

U.S. Trade in Tuna for Canning, 1987

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Introduction

The U.S. canned tuna harvesting/processing industry is an active participant in the global tuna industry. In 1986 U.S. vessels took 8 percent of the total world catch of all tuna species¹. Having developed canned tuna processing in the early 1900's, the U.S. processing sector is the world leader accounting for 36 percent of total world canned tuna production in 1986. The United States continues as the major world market for canned tuna, consuming 34 percent of total world production in 1987.

The United States, along with Japan, Spain, and France, other historically dominant tuna harvesting and processing nations, have in recent years met increasing competition from rapidly expanding

tuna industries in southeast Asia, Latin America, the western Pacific, and Africa. The world tuna catch was 3,768,000 short tons (tons) in 1986, an increase of 39 percent from 1979. However, while catches in the historical tuna countries increased 24 percent, catches in developing countries increased 53 percent. U.S. landings increased 14 percent over the period. In 1986, the United States was fourth in volume of tuna catches behind Japan, Indonesia, and the Philippines.

Global production of canned tuna was 775,000 tons in 1985, 16 percent above 1979 production. As for catches, this

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¹Food and Agriculture Organization of the United Nations. GLOBEFISH, a computerized system of market information.

ABSTRACT—U.S. tuna fleet activity, canned tuna processing, ex-vessel, wholesale and retail prices and imports in 1987 are described and compared to their counterparts in previous years. Industry statistics gathered from government agencies and industry contacts are presented in 14 figures and 8 tables.

In 1987, U.S. tuna fisheries delivered 253,936 short tons (tons) of tuna to U.S. canneries. Domestic deliveries of albacore (white-meat) tuna were 2,836 tons, down 20 percent from 1986 levels. Domestic deliveries of tropical (light-meat) tuna (bigeye, blackfin, bluefin, skipjack, and yellowfin) were 251,000 tons, up 12 percent. Contract prices for tuna delivered by U.S. vessels to U.S. canneries increased dramatically in 1987. Depending on the size of fish in the delivery, ex-vessel prices of white-meat tuna increased as much as 27 percent, and prices of light-meat tuna increased as much as 47 percent.

U.S. cannery receipts of imported and domestically caught raw frozen tuna for canning

totalled 532,704 tons in 1987, up 2 percent from 1986 levels. U.S. cannery receipts of white-meat tuna were 104,197 tons, down 10 percent from 1986. Imports made up 97 percent of the total cannery supply. Total 1987 U.S. cannery receipts of raw, frozen light-meat tuna were 428,507 tons, up 5 percent from 1986 levels. Imports made up 41 percent of the total cannery supply.

The 1987 U.S. pack of canned tuna was 33.6 million standard cases, up 3 percent from 1986. The pack of white-meat tuna was 7.2 million standard cases, down 11 percent from 1986; the pack of light-meat tuna was 26.4 million standard cases, up 7 percent. U.S. imports of canned tuna in 1987 were 10.8 million standard cases, down 11 percent from 1986 levels, the first time in recent years that imports have declined. Per capita consumption of canned tuna in the United States was 3.5 pounds in 1987, down slightly from 1986. The retail composite price was \$2.26 per pound, unchanged from 1986.

growth is concentrated in developing nations where, from 1979 to 1985, canned tuna production increased 86 percent. In contrast, production increased 5 percent in the historical tuna nations. Canned tuna production in the United States decreased slightly between 1979 and 1985 then increased in 1986. The United States continues as the leading processor of canned tuna.

International trade in raw tuna and canned tuna products has also increased, paralleling the increases in fishing and canning sectors. In 1986, 861,000 tons of fresh and frozen raw tuna were traded by major trading nations, an increase of 47 percent over 1979 levels². The major growth has been in developing countries where raw tuna imports increased 316 percent between 1979 and 1986. Raw tuna imports to developed countries increased only 4 percent and U.S. imports actually declined 2 percent over the period. The United States accounted for 24 percent of total world imports of raw tuna for canning in 1986.

World canned tuna producers exported 315,000 tons of canned product in 1985, up 140 percent from 1979. Virtually all this growth has been in developing countries. The United States continues as the major world importer of canned tuna. U.S. imports were 92,500 tons in 1986, up 215 percent from 1979.

This is the sixth annual review of the U.S. tuna canning industry (Herrick, 1984; Herrick and Koplín, 1984; Herrick and Koplín, 1986; Herrick and Koplín, 1987; Herrick, et al.³). In the following sections we describe the industry's performance in 1987. In the first section we

²In 1987, 97 percent of the raw tuna traded was traded by, in order of volume, the United States, Thailand, Japan, Italy, the Ivory Coast, Singapore, Senegal, France, Spain, Ghana, and Portugal.

Table 1.—U.S. cannery receipts (short tons) of raw tuna by processing site and direct exports, 1982-87¹.

	California/American Samoa/Hawaii						C/AS/H	Puerto Rico						P.R.
	1982	1983	1984	1985	1986	1987	1982-86 avg.	1982	1983	1984	1985	1986	1987	1982-86 avg.
Domestic														
Albacore	6,965	10,466	10,323	5,608	3,231	1,971	7,318		4	3,565	1,245	296	865	1,022
Skipjack	82,669	113,465	94,152	66,716	71,803	75,210	85,762	18,781	41,608	51,441	17,304	18,802	12,105	29,587
Yellowfin ²	93,468	90,052	59,907	35,365	57,120	83,524	67,182	24,800	30,044	35,193	87,571	75,941	80,261	50,710
Subtotal	183,102	213,983	164,382	107,689	132,154	160,705	160,262	43,581	71,656	90,199	106,120	95,036	93,231	81,319
Imported														
Albacore	33,928	22,750	21,962	20,030	25,811	25,468	24,896	60,670	50,105	70,882	75,122	86,481	75,893	68,652
Skipjack	45,837	50,633	28,737	18,026	18,590	22,618	32,365	82,178	84,675	106,136	74,606	86,441	72,440	86,807
Yellowfin ²	17,811	14,081	12,685	10,169	11,875	18,384	13,325	33,402	24,251	29,045	57,192	67,260	63,965	42,230
Subtotal	87,576	87,464	63,384	48,225	56,276	66,427	70,586	176,250	159,031	206,063	206,920	240,182	212,298	197,689
Grand total	280,678	301,447	227,766	155,914	188,430	227,175	230,848	219,831	230,687	296,262	313,040	335,221	305,529	279,008
	Direct exports ³						Dir. exp.	Total						Overall
	1982	1983	1984	1985	1986	1987	1982-86 avg.	1982	1983	1984	1985	1986	1987	1982-86 avg.
Domestic														
Albacore	62		108			841	34	7,027	10,470	13,996	6,853	3,527	3,677	8,374
Skipjack	387	45	15,388	19,669	22,207	16,256	11,539	101,837	155,118	160,981	103,989	112,812	103,571	126,888
Yellowfin ²	3,864	538	16,980	15,128	11,539	12,866	9,610	122,132	120,634	112,080	138,064	144,600	176,651	127,502
Subtotal	4,313	583	32,476	34,797	33,746	29,963	21,183	230,996	286,222	287,057	248,606	260,939	283,899	262,764
Imported														
Albacore								94,598	72,855	92,844	95,152	112,292	101,361	93,549
Skipjack								128,015	135,308	134,873	92,632	105,031	95,068	119,172
Yellowfin ²								51,213	38,332	41,730	67,361	79,135	82,349	55,554
Subtotal								273,826	246,495	269,447	255,145	296,458	278,768	268,275
Grand total	4,313	583	32,476	34,797	33,746	29,963	21,193	504,822	532,717	556,504	503,751	557,397	562,667	531,039

