

The Hawaii-based Longline Logbook Summary Report July–September 2009¹

Pacific Islands Fisheries Science Center
Fisheries Monitoring and Analysis Program

This report summarizes data on fish catch and fishing effort by Hawaii-based longline vessels during the third quarter of 2009 (Q3-2009). Results are based on the date gear was hauled, as reported by vessel operators to the National Marine Fisheries Service in Federal logbooks of daily fishing activity. The report covers longline operations for fishing trips completed in the third quarter of 2009 and most, but not all, Q3-2009 data from trips that began late in the third quarter and continued into the fourth quarter of 2009. Therefore, the Q3-2009 summary statistics reported here are preliminary.

During Q3-2009, 118 vessels were active in the Hawaii-based fleet, 4 fewer than in Q3-2008 (Table 1, Fig. 1). They made 351 longline trips (9 less than in Q3-2008), including 344 using deep-set gear to target tuna (11 less than in Q3-2008) and 7 using shallow-set gear to target swordfish (2 more than in Q3-2008; Fig. 2). During Q3-2009, the fleet deployed 9.1 million hooks, 500,000 less than in Q3-2008 (Fig. 3). They fished mainly on the high seas outside the U.S. Exclusive Economic Zone (EEZ) (89% of the total hooks set), followed by EEZ waters of the main Hawaiian Islands (MHI) (8%), the U.S. Pacific Remote Island Areas (PRIA, consisting of U.S. possessions Wake Island, Jarvis Island, Howland Island, Baker Island, Kingman Reef, Palmyra Atoll, and Johnston Atoll) (3%), and the EEZ of the Northwestern Hawaiian Islands (NWHI) (<1%).

In Q3-2009, the Hawaii longline fleet caught 29,674 bigeye tuna (Fig. 4); 92% were caught in waters outside the U.S. EEZ. The bigeye tuna catch-per-unit-of-effort (CPUE) on tuna-targeted trips was 3.3 fish per 1000 hooks, similar to the Q3-2008 CPUE of 3.6 (Fig. 5). The albacore catch and CPUE on tuna-targeted trips in Q3-2009 were 2,434 fish and 0.27 fish per 1000 hooks, respectively (Figs. 6-7). The yellowfin tuna catch and CPUE on tuna-targeted trips in Q3-2009 were 3,426 fish and 0.38 fish per 1000 hooks, respectively (Figs. 8-9).

The Q3-2009 swordfish catch was 1,563 fish, about the same as in Q3-2008 (Fig. 10). In Q3-2009, swordfish CPUE on shallow-set swordfish-targeted trips was 11.1 fish per 1000 hooks, 8.3% higher than in Q3-2008 (Fig. 11).

The striped marlin catch in Q3-2009 (1,219 fish) was 13% lower than in Q3-2008, while the striped marlin CPUE on tuna-targeted trips (0.13 fish per 1000 hooks) was the same. (Figs. 12-13). Conversely, the blue marlin catch (1,338 fish) and CPUE on tuna-targeted trips (0.15 fish per 1000 hooks) were higher in Q3-2009 than in Q3-2008 by 75% and 88%, respectively (Figs. 14-15).

¹ PIFSC Data Report DR-09-011
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The fleet caught 13,923 sharks in Q3-2009, of which 410 (3%) were kept. Blue shark comprised 85% of the total shark catch (11,785 fish) (Fig. 16). Blue shark CPUE on shallow-set swordfish-targeted trips in Q3-2009 was 4.3 fish per 1000 hooks (Fig. 17).

In Q3-2009, the Hawaii longline catch of other key pelagic species included 33,208 mahimahi (Fig. 18) with a CPUE of 3.6 fish per 1000 hooks on tuna-targeted trips (Fig. 19); a third quarter record high 7,201 moonfish (Fig. 20) with a CPUE of 0.80 fish per 1000 hooks on tuna-targeted trips (Fig. 21); 7,309 pomfret (Fig. 22) with a CPUE of 0.81 fish per 1000 hooks on tuna-targeted trips (Fig. 23); and 2,284 wahoo (Fig. 24) with a CPUE of 0.25 fish per 1000 hooks on tuna-targeted trips (Fig. 25). A high percentage of the catch of these species was kept.

The summary statistics in Table 1 are based on logbook records from all fishing areas combined and all types of longline trips—those targeting swordfish and those aimed at catching tuna. Hence, the CPUE figures in Table 1 differ from those reported above, which were calculated using data exclusively from tuna-targeted trips or swordfish-targeted trips, depending on the species of interest.

The longline logbook statistics reported above refer to all fishing areas combined. Q3-2009 summary catch and effort were also compiled by several geographical sub-areas including: the MHI EEZ; the NWHI EEZ; the PRIA EEZ; the combined EEZ of MHI, NWHI and PRIA; and waters outside the U.S. EEZ. These statistics are presented in Tables 2-6. Q3-2009 summary statistics for the entire fishing area are also presented for each distinct trip type: swordfish-targeted trips using shallow-set gear (Table 7) and tuna-targeted trips deploying deep-set gear (Table 8).

This report is available in PDF format on the PIFSC Web site at <http://www.pifsc.noaa.gov/fmsd/reports.php>. The Web site also provides quarterly and yearly charts and an archive of quarterly and annual summary tables of fish catch and fishing effort from 1991 to the present. The statistics in the online graphs and archived tables are updated periodically as new records are added to the database and corrections are made.

Table 1. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived for NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 12/8/2009 1:43:49PM].

Report Coverage					Number of vessels active	118
Time Period	3rd Quarter 2009				Number of trips	351
Fishing Area	All Areas				Number of sets	4,097
Trip Types	All Trip Types				Number of hooks set	9,064,600

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	1,338	1,325	13	0.15
Striped marlin	1,219	1,201	18	0.13
Shortbill spearfish	1,648	1,623	25	0.18
Swordfish	1,563	1,438	125	0.17
Other billfishes	229	222	7	0.03
Total	5,997	5,809	188	0.66
Sharks				
Blue shark	11,785	49	11,736	1.30
Mako sharks	694	272	422	0.08
Thresher sharks	896	71	825	0.10
Oceanic whitetip shark	282	10	272	0.03
Silky shark	129	1	128	0.01
Other sharks	137	7	130	0.02
Total	13,923	410	13,513	1.54
Tunas				
Albacore	2,434	2,426	8	0.27
Bigeye tuna	29,674	29,470	204	3.27
Yellowfin tuna	3,426	3,406	20	0.38
Bluefin tuna	2	2	0	0.00
Skipjack tuna	3,303	3,070	233	0.36
Other tunas	0	0	0	0.00
Total	38,839	38,374	465	4.28
Other PMUS				
Mahimahi	33,208	32,031	1,177	3.66
Moonfish	7,201	7,129	72	0.79
Wahoo	2,284	2,274	10	0.25
Oilfish	5,590	5,526	64	0.62
Pomfret	7,309	7,240	69	0.81
Total	55,592	54,200	1,392	6.13
Total PMUS	114,351	98,793	15,558	12.62
Total Non-PMUS	1,030	222	808	0.11
Total All Species	115,381	99,015	1,030	12.73

Table 2. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived for NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 12/8/2009 1:43:49PM].

Report Coverage		Number of vessels active		58
Time Period	3rd Quarter 2009	Number of trips		92
Fishing Area	Main Hawaiian Islands EEZ	Number of sets		371
Trip Types	All Trip Types	Number of hooks set		710,322

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	138	136	2	0.19
Striped marlin	62	61	1	0.09
Shortbill spearfish	109	109	0	0.15
Swordfish	37	34	3	0.05
Other billfishes	10	10	0	0.01
Total	356	350	6	0.50
Sharks				
Blue shark	998	16	982	1.40
Mako sharks	25	11	14	0.04
Thresher sharks	51	5	46	0.07
Oceanic whitetip shark	16	2	14	0.02
Silky shark	1	0	1	0.00
Other sharks	20	6	14	0.03
Total	1,111	40	1,071	1.56
Tunas				
Albacore	43	43	0	0.06
Bigeye tuna	1,447	1,433	14	2.04
Yellowfin tuna	466	463	3	0.66
Bluefin tuna	0	0	0	0.00
Skipjack tuna	366	343	23	0.52
Other tunas	0	0	0	0.00
Total	2,322	2,282	40	3.27
Other PMUS				
Mahimahi	1,102	1,077	25	1.55
Moonfish	203	201	2	0.29
Wahoo	243	243	0	0.34
Oilfish	231	230	1	0.33
Pomfret	683	673	10	0.96
Total	2,462	2,424	38	3.47
Total PMUS	6,251	5,096	1,155	8.80
Total Non-PMUS	161	155	6	0.23
Total All Species	6,412	5,251	161	9.03

Table 3. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived for NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 12/8/2009 1:43:49PM].

Report Coverage		Number of vessels active		13
Time Period	3rd Quarter 2009	Number of trips		13
Fishing Area	Northwestern Hawaiian Islands EEZ	Number of sets		25
Trip Types	All Trip Types	Number of hooks set		57,893

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	14	14	0	0.24
Striped marlin	2	2	0	0.03
Shortbill spearfish	14	14	0	0.24
Swordfish	14	12	2	0.24
Other billfishes	0	0	0	0.00
Total	44	42	2	0.76
Sharks				
Blue shark	176	4	172	3.04
Mako sharks	13	2	11	0.22
Thresher sharks	7	2	5	0.12
Oceanic whitetip shark	4	0	4	0.07
Silky shark	0	0	0	0.00
Other sharks	1	0	1	0.02
Total	201	8	193	3.47
Tunas				
Albacore	67	64	3	1.16
Bigeye tuna	28	28	0	0.48
Yellowfin tuna	51	47	4	0.88
Bluefin tuna	0	0	0	0.00
Skipjack tuna	45	45	0	0.78
Other tunas	0	0	0	0.00
Total	191	184	7	3.30
Other PMUS				
Mahimahi	11	11	0	0.19
Moonfish	54	54	0	0.93
Wahoo	38	38	0	0.66
Oilfish	26	26	0	0.45
Pomfret	66	64	2	1.14
Total	195	193	2	3.37
Total PMUS	631	427	204	10.90
Total Non-PMUS	7	6	1	0.12
Total All Species	638	433	7	11.02

Table 4. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived for NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 12/8/2009 1:43:49PM].

