converted to round weight by the Canadian conversion factor of 1.5 (following Mcfarlane and Beamish, 1983). Southeastern catches for the years 1972-78 were obtained from <u>Catch and Effort Statistics of the Canadian Groundfish Fishery</u> <u>on the Pacific Coast</u>, (Department of Fisheries and Oceans, 1973-84). There have been no reported sablefish catches from the Southeastern area since 1978.

Japan

Japanese sablefish catches by all gears are presented in Table 5, and longline catches are given in Table 6. Catches by gear before **1977** are from Forrester et al. (**1978**, **1983**). Catches reported as caught in "area unknown" in Forrester (**1978**) were prorated according to the percentage of the total known-area sablefish catches each area had for the year. In 1977 the Magnuson Fishery Conservation and Management Act (MFCMA) took effect requiring foreign vessels to accept American observers as requested within the 200-mile fishery conservation zone (established by the act). Catches from U.S. waters after 1976 were compiled from NMFS observer reports. The NMFS observer reports combine foreign and U.S. observer-reported catches to obtain the best estimates of foreign catch data. Japanese catches from Canadian waters (Vancouver and Charlotte areas) for the years 1977-80 are from McFarlane and Beamish (1983). Their reported catches for 1979-80 are listed only as a total catch for both areas. A breakdown by area was provided by the Pacific Biological Station.²/ The Japanese catches reported in McFarlane and Beamish (1983) are not broken down by gear types. Japanese longline catches from Vancouver and Charlotte for the years 1977-80 were obtained from INPFC Statistical Yearbooks 1977-80.

U.S.S.R.

Sablefish catches by the U.S.S.R are presented in Table 7. The only U.S.S.R. catch data available for years prior to 1977 are those provided to the United States during U.S.-U.S.S.R. bilateral exchanges (on file at NWAFC). The U.S.S.R. statistics were broken down only by large areas encompassing several INPFC areas. Parks and Dark (19721, Anonymous (19731, and Parks (1974, 1975, 1976) apportioned the U.S.S.R. catch data into INPFC areas based on surveillance data. Surveillance data consisted of vessel sightings and catch estimates from U.S. aerial and surface patrols conducted jointly by the NMFS Law Enforcement Branch and the U.S. Coast Guard. The apportioned U.S.S.R. catches are available for the years 1970-74 and are presented in Table 7 for all areas. The U.S.S.R. reported catches by INPFC areas for the years 1975-76 which are given in Table 7. In 1975 and 1976 the U.S.S.R. reported sablefish

2/Personal communication with Kathy Rutherford, Department of Fisheries and Oceans, Pacific Biological Station, Nanaimo, B.C. V9R 5K6 Canada.

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catches of 12 and 17 t, respectively, from the Vancouver area. Canadian surveillance maintains that there was no U.S.S.R. fishery in Vancouver during those years (Ketchen 1977). Rather than discard these catches they were added to the reported Columbia area catches. U.S.S.R. catches in American waters from 1977 to 1984 are from NMFS observer reports. McFarlane and Beamish (1983) report no U.S.S.R. sablefish catches in Canadian waters after 1974.

Republic of Korea

Republic of Korea (R.O.K.) sablefish catches for the years 1972-84 are given in Table 8. Prior to 1975 the R.O.K. did not report catches. Anonymous (1973) and Parks (1974, 1975) used surveillance catch estimates and vessel sightings to estimate and apportion catches into INPFC areas for the years 1972-74. The R.O.K. provided the catches for 1975-76 through U.S.-R.O.K. bilateral meetings (on file at NWAFC). Republic of Korea sablefish catch estimates from various sources range from 3,000 to 7,500 t (the latter reported by R.O.K.) in 1975 and from 3,700 to 21,000 t (the latter reported by R.O.K.) in 1976. Korean sablefish catches in U.S. waters from 1977 to 1984 are from NMFS observer reports.

The 1975 and 1976 reported catches were believed to be inflated to establish a precedence for a Korean fishery off the Washington-Oregon-California coast. The reported catches and catch per unit of effort (CPUE) values are high when compared with Japanese data from the Gulf of Alaska for the same years. The actual R.O.K. catches may only be 70% of the reported catches if the Japanese average CPUE value of 5 t per vessel day is applied. However, Japanese values may not be applicable to the R.O.K. fishery as the Japanese were fishing in the Gulf of Alaska where the resource had been exploited for many years. Most of the R.O.K. effort consisted of trap and longline vessels fishing off the Washington-Oregon-California coast where the resource was

basically unexploited. A comparison of R.O.K. reported vessel days with surveillance **estimates** did not reveal any large discrepancies. While the **1975-76** R.O.K. reported catches presented in Table 8 mmy seem questionably high, it may not be unreasonable to accept the reports as valid given that the R.O.K. was fishing a relatively unexploited resource, and the reported effort was consistent with U.S. surveillance estimates.

