U.S. Tuna Trade Summary, 1984

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Introduction

For much of the U.S. tuna industry, 1984 was a year of frustration and disappointment. As the year ended, the only continental tuna cannery remaining in operation was Pan Pacific Fisheries located at Terminal Island, CA. Two California canneries, Van Camp and Star-Kist, shut down their mainland tuna processing operations in favor of lower cost production at offshore sites, primarily in American Samoa and Puerto Rico. The closure of these canneries left about 2,400 cannery workers without jobs. Businesses that supply the canneries with goods and services and the tuna vessels that traditionally have relied on the canneries located in California to purchase their catches were also severely affected by the closures.

With the tremendous reduction in California canning capacity and a 20-30 percent decline in ex-vessel prices during 1984, vessels participating in the fishery found themselves in a desperate economic situation. Many of the larger, more mobile vessels were able to survive 1984 by operating throughout the Pacific, delivering their catches to offshore sites. Nonetheless, the cannery closures and depressed ex-vessel prices forced a significant number of California-based vessels out of the fishery. By the end of the year the tropical tuna fleet declined by 12 percent. Ten vessels transferred flag, nine were chartered to foreign interests, and three were converted for operation in the North Pacific trawl fisheries.

According to the U.S. tuna industry, foreign competition was the most significant factor contributing to the cannery closures and economic problems of the fleet during 1984. From 1979 through 1984 the amount of canned tuna imported into the U.S. more than tripled (Table 1), increasing by almost 40 percent between 1982 and the end of 1983 alone. This increase has consisted almost entirely of tuna canned in water which has surpassed tuna packed in oil in popularity among U.S. consumers and is subject to a much lower import duty than tuna packed in oil. The problem of canned inports was considered severe enough to prompt various segments of the industry (vessel owners, processors, and cannery workers) to join together and petition the U.S. International Trade Commission (ITC), under Section 201 of the Trade Act of 1974, for

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Table 1.—U.S. supply of canned tuna, volume and value, 1974-84.

	Domestic production						
	White[1]		Light[2]		Imports[3]		
Year	Amt.	%[4]	Amt.	%	Amt.	%	Total
Case pack volume (1,000 cases)							
1974	8,162	22.6	25,202	69.9	2,705	7.5	36,069
1975	5,014	17.0	21,788	74.0	2,650	9.0	29,452
1976	5,966	17.9	24,339	73.0	3,020	9.1	33,325
1977	6,221	21.2	21,439	72.8	1,776	6.0	29,436
1978	7,120	18.6	28,515	74.5	2,655	6.9	38,290
1979	5,805	17.0	25,598	74.9	2,754	8.1	34,157
1980	5,505	16.3	25,003	74.0	3,259	9.7	33,767
1981	5,826	16.4	25,928	73.3	3,633	10.3	35,387
1982	6,020	19.1	21,067	66.7	4,491	14.2	31,579
1983	5,127	14.2	24,814	68.5	6,273	17.3	36.214
1984	6,584	16.7	24,461	62.1	8,324	21.1	39,369
Case pack value ($1,000)							
1974	238,518	27.3	585,375	66.9	51,108	5.8	875,001
1975	136,678	19.6	515,957	73.8	45,951	6.6	698,586
1976	212,869	23.1	640,594	69.6	67,502	7.3	920,965
1977	240,734	25.3	665,880	70.0	44,658	4.7	951,272
1978	296,506	22.2	976,754	73.0	63,822	4.8	1,337,082
1979	243,851	20.9	859,998	73.6	65,071	5.5	1,168,920
1980	252,290	20.3	891,237	71.9	97,254	7.8	1,240,781
1981	294,292	22.8	885,846	68.6	110,359	8.6	1,290,497
1982	275,400	26.7	643,046	62.3	113,346	11.0	1,031,792
1983	197,011	19.8	661,586	66.4	137,324	13.8	995,921
1984	255,962	24.6	616,280	59.3	167,268	16.1	1,039,510

[1]Standard case: 48 7-ounce solid pack.
[2]Standard case: 48 6.5-ounce chunk pack cans and 48 6-ounce cans of grated flake pack cans.
[3]Standard case: 48 6.5-ounce chunk pack cans.
[4]A % symbol denotes the percent of total for each canned category.
Sources: Domestic: Fisheries of the United States, 1975-84. U.S. Dep. Commer., NOAA, Natl. Mar. Fish. Serv. Curr. Fish. Stat. 6900, 7200, 7500, 7800, 8000, 8100, 8200, 8300, 8320, 8360, var. pagin. and, Canned Fishery Products, 1974-83. Curr. Fish. Stat. 6701, 6901, 7201, 7501, 7801, 8001, 8101, 8201, 8301, 8319, var. pagin. Imports: U.S. Dep. Commer., Bur. Census Computerized data files, 1974-84.

Table 2.—U.S. tuna cannery receipts (short tons) by processing site and direct exports, 1979-84.

Source and species	California-American Samoa-Hawaii							Puerto Rico						
	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$
Domestic														
Albacore	8,518	8,078	14,855	6,965	10,466	10,323	9,776	12	20	2		4	3,565	8
Skipjack	64,641	99,386	83,880	82,669	113,465	94,152	88,808	29,980	15,781	13,950	18,781	41,608	51,441	24,020
Yellowfin	112,349	100,523	100,117	93,468	90,052	59,907	99,302	30,042	18,693	26,049	24,800	30,044	35,193	25,926
Subtotal	185,508	207,987	198,852	183,102	213,983	164,382	197,886	60,034	34,494	40,001	43,581	71,656	90,199	49,954
Imported[2]														
Albacore	36,166	37,664	43,241	33,929	22,750	21,962	34,750	50,773	46,147	44,056	60,670	50,105	70,882	50,350
Skipjack	100,887	103,556	72,189	45,837	50,633	28,737	74,621	87,683	105,075	115,820	82,178	84,675	106,136	95,086
Yellowfin[1]	40,646	36,091	39,293	17,811	14,081	12,685	29,584	33,174	38,382	44,295	33,402	24,251	29,045	34,701
Subtotal	177,699	177,311	154,723	97,577	87,464	63,384	138,955	171,630	189,604	204,171	176,250	159,031	206,063	180,137
Grand total	363,207	385,298	353,575	280,679	301,447	227,766	336,841	231,664	224,098	244,172	219,831	230,687	296,262	230,091

