

NOAA Technical Memorandum NMFS



JULY 2008

FISH AND INVERTEBRATE BYCATCH ESTIMATES FOR THE CALIFORNIA DRIFT GILLNET FISHERY TARGETING SWORDFISH AND THRESHER SHARK, 1990-2006

Jason P. Larese
Atilio L. Coan, Jr.

NOAA-TM-NMFS-SWFSC-426

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center

The National Oceanic and Atmospheric Administration (NOAA), organized in 1970, has evolved into an agency that establishes national policies and manages and conserves our oceanic, coastal, and atmospheric resources. An organizational element within NOAA, the Office of Fisheries is responsible for fisheries policy and the direction of the National Marine Fisheries Service (NMFS).

In addition to its formal publications, the NMFS uses the NOAA Technical Memorandum series to issue informal scientific and technical publications when complete formal review and editorial processing are not appropriate or feasible. Documents within this series, however, reflect sound professional work and may be referenced in the formal scientific and technical literature.



NOAA Technical Memorandum NMFS

This TM series is used for documentation and timely communication of preliminary results, interim reports, or special purpose information. The TMs have not received complete formal review, editorial control, or detailed editing.

JULY 2008

FISH AND INVERTEBRATE BYCATCH ESTIMATES FOR THE CALIFORNIA DRIFT GILLNET FISHERY TARGETING SWORDFISH AND THRESHER SHARK, 1990-2006

Jason P. Larese
Atilio L. Coan, Jr.

¹National Oceanic & Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center
La Jolla Laboratory
8604 La Jolla Shores Drive
La Jolla, California, USA 92037

NOAA-TM-NMFS-SWFSC-426

U.S. DEPARTMENT OF COMMERCE

Carlos M. Gutierrez, Secretary

National Oceanic and Atmospheric Administration

VADM Conrad C. Lautenbacher, Jr., Undersecretary for Oceans and Atmosphere

National Marine Fisheries Service

James W. Balsiger, Acting Assistant Administrator for Fisheries

ABSTRACT

The reauthorized Magnuson Act requires fishery management agencies to more thoroughly document and report bycatch in federally managed commercial and recreational fisheries. Documenting bycatch is also an essential element of the National Marine Fisheries Service goal of ‘ecosystem based management’. The California/Oregon large mesh drift gillnet fishery that targets swordfish (*Xiphias gladius*) and thresher shark (*Alopias vulpinus*) has had a systematic observer program in place since 1990 to document catch and bycatch, yet only limited bycatch reporting exists for this fishery from logbook data. Bycatch totals from logbook data are likely to be negatively biased due to underreporting or non-reporting of bycatch. Using seventeen years of observer program data from 1990 through 2006, we report the first systematic estimates of fish, shark, and invertebrate bycatch (defined as at-sea discards) for 66 species and 12 unidentified taxa in this fishery. Bycatch estimates for two species, ocean sunfish (*Mola mola*) and blue shark (*Prionace glauca*) exceeded 100,000 individuals over this period. Approximately 93% of mola were discarded alive, 4% were discarded dead, and 3% were discarded in an unknown condition, whereas 32% of blue sharks were observed to have been discarded alive, 63% were discarded dead, and 5% were of unknown status. Three prohibited species were observed as bycatch: one white shark (*Carcharodon carcharias*), three basking sharks (*Cetorhinus maximus*), and two megamouth sharks (*Megachasma pelagios*).

INTRODUCTION

The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006¹ specifies that Fishery Management Plans (FMP) establish a standardized reporting methodology to assess the amount and type of bycatch occurring in fisheries. One means to achieve this goal is through at-sea observers. The National Marine Fisheries Service (NMFS) is responsible for the observer program for the California drift gillnet fishery for swordfish and thresher shark, as mandated by the Marine Mammal Protection Act². Observers record fishing information (e.g. set location, date, depth, soak time) as well as the number of target and non-target species caught and discarded, including marine mammals, seabirds, sea turtles, sharks, and fish. This type of bycatch information is essential to realizing the NMFS goal of expanding the application of ecosystem principles in fishery conservation and management activities³, commonly referred to as ‘ecosystem based management’, which takes into consideration aspects and issues beyond the target species.

For the purposes of this paper, bycatch is defined as the at-sea catch and discard of any animal (alive or dead). Although bycatch is commonly defined to also include unobserved mortality (NMFS, 1998; NMFS, 2004), it is not included here because unobserved mortality due to direct encounters with fishing gear before it was retrieved or

¹ 16 U.S.C. 1853(a)(11)

² 16 U.S.C. 1387

³ 16 U.S.C. 1882(a)

resulting from lost or abandoned gear could not be determined. No distinction was made between discards of target or non-target species or for the reason of discard.

The large mesh drift gillnet fishery began in the 1970s off of southern California, initially targeting common thresher shark and shortfin mako shark (*Isurus oxyrinchus*) and within a few years, expanded to include swordfish (Herrick and Hanan, 1988; Hanan et al., 1993). The fishery gradually expanded offshore and northward to Oregon and Washington waters, with a shift to targeting higher monetary-valued swordfish (Hanan et al., 1993; Holts et al., 1998). A high of approximately 11,000 sets were made in the 1986-87 fishing season (April through May), and the number of sets decreased over the years to a low of 1,075 in 2006-07. The decrease is attributed primarily to net length restrictions, time and area closures, and limited entry into the fishery (Herrick and Hanan, 1988; Hanan et al., 1993). Today the fishery operates primarily off southern California and fishing effort is highly seasonal, with >75% of sets occurring from October through December.

Current time and area restrictions⁴ require that driftnets not be used: 1) in the Exclusive Economic Zone (EEZ) off California from February 1 to April 30; 2) in the portion of the EEZ off California within 75 nautical miles of the coastline from May 1 to August 14; 3) in the portion of the EEZ off California within 25 nautical miles of the coastline from December 15 through January 31; 4) in the portion of the EEZ within 75 nautical miles of the Oregon shoreline from May 1 through August 14; 5) or off Washington. Several other closures exist for waters off California within the EEZ, particularly around the Channel Islands. Furthermore, federal regulations enacted in August 2001 to protect leatherback turtles (*Dermochelys coriacea*) prohibit drift gillnets from being fished in the portion of the EEZ bounded by straight lines from Point Sur, CA (lat. 36° 18.5'N) to lat 34° 27'N, long. 123° 35'W; then to long. 129°W; then north to lat. 45°N; then east to the Oregon coast⁵. This prohibition is in effect from August 15 to November 15 annually (Figure 1). During El Niño years, the portion of the EEZ south of Point Conception and west to long. 120°W is closed during the months of June, July, and August to protect loggerhead turtles (*Caretta caretta*)⁶.

Drift gillnets used to catch sharks and swordfish are large-mesh nets with a minimum stretched mesh size of 46-56 cm (Carretta et al., 2005). Nets typically are 1,800 m (6,000 ft) in length (the maximum length allowed) and are fished at depths of 27 to 52 m (90 to 170 ft)⁴. Historically, gillnets were fished from 5 to 27 m (18 to 90 ft) below the surface, but since 1997 the legal minimum depth has been set at 11 m (36 ft). Vessels embark on trips ranging in length from 1 night to 1 month, but usually spanning 1 to 5 days. Nets may only be in the water from 2 hours before sunset to 2 hours after sunrise, to avoid bycatch of striped marlin (*Tetrapturus audax*) and conflicts with sportfishermen, but commonly soak overnight for 12 to 14 hours (Hanan et al., 1993; Carretta et al., 2005).

While a few studies have estimated incidental mortality of marine mammals, seabirds, and turtles (Julian and Beeson, 1998; Forney et al., 2001; Carretta et al., 2005), information is sparse concerning bycatch of other species. Holts et al. (1998) reported

⁴ Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species. Pacific Fishery Management Council (PFMC), June 2007.

⁵ 66 FR 44549 (August 24, 2001)

⁶ 72 FR 31756 (June 8, 2007)

catch (both retained and discarded) estimates of targeted species based on observer data but only estimated catch of one non-target species, blue shark. An observer program has been in place since 1990 that besides monitoring target species catch has also recorded bycatch data. This paper identifies and quantifies observed elasmobranch, invertebrate, and fish bycatch from 1990-2006 in the California drift gillnet fishery for swordfish and thresher shark and presents estimates of total bycatch.

MATERIALS AND METHODS

Data Collection

A California state observer program was mandated for the drift gillnet fishery in 1979 and continued until 1986. Federal observations began in the 1990-91 season, when the National Marine Fisheries Service (NMFS) established an observer program to monitor marine mammal interactions (Hanan et al., 1993). The federal program attempts to monitor every fifth trip to attain approximately 20% observer coverage; however, this is not always possible, as some vessels are small enough that there are insufficient berths to accommodate observers⁷. Bycatch data recorded by observers includes set location, depth, length, soak time, gear configuration, the species and number caught, in addition to the status of discarded species (returned alive, returned dead, or returned in unknown condition). It is assumed that this sample data is representative of the bycatch for the fleet.

Effort Estimation

A drift gillnet is set and retrieved overnight and is the unit of measure for effort, with one set equal to one “effort day.” The total number of sets, or effort, is calculated from observer records, logbook data, and landing receipts. Julian and Beeson (1998) note that effort may be underestimated for two reasons: 1) unobserved effort may not be recorded, particularly for those trips where no marketable target fish are caught and thus, log entries are not made; and 2) if logbook or observer records do not correspond to a landing receipt, the California Department of Fish and Game (CDFG) estimates effort assuming that one landing receipt represents one day of fishing effort, which is likely an underestimate of effort for a fishing trip. It is not practical to correct for this bias, given that the number of days fished in a trip varies widely, from 1 to 19 days. Similarly, the catch-per-unit-effort (CPUE) of target species in a trip varies widely as well, making it difficult to use catch data from landing receipts to estimate fishing effort (Carretta et al., 2005). As a result of these uncertainties in total effort, the total quantities of bycatch reported in this paper are underestimated by an unknown amount and should be considered minimum estimates.