¹Includes imported and domestically caught tuna destined for canning; excludes U.S.-caught tuna destined for export or for the fresh market; excludes imported tuna destined for the fresh tuna market or designated as flakes and not fit for human consumption.

²Includes bigeye, blackfin, and bluefin tuna.

³Includes tuna landed directly or transshipped to a foreign country; excludes tuna exported from the U.S. east and west coasts.

review the U.S. albacore fishery and U.S. processing of white meat tuna in 1987. In the second section we focus on the fishery for tropical tunas and processing of light meat tuna. In the third section we describe U.S. imports of canned tuna and, in the fourth, consumption of canned tuna.

White Meat (Albacore) Tuna

Albacore, *Thunnus alalunga*, is the only species that may be canned as white meat tuna in the United States⁴. About 21 percent of the total U.S. tuna pack in 1987 was white meat tuna.

³Herrick, S. F., W. W. Parks, and P. J. Donley. 1988. U.S. tuna trade summary, 1986. U.S. Dep. Commer., NOAA, Natl. Mar. Fish. Serv., Southwest Reg. Admin. Rep. SWR-88-3, 23 p.

⁴U.S. Government Printing Office, 1985. 21 Code of Federal regulations. Section 161.190(a) (4) (i).

Production by the U.S. Albacore Fleet

The U.S. albacore fleet consists of about 1,800 vessels, of which about 250 land 90 percent of the catch in any given year (Majors⁵). About 80 percent of the vessels use jig gear, 10 percent pole-and-line gear, and 10 percent either a combination of jig and pole and line or other gear (e.g., gill net). The fleet operates exclusively in the Pacific Ocean. Before 1974, reported catches were taken exclusively within 300 miles of the North Pacific coast of North America from central Baja California to British Columbia (Majors, 1987). As a result of joint NMFS/American Fishermen's Research Foundation (AFRF) exploratory fishing

⁵Majors, Tony. 1989. Fishery biologist, NMFS Southwest Fisheries Center, La Jolla, CA 92038. Personal commun., March.

in 1975, larger jigboats in the fleet expanded their operations to areas northwest of Hawaii in the late 1970's and early 1980's. In 1986 and 1987, NMFS/AFRF exploratory fishing located new fishing grounds in the South Pacific. Since then, larger U.S. jigboats have fished in this new area east of New Zealand.

Receipts at U.S. canneries in 1987 of albacore caught by U.S. fishermen continued a decline from a recent high in 1984 (Fig. 1)⁶. Receipts (2,800 tons) were 20 percent less than 1986 receipts and 66 percent less than recent average (1982-86) receipts (Table 1).

Sixty-nine percent of the receipts of

⁶Principal U.S. receiving and processing sites for both white and light meat tuna in 1987 were Mayaguez and Ponce, Puerto Rico; San Pedro, California; and Pago Pago, American Samoa. For reporting purposes, receipts and production data are combined for American Samoa and California.

Table 2.—U.S. cannery ex-vessel (contract) prices (U.S. dollars/short ton) at California/American Samoa/Puerto Rico, 1980-87¹.

Year and period ²	Albacore		Skipjack				Yellowfin				
	>9 lb.	<9 lb.	>7.5 lb.	4-7.5 lb.	3-4 lb.	<3 lb.	>20 lb.	7.5-20 lb.	4-7.5 lb.	3-4 lb.	<3 lb.
1980											
B	1,610	1,610	850	850	700	545	950	950	810	810	810
E	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	1,100	1,100	1,100	800	1,200	1,200	1,100	1,100	1,100
1982											
B	1,425	1,425	1,100	1,100	1,100	800	1,200	1,200	1,100	1,100	1,100
M			1,040	1,040	940	740	1,140	1,140	1,040	1,040	1,040
E	1,225	1,000	890	890	700	500	1,170	1,050	890	890	890
1983											
B			950	850	700	420	1,230	1,050	850	700	420
M	1,250	975	900	800	640	420	1,125	990	800	640	400
E			880	780	585	250	1,125	975	780	585	250
1984											
B	1,400	1,125	830	730	500	250	1,085	950	730	500	250
M			850	750	550	250	1,000	900	750	550	250
E	1,150-1,300	875-1,025	763	650	470	235	925	800	650	470	235
1985											
B			708	610	435	200	865	753	610	435	200
M	1,300	950	738	640	500	275	870	758	640	500	275
E	1,150	800	650	590	490	290	815	715	590	490	290
1986											
B	1,100	750	700	630	500	300	780-800	700	630	500	300
M			685	615	485	285	765	685	615	485	285
E			700	630	500	300	780	700	630	500	300
1987											
B	1,235	950	685-700	615-630	485-500	283-300	765-780	685-700	615-630	485-500	285-300
M	1,400	950	700-750	630-700	500	300	780-880	700-750	630-700	500	300
E			750	700	500	300	880	750	700	500	300
			1,000	937	725	450	1,125	1,000	937	725	450

¹Contract prices may be adjusted at the time of unloading depending upon salt content, temperature of the fish, physical condition of the fish, and other quality criteria.
²Period: B = beginning of year, M = midyear (various dates), E = end of year.

