

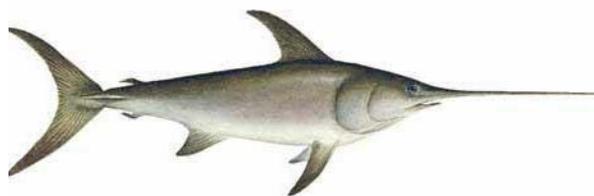


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## **INTRODUCTION**

The United States is a major harvesting and consuming nation for swordfish (*Xiphias gladius*). U.S. fisheries in the Atlantic Ocean, Gulf of Mexico, and Pacific Ocean harvested 2,762 metric tons (mt) in 2006 (NMFS, Fisheries Statistics and Economics Division, 2007). Of this total, 1,692 mt (61%) were taken by the U.S. fisheries for swordfish in the North Pacific Ocean. This report summarizes historical trends and recent developments for these fisheries.

### **1. FISHERIES AND CATCHES**

U.S. swordfish fisheries of the North Pacific Ocean can be categorized according to gear types (harpoon and drift gill net, and longline). Harpoon fishing for swordfish in California is the oldest of the three, dating back to the early 1900's (Coan et al., 1998). This fishery primarily supplied the local market for swordfish until the late 1970s. Harpoon landings reached a record high in 1978, subsided to a more typical level the following year, and remained at relatively low levels thereafter (Fig. 1). The California drift gill net fishery began in 1980 but expanded rapidly enough to become the largest U.S. swordfish fishery in the North Pacific Ocean after only one year. These landings rose to a peak in 1985, but then began to decrease, although 1992 and 1993 yielded relatively high landings. Swordfish-directed longlining in Hawaii began in 1988 and grew rapidly to a peak in 1993. This longline fishery was, by far, the largest U.S. swordfish fishery in the North Pacific Ocean from 1990 through 2000. Many of the Hawaii-based vessels then migrated to California and made it the largest U.S. fishery for swordfish during 2001-2004. Almost all of these vessels moved back to Hawaii in 2004 and 2005.

#### **California Harpoon Fishery**

The California harpoon fishery started in the early 1900s with landings recorded since 1918. The number of harpoon vessels peaked at 220 in 1978 (Fig. 2). Participation dropped

below 200 vessels in the early 1980s and continued to decline throughout the 1990's. There were 28 active vessels in 2007, up from only 23 vessels in 2006.

The fishing area typically ranges from San Diego to San Francisco but sometimes extends as far north as Oregon (Coan et al.,1998). Most fishing effort occurs within 200 miles of shore. The fishery usually begins in April or May in waters off San Diego, peaks in July or August, and ends in December in waters off San Francisco.

Harpoon landings of swordfish have varied by more than two orders of magnitude ranging from 16 mt in 1991 to 1,699 mt in 1978. The preliminary estimate of swordfish landings in 2007 was 58 mt (Table 1).

Harpoon catch-per-unit-effort (CPUE) is calculated from logbook data and measured as number of fish per day. One important factor in the harpoon fishery is the use (or lack thereof) of spotter aircraft. Swordfish CPUE for vessels using spotter aircraft was about twice that of vessels that did not. Aircraft were not used from 1978 through 1983 (Coan et al., 1998). The trends for swordfish CPUE using spotter aircraft and no aircraft assistance were similar with the aircraft assisted CPUE higher. The most recent data on harpoon swordfish CPUE are for 2005. Harpoon swordfish CPUE for vessels with and without aircraft assistance were 1.2 and 0.5, respectively.

### **California Drift Gill Net Fishery**

The California drift gill net fishery began in the late 1970s. Swordfish, common thresher shark (*Alopias vulpinus*) and shortfin mako shark (*Isurus oxyrinchus*) are targeted species (Hanan et al., 1993). Swordfish catch by this fishery was initially low, but increased in the early 1980s when regulations were changed to allow for greater landings of swordfish. The number of active drift gill net vessels peaked at 220 during 1985-1986 (the season extends from April of one year to March of the following year), decreased to a record low of 34 vessels during 2003-2004, and increased to 42 vessels in 2006-2007 (Fig. 4). However, participation was far below the 150 permitted vessels allowed by the California Department of Fish and Game (CDFG).

Drift gill net fishing effort is concentrated in the Southern California Bight (waters off Point Conception down to Mexico), but can extend past San Francisco to Oregon. Most of the fishing effort occurs within 200 miles of shore. The drift gill net fishery begins in May and lasts about 10 months with peak swordfish catches in October and November.

Swordfish landings by the drift gill net fishery grew from 160 mt in 1980 to a peak of 2,368 mt in 1985 and declined thereafter. Swordfish landings by the drift gill net fishery in 2007 were 484 mt (Table 1).

Drift gill net CPUE is measured as number of fish per set. Drift gill net CPUE rose from 0.6 swordfish per set in 1981-1982 to 2.7 swordfish per set in 1984-1985 (Fig. 5). This level was

reached again in the 1992-1993 season. Drift gill net CPUE declined after the 1992-1993 season to 1.1 fish per set in 2003-2004 and increased to 1.8 in 2005-2006.

### **Hawaii-based Longline Fishery**

The Hawaii-based longline fishery for swordfish, which was heavily regulated or prohibited during 1999-2004 due to sea turtle interactions, reopened in April 2004 under new regulations promulgated by NOAA Fisheries. These new regulations implemented to minimize interactions between longline gear and sea turtles included a limit of 2,120 shallow sets per year, use of transferable shallow-set certificates (one certificate per set) by eligible Hawaii longline limited access permit holders, a requirement to notify NOAA Fisheries of an intent to deploy shallow sets before any such trips, and a requirement that vessel operators make sets only of the type declared (i.e., shallow-sets or deep-sets) throughout the trip. They established annual limits on the numbers of interactions between longline gear and leatherback (*Dermochelys coriacea*) and loggerhead (*Caretta caretta*) sea turtles with mandatory fishery closures when either limit is reached. They also established specific rules regarding hook types, bait types, and setting and hauling operations and required vessels to carry turtle de-hooking devices.

