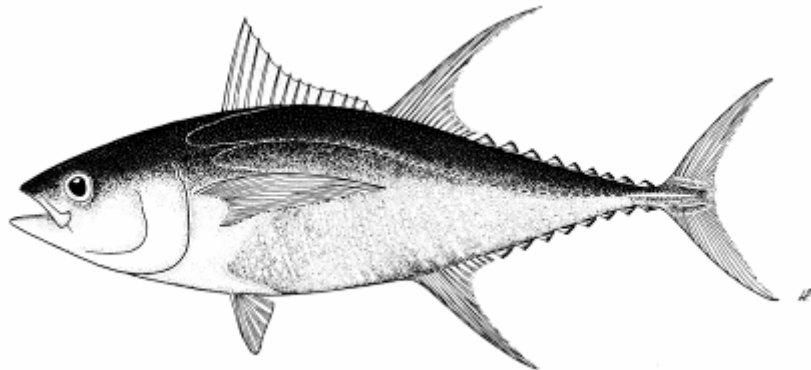




Summary of U.S. Fisheries for Highly Migratory Species in the Western-Central Pacific, 2000-2004



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INTRODUCTION

This report summarizes annual catches and fishing effort for U.S. fisheries that targeted or took as incidental catch highly migratory species (HMS) in the western and central Pacific Ocean (WCPO¹) during the five-year period of 2000-2004. These fisheries include pole-and-line and small-scale troll-handline fisheries operating in near shore waters, and large-scale purse seine, longline, and distant-water troll fisheries operating on the high seas. The principal exploited species include several species of tunas (Scombridae; Tribe Thunnini), swordfish (*Xiphias gladius*), marlins (Istiophoridae), and other pelagic species, e.g., mahimahi (*Corphaena hippurus*) and wahoo (*Acanthocibium solandri*).

FISHERIES

U.S. WCPO Fisheries

The five principal U.S. fisheries for HMS are: the purse seine fishery that targets skipjack tuna (*Katsuwonus pelamis*), yellowfin tuna (*Thunnus albacares*), and bigeye tuna (*T. obesus*); the longline fishery for large tunas and swordfish; the distant-water troll fishery targeting albacore (*T. alalunga*); the troll-handline fishery targeting various tunas, marlins, and other pelagic species; and the pole-and-line fishery for skipjack tuna. These fisheries produced a total catch of 84,401 t² in 2004 (Table 1), a decrease of 21% from the previous year's catch and the lowest catch observed in the five-year period.

The catches of the purse seine fishery, longline fishery, distant-water troll fishery and pole-and-line fishery decreased in 2004. The purse seine fishery was the largest U.S. fishery, accounting for 80% of the total catch, and 91% of the overall HMS catch decline in 2004. The longline fishery accounted for 16% of the total catch and 7% of the decline in 2004.

¹ As defined by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean.

² Metric tons

The aggregated U.S. WCPO catch in 2004 consisted primarily of skipjack tuna (57%), yellowfin tuna (20%), and bigeye tuna (12%) (Table 2). The lower overall 2004 catch of HMS was a result of reduced catches for several species, including skipjack tuna (-24%), yellowfin tuna (-24%), albacore (-35%), swordfish (-43%) and marlins (-19%). Higher catches in 2004 were recorded for bigeye tuna (+16%), sharks (+31%), and other pelagic species (+27%).

Purse Seine Fishery

The U.S. purse seine fleet consisted of 21 vessels in 2004, down from 33 vessels in 2000 (Table 3) and caught 67,419 t (Table 1). This represents the lowest vessel participation and catch since the fleet began fishing under the South Pacific Tuna Treaty in 1988. The return of El Nino oceanographic conditions in late 2004 moved the fleet's fishing effort farther east than in 2003. Effort was concentrated in the extended economic zones of Kiribati, Tuvalu, and Jarvis Island (Figure 1). This eastward shift of the fishing area was accompanied by a lower proportion of sets on free-swimming schools (24% in 2004 versus 50% in 2003) and a higher proportion of sets on logs and fish aggregating devices (FADs) (76% in 2004 versus 50% in 2003) (Figure 2). Most of the latter increase was due to a higher proportion of FAD sets. The total purse seine catch in 2004 was the lowest since 1988. Likewise, the overall catch rate for the fleet reached its lowest level since 1988, decreasing from 18 tons per day fished in 2003 to 15 t per day in 2004.

The total purse seine catch in 2004 was composed of skipjack tuna (71%), yellowfin tuna (22%), and bigeye tuna (7%). The U.S. purse seine fleet delivered 92% of its catch to canneries in the Territory of American Samoa (American Samoa) in 2004. The remainder of the catch was off-loaded in Ecuador (3%), Fiji (3%), and Federated States of Micronesia, Thailand, and Solomon Islands (2% combined).

Fork length (FL) measurements were collected for samples of skipjack tuna (n = 13,115), yellowfin tuna (n = 14,404), and bigeye tuna (n = 6,705) as the U.S. purse seine fleet off-loaded in American Samoa in 2004 (Figure 3). The mean length of skipjack tuna was about 4 cm smaller in 2004 than in 2003. The mean length of yellowfin tuna sampled in 2004 was 5 cm smaller than in 2003, while the mean length of bigeye tuna was 2 cm larger.

Longline Fishery

There were 165 U.S. longline vessels fishing in the WCPO in 2004 (Table 4). The U.S. longline fishery for HMS operated in both the northern and southern hemispheres in the WCPO. The total longline catch was 13,099 t, down 11% from the previous year. The Hawaii- and California-based longline fleets accounted for 69% of the total U.S. longline catch in the WCPO; the American Samoa longline fleet accounted for the remainder. The largest components of the U.S. longline catch were bigeye tuna (34%), albacore (22%), yellowfin tuna (12%), and swordfish (9%).

A total of 125 vessels were active in the 2004 Hawaii-based longline fleet, 15 more vessels than in 2003. A total of 17 vessels were active in the California-based longline fleet in 2004, compared with 24 the previous year. All California-based vessels operated in both Hawaii and California. The Hawaii-based fleet made 1,338 trips in 2004, including 1,332 tuna trips and 6 swordfish-targeted trips. Hawaii- and California-based longline operations

occurred in the North Pacific Ocean from 5°N to 40°N and between 140°W to 175°W (Figure 4). There was a high level of effort east of Johnston Island and moderate effort near the main Hawaiian Islands.

The total catch of the Hawaii- and California-based longline fleets was 9,026 t in 2004 (Table 4). Bigeye tuna was the largest component of the catch (46%), followed by swordfish (12%) and yellowfin tuna (8%). The total catch by the fishery decreased 7% in 2004. The catch of bigeye tuna was 16% higher in 2004 than in 2003, whereas the swordfish catch decreased 43%.

The California-based longline fleet primarily targeted swordfish in 2004 while most effort by Hawaii-based vessels was directed towards tuna using deep-set gear. As of April 2, 2004, Hawaii-based longline vessels also were permitted to resume shallow-set fishing operations directed at swordfish, ending a temporary ban on swordfish targeting that had been imposed in 2002 to reduce the fleet's interactions with sea turtles. Under the new "model" fishery, Hawaii-based swordfish vessels were required to use circle hooks baited with mackerel or mackerel-type bait only. The fleet was subject to strict limits on the number of shallow sets and the number of interactions with each turtle species, as well as other restrictions, and all swordfish boats were required to carry an observer. Because the primary season for swordfish fishing is December-May, few swordfish trips were made by Hawaii-based vessels in 2004. Accordingly, the overall swordfish catch by the California- and Hawaii-based longline fleets was still substantially lower in 2004 than in 2000, when regulations were first placed on the Hawaii-based swordfish vessels.