The **1975-76** British Columbia catches are those reported by the R.O.K. McFarlane and Beamish (1983) report a total catch of **168** t from the Vancouver-Charlotte areas in **1977**. More recent evaluation of Canadian surveillance data suggests that this catch was from the Vancouver area.³/ There are no reported sablefish catches from the Vancouver and Charlotte areas after **1977**.

Republic of Poland

Sablefish catches by the Republic of Poland (Table 9) were incidental to fisheries on other species. Until 1977, the Polish fishery in the northeast Pacific had been limited to Pacific whiting and rockfish and prohibited from targeting on sablefish through U.S.-Poland and Canada-Poland bilateral agreements. The catches from 1977 to **1984** are from NMFS observer reports.

Other Nations

Sablefish catches by all other nations are given in Table 10. The 1975 and 1976 Republic of China (Taiwan) catches for the Southeastern area are from NMFS surveillance catch estimates (1976). The NMFS Enforcement Branch also reported sighting of two Taiwanese longliners fishing sablefish off the Washington-Oregon coast from mid-December 1975 to mid-May 1976. There are no estimates of catches for this fishery. Sablefish catches after 1976 for all other nations (Bulgaria, Republic of China, Mexico, Federal Republic of Germany, and Portugal) are incidental to other fisheries and are from NMFS observer reports.

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^{3/}Personal communication with Gordon McFarlane, Department of Fisheries and Oceans, Pacific Biological Station, Nanaimo, B.C. V9R KS6 Canada.

Joint Ventures

Sablefish catches from joint venture fisheries are given in Table 11. There were no sablefish catches by joint venture fisheries before 1979. Catches from 1979 are from Berger et al. (1986). Catches from 1980 to 1984 are from NMFS observer reports.

Summary Tables

Summaries of the previous tables are contained in Tables 12-18. Tables 12-16 are sablefish catches by nation for five main regions of sablefish habitat: The U.S. west coast, British Columbia, Gulf of Alaska, eastern Bering Sea, and the Aleutian Islands region. Total sablefish catches by year and nation are given in Table 17. Table 18 contains the annual all-nation catches by INPFC areas.

DISCUSSION

General Trends

The sablefish resource has been exploited since the end of the 19th century by U.S. and Canadian fishermen. Sablefish catches and exploitation rates remained relatively low from California to the southeastern Gulf of Alaska until Japan expanded its distant water longline fleet. Japanese longliners began operations in the eastern Bering Sea in **1958**. The fishery expanded rapidly in this area and catches peaked at 25,989 t in **1962** (Table 15). As the fishing grounds in the eastern Bering Sea became preempted by expanding Japanese trawl fisheries, the longline fleet expanded to the Aleutian Islands region.and the Gulf of Alaska.

Catches in the Aleutian Islands region have historically remained at low levels with Japan harvesting the largest portion of the sablefish catch. Catches peaked in the Aleutian Islands region at 3,531 t in 1972 (Table 16). In the Gulf of Alaska, sablefish catches increased rapidly as the Japanese longline fishery expanded, peaking at 37,502 t overall in **1972** (Table 14). The Gulf of Alaska sablefish catches then declined to average 27,700 t from 1973 to 1976, with Japan responsible for 80% or more. During 1974-76 the R.O.K. fishery, also developing in the Gulf of Alaska, took an average of 2,900 t. The U.S. average of 1,260 t from 1973 to 1976 represented about 18% of the average all-nation catch in the Gulf of Alaska.

The enactment of the MFCMA led to significant fisheries restrictions in 1977. Reduced sablefish catches resulted, and are evident in the all-nation catch totals for the Gulf of Alaska, the eastern Bering Sea, and the Aleutian region (Tables 14-16). The most notable reduction occurred in the Japanese fishery in the Gulf of Alaska. Previously, Japanese catches had averaged 25,800 t (1970-76). Declining stock abundance and fishery restrictions resulted in a sharp decline in Japanese catches to an average of 6,100 t in the Gulf of Alaska during 1977-84 (Table 14). Recently, U.S. effort and catches have increased significantly in the Gulf of Alaska. The current expansion of U.S. catches and processing capabilities are rapidly displacing the foreign fisheries. In 1984, the United States harvested 86% of the sablefish catch in U.S. waters and this trend is expected to continue.

The majority of the sablefish harvest had been taken from the eastern Bering Sea until 1968, and then from the Gulf of Alaska until 1977. Beginning in 1978, foreign fishery regulations in the Gulf of Alaska coincided with a sharp increase in U.S. catches off the Washington-California coast (Table 12). Historically, the Washington-California catches had remained relatively low and stable, with the United States responsible for most of the effort.

Significant increases in catches occurred in 1975 and 1976 when the R.O.K. reportedly harvested 3664 t and 13,693 t, respectively, from the Conception-Columbia areas. After 1977, U.S. catches increased in each of the Conception-Columbia INPFC areas (Table 1). A notable drop in U.S. sablefish catches occurred in 1980 due to reduced prices in the foreign sablefish markets. Catches in 1978-84 averaged 12,800 t off Washington-California and 9,400 t in the Gulf of Alaska.