Longline fishing for large tunas in Hawaii began in the early 1900s (Otsu 1954). The fishing vessel *Magic Dragon* introduced swordfish longline techniques from Florida to Hawaii in 1988 (Ito et al., 1998). This segment of Hawaii's longline fishery eventually grew and established Hawaii as a major producer of swordfish. The number of Hawaii-based longline vessels increased rapidly from 37 vessels in 1987 to 141 vessels in 1991 as U.S. longliners from the Gulf of Mexico and the Atlantic swordfish fisheries joined the Hawaii-based longline fishery (Fig. 6). A federal moratorium was implemented in 1991 to limit the number of longline permits at 167 in light of this rapid expansion. Vessel participation never reached the limit. The moratorium on permits was replaced with a limited entry program in 1994 which capped participation in Hawaii's longline fishery at 164 vessels. Vessel activity ranged from 100 to 125 vessels up through 2005, with 129 active longline vessels in 2007. Although the shallow-set longline fishery for swordfish in Hawaii was reopened in March 2004, 2005 was the first complete year this fishery operated under the new guidelines. Twenty-nine Hawaii-based longline vessels set their gear shallow to target swordfish in 2007, down from 35 vessels in 2006.

The Hawaii-based longline fishery ranged from the equator to 40° N latitude and from 140° to 180° longitude in 2007. The total range since 1991 extended from the equator to 50° N latitude and from 130° W to 175° E longitude. Effort by the Hawaii-based longline fishery has been on an increasing trend with a record 40.2 million hooks set in 2007. Most of the Hawaii-based longline effort was on the high seas (59%) and in the Main Hawaiian Islands (MHI) Exclusive Economic Zone (EEZ) (29%). The shallow-set longline fishery typically operates in latitudes north of the Hawaiian Islands on the high seas (Figure 7). Shallow-set longline effort for swordfish was typically highest during the first half of the year.

Swordfish landing statistics for the California-based longline fishery during 2005-2007 could not be divulged because there was only one vessel active. Therefore, Hawaii- and California -based longline swordfish landings in the North Pacific Ocean were combined (Table 1). The preliminary estimate of 2007 U.S. longline landings for swordfish in the North Pacific Ocean was 1,444 mt, up 23% from the previous year. Swordfish landings increased in 2007 because the fishery was able to operate throughout the entire year. In 2006, the fleet reached the allowable number of sea turtle interactions in March and was closed for the remainder of the year.

Swordfish CPUE (number of fish per 1,000 hooks) varies substantially according to targeting practice (Fig. 8). Swordfish CPUE for trips that specifically targeted swordfish ranged from 10.3 fish in 1994 to 15.4 fish in 1991 and 1997. Swordfish CPUE was 11.7 in 2001, the last year in which swordfish trips were conducted under the conditions of the pre-litigation period. There was a low level of swordfish-directed effort in the fourth quarter of 2004 and CPUE on those trips was 12.7. The first complete year which the Hawaii-based longline fishery operated under the new set of regulations was 2005; vessel operators reported a CPUE of 15.4 on swordfish-targeted trips during that year. Swordfish CPUE reached a record 19.1 in 2006 then declined to 15.2 in 2007. Swordfish-targeted trips usually had their highest CPUE during the first and second quarters and lowest CPUE in the third. Tuna-targeted trips had negligible swordfish CPUE relative to swordfish trips at 0.1 in 2007.

The weight frequency histogram for longline caught swordfish showed a unimodal distribution with the dominant mode in the 15-60 kg increment. The mean weight for swordfish was 79.1 kg in 2007 (Figure 9).

### **California-based Longline Fishery**

The California-based longline fishery began in 1991 when three vessels based in San Pedro fished waters outside the U.S. EEZ (Vojkovich and Barsky, 1998). The longline fleet increased more than 10-fold from 3 in 1991 to 31 vessels in 1994. Participation in the California-based longline fishery peaked at 44 vessels in 2000 but has since decreased to only a single vessel during 2005-2007 (Fig. 10). The California-based longline fleet consisted primarily of vessels that had targeted swordfish in Hawaii, but migrated to California in reaction to the turtle interaction lawsuit in 2000. Almost all of those vessels returned to Hawaii in 2004 when the shallow set longline fishery in California was closed and longline vessel operators were only allowed to set their gear deep.

California does not allow pelagic longline fishing within the EEZ; therefore, the California-based longline fishery operated exclusively on the high seas. When this fishery first began, effort typically peaked late in the year and the fleet began fishing closer to Hawaii. Shallow-set longline fishing targeting swordfish out of California was prohibited from 2004.

Swordfish landings by the California-based longline fishery increased from negligible levels in the early 1980s to a peak in 2000. The California-based longline fishery was the largest U.S. swordfish fishery in the North Pacific Ocean from 2001 to 2004. The single California-based longline vessel employed deep-set tuna target gear and had only small incidental catches of swordfish during the past three years.

California-based longline CPUE (number of fish per 1000 hooks) for swordfish varied from 6.3 in 1995 to 25.3 in 2004 (Fig. 11), the most recent year for which swordfish CPUE data are available.

## **2. DATA SOURCES**

### **Hawaii**

There are six types of data sets on swordfish in Hawaii: Federal daily longline logbooks; market data; State of Hawaii commercial fishermen catch reports; reports by at-sea observers deployed by the NMFS, NOAA ship *Oscar Elton Sette* research cruises; and voluntary tag and release data from fishermen (Tables 2 and 3). Cross-referencing certain data sets allows NMFS scientists to evaluate the accuracy of the data. Each of the six types of data sets contains unique information, but in the aggregate these data sets provide considerable insight into the performance of the fishery, the biology and ecology of swordfish, and those other pelagic species caught incidentally.

Federal longline logbooks have been mandatory for Hawaii-based longline vessels since November 1990. The Federal longline logbook data provide the most detailed information among the various data sets for the Hawaii-based longline fishery. Logbooks must be maintained by vessel operators and submitted after each trip. Data recorded in the logbooks include: vessel, date, fishing location, effort and gear configuration, catches by species, and interactions with protected species.