The Hawaii- and California-based longline fleets sell their catch to the fresh fish market. Almost all of the longline catch landed in Hawaii is sold at the commercial fish auction in Honolulu. Fish are typically sold whole. The California-based longline fleet sells its catch at local markets in California. The landing receipts submitted by seafood wholesalers to the California Department of Fish and Game are used to monitor total landings by this fleet.

Auction data were used to estimate total landings and produce weight frequency histograms for the Hawaii-based longline catch (Figures 5a and 5b). Weight measurements were obtained from 123,182 bigeye tuna, 24,108 yellowfin tuna, 15,920 albacore, and 2,578 swordfish in 2004. The whole weight of fish that were processed at sea (e.g., gilled and gutted) was estimated using conversion factors. The mean whole weight of bigeye tuna in 2004 was 3.1 kg less than in the previous year. The mean weight of yellowfin tuna in 2004 was 2.4 kg below the 2003 figure. The mean weight of albacore was 4.7 kg lower and the mean weight of swordfish 8.9 kg lower than in 2003.

The longline fleet in American Samoa is composed mostly of small aluminum-hulled catamarans (*alias*) equipped with hand crank reels and larger, mono-hulled longline vessels using hydraulic powered reels. From 25 vessels in 1998, the fleet increased dramatically due to the addition of small *alias* and an influx of larger, mono-hulled vessels. The fleet peaked at 67 vessels in 2001, then declined to 40 vessels in 2004. Some of the larger American Samoa vessels had previously been part of the Hawaii-based longline fleet. The American Samoa longline fleet fished exclusively in the South Pacific.

American Samoa longline catches increased dramatically from 828 t in 2000 to 7,133 t in 2002, then decreased to 4,073 t in 2004. The catch in 2004 was composed primarily of albacore (60%) with smaller quantities of yellowfin tuna (22%), bigeye tuna (6%), and wahoo (5%). The longline fleet in American Samoa targeted albacore. Virtually all of the albacore and much of the bigeye and yellowfin tuna catch was frozen and sold to the canneries in Pago Pago. Other incidentally caught pelagic species were sold to local markets or given to the vessel crew, family members, or friends as a fresh product.

Fork length measurements of albacore (n = 5,965 in 2004) were collected as longline vessels unloaded in Pago Pago. The length frequency of albacore was distributed across a wide range (Figure 6). Albacore mean length was about 92 cm in 2004. Yellowfin tuna were also measured (n = 1,263 in 2004). The length frequency distribution of yellowfin tuna also covered a wide range. Mean length of yellowfin tuna was about 103 cm in 2004, 13 cm less than in 2003.

Distant-water Troll Fishery for Albacore

The distant-water troll fishery for albacore in the South Pacific primarily involved vessels based in Oregon, Washington, and California. The season for this fishery begins in December and lasts through March. The number of vessels fishing decreased from 14 in the 2002-2003 season to 11 in the 2003-2004 season. The main area fished during the 2003-2004 season was east of New Zealand between 35°S to 45°S and 135°W to 155°W, thus extending outside the WCPO (Figure 7).

Over the last 5 seasons, catches were highest in the 1999-2000 season (2,562 t) and lowest in the 2003-2004 season (995 t) (Table 5). Albacore caught by the distant-water troll fishery are frozen and sold to the canneries in Pago Pago.

Albacore fork length measurements (n = 1,250 during the 2003-2004 season) were collected at the canneries in American Samoa (Figure 8). Albacore measured during the 2003-2004 season were 5 cm smaller on average than those sampled during the 2002-2003 season.

Troll-Handline Fishery

The small-scale and artisanal troll-handline fishery operates primarily within the EEZ waters of Hawaii, the Territory of American Samoa, the Territory of Guam (Guam), and the Commonwealth of the Northern Mariana Islands (Northern Marianas). The fishery involves relatively small vessels. The total number of vessels for all these locales was 2,037 in 2004. The Hawaii-based troll-handline fleet accounted for 85% of the total troll-handline catch (Table 6). The total troll-handline catch increased 35% to 2,923 t in 2004. The catch was predominantly yellowfin tuna (25%), mahimahi (23%), bigeye tuna (18%), and skipjack tuna (8%). Yellowfin tuna is the dominant species in the Hawaii troll-handline catch, whereas skipjack tuna is the largest component of the troll-handline catch elsewhere. Catches are kept fresh and sold mainly in local markets.

The weight frequency distributions for skipjack tuna and yellowfin tuna in the Hawaii troll-handline catch are shown in Figure 9. Weight measurements were obtained for yellowfin tuna (n = 44,984) and skipjack tuna (n = 36,815) from the commercial fish auction

in Honolulu. The yellowfin tuna weight frequency distribution showed the highest frequency in the first two weight intervals. The skipjack tuna weight frequency distribution peaked at in 1.1-2.0 kg interval. Mean weights for yellowfin tuna and skipjack tuna in 2004 were the same as in the previous year.

Pole-and-line Fishery

The pole-and-line fishery is based in Hawaii and operates exclusively within the Hawaii EEZ. These vessels catch small live baitfish for chum to attract and hold feeding schools of tuna. Because only two vessels fished in 2004 (Table 7), catch data were not presented here in accord with U.S. confidentiality standards.

BYCATCH

Bycatch is defined here as catches discarded at sea. Reported bycatch was summarized from logbook data for the U.S. distant-water purse seine fishery and the longline fleets based in California and Hawaii (combined) and American Samoa.

The total reported purse seine bycatch in 2004 was 2,302 t consisting of small skipjack tuna (1,796 t), yellowfin tuna (32 t), an undifferentiated mixture of skipjack and yellowfin (367 t), and other species including sharks, rays, and billfishes (107 t) (Table 8).

Bycatch in the longline fisheries consists of discarded fish catches and protected species interactions. In 2004, 5% of the tuna caught by longline vessels in American Samoa were discarded, compared with 2% in the combined Hawaii and California-based fleets (Table 9). For other fish species, the proportion discarded by the American Samoa fleet was much higher. The primary reasons for this were high catches of albacore, limited hold space, and lack of markets for the other species.

In 2004, the total reported bycatch of all species in the California and Hawaii-based longline fleets was 17% of the total catch, with blue shark comprising 77% of the total fish discards (Table 9). Tunas were the second largest component of the bycatch at 6%, followed by other pelagic species (5%). In the American Samoa fleet, the total proportion of fish discarded in 2004 was 13%. The total discards consisted primarily of other pelagic species, e.g., oilfish, mahimahi, and wahoo (33% combined) followed by tunas (30%), and sharks (26%).

In addition to their bycatch of fishes, U.S. longline fleets in Hawaii and California interact with sea turtles, seabirds, and marine mammals. Although longline captains are required to report incidental takes of these protected species, logbook records (e.g., Table 9) often substantially understate the actual level of interactions. Accordingly, the number of incidental takes of protected species is estimated using sample data collected by scientific observers in combination with longline logbook effort statistics (Table 10).