Report Coverage		Number of vessels active		22
Time Period	3rd Quarter 2009	Number of trips		24
Fishing Area	Pacific Remote Island Areas (PRIA) EEZ	Number of sets		101
Trip Types	All Trip Types	Number of hooks set		229,843

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	91	91	0	0.40
Striped marlin	35	34	1	0.15
Shortbill spearfish	116	111	5	0.50
Swordfish	26	19	7	0.11
Other billfishes	11	11	0	0.05
Total	279	266	13	1.21
Sharks				
Blue shark	1,389	0	1,389	6.04
Mako sharks	3	2	1	0.01
Thresher sharks	53	7	46	0.23
Oceanic whitetip shark	8	0	8	0.03
Silky shark	1	0	1	0.00
Other sharks	21	0	21	0.09
Total	1,475	9	1,466	6.42
Tunas				
Albacore	522	520	2	2.27
Bigeye tuna	869	845	24	3.78
Yellowfin tuna	278	277	1	1.21
Bluefin tuna	0	0	0	0.00
Skipjack tuna	197	179	18	0.86
Other tunas	0	0	0	0.00
Total	1,866	1,821	45	8.12
Other PMUS				
Mahimahi	46	43	3	0.20
Moonfish	82	82	0	0.36
Wahoo	170	168	2	0.74
Oilfish	139	139	0	0.60
Pomfret	286	284	2	1.24
Total	723	716	7	3.15
Total PMUS	4,343	2,812	1,531	18.90
Total Non-PMUS	1	1	0	0.00
Total All Species	4,344	2,813	1	18.90

Table 5. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived for NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 12/8/2009 1:43:49PM].

Report Coverage		Number of vessels active		70
Time Period	3rd Quarter 2009	Number of trips		113
Fishing Area	Hawaiian Islands EEZ + PRIA EEZ	Number of sets		497
Trip Types	All Trip Types	Number of hooks set		998,058

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	243	241	2	0.24
Striped marlin	99	97	2	0.10
Shortbill spearfish	239	234	5	0.24
Swordfish	77	65	12	0.08
Other billfishes	21	21	0	0.02
Total	679	658	21	0.68
Sharks				
Blue shark	2,563	20	2,543	2.57
Mako sharks	41	15	26	0.04
Thresher sharks	111	14	97	0.11
Oceanic whitetip shark	28	2	26	0.03
Silky shark	2	0	2	0.00
Other sharks	42	6	36	0.04
Total	2,787	57	2,730	2.79
Tunas				
Albacore	632	627	5	0.63
Bigeye tuna	2,344	2,306	38	2.35
Yellowfin tuna	795	787	8	0.80
Bluefin tuna	0	0	0	0.00
Skipjack tuna	608	567	41	0.61
Other tunas	0	0	0	0.00
Total	4,379	4,287	92	4.39
Other PMUS				
Mahimahi	1,159	1,131	28	1.16
Moonfish	339	337	2	0.34
Wahoo	451	449	2	0.45
Oilfish	396	395	1	0.40
Pomfret	1,035	1,021	14	1.04
Total	3,380	3,333	47	3.39
Total PMUS	11,225	8,335	2,890	11.25
Total Non-PMUS	169	162	7	0.17
Total All Species	11,394	8,497	169	11.42

Table 6. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived for NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 12/8/2009 1:43:49PM].

Report Coverage					Number of vessels active	117
Time Period	3rd Quarter 2009				Number of trips	329
Fishing Area	Outside U.S. EEZ				Number of sets	3,600
Trip Types	All Trip Types				Number of hooks set	8,066,542

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	1,095	1,084	11	0.14
Striped marlin	1,120	1,104	16	0.14
Shortbill spearfish	1,409	1,389	20	0.17
Swordfish	1,486	1,373	113	0.18
Other billfishes	208	201	7	0.03
Total	5,318	5,151	167	0.66
Sharks				
Blue shark	9,222	29	9,193	1.14
Mako sharks	653	257	396	0.08
Thresher sharks	785	57	728	0.10
Oceanic whitetip shark	254	8	246	0.03
Silky shark	127	1	126	0.02
Other sharks	95	1	94	0.01
Total	11,136	353	10,783	1.38
Tunas				
Albacore	1,802	1,799	3	0.22
Bigeye tuna	27,330	27,164	166	3.39
Yellowfin tuna	2,631	2,619	12	0.33
Bluefin tuna	2	2	0	0.00
Skipjack tuna	2,695	2,503	192	0.33
Other tunas	0	0	0	0.00
Total	34,460	34,087	373	4.27
Other PMUS				
Mahimahi	32,049	30,900	1,149	3.97
Moonfish	6,862	6,792	70	0.85
Wahoo	1,833	1,825	8	0.23
Oilfish	5,194	5,131	63	0.64
Pomfret	6,274	6,219	55	0.78
Total	52,212	50,867	1,345	6.47
Total PMUS	103,126	90,458	12,668	12.78
Total Non-PMUS	861	60	801	0.11
Total All Species	103,987	90,518	861	12.89

Table 7. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived for NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 12/8/2009 1:43:49PM].

Report Coverage					Number of vessels active	7
Time Period	3rd Quarter 2009				Number of trips	7
Fishing Area	All Areas				Number of sets	74
Trip Types	Swordfish Targeted Trips				Number of hooks set	76,273

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	34	31	3	0.45
Striped marlin	68	68	0	0.89
Shortbill spearfish	8	7	1	0.10
Swordfish	848	799	49	11.12
Other billfishes	3	3	0	0.04
Total	961	908	53	12.60
Sharks				
Blue shark	329	0	329	4.31
Mako sharks	24	11	13	0.31
Thresher sharks	13	0	13	0.17
Oceanic whitetip shark	9	3	6	0.12
Silky shark	0	0	0	0.00
Other sharks	0	0	0	0.00
Total	375	14	361	4.92
Tunas				
Albacore	2	2	0	0.03
Bigeye tuna	84	82	2	1.10
Yellowfin tuna	4	4	0	0.05
Bluefin tuna	0	0	0	0.00
Skipjack tuna	1	1	0	0.01
Other tunas	0	0	0	0.00
Total	91	89	2	1.19
Other PMUS				
Mahimahi	1,143	1,143	0	14.99
Moonfish	1	1	0	0.01
Wahoo	1	1	0	0.01
Oilfish	303	297	6	3.97
Pomfret	3	3	0	0.04
Total	1,451	1,445	6	19.02
Total PMUS	2,878	2,456	422	37.73
Total Non-PMUS	1	0	1	0.01
Total All Species	2,879	2,456	1	37.75

Table 8. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived for NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 12/8/2009 1:43:49PM].

Report Coverage		Number of vessels active		117	
Time Period	3rd Quarter 2009	Number of trips		344	
Fishing Area	All Areas	Number of sets		4,023	
Trip Types	Tuna Targeted Trips	Number of hooks set		8,988,327	

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	1,304	1,294	10	0.15
Striped marlin	1,151	1,133	18	0.13
Shortbill spearfish	1,640	1,616	24	0.18
Swordfish	715	639	76	0.08
Other billfishes	226	219	7	0.03
Total	5,036	4,901	135	0.56
Sharks				
Blue shark	11,456	49	11,407	1.27
Mako sharks	670	261	409	0.07
Thresher sharks	883	71	812	0.10
Oceanic whitetip shark	273	7	266	0.03
Silky shark	129	1	128	0.01
Other sharks	137	7	130	0.02
Total	13,548	396	13,152	1.51
Tunas				
Albacore	2,432	2,424	8	0.27
Bigeye tuna	29,590	29,388	202	3.29
Yellowfin tuna	3,422	3,402	20	0.38
Bluefin tuna	2	2	0	0.00
Skipjack tuna	3,302	3,069	233	0.37
Other tunas	0	0	0	0.00
Total	38,748	38,285	463	4.31
Other PMUS				
Mahimahi	32,065	30,888	1,177	3.57
Moonfish	7,200	7,128	72	0.80
Wahoo	2,283	2,273	10	0.25
Oilfish	5,287	5,229	58	0.59
Pomfret	7,306	7,237	69	0.81
Total	54,141	52,755	1,386	6.02
Total PMUS	111,473	96,337	15,136	12.40
Total Non-PMUS	1,029	222	807	0.11
Total All Species	112,502	96,559	1,029	12.52