⁷ Currently, six of forty-two active vessels lack berthing space for an observer (NMFS, unpublished data).

Bycatch Estimation

Mean-per-unit estimators, a type of ratio estimator, were used to estimate bycatch, analogous to previous mortality estimates of marine mammal, turtles, and seabirds in this fishery (Julian and Beeson, 1998; Forney et al., 2001; Carretta et al., 2005). Simulations have shown mean-per-unit estimators to provide statistically unbiased estimates, whereas ratio estimators relating the catch of two different species tend to overestimate bycatch (Diamond, 2003). The assumption was made that sets within a given trip are not independent, because generally there is a limited distance that a vessel travels between sets. Therefore, sampling units that we used were vessel trips, which ignored any variation between sets within a trip. Data were not stratified spatially or temporally. The set bycatch rate, $\hat{r}_{s,y}$, for species s in year y can be calculated as (Cochran, 1977):

$$\hat{r}_{s,y} = \frac{\sum_i k_{i,s,y}}{\sum_i d_{i,y}} \quad (1)$$

where $k_{i,s,y}$ is the sum of observed bycatch of species s in year y for the i^{th} trip and $d_{i,y}$ is the number of observed days (sets) of fishing effort for the i^{th} trip in year y . Bycatch rate may then be used to estimate total bycatch, \hat{b}_y , as:

$$\hat{b}_y = D_y \hat{r}_{s,y} \quad (2)$$

where D_y is the estimated minimum number of days fished in year y . Bootstrap methods, treating a vessel trip as the sampling unit, were used to estimate bycatch rate variance. Trips were selected with replacement until the bootstrap sample contained the same number of trips (effort) as observed for a given year.

RESULTS

A total of 7,684 sets were observed from 1990 to 2006, during 1,361 fishing trips that ranged from 1 to 19 days (or sets) in length (Table 1). Total estimated fishing effort during this period was 49,306 sets, which resulted in an overall observer coverage rate of 15.6%. Annual rates of observer coverage ranged from a low of 4.4% in 1990 to a high of 22.9% in 2000. Distribution of effort changed dramatically in 2001 with the area closure to protect leatherback turtles. Prior to the closure, effort was spread along the U.S. west coast (Figure 1), whereas afterwards it was primarily concentrated in the Southern California Bight (Figure 2). Bycatch of 64 species and 14 unidentified taxa (e.g., billfish, shark, ray, fish, and crustacean) was recorded during the 17-year period. Annual observed and estimated bycatch is reported in two formats, sorted by year (Table 2) and by species (Table 3). In addition, data are summarized over all years, 1990 through 2006 (Table 4).

Three species of interest recorded as bycatch are white shark (*Carcharodon carcharias*), basking shark (*Cetorhinus maximus*), and megamouth shark (*Megachasma*

pelagios). These are listed as ‘prohibited’ in the FMP⁴ and must be released immediately if caught, unless other provisions for their disposition are established, including for scientific study (e.g., acoustic tracking of megamouth sharks (Nelson et al., 1997) and white sharks on display at the Monterey Bay Aquarium). These three species were rarely observed as bycatch; one white shark, two megamouth sharks, and three basking sharks were observed over the 17-year period.

DISCUSSION

Bycatch estimates are principally used to 1) improve stock assessments, 2) direct management decisions if levels are near or over bycatch quotas, and 3) guide actions taken to mitigate bycatch (NMFS, 2004). These bycatch estimates for the California drift gillnet fishery should be considered minimal because probable negative bias due to unrecorded effort is included in effort estimations based on the assumption that one landing receipt represents one day of fishing effort when there is no corresponding logbook or observer record. It is also noted that these estimates do not include unobserved mortality or catch that is first landed dockside and then discarded.

The two most frequent discards, unidentified invertebrates and pelagic tunicates, overlap to some degree. It is estimated that >98% of the unidentified invertebrates recorded by observers are salps (Family *Salpidae*) which may also be recorded in the pelagic tunicates category⁸. The second most common unidentified invertebrate is *Pyrosoma atlanticum*, estimated to comprise <1% of the total number of unidentified invertebrates.

The two most frequently discarded vertebrate species from 1990 through 2006 were mola ($n=278,306$, $CV=0.04$) and blue shark ($n=135,233$, $CV=0.04$), which is consistent with bycatch reports by Hanan et al. (1993) and Holts et al. (1998). Blue shark bycatch estimates from the early 1990s that are reported here are only slightly less than estimates of up to 20,000 discards annually (Holts et al., 1998) for the years 1980 to 1983 from CDFG observer data. Unlike for molas, data from 2001 onwards show a marked decrease in blue shark bycatch rate (Figure 3). The Pacific Leatherback Conservation Area put in place in 2001 had a major impact on areas fished, effectively closing the fishery north of Point Conception, CA and contributing considerably to the decreased bycatch levels. Other confounding factors include declines in blue shark abundance or presence, and gear or operational changes. Blue sharks have also been observed as the most common elasmobranch species bycaught in drift gillnet fisheries in the North Pacific (McKinnell and Seki, 1998) and Northeast Atlantic (Rogan and Mackey, 2007).

Although NMFS has defined bycatch to include all discards, both live and dead, it is important to note that the status of the species when discarded is dramatically different between molas and blue sharks. From 1990 through 2006, approximately 93% of molas were discarded alive, 4% were discarded dead, and 3% were discarded in an unknown condition. In contrast, only 32% of blue sharks were observed to have been discarded alive, 63% were discarded dead, and 5% were of unknown status. The long-term health of individuals released alive is uncertain, because the extent of mortality post-release is

⁸ L. Enriquez, per. comm..

unknown. Variations between species in release status should be considered when evaluating fishery management decisions.

It has been reported that nearly 90% of all sharks taken are immature (Holts et al., 1998). This is not surprising as the Southern California Bight, where fishing is heavily concentrated, is considered a nursery area for blue, thresher, mako, and white sharks (Holts et al., 1998; Weng et al., 2007). In addition, the fishery is closed for the period during which thresher sharks have their pups (spring-summer) to protect pregnant females.

Non-target species such as tuna that are often retained and sold may be discarded in some cases. This may occur due to damage by predators such as pinnipeds or sharks. Individuals may also fall outside buyers' preferred size range and be discarded for economic reasons. Skipjack (*Katsuwonus pelamis*), albacore (*Thunnus alalunga*), and bluefin tuna (*Thunnus thynnus*) may be discarded due to predator damage or if left in the water long enough that the flesh quality becomes degraded and unmarketable.

Of the sixty-six species identified as bycatch in the drift gillnet fishery, thirteen are listed on the Fish Stock Sustainability Index (FSSI)⁹. The index is a performance measure for the sustainability of 230 U.S. fish stocks selected for their importance to commercial and recreational fisheries (Table 5). Overfishing (fishing mortality considered above a threshold) is not considered occurring for seven species and is unknown for four species. Eastern Pacific yellowfin tuna (*Thunnus albacares*) is currently the only species designated as experiencing overfishing. Observers do not record rockfish to species level and therefore the FSSI status of rockfish bycatch could not be determined.

Three prohibited species were observed discarded in low numbers: white shark, basking shark, and megamouth shark. The CVs associated with estimates of total bycatch for these species is high (>0.97), which reflects the rarity of these bycatch events. Bycatch of these poorly understood species of unknown abundance should be closely monitored. Increasing observer coverage to reliably detect these rare events involving species of management concern is necessary to obtain informative estimates of bycatch levels.

Bycatch of some species is heavily influenced by oceanic cycles. For example, bycatch of manta (*Manta birostris*) and smooth hammerhead (*Sphyrna zygaena*) increased dramatically during El Niño events. Mantas were observed discarded in 1992, 1997, and 1998. Smooth hammerheads were observed discarded in 1992, 1993, 1997, 1998, 2000, and 2003. All of these years are generally considered El Niño years except for 2000¹⁰.

While it may appear reasonable to use bycatch rate data from this fishery as an index of relative species abundance, such analysis would require thoughtful consideration of data stratification options, given changes in ocean conditions and areas fished due to management measures and regulations applied to this fishery over the span of the federal observer program (Holts et al., 1998; Julian and Beeson, 1998; Carretta et al., 2005). Common bycatch species (e.g. blue shark, mola, and skipjack tuna) are good candidates for such a time series analysis, which is outside of the scope of this paper.

⁹ Available from: <http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm#07> (3rd quarter update, 2007)

¹⁰ Available from: <http://ggweather.com/enso/years.htm>

We have presented summarized bycatch data for the 1990-2006 California drift gillnet fishery. Reasonable bycatch estimates can be obtained from this fishery and are consistent with previous catch and bycatch analyses. Bycatch estimates presented in this paper are a critical element in helping NMFS and the Pacific Fishery Management Council achieve stated ecosystem management goals under the Highly Migratory Species Fisheries Management Plan for this fishery.

ACKNOWLEDGEMENTS

We thank the observers for collecting the bycatch data used in this study. L. Enriquez managed the data collection and provided valuable insight into the workings of the observer program. R. Rasmussen and K. Wallace maintained the database. We thank J. Carretta, P. Crone, D. Hanan, and C. Heberer for providing thoughtful comments for improving this manuscript.