FISHERY DEVELOPMENTS IN 2005

The U.S. distant-water purse seine fishery in 2005 should be very similar to the 2004 fishery, continuing to fish in areas farther east if El Nino conditions continue in the WCPO. The fleet has been declining for several years and this trend may continue in 2005. The fleet

is expected to continue to pursue species that offer the greatest ex-vessel price and availability.

In the Hawaii-based longline fleet, there were 117 active vessels in the first quarter of 2005, making 415 trips of which 372 targeted tunas and 43 targeted swordfish. Hawaii-based longline vessels completed 4,463 sets (fishing days) and deployed 8.5 million hooks in the first quarter of 2005. Forty-nine percent of the hooks were set in the main Hawaiian Islands EEZ and 45% outside of the EEZ. Most of the Hawaii-based longline vessels targeted bigeye tuna during the first quarter. The new fishing methods being used by Hawaii-based longline vessels in the model swordfish fishery thus far appear to be effective in reducing sea turtle interactions.

Twenty-three American Samoa longline vessels made 83 trips in the first quarter of 2005. These vessels made 488 sets and deployed 1.1 million hooks. Albacore was the dominant component of the catch, followed by wahoo, skipjack tuna, and yellowfin tuna. The American Samoa longline fleet is expected to continue targeting albacore in 2005.

Table 1. U.S. catches¹ (metric tons) in the western and central Pacific Ocean by gear type, 2000-2004.

	2000	2001	2002	2003	2004
<u>Gear type</u>					
Purse seine	125,215	115,858	120,615	87,456	67,419
Longline	13,915	12,705	16,264	14,743	13,099
Distant water troll	2,433	2,107	1,337	1,574	960
Troll and handline	2,757	2,904	2,712	2,170	2,923
Pole-and-line	321	449	306	459	0
Total catch	144,641	134,023	141,234	106,402	84,401

¹Values for 2004 are preliminary.

Table 2. Species composition of U.S. catches¹ (metric tons) in the western and central Pacific Ocean, 2000-2004.

	2000	2001	2002	2003	2004
<u>Species</u>					
Skipjack tuna	82,218	86,793	89,570	63,940	48,502
Yellowfin tuna	32,355	26,261	28,893	22,143	16,830
Bigeye tuna	16,899	8,916	10,070	8,567	9,960
Albacore	4,120	6,854	8,048	6,114	3,964
Marlins	964	1,276	958	1,421	1,151
Swordfish	4,823	1,971	1,530	1,965	1,126
Sharks	1,506	157	179	163	214
Other pelagics	1,756	1,795	1,986	2,089	2,654
Total catch	144,641	134,023	141,234	106,402	84,401

¹Values for 2004 are preliminary.

Table 3. Number of vessels and catches¹ (metric tons) by species for the U.S. tuna purse seine fishery in the western and central Pacific Ocean, 2000-2004.

	2000	2001	2002	2003	2004
<u>Vessels</u>	33	32	29	26	21
<u>Species</u>					
Skipjack tuna	81,368	85,539	88,535	62,907	47,896
Yellowfin tuna	29,961	24,143	27,191	20,079	14,492
Bigeye tuna	13,886	6,176	4,889	4,470	5,031
Total catch	125,215	115,858	120,615	87,456	67,419

¹ Values include discards and cannery rejects and have been corrected for mixing of bigeye tuna in yellowfin tuna landings. Values for 2004 are preliminary.

Table 4. Number of vessels and catches¹ (metric tons) by species for the U.S. longline fishery in the western and central Pacific Ocean, 2000-2004.

	California and Hawaii					American Samoa					Other Pacific Islands					Total U.S. Longline				
	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
Vessels	129	125	123	129	125	37	67	60	51	40	4	5	1	0	0	170	197	184	180	165
Species																				
Albacore	941	1,293	525	524	356	626	3,233	5,951	3,931	2,462	0	27	0	0	0	1,567	4,553	6,476	4,455	2,818
Bigeye	2,706	2,418	4,396	3,618	4,181	21	75	196	242	227	79	21	3	0	0	2,806	2,514	4,595	3,860	4,408
Bluefin	19	6	2	0	1	0	0	0	0	0	0	0	0	0	0	19	6	2	0	1
Skipjack	93	211	127	207	130	15	66	244	120	234	0	0	0	0	0	108	277	371	327	364
Yellowfin	1,137	1,016	572	809	694	86	188	485	497	888	88	31	6	0	0	1,311	1,235	1,063	1,306	1,582
Other tunas	0	0	0	0	9	0	0	0	1	0	70	23	2	0	0	70	23	2	1	9
Blue marlin	314	399	264	363	279	26	15	34	11	11	0	0	0	0	0	340	414	298	374	290
Striped marlin	200	351	226	538	378	0	5	2	4	2	0	0	0	0	0	200	356	228	542	380
Spearfish	123	120	136	236	181	0	1	1	2	1	0	0	0	0	0	123	121	137	238	182
Black marlin	0	0	0	2	2	2	1	1	2	1	0	0	0	0	0	2	1	1	4	3
Sailfish	0	0	0	10	11	1	3	3	3	2	0	0	0	0	0	1	3	3	13	13
Other marlins	29	16	24	0	0	0	0	0	0	0	0	0	0	0	0	29	16	24	0	0
Swordfish	4,822	1,968	1,524	1,958	1,122	1	3	6	7	4	0	0	0	0	0	4,823	1,971	1,530	1,965	1,126
Blue shark	1,250	28	30	16	83	0	0	0	0	0	0	0	0	0	0	1,250	28	30	16	83
Mako	81	71	84	90	67	0	0	0	0	0	0	0	0	0	0	81	71	84	90	67
Common thresher	97	50	45	48	55	0	0	0	0	0	0	0	0	0	0	97	50	45	48	55
Bigeye thresher	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Pelagic thresher	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other sharks	74	6	17	5	7	4	1	3	4	1	0	0	0	0	0	78	7	20	9	8
Mahimahi	368	254	289	307	449	19	40	39	36	20	0	0	0	0	0	387	294	328	343	469
Moonfish	318	345	415	497	328	3	4	3	4	2	0	0	0	0	0	321	349	418	501	330
Wahoo	111	176	135	126	218	22	52	162	194	214	0	0	0	0	0	133	228	297	320	432
Pomfrets	117	116	211	189	318	0	1	1	1	1	0	0	0	0	0	117	117	212	190	319
Oilfish	40	55	86	126	142	0	1	0	1	1	0	0	0	0	0	40	56	86	127	143
Escolar	5	3	2	2	0	0	0	0	0	0	0	0	0	0	0	5	3	2	2	0
Barracuda	0	0	0	9	14	2	1	1	1	1	0	0	0	0	0	2	1	1	10	15
Other pelagics	5	9	10	1	0	0	1	1	1	1	0	0	0	0	0	5	10	11	2	1
Total catch	12,850	8,912	9,120	9,681	9,026	828	3,691	7,133	5,062	4,073	237	102	11	0	0	13,915	12,705	16,264	14,743	13,099

¹Values do not include discards. All values for 2004 are preliminary statistics. California and Hawaii longline catches include those west of 150°W longitude.

Table 5. Number of vessels and catch¹ (metric tons) for the U.S. distant-water albacore troll fishery in the western and central Pacific Ocean, 1999-2000 to 2003-2004 fishing seasons.

	2000	2001	2002	2003	2004
<u>Vessels</u>	36	33	12	14	11
<u>Albacore catch</u>	2,433	2,107	1,337	1,574	960
	Season				
	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
<u>Albacore catch</u>	2,562	2,128	1,218	1,678	995

¹Values for the most current year are preliminary.