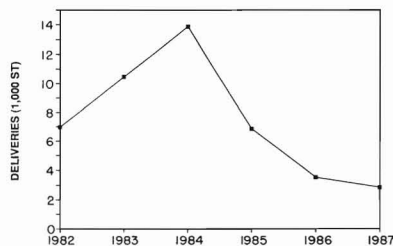


Figure 1.—Deliveries of albacore to U.S. canneries by U.S. fishermen, 1982-87.

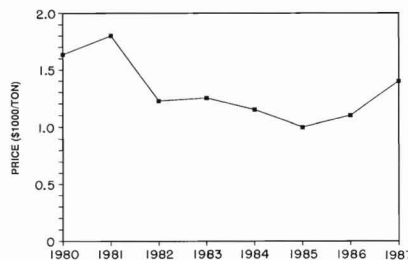


Figure 2.—Contract price for representative size (9 lb and over) albacore paid by U.S. canneries to U.S. fishermen at the end of the year, 1980-87.

domestically caught albacore delivered to U.S. canneries was received at canneries in American Samoa and California (Table 1). The remaining 31 percent was transhipped to Puerto Rico from west coast ports. In addition, 841 tons of albacore caught by U.S. fishermen in the new south Pacific troll fishery were exported through Tahiti, and an additional 300-400 tons were landed at west coast ports and then exported to Fiji and Japan.

The contract price for domestically

caught albacore received at U.S. canneries increased dramatically in 1987 (Fig. 2). The contract price was \$1,235 per ton for large fish (9 pounds and larger) at the beginning of 1987, 12 percent greater than the price at the beginning of 1986 (Table 2). The price for small fish (<9 pounds) was \$950 per ton, 27 percent greater than the 1986 price. By mid-year, the contract price had risen to \$1,400 per ton for large fish. According to industry sources, the general shortage of fish led

Table 3.—U.S. cannery ex-vessel (weighted) prices (US\$ per short ton), for domestically caught tuna, 1980-87.

Year	Albacore		Skipjack		Yellowfin	
	Nominal	Real ¹	Nominal	Real ¹	Nominal	Real ¹
1980	1,659	1,929	1,063	1,236	1,180	1,372
1981	1,800	1,908	1,030	1,092	1,170	1,241
1982	1,387	1,387	965	965	1,123	1,123
1983	1,268	1,220	799	769	1,032	993
1984	1,252	1,160	760	704	982	910
1985	1,087	975	622	558	820	735
1986	1,108	968	616	538	743	649
1987	1,496	1,273	716	609	892	759

¹Adjusted for inflation using GNP implicit price deflator (1982 = 100).

to canners offering incentives and bonuses for albacore which brought the actual price well over \$1,500 per ton.

Price increases offset the decline in landings, and aggregate ex-vessel revenue from the 1987 albacore fishery was 41 percent above that of 1986. Average ex-vessel price (total ex-vessel revenue divided by total domestic cannery receipts) was \$1,496 per ton for U.S.-caught albacore in 1987, a 35 percent gain from 1986 (Table 3). The real (inflation

Table 4.—U.S. cannery imports of raw tuna (short tons) by country of origin, 1982-87.

Source ¹	1982		1983		1984		1985		1986		1987	
	White	Light ²	White	Light	White	Light	White	Light	White	Light	White	Light
Brazil	1,443	16,181	1,185	15,154	2,018	7,743	710	15,282	218	12,327	373	3,823
Canary Islands	1,693	1	7,653	5	14,030	10	9,415	16	9,184	20	5,802	9
Cayman Islands		6,723				9,960		11,031		8,605		4,706
Ecuador				2,809		12,034		18,722		16,365		12,018
Ghana	1,078	27,783	345	23,751	170	6,640						
Ivory Coast		27,862		13,783	289	30,997		15,887		23,549	297	23,090
Japan	5,834	12,705	696	18,426	10,946	20,965	6,754	718	4,396	922	1,188	
Mauritius	4,811		4,668		5,026		5,789		6,708	12	8,059	87
Mexico											3,331	19,405
Netherlands Antilles	10,054	1,996	8,560	258	9,619	298	12,110	197	14,723	442	8,246	255
Panama		29,558	1	8,110	424	13,928		15,138		24,684		7,205
Philippines		5,923		6,476		1,327						
Reunion	12,036	146	7,438	3	4,363	67	1,521	756	3,605	232	2,629	2,643
Seychelles				3,042		8,257		262	17,064		30,866	51
Singapore	1,386	3,846	4,217	3,761	5,024		2,562		284		6,022	
Solomon Islands		928		10,600		15,836		3,390				9,088
South Africa	17,044	1	7,304	239	11,856	1,478	21,101		26,905	1	23,194	2
South Korea	1,001	6,891	5,374	13,830	2,119	11,064	8,874	9,747	11,408	20,673	10,920	23,942
Taiwan	99	384	5,075	3,851	9,739	9,468	5,947	10,592	11,283	3,324	13,689	4,073
Uruguay	8,835	670	4,480	143	3,228	722	7,425	1,997	9,652	26	6,237	2
Venezuela		2,421	1	6,604		7,002	147	33,538	28	27,450	6	18,675
Other	29,285	35,209	15,858	42,795	13,993	18,807	12,535	5,918	13,898	11,337	14,648	20,786
Total	94,599	179,228	72,855	173,640	92,844	176,603	95,152	159,993	112,292	184,166	101,361	177,407

¹The flag of the catcher vessel, country of export, or country through which the tuna is transhipped.
²Includes bigeye, blackfin, bluefin, skipjack, and yellowfin tunas.

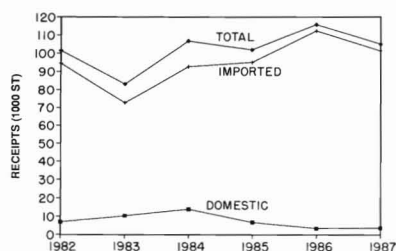


Figure 3.—Receipts of albacore by U.S. canneries by source, 1982-87.

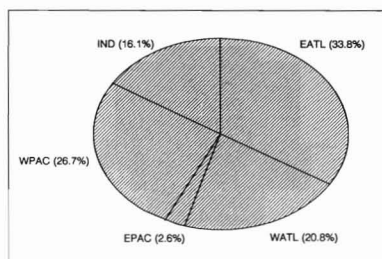


Figure 4.—U.S. cannery receipts and direct exports of albacore by ocean of origin, 1982-87 (EATL = Eastern Atlantic Ocean; WATL = Western Atlantic Ocean; EPAC = Eastern Pacific Ocean; WPAC = Western Pacific Ocean; IND = Indian Ocean).

adjusted) ex-vessel price increased 32 percent in 1987, the first increase in the period 1980-87.