From 1987-2000, market data on longline landings were collected at the Honolulu fish auction by the NMFS. Weights were obtained from 25%- 90% of fish landed by the Hawaii-based longline fishery. Individual fish weights were recorded to the nearest half pound. Weights were raised to an estimated whole weight when processing or damage was observed. Sex of fish was not available as most swordfish were landed in processed form (headed, finned, and gutted). The responsibility for collecting market data was transferred to the State of Hawaii, Division Aquatic Resources (DAR) in 2002. Coverage of the DAR market data is estimated to be in excess of 90%.

The DAR commercial fish catch data have been collected from 1948 to the present. The HDAR requires longline fishermen to submit longline trip reports listing the pelagic species caught. The HDAR longline data include number caught, pounds caught, pounds sold and total value for each species.

Data collection by at-sea observers was initiated in 1990 when Hawaii-based longline vessels volunteered to take observers aboard to investigate longline fishery interactions with Hawaiian monk seals (*Monachus schauinslandi*) (Dollar, 1991). A mandatory observer program began in February 1994 (Dollar, 1994) using statistical guidelines to improve the estimates of incidental takes of sea turtles (Dinardo, 1993). Observers covered about 5% of the total longline trips from 1994-1999. Observer coverage was then increased in response to new regulations and has remained at or above 20% for the deep-set tuna sector of the Hawaii-based longline fishery from the latter part of 2000 through 2006. Beginning in 2004, observer coverage on shallow-set trips targeting swordfish was 100%. The observer data are similar to logbooks, although more detailed. The primary purpose for the data collected by the observer program is to assess the fleet-wide impact of longlining on protected and endangered species but the data are also used in stock assessments models.

The NOAA research vessel *Townsend Cromwell* began a series of research cruises devoted to collecting detailed data on swordfish biology and ecology in 1991. The cruises deployed standard monofilament longline gear to catch swordfish. Hook timers and time-depth recorders (TDRs) were used to collect information on fishing depth of the gear and on swordfish behavior. Observations on condition of the catch and biological measurements were recorded. Biological samples such as muscle tissue, gonads, stomachs, otoliths, and anal fin rays were also collected. Some live swordfish specimens were tagged and released. Oceanographic conditions were monitored with expendable bathythermographs (XBTs), conductivity-temperature depth (CTD) casts, thermosalinograph (TSG), and acoustic Doppler current profile (ADCP) transects (Boggs, pers. commun.). The *Townsend Cromwell* was decommissioned in 2002 and replaced with the research vessel *Oscar Elton Sette*.

Swordfish tagging is conducted with the voluntary participation of longline fishermen and on research cruises. Tag, release, and recapture information such as names of fishermen, gear type, tagging and recovery location, and size estimates of fish are collected (Kazama, pers. commun.).

## California

There are four types of data on the California-based longline fishery: CDFG landing receipts; CDFG and Federal daily longline logbooks; dockside sampling of swordfish landings collected by the CDFG; and data collected at sea by NMFS observers. Landing receipts have been collected by the CDFG since the start of the fishery in 1991 (Table 2). Daily longline logbook data were first collected by the CDFG on a voluntary basis from 1993 to 1994. Collecting and submitting CDFG longline logbook data (Pacific Offshore) became mandatory in 1995. This system was replaced in 1999 by a NMFS longline logbook data reporting system in response to Federal requirements under the High Seas Fisheries Compliance Act. Data recorded in the logbooks include: vessel, date, fishing location, effort and gear configuration, numbers of fish caught by species, and number of interactions with protected species. Collection of size

samples from longline-caught swordfish began in 1991 in conjunction with drift gill net swordfish sampling (Childers and Halko, 1994) but was discontinued in 2000. NMFS began placing observers on longline vessels from 2001 to investigate interactions with sea turtles and collect detailed catch and effort data. Some size data are also collected by observers.

The California drift gill net fishery is monitored by use of CDFG landing receipts, vessel logbooks, size sampling, and a CDFG and NMFS observer program. Landing receipts have been collected by the CDFG since the fishery's inception in 1980 (Table 2). Drift gill net fishermen are required to collect logbook data on daily operations and catch. Location is recorded in 10 minute squares. CDFG sampled drift gill net swordfish catch for length at local markets beginning in 1981 (Table 3). An observer program to monitor the drift gill net fishery was initiated and maintained by CDFG from 1980 to 1989 and has continued since 1990 under NMFS. The observer program is used to monitor bycatch, especially of marine mammals. The NMFS observer program also collects size samples of swordfish.

The California harpoon fishery is also monitored through landing receipts, vessel logbook, and size sampling by the CDFG. Landings have been collected since the early 1900s through a landings receipt system (Table 2). A mandatory vessel logbook system for the harpoon fishery started in 1974. These logbooks are completed daily and record catches by location in the CDFG 10-minute square codes. Information on aircraft assistance, water color, sea surface temperature and condition, harpooning success, and areas searched is also included. Size sampling of swordfish landings began in 1981 in conjunction with the drift gill net sampling (Table 3). The sampling program was discontinued in 2000.

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Table 1.--U.S. North Pacific swordfish landings\* (metric tons), 1970-2007.  
Dashes indicate no fishery.

<b>Year</b>	<b>Harpoon</b>	<b>Gill net</b>	<b>Other</b>	<b>Longline</b>	<b>Total U.S. North</b>
1970	612	---	10	5	627
1971	99	---	3	1	103
1972	171	---	4	0	175
1973	399	---	4	0	403
1974	406	---	22	0	428
1975	557	---	13	0	570
1976	42	---	13	0	55
1977	318	---	19	17	354
1978	1,699	---	13	9	1,721
1979	329	---	57	7	393
1980	566	160	62	5	793
1981	267	461	20	4	752
1982	156	911	43	7	1,117
1983	58	1,321	378	6	1,763
1984	96	2,101	678	17	2,892
1985	211	2,368	792	48	3,419
1986	236	1,594	696	6	2,532
1987	211	1,287	300	28	1,826
1988	180	1,092	344	43	1,659
1989	54	1,050	224	310	1,638
1990	50	1,028	137	2,455	3,670
1991	16	836	137	4,547	5,536
1992	74	1,332	44	5,795	7,245
1993	169	1,400	36	6,074	7,679
1994	153	799	8	3,916	4,876
1995	96	755	31	2,992	3,874
1996	81	752	10	2,849	3,692
1997	84	707	3	3,545	4,339
1998	48	924	13	3,685	4,670
1999	81	606	2	4,433	5,122
2000	90	646	9	4,857	5,602
2001	52	375	5	1,983	2,415
2002	90	302	3	1,524	1,919
2003	107	216	0	1,959	2,282
2004	62	169	37	1,111	1,379
2005	76	220	0	1,475	1,771
2006	71	444	2	1,175	1,692
2007	58	484	0	1,444	1,986

\* Based on estimated whole weight.