Table 6. Number of vessels and catch¹ (metric tons) by species for the U.S. small scale and artisanal troll-handline fishery that operates within the EEZs of Hawaii, American Samoa, Guam, and the Northern Mariana Islands, 2000-2004.

	Hawaii					Guam					CNMI					American Samoa					Total troll and handline				
	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
Vessels	1,695	1,702	1,615	1,650	1,550	416	375	375	371	401	113	113	90	73	68	19	19	16	20	18	2,243	2,209	2,096	2,114	2,037
Species																									
Skipjack tuna	88	111	98	101	94	121	151	80	83	73	206	261	177	77	66	7	7	5	9	9	422	530	360	270	242
Yellowfin tuna	1,044	835	605	689	695	35	27	20	31	46	1	16	7	12	12	2	3	5	3	3	1,082	881	637	735	756
Bigeye tuna	207	226	586	237	521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	207	226	586	237	521
Albacore	120	194	235	85	186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	194	235	85	186
Other tunas	4	4	3	4	3	5	6	1	7	11	6	3	2	4	6	0	0	0	0	0	15	13	6	15	20
Blue marlin	191	275	201	175	171	39	15	24	30	22	5	1	0	1	1	0	0	0	1	0	235	291	225	207	194
Striped marlin	14	42	29	28	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	42	29	28	56
Other billfish	20	32	12	15	31	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	20	32	13	15	33
Mahimahi	352	278	324	280	555	39	83	78	38	89	27	28	17	3	16	0	0	0	1	0	418	389	419	322	660
Wahoo	174	233	158	209	179	32	54	33	29	53	5	8	3	4	3	0	0	0	0	0	211	295	194	242	235
Other pelagics	2	2	1	0	1	8	7	4	12	17	2	1	3	2	2	1	1	0	0	0	13	11	8	14	20
Total catch	2,216	2,232	2,252	1,823	2,492	279	343	241	230	313	252	318	209	103	106	10	11	10	14	12	2,757	2,904	2,712	2,170	2,923

¹Values for 2004 are preliminary.

Table 7. Number of vessels and tuna catch¹ (metric tons) for the U.S. pole-and-line fishery in the western and central Pacific Ocean, 2000-2004.

	2000	2001	2002	2003	2004
<u>Vessels</u>	7	6	6	6	2
<u>Species</u>					
Skipjack tuna	320	447	304	436	NA
Yellowfin tuna	1	2	2	23	NA
Total catch	321	449	306	459	0

¹Values for 2004 are preliminary.

Table 8. Bycatch of the U.S. purse seine fishery in the western and central Pacific Ocean, 2004.

Species	Metric Tons
Tuna discards	
Skipjack tuna	1,796.5
Yellowfin tuna	31.7
Skipjack/Yellowfin	367.0
Bycatch	
<u>Billfish</u>	12.9
Black Marlin	0.8
Blue Marlin	0.3
Sailfish	0.1
Marlin	11.8
<u>Sharks/Rays</u>	26.7
Shark	20.7
Silky Shark	5.8
Rays, Skates , Mantas	0.2
<u>Other tunas/Tuna-like</u>	0.1
Wahoo	0.1
<u>Other fish</u>	67.2
Amberjack	21.0
Baitfish	1.9
Barracuda	0.0
Dorado	0.4
Mackerel	2.0
Mackerel Scad	1.2
Marlin and shark	0.3
Ocean Sunfish	0.0
Rainbow Runner	9.0
Triggerfish	23.3
Other unspecified	8.2
Total bycatch	2,302.2

Table 9. Logbook report of bycatch (in number of fish and percent of total catch) from the California and Hawaii-based longline fleets (combined) and the American Samoa-based longline fleet, 2004.

Species	California and Hawaii		American Samoa	
	Number discarded	Percent discarded	Number discarded	Percent discarded
<u>Tunas</u>	4,764	2.4	11,274	4.5
Albacore	112	0.7	927	0.6
Bigeye tuna	2,497	1.8	731	5.0
Bluefin tuna	0	0.0	1	7.1
Skipjack tuna	1,324	6.8	8,343	18.2
Yellowfin tuna	823	3.2	1,272	3.3
Other tunas	8	14.8	0	0.0
<u>Billfish</u>	1,811	4.7	3,888	87.8
Black marlin	0	0.0	13	76.5
Blue marlin	99	2.1	1,891	90.0
Sailfish	0	0.0	735	92.8
Spearfish	329	2.4	924	96.0
Striped marlin	287	1.9	160	72.1
Swordfish	1,078	21.8	165	49.8
Other marlins	18	3.3	0	0.0
<u>Other pelagic fish</u>	3,733	2.2	12,312	39.0
Mahimahi	889	1.4	550	21.6
Oilfish	207	1.1	7,902	99.0
Opah	43	0.6	578	83.5
Pomfret	650	1.0	975	84.3
Wahoo	101	0.7	1,552	8.4
Other	1,843	52.2	755	95.9
<u>Sharks</u>	69,099	95.3	9,887	99.7
Blue shark	61,112	97.4	6,995	99.6
Mako shark	791	49.8	255	97.7
Oceanic whitetip shark	0	0.0	1,874	99.9
Thresher shark	4,427	86.1	429	100.0
Other sharks	2,769	93.0	334	100.0
<u>Protected species</u>	17	100.0	0	0.0
Birds	3	100.0	0	0.0
Turtles	8	100.0	0	0.0
Marine mammals	6	100.0	0	0.0
Total bycatch	79,424	20.6	37,361	12.1

Table 10. Estimated incidental take of protected species in the Hawaii-based deep-set (tuna) longline fishery during 2004, based on observer data and logbook effort statistics. (Marti McCracken, Pacific Islands Fisheries Science Center, unpublished).

Species	Estimated Incidental Take
<u>Sea Turtles</u>	
Loggerhead	0
Leatherback	15
Olive ridley	46
Green turtle	5
<u>Albatrosses</u>	
Black-footed albatross	16
Laysan albatross	10
<u>Marine Mammals</u>	
Pilot whale	3
Humpback whale	6
False killer whale	28

Figure 1. Distribution of fishing effort (days fished) for the U.S. tuna purse seine fishery in the western and central Pacific Ocean, 2004.