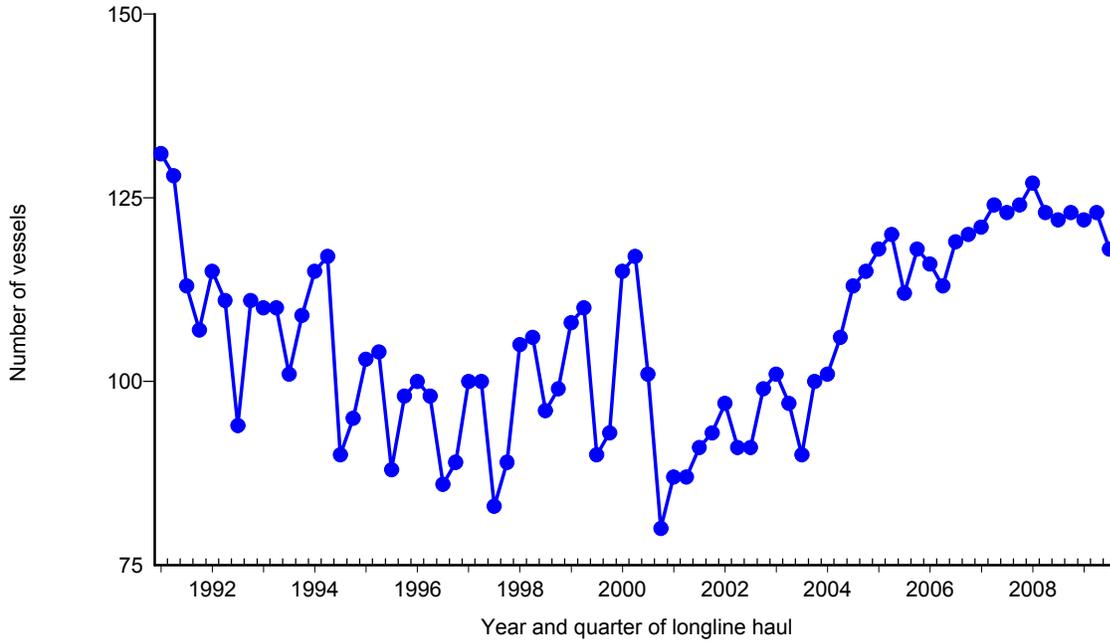


Figure 1. Number of active longline vessels based and landing in Hawaii, by quarter, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:16:33PM]

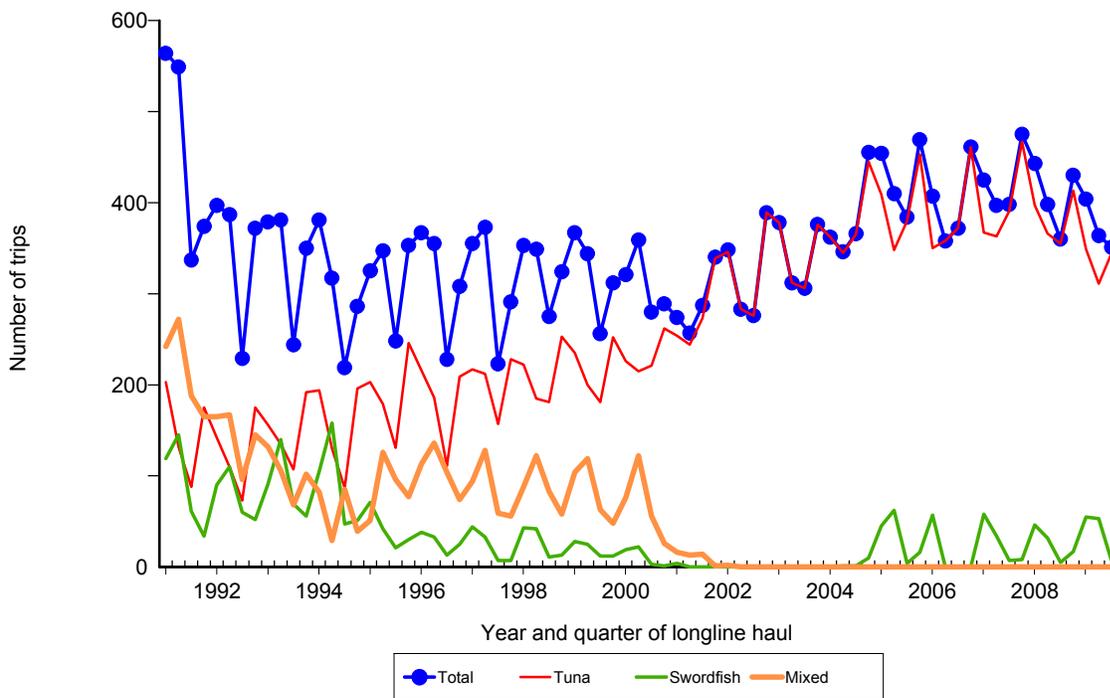


Figure 2. Number of fishing trips by longline vessels based and landing in Hawaii, by quarter and trip type, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:16:33PM]

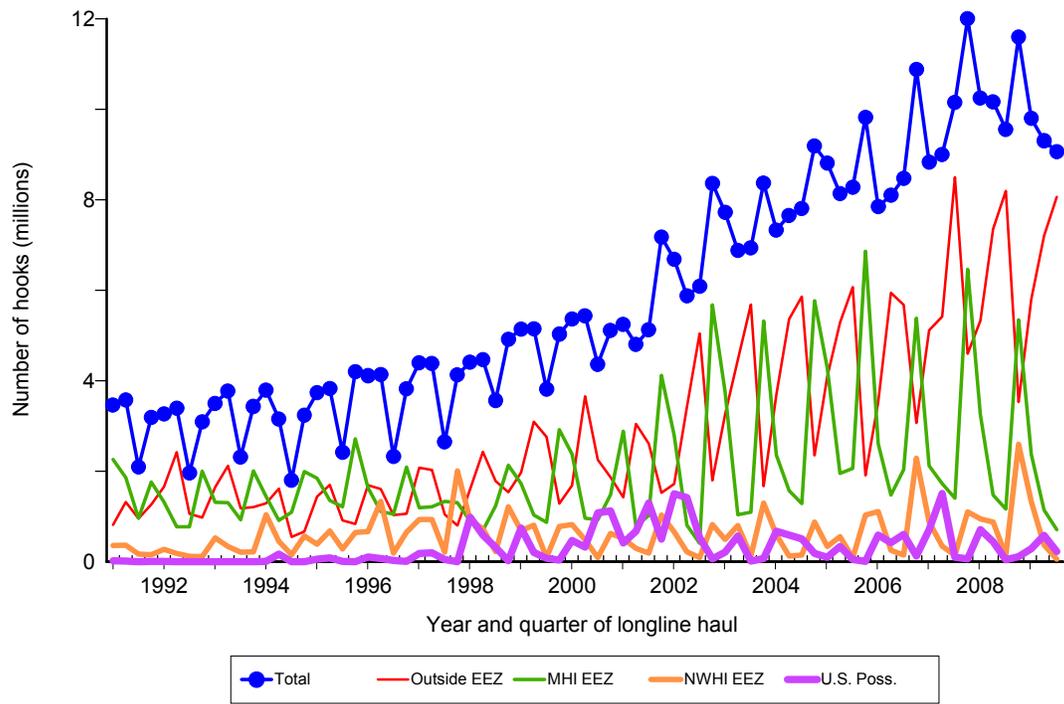


Figure 3. Number of hooks set by longline vessels based and landing in Hawaii, by quarter and fishing area, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:16:36PM]

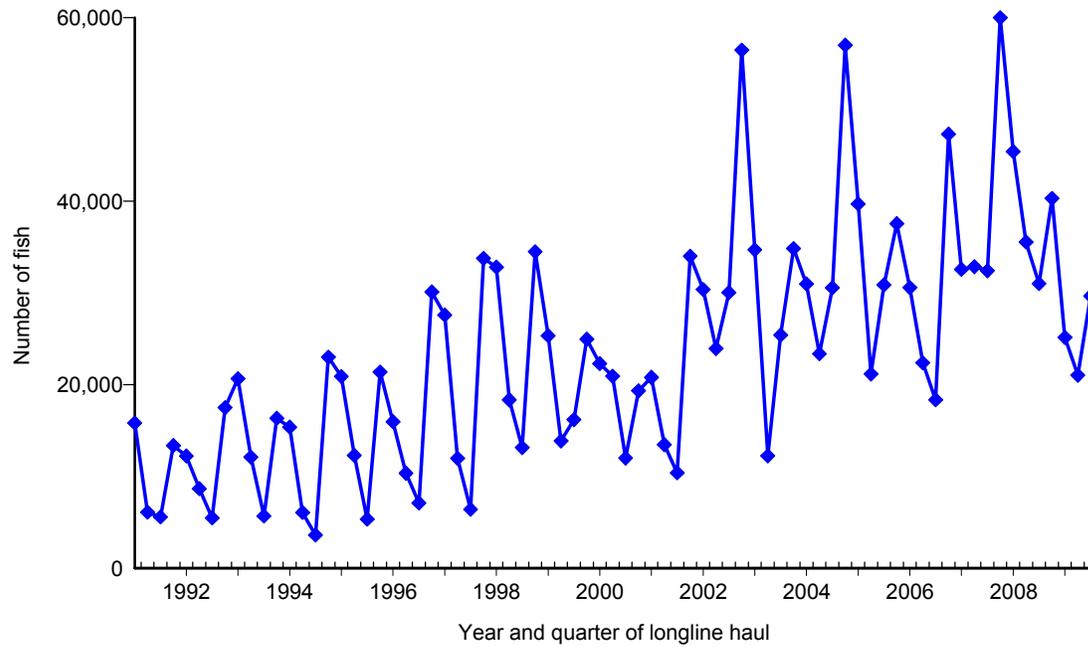


Figure 4. Quarterly catch of bigeye tuna by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:16:57PM]