U.S. Processing of Canned White Meat Tuna

Total receipts (U.S.-caught plus imports) of albacore at U.S. canneries in 1987 were 104,197 tons, 10 percent less than 1986 receipts but 3 percent above recent (1982-86) average receipts (Fig. 3, Table 1). Of the total receipts, 74 percent were delivered to canneries in Puerto Rico, and 26 percent went to canneries in American Samoa and California. Receipts at all locations were down in 1987.

As in each of the last 6 years, imports made up the bulk (97 percent) of U.S.

cannery receipts of raw albacore in 1987 (Fig. 3). Imports totaled 101,361 tons, a 10 percent decrease from 1986 (Table 1). Puerto Rico was the major receiving site for albacore imports with 75 percent of the total; American Samoa and California received the remainder. Imports received in Puerto Rico were 12 percent less than in 1986; imports received in American Samoa and California were essentially the same as in 1986.

Foreign-caught tuna entering the United States is listed by U.S. Customs as an ex-

port of the shipping nation. In the case of transshipments, the shipping country may not be the harvesting country. This is the case in 1987, for which the principal transshipping nation for albacore imports was South Africa which does not export fish taken by its own vessels to the United States (Table 4). South Africa has been a principal point for albacore transhipped to the United States since 1982 and accounted for 23 percent of total imports in 1987. Although the United States has embargoed imports of most South African products, transshipments of tuna caught by Taiwanese and Japanese albacore vessels have been permitted. Other important transshipping nations included Taiwan and South Korea.

The value of imported raw albacore at U.S. canneries in 1987 was \$159.9 million, down 2 percent from 1986⁷. This corresponds to a weighted average price of \$1,578 per ton, 9 percent above the average price in 1986.

As in 1985 and 1986, the Atlantic Ocean was the source of most albacore received by U.S. canneries in 1987, followed by the Pacific and Indian Oceans (Fig. 4).

⁷Values of raw, imported tuna are computed using declared value reported by importers to the Bureau of Census and import volume compiled by Statistics and Market News Service, NMFS Southwest Region.

Table 5.—U.S. cannery receipts (short tons) of domestically caught raw tuna and direct exports by ocean of origin, 1982-87¹.

Ocean	Albacore						Albacore	Skipjack						Skipjack
	1982	1983	1984	1985	1986	1987	1982-86 avg.	1982	1983	1984	1985	1986	1987	1982-86 avg.
E. Atlantic	62						12	27	21					10
W. Atlantic		4		1			1		3	944	2,079	1,825	884	970
E. Pacific	5,099	9,434	13,409	6,021	3,158	2,589	7,424	59,264	40,181	22,359	4,992	7,938	14,845	26,947
W. Pacific	1,866	1,032	587	831	369	1,088	937	42,546	114,931	137,678	96,618	103,049	87,842	98,961
Total	7,027	10,470	13,996	6,853	3,527	3,677	8,374	101,837	155,118	160,981	103,689	112,812	103,571	126,888

Ocean	Yellowfin ²						Yellowfin	Total						Overall
	1982	1983	1984	1985	1986	1987	1982-86 avg.	1982	1983	1984	1985	1986	1987	1982-86 avg.
E. Atlantic	1,087						217	1,176	21					239
W. Atlantic	115	70	1,550	4,185	839	60	1,352	115	77	2,494	6,265	2,664	944	2,323
E. Pacific	96,640	65,836	60,753	101,897	103,402	106,330	85,711	161,003	115,478	96,521	112,910	114,498	123,734	120,082
W. Pacific	24,290	54,701	49,777	31,982	40,359	70,291	40,222	68,702	170,646	188,042	129,431	143,777	159,221	140,120
Total	122,132	120,634	112,080	138,064	144,600	176,651	127,502	230,996	286,222	287,057	248,606	260,939	283,899	262,764

¹Includes tuna destined for canning; excludes tuna destined for the fresh market; includes tuna landed directly or transhipped to a foreign country; excludes tuna exported from the U.S. east and west coasts.

²Includes bigeye, blackfin, and bluefin tunas.

Table 6.—U.S. cannery receipts (short tons) of imported raw tuna by ocean of origin, 1982-87¹.

Ocean	Albacore						Albacore	Skipjack						Skipjack
	1982	1983	1984	1985	1986	1987	1982-86 avg.	1982	1983	1984	1985	1986	1987	1982-86 avg.
E. Atlantic	19,815	16,935	27,392	30,655	35,475	35,543	26,054	34,358	35,882	10,828	19,713	39,499	17,700	30,040
W. Atlantic	21,129	16,127	17,209	25,486	36,631	21,827	23,316	18,070	9,059	20,650	15,434	14,731	5,000	16,066
E. Pacific	48	243	439			145	146	4,501	9,245	17,146	15,733	10,443	14,418	11,708
W. Pacific	35,374	23,226	32,340	28,667	28,916	26,948	29,705	72,742	72,699	30,427	24,604	63,001	29,059	48,898
Indian	18,232	16,324	15,464	10,344	11,27	16,898	14,327	5,637	7,988	13,581	29,547	8,094	28,881	12,460
Total	94,598	72,855	92,844	95,152	112,292	101,361	93,548	135,308	134,873	92,632	105,031	135,768	95,058	119,172

Ocean	Yellowfin ²						Yellowfin	Total						Overall
	1982	1983	1984	1985	1986	1987	1982-86 avg.	1982	1983	1984	1985	1986	1987	1982-86 avg.
E. Atlantic	9,320	4,618	3,258	5,075	5,949	5,403	5,644	55,911	66,532	46,558	61,137	70,246	58,646	61,738
W. Atlantic	3,058	6,446	3,259	10,910	5,507	3,201	5,836	40,643	29,527	57,046	57,572	39,875	30,028	45,218
E. Pacific	19,200	7,492	9,222	29,572	46,945	48,180	22,486	12,236	18,906	46,718	62,678	26,898	62,743	34,340
W. Pacific	18,800	18,814	23,799	15,262	14,380	19,291	18,211	114,782	128,838	74,356	67,900	119,253	75,298	96,814
Indian	835	962	2,192	6,542	6,354	6,274	3,377	22,923	25,644	30,467	47,171	24,490	52,053	30,164
Total	51,213	38,332	41,730	67,361	79,135	82,349	55,554	246,495	269,447	255,145	296,458	280,762	278,768	268,274

¹Includes imported tuna destined for canning; excludes tuna destined for the fresh tuna market or designated as flakes and not fit for human consumption.