The Vancouver-Charlotte region, which lies mostly in Canadian waters, has remained a very stable fishery with no apparent major flucuations (Table 13). After 1977, the U.S. no longer targetted on sablefish in Canadian waters, and U.S. catches came from the productive U.S.-Vancouver area.

Data Limitations

A complete and accurate table of sablefish catches does not exist. The catches used in all the tables are compiled from various sources judged to be the most accurate, The inherent biases and assumptions associated with the catch data have been documented in the previous text. The reported catch data are a combination of reported catches and estimates from the NMFS observer and surveillance programs. There are many discrepancies in the reported annual catches among the various sources. When possible, the reported catches were traced back to their original sources to account for discrepancies and to obtain the best available data. Foreign catches reported prior to the enactment of the Magnuson Fishery Conservation and Management Act in 1977 cannot be considered unbiased. The catches provided in the- tables contain recently updated U.S. and Canadian catches and the best available foreign data combined with NMFS observer and surveillance estimates. No attempt was made to estimate catches, only to select and compile the best statistics from the available sources.



Figure 1.--International North Pacific Fisheries Commission areas (Conception-Aleutian Islands, Bering Sea areas 1 to 4), and Pacific Marine Fisheries Commission areas (1A to 8D).

۷۵۵۳	Concep-	Mon-	Fureka	Columbia	Vancouver	Char-	South-	Yakutat	Rodiak	Chirikof	Shumadin	FRGA	Aleutian	Totalb
			Buiena										19181103	
1956	20	1136	140	220	2150	93	1248							5007
1957	10	779	205	267	1724	57	2253							5294
1958	1	556	227	53	881	18	698							2433
1959	6	661	212	60	1735	37	1048							3759
1960	11	691	392	163	2220	115	1925							5517
1961	119	698	389	80	1258	88	866							3497
1962	101	778	196	110	1979	61	684				-			3908
1963	167	571	222	188	1090	47	881			·				3166
1964	198	653	554	84	1077	60	1172							3798
1965	147	1018	568	153	632	35	1047							3599
1966	139	1155	629	82	360	50	1067		<u> </u>					3481
1967	60	1418	610	43	146	65	946							3287
1968	47	1142	627	30	105	36	161							2147
1969	26	1211	1053	69	138	43	301							2842
1970	18	636	676	76	302	21	539	34	5		'			2307
1971	80 .	1325	701	176	193	11	350	27	10					2873
1972	35	2519	1329	214	82	21	1056	26	4					5285
1973	44	2367	1550	718	80	23	1223	4	18					6028
1974	26	4305	1240	462	198	35	1063	48			 '			7376
1975	88	4797	1687	707	529	11	1389	168						9376
1976	167	4746	1220	629	468	26	1139	· 8				·		8402
1977	1122	3680	1288	737	702	42	1038	134	2		. 1	2		8746
1978	2656	4028	1607	2039	1010	1	1615	124	1					13082
1979	5064	5116	3702	8392	1293	19	2831	567	49					27033
1980	883	1490	1633	3693	308	11	2147	174	28		3		3	10373
1981	1661	2965	2225	3435	1144		1812	89	12	1	27	2		13372
1982	2422	4110	3308	6317	2431	5	2023	834	52	1		148	28	21679
1983	1923	2526	2118	5000	2571	5	2761	724	255	52	16	47	29	18028
1984	1069	1896	2057	4856	3672	11	3503	1903	2530	309	446	1518	47	2381.7

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Table 1---United States annual sablefish catches by International North Pacific Fisheries Commission areas, 1956-84 (t).

^a Eastern Bering Sea (INPFC areas 1 and 2). ^b Discrepancies between actual sums of component figures and totals are due to rounding.

Year	Concep- tion	Mon- terey	Eureka	Columbia	Vancouver	Char- lotte	South- eastern	Yakutat	Kodiak	Chirikof	Shumagin	EBS ^a	Aleutian Islands	Total ^b
1971		488	110	6	28	1	279	27	10					948
1972	1	1142	44	12	65	3	879	26	4					2175
1973	2	242	5		48	3	688	4	2					993
1974	2	170	· 7	12	153	4	644	48						1040
1975	2	270	145	3	166		868	167						1621
1976			16	8	181		935	8						1148
1977				6	295		998	134	1					1434
1978	6	66	5	393	460		1515	124	1					2570
1979	1	377	229	2495	648	13	2520	565	11					6860
1980	43	111	167	804	108	5	2018	165	12					3434
1981	16	507	186	800	399		1742	89 ⁻	1	1				3739
1982	18	250	295	749	333	5	1962	827	42					4481
1983		49	33	615	278	5	2761	724	246	52				4762
1984		19	33	424	548	11	3401	1902	2386	308	201	15 [°]		9249

Table 2 .-- United States annual sablefish catches using longline gear by International North Pacific Fisheries Commission areas, 1971-84 (t).