Table 2.--U.S. North Pacific swordfish catch-effort data catalog.

Year	Country/State	Gear	Data set*	Measurement of catch	Type of effort	Time strata	Geographic resolution
1974	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
1975	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1976	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1977	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1978	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1979	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1980	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1981	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1982	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1983	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1984	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1985	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1986	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1987	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1988	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
1989	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---

Table 2 (continued).--U.S. North Pacific swordfish catch-effort data catalog.

Year	Country/State	Gear	Data Set*	Measurement of catch	Type of effort	Time strata	Geographic resolution
1990	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	OBS(V)	NO. FISH	NO. HOOKS	DAY	1 MIN
1991	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	LB	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	OBS(V)	NO. FISH	NO. HOOKS	DAY	1 MIN
1992	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	LB	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	OBS(V)	NO. FISH	NO. HOOKS	DAY	1 MIN
1993	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	LB	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	OBS(V)	NO. FISH	NO. HOOKS	DAY	1 MIN
1994	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/CA	LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	LB	NO. FISH	NO. HOOKS	DAY	1 MIN
1995	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/CA	LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	LB	NO. FISH	NO. HOOKS	DAY	1 MIN
1996	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/CA	LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	LB	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	RC	NO. FISH	NO. HOOKS	DAY	1 MIN

Table 2 (continued).--U.S. North Pacific swordfish catch-effort data catalog.

Year	Country/State	Gear	Data Set*	Measurement of catch	Type of effort	Time strata	Geographic resolution
1997	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/CA	LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	LB	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	RC	NO. FISH	NO. HOOKS	DAY	1 MIN
1998	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/CA	LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	RC	NO. FISH	NO. HOOKS	DAY	1 MIN
	1999	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY
USA/CA		GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
USA/CA		HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
USA/CA		LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
USA/HI		LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
USA/HI		LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN
USA/HI		LONGLINE	RC	NO. FISH	NO. HOOKS	DAY	1 MIN
2000		USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/CA	LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	RC	NO. FISH	NO. HOOKS	DAY	1 MIN
	2001	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY
USA/CA		GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
USA/CA		HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
USA/CA		LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
USA/HI		LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
USA/HI		LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN
USA/HI		LONGLINE	RC	NO. FISH	NO. HOOKS	DAY	1 MIN
2002		USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/CA	LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	RC	NO. FISH	NO. HOOKS	DAY	1 MIN
	2003	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY
USA/CA		GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
USA/CA		HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
USA/CA		LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
USA/HI		LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
USA/HI		LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN
USA/HI		LONGLINE	RC	NO. FISH	NO. HOOKS	DAY	1 MIN

Table 2 (continued).--U.S. North Pacific swordfish catch-effort data catalog.

Year	Country/State	Gear	Data Set*	Measurement of catch	Type of effort	Time strata	Geographic resolution
2004	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/CA	LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	RC	NO. FISH	NO. HOOKS	DAY	1 MIN
2005	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/CA	LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	RC	NO. FISH	NO. HOOKS	DAY	1 MIN
2006	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/CA	LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	RC	NO. FISH	NO. HOOKS	DAY	1 MIN
2007	USA/CA	GILL NET	LB	NO. FISH	SETS/DAYS	DAY	10 MIN
	USA/CA	GILL NET	OBS(M)	NO. FISH	SETS/DAYS	DAY	1 MIN
	USA/CA	HARPOON	LB	NO. FISH	PURSUIITS/DAY	DAY	10 MIN
	USA/CA	LONGLINE	LB	NO. FISH	SETS/HOOKS	DAY	1 MIN
	USA/HI	LONGLINE	CR	NO.&WT. FISH	DAYS/TRIP	TRIP	---
	USA/HI	LONGLINE	OBS(M)	NO. FISH	NO. HOOKS	DAY	1 MIN

\*CR=STATE CATCH REPORT, LB=LOGBOOK DATA, OBS=OBSERVER DATA (V=VOLUNTARY, M=MANDATORY), RC=RESEARCH CRUISE DATA

Table 3.--U.S. North Pacific swordfish size frequency data catalog.

Year	Country/State	Gear	Data set*	Time strata	Type square	Length	Unit of measurement	Weight	Interval
1981	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
1982	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
1983	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
1984	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
1985	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
1986	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
1987	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
1988	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
1989	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
1990	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	OBS(V)	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
1991	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	RC	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	TAG	DAY FISH	1 MIN	Y	EST	Y	0.5 LB/EST
1992	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	OBS(V)	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	RC	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	TAG	DAY FISH	1 MIN	Y	EST	Y	0.5LB/EST
1993	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	OBS(V)	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	RC	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	TAG	DAY FISH	1 MIN	Y	EST	Y	0.5LB/EST
1994	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	OBS(M)	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	RC	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	TAG	DAY FISH	1 MIN	Y	EST	Y	0.5LB/EST

Table 3 (continued).--U.S. North Pacific swordfish size frequency data catalog.

Year	Country/State	Data gear	Time set*	Type strata	Square	Length	Unit of measurement	Weight	Interval
1995	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	OBS(M)	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	RC	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	TAG	DAY FISH	1 MIN	Y	EST	Y	0.5LB/EST
1996	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	OBS(M)	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	RC	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	TAG	DAY FISH	1 MIN	Y	EST	Y	0.5LB/EST
1997	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	OBS(V)	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	RC	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	TAG	DAY FISH	1 MIN	Y	EST	Y	0.5LB/EST
1998	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	OBS(M)	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	RC	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	TAG	DAY FISH	1 MIN	Y	EST	Y	0.5LB/EST
1999	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
2000	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
2001	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
2002	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
2003	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
2004	USA/CA	GILL NET	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	HARPOON	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	10 MIN	Y	1 MM	Y	1 LB
	USA/CA	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB

Table 3 (continued).--U.S. North Pacific swordfish size frequency data catalog.