LITERATURE CITED

- Carretta, J.V., Price, T., Petersen, D., Read, R., 2005. Estimates of marine mammal, sea turtle, and seabird mortality in the California drift gillnet fishery for swordfish and thresher shark, 1996-2002. *Mar. Fish. Rev.* 66, 21-30.
- Cochran, W.G., 1977. *Sampling Techniques*. John Wiley & Sons, New York.
- Diamond, S.L., 2003. Estimation of bycatch in shrimp trawl fisheries: a comparison of estimation methods using field data and simulated data. *Fish. Bull.* 101, 484-500.
- Forney, K.A., Benson, S.R., Cameron, G.A., 2001. Central California gillnet effort and bycatch of sensitive species, 1990-1998. In: Melvin, E.F., Parrish, J.K.s (Eds.), *Seabird bycatch : trends, roadblocks, and solutions*. University of Alaska Sea Grant, Fairbanks, Alaska, p. 206.
- Hanan, D.A., Holts, D.B., Coan, A.L.J., 1993. The California drift gillnet fishery for sharks and swordfish, 1981-82 through 1990-91. In: Game, C.D.F.s (Ed.). *Fish Bull.*, p. 95.
- Herrick, S.F.J., Hanan, D.A., 1988. A review of California entangling net fisheries, 1981-1986. NOAA Technical Report. NOAA-TM-NMFS-SWFSC-108. 38 p.
- Holts, D.B., Julian, A., Sosa-Nishizaki, O., Bartoo, N.W., 1998. Pelagic shark fisheries along the west coast of the United States and Baja California, Mexico. *Fish Res.* 39, 115-125.
- Julian, F., Beeson, M., 1998. Estimates of marine mammal, turtle, and seabird mortality for two California gillnet fisheries: 1990-1995. *Fish. Bull.* 96, 271-284.
- McKinnell, S., Seki, M.P., 1998. Shark bycatch in the Japanese high seas squid driftnet fishery in the North Pacific Ocean. *Fish Res.* 39, 127-138.
- Nelson, D.R., McKibben, J.N., Strong, W.R., Lowe, C.G., Sisneros, J.A., Schroeder, D.M., Lavenberg, R.J., 1997. An acoustic tracking of a megamouth shark, *Megachasma pelagios*: a crepuscular vertical migrator. *Environ. Biol. Fishes* 49, 389-399.
- NMFS, 1998. *Managing the Nation's bycatch: priorities, programs and actions for the National Marine Fisheries Service*. 192 p.
- NMFS, 2004. *Evaluating bycatch: a national approach to standardized bycatch monitoring programs*. 108 p.
- Rogan, E., Mackey, M., 2007. Megafauna bycatch in drift nets for albacore tuna (*Thunnus alalunga*) in the NE Atlantic. *Fish Res.* 86, 6-14.
- Weng, K.C., O'Sullivan, J.B., Lowe, C.G., Winkler, C.E., Dewar, H., Block, B.A., 2007. Movements, behavior and habitat preferences of juvenile white sharks *Carcharodon carcharias* in the eastern Pacific. *Mar. Ecol. Prog. Ser.* 338, 211-224.

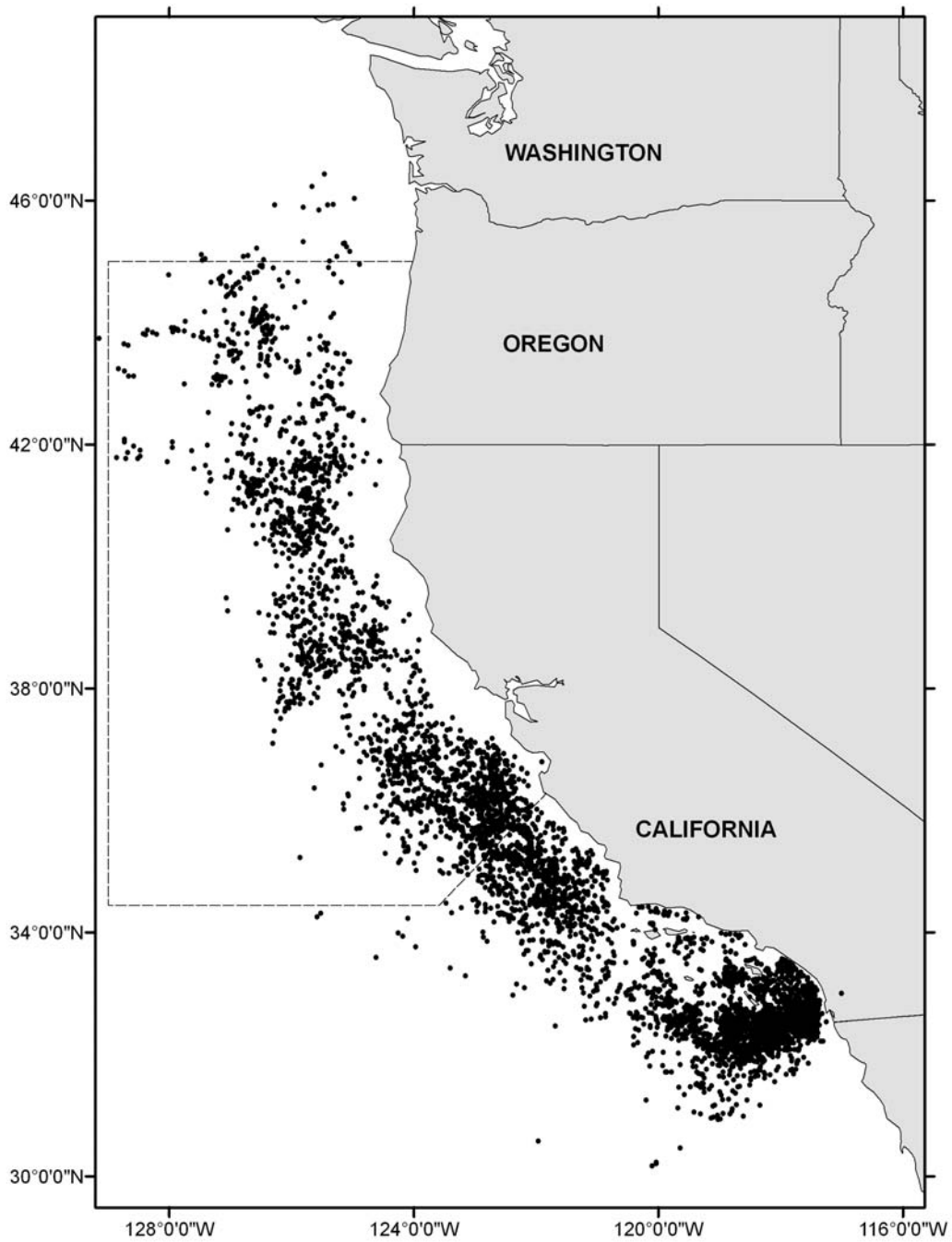


Figure 1. Locations of 5,973 observed sets in the California drift gillnet fishery for swordfish and thresher shark, 1990-2000. The dashed line indicates the region has been closed to fishing from 15 August to 15 November since 2001 to protect leatherback turtles.