^a Eastern Bering Sea (INPFC areas 1 and 2). ^b Discrepancies between actual sums of component figures and totals are due to rounding.

1 1 128 357 2672	y Eureka 72 225 83	Columbia 1	Vancouver 120	lotte	eastern	Yakutat	Kodiak	Chirikof	Shumagin	EBSa	Islands	Total ^D
1 128 357 2672	72 225 83	 1	120									
128 357 2672	225 83	1			71							264
357 2672	83				166							521
2672		352	361		524			~ ~				1689
	182	210			414							3479
3201	66	400	221		521							4415
3143	111	197	8		201							3728
2206	312	369	15		35					2		4009
2326	273	408	83		100							5759
2455	692	4115	39		295							12507
576	3	1624	1		129	. 9						3105
660	13	1228	327		65				27			3879
1057	194	1998	885		61	7						6564
- 789	357	1705	890									5408
34	396	1877	564		101		89		80			4069
	3143 2206 2326 2455 576 660 1057 789 34	3143 111 2206 312 2326 273 2455 692 576 3 660 13 1057 194 789 357 34 396	3143111197220631236923262734082455692411557631624660131228105719419987893571705343961877	3143 111 197 8 2206 312 369 15 2326 273 408 83 2455 692 4115 39 576 3 1624 1 660 13 1228 327 1057 194 1998 885 789 357 1705 890 34 396 1877 564	3143 111 197 8 2206 312 369 15 2326 273 408 83 2455 692 4115 39 576 3 1624 1 660 13 1228 327 1057 194 1998 885 789 357 1705 890 34 396 1877 564	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$

Table 3.--United States annual sablefish catches using pot and trap gears by International North Pacific Fisheries Commission areas, 1971-84 (t).

a Eastern Bering Sea (INPFC areas 1 and 2).

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b Discrepancies between actual sums of component figures and totals are due to rounding.

Year	Southeastern	Charlotte	Vancouver	Total ^a
1956	144	131	79	354
1957	506	348	165	1019
1958	99	95	191	384
1959	53	157	198 -	408
1960	217	230	258	705
1961	31	134	286	451
1962	47	156	237	440
1963	109	202	85	397
1964	238	248	151	637
1965	194	333	123	650
1966	335	408	228	970
1967	199	230	162	591
1968	129	273	. 191	592
1969	72	166	145	383
1970	.70	178	81	329
1971	15	131	181	. 327
1972	15	355	733	1104
1973	16 -	541	408	965
1974	10	243	249	502
1975	16	660	245	921
1976	22	458	314	794
1977	3	295	791	1088
1978	1	476	354	831
1979		1359	678	2037
1980		1895	1901	3796
1981		2790	1097	3888
1982		2735	1241	3976
1983		3134	1280	4414
1984		1517	2337	3854

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Table 4.--Canadian annual sablefish catches by International North Pacific Fisheries Commission areas, 1956-84 (t).

^a Discrepancies between actual sums of component figures and totals are due to rounding.

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Year	Concep- tion	Mon- terey	Eureka	Columbia	Vancouver	Char- lotte	South- eastern	Yakutat	Kodiak	Chirikof	Shumagin	EBSA	Aleutian Islands	Totalb
_														
1958									~-			6		6
1959										,		289		289
1960									·			1861	~-	1861
1961											1	5627		15627
1962											2	5989		25989
1963								229	1263	61	266 1	3706	664	16189
1964									907	48	92	3545	1541	6133
1965								4	1207	242	764	4838	1249	8304
1966					10	166	19	32	1857	775	1093	9505	1341	14798
1967		7	644	677	818	386	870	1652	1584	371	523 1	0462	1652	19644
1968			9	411	521	1875	7224	5581	1331	327	297 1	0118	1673	29367
1969		160	30	722	2205	2555	7110	6844	3279	935	836 1	4430	1673	40779
1970				139	1169	4005	7928	8305	5278	1420	1566 \cdots	8863	1248	39921
1971				10	870	2180	8692	7503	5375	1611	2047 1	2276	2766	43330
1972			174	585	1452	2784	11001	9 948	7769	2983	3857 1	0621	3262	54436
1973				21	807	2143	6519	7307	6116	3390	3932	4765	2740	37740
1974				315	1782	2084	7364	6490	3801	2624	3897	4181	2463	35001
1975				151	14 16	3286	6354	5660	3790	2116	4152	2728	1630	31283
1976		39	37	58	866	2628	6630	5746	, 3293	2011	, 4244	2798	1558	29908
1977					1143	1818	4072	4423	2418	1052	2386	2661	1810	21782
1978					764	1339	35	258 Î	1846	809	1187	1006	798	10365
1979					437	569	69	2059	1901	1084	807	1058	617	8600
1980					133	66	56	1336	1407	1299	734	1648	233	6912
1981							74	2705	1298	1493	1341	2091	320	9322
1982								1112	1205	1281	1323	2315	715	7951
1983						~-		990	978	1242	1124	2231	527	7092
1984									34	117	693	1006	717	2566

Table 5.--Japanese annual sablefish catches by International North Pacific Fisheries Commission areas, 1958-84 (t).

a Eastern Bering Sea (INPFC areas 1 and 2).