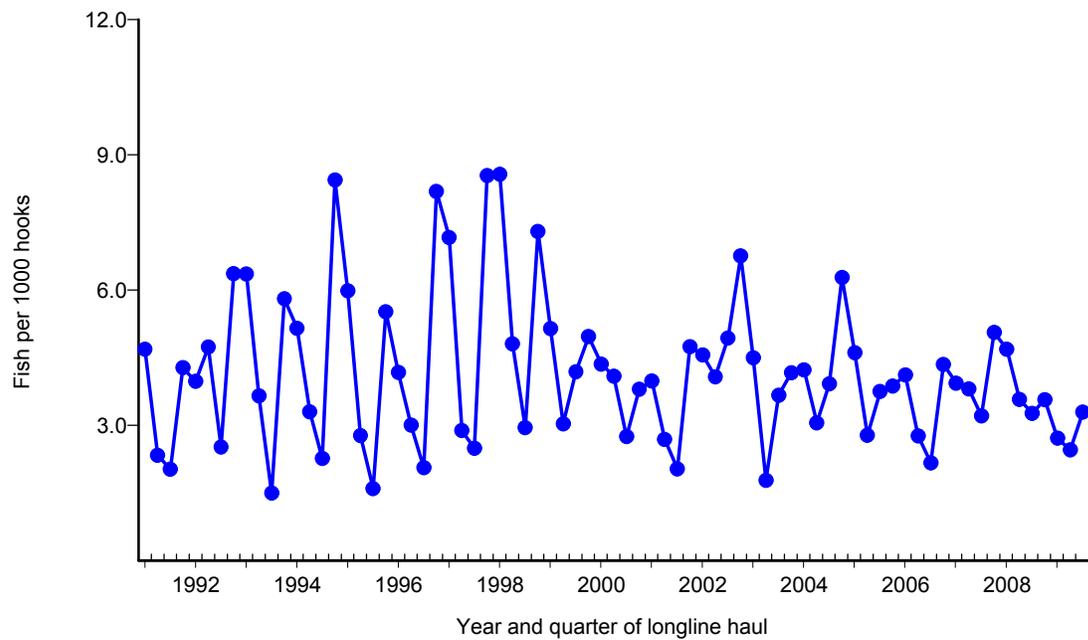


Figure 5. Quarterly CPUE of bigeye tuna (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:16:57PM]

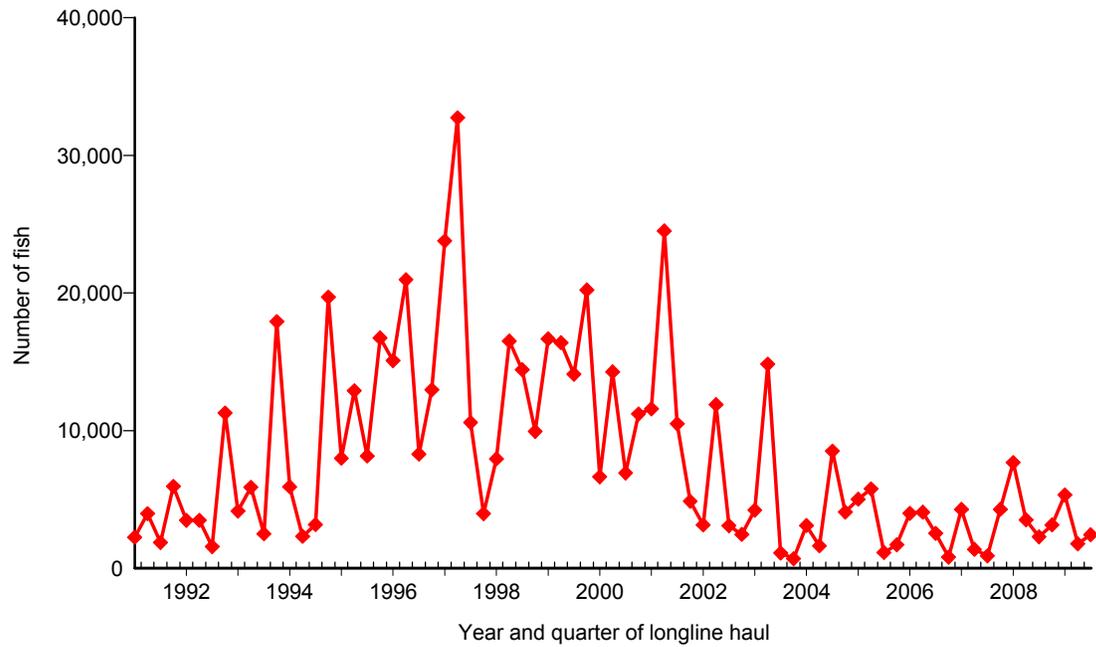


Figure 6. Quarterly catch of albacore by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:17:21PM]

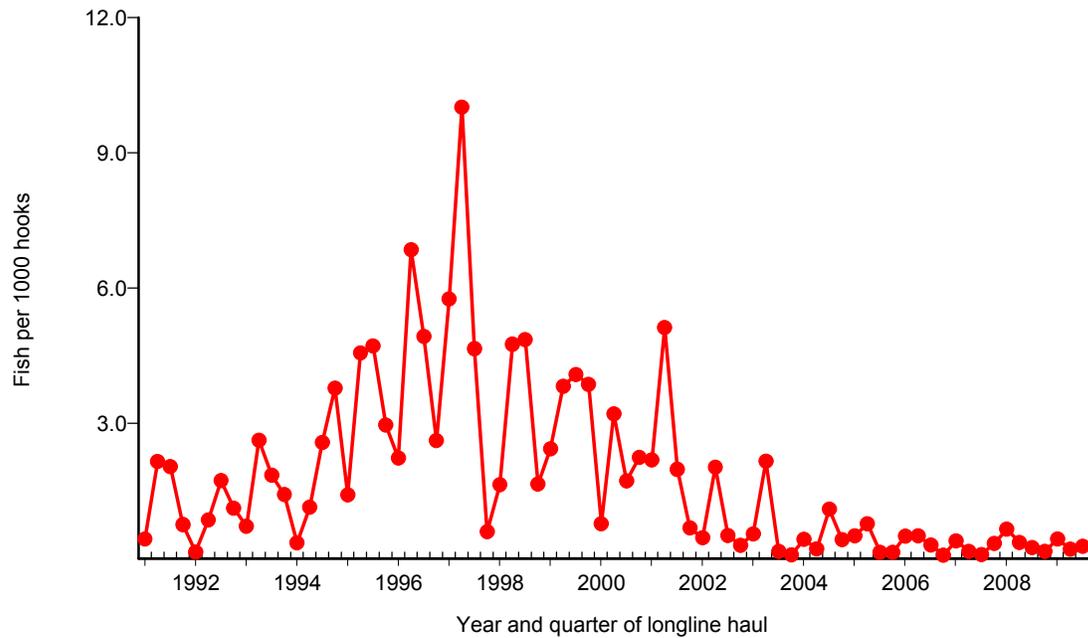


Figure 7. Quarterly CPUE of albacore (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:17:21PM]

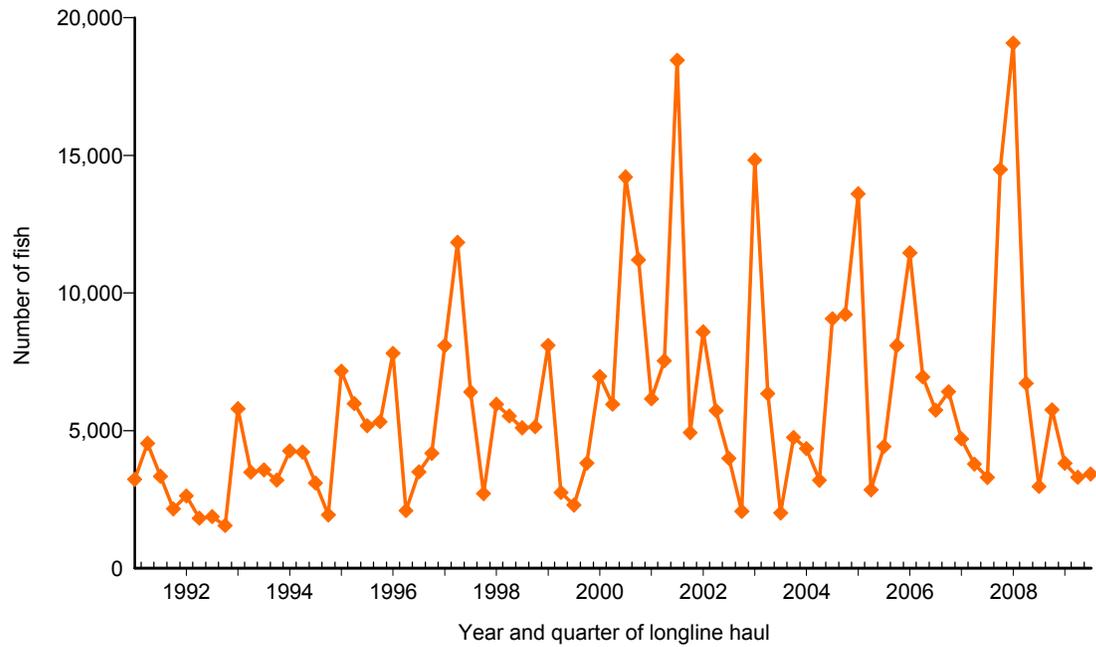


Figure 8. Quarterly catch of yellowfin tuna by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:17:43PM]

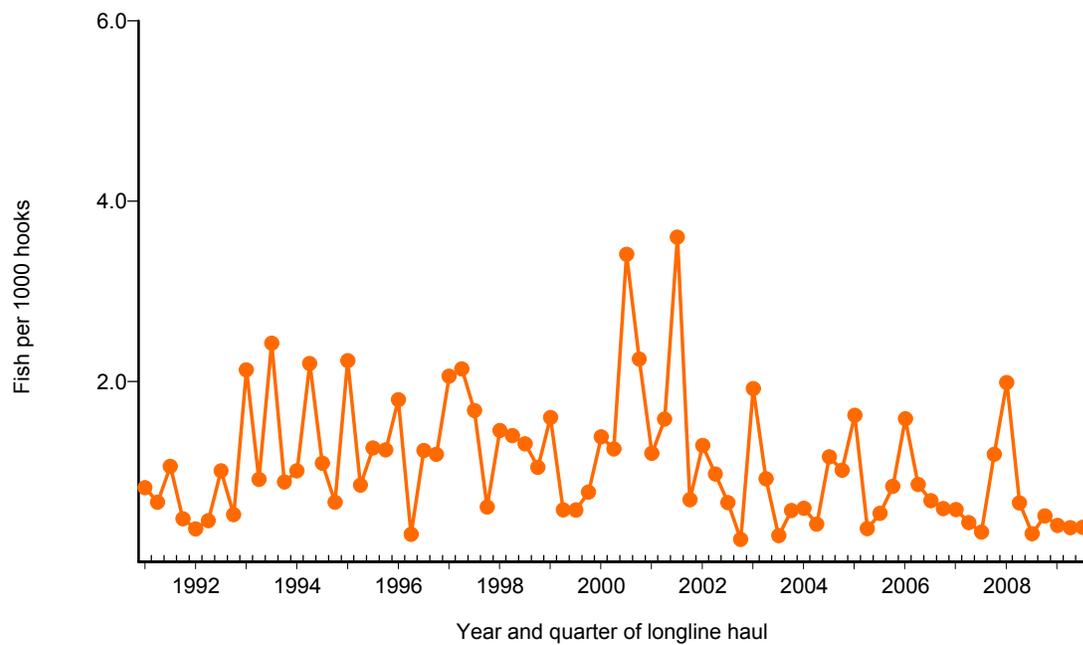


Figure 9. Quarterly CPUE of yellowfin tuna (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:17:43PM]