²Includes bigeye, blackfin, and bluefin tunas.

All albacore received from the Atlantic and Indian Oceans consisted of imports. Receipts of albacore from the Atlantic Ocean decreased 20 percent from 1986, receipts from the Pacific decreased 5 percent, and those from the Indian Ocean increased 50 percent (Table 5, 6).

With the exception of the record 1986 pack, the 1987 U.S. pack of white meat tuna, 7.2 million standard cases, was the largest since 1978; the 1987 pack was 11

percent less than the record 1986 pack (Fig. 5, Table 7)⁸.

During 1987, wholesale list prices for U.S.-produced nationally advertised brands of white meat tuna ranged between \$55.40 and \$63.57 per standard case. With discounts, wholesale prices fell below \$49.00 a standard case. Whole-

⁸A standard case consists of 48 6.5-ounce cans of 19.5 pounds.

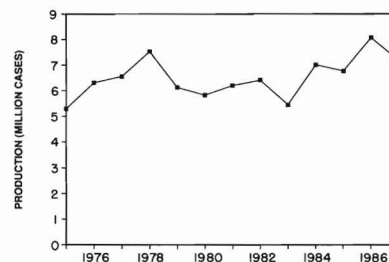


Figure 5.—U.S. production of canned white meat tuna, 1975-87.

Table 7.—Additions to the U.S. supply of canned tuna, volume and value, by source and form, 1975-87.

Year	Domestic			Total
	White	Light	Imported	
	----- Volume (1,000 standard cases ¹) -----			
1975	5,296	21,854	2,650	29,800
1976	6,312	24,416	3,020	33,748
1977	6,559	21,544	1,776	29,879
1978	7,528	28,615	2,655	38,798
1979	6,129	25,678	2,754	34,561
1980	5,825	25,049	3,259	34,133
1981	6,204	25,948	3,633	35,785
1982	6,416	21,199	4,491	32,106
1983	5,444	24,844	6,273	36,561
1984	7,012	24,489	8,324	39,825
1985	6,764	21,185	10,972	38,921
1986	8,069	24,589	12,134	44,792
1987	7,174	26,364	10,856	44,394
	----- Value (U.S. dollars) -----			
1975	136,678	515,957	45,951	698,586
1976	212,869	640,594	67,502	920,965
1977	240,734	665,880	44,658	951,272
1978	296,506	976,754	63,822	1,337,082
1979	243,851	859,998	65,071	1,168,920
1980	252,290	891,237	97,254	1,240,781
1981	294,292	885,846	110,359	1,290,497
1982	275,400	643,046	113,346	1,031,792
1983	197,011	661,586	137,324	995,921
1984	255,997	616,280	167,268	1,039,545
1985	269,887	550,882	209,138	1,029,907
1986	320,795	560,723	227,919	1,109,437
1987	313,611	704,048	206,920	1,224,579

¹Standard case = 48 6.5-ounce cans.

Sources for domestic data: U.S. Dep. Commer., NOAA, Natl. Mar. Fish. Serv. 1976-87. Fisheries of the United States, 1976-1987. Curr. Fish. Stat. 6900, 7200, 7500, 7800, 8000, 8100, 8200, 8300, 8320, 8360, 8385, 8700, var. pagin. Also, U.S. Dep. Commer., NOAA, Natl. Mar. Fish. Serv. 1975-85. Canned Fishery Products, 1975-1984. Curr. Fish. Stat. 6701, 6901, 7201, 7501, 7801, 8001, 8101, 8201, 8301, 8319, 8359, var. pagin.

Sources for import data: U.S. Dep. Commer., Bur. Census computerized data files, 1974-87.

sale prices for private brands ranged between \$43.50 and \$51.50.

The value of the U.S. white meat pack was \$314 million (FOB plant value) in 1987, down 2 percent from 1986 (Table 7). Dividing value by production yields a weighted average price of \$43.71 per standard case in 1987, an increase of 10 percent over the average value in 1986.

Light Meat Tuna

In the United States, tuna with flesh color lighter than Munsell value 5.3 may be canned as light meat tuna⁹. Seventy-

⁹The U.S. Food and Drug Administration lists the following as species that may be canned as light meat tuna: *Thunnus thynnus* (also *T. orientalis*), northern bluefin tuna; *T. maccoyii*, southern bluefin tuna; *T. alalunga*, albacore; *T. atlanticus*, blackfin tuna; *T. obesus*, bigeye tuna; *T. albacares*, yellowfin tuna; *T. tonggol*, longtail tuna; *Katsuwonus pelamis*, skipjack tuna; *Euthynnus affinis*, kawakawa; *E. alletteratus*, little tunny; *E. lineatus*, black skipjack. (U.S. Gov. Print. Off. 1985. 21 Code Fed. Reg. Sect. 161.190 (a) (2)).

nine percent of the U.S. pack in 1987 was light meat tuna. The 6.5-ounce can of chunk style, light meat tuna in water has for several years been the most popular tuna product consumed in the United States.

Production by the U.S. Tropical Tuna Fleet

The U.S.-flag, tropical tuna fleet began fishing in the early 1900's off the coast of California (Greenough and Joseph, 1986; Joseph¹⁰). In the early years, the fleet consisted entirely of baitboats (pole and line gear). Beginning in the mid-1950's, larger baitboats were converted to purse seine, which in the 1960's became the dominant gear. During the mid-1960's to mid-1970's the fleet expanded rapidly as new and larger purse seiners were constructed. The baitboat fishery was concentrated in coastal areas and near offshore islands near supplies of baitfish. As purse seining became the dominant gear, the fleet expanded its operations to offshore regions of the eastern Pacific, to the Atlantic in some years, and in the late 1970's and particularly after 1982, to the western Pacific.

At the beginning of 1987, the U.S.-flag, tropical tuna fleet consisted of 85 vessels with an overall carrying capacity of 88,252 tons: 80 purse seiners and 5 baitboats. By the end of 1987, the fleet had declined to 83 vessels (76 purse seiners and 7 baitboats) with a total carrying capacity of 81,279 tons. Nine of the 83 vessels were inactive.