	Direct exports[3]							Total						
	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$
Domestic														
Albacore				62		108	12	8,530	8,098	14,857	7,027	10,470	13,996	9,796
Skipjack	1,961	918	292	387	45	14,385	721	96,582	116,085	98,122	101,837	155,118	159,978	113,549
Yellowfin[1]	3,945	1,339	1,087	3,864	538	15,077	2,155	146,336	120,555	127,253	122,132	120,634	110,177	127,383
Subtotal	5,906	2,257	1,379	4,313	583	29,570	2,888	251,448	244,738	240,232	230,996	286,222	284,151	250,728
Imported[2]														
Albacore								86,939	83,811	87,297	94,599	72,855	92,844	85,100
Skipjack								188,570	208,631	188,009	128,015	135,308	134,873	169,707
Yellowfin[1]								73,820	74,473	83,588	51,213	38,332	41,730	64,285
Subtotal								349,329	366,915	358,894	273,827	246,495	269,447	319,092
Grand total	5,906	2,257	1,379	4,313	583	29,570	2,888	600,777	611,653	599,126	504,823	532,717	553,598	569,820

[1]Includes bigeye, blackfin, and bluefin tuna.
[2]Includes only imported tuna destined for canning; exludes tuna imported as flakes, tuna not fit for human consumption, and "sushi" grade tuna.
[3]Includes tuna landed directly or transshipped to a foreign country; excludes tuna exported from the east coast.
Source: Industry Analysis and Information Section, Southwest Region, NMFS, NOAA.

tariff relief from imports of canned tuna packed in water [Int. Trade Comm. Docket No. 1034, 1984].

Although the ITC acknowledged that the tuna industry was facing difficult times, the Commission decided that the substantial increases in imports of relatively low-cost tuna canned in water, while a contributing factor, was not the primary cause of the industry's current economic plight. Rather, the majority of Commissioners found that overinvestment in boats, plants, and inventories during a period of exceptionally high interest rates was just as important, if not more so, in bringing about the industry's present economic condition (ITC, 1984). This finding thwarted industry's bid for tariff relief to limit the flow of canned tuna imports. A subsequent attempt by the industry to have the U.S. Congress enact protective tariff legislation also failed.

With the cannery and vessel dislocations that occurred during 1984, domestic cannery receipts[1] of imported and domestically caught albacore, *Thunnus alalunga* (white meat), and tropical (light meat) tunas (skipjack, *Euthynnus pelamis*; yellowfin, *Thunnus albacares*; blackfin, *T. atlanticus*; bluefin, *T. thynnus*; and bigeye tuna, *T. obesus*) were slightly below those for 1983. The total volume was 524,028 short tons (t), a decrease of less than 2 percent) from the total volume for 1983 and 8 percent below the 1979-1983 average volume of annual cannery receipts (Table 2). Domestically caught cannery deliveries amounted to 254,581 tons, 11 percent below the 1983 level but 3 percent above the 1979-83 average. Imports made up the 269,447-ton balance in total cannery supplies for 1984, a 9 percent increase in raw tuna imports from 1983 imports but 16 percent below the 1979-83 average.

A significant occurrence in 1984 was the increase in deliveries and transshipments of U.S.-caught tropical tuna to foreign canneries. The U.S. fleet landed 29,570 tons of tuna for export, most of which was transshipped to canneries in Thailand, Japan, and Italy. This compares to only 583 tons exported in 1983 and a 1979-83 annual average of 2,888 tons. When exports of domestically caught raw tuna are combined with deliveries of domestically caught tuna to U.S. canneries, total U.S. deliveries amounted to 284,151 tons for 1984, less than 1 percent below the corresponding

[1]Cannery receipts include only tuna destined for U.S. canneries. Cannery receipts exclude U.S.-caught tuna landed at foreign sites, U.S.-caught tuna landed at U.S. sites that is destined for foreign canneries, U.S.-caught tuna destined for the fresh-fish market, tuna imported as flakes, imported tuna not fit for human consumption, and imported "sushi" grade tuna.

amount for 1983 (Table 2). The surge in U.S. exports is an indication of the internationalization of tuna trade in general and, more specifically, a possibly increasing reliance of U.S. vessels on foreign markets.

The western Pacific Ocean[2] continued to be the most productive tuna fishing area during 1984, accounting for 188,000 tons or 66 percent of the total receipts of domestically caught raw tuna and U.S. exports of raw tuna by oceanic area. This represents a 10 percent increase from 1983 and is three times the 1979-83 average volume of annual cannery receipts of domestically caught tuna and raw tuna exports from this area.

Despite the loss in U.S. west coast processing capacity and intense competition from foreign producers, overall U.S. canned tuna production in 1984 rose 4 percent from 1983. Total volume was 31.0 million standard cases[3], 3 percent above the 1979-83 average total annual volume. When canned imports were combined with U.S. production, the total addition to U.S. canned supplies was 39.4 million standard cases for 1984 which was 8 percent above 1983 and 15 percent above the 1979-83 average annual additions to canned supplies (Table 1).

Increased competition between foreign and domesticaly produced canned tuna has been beneficial to U.S. consumers. The retail composite canned tuna price, which decreased nearly 7 percent during 1983, fell an additional 3 percent in 1984. The downward price trend contributed to corresponding growth in overall apparent consumption which increased 2 percent in 1984, following an increase of 7 percent for 1983. Water-packed products led sales in all categories during 1984, with a gain of almost 10 percent from 1983. Since these items account for more than 60 percent of total sales, this increase helped offset reduced sales of light tuna in oil and of health-oriented, canned tuna products.

[2]In this paper, the eastern and western Pacific are distinguished at long. 150°W.

[3]A standard case can consist of: Solid 48 (7-ounce) = 21 pounds; Chunk 48 (6.5-ounce) = 19.5 pounds; Grated/Flake 48 (6-ounce) = 18 pounds.

In the following sections, the 1984 production of white and light meat tuna by the U.S. tuna industry and consumption of tuna products by U.S. consumers is reviewed in more detail. In the final section some of the issues and events that affected the industry's performance in 1984 are analyzed. Unless otherwise noted, the information and data presented were compiled by the Industry Analysis and Information Section of the Southwest Region, National Marine Fisheries Service, NOAA.

U.S. Albacore Production

Albacore, which in the United States is the only species that may be labelled as white meat tuna (USFDA, 1985), showed all-around trade improvement in 1984. According to industry reports, consumption of canned white meat tuna increased nearly 1 percent for oil pack and 6 percent for water pack during 1984. Total cannery receipts (domestically caught albacore plus imports) reached 106,732 tons in 1984, 28 percent above receipts for 1983 and the highest they have been in the past 5 years (Table 2). Domestic white meat production for 1984 amounted to 6.6 million standard cases, 28 percent ahead of 1983 production and 16 percent greater than the 1979-83 average. The substantial gains in cannery deliveries and domestic production in 1984 probably reflected the industry's expectations of continued growth in consumption, which had increased substantially during 1983.