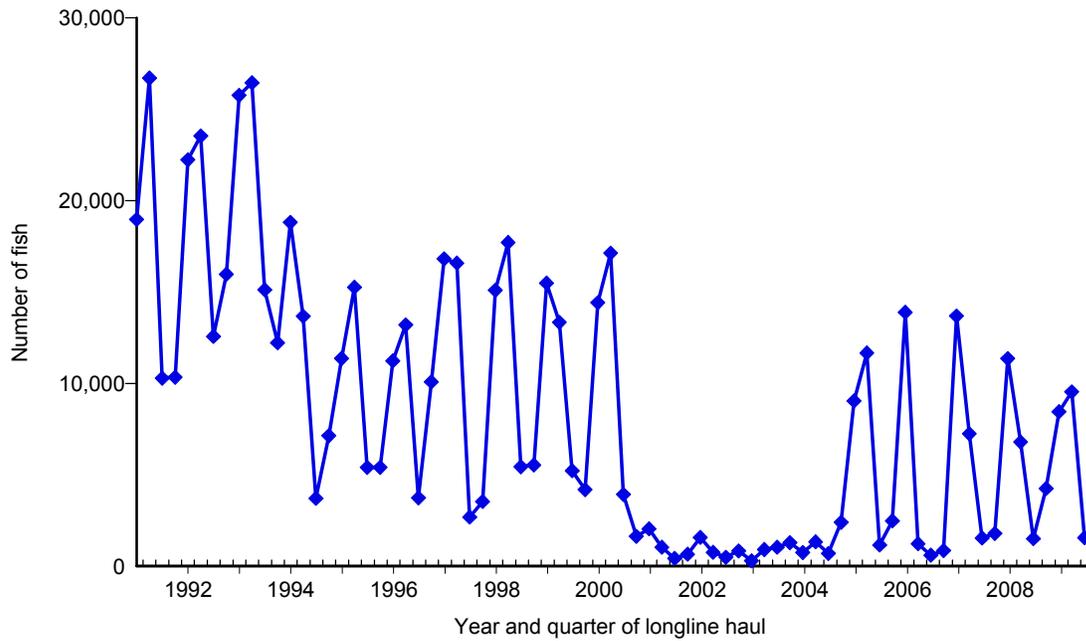


Figure 10. Quarterly catch of swordfish by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:18:05PM]

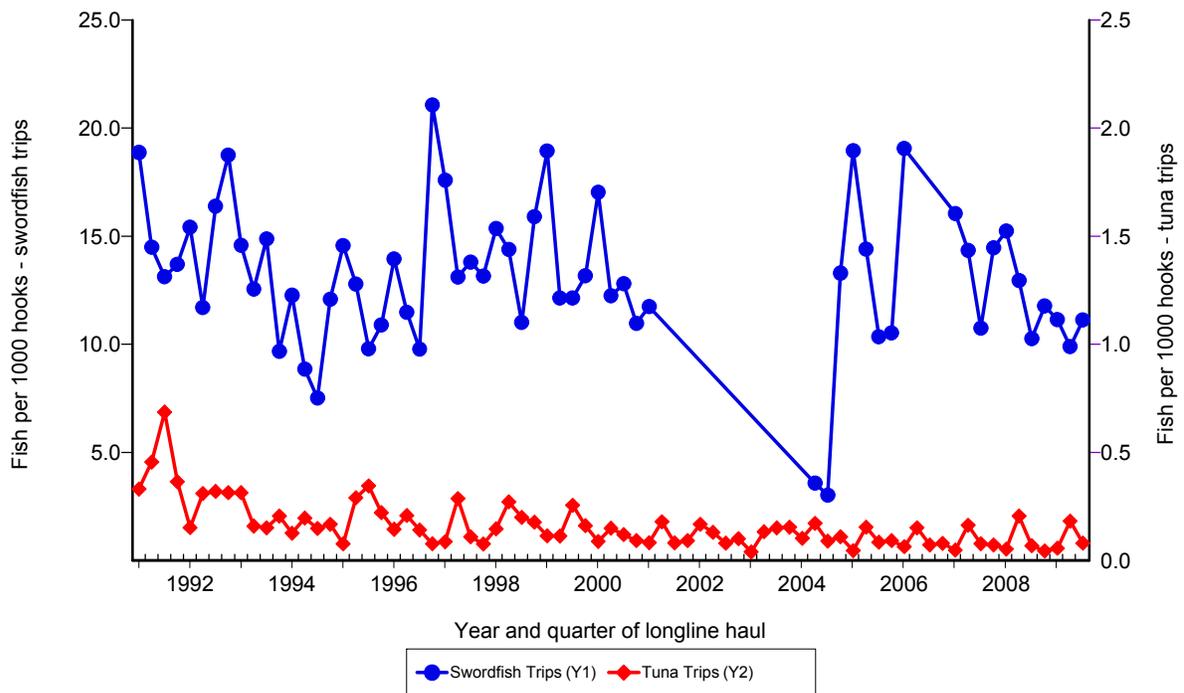


Figure 11. Quarterly CPUE of swordfish (fish per 1000 hooks) on swordfish trips and tuna trips by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:18:05PM]

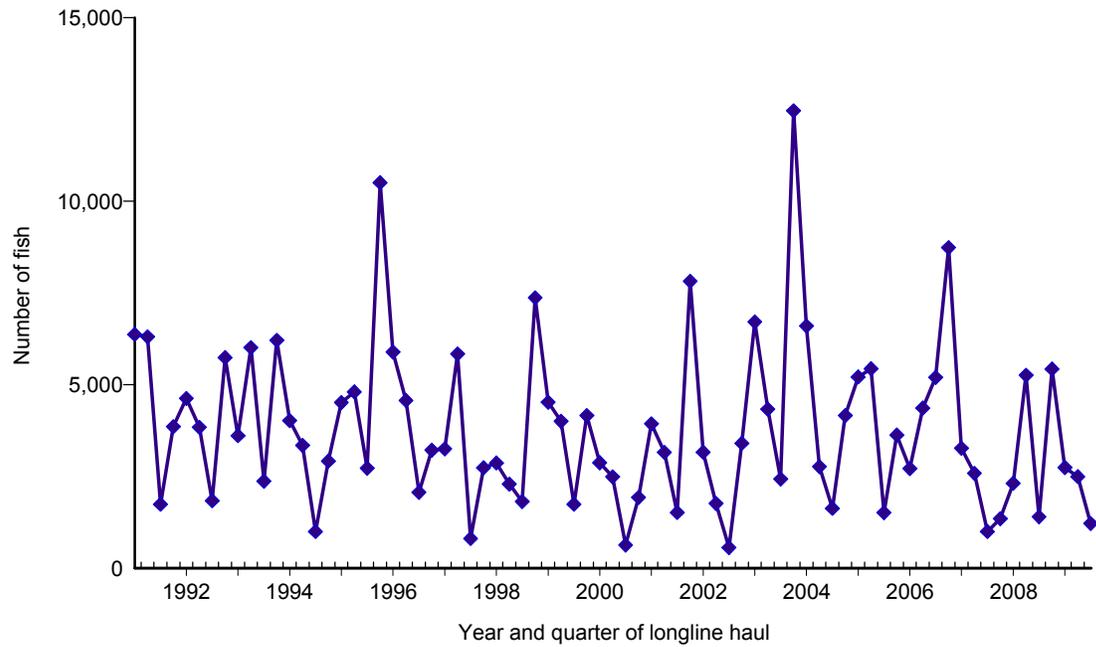


Figure 12. Quarterly catch of striped marlin by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:18:27PM]

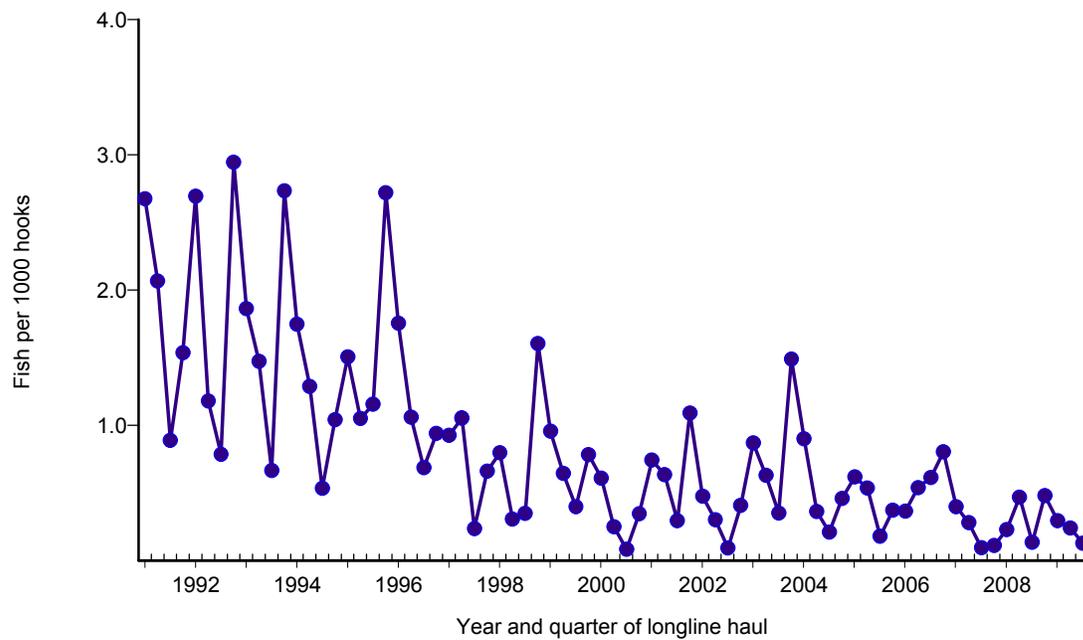


Figure 13. Quarterly CPUE of striped marlin (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:18:27PM]