During 1987, the U.S. tuna fleet operated exclusively in the Pacific Ocean. There were 34 vessels active in the western Pacific during the first quarter with a combined carrying capacity of 41,255 tons. By the end of the year the number in the western Pacific had declined to 29 vessels with a capacity of 35,875 tons, a 15 percent decrease in number and a 13 percent decrease in capacity. Thirty-five vessels with a total carrying capacity of 33,263 tons operated in the eastern Pacific during the first quarter, increasing to 45 vessels with a capacity of 37,829 tons

¹⁰Joseph, J. 1988. A review of the fishery for tropical tunas in the eastern Pacific Ocean. U.S. Dep. Commer., NOAA, Natl. Mar. Fish. Serv., Southwest Reg./Southwest Fish. Cent., Tuna Newsl. (90):5-7.

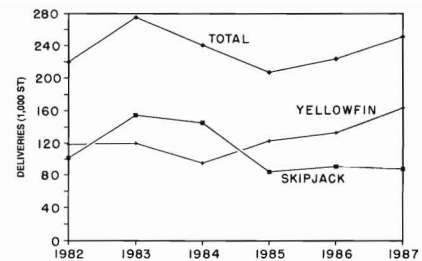


Figure 6.—Deliveries of light meat tuna to U.S. canneries by U.S. fishermen by species, 1982-1987.

by the end of the year, a 22 percent increase in number and 12 percent increase in capacity.

Receipts of domestically caught, light meat tuna at U.S. canneries in 1987, 251,100 tons, were the highest since 1983, 12 percent above the 1986 receipts and 8 percent above recent average receipts (Fig. 6, Table 1). As in 1985 and 1986, receipts of yellowfin tuna exceeded skipjack receipts, comprising 65 percent of the total. Yellowfin receipts (includes small amounts of bigeye, bluefin and blackfin tuna) increased 23 percent over 1986 receipts while skipjack receipts decreased 4 percent.

Sixty-three percent of domestic deliveries to U.S. canneries were to American Samoa and California canneries and 37 percent went to Puerto Rico canneries¹¹. Receipts at American Samoa and California in 1987 were 158,734 tons, up 23 percent from 1986 receipts. Receipts at Puerto Rico were 92,366 tons, down 3 percent from 1986.

In addition to receipts at U.S. canneries, U.S.-flag vessels exported 16,256 tons of skipjack tuna and 12,866 tons of yellowfin tuna to foreign canneries in 1987, down 27 percent for skipjack and up 12 percent for yellowfin from 1986.

Owing to increased worldwide demand for raw tuna, contract ex-vessel prices for frozen light meat tuna increased dramatically in 1987 (e.g., up 47 percent for yellowfin tuna >20 lb.) (Fig. 7). In January, contract ex-vessel prices (without quality adjustments) for frozen light

¹¹The majority of landings in the category American Samoa/California are in American Samoa. The category is used to maintain confidentiality.

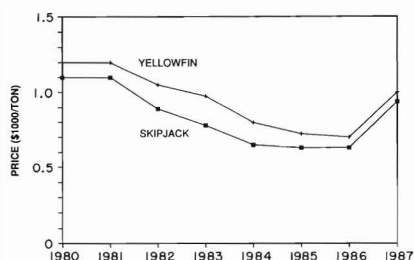


Figure 7.—Contract price for representative size skipjack (4-7.5 lb) and yellowfin (7.5-20 lb) tuna paid by U.S. canneries to U.S. fishermen at the end of the year, 1980-87.

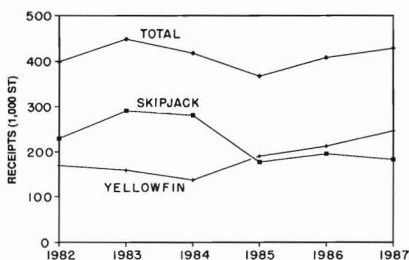


Figure 8.—Receipts of light meat tuna by U.S. canneries by species, 1982-1987.

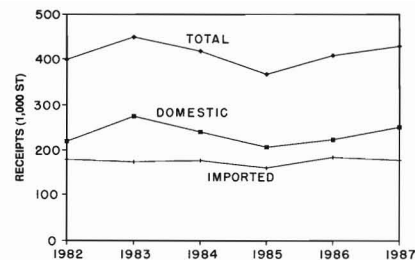


Figure 9.—Receipts of light meat tuna by U.S. canneries by source, 1982-87.

meat tuna in all species and size categories were at a low level (Table 2). Contract prices rose through July then held steady through the remainder of the year. Vessels which chose to sail without contracts were able to command premiums of \$20-40 per ton or more above contract prices. For a short period in the fall of 1987, premiums reached a high as \$300 per ton¹².

Total ex-vessel revenue from the sale of U.S.-caught light meat tuna was about \$208.6 million in 1987, 35 percent greater than in 1986. The ex-vessel value of domestically caught skipjack tuna delivered to U.S. canneries was \$62.5 million, up 12 percent from 1986. The average ex-vessel price (total revenue divided by total domestic receipts) was \$716 per ton, a 16 percent increase from 1986 (Table 4). The ex-vessel value of domestically caught receipts of yellowfin tuna was \$146.1 million in 1987, 48 percent above 1986. The average ex-vessel price for yellowfin tuna in 1987 was \$892 per ton, an increase of 20 percent from 1986.

U.S. Processing of Canned Light Meat Tuna

Total receipts (U.S.-caught plus imports) of raw light meat tuna at U.S. canneries in 1987 (428,507 tons) were at their highest levels since 1983, up 5 percent from both 1986 and recent (1982-86) average receipts (Fig. 8, Table 1). Fifty-three percent of total deliveries were to canneries in Puerto Rico, the rest to can-

neries in American Samoa and California. Receipts at Puerto Rican canneries were 8 percent less than in 1986. Receipts at American Samoa and California canneries were 25 percent more than in 1986.

As in 1985 and 1986, receipts of yellowfin exceeded receipts of skipjack in 1987 (Fig. 8), and 57 percent of raw tuna deliveries consisted of yellowfin, the rest of skipjack. Receipts of domestically caught raw light meat tuna at U.S. canneries in 1987 continued to exceed imports (Fig. 9). Imports, 177,407 tons, made up 41 percent of total raw light meat receipts in 1987 vs. 45 percent in 1986 (Table 1).