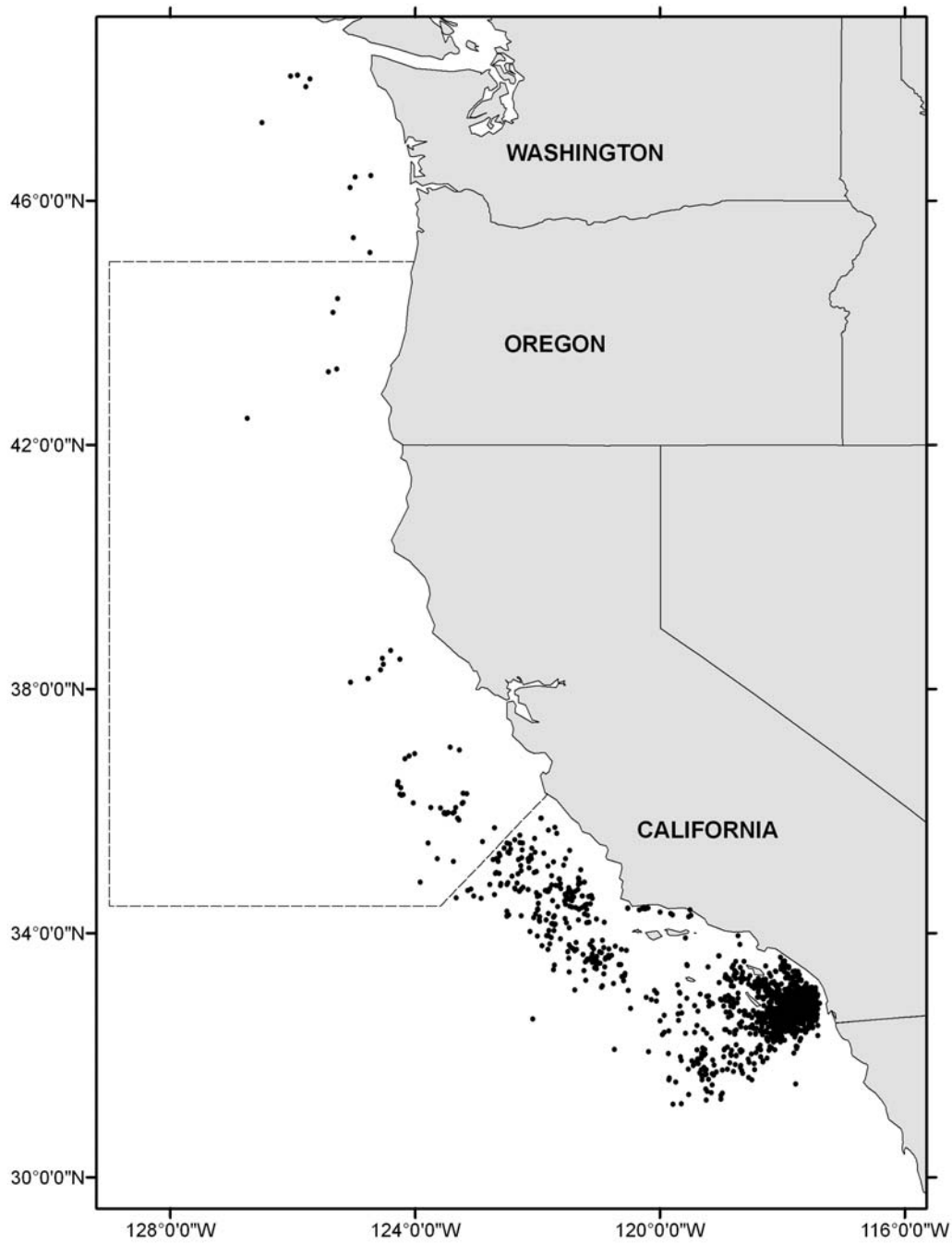


Figure 2. Locations of 1,711 observed sets in the California drift gillnet fishery for swordfish and thresher shark, 2001-2006. The dashed line indicates the region has been closed to fishing from 15 August to 15 November since 2001 to protect leatherback turtles.

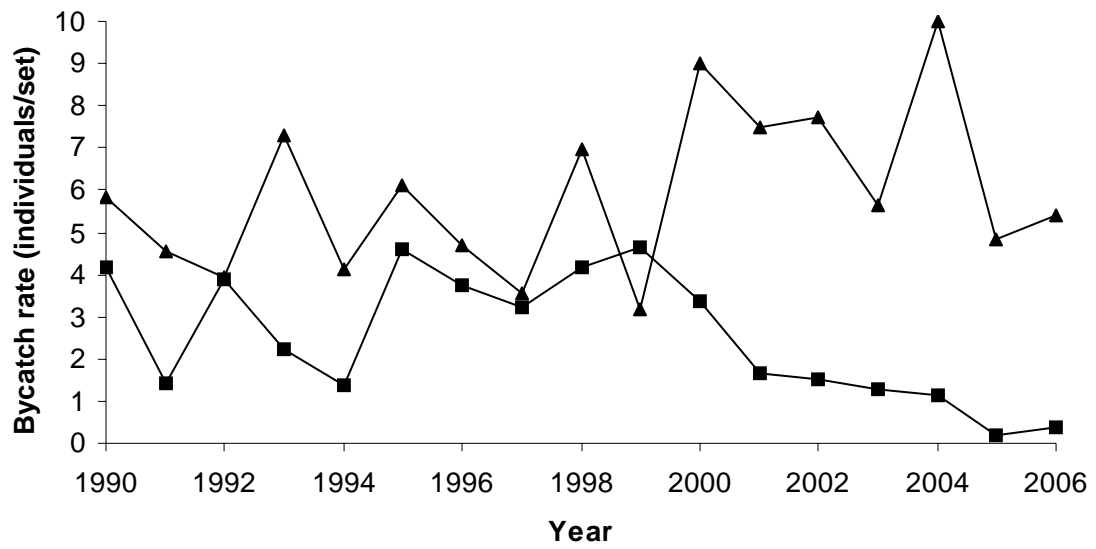


Figure 3. Bycatch rate for common mola (triangles) and blue sharks (squares) in the California drift gillnet fishery.

Table 1. Yearly summations of the California drift gillnet fishery effort, number of days observed, and coverage.

Year	Observed trips	Observed sets	Maximum number of sets/trip	Estimated total sets	Percent observer coverage
1990	54	178	9	4,078	4.4%
1991	88	470	14	4,778	9.8%
1992	97	596	15	4,379	13.6%
1993	107	728	19	5,442	13.4%
1994	134	759	15	4,248	17.9%
1995	97	572	15	3,673	15.6%
1996	71	421	16	3,392	12.4%
1997	118	692	15	3,039	22.8%
1998	104	587	18	3,353	17.5%
1999	92	526	12	2,634	20.0%
2000	85	444	12	1,936	22.9%
2001	65	339	11	1,665	20.4%
2002	64	360	12	1,630	22.1%
2003	52	298	11	1,467	20.3%
2004	41	223	9	1,084	20.6%
2005	44	225	12	1,075	20.9%
2006	48	266	10	1,433	18.6%
1990-2006	1,361	7,684	19	49,306	15.6%

Table 2. Observed bycatch, estimated bycatch, and coefficient of variation for the California drift gillnet fishery for swordfish and thresher shark, 1990-2006, sorted by year.

Species	1990				Individual s/set	Estimated catch	LoCI	HiCI	CV
	Observed catch	Proportion alive	Proportion dead	Proportion unknown					
Albacore	17	0	0	1	0.096	390	112	710	0.39
Anchovy, Northern	0				0				
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	17	0	0	1	0.096	390	0	1032	0.71
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	2	0	0	1	0.011	46	0	140	0.94
Fish, Unidentified	17	0	0	1	0.096	390	129	727	0.39
Hagfish Pacific	0				0				
Hake, Pacific	1	0	0	1	0.006	23	0	77	1.01
Invertebrate, Unidentified	0				0				
Lancetfish, Longnose	0				0				
Louvar	2	0	0	1	0.011	46	0	118	0.69
Mackerel, Bullet	104	0	0	1	0.584	2383	613	4960	0.47
Mackerel, Jack	0				0				
Mackerel, Pacific	20	0	0	1	0.112	459	125	947	0.46
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	0				0				
Marlin, Striped	11	0	0	1	0.062	253	108	433	0.33
Mobula	0				0				
Mola, Common	1036	0	0	1	5.820	23735	17602	30499	0.14
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	0				0				
Pipefish Bay	1	0	0	1	0.006	23	0	74	0.98
Pomfret	0				0				
Pomfret, Pacific	1	0	0	1	0.006	23	0	71	0.95
Ray, Bat	0				0				
Ray, Pacific Electric	2	0	0	1	0.011	46	0	116	0.68
Ray, Unidentified	1	0	0	1	0.006	23	0	77	1.02
Remora	0				0				
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	0				0				
Scombrid	0				0				
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	2	0	0	1	0.011	46	0	145	0.96
Shark, Blue	744	0	0	1	4.180	17046	11020	24102	0.20
Shark, Common Thresher	1	0	0	1	0.006	23	0	78	1.02
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	0				0				
Shark, Salmon	0				0				
Shark, Sevengill	0				0				
Shark, Shortfin Mako	2	0	0	1	0.011	46	0	115	0.68
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	0				0				
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	1	0	0	1	0.006	23	0	76	0.99
Stingray, Pelagic	2	0	0	1	0.011	46	0	152	1.00
Stingray, Round	0				0				
Swordfish, Broadbill	15	0	0	1	0.084	344	23	921	0.73
Tuna, Bluefin	13	0	0	1	0.073	298	42	648	0.53
Tuna, Skipjack	3	0	0	1	0.017	69	0	231	1.01
Tuna, Yellowfin	1	0	0	1	0.006	23	0	77	1.01
Tunicates, Pelagic	0				0				
Unknown Species	0				0				
Yellowtail	1	0	0	1	0.006	23	0	76	0.99

1991

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	19	0	1	0	0.040	194	56	374	0.43
Anchovy, Northern	1	0	1	0	0.002	11	0	33	1.00
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	1	0	1	0	0.002	11	0	33	1.01
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	28	0.929	0.071	0	0.060	285	0	823	0.87
Fish, Unidentified	13	0.077	0.846	0.077	0.028	133	29	274	0.48
Hagfish Pacific	0				0				
Hake, Pacific	12	0	1	0	0.026	122	21	241	0.46
Invertebrate, Unidentified	100	0	0.930	0.070	0.213	1017	0	2491	0.63
Lancetfish, Longnose	0				0				
Louvar	2	0	1	0	0.004	21	0	51	0.68
Mackerel, Bullet	45	0	0.956	0.044	0.096	458	21	1144	0.66
Mackerel, Jack	3	0	1	0	0.006	31	0	86	0.76
Mackerel, Pacific	292	0.048	0.949	0.003	0.621	2969	618	6935	0.60
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	0				0				
Marlin, Striped	21	0	1	0	0.045	214	58	438	0.46
Mobula	0				0				
Mola, Common	2129	0.853	0.017	0.129	4.530	21644	14900	29978	0.18
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	3	0.333	0.333	0.333	0.006	31	0	71	0.58
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	3	0	1	0	0.006	31	0	85	0.76
Ray, Bat	3	0.667	0	0.333	0.006	31	0	68	0.56
Ray, Pacific Electric	1	0	0	1	0.002	11	0	33	1.00
Ray, Unidentified	2	0	0.500	0.500	0.004	21	0	54	0.71
Remora	3	1	0	0	0.006	31	0	83	0.74
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	2	0	1	0	0.004	21	0	53	0.70
Scombrid	0				0				
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	3	0	1	0	0.006	31	0	83	0.73
Shark, Blue	660	0.321	0.629	0.050	1.404	6710	5341	8147	0.11
Shark, Common Thresher	9	0.111	0.889	0	0.019	92	0	280	0.89
Shark, Megamouth	0				0				
Shark, Pacific Angel	3	0.333	0	0.667	0.006	31	0	71	0.58
Shark, Pelagic Thresher	0				0				
Shark, Prickly	0				0				
Shark, Salmon	1	0	1	0	0.002	11	0	33	1.00
Shark, Sevengill	0				0				
Shark, Shortfin Mako	6	0.667	0.333	0	0.013	61	20	112	0.39
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	0				0				
Shark, Soupfin	0				0				
Shark, Unidentified	1	0	0	1	0.002	11	0	32	0.99
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	1	1	0	0	0.002	11	0	34	1.02
Squid, Market	1	0	1	0	0.002	11	0	32	0.99
Stingray, Pelagic	7	0.571	0.286	0.143	0.015	72	23	127	0.37
Stingray, Round	0				0				
Swordfish, Broadbill	4	0	1	0	0.009	41	0	95	0.59
Tuna, Bluefin	5	0	1	0	0.011	51	0	132	0.70
Tuna, Skipjack	67	0.030	0.970	0	0.143	682	88	1632	0.64
Tuna, Yellowfin	0				0				
Tunicates, Pelagic	0				0				
Unknown Species	0				0				
Yellowtail	0				0				