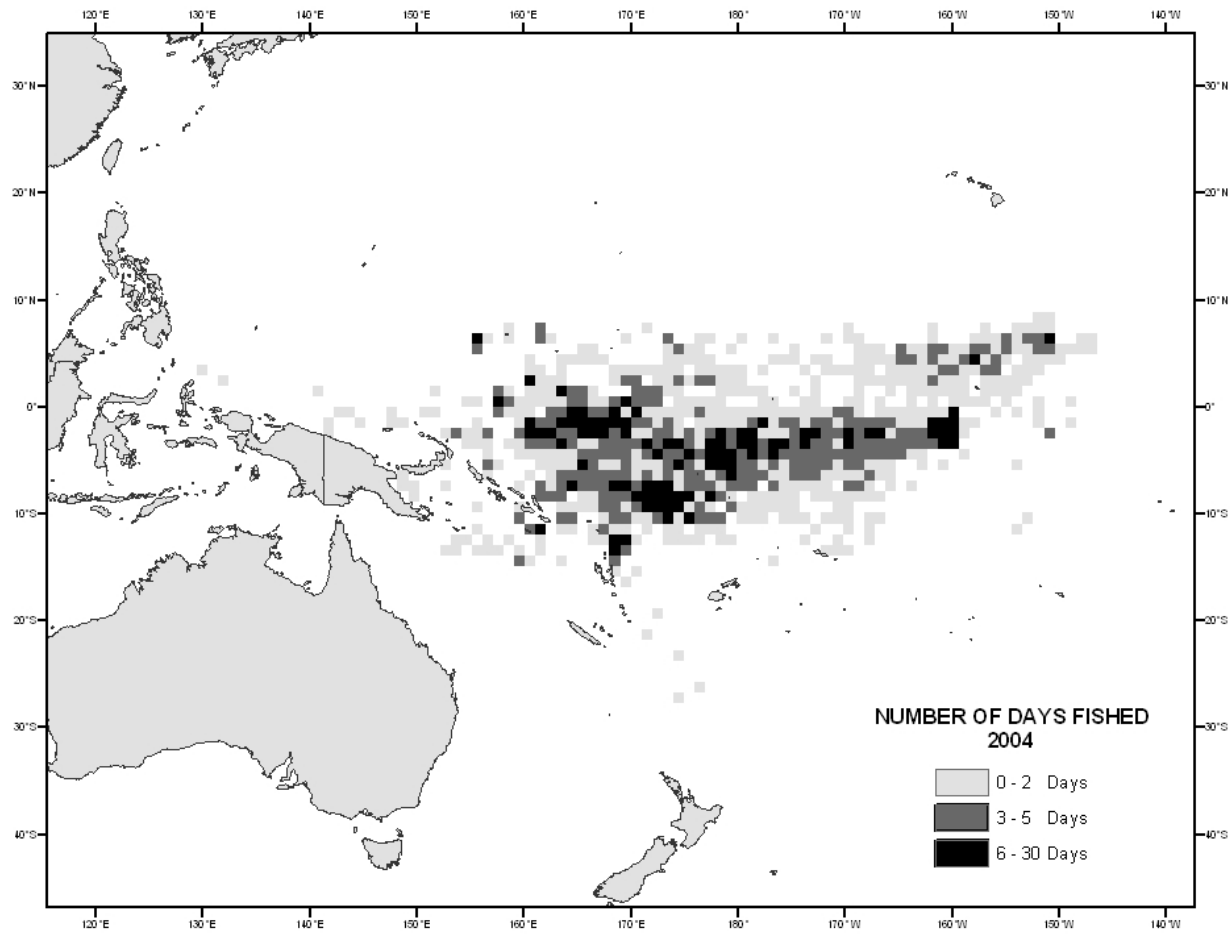


Figure 2. Percentage of different types of U.S. tuna purse seine sets in the western and central Pacific Ocean, 2000-2004.

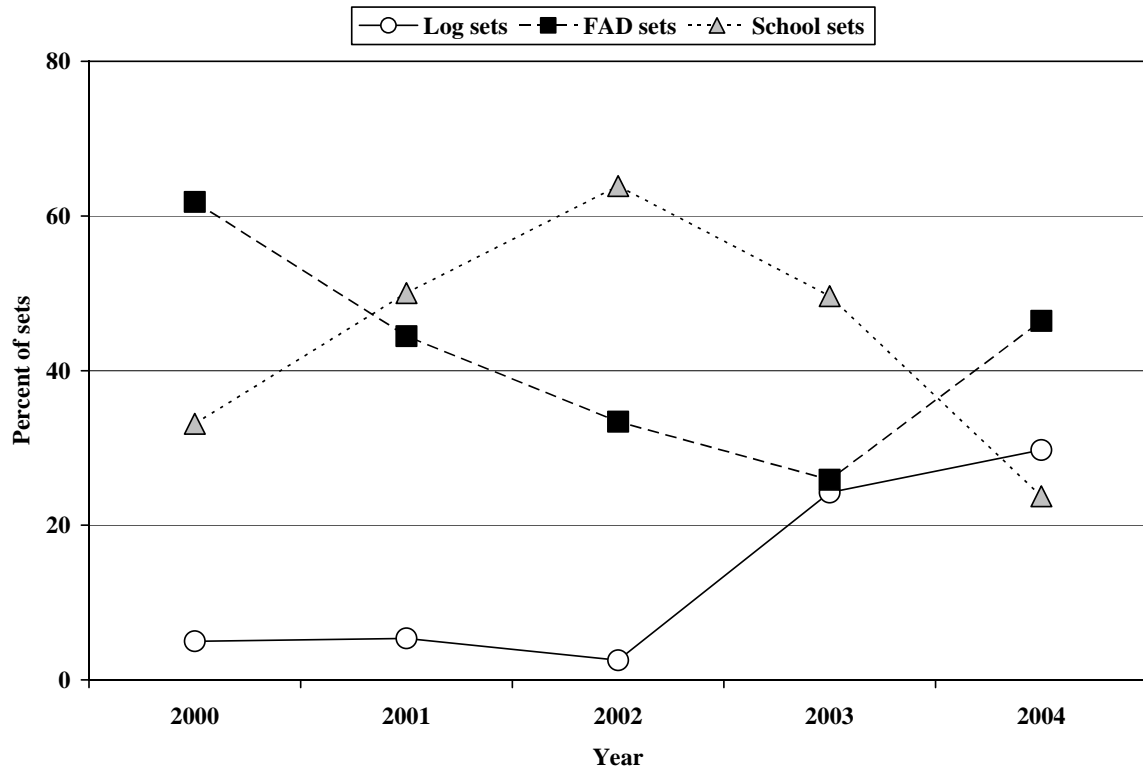


Figure 3. Length frequency histograms of skipjack, yellowfin, and bigeye tunas landed by U.S. purse seine vessels fishing in the western and central Pacific Ocean, 2004.