 $^{\rm b}$ Discrepancies between actual sums of component figures and totals are due to rounding.

	Concep-	Mon-				Char-	South-						Aleutian	
Year	tion	terey	Eureka	Columbia	Vancouver	lotte	eastern	Yakutat	Kodiak	Chirikof	Shumagin	EBSª	Islands	Total
1958										~-		6		6
1959												289		289
1960												1861		1861
1961											1	5627		15627
1962											2	5989		25989
1963	~~											9312	533	9845
1964												1270	906	2176
1965												282	214	496
1966												1674	1125	2799
1967							217	213	74	26	40	1652	784	3006
1968				155	275	1213	6349	3112	661	161	68	248	450	12692
1969		148	29.	687	1993	2250	6159	5121	2056	595	483	558	322	20401
1970				80	1084	3854	6799	6935	4454	1152	1138	1250	625	27371
1971				4	591	2126	7733	6280	3974	1172	1744	1274	530	25428
1972					835	2659	9301	6976	4958	2354	3325	444	497	31349
1973					798	1787	5948	5420	4118	2282	3498	450	838	25139
1974				315	1757	1967	6565	5024	2756	2196	3520	837	979	25916
1975				151	1412	3046	5602	4563	2378	1696	3864	783	1049	24544
1976		39	37	58	865	2381	5478	4672	2157	1732	3866	1015	1208	23508
1977					1142	1799	3978	4258	2252	963	2316	1251	1329	19287
1978					764	1399		2492	1676	762	1174	375	557	9199
1979					435	569		1891	1723	1060	775	515	471	7439
1980					133	66		1155	1032	1205	705	1140	139	5574
1981								2507	1167	1345	1225	1638	188	8070
1982								1112	1055	1126	1212	1602	590	6698
1983								990	847	1098	1062	1590	477	6064
1984										99	636	713	609	2057

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Table 6.--Japanese annual sablefish catches using longline gear by International North Pacific Fisheries Commission areas, 1958-84 (t).

^a Eastern Bering Sea (INPFC areas 1 and 2). ^b Discrepancies between actual sums of component figures and totals are due to rounding.

Year	Concep- tion	Mon- tergy	Eureka	Columbia	Vancouver	Char- lotte	South- eastern	Yakutat	Kodiak	Chirikof	Shuma	ıgin	Aleutiar Islands	n Total ^b
						-						-		
1967									`			1236		1236
1968												4256	·	4256
1969												1579		1579
1970		 ,		834	115							2874		3823
1971		·		642	119		·					2830	170	3761
1972				169	130				427	108		2137	269	3240
1973			29	92	6				72	35	2	1192	162	1590
1974		34	15	50	65		 .	11	27			77	14	293
1975		39	8	33				2	18	5	8	38	79	230
1976		24	15	44				3	22	6	10	. 29	61	214
1977				72					7		2			80
1978			16	41						4				61
1979			8	149				1	129	19	3	49		358
1980						· <u>·</u>			234	55	127			416
1981					~~						·			
1982				·									-	
1983													10-10	
1984				·	·						·			
		<u> </u>	<u> </u>			<u>.</u>			<u> </u>					

Table 7 .-- U.S.S.R annual sablefish catches by International North Pacific Fisheries Commission areas, 1967-84 (t).

^a Eastern Bering Sea (INPFC areas 1 and 2). ^b Discrepancies between actual sums of component figures and totals are due to rounding.

Year	Concep- tion	Mon- terey	Eureka	Columbia	Vancouver	Char- lotte	South- eastern	Yakutat	Kodiak	Chirikof	Shumagin	EBSª	Aleutian Islands	$Total^{b}$
1972									308					308
1973							16		14		28			58
1974				129	46		1448	104	930	208	310			3175
1975		204	212	3248	1402	236	1003	447	456	181	80		38	7507
1976	2705	3337	2573	5079	2504	1350	1522	299	1030	117	583	96	40	21234
1977					168		7 -	220	572	220	580	2	87	1856
1978								3	352	78	232	182	23	869
1979							25	574			161	261	165	1184
1980								302			589	324	26	1241
1981								208	478	151	225	339	56	1457
1982								154	311	44	166	506	92	1323
1983								92	249	53	238	372	45 ·	1049
1984										194	61	179	7	442
			-											

Table 8.--ROK. annual sablefish catches by International North Pacific Fisheries Commission areas, 1972-84 (t).

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^a Eastern Bering Sea (INPFC areas 1 and 2).
 ^b Discrepancies between actual sums of component figures and totals are due to rounding.