The U.S. albacore fishery presently occurs entirely in the Pacific Ocean north of lat. 25°N and off the west coast to about long. 180°. This area is divided at long. 140°W into offshore (mid-Pacific) and inshore fishing areas.

Cannery Receipts of Domestically Caught Albacore

With relatively tight supplies of albacore worldwide putting upward pressure on ex-vessel prices and with favorable environmental conditions following the 1982-83 El Niño episode, prospects for the 1984 U.S. albacore fishery appeared to be a continuation of the upswing which began in 1983 (Squire, 1983). Only the announcement by Hawaiian Tuna Packers that it would not buy albacore at its Honolulu plant dimmed this outlook. However, Hawaiian Tuna Packers later retracted and agreed to purchase 400 tons of albacore from fishermen who had delivered to the cannery in the past. The uncertainty surrounding purchases of albacore by Hawaiian Tuna Packers deterred a large number of U.S. vessels from fishing in the mid-Pacific area early in 1984. About 30-40 vessels fished in the mid-Pacific during 1984, down 45 percent from 1983, and cannery deliveries from this area were 18 percent below those for 1983.

The albacore catch in the inshore areas (east of long. 140°W) increased 19 percent above that for 1983. A significant occurrence in 1984 was the unusually large catch of albacore by purse seiners: 4,100 tons were caught 50-100 miles off San Diego, Calif., during July and August (Majors and Miller[4]). Not since the early 1960's have purse seiners contributed to annual landings of North Pacific albacore in this magnitude. Troll gear (jig boats) is the dominant gear in the U.S. fishery.

Deliveries of domestically caught albacore to U.S. canneries totaled 13,888 tons in 1984, up 32 percent from 1983 and 42 percent above the 1979-83 average. This significant increase in receipts of domestically caught albacore can be largely attributed to highly propitious economic and environmental conditions. In addition, 108 tons of U.S.-caught albacore were exported in 1984, whereas no albacore was exported in 1983 (Table 2).

With production decreasing 15 percent and consumption increasing 17 percent during 1983, the U.S. white meat tuna supply entering 1984 was at a relatively low level. Consequently, fishermen were able to negotiate an early season ex-vessel contract price of $1,400 per ton for albacore ≥9 pounds, and $1,125 per ton for fish <9 pounds, increases of 12 and 15 percent, respectively, over the 1983 prices. Accompanying the increase in ex-vessel prices was a

[4]Majors, A. P., and F. Miller. 1985. Summary of the 1984 North Pacific albacore fishery data. NMFS Southwest Fish. Cent., La Jolla, Calif. SWFC Admin. Rep. LJ-85-14, 14 p.

Table 3.—U.S. cannery ex-vessel (contract) prices (dollars per short ton) at California and Puerto Rico, 1979-84.

Year	Albacore >18 lbs.	Albacore 9-18 lbs.	Albacore <9 lbs.	Skipjack tuna >7.5 lbs.	Skipjack tuna 4-7.5 lbs.	Skipjack tuna 3-4 lbs.	Skipjack tuna <3 lbs.	Yellowfin tuna Greater than 20 lbs.	Yellowfin tuna 7.5-20 lbs.	Yellowfin tuna 4-7.5 lbs.	Yellowfin tuna 3-4 lbs.	Yellowfin tuna <3 lbs.
1979				$740-790	$740-790	$590	$400	$840	$840	$700-790	$700-790	$700-790
	$1,390	$1,320	$1,320	740-760	740-760	590-610	400-420	850-860	850-860	700-720	700-720	700-720
				760-805	760-805	610-655	420-505	860-905	860-905	720-765	720-765	720-765
	1,390	1,390	1,390	805-850	805-850	655-700	505-545	905-950	905-950	765-810	765-810	765-810
				850	850	700	545	950	950	810	810	810
1980	1,610	1,610	1,610	850	850	700	545	950	950	810	810	810
	1,635	1,635	1,635	1,100	1,100	1,000	800	1,200	1,200	1,100	1,100	1,100
1981	1,800	1,800	1,800	1,100	1,100	1,000	800	1,200	1,200	1,100	1,100	1,100
1982	1,425	1,425	1,425	1,100	1,100	1,000	800	1,200	1,200	1,100	1,100	1,100
				1,040	1,040	940	740	1,140	1,140	1,040	1,040	1,040
	1,350	1,225	1,000	890	890	700	500	1,170	1,050	890	890	890
1983[1]				950	850	700	420	1,230	1,050	850	700	420
	1,250	1,250	975	900	800	640	420	1,125	990	800	640	400
				880	780	585	250	1,125	975	780	585	250
1984[1]	1,400	1,400	1,125	830	730	500	250	1,085	950	730	500	250
				850	750	550	250	1,000	900	750	550	250
	1,150	1,150	875									
	-1,300	-1,300	-1,025	763	650	470	235	925	800	650	470	235

[1]Skipjack and yellowfin prices are for standard grade, prices may vary due to quality.
Source: Industry Analysis and Information Section, Southwest Region, NMFS, NOAA.

return to normal water temperatures, well developed temperature fronts, and good upwelling. These conditions were highly conducive to albacore fishing as evidenced by the exceptional purse seine catches from the inshore areas early in the season (Majors and Miller[4]).

However, by mid-season, following the unprecedented purse seine catches, ex-vessel prices dipped to $1,150 per ton for large fish and $875 per ton for small fish. Prices recovered somewhat after the influx of purse seine caught albacore, closing the season at $1,300 per ton for large fish and $1,025 per ton for small fish, still 4 and 5 percent, respectively, ahead of 1983 prices (Table 3).

Cannery receipts from the 1984 fishery generated more than $17 million in ex-vessel revenue, up 31 percent from 1983. Dividing 1984 ex-vessel albacore revenue by total U.S. cannery deliveries yields a weighted ex-vessel price of $1,252 per ton, down 1 percent from 1983, the lowest it has been in the past five years (Table 4).

Table 4.—U.S. cannery ex-vessel (weighted) prices (dollars per short ton), 1979-84.

Year	Albacore Nominal	Albacore Real[1]	Skipjack tuna Nominal	Skipjack tuna Real[1]	Yellowfin tuna Nominal	Yellowfin tuna Real[1]
1979	1,286	787	728	445	863	528
1980	1,659	930	1,063	596	1,180	661
1981	1,800	920	1,030	527	1,170	598
1982	1,387	669	965	465	1,123	542
1983	1,268	589	799	371	1,032	479
1984	1,252	560	760	340	982	440

[1]Adjusted for inflation using GNP implicit price deflator (1972 = 100).
Source: Industry Analysis and Information Section, Southwest Region, NMFS, NOAA.