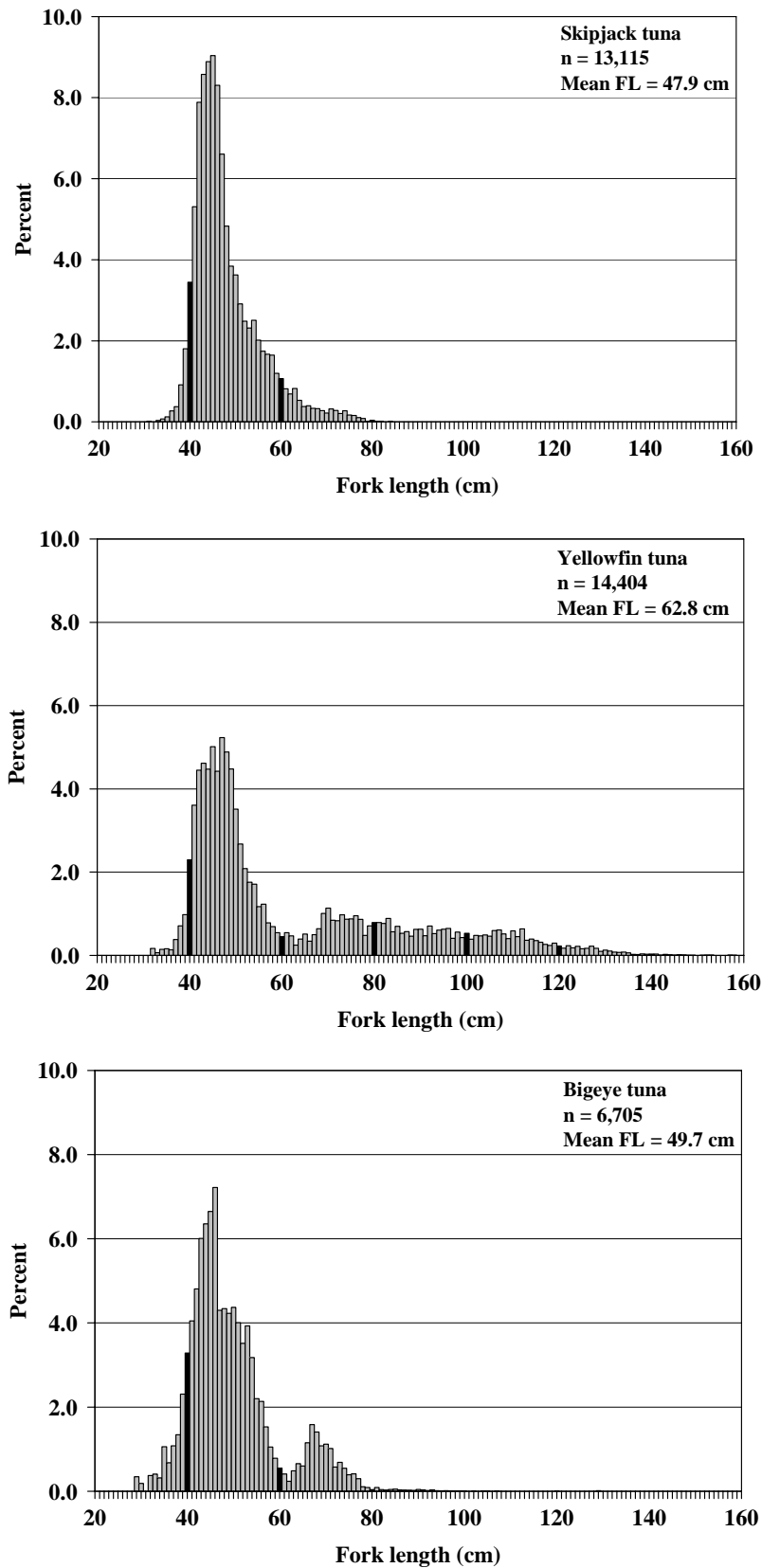


Figure 4. Number of hooks set by the California and Hawaii-based longline fleets, 2004. (Effort in some areas is not shown to protect data confidentiality).

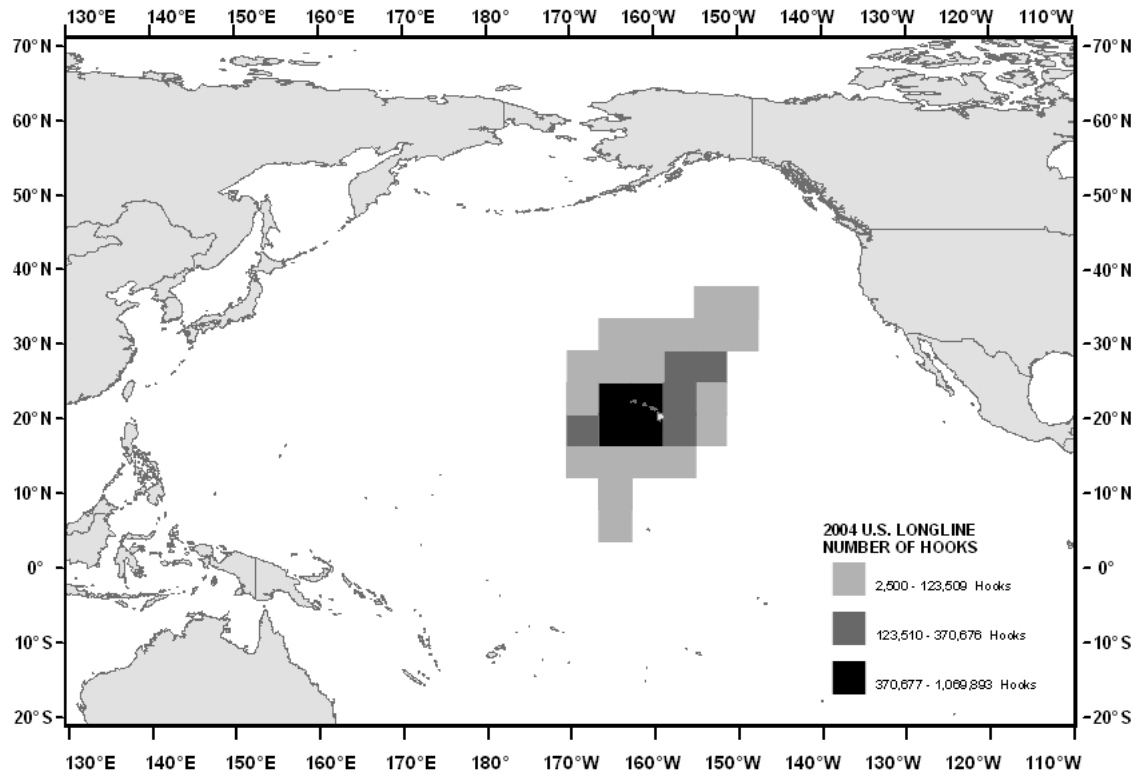


Figure 5a. Weight frequency distribution of bigeye tuna and yellowfin tuna landed by the Hawaii-based longline fleet, 2004.