Total ^b	9	41	43	245	127	ł	ł	13
Aleutian Islands	l	ł	ł	ł	ł	ł	1	ł
EBSa	1	1	3	152	13	1	1	S
Shumagin	1	ł	5 2	ł	-	ł	ł	ł
Chirikof	1	ł	5	ł	e	ł	:	2
Kodlak	;	1	1	ł	!	ł	1	Q
Yakutat	ł	ł	ł	ł	1	ł	t I	1
South- eastern		ł	ł	ł	ł	!	ł	ł
Char- lotte		ł	1	1	1	ł	1	ł
Vancouver	1	ł	ł	1	ł	ł	1	ł
Columbia	ڡ	41	38	£6	94	ł	ł	1
. Eureka	1	!	4	ł	17	1	ł	
Mon- terey	1	1	ł	1	ł	1	ł	1
Concep- tion	1	ł		ł	ł	ł	!	1
Year	1977	1978	1979	1980	1981	1982	1983	1984

Table 9.--Republic of Poland annual sablefish catches by International North Pacific Fisheries Commission areas, 1977-1984 (t)

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Eastern Bering Sea (INPFC areas 1 and 2). Discrepancies between actual sums of component figures and totals are due to rounding. പ

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Year	Concep- tion	Mon- terey	Eureka	Columbia	Vancouver	Char- lotte	South- eastern	Yakutat	Kodiak	Chirikof	Shumagin	EBS ^a	Aleutian Islands	Totalb
			·				(Taiwan)							
1975							250 (Taiwan)						~-	250
1976							1048	、					~-	1048
							-					(Taiwan)		
1977												53		53
										•		(Taiwan)		
1978												5		5
									(Mexico)	(Mexico)	(Mexico)	(Taiwan)	•	
1979									21	6	28	6		61
													(Taiwan)	
1980												46 ^C	8	54
				(Bulgaria)							_	(F.R.G.)	
1981				4								135 ^d	1	140
		(1	Bulgaria)(Bulgaria)								(F.R.G.)	
1982			1	30								209 ^e	1	242
												(F.R.G.)	(F.R.G.)	
1983												1	3	4
								•				•	(F.R.G.)	
1984												8r	1	9

Table 10 .-- Incidental sablefish catches by International North Pacific Fisheries Commission areas, 1975-84 (t).

a Eastern Bering Sea (INPFC areas 1 and 2).
b Discrepancies between actual sums of component figures and totals are due to rounding.
c 30 t caught by Taiwan, 16 t caught by Federal Republic of Germany (F.R.G.).
d 102 t caught by Taiwan, 33 t caught by Federal Republic of Germany.
e 208 t caught by Taiwan, 1 t caught by Federal Republic of Germany.
f 7 t caught by Portugal, 1 t caught by Federal Republic of Germany.

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Year	Concep- tion	Mon- terey	Eureka	Columbia	Vancouver	Char- lotte	South- eastern	Yakutat	Kodiak	Chirikof	Shumagin	EBS ^a	Aleutian Islands	Total ^b
1977														
1978	·													
1979			3	48					18					69
1980			116	54	44				13	7		35	4	272
1981			167	87	1							24	156	435
1982		·	2	49	4					1		6	118	180
1983				29					130	11	134	44	70	419
1984			6	11	8				217	28	283	76	272	901

Table 11 .--Annual sablefish catches by joint venture fisheries, 1977-84, by International North Pacific Fisheries Commission areas (t).

^a Eastern Bering Sea (INPFC areas 1 and 2). ^b Discrepancies between actual sums of component figures and totals are due to rounding.

Year	U.S.	U.S. Japan		Others ^a	Total ^b
1956	1516			,	1516
1957	1261		-		1261
1958	836				836
1959	940				940
1960	1257				1257
1961	1285				1285
1962	1185				1185
1963	1149			'	1149
1964	1489				1489
1965	1886		'		1886
1966	2004				2004
1967	2130	1328			3458
1968	1846	420			2266
1969	2360	913			3273
1970	1406	139	834		2379
1971	2282	10	642		2934
1972	4097	759	169		5025
1973	4680	21	121		4822
1974	6033	315	99	129	6576
1975	7279	151	80	3664	11173
1976	6762	134	83	13693	20672
1977	6827		72	6	6904
1978	10331		57	41	10429
1979	22274		157	92	22524
1980	7699			262	7962
1981	10285			369	10654
1982	16157			82	16238
1983	11567			29	11596
1984	9878			17	9895

Table 12.--Annual sablefish catches from the Conception-Columbia areas, by nation, 1956-84 (t).

^a Includes R.O.K., Poland, Bulgaria, and joint ventures.

^b Discrepancies between actual sums of component figures and totals are due to rounding.