Year	Country/State	Data gear	Time set*	Type strata	Square	Length	Unit of measurement	Weight	Interval
2005	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	OBS(M)	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	RC	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
2006	USA/HI	LONGLINE	TAG	DAY FISH	1 MIN	Y	EST	Y	0.5LB/EST
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	OBS(M)	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
	USA/HI	LONGLINE	RC	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB
2007	USA/HI	LONGLINE	TAG	DAY FISH	1 MIN	Y	EST	Y	0.5LB/EST
	USA/HI	LONGLINE	MKT	LAND DATE	---	N	---	Y	0.5 LB
	USA/HI	LONGLINE	OBS(M)	DAY FISH	1 MIN	Y	1 MM	Y	0.5 LB

\*MKT=MARKET DATA, OBS=OBSERVER DATA (V=VOLUNTARY, M=MANDATORY), RC=RESEARCH CRUISE DATA, TAG=TAGGING STUDIES

Figure 1.—Catch by the U.S. swordfish fisheries of the North Pacific Ocean, 1970-2007.

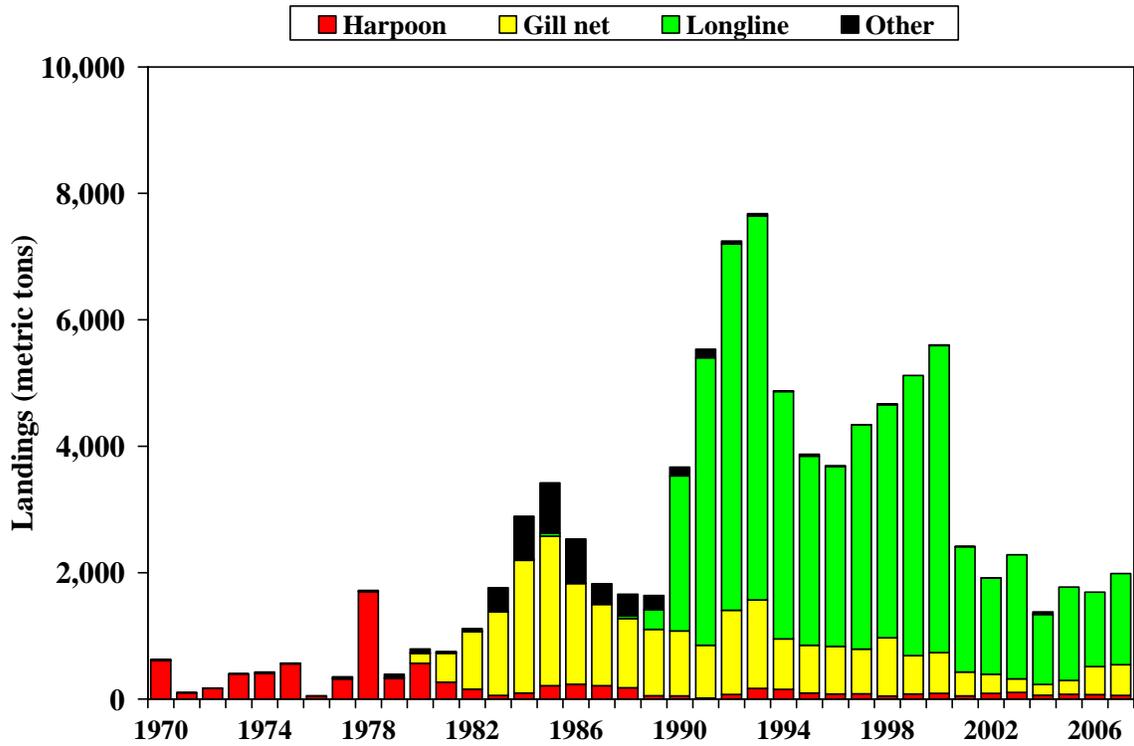


Figure 2.--Number of California harpoon vessels, 1975-2007.

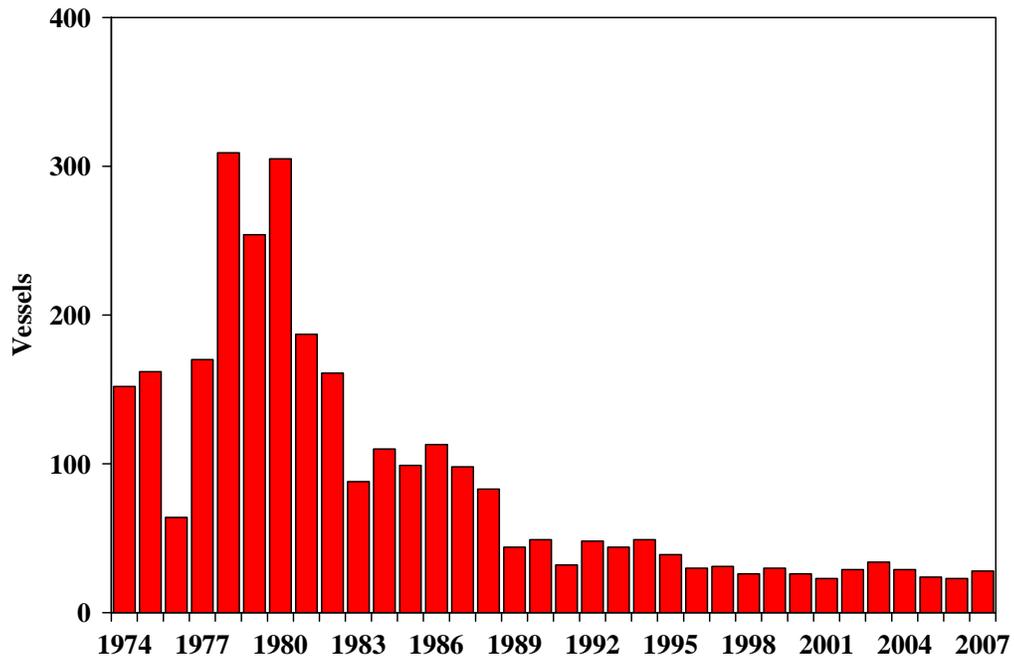


Figure 3.--California harpoon fishery swordfish catch-per-unit-effort (CPUE), 1975-2007