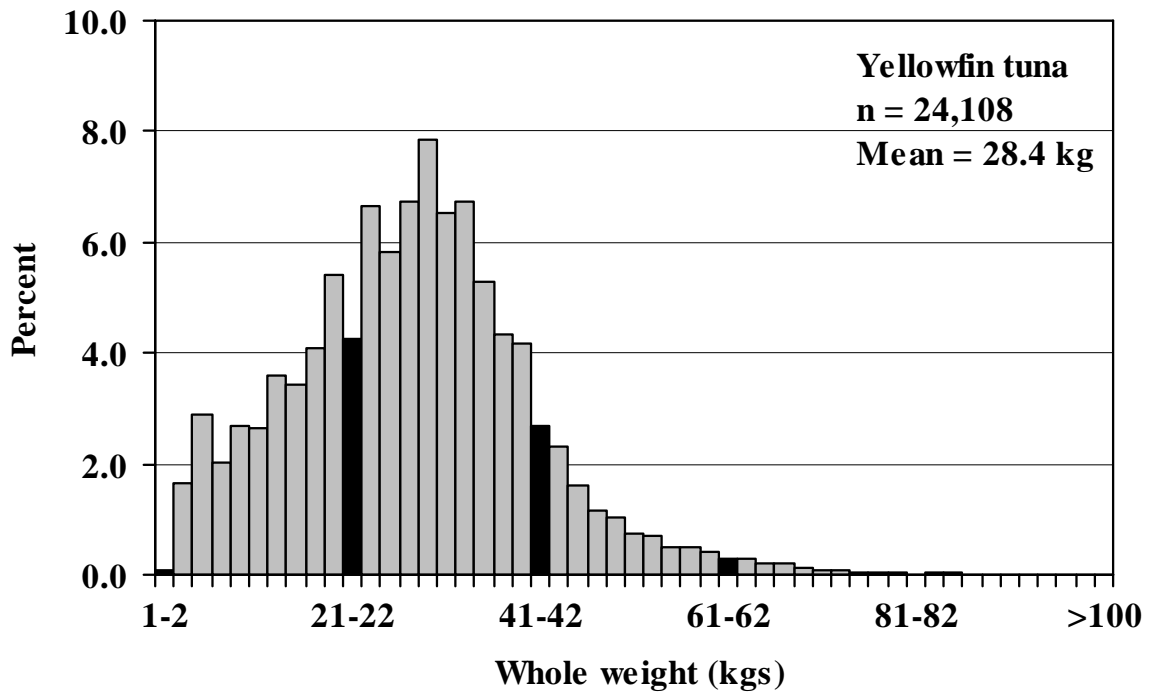
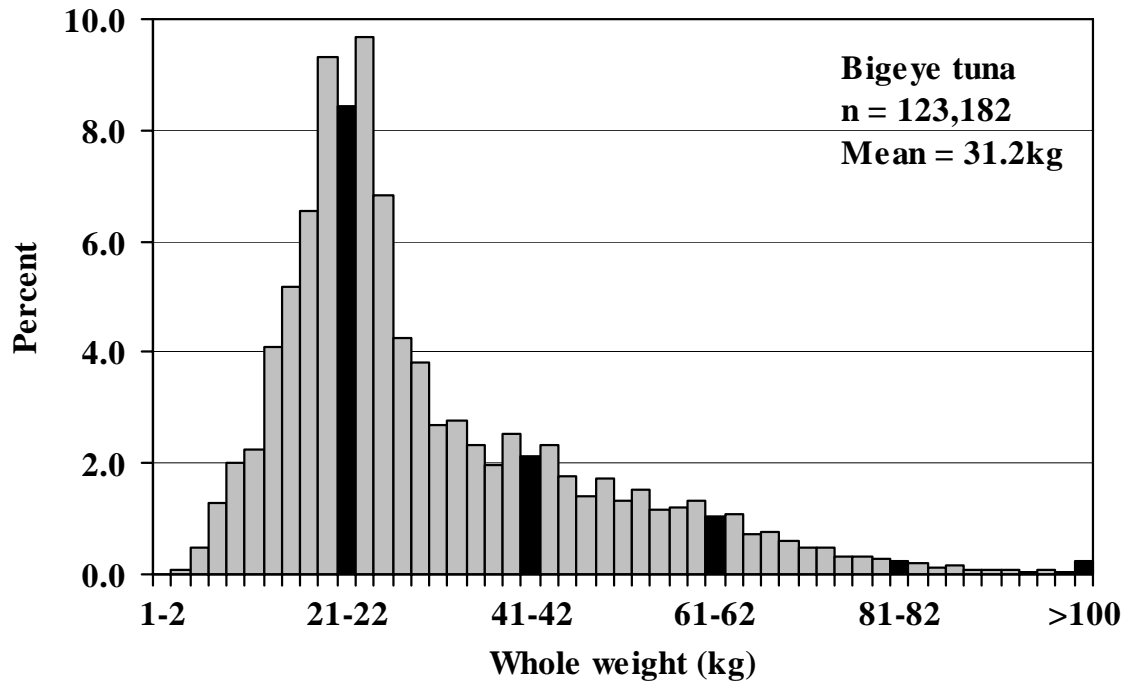


Figure 5b. Weight frequency distribution of albacore and swordfish landed by the Hawaii-based longline fleet, 2004.

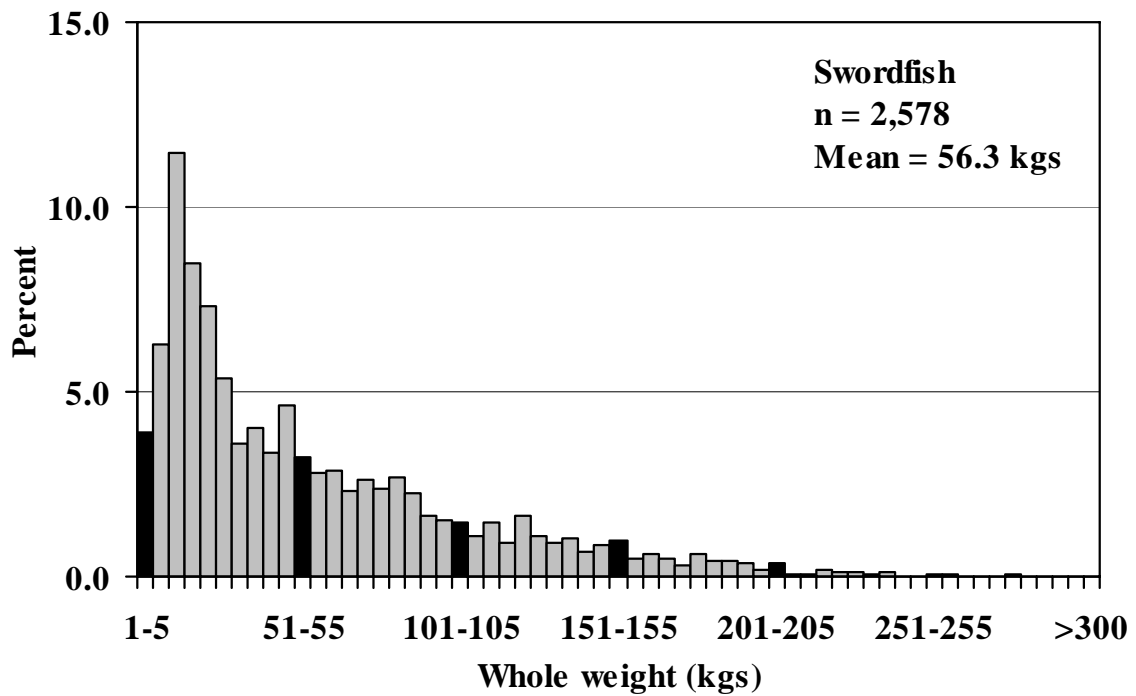
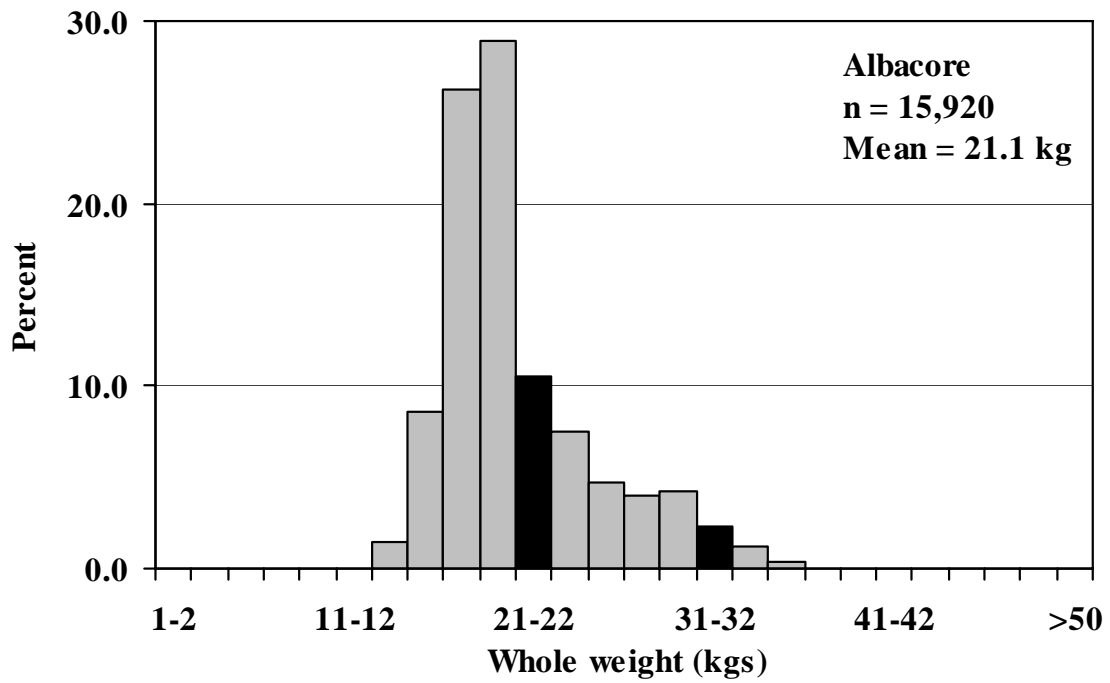


Figure 6. Length frequency distributions of albacore and yellowfin tuna landed by the American Samoa longline fleet, 2004.