Canned Albacore Production

At the beginning of 1984, the major U.S. tuna receiving and processing sites were San Diego and Terminal Island, Calif., Mayaguez and Ponce, Puerto Rico; Honolulu, Hawaii; and Pago Pago, American Samoa. With the closure of the Van Camp cannery in San Diego in mid-1984, which left only two California canneries in operation, tuna receipts and production data could no longer be reported separately for California without violating confidentiality requirements. Hence, California receipts and production data were combined with those from American Samoa and Hawaii (ASCH) for reporting purposes. Similar data for Puerto Rico are reported separately.

Of the total amount of raw (whole and other than whole) albacore supplied to canneries in 1984 (106,732 tons), 70 percent was delivered to canneries in Puerto Rico and the balance to canneries in ASCH. This resulted in a 49 percent increase from 1983 in albacore deliveries to Puerto Rico and a 2 percent decline in deliveries to ASCH. Seventy-five percent of the 1984 domestically caught albacore, or 10,323 tons, was received by ASCH canneries and the remainder, 3,565 tons, was transshipped to canneries in Puerto Rico from west coast ports (Table 2). This is a 1 percent decrease from 1983 in domestically caught albacore deliveries to ASCH. In 1983, only 4 tons of domestically caught albacore were received in Puerto Rico.

U.S. canneries received 92,844 tons of imported raw albacore in 1984, up 27 percent from 1983 (Table 2). Imports made up 87 percent of the total 1984 cannery supply of albacore, the same as in 1983. Puerto Rico was the major receiving site for imports with 70,882 tons or 76 percent of total albacore imports. ASCH received the rest. Albacore imports received in Puerto Rico during 1984 increased 41 percent from 1983, while imports received in ASCH decreased 3 percent. The leading exporter of raw albacore to U.S. canneries in 1984 was the Canary Islands,

Table 5.—Cannery imports of frozen tuna (short tons) by country of origin, 1979-84.

Source[1]	1979		1980		1981		1982		1983		1984	
	White	Light[2]	White	Light	White	Light	White	Light	White	Light	White	Light
Brazil		1,002	109	5,847	83	5,968	1,443	16,181	1,185	15,154	2,018	7,743
Canary Island	1,939	1,116	362		325		1,693	1	7,653	5	14,030	10
Cayman Island						2,171		6,723				9,960
Eduador		16,132	340	10,661						2,809		12,034
Ghana	215	41,102	70	30,071	760	36,188	1,078	27,783	345	23,751	170	6,640
Ivory Coast	162	10,141		12,860	345	35,805		27,862		13,783	289	30,997
Japan	7,310	10,694	3,957	45,112	6,483	12,307	5,834	12,705	696	18,426	10,946	20,965
Mauritius	6,038		4,349		1,364	152	4,811		4,668		5,026	
Netherlands Antilles	5,737	3,984	6,611	4,869	6,202	273	10,054	1,996	8,560	258	9,619	298
Panama		32,460		27,660		23,746		29,558	1	8,110	424	13,928
Philippines	60	27,210	37	26,799		20,781		5,923		6,476		1,327
Reunion	7,118	79	9,209	157	4,738	204	12,036	146	7,438	3	4,363	67
Seychelles										3,042		8,257
Singapore	3,613	1,505	3,444	5,366	3,969	7,781	1,386	3,846	4,217	3,761	5,024	
Solomon Island		17,328	1,088	18,984		22,618		928		10,600		15,836
South Africa	13,818	75	14,136	263	15,091	1,832	17,044	1	7,304	239	11,856	1,478
South Korea	372	485	412	925	1,547	4,893	1,001	6,891	5,374	13,830	2,119	11,064
Taiwan	983	34		244	1,730	169	99	384	5,075	3,851	9,739	9,468
Uruguay	9,988	48	7,903	1,719	9,920	1,489	8,835	670	4,480	143	3,228	722
Venezuela	222	1,153		865	394	5,496		2,421	1	6,604		7,002
Other	29,364	97,842	31,784	90,702	34,346	89,724	29,285	35,209	15,858	42,795	13,993	18,807
Total	86,939	262,390	83,811	283,104	87,297	271,597	94,599	179,228	72,855	173,640	92,844	176,603

[1]Data reflects the origin of shipments and not necessarily the flag of the catcher vessel.
[2]Light meat includes bigeye, blackfin, bluefin, skipjack, and yellowfin tuna.
Source: Industry Analysis and Information Section, Southwest Region, NMFS, NOAA.

Spain[5], with 14,030 tons or 15 percent of the total imports. South Africa was next with 11,856 tons, 12 percent of the total (Table 5).

Raw albacore imports received at U.S. canneries in 1984 were valued at about $145 million, up 42 percent from 1983. Dividing this value by the corresponding volume results in a weighted average import price of $1,561 per ton for raw albacore in 1984, nearly 17 percent above that for 1983.

The Pacific Ocean provided 44 percent of the total cannery supply of raw albacore in 1984. The Atlantic and Indian Oceans followed with 42 percent and 14 percent, respectively, of the total supply, all imports. The supply of albacore from the Pacific Ocean, 46,775 tons, represented a 37 percent increase from 1983, and that from the Atlantic, 44,601 tons, was a 34 percent increase from 1983. The Indian Ocean was the only oceanic area for which a decrease in supply (11 percent) occurred in 1984 (Tables 6 and 7).

White meat tuna production in Puerto Rico amounted to 4.6 million standard cases in 1984, 70 percent of the total U.S. albacore pack, and a 35 percent increase from 1983. ASCH produced 2.0 million standard cases of white meat tuna in 1984, down 18 percent from 1983.

Wholesale list prices for U.S.-produced, nationally advertised brands of white meat tuna remained between $55.50 and $60.15 per standard case throughout 1984. With discounts, the actual selling price at wholesale was as low as $42.25 for a standard case, a 12 percent increase over 1983. Production of both nationally advertised and private label (advertised and private brands) white meat tuna was valued at $256 million in 1984, up 30 percent from 1983. Based on total white meat volume, the weighted average value of unit production during 1984 was $38.88 per standard case compared with $38.43 in 1983, a 4 percent increase.