Year	U.S.	Canada	Japan	Others ^a	Totalb
1956	2243	210			2453
1957	1780	513	·		2293
1958	899	285			1184
1959	1771	356			2127
1960	2335	488			2823
1961	1345	419		1	1765
1962	2040	393			2432
1963	1136	287		1	1424
1964	1136	400		1	1536
1965 -	667	455			1122
1966	410	636	176	1	1222
1967	211	392	1204		1807
1968	141	463	2397	2	3003
1969	181	311	4760		5252
1970	323	259	5174	125	5881
1971	204	312	3050	119	3685
1972	103	1088	4236	130	5557
1973	103	948	2950	6	4007
1974	233	492	3866	111	4702
1975	541	905	4702	1638	7785
1976	494	772	3494	3854	8613
1977	744	1085	2961	168	4958
1978	1010	830	2103		3943
1979	1312	2037	1006		4355
1980	318	3796	199	44	4357
1981	1144	3888		1	5032
1982	2436	3976		4	6416
1983	2577	4414			6991
1984	3683	3826		8	7517

Table 13.--Annual sablefish catches from the Vancouver-Charlotte areas, by nation, **1956-84 (t).**

^a Includes U.S.S.R., R.O.K., joint ventures, and catches for animal food.

b Discrepancies between actual sums of component figures and totals are due to rounding.

Year	U.S.	Canada	Japan	U.S.S.R.	R.O.K.	Other	rsa Total ^b
1956	1248	144					1391
1957	2253	506					2759
1958	698	99					797
1959	1048	53					1101
1960	1925	217					2142
1961	866	31					897
1962	684	47					731
1963	881	109	1819				2809
1964	1172	238	1047				2457
1965	1047	194	2217				3458
1966	1067	335	3777				5178
1967	946	199	4998	`			6143
1968	161	129	14759				15049
1969	301	72	19003				19376
1970	578	70	24497				25145
1971	387	15	25228				25630
1972	1086	15	35558	535	308		37502
1973	1245	16	27264	109	58		28693
1974	1111	10	24176	38	3000		28335
1975	1557	16	22072	33	2167	250	26095
1976	1147	22	21924	41	3552	1048	27733
1977	1174	3	14350	9	1599		17135
1978	1741	1	6458	4	665		8868
1979	3447		5919	152	75 9	73	10349
1980	2352		4831	416	891	20	8511
1981	1941	·	6911		1062	4	9917
1982	2910		4921		725	1	8557
1983	3809		4334		632	275	9049
1984	8692		843		256	536	10326

Table 14.--Annual sablefish catches from the Gulf of Alaska (Southeastern-Shumagin), by nation, **1956-84 (t).**

^a Includes Republic of China (Taiwan), Poland, Mexico, and joint ventures.

^b Discrepancies between actual sums of component figures and totals are due to rounding.

Year	Japan	U.S.S.R.	R.O.K.	Taiwan	Poland	U.S.	F.R.G.	Joint ^a Venture	Total ^b
	······				·	,			
1956	·								
1957									
1958	6								6
1959	289								289
1960	1861								1861
1961	15627								15627
1962	25989								25989
1963	13706								13706
1964	3545								3545
1965	4838								4838
1966	9505								9505
1967	10462	1236							11698
1968	10118	4256							14374
1969	14430	1579							.16009
1970	8863	2874							11737
1971	12276	2830							15106
1972	10621	2137							12758
1973	4765	1192							5957
1974	4181	77							4258
1975	2728	38						`	2766
1976	2798	29	96						2923
1977	2661		2	53		2			2718
1978	1006		182	5					. 1192
1979	1058	49	261	6	2				1376
1980	1648		324	30	152		16	35	2206
1981	2091		339	102	13	2	33	24	2604
1982	2315		506	208		148	1	6	3184
1983	2231		372			47	1	44	2695
1984	1006		179		5	1518	1	76	27930

Table 15.--Annual sablefish catches from the eastern Bering Sea by nation, 1956-84 (t).

a Federal Republic of Germany. b Discrepancies between actual sums of component figures and totals are due to rounding. C Includes 7 t caught by Portugal.

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						Joint	
Year	Japan	U.S.S.R.	R.O.K.	U.S.	F.R.G. ^a	Venture	Total ^D
1963	664						664
1964	1541						1541
1965	1249						1249
966	1341						1341
967	1652						1652
1968	1673	·	·				1673
1969	1673						1673
1970	1248						1248
1971	2766	170	·				2936
1972	3262	269					3531
1973	2740	162				`	2902
1974	2463	14					2477
1975	1630	79	38		- 		1747
1976	1558	61	40				1659
1977	1810		87				1897
1978	798		23				821
1979	617		165				782
1980	233		26	3		4	274 ^c
1981	320		56		1	156	533
1982	715		92	28	1	118	955
1983	527		45	29	3	70	673
1984	717		7	47	1	272	1043

Table 16.--Annual sablefish catches from the Aleutian Islands by nation, **1963-84 (t).**

^a Federal Republic of Germany.

^b Discrepancies between actual sums of component figures and totals are due to rounding.

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C Includes 8 t caught by the Republic of China (Taiwan).