1992

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	164	0	1	0	0.275	1205	598	1933	0.28
Anchovy, Northern	0				0				
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	10	0	1	0	0.017	74	0	221	0.85
Crab, Dungeness	0				0				
Crab, Pelagic Red	1	1	0	0	0.002	8	0	24	0.99
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	11	0.455	0.545	0	0.018	81	23	153	0.41
Fish, Unidentified	5	0	1	0	0.008	37	0	118	1.00
Hagfish Pacific	0				0				
Hake, Pacific	25	0	1	0	0.042	184	71	333	0.37
Invertebrate, Unidentified	20	1	0	0	0.034	147	0	466	1.00
Lancetfish, Longnose	0				0				
Louvar	12	0	1	0	0.020	89	39	145	0.31
Mackerel, Bullet	56	0	1	0	0.094	412	0	1023	0.65
Mackerel, Jack	3	0	1	0	0.005	23	0	50	0.57
Mackerel, Pacific	492	0.030	0.965	0.004	0.826	3615	434	9582	0.71
Mackerel, Unidentified	0				0				
Manta	1	1	0	0	0.002	8	0	24	1.01
Marlin, Black	0				0				
Marlin, Blue	0				0				
Marlin, Striped	11	0	1	0	0.018	81	37	134	0.31
Mobula	0				0				
Mola, Common	2343	0.953	0.044	0.003	3.931	17215	11865	25730	0.22
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	5	0	1	0	0.008	37	8	80	0.52
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	48	0.021	0.979	0	0.081	353	63	878	0.67
Ray, Bat	2	1	0	0	0.003	15	0	48	1.00
Ray, Pacific Electric	5	0.800	0	0.200	0.008	37	7	81	0.53
Ray, Unidentified	3	0.333	0.667	0	0.005	23	0	61	0.74
Remora	3	1	0	0	0.005	23	0	51	0.57
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	0				0				
Scombrid	0				0				
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	3	0	1	0	0.005	23	0	51	0.57
Shark, Blue	2324	0.314	0.668	0.019	3.899	17076	14600	19706	0.08
Shark, Common Thresher	1	0	1	0	0.002	8	0	23	0.98
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	1	1	0	0	0.002	8	0	24	1.00
Shark, Salmon	0				0				
Shark, Sevengill	0				0				
Shark, Shortfin Mako	8	0.500	0.375	0.125	0.013	59	22	107	0.38
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	5	0	1	0	0.008	37	0	93	0.66
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	0				0				
Stingray, Pelagic	8	0.500	0.375	0.125	0.013	59	22	103	0.35
Stingray, Round	0				0				
Swordfish, Broadbill	14	0	1	0	0.023	103	44	176	0.33
Tuna, Bluefin	23	0	1	0	0.039	169	52	322	0.41
Tuna, Skipjack	108	0	1	0	0.181	794	291	1540	0.41
Tuna, Yellowfin	4	0	1	0	0.007	30	8	60	0.48
Tunicates, Pelagic	0				0				
Unknown Species	0				0				
Yellowtail	0				0				

1993

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	513	0	1	0	0.705	3835	1809	6305	0.30
Anchovy, Northern	0				0				
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	3	0	1	0	0.004	23	0	72	0.99
Crab, Dungeness	1	1	0	0	0.001	8	0	24	0.99
Crab, Pelagic Red	5	0	0.400	0.600	0.007	38	0	107	0.82
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	8	0	0.500	0.500	0.011	60	0	166	0.76
Fish, Unidentified	72	0.042	0.958	0	0.099	539	172	1011	0.40
Hagfish Pacific	0				0				
Hake, Pacific	130	0.138	0.862	0	0.179	972	189	2087	0.51
Invertebrate, Unidentified	3436	0.138	0.266	0.596	4.720	25686	7934	50691	0.44
Lancetfish, Longnose	0				0				
Louvar	4	0	1	0	0.005	30	8	64	0.50
Mackerel, Bullet	1	0	1	0	0.001	8	0	24	1.01
Mackerel, Jack	3	0	1	0	0.004	23	0	61	0.73
Mackerel, Pacific	63	0.016	0.984	0	0.087	471	123	984	0.49
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	4	0	1	0	0.005	30	0	96	1.00
Marlin, Blue	1	0	1	0	0.001	8	0	24	1.00
Marlin, Striped	34	0.029	0.971	0	0.047	255	108	448	0.34
Mobula	1	1	0	0	0.001	8	0	24	1.00
Mola, Common	5319	0.955	0.035	0.010	7.306	39761	30598	49817	0.12
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	3	1	0	0	0.004	23	0	51	0.56
Oilfish	0				0				
Opah	3	0	1	0	0.004	23	0	71	1.00
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	22	0	0.955	0.045	0.030	165	30	381	0.57
Ray, Bat	1	1	0	0	0.001	8	0	24	1.00
Ray, Pacific Electric	1	1	0	0	0.001	8	0	25	1.01
Ray, Unidentified	0				0				
Remora	0				0				
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	10	0	1	0	0.014	75	0	186	0.67
Scombrid	0				0				
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	1	0	1	0	0.001	8	0	24	1.00
Shark, Bigeye Thresher	8	0	1	0	0.011	60	8	134	0.55
Shark, Blue	1625	0.314	0.662	0.023	2.232	12148	10046	14485	0.09
Shark, Common Thresher	0				0				
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	0				0				
Shark, Salmon	1	0	1	0	0.001	8	0	24	0.99
Shark, Sevengill	0				0				
Shark, Shortfin Mako	6	0.167	0.833	0	0.008	45	8	90	0.46
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	13	0	1	0	0.018	98	0	248	0.67
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	1	0	1	0	0.001	8	0	24	1.01
Stingray, Pelagic	26	0.654	0.308	0.038	0.036	195	105	300	0.26
Stingray, Round	0				0				
Swordfish, Broadbill	6	0	1	0	0.008	45	8	91	0.46
Tuna, Bluefin	9	0	1	0	0.012	68	15	139	0.48
Tuna, Skipjack	848	0	1	0	1.165	6340	1876	13307	0.47
Tuna, Yellowfin	0				0				
Tunicates, Pelagic	58	0.793	0.207	0	0.080	434	0	1074	0.65
Unknown Species	0				0				
Yellowtail	0				0				

1994

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	68	0	1	0	0.090	381	188	611	0.28
Anchovy, Northern	2	0.500	0.500	0	0.003	12	0	29	0.71
Barracuda, California	0				0				
Billfish, Other Identified	1	0	1	0	0.001	6	0	19	1.00
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	0				0				
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	18	0.111	0.833	0.056	0.024	101	48	161	0.29
Fish, Unidentified	20	0	1	0	0.026	112	36	204	0.39
Hagfish Pacific	1	0	1	0	0.001	6	0	18	1.01
Hake, Pacific	44	0	1	0	0.058	247	66	487	0.44
Invertebrate, Unidentified	1801	0.157	0.304	0.539	2.373	10080	2876	19185	0.42
Lancetfish, Longnose	0				0				
Louvar	2	0	1	0	0.003	12	0	29	0.70
Mackerel, Bullet	0				0				
Mackerel, Jack	15	0.067	0.933	0	0.020	84	12	203	0.61
Mackerel, Pacific	922	0.012	0.987	0.001	1.215	5161	2453	8706	0.31
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	1	0	1	0	0.001	6	0	18	1.01
Marlin, Blue	4	0	1	0	0.005	23	6	48	0.51
Marlin, Striped	54	0.037	0.944	0.019	0.071	303	168	467	0.25
Mobula	0				0				
Mola, Common	3133	0.935	0.056	0.009	4.128	17535	14280	21191	0.10
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	4	0	1	0	0.005	23	0	54	0.61
Octopus, Unidentified	1	1	0	0	0.001	6	0	18	1.00
Oilfish	0				0				
Opah	7	0	0.857	0.143	0.009	40	6	95	0.61
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	7	0	1	0	0.009	40	12	74	0.41
Ray, Bat	0				0				
Ray, Pacific Electric	2	0.500	0.500	0	0.003	12	0	29	0.71
Ray, Unidentified	1	1	0	0	0.001	6	0	18	0.98
Remora	13	0.923	0	0.077	0.017	73	33	121	0.31
Rockfish, Unidentified	0				0				
Sailfish	1	0	1	0	0.001	6	0	18	1.00
Sardine, Pacific	2	0	1	0	0.003	12	0	29	0.70
Scombrid	0				0				
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	7	0.143	0.857	0	0.009	40	7	78	0.46
Shark, Blue	1038	0.279	0.696	0.025	1.368	5810	4388	7410	0.13
Shark, Common Thresher	2	0	1	0	0.003	12	0	29	0.70
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	1	0	1	0	0.001	6	0	18	1.01
Shark, Prickly	1	1	0	0	0.001	6	0	19	1.01
Shark, Salmon	0				0				
Shark, Sevengill	0				0				
Shark, Shortfin Mako	8	0.625	0.375	0	0.011	45	10	94	0.49
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	0				0				
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	1	1	0	0	0.001	6	0	18	0.99
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	0				0				
Stingray, Pelagic	34	0.824	0.118	0.059	0.045	191	121	276	0.21
Stingray, Round	2	0.500	0.500	0	0.003	12	0	36	0.99
Swordfish, Broadbill	3	0	1	0	0.004	17	0	38	0.57
Tuna, Bluefin	0				0				
Tuna, Skipjack	34	0	1	0	0.045	191	36	401	0.50
Tuna, Yellowfin	0				0				
Tunicates, Pelagic	936	0.078	0.429	0.493	1.233	5239	2657	8340	0.28
Unknown Species	0				0				
Yellowtail	1	0	1	0	0.001	6	0	18	0.98