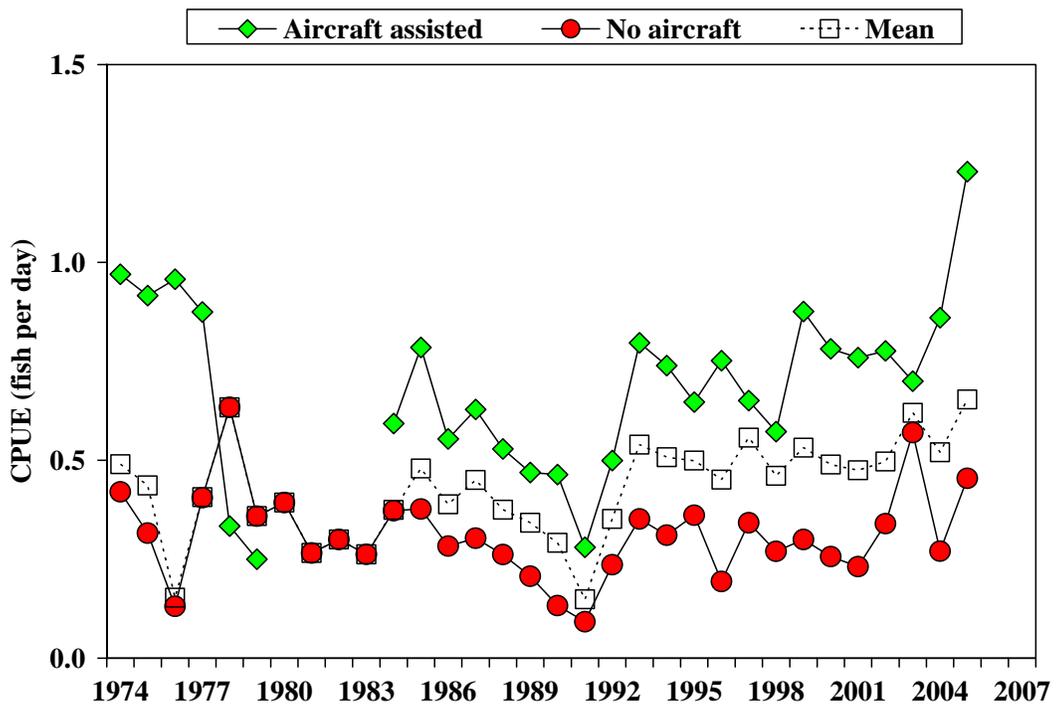


Figure 4.--Number of California drift gill net vessels, 1981-1982 through 2006-2007.

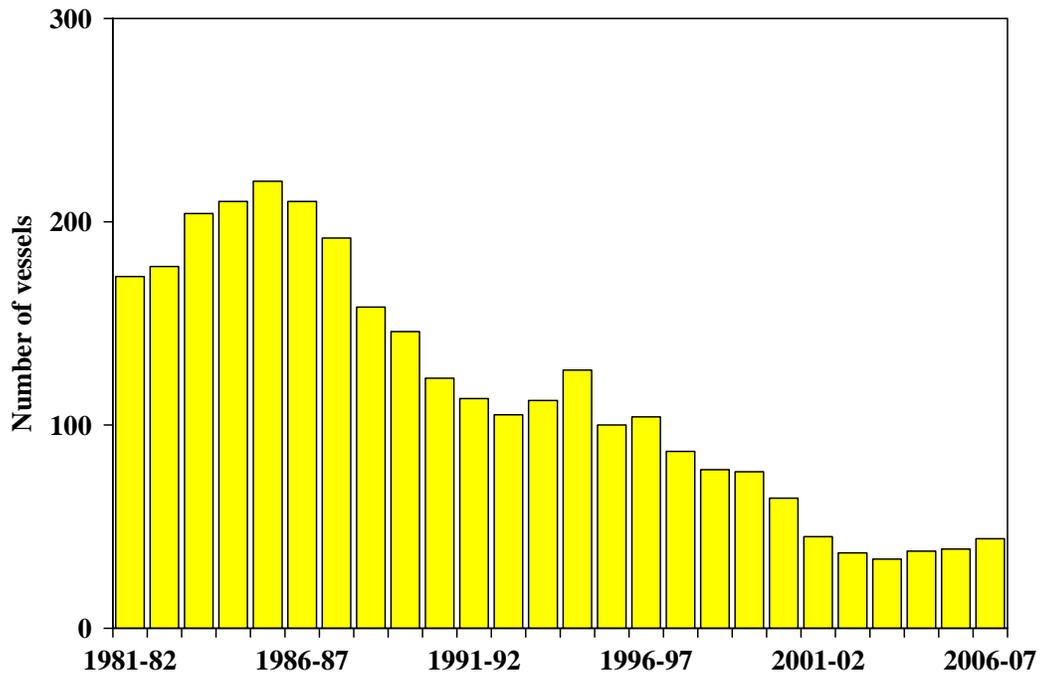


Figure 5.--California drift gill net fishery swordfish catch-per-unit-effort (CPUE), 1981-1982 through 2006-2007.