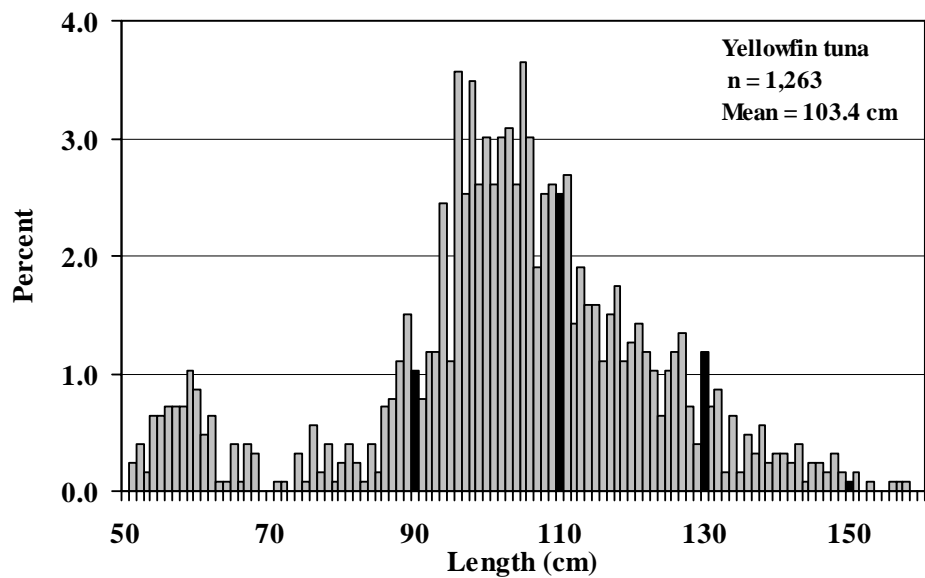
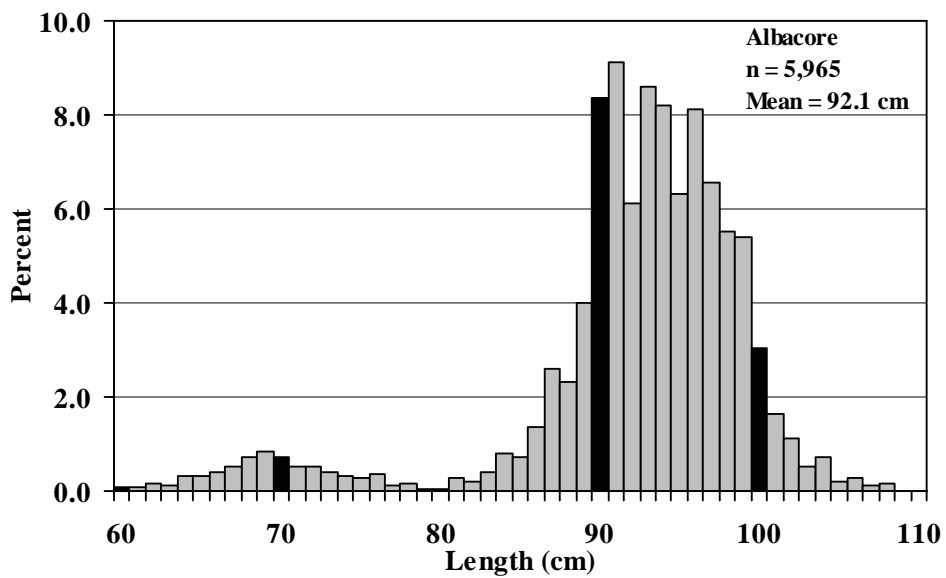


Figure 8. Length frequency of albacore landed by the distant water troll fishery, 2003-2004.

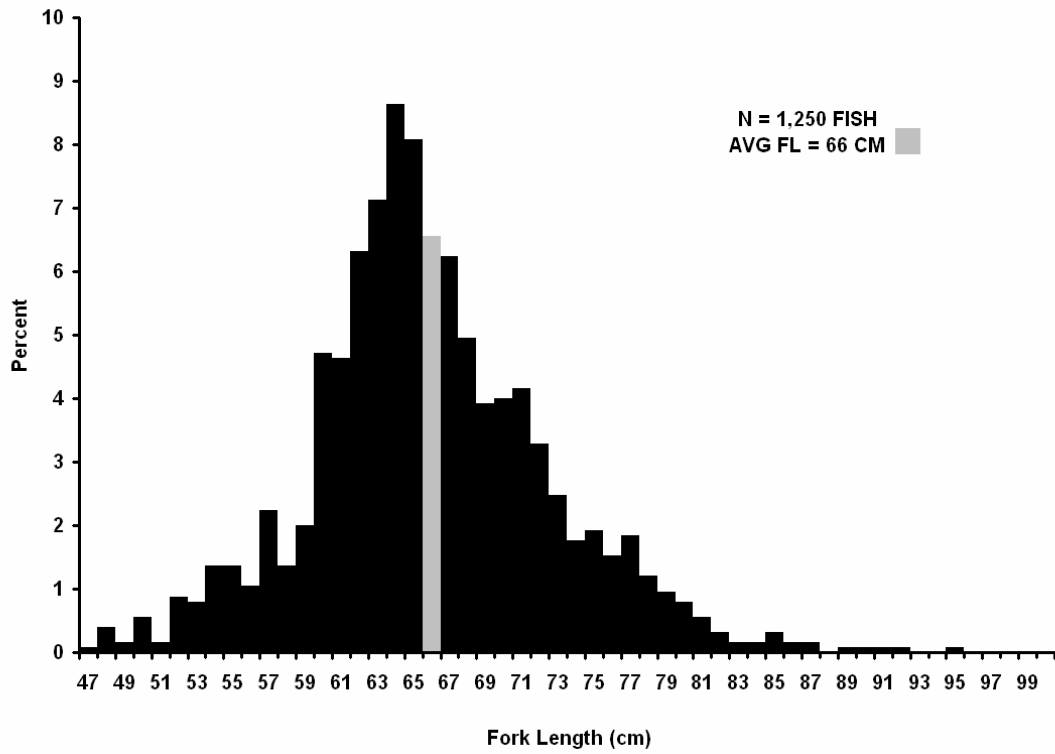


Figure 9. Weight frequency distributions of yellowfin tuna and skipjack tuna landed by the Hawaii troll-handline fleet, 2004.