Puerto Rico was the major receiving site for imports of raw light meat tuna during 1987, accounting for 77 percent of the total tonnage, compared with 83 percent in 1986 (Table 1). Skipjack tuna made up 54 percent of the 1987 light meat imports, yellowfin the balance. Overall, skipjack tuna imports were down 9 percent from 1986, while yellowfin imports increased 4 percent.

The principal transshipping point for raw light meat tuna imported to the United States in 1987 was the Seychelles, the base of the French and Spanish purse seine fleets operating in the Indian Ocean (Table 4). Of total imports, 16 percent or 27,508 tons was transshipped from the Seychelles. South Korea was the second most important transshipping point, followed by the Ivory Coast. Transshipments of raw light meat tuna from the Seychelles to the United States began in 1983. Since then, Seychelles transshipments have grown and dominated U.S. imports in 1986 and 1987.

Mexico exported 19,405 tons of light meat tuna (does not include non-Mexican caught, transshipped fish) to the United States in 1987, the first full year after the U.S. embargo on imports of Mexican-caught tuna and tuna products ended. When the embargo was lifted, Mexico agreed to voluntarily limit its exports of tuna products to the United States for 3 years, beginning 1 September 1986. At the end of the first agreement year, 31 August 1987, Mexican exports to the United States totaled 16,600 tons, less than the agreed total of 19,200 tons. The agreement calls for limits of 24,000 tons and 30,300 tons in the second and third years, respectively.

The total value of raw light meat tuna imports in 1987 was \$135.2 million, down 10 percent from 1986. Skipjack imports were valued at \$64.6 million, a decrease of 19 percent from 1986. Yellowfin imports were valued at \$70.6 million, the same as in 1986. The weighted average price of imported skipjack tuna was \$679 per ton, a decrease of 11 percent from the 1986 price. The price of imported yellowfin tuna was \$857 per ton, a 5 percent decrease.

The Pacific Ocean continued to be the primary source of all light meat cannery receipts and U.S. direct exports of light meat tuna in 1987, followed by the Atlantic and Indian Oceans (Fig. 10). Total receipts and direct exports were 457,629 tons, of which the Pacific provided 85 percent (Tables 5, 6).

On a regional basis, the western Pacific was the leading production area for U.S. cannery receipts plus direct exports of light meat tuna, with 206,483 tons. Of

¹²Tim McCarthy, Executive Vice President and General Manager, Bumble Bee Seafoods, Inc., P.O. Box 23508, San Diego, CA 92123. Personal communication, Jan. 1989.

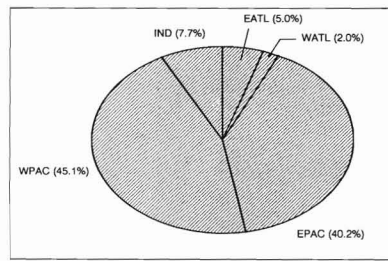


Figure 10.—U.S. cannery receipts and direct exports of light meat tuna by ocean of origin, 1982-87. (Legend abbreviations as in Fig. 5.)

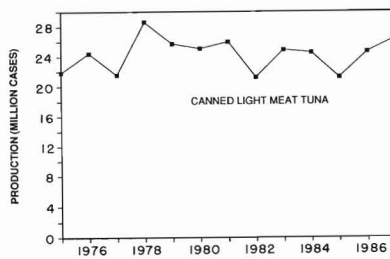


Figure 11.—U.S. production of canned light meat tuna, 1975-87.

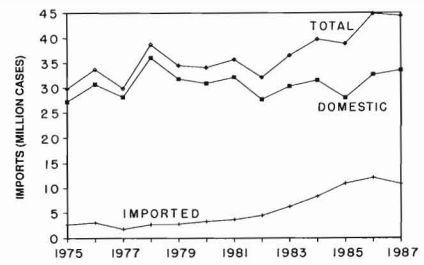


Figure 12.—Additions to the U.S. supply of canned tuna by source, 1975-87.

this total, 77 percent (158,133 tons) was domestically caught and the remainder imported. Skipjack tuna was the predominant species in western Pacific receipts and exports (57 percent of the total). Other oceanic regions contributing, in order of importance, were the eastern Pacific (primarily domestically caught yellowfin tuna), the Indian Ocean (primarily skipjack imports), the eastern Atlantic, and the western Atlantic.

In 1987, the U.S. pack of canned light meat tuna was at its highest level since 1978 (Fig. 11). The pack was 26.4 million standard cases, up 7 percent from 1986 (Table 7).

The wholesale list price of U.S. produced, advertised-label, light meat tuna ranged between \$34.20 and \$45.00 a standard case, but with discounts the price fell as low as \$26.00 a case during the year. Wholesale list prices for private-label light meat tuna ranged between \$23.00 and \$31.50.

Total production of canned light meat tuna, both name- and private-label brands, was valued at \$704 million (FOB plant value) in 1987, up 26 percent from 1986. The weighted average price was \$26.70 per standard case, an increase of 17 percent from 1986.

U.S. Imports of Canned Tuna

The United States imported 10.8 million standard cases (105,800 tons) of canned tuna in 1987 (Table 7). Imports actually declined in 1987, the first reversal of the spectacular increase in imports (a compound annual increase of 17 per-

cent) which began in 1978 (Fig. 12). Imports in 1987 decreased 11 percent from 1986 (Table 7).

Foreign-processed canned tuna is subject to an import tariff. Tuna canned in oil is subject to a 35 percent ad valorem tariff. Tuna canned not in oil is subject to a tariff rate quota which allows imports of up to 20 percent of the previous year's domestic production to enter at 6 percent ad valorem. Imports in excess of the quota level enter at 12.5 percent ad valorem. The 1987 quota was 45,750 tons (4.7 million standard cases).

An indication of the rates of imports is the date on which the quota is reached. In 1987, the quota was reached on April 4, the earliest closure date since the quota program began.

The majority (86 percent) of canned imports were of light meat tuna (in water) at 9.4 million standard cases (91,000 tons). White meat tuna in water contributed 13 percent at 1.4 million cases (14,700 tons). One percent of 1987 canned imports were of tuna canned in oil. Due to the high tariff, U.S. imports of tuna packed in oil have never been large and in 1987, 16,800 standard cases (164 tons) were imported.

Thailand, Taiwan, the Philippines, and Japan were the major exporters of canned tuna to the United States in 1987, as they have been since 1982 (Table 8). Thailand was the leader, shipping 73,400 tons (7.5 million standard cases), 70 percent of total 1987 U.S. imports.