Tropical Tuna Production

Although U.S. consumption of tropical or light meat tuna products increased during 1984, corresponding processing showed a slight decline. Consumption of canned, light meat tuna packed in water increased nearly 9 percent, and consumption of oil-packed, light meat tuna decreased 6 percent. This led to an overall increase in light meat consumption of approximately 3 percent in 1984, based on relative market shares. Cannery production of all light meat products totaled 24.5 million standard cases in 1984, a decrease of 1 percent from 1983 and from the 1979-83 average (Table 1). The total cannery supply of light meat tuna, 417,296 tons, also declined 1 percent from 1983 and was 7 percent below the 1979-83 average (Table 2). Prices at the ex-vessel, wholesale, and retail levels continued to decline during 1984.

Domestically Caught Tropical Tuna Cannery Receipts

The U.S.-flag tropical or light meat tuna fleet consisted of 145 vessels at the start of 1984: 125 purse seiners and 20 baitboats (pole-and-line gear). By the end of 1984, the fleet had declined to 130 vessels: 109 purse seiners and 21 baitboats, with a total carrying capacity of 113,269 tons, a 12 percent decrease from 1983. However, 29 of these vessels were listed as inactive, and 18 of the vessels were seiners of individual carrying capacities of 400 tons or more.

The fleet operated almost exclusive-

[5]The exporting country reflects origin of shipments and not necessarily the flag of the catcher vessel.

Table 6.—U.S. domestic tuna cannery receipts and direct exports[1] (short tons) by ocean of origin, 1979-84 (None from Indian Ocean).

	Albacore							Skipjack tuna						
Ocean	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$
E. Atlantic	12	2	2	62			16	1,384	2,458	3,327	27	21		1,444
W. Atlantic		18	4		4		5	501	25	108		3	233	127
E. Pacific	6,914	7,690	13,954	5,099	9,434	13,409	8,618	83,944	101,344	74,116	59,264	40,181	22,067	71,770
W. Pacific	1,604	388	897	1,866	1,032	587	1,157	10,753	12,258	20,571	42,546	114,913	137,678	40,208
Subtotal	8,530	8,098	14,857	7,027	10,470	13,996	9,796	96,582	116,085	98,122	101,837	155,118	159,978	113,549

	Yellowfin tuna[2]							Total						
	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$
E. Atlantic	2,396	1,898	1,966	1,087			1,470	3,792	4,358	5,295	1,176	21		2,930
W. Atlantic	615	517	502	115	70	577	364	1,116	560	614	115	77	810	496
E. Pacific	142,667	116,947	110,251	96,640	65,863	59,823	106,474	233,525	225,981	198,321	161,003	115,478	95,299	186,862
W. Pacific	658	1,193	14,534	24,290	54,701	49,777	19,075	13,015	13,839	36,002	68,702	170,646	188,042	60,440
Subtotal	146,336	120,555	127,253	122,132	120,634	110,177	127,383	251,448	244,738	240,232	230,996	286,222	284,151	250,728

[1]Includes tuna landed directly or transshipped to a foreign country; excludes tuna exported from the east coast.
[2]Includes bigeye, blackfin, and bluefin tuna.
Source: Industry Analysis and Information Section, Southwest Region, NMFS, NOAA.

Table 7.—U.S. imported tuna cannery receipts[1] (short tons) by ocean of origin, 1979-84.

	Albacore							Skipjack tuna						
Ocean	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$
E. Atlantic	16,843	14,567	17,105	19,815	16,935	27,392	17,053	50,218	40,318	67,011	49,417	34,358	35,882	48,265
W. Atlantic	20,352	15,016	16,894	21,129	16,127	17,209	17,904	3,211	6,546	8,754	17,119	18,070	9,059	10,740
E. Pacific	20	418	22	48	243	439	150	40,015	23,981	9,409	11,916	4,501	9,245	17,964
W. Pacific	32,955	36,808	43,638	35,375	23,226	32,340	34,400	93,837	132,283	95,119	44,017	72,742	72,699	87,600
Indian	16,769	17,002	9,638	18,232	16,324	15,464	15,593	1,289	5,503	7,716	5,546	5,637	7,988	5,138
Subtotal	86,939	83,811	87,297	94,599	72,855	92,844	85,100	188,570	208,631	188,009	128,015	135,308	134,873	169,707

	Yellowfin tuna[2]							Total						
	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$	1979	1980	1981	1982	1983	1984	79-83 $\bar{x}$
E. Atlantic	6,588	6,589	19,561	9,320	4,618	3,258	9,335	73,649	61,474	103,677	78,552	55,911	66,532	74,653
W. Atlantic	2,119	2,194	5,200	3,058	6,446	3,259	3,803	25,682	23,756	30,838	41,306	40,644	29,527	32,447
E. Pacific	39,637	30,891	16,039	19,200	7,492	9,222	22,652	79,672	55,290	25,470	31,164	12,236	18,906	40,766
W. Pacific	24,997	34,060	41,340	18,800	18,814	23,799	27,602	151,789	203,151	180,097	98,192	114,781	128,838	149,602
Indian	479	739	1,448	835	962	2,192	893	18,537	23,244	18,802	24,613	22,923	25,644	21,624
Subtotal	73,820	74,473	83,588	51,213	38,332	41,730	64,285	349,329	366,915	358,894	273,827	246,495	269,447	319,092

[1]Includes only imported tuna destined for canning; excludes tuna imported as flakes, tuna not fit for human consumption, and "sushi" grade tuna.
[2]Includes bigeye, blackfin, and bluefin tuna.
Source: Industry Analysis and Information Section, Southwest Region, NMFS, NOAA.

ly in the Pacific Ocean during 1984. Vessels active in the western Pacific numbered 61 at the beginning of 1984, with a combined carrying capacity of 72,562 tons. The number in the western Pacific declined to 43 at the end of 1984 with a capacity of 52,245 tons, a 28 percent decrease in both number and total capacity. Thirty-seven vessels, with a total carrying capacity of 25,150 tons, operated in the eastern Pacific during the first quarter of 1984 increasing to 58 vessels with a capacity of 39,623 tons by the end of the year, an increase of 57 percent in both number of vessels and capacity. Only four U.S.-flag vessels, having a combined capacity of 4,780 tons, fished in the Caribbean area of the Atlantic Ocean during 1984.

Cannery receipts of domestically caught, light meat tuna totaled 240,693 tons in 1984, 13 percent below 1983. This total comprised 145,593 tons of skipjack tuna and 95,100 tons of yellowfin tuna (includes bigeye, bluefin, and blackfin tuna), decreases from 1983 of 6 percent and 21 percent, respectively. In addition to deliveries to U.S. canneries, the U.S.-flag vessels exported 29,462 tons to foreign canneries, com-

pared with 583 tons in 1983. Total exports consisted of 14,385 tons of skipjack and 15,077 tons of yellowfin tuna (Table 2).