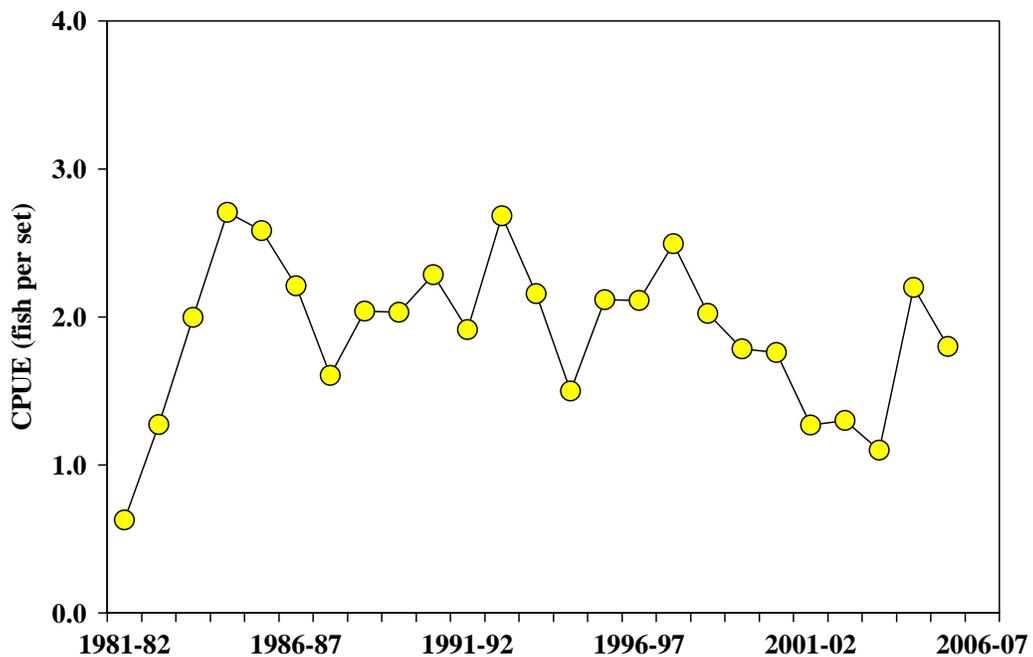


Figure 6.—Number of active Hawaii-based longline vessels and longliners targeting swordfish, 1987-2007.

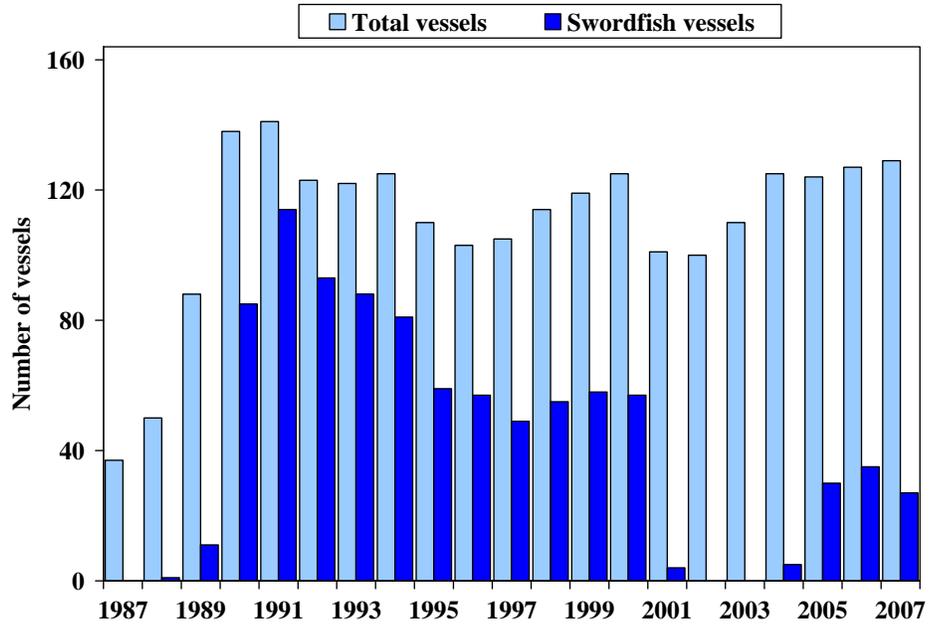


Figure 7.—Hawaii-based longline catch (in numbers) by area, 2007.

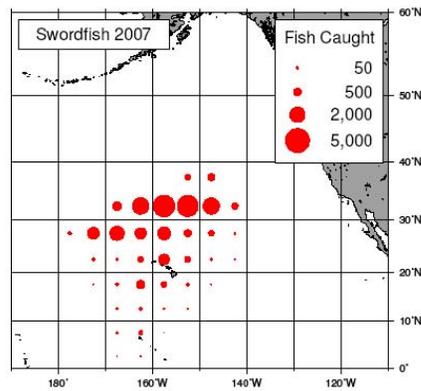


Figure 8.—Hawaii-based longline catch-per-unit-effort (CPUE) for swordfish by trip type, 1991-2007.