1995

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	64	0	1	0	0.112	411	208	640	0.27
Anchovy, Northern	0				0				
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	48	0	1	0	0.084	309	0	911	0.89
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	28	0.607	0.357	0.036	0.049	180	38	425	0.60
Fish, Unidentified	120	0.008	0.992	0	0.210	771	251	1437	0.40
Hagfish Pacific	0				0				
Hake, Pacific	3	0	1	0	0.005	20	0	53	0.75
Invertebrate, Unidentified	0				0				
Lancetfish, Longnose	0				0				
Louvar	14	0	1	0	0.024	90	40	149	0.31
Mackerel, Bullet	0				0				
Mackerel, Jack	0				0				
Mackerel, Pacific	359	0.025	0.975	0	0.628	2306	1229	3723	0.28
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	4	0	1	0	0.007	26	6	54	0.50
Marlin, Striped	16	0	1	0	0.028	103	50	165	0.29
Mobula	0				0				
Mola, Common	3502	0.972	0.026	0.002	6.122	22488	16929	29059	0.14
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	1	0	1	0	0.002	7	0	21	1.02
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	10	0	1	0	0.017	65	19	129	0.46
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	4	0	0.750	0.250	0.007	26	0	62	0.60
Ray, Bat	1	1	0	0	0.002	7	0	20	0.98
Ray, Pacific Electric	1	0	0	1	0.002	7	0	21	0.98
Ray, Unidentified	1	1	0	0	0.002	7	0	21	1.00
Remora	24	1	0	0	0.042	155	82	237	0.26
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	0				0				
Scombrid	0				0				
Sea Star	2	1	0	0	0.003	13	0	41	0.99
Seabass, White	1	0	1	0	0.002	7	0	21	1.00
Shark, Basking	0				0				
Shark, Bigeye Thresher	7	0.143	0.857	0	0.012	45	7	100	0.55
Shark, Blue	2622	0.237	0.746	0.017	4.584	16837	13694	20205	0.10
Shark, Common Thresher	0				0				
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	0				0				
Shark, Salmon	0				0				
Shark, Sevengill	0				0				
Shark, Shortfin Mako	6	0.667	0.167	0.167	0.010	39	7	78	0.46
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	0				0				
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	0				0				
Stingray, Pelagic	22	0.864	0.091	0.045	0.038	142	64	238	0.31
Stingray, Round	0				0				
Swordfish, Broadbill	13	0	1	0	0.023	84	40	132	0.29
Tuna, Bluefin	77	0	1	0	0.135	495	100	1028	0.49
Tuna, Skipjack	1035	0.001	0.999	0	1.809	6647	2672	12630	0.39
Tuna, Yellowfin	1	0	1	0	0.002	7	0	21	1.02
Tunicates, Pelagic	28	0.143	0.036	0.821	0.049	180	0	494	0.76
Unknown Species	0				0				
Yellowtail	0				0				

1996

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	67	0	1	0	0.159	540	262	854	0.28
Anchovy, Northern	1	0	1	0	0.002	9	0	27	1.02
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	2	0	1	0	0.005	17	0	52	1.01
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	3	0.333	0.667	0	0.007	25	0	55	0.56
Fish, Unidentified	9	0.111	0.889	0	0.021	73	17	145	0.45
Hagfish Pacific	0				0				
Hake, Pacific	14	0	1	0	0.033	113	0	328	0.85
Invertebrate, Unidentified	86	0	0	1	0.204	693	0	1843	0.74
Lancetfish, Longnose	0				0				
Louvar	7	0.143	0.857	0	0.017	57	17	103	0.39
Mackerel, Bullet	4	0	1	0	0.010	33	0	104	1.00
Mackerel, Jack	1	0	1	0	0.002	9	0	26	0.98
Mackerel, Pacific	512	0.008	0.992	0	1.216	4126	1714	7158	0.34
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	9	0	1	0	0.021	73	8	166	0.57
Marlin, Striped	5	0.200	0.800	0	0.012	41	0	101	0.65
Mobula	0				0				
Mola, Common	1968	0.971	0.024	0.006	4.675	15857	12645	19397	0.11
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	8	0	0.875	0.125	0.019	65	24	114	0.36
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	12	0	1	0	0.029	97	18	191	0.45
Ray, Bat	0				0				
Ray, Pacific Electric	2	1	0	0	0.005	17	0	42	0.69
Ray, Unidentified	1	1	0	0	0.002	9	0	26	0.99
Remora	14	0.929	0.071	0	0.033	113	26	238	0.50
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	1	0	1	0	0.002	9	0	26	0.99
Scombrid	0				0				
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	1	0	1	0	0.002	9	0	26	1.00
Shark, Blue	1574	0.288	0.698	0.014	3.739	12682	9935	15905	0.12
Shark, Common Thresher	1	0	1	0	0.002	9	0	26	1.00
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	0				0				
Shark, Salmon	1	0	1	0	0.002	9	0	26	0.98
Shark, Sevengill	0				0				
Shark, Shortfin Mako	16	0.563	0.375	0.063	0.038	129	8	305	0.61
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	0				0				
Shark, Soupfin	0				0				
Shark, Unidentified	1	0	1	0	0.002	9	0	26	1.01
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	0				0				
Stingray, Pelagic	17	0.588	0.353	0.059	0.040	137	61	237	0.32
Stingray, Round	0				0				
Swordfish, Broadbill	4	0	1	0	0.010	33	8	67	0.49
Tuna, Bluefin	11	0	1	0	0.026	89	25	172	0.43
Tuna, Skipjack	54	0	1	0	0.128	436	154	834	0.41
Tuna, Yellowfin	2	0	1	0	0.005	17	0	52	0.99
Tunicates, Pelagic	62	0	0.452	0.548	0.147	500	0	1228	0.67
Unknown Species	0				0				
Yellowtail	0				0				

1997

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	156	0	1	0	0.225	686	387	1045	0.25
Anchovy, Northern	0				0				
Barracuda, California	8	0.125	0.875	0	0.012	36	5	81	0.57
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	40	0	1	0	0.058	176	40	363	0.47
Crab, Dungeness	0				0				
Crab, Pelagic Red	28	0.393	0.607	0	0.040	123	0	366	0.89
Crab, Spider	0				0				
Crustacean, Unidentified	20	0.250	0.150	0.600	0.029	88	0	235	0.72
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	34	0.029	0.971	0	0.049	150	18	368	0.64
Fish, Unidentified	82	0.085	0.915	0	0.118	361	201	561	0.26
Hagfish Pacific	0				0				
Hake, Pacific	3	0	1	0	0.004	14	0	36	0.73
Invertebrate, Unidentified	533	0.032	0.735	0.233	0.770	2341	430	4987	0.51
Lancetfish, Longnose	0				0				
Louvar	7	0	0.857	0.143	0.010	31	9	58	0.41
Mackerel, Bullet	1310	0.004	0.996	0	1.893	5754	2715	10118	0.33
Mackerel, Jack	13	0.077	0.923	0	0.019	58	5	125	0.54
Mackerel, Pacific	266	0.030	0.962	0.008	0.384	1169	743	1653	0.20
Mackerel, Unidentified	18	0	1	0	0.026	80	0	235	0.86
Manta	9	0.222	0.667	0.111	0.013	40	0	111	0.79
Marlin, Black	0				0				
Marlin, Blue	4	0	1	0	0.006	18	0	41	0.60
Marlin, Striped	42	0	1	0	0.061	185	101	284	0.25
Mobula	1	1	0	0	0.001	5	0	14	1.01
Mola, Common	2447	0.959	0.034	0.007	3.536	10747	7854	14243	0.15
Mollusk, Unidentified	2	0	1	0	0.003	9	0	23	0.69
Needlefish, California	0				0				
Oarfish	1	0	1	0	0.001	5	0	14	0.98
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	23	0.043	0.957	0	0.033	102	41	173	0.33
Pipefish Bay	2	0	1	0	0.003	9	0	28	1.01
Pomfret	0				0				
Pomfret, Pacific	4	0.250	0.750	0	0.006	18	5	37	0.49
Ray, Bat	1	1	0	0	0.001	5	0	14	1.00
Ray, Pacific Electric	6	0.833	0.167	0	0.009	27	5	61	0.57
Ray, Unidentified	0				0				
Remora	27	0.926	0.037	0.037	0.039	119	61	185	0.26
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	19	0	1	0	0.027	84	5	224	0.71
Scombrid	0				0				
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	0				0				
Shark, Blue	2220	0.319	0.669	0.012	3.208	9750	7689	11925	0.11
Shark, Common Thresher	0				0				
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	1	0	1	0	0.001	5	0	14	1.00
Shark, Prickly	1	1	0	0	0.001	5	0	14	0.99
Shark, Salmon	5	0	1	0	0.007	22	0	70	1.00
Shark, Sevengill	0				0				
Shark, Shortfin Mako	24	0.417	0.542	0.042	0.035	106	59	158	0.24
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	6	0	1	0	0.009	27	5	53	0.46
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	1	0	1	0	0.001	5	0	14	0.99
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	2	0	1	0	0.003	9	0	23	0.69
Stingray, Pelagic	34	0.794	0.176	0.029	0.049	150	88	222	0.23
Stingray, Round	1	1	0	0	0.001	5	0	14	0.99
Swordfish, Broadbill	25	0	1	0	0.036	110	56	174	0.28
Tuna, Bluefin	30	0	1	0	0.043	132	64	214	0.29
Tuna, Skipjack	700	0	1	0	1.012	3075	1715	4694	0.25
Tuna, Yellowfin	10	0	1	0	0.014	44	0	103	0.60
Tunicates, Pelagic	161	0	0.112	0.888	0.233	708	22	1657	0.59
Unknown Species	0				0				
Yellowtail	0				0				