Ex-vessel prices for light meat which declined in 1983, fell further in 1984 (Table 3). The contract ex-vessel price (without quality adjustments[6]) for skipjack tuna in the 3- to 4-pound range was $470 per ton at the end of 1984, 20 percent below that at the close of 1983. The contract ex-vessel price for yellowfin tuna in the 7.5- to 20-pound range (without quality adjustments[6]) at the end of 1984 was $800 per ton, 18 percent below the corresponding price at the end of 1983. The reported ex-vessel value of domestically caught skipjack tuna receipts was $110 million in 1984, an 11 percent decrease from 1983. This yields a weighted ex-vessel price of $760 per ton, down 5 percent from 1983 (Table 4). Domestic deliveries of yellowfin tuna generated about $93 million in ex-vessel revenue for 1984, 25 percent below 1983. The weighted ex-vessel price for yellowfin tuna in 1984 was $982 per ton, also down 5 percent from 1983 (Table 4). Total ex-vessel revenue was about $203 million in 1984, an 18 percent decrease from 1983.

Canned Tropical Tuna Production

Skipjack, yellowfin, bigeye, and bluefin tunas are canned as light meat in the United States. The 6.5-ounce can of chunk style, light meat tuna in water was the most popular tuna product consumed in the United States during 1984, accounting for over 45 percent of all tuna sales.

The total supply of raw, light meat tuna, 417,296 tons, was delivered to canneries in Puerto Rico, American Samoa, Hawaii, and California during 1984. Puerto Rico was the leading receiving site in 1984 with 221,815 tons, 53 percent of the total U.S. cannery supply. The balance, 195,481 tons, was received at canneries in ASCH. Total receipts for Puerto Rico increased 23 percent from 1983, and decreased 27 percent for ASCH (Table 2). This reflects the diversion of deliveries to Puerto Rico due to the cannery closures in California.

Of the total receipts of domestically caught light meat tuna for 1984, 154,059 tons (64 percent) were received in ASCH, and the remainder, 86,634 tons, went to Puerto Rico. Again, the cannery closures on the U.S. west coast were a major factor contributing to the 25 percent decrease from 1983 in deliveries of domestically caught, light meat tuna to ASCH, and the 21 percent increase in deliveries to Puerto Rico (Table 2).

Light meat imports totaled 176,603 tons in 1984, almost 2 percent ahead of 1983. Imports made up 42 percent of the total cannery supply in 1984 versus 39 percent in 1983. Puerto Rico was the major receiving site for imports during 1984 with 135,181 tons (77 percent of the total), a 24 percent increase from 1983 (Table 2).

Skipjack tuna dominated imports in 1984 with 134,873 tons making up 76 percent of the total imports. Yellowfin tuna contributed the balance. Overall, skipjack tuna imports were down less than 1 percent from 1983, while yellowfin imports increased 9 percent (Table 2).

The top exporter of raw light meat tuna to the United States in 1984 was the Ivory Coast, with 30,997 tons or 18 percent of the 1984 total. Japan followed with 20,965 tons, 12 percent of the total (Table 5).

The total value of imports received at U.S. canneries in 1984 was $137 million, down less than 1 percent from 1983. The value of skipjack tuna imports was about $95 million, and the value of yellowfin tuna imports was about $42 million, a decrease from 1983 of 5 percent for skipjack tuna and an increase of 4 percent for yellowfin tuna. These values convert to weighted average prices of $704 per ton for imported skipjack tuna and $1,009 per ton for imported yellowfin tuna, a decrease from 1983 of 5 percent and an increase of 3 percent, respectively.

The Pacific Ocean was the primary source of all (domestically caught plus imports) U.S. cannery receipts of light meat tuna and domestically caught, light meat tuna exports to foreign canneries which together totaled 446,758 tons in 1984. The Pacific provided 384,300 tons or 86 percent of this total, the Atlantic Ocean 12 percent, and the Indian Ocean 2 percent, virtually all imports. On a regional basis, the western Pacific was the leading production area with 283,953 tons, 64 percent of total receipts and exports, an increase of 8 percent from 1983. Of the total receipts originating in the western Pacific during 1984, 66 percent (187,455 tons which includes U.S. exports) was domestically caught, and the remainder (96,498 tons) consisted of imports. Skipjack tuna was the predominant species in the western Pacific receipts and U.S. exports. Other oceanic regions contributing to the 1984 U.S. cannery supply and U.S. raw exports, in order of importance, were the eastern Pacific (primarily domestically caught yellowfin tuna), the eastern Atlantic (almost all skipjack tuna imports), and the western Atlantic (mainly skipjack tuna imports). A breakdown of the 1984 cannery supply and U.S. exports by ocean of origin is given in Tables 6 and 7.

Puerto Rico was the leading U.S. processing center for canned light meat tuna during 1984 with 12.6 million standard cases, 52 percent of the total light meat pack for 1984. This is an increase of 26 percent from 1983. The remaining 11.8 million standard cases were processed at canneries in ASCH, which is a decrease of 7 percent from 1983.

The wholesale list price of U.S.-produced, advertised, light meat tuna remained steady at between $40.05 and $40.64 per standard case, but it was discounted to $36.00 per standard case at the beginning of 1984 and declined to $32.00 by the end of the year, an 11 percent decrease. Total production of canned light meat tuna in 1984, both advertised and private label brands, was valued at $616 million, down 7 percent from 1983. Dividing total value by total volume yields a weighted average unit production price of $25.91 for a standard case of light meat tuna in 1984, 6 percent below that for 1983.

Canned Tuna Imports

The U.S. tariff on imports of canned tuna packed in oil is different from that

[6]Contract prices may be adjusted for salt content, unloading temperature, and condition of the fish.

on imports of canned tuna not packed in oil. Tuna in oil is subject to a 35 percent tariff; thus, imports are negligible. Canned tuna not in oil is under a tariff rate quota which allows imports up to 20 percent of the previous year's domestic production, excluding production at American Samoa, to enter at 6 percent ad valorem, and imports above the quota level enter at 12.5 percent ad valorem. Before the quota on canned imports not in oil is reached, the Bureau of the Census reports statistics on white meat and light meat imports separately. However, once the quota is reached Bureau of the Census records are combined for white and light meat imports so that a distinction between the two no longer exists. Therefore, year-end figures represent imports of both canned light and white meat not in oil.