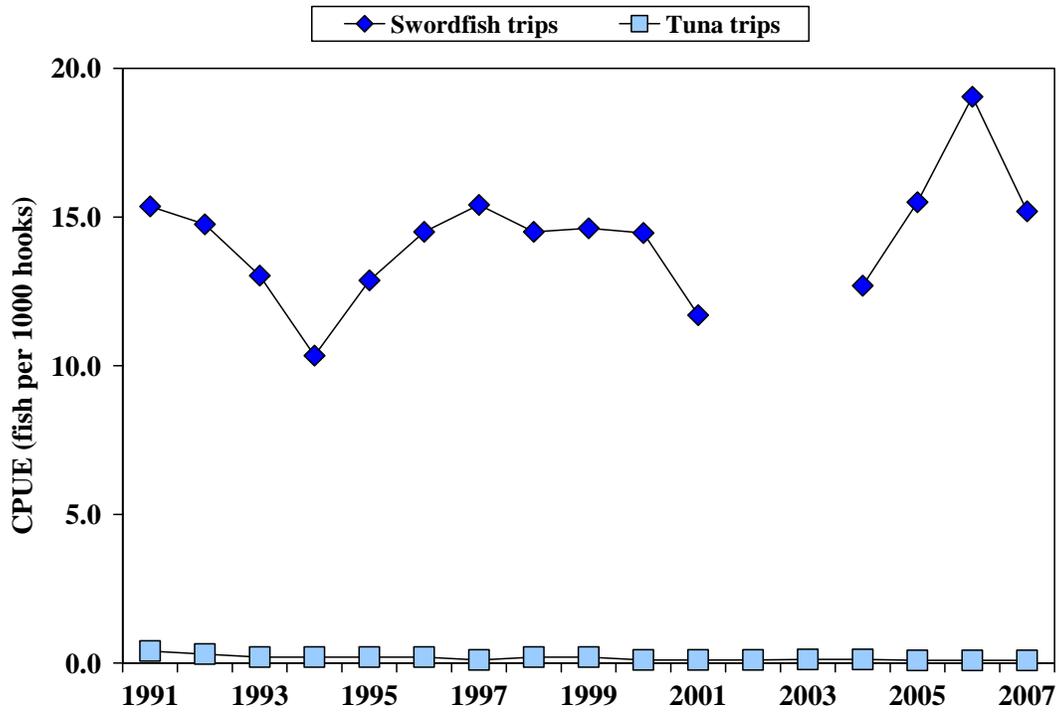


Figure 9.—Hawaii-based longline swordfish weight-frequency, 2007.

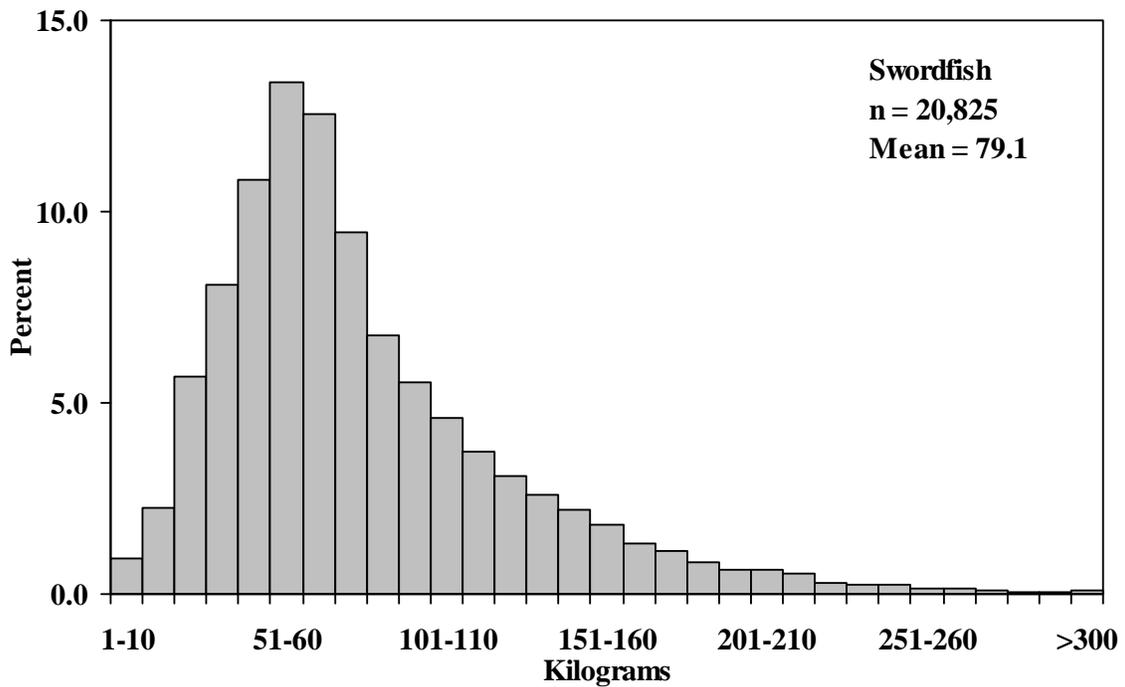


Figure 10.—Number of California longline vessels, 1991-2007.

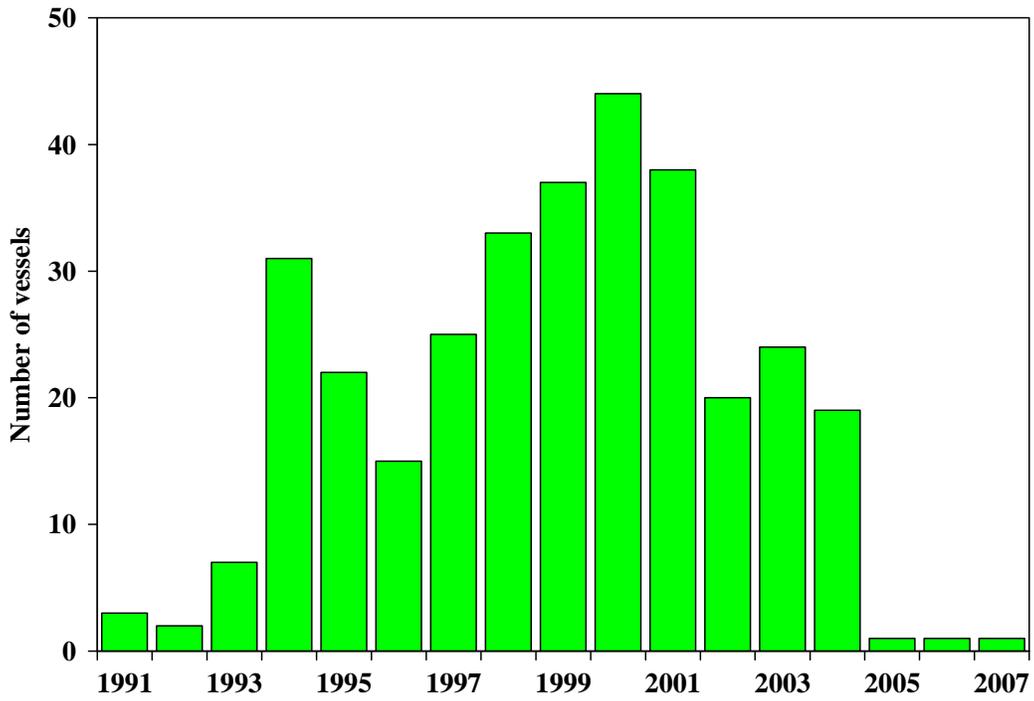


Figure 11.—California-based longline catch-per-unit-effort (CPUE), 1994-2007.