1998

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	269	0	1	0	0.458	1537	929	2226	0.22
Anchovy, Northern	1	0	1	0	0.002	6	0	18	1.00
Barracuda, California	0				0				
Billfish, Other Identified	2	0.500	0.500	0	0.003	12	0	30	0.71
Billfish, Unidentified	0				0				
Blacksmith	1	1	0	0	0.002	6	0	18	1.00
Bonito, Pacific	13	0	1	0	0.022	75	23	144	0.42
Crab, Dungeness	0				0				
Crab, Pelagic Red	1	1	0	0	0.002	6	0	18	1.00
Crab, Spider	0				0				
Crustacean, Unidentified	9	0	1	0	0.015	52	0	160	0.98
Dogfish, Spiny	1	0	1	0	0.002	6	0	19	1.01
Escolar (Smith's)	0				0				
Fish, Other Identified	12	0.750	0.250	0	0.020	69	18	132	0.42
Fish, Unidentified	45	0	0.978	0.022	0.077	258	109	439	0.33
Hagfish Pacific	0				0				
Hake, Pacific	0				0				
Invertebrate, Unidentified	181	0.006	0.028	0.967	0.308	1034	57	2456	0.60
Lancetfish, Longnose	0				0				
Louvar	9	0	1	0	0.015	52	12	99	0.43
Mackerel, Bullet	469	0	1	0	0.799	2679	754	6011	0.54
Mackerel, Jack	0				0				
Mackerel, Pacific	41	0.049	0.927	0.024	0.070	235	79	428	0.39
Mackerel, Unidentified	1	0	1	0	0.002	6	0	18	1.00
Manta	4	0.500	0.500	0	0.007	23	0	54	0.60
Marlin, Black	0				0				
Marlin, Blue	10	0	0.900	0.100	0.017	58	0	177	0.98
Marlin, Striped	35	0	1	0	0.060	200	94	332	0.31
Mobula	0				0				
Mola, Common	4081	0.976	0.021	0.003	6.952	23312	18312	28988	0.12
Mollusk, Unidentified	0				0				
Needlefish, California	1	0	1	0	0.002	6	0	18	1.00
Oarfish	1	0	1	0	0.002	6	0	18	0.98
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	17	0	1	0	0.029	98	34	182	0.39
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	7	0	1	0	0.012	40	12	77	0.41
Ray, Bat	1	1	0	0	0.002	6	0	18	0.98
Ray, Pacific Electric	3	1	0	0	0.005	18	0	40	0.58
Ray, Unidentified	0				0				
Remora	5	0.800	0	0.200	0.009	29	6	62	0.51
Rockfish, Unidentified	2	0.500	0.500	0	0.003	12	0	36	1.00
Sailfish	0				0				
Sardine, Pacific	0				0				
Scombrid	0				0				
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	1	0	1	0	0.002	6	0	18	0.99
Shark, Blue	2459	0.329	0.658	0.013	4.189	14047	9774	18965	0.17
Shark, Common Thresher	2	1	0	0	0.003	12	0	36	1.01
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	0				0				
Shark, Salmon	1	0	1	0	0.002	6	0	18	1.00
Shark, Sevengill	0				0				
Shark, Shortfin Mako	11	0.727	0.273	0	0.019	63	25	110	0.34
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	1	0	1	0	0.002	6	0	18	0.99
Shark, Soupfin	0				0				
Shark, Unidentified	1	0	1	0	0.002	6	0	18	1.00
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	1	0	1	0	0.002	6	0	19	1.01
Stingray, Pelagic	26	0.808	0.192	0	0.044	149	84	227	0.25
Stingray, Round	1	1	0	0	0.002	6	0	18	0.99
Swordfish, Broadbill	36	0	1	0	0.061	206	111	322	0.26
Tuna, Bluefin	39	0	1	0	0.066	223	78	434	0.42
Tuna, Skipjack	1317	0.001	0.999	0	2.244	7523	3861	11883	0.27
Tuna, Yellowfin	4	0	1	0	0.007	23	6	47	0.49
Tunicates, Pelagic	442	0.023	0.005	0.973	0.753	2525	359	5985	0.59
Unknown Species	0				0				
Yellowtail	0				0				

1999

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	782	0.017	0.983	0	1.487	3916	1953	6899	0.34
Anchovy, Northern	0				0				
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	4	0	1	0	0.008	21	0	58	0.79
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	1	1	0	0	0.002	6	0	16	1.01
Escolar (Smith's)	0				0				
Fish, Other Identified	2	0	1	0	0.004	11	0	26	0.69
Fish, Unidentified	4	0	1	0	0.008	21	0	57	0.78
Hagfish Pacific	0				0				
Hake, Pacific	3	0	1	0	0.006	16	0	41	0.74
Invertebrate, Unidentified	266722	0	0.010	0.990	507.076	1335639	531843	2338421	0.35
Lancetfish, Longnose	0				0				
Louvar	21	0.048	0.952	0	0.040	106	49	173	0.30
Mackerel, Bullet	37	0	1	0	0.070	186	0	475	0.69
Mackerel, Jack	1	0	1	0	0.002	6	0	16	1.00
Mackerel, Pacific	23	0.043	0.957	0	0.044	116	51	196	0.33
Mackerel, Unidentified	67	0	1	0	0.127	336	0	1061	1.01
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	4	0	1	0	0.008	21	0	52	0.70
Marlin, Striped	12	0	1	0	0.023	61	11	129	0.51
Mobula	0				0				
Mola, Common	1681	0.963	0.034	0.004	3.196	8418	6523	10765	0.13
Mollusk, Unidentified	0				0				
Needlefish, California	1	1	0	0	0.002	6	0	17	1.01
Oarfish	0				0				
Octopus, Unidentified	1	0	1	0	0.002	6	0	16	1.00
Oilfish	0				0				
Opah	11	0	1	0	0.021	56	15	111	0.45
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	23	0	0.957	0.043	0.044	116	20	275	0.59
Ray, Bat	0				0				
Ray, Pacific Electric	3	0.333	0.667	0	0.006	16	0	41	0.74
Ray, Unidentified	1	0	1	0	0.002	6	0	16	1.00
Remora	5	1	0	0	0.010	26	0	57	0.58
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	0				0				
Scombrid	0				0				
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	1	0	1	0	0.002	6	0	16	1.01
Shark, Blue	2446	0.433	0.549	0.018	4.650	12249	8997	15596	0.14
Shark, Common Thresher	2	0.500	0	0.500	0.004	11	0	26	0.70
Shark, Megamouth	1	1	0	0	0.002	6	0	16	0.99
Shark, Pacific Angel	1	1	0	0	0.002	6	0	16	1.00
Shark, Pelagic Thresher	0				0				
Shark, Prickly	1	0	1	0	0.002	6	0	16	0.98
Shark, Salmon	53	0	1	0	0.101	266	5	804	0.91
Shark, Sevengill	0				0				
Shark, Shortfin Mako	14	0.429	0.571	0	0.027	71	19	139	0.45
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	0				0				
Shark, Soupfin	1	0	1	0	0.002	6	0	16	0.99
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	1	0	1	0	0.002	6	0	16	1.00
Squid, Market	1	0	1	0	0.002	6	0	16	0.98
Stingray, Pelagic	29	0.690	0.276	0.034	0.055	146	81	223	0.25
Stingray, Round	3	1	0	0	0.006	16	0	41	0.74
Swordfish, Broadbill	10	0	1	0	0.019	51	21	86	0.33
Tuna, Bluefin	19	0	1	0	0.036	96	44	157	0.30
Tuna, Skipjack	10	0	1	0	0.019	51	10	108	0.52
Tuna, Yellowfin	0				0				
Tunicates, Pelagic	2695	0	0	1	5.124	13496	0	41416	0.94
Unknown Species	0				0				
Yellowtail	0				0				