The 1984 quota on canned imports not in oil was 95,587,400 pounds or about 4.9 million standard cases. Total imports reached a record 162.3 million pounds or 8.3 million standard cases, an increase of 33 percent from 1983. When the 1984 quota was initially reached on 16 July, white meat made up 13 percent of the imports of canned tuna not in oil. Imports of canned tuna in oil, practically all light meat tuna, totaled 277,000 pounds or about 14,000 standard cases, an increase of 40 percent from 1983.

Thailand exported the most canned tuna to the U.S. in 1984—89.7 million pounds or 4.6 million standard cases. This was 55 percent of the total and represents a 127 percent increase in imports of canned tuna from Thailand over 1983. Japan was a distant second with 26.9 million pounds or 1.4 million standard cases, 17 percent of the 1984 total.

Imports in 1984 were valued at about $167 million free on board, an increase of 22 percent from 1983. This converts to a weighted average price of $1.03 per pound or $20.09 per standard case which is 8 percent below that for 1983. Imports of canned tuna and their corresponding value by major exporting country are shown in Table 8.

Table 8.—U.S. imports for consumption by principal sources tuna in airtight containers (oil and water), 1979-1984.

Source	1979	1980	1981	1982	1983	1984
Quantity (1,000 pounds)						
Japan	28,366	24,794	21,271	26,481	20,387	26,855
Philippines	6,998	13,777	21,451	27,631	32,018	22,225
Thailand	4,844	6,405	10,315	18,667	39,930	89,685
Taiwan	12,282	15,947	15,771	10,704	18,710	17,935
Australia			58	1,930	2,799	
Malaysia	292	66	696	755	3,083	1,608
Indonesia			146	595	2,634	2,222
Maldives	62	600	592	327		
Spain[1]	336	146	170	120	133	214
Singapore		28	65	120	329	58
Other	523	1,792	316	248	2,306	1,511
Total	53,704	63,553	70,852	87,579	122,329	162,313
Value ($1,000)						
Japan	37,055	42,015	36,453	38,561	24,643	29,186
Philippines	7,319	20,043	30,504	31,085	32,291	20,396
Thailand	5,135	8,875	15,400	22,711	43,259	89,253
Taiwan	14,103	23,316	24,631	14,366	22,772	22,475
Australia			105	3,451	3,684	
Malaysia	314	76	1,230	1,242	4,068	1,893
Indonesia			209	699	2,679	2,102
Maldives	67	825	874	379		
Spain[1]	501	367	402	300	268	376
Singapore		38	91	141	386	44
Other	579	1,698	459	412	3,274	1,545
Total	65,071	97,254	110,358	113,347	137,324	167,270
Unit value ($ per pound)						
Japan	$1.31	$1.69	$1.71	$1.46	$1.20	$1.09
Philippines	1.05	1.45	1.42	1.12	1.00	0.92
Thailand	1.06	1.39	1.49	1.22	1.08	1.00
Taiwan	1.15	1.46	1.56	1.34	1.21	1.26
Australia			1.80	1.79	1.31	
Malaysia	1.08	1.14	1.77	1.64	1.31	1.18
Indonesia			1.43	1.18	1.01	0.95
Maldives	1.07	1.38	1.48	1.16		
Spain[1]	1.49	2.52	2.36	2.50	2.01	1.76
Singapore		1.38	1.41	1.17	1.17	0.76
Other	1.11	0.95	1.45	1.66	1.41	1.03
Average	1.21	1.53	1.56	1.29	1.12	1.03
Percentage of total quantity						
Japan	53	39	30	30	17	17
Philippines	13	22	30	32	26	15
Thailand	9	10	15	21	33	55
Taiwan	23	25	22	12	15	11
Australia			*[2]	2	2	
Malaysia	*	*	1	1	2	1
Indonesia			*	1	2	1
Maldives	*	1	1	*		
Spain[1]	1	*	*	*	*	*
Singapore		*	*	*	*	*
Other	1	3	1	1	3	1
Total	100	100	100	100	100	100

[1]Mainly oil packed.
[2]An asterisk means less than 1 percent, included in "Other" listing.
Source: Department of Commerce, Bureau of the Census computerized data files, 1979-84.

U.S. Consumption of Canned Tuna

Per capita U.S. consumption of canned tuna products for 1984 (excluding consumption by military personnel) was estimated at 3.2 pounds, 3 percent above 1983. If it is assumed that during 1984 canned light and canned white meat tuna were consumed in the same proportions that they were produced in the U.S. (21 percent white meat, 79 percent light meat), per capita domestic consumption would be about 0.67 pounds of white meat tuna and 2.53 pounds of light meat tuna. This converts to 1.5 standard cans of white meat tuna and 6.2 standard cans of light meat tuna per capita. Compared with 1983, per capita consumption of white meat tuna increased 24 percent in 1984 and increased 3 percent for light meat tuna. Based on the National Marine Fisheries Service's "Operation Price Watch" (USDOC, 1983, 1984), which monitors

the average price for domestically produced canned tuna in 10 U.S. cities, consumers paid an average of $1.47 per can for white meat tuna and $.86 per can for light meat tuna during 1984 (although retail promotions sometimes reduced light meat prices to $.59 per can), a decrease of 1 percent for both white and light meat from 1983. This results in a slight increase in estimated per capita expenditures on canned tuna in 1984—$7.54 versus $7.10 in 1983. These estimates are based on U.S. canned production and retail price information and do not take into account domestic consumption of imported canned tuna.

Discussion

Industry performance during 1984 was characterized by increased receipts of domestically caught albacore tuna, only a slight decrease in domestically caught tropical tuna destined for U.S. and foreign canneries, an increase in total domestic canned production, and continued growth in U.S. consumption of canned tuna products. This showing, however, offered little consolation to unemployed California cannery workers, purse seine crewmen, and vessel operators who lost their jobs when all but one major processor left the U.S. west coast.

Perhaps the most significant event affecting the U.S. tuna industry, or at least that which dominated the public's attention, was the industry's petition for a more equitable tariff on imports of canned tuna not in oil (in water) submitted to the International Trade Commission in early 1984. Citing rapid and substantial increases in import penetration that threatened to bring about significant liquidation of domestic tuna harvesting and processing capacity, the petitioners requested an increase in the rate of duty on canned tuna imports not in oil to 35 percent for 5 years. They reasoned that such an adjustment to the tariff on tuna canned in water, together with steps taken to reduce production costs, would restore profitability to the domestic industry, and thereby enable it to implement various long-term programs designed to enhance productivity and restore its ability to compete.