The value of imported, canned tuna in 1987 was \$207 million (FOB plant value not including duty) (Table 8). The weighted average price of imports was

\$1,940 per ton or \$18.87 per standard case, the same as in 1986.

U.S. Consumption of Canned Tuna

Per capita consumption of canned tuna products in the United States for 1987 (excluding noncivilian consumption) was 3.5 pounds, 3 percent less than in 1986. According to industry reports, 78 percent of 1987 U.S. canned tuna consumption was of light meat tuna and 22 percent was of white meat. Based on these proportions, per capita consumption of white meat was 0.77 pounds (1.9 standard cans), 1 percent less than in 1986. Per capita consumption of light meat tuna in 1987 was 2.73 pounds or 6.7 standard cans, 4 percent less than in 1986.

The retail composite canned tuna price (an average weighted by volume of product type) was \$2.26 per pound in 1987, unchanged from 1986. The composite price for canned white meat tuna was \$3.21 per pound; the price for light meat tuna was \$1.99 per pound. Based on per capita consumption, 1987 U.S. per capita expenditure for canned tuna was \$7.91, \$2.47 for white meat tuna and \$5.44 for light meat tuna.

Discussion

Generally, 1987 was a good year for the U.S. tuna industry. Domestic cannery receipts and production were up, as were ex-vessel and wholesale prices. U.S. landings of light meat tuna were up in 1987, while foreign catches, particularly from the Atlantic and Indian Oceans, were down, creating tight supplies in a strong global market and, as a result,

Table 8.—U.S. Imports of canned tuna (oil and water), by principal sources, 1982-1987.

Source	Quantity (1,000 pounds)						Value (U.S. \$1,000)					
	1982	1983	1984	1985	1986	1987	1982	1983	1984	1985	1986	1987
Canada	2	2,106		88	9	83	5	2,986		75	7	63
Ecuador			890	5,175	2,886	5,112			837	4,676	2,603	4,481
Indonesia	595	2,634	2,222	1,388	815	1,505	699	2,679	2,102	1,186	690	1,248
Japan	25,481	20,387	26,855	23,703	10,558	4,688	38,561	24,643	29,186	28,142	14,755	7,375
Malaysia	755	3,083	1,608	3,878	2,401	1,573	1,242	4,068	1,893	4,498	3,160	1,985
Philippines	27,631	32,018	22,225	30,797	27,982	20,858	31,085	32,291	20,396	25,930	23,124	16,576
South Korea	49	68	82	58	1,443	306		69	75	58		267
Spain ¹	120	133	214	336	237	198	300	268	376	560	557	588
Taiwan	10,704	18,710	17,935	23,472	28,579	25,924	14,366	22,772	22,475	29,801	34,483	34,809
Thailand	18,667	39,930	89,685	122,666	152,297	146,928	22,711	43,259	89,253	111,852	139,561	135,368
Other	2,575	3,260	597	2,387	9,414	4,510	4,299	4,289	677	2,360	8,456	4,160
Total	86,479	122,329	162,313	213,948	236,621	211,685	113,347	137,324	167,270	209,138	228,626	206,920

¹Mainly oil packed.

Sources: U.S. Dep. Commer., Bur. Census computerized data files, 1982-1987.

higher ex-vessel prices. With the increase in landings and ex-vessel prices, earnings by the U.S. fleet increased significantly.

While eastern Pacific fishing grounds continue to be of key importance to the U.S. purse seine fleet fishing for tropical light meat tunas, the importance of western Pacific grounds increased as access became more assured with the signing, in 1987, of an agreement between the United States and South Pacific nations allowing U.S. vessels access to South Pacific fishing zones. The agreement was precipitated by jurisdictional claims by many Pacific island states over tuna in 200-n.mi. extended economic zones (EEZ's) and problems caused when, in the early 1980's, several U.S. vessels were seized for fishing in claimed island exclusive fishing zones. Seizures triggered retaliatory U.S. embargoes on imports of tuna products from the seizing nations as provided for by the Magnuson Fishery Conservation and Management Act.

To resolve these problems, the United States and 16 Pacific island states negotiated a regional licensing arrangement, signing a treaty formalizing the arrangement in 1987. Terms of the treaty grant U.S. vessels fishing rights within fishing zones of a large region of the South Pacific Ocean and provide for license fees and technical and economic assistance to the South Pacific states. Negotiations leading to a treaty arrangement allowing for U.S. access to EEZ's of Central and South American nations and for collective management of eastern Pacific tuna resources continued in 1987 but have yet to yield an agreement.

A bright spot for U.S. tuna fishermen was the developing South Pacific albacore fishery. In the face of continuing declines in landings by the U.S. albacore fleet from its traditional west coast grounds, efforts to develop new grounds in the South Pacific began in 1986. Initial fishing success and high demand for albacore prompted U.S. jigboats to develop the southern fishery. Between January and April, 1987, seven U.S. jigboats operated in the central South Pacific catching 840 tons of albacore. Catches were landed in Tahiti and sold at an average price of \$1,300 per ton.

Worldwide, the demand for canned tuna, and hence raw tuna, was up in 1987 while harvests in some areas were down. This contributed to increases in ex-vessel and wholesale prices. The European tuna industry, being much more vulnerable to the shortfall in raw tuna production from the Atlantic and Indian Oceans, was unable to satisfy increasing European demand for canned tuna, and in 1987 much of the foreign processed canned tuna, as well as foreign caught raw tuna, entered European rather than U.S. markets. U.S. imports of canned tuna were down 11 percent from 1986 levels, the first time in recent years than imports have declined.

U.S. processors took advantage of the 1987 global tuna situation and increased their share of the domestic canned tuna market, and U.S. cannery production rose. Nonetheless, with the decline in imports, the total amount of canned tuna available to U.S. consumers fell 1 percent from 1986. Since U.S. canned tuna con-

sumption was down slightly in 1987, the overall decrease in supply would help explain the improvement in wholesale canned tuna prices, and an unchanged composite retail price from 1986.

Acknowledgments

This review would have been impossible without the support of the U.S. tuna canning industry, officials of which continue to voluntarily report data on industry activities—we appreciate their support. We acknowledge the assistance of Diane Pickelsimer, Henry Orr, and Lorraine Prescott, NMFS Southwest Fisheries Center; and Richard Deering, NMFS Southwest Regional Office in preparing this report. We thank the many colleagues, and particularly members of the tuna industry, for their careful review of the manuscript.

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