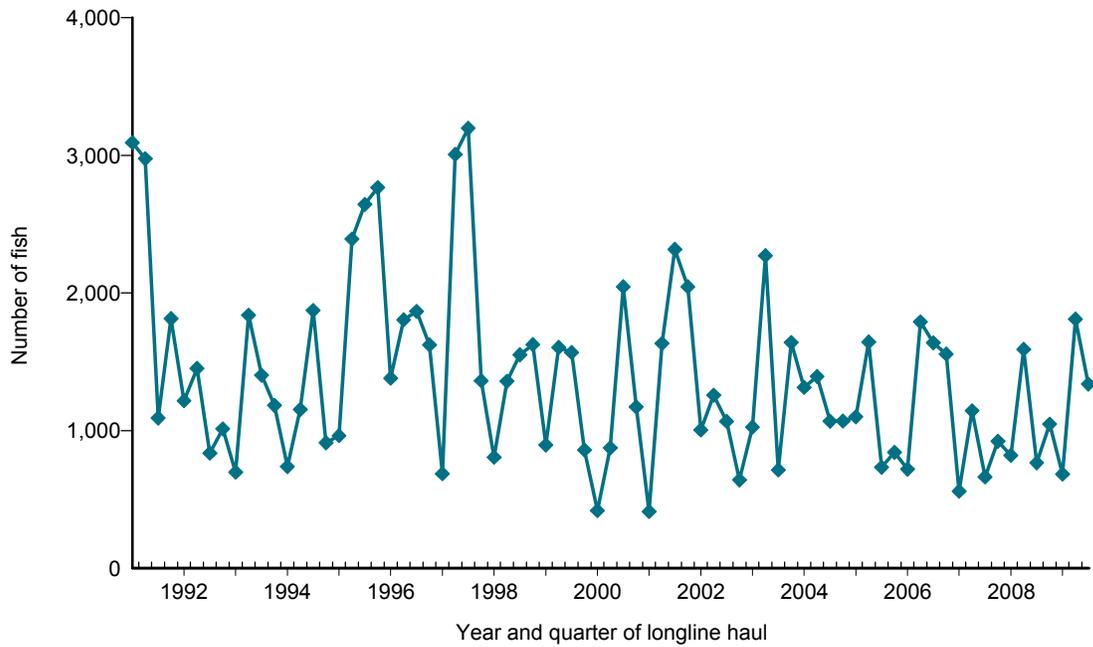


Figure 14. Quarterly catch of blue marlin by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:18:49PM]

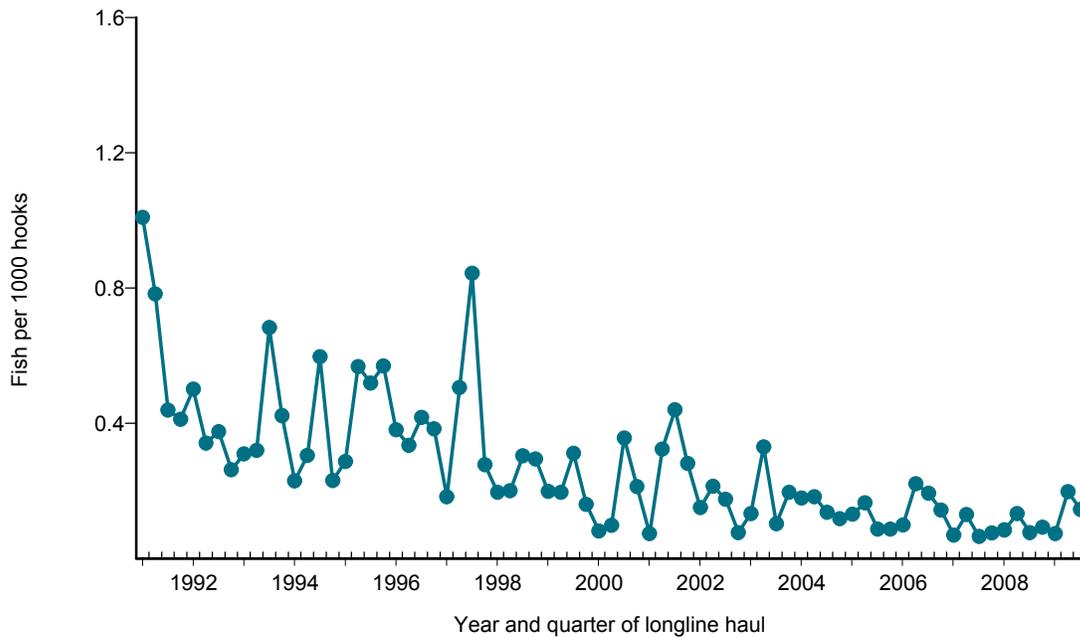


Figure 15. Quarterly CPUE of blue marlin (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:18:49PM]

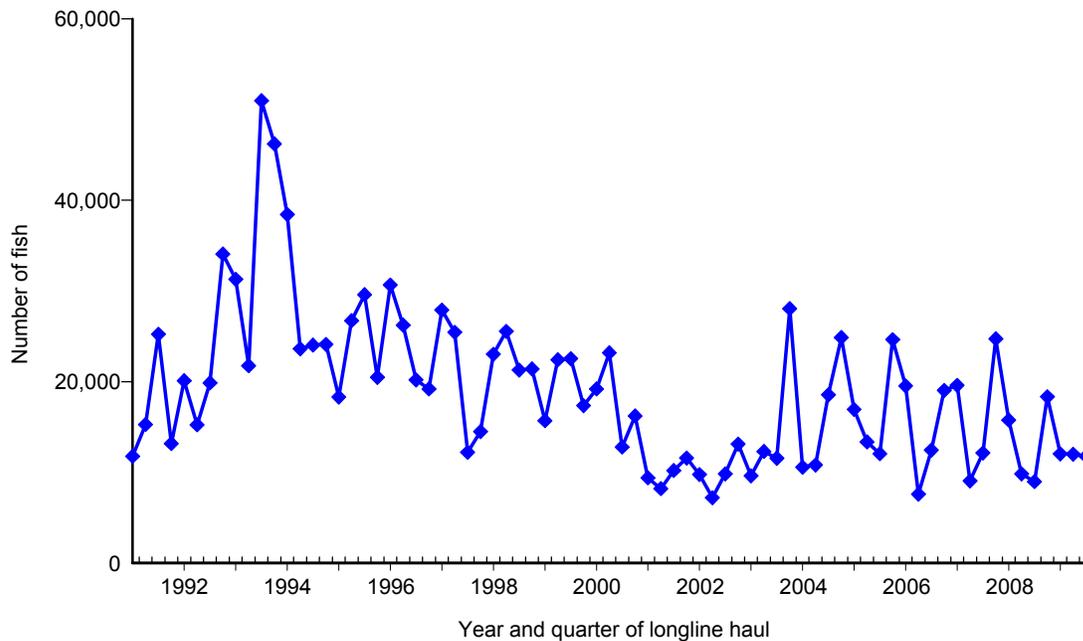


Figure 16. Quarterly catch of blue shark by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:19:11PM]

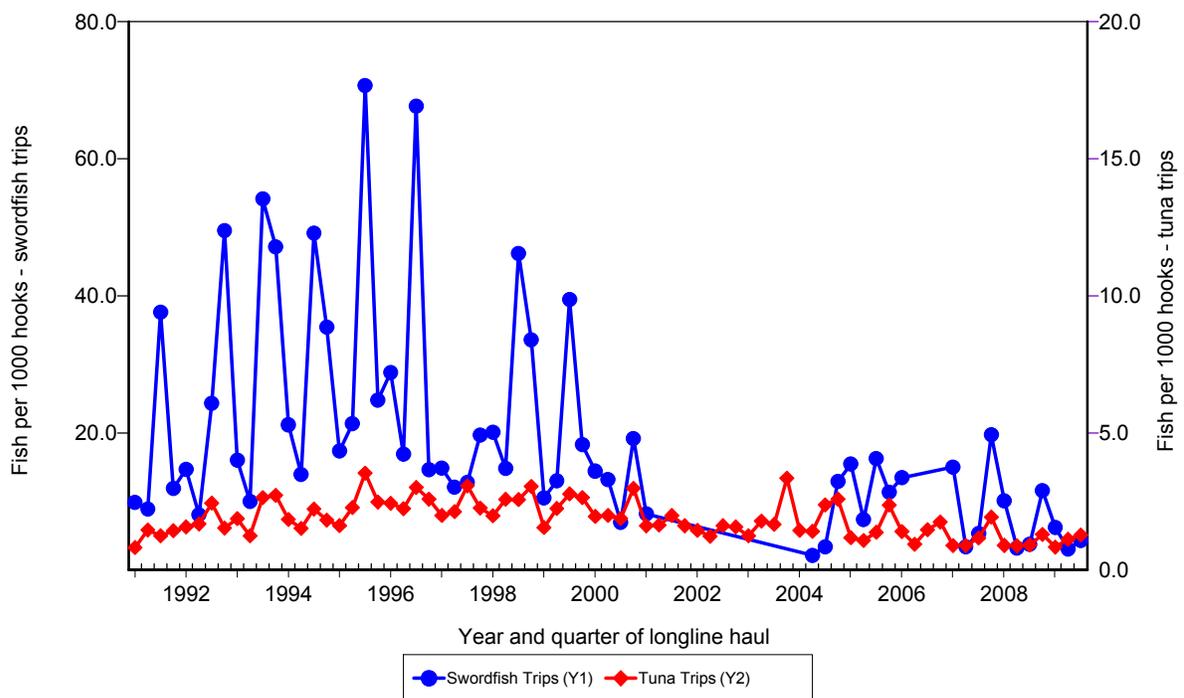


Figure 17. Quarterly CPUE of blue shark (fish per 1000 hooks) on swordfish trips and tuna trips by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:19:11PM]