Year	U.S.	Canada	Japan	U.S.S.R.	R.O.K.	Othersa	Totalb
1956	5007	354		· · ·			5360
1957	5294	1019					6313
1958	2433	384	6		_ ,		2822
1959	3759	408	289				4456
1960	5517	705	1861				8083
1961	3497	451	15627			1	19574
1962	3908	440	25989				30337
1963	3166	397	16189			1	19751
1964	3798	637	6133			1	10567
1965	3599	650	8304				12553
1966	3481	970	14798			1	19249
1967	3287	591	19644	1236	·		24758
1968	2147	592	29367	4256		2	36362
1969	2842	383	40779	1579			45584
1970	2307	329	39921	3823		10	46389
1971	2873	327	43330	3761			50291
1972	5285	1104	54436	3240	308		64373
1973	6028	965	37740	1590	58		46380
1974	7376	502	35001	293	3175		46348
1975	9376	921	31283	230	7507	250	49567
1976	8402	794	29908	214	21234	1048	61600
1977	8746	1088	21782	80	1856	60	33612
1978	13082	831	10365	61	869	46	25254
1979	27033	2037	8600	358	1184	173	39386
1980	10373	3796	6912	416	1241	571	23311
1981	13372	3888	9322		1457	703	28740
1982	21679	3976	7951		1323	422	35351
1983	18028	4414	7092		1049	422	31008
1984	23817	3826	2566		442	923	31574

Table 17.--Annual sablefish catches from all areas by nation, **1956-84 (t).**

^a Includes catches by Poland, Bulgaria, Mexico, Federal Republic of Germany, Portugal; joint ventures; and catches for animal food.

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^b Discrepancies between actual sums of component figures and totals are due to rounding.

Table	18Annual	sablefish	catches	by	all	nations,	by	International	North	Pacific	FisherieS	Commission	areas,	1956-84	(t).

Year	Concep- tion	Mon- terey	Eureka	Columbia	Vancouver	Char- lotte	South- eastern	Yakutat	Kodiak	Chirikof	Shumagin	n EBS ^a	Aleutian Islands	Totalb
1956	20	1136	140	220	2230	224	1391	·						5360
1957	10	779	205	267	1889	404	2759							6313
1958	1	556	227	53	1071	112	797					6		2822
1959	6	661	212	60	1933	194	1101					289		4456
1960	11	691	393	163	2478	345	2142					1861		8083
1961	119	698	389	80	1544	222	897				1	5627		19575
1962	101	778	196	110	2216	216	731				2	5989		30337
1963	167	571	222	188	1175	249	990	229	1263	61	266 1	3706	664	19752
1964	198	653	554	84	1229	308	1629		907	48	92	3545	1541	10568
1965	147	1018	568	153	755	368	1241	4	1207	242	764	1838	1249	12553
1966	139	1155	629	82	598	624	1421	32	1857	775	1093	9505	1341	19249
1967	60	1425	1254	720	1126	680	2015	1652	1584	371	523 1	1698	1652	24758
1968	47	1142	636	441	818	2185	7513	5581	1331	327	297 1	4374	1673	36364
1969	26	1375	1084	791	2488	2764	7483	6944	3279	935	836 1	5009	1673	45584
1970	18	636	676	1049	1672	4209	8537	8339	5284	1420	1566 1	1737	1248	46389
1971	80	1325	701	828	1363	2323	9057	7530	5385	1611	2047 1	5106	2936	50291
1972	35	2519	1503	968	2397	3161	12072	9974	8508	3091	3857 1	2758	3531	64373
1973	44	2367	1579	831	1300	2707	7774	7311	6220	3425	3962	5957	2902	46380
1974	26	4339	1255	956	2340	2362	9885	6653	4758	2832	4207	4258	2477	46348
1975	88	5040	1907	4139	3593	4193	9012	6277	4264	2302	4240	2766	1747	49567
1976	2872	8146	3845	5809	4152	4461	10361	6056	4345	2134	4837	2923	1659	61600
1977	1122	3680	1288	815	2803	2155	5119	4776	2999	1273	2969	2718	1897	33612
1978	2656	4028	1623	2121	2128	1815	1651	2709	2199	891	1419	1192	821	25254
1979	5064	5116	3716	8627	2408	1947	2924	3200	2117	1108	1000	1376	782	39386
1980	883	1490	1749	3840	2386	1972	2203	1812	1682	1362	1452	2206	273	23309
1981	1661	2965	2409	3620	2242	2790	1887	3001	1788	1647	1594	2604	533	28740
1982	2422	4110	3311	6396	3676	2740	2023	2100	1568	1376	1489	3184	955	35351
1983	1923	2526	2118	5029	3851	3139	2761	1807	1611	1357	1513	2695	673	31004
1984	1069	1896	2063	4867	5991	1526	3503	1903	2786	650	1484	2793	1043	31574

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a Eastern Bering Sea (INPFC areas 1 and 2).
 b Discrepancies between actual sums of component figures and totals are due to rounding.

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