The rapid and substantial increase in the volume of canned tuna imports in water began in the early 1980's when tuna canned in water started to surpass tuna canned in oil in popularity among U.S. consumers, and rising production costs within the U.S. industry brought about record high prices at the ex-vessel, wholesale, and retail levels. This combination of events, plus a disparate tariff on tuna canned in water, provided an opportunity for lower priced, low-cost imports to inundate the domestic market. As a result, imports have made significant inroads into the strongest growing segments of the U.S. tuna market, that is, tuna packed in water for sale to private label and institutional customers. Since consumers of private label and institutional packs tend to purchase on the basis of price and not brand loyalty, these market sectors are characterized by extreme price sensitivity and very narrow profit margins. To maintain a presence in these sectors, domestic processors have had to accept greatly reduced prices for their institutional and private label packs.

Even though foreign processors have concentrated on the private label and institutional sectors of the domestic canned tuna market, sales of U.S. nationally advertised brands have also been affected. As rising costs of production pushed the price of domestically canned tuna higher, the widening price spread at retail induced consumers to substitute privately labeled imported tuna at much lower prices for the more familiar advertised brands. This situation precipitated major price reductions on nationally advertised brands. Together with depressed institutional and private label revenues, price reductions on the nationally advertised brands reduced profit margins to unacceptably low levels under the industry's existing operations structure.

To offset declining revenues, domestic processors acted to lower production costs by taking advantage of latent offshore production capacity. By shifting operations from the continental United States to sites in American Samoa and Puerto Rico, processors sought to realize significant savings associated with proximity to developing fishing grounds, lower labor costs, and economies resulting from consolidating operations.

While these adjustments led to acute unemployment at continental sites, the expanded offshore production increased employment at those sites making the overall industry unemployment situation appear less severe. Also, because income generated by processing operations in American Samoa and Puerto Rico is effectively exempted from U.S. tax, and because American Samoa and Puerto Rico grant tuna processors exemptions from local tax laws, there were additional incentives to concentrate production offshore. Moreover, the move to offshore processing was accompanied by accelerated development of the western Pacific fishing grounds which contributed greatly to a rapidly growing worldwide supply of cannery grade raw tuna. This allowed further cost savings on the part of U.S. processors by enabling them to withstand any increase in the price of raw fish, and in fact, ex-vessel prices continued to decline.

In the wake of these cost reducing measures, retail prices of domestically packed canned tuna began to decline and sales started to rebound. Nonetheless, prices of imports also declined, which renewed downward pressure on domestic prices. Thus, domestic processors continued to experience substantially lower profit margins which made it extremely difficult to justify long-term investments directed toward upgrading and expanding domestic production facilities. Consequently, a strong incentive for domestic processors to become prominent importers of canned tuna has been created.

The adversities that befell domestic processors in the early 1980's filtered down to U.S. tuna fishermen in the form of significantly lower ex-vessel tuna prices and increased difficulties and delays in landing and disposing of their catches. Furthermore, processors attempted to divest themselves of interests they held in tuna vessels and to reduce financial support they had provided to independently owned vessels. This occurred during a period of soaring interest rates that left many newer vessels, financed at variable interest rates, with unmanageable debt service.

Under these conditions many vessels in the fleet were unable to participate in the fishery, and the number of inactive vessels has increased dramatically since 1982. Yet in terms of the total receipts of domestically caught tuna and the number of active vessels, cannery deliveries on a per vessel basis have improved markedly since 1982. On the other hand, gross earnings per vessel, based on the total value of domestically caught tropical tuna receipts, have not improved. These circumstances reflect the abundant supply of tuna worldwide and the influence of international market conditions on U.S. ex-vessel price negotiations.

Deterioration of vertical integration within the industry and a weakening domestic ex-vessel market have prompted owners of U.S. vessels to look further abroad for alternative tuna fishing and marketing opportunities. This is exemplified by the growing number of foreign charters, the number of flag transfers, and unparalleled exports of domestically caught tropical tuna in 1984. Exports appear to represent a particularly significant opportunity, and the potential of exports has been enhanced by development of the western Pacific fishing grounds, the proximity of these grounds to east Asian processing sites, and also by improved fishing in the eastern tropical Pacific (ETP) in 1984. The preponderance of large yellowfin tuna (>20 pounds) in ETP catches has stimulated U.S. exports to European tuna markets where such fish command a premium price. This is in contrast to the east Asian markets where, due to relatively low labor costs, there is a greater demand for smaller, lower priced yellowfin and skipjack tuna, which are relatively abundant in nearby waters.

The impact of recent events on the U.S. tuna industry has not been confined to the tropical tuna fishery. Cannery closures and relocations have threatened U.S. albacore fishermen with the virtual disappearance of their traditional market. Given this prospect, those in the albacore sector of the industry have directed a great deal of attention and effort toward developing a restaurant and retail trade for fresh or fresh frozen albacore. Successful development of a fresh/frozen market for albacore will especially benefit small-boat fishermen who, by virtue of their vessels' limited operating range, are particularly vulnerable to U.S. west coast cannery closures. On the other hand, large-boat fishermen whose operating range is more extensive, are probably in a better position to service the realigned cannery demand.

Fresh tuna products may be a viable alternative for the tropical tuna fleet as well. Bluefin, bigeye, and yellowfin tuna, are usually available within relatively close range of major population centers on the west coast where there are growing markets for these popular, high-valued, "sushi" grade tuna species. Currently, these markets are being supplied by imports and, to a large extent, by shipments from the U.S. east coast and Hawaii. These circumstances seemingly present an opportunity for market penetration by U.S. west coast tuna fishermen, particularly small-boat operators who have been especially disadvantaged by the reduction in west coast processing capacity.

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Literature Cited

Squire, J. L., Jr. 1983. Warm water and southern California recreational fishing: A brief review and prospects for 1983. Mar. Fish. Rev. 45 (4-6):27-39.

USDOC. 1983. Operation price watch. U.S. Dep. Commer., NOAA, Natl. Mar. Fish. Serv., Natl. Fish. Stat. Program, Monthly Rep., 17 p.

_____. 1984. Operation price watch. U.S. Dep. Commer., NOAA, Natl. Mar. Fish. Serv., Natl. Fish. Stat. Program, Monthly Rep., 17 p.

USFDA. 1985. Part 161—Fish and shellfish. 21 Code Fed. Reg. Sect. 161.190(a) (4) (i):412. Food Drug Admin., HHS.

USITC. 1984. Certain canned tuna fish: Report to the President on investigation no. TA-201-53 under section 201 of the Trade Act of 1974, 54 p. + app. A1-124.