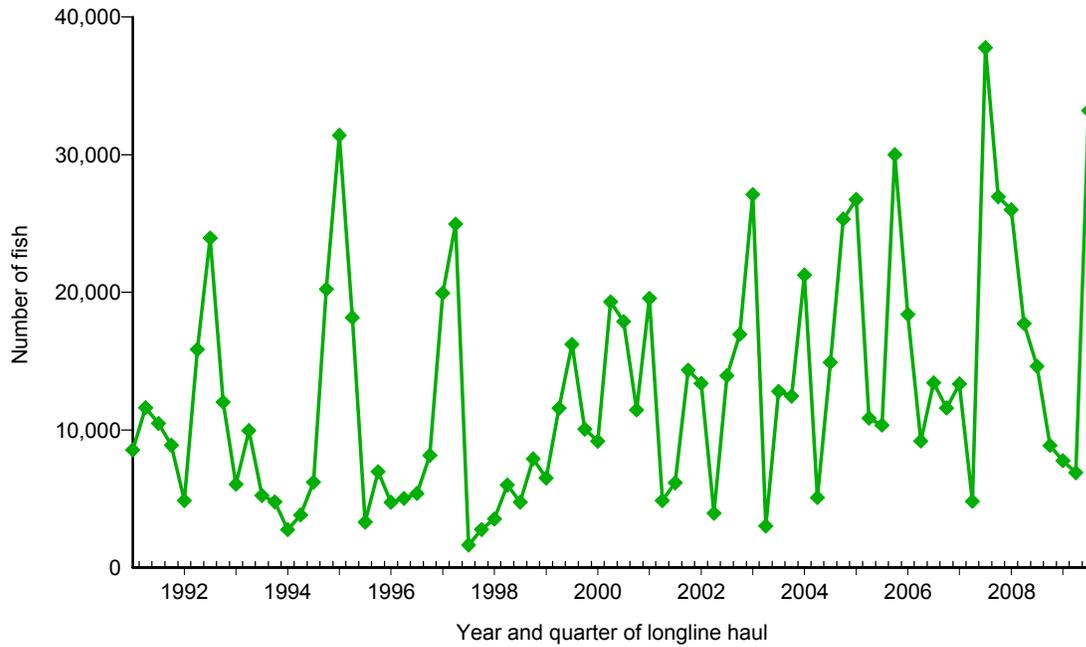


Figure 18. Quarterly catch of mahimahi by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:19:34PM]

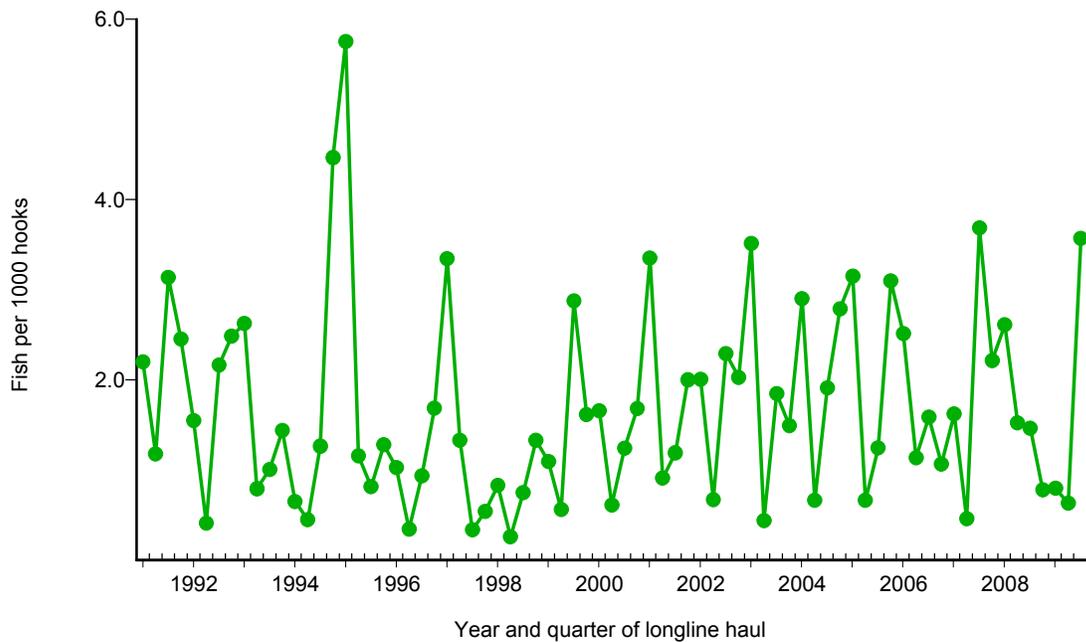


Figure 19. Quarterly CPUE of mahimahi (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:19:34PM]

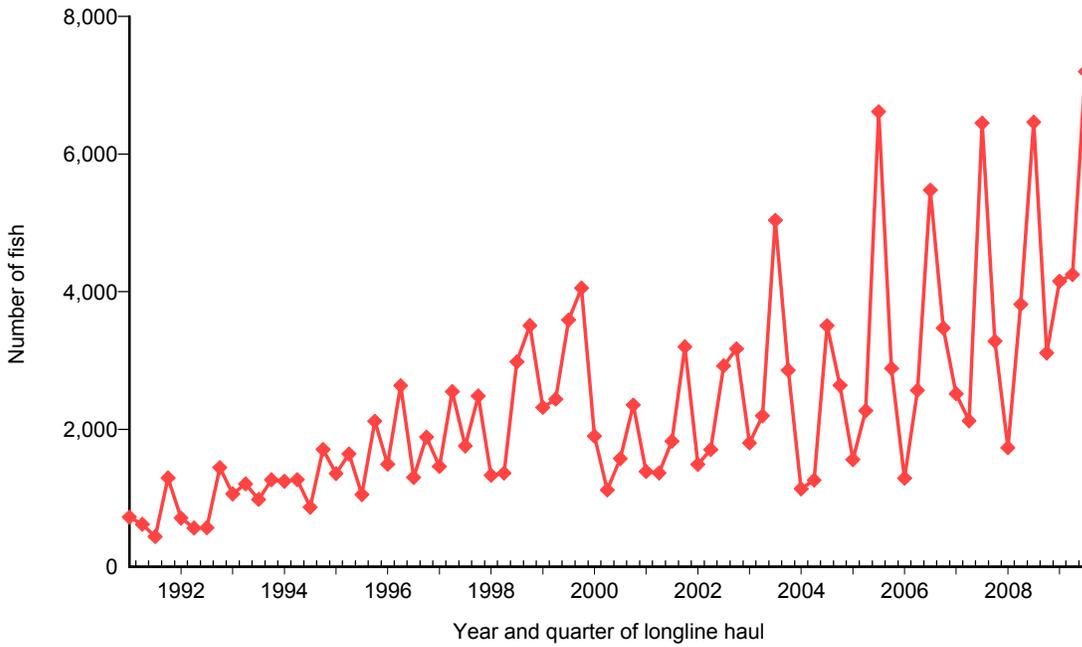


Figure 20. Quarterly catch of moonfish by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:19:56PM]

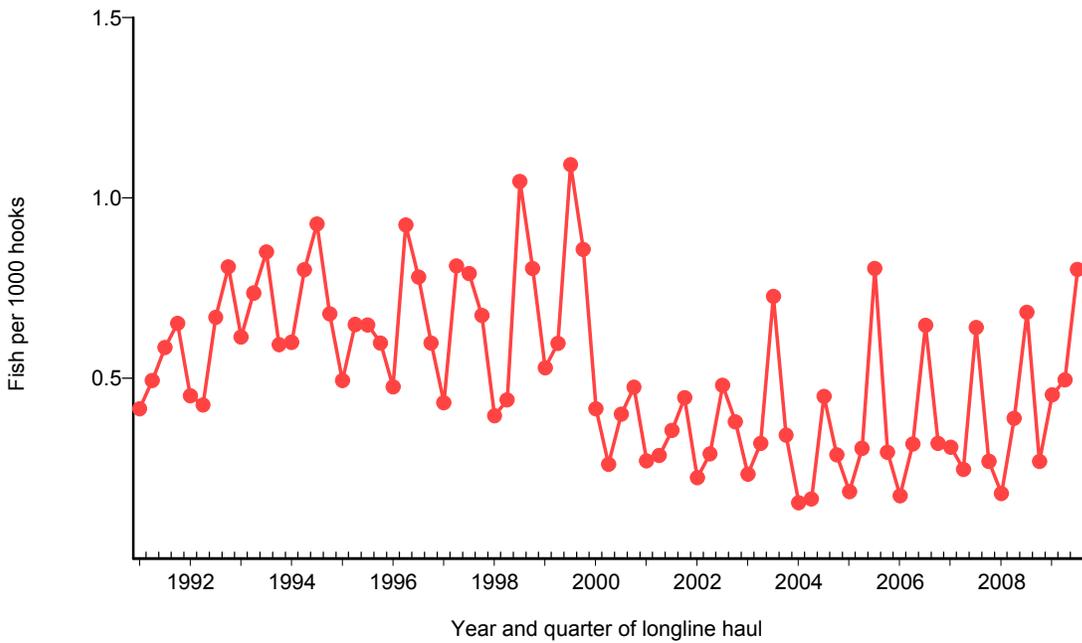


Figure 21. Quarterly CPUE of moonfish (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:19:56PM]

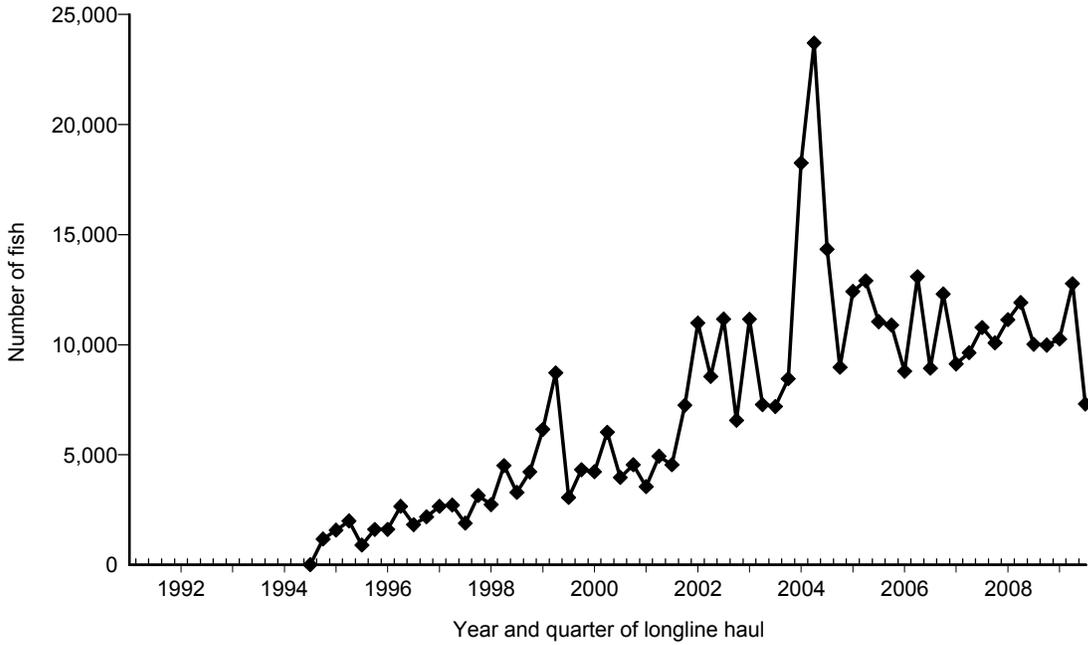


Figure 22. Quarterly catch of pomfret by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:20:18PM]

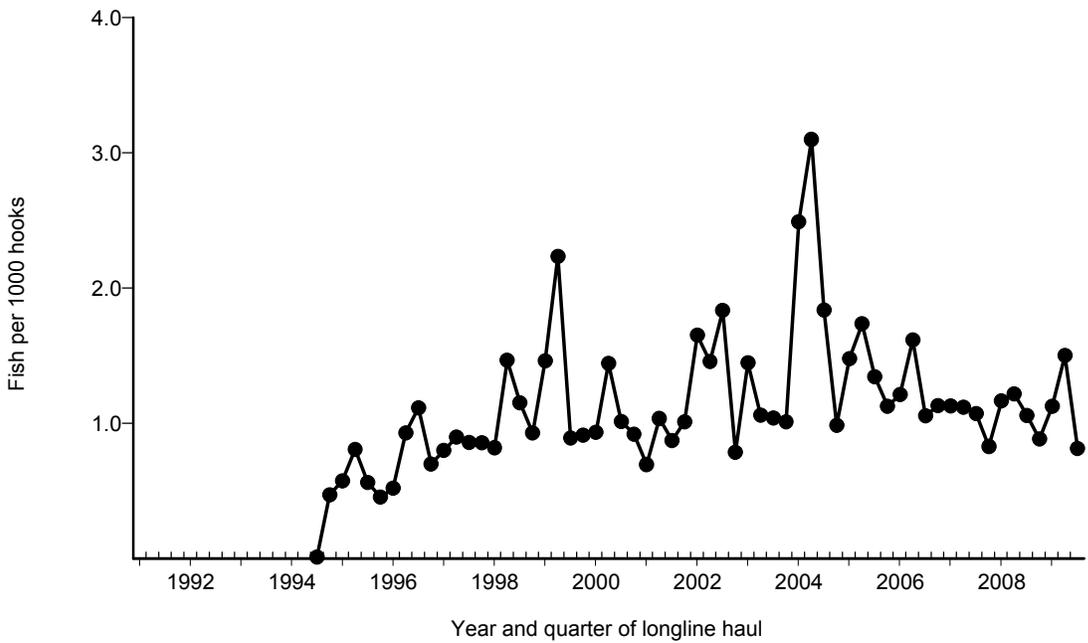


Figure 23. Quarterly CPUE of pomfret (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:20:18PM]

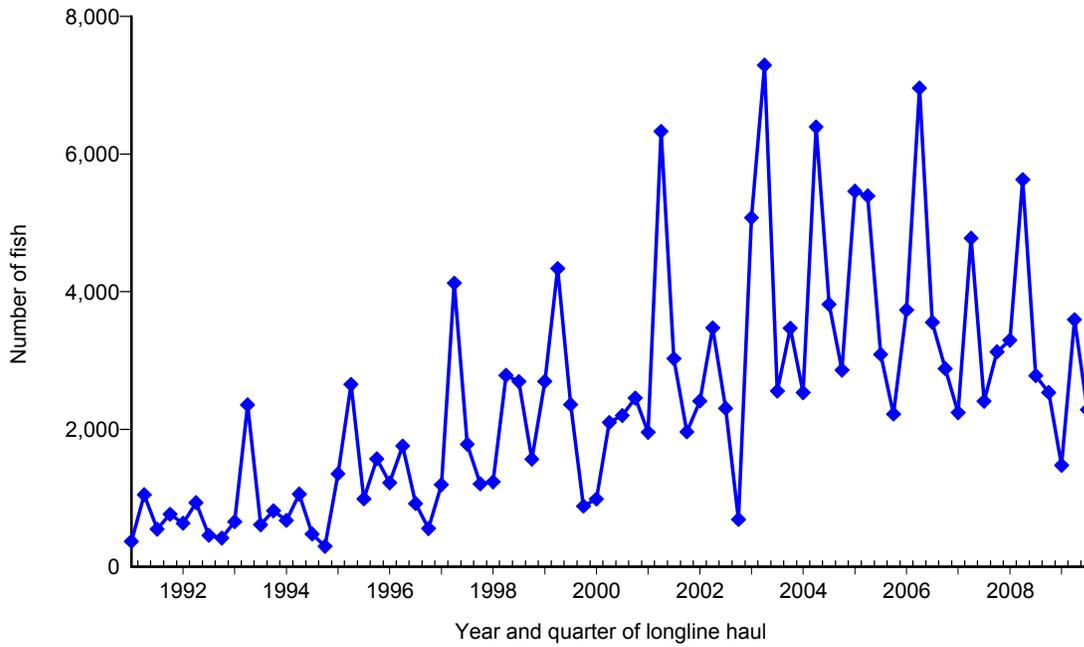


Figure 24. Quarterly catch of wahoo by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:20:42PM]

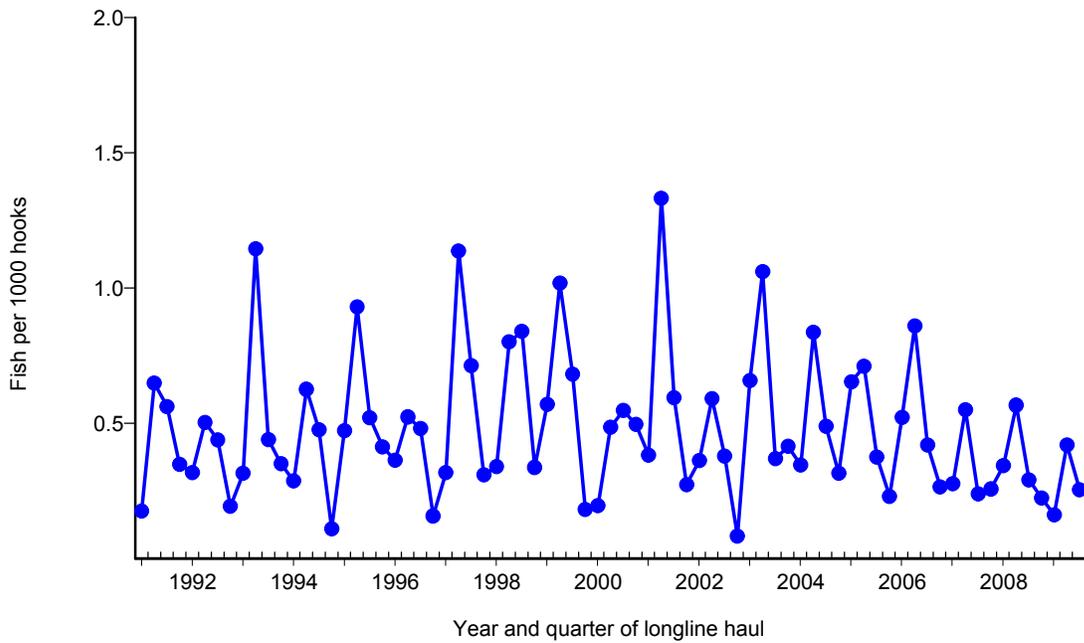


Figure 25. Quarterly CPUE of wahoo (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2009. [PIFSC IMS, Longline Logbook Data, 12/8/2009 2:20:42PM]