2000

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	232	0	1	0	0.523	1012	652	1414	0.19
Anchovy, Northern	1	1	0	0	0.002	5	0	14	0.98
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	2	0.500	0.500	0	0.005	9	0	23	0.70
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	1	1	0	0	0.002	5	0	14	0.98
Escolar (Smith's)	0				0				
Fish, Other Identified	4	0.250	0.750	0	0.009	18	0	41	0.61
Fish, Unidentified	19	0	1	0	0.043	83	9	187	0.56
Hagfish Pacific	0				0				
Hake, Pacific	9	0	1	0	0.020	40	5	87	0.54
Invertebrate, Unidentified	1051	0	0	1	2.367	4583	0	13728	0.94
Lancetfish, Longnose	0				0				
Louvar	9	0.111	0.889	0	0.020	40	18	65	0.31
Mackerel, Bullet	52	0	1	0	0.117	227	39	468	0.49
Mackerel, Jack	2	0	1	0	0.005	9	0	28	0.99
Mackerel, Pacific	329	0.015	0.985	0	0.741	1435	341	3198	0.55
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	2	0	1	0	0.005	9	0	28	0.99
Marlin, Striped	6	0	1	0	0.014	27	5	52	0.45
Mobula	0				0				
Mola, Common	3988	0.976	0.021	0.004	8.982	17390	14180	20675	0.10
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	1	0	1	0	0.002	5	0	14	1.00
Oilfish	0				0				
Opah	17	0.294	0.706	0	0.038	75	34	126	0.32
Pipefish Bay	0				0				
Pomfret	1	0	1	0	0.002	5	0	14	0.98
Pomfret, Pacific	17	0.059	0.941	0	0.038	75	25	152	0.45
Ray, Bat	0				0				
Ray, Pacific Electric	5	0.600	0	0.400	0.011	22	5	42	0.43
Ray, Unidentified	0				0				
Remora	3	1	0	0	0.007	14	0	36	0.75
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	1	0	1	0	0.002	5	0	14	1.00
Scombrid	0				0				
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	0				0				
Shark, Blue	1491	0.445	0.540	0.015	3.358	6502	4823	8349	0.14
Shark, Common Thresher	0				0				
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	0				0				
Shark, Salmon	1	0	1	0	0.002	5	0	14	0.99
Shark, Sevengill	0				0				
Shark, Shortfin Mako	28	0.357	0.643	0	0.063	123	49	213	0.34
Shark, Sixgill	1	1	0	0	0.002	5	0	14	0.98
Shark, Smooth Hammerhead	7	0	1	0	0.016	31	5	68	0.54
Shark, Soupfin	0				0				
Shark, Unidentified	1	0	0	1	0.002	5	0	14	0.99
Shark, White	0				0				
Skate, Big	1	1	0	0	0.002	5	0	14	1.01
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	1	0	1	0	0.002	5	0	14	0.99
Stingray, Pelagic	36	0.861	0.083	0.056	0.081	157	93	229	0.22
Stingray, Round	0				0				
Swordfish, Broadbill	14	0	1	0	0.032	62	21	112	0.39
Tuna, Bluefin	23	0	1	0	0.052	101	45	170	0.32
Tuna, Skipjack	17	0	1	0	0.038	75	5	182	0.64
Tuna, Yellowfin	13	0	1	0	0.029	57	18	110	0.42
Tunicates, Pelagic	7909	0	0.994	0.006	17.813	34487	713	93793	0.77
Unknown Species	1	0	0	1	0.002	5	0	14	1.02
Yellowtail	0				0				

2001

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	149	0	0.993	0.007	0.440	732	257	1310	0.38
Anchovy, Northern	0				0				
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	1	0	1	0	0.003	5	0	16	0.99
Blacksmith	0				0				
Bonito, Pacific	4	0	1	0	0.012	20	0	62	1.00
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	0				0				
Fish, Unidentified	2	0	0.500	0.500	0.006	10	0	26	0.70
Hagfish Pacific	0				0				
Hake, Pacific	1	0	1	0	0.003	5	0	16	1.01
Invertebrate, Unidentified	0				0				
Lancetfish, Longnose	0				0				
Louvar	5	0	1	0	0.015	25	6	47	0.42
Mackerel, Bullet	20	0.050	0.950	0	0.059	99	5	255	0.70
Mackerel, Jack	6	0.333	0.667	0	0.018	30	0	92	0.99
Mackerel, Pacific	58	0.034	0.966	0	0.171	285	160	430	0.24
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	9	0	1	0	0.027	45	0	119	0.71
Marlin, Striped	15	0	1	0	0.044	74	31	127	0.34
Mobula	0				0				
Mola, Common	2541	0.927	0.068	0.005	7.496	12481	9087	16400	0.15
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	11	0	1	0	0.032	55	20	94	0.35
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	9	0	1	0	0.027	45	10	89	0.46
Ray, Bat	0				0				
Ray, Pacific Electric	1	0	1	0	0.003	5	0	16	0.99
Ray, Unidentified	0				0				
Remora	3	1	0	0	0.009	15	0	40	0.74
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	0				0				
Scombrid	3	0	1	0	0.009	15	0	40	0.73
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	1	0	1	0	0.003	5	0	16	0.99
Shark, Blue	559	0.436	0.560	0.004	1.649	2746	1696	4206	0.24
Shark, Common Thresher	1	1	0	0	0.003	5	0	16	1.00
Shark, Megamouth	1	1	0	0	0.003	5	0	16	1.01
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	0				0				
Shark, Salmon	14	0.214	0.786	0	0.041	69	0	214	0.99
Shark, Sevengill	0				0				
Shark, Shortfin Mako	44	0.250	0.750	0	0.130	217	97	383	0.35
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	0				0				
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	0				0				
Stingray, Pelagic	10	0.800	0.200	0	0.029	50	20	85	0.35
Stingray, Round	1	1	0	0	0.003	5	0	16	0.99
Swordfish, Broadbill	10	0	1	0	0.029	50	15	94	0.43
Tuna, Bluefin	18	0	1	0	0.053	89	11	201	0.58
Tuna, Skipjack	49	0	1	0	0.145	241	10	590	0.64
Tuna, Yellowfin	30	0	1	0	0.088	148	59	252	0.33
Tunicates, Pelagic	20898	0	0	1	61.646	102641	0	309112	0.93
Unknown Species	0				0				
Yellowtail	0				0				

2002

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	91	0	1	0	0.253	413	168	714	0.34
Anchovy, Northern	0				0				
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	22	0	1	0	0.061	100	0	306	0.96
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	4	0.500	0.500	0	0.011	19	0	43	0.61
Fish, Unidentified	0				0				
Hagfish Pacific	0				0				
Hake, Pacific	3	0	1	0	0.008	14	0	32	0.57
Invertebrate, Unidentified	0				0				
Lancetfish, Longnose	1	1	0	0	0.003	5	0	15	1.00
Louvar	6	0	1	0	0.017	28	5	54	0.44
Mackerel, Bullet	2	0	1	0	0.006	10	0	29	1.00
Mackerel, Jack	2	0	1	0	0.006	10	0	29	1.00
Mackerel, Pacific	296	0.041	0.956	0.003	0.822	1341	258	3337	0.65
Mackerel, Unidentified	1	0	1	0	0.003	5	0	15	1.00
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	2	0	1	0	0.006	10	0	24	0.70
Marlin, Striped	22	0	1	0	0.061	100	26	197	0.44
Mobula	0				0				
Mola, Common	2775	0.984	0.013	0.003	7.708	12565	9785	15563	0.12
Mollusk, Unidentified	1	1	0	0	0.003	5	0	15	0.99
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	18	0	1	0	0.050	82	27	157	0.41
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	13	0.077	0.923	0	0.036	59	9	125	0.51
Ray, Bat	2	1	0	0	0.006	10	0	24	0.71
Ray, Pacific Electric	4	0.500	0.500	0	0.011	19	5	38	0.48
Ray, Unidentified	0				0				
Remora	5	0.800	0	0.200	0.014	23	0	56	0.64
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	1	0	1	0	0.003	5	0	15	1.00
Scombrid	24	0	1	0	0.067	109	33	208	0.42
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	1	1	0	0	0.003	5	0	15	0.99
Shark, Bigeye Thresher	0				0				
Shark, Blue	543	0.313	0.650	0.037	1.508	2459	1559	3448	0.20
Shark, Common Thresher	6	0.667	0.333	0	0.017	28	0	70	0.70
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	1	1	0	0	0.003	5	0	15	0.99
Shark, Salmon	8	0	1	0	0.022	37	0	116	1.00
Shark, Sevengill	1	1	0	0	0.003	5	0	15	1.01
Shark, Shortfin Mako	32	0.375	0.625	0	0.089	145	73	229	0.27
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	0				0				
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	0				0				
Stingray, Pelagic	28	0.821	0.143	0.036	0.078	127	77	184	0.22
Stingray, Round	0				0				
Swordfish, Broadbill	15	0	1	0	0.042	68	23	124	0.38
Tuna, Bluefin	29	0	1	0	0.081	132	15	320	0.64
Tuna, Skipjack	3	0	1	0	0.008	14	0	43	0.99
Tuna, Yellowfin	0				0				
Tunicates, Pelagic	8700	0	0	1	24.167	39392	0	106285	0.73
Unknown Species	0				0				
Yellowtail	0				0				

2003

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	10	0	1	0	0.034	50	5	114	0.58
Anchovy, Northern	0				0				
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	2	0	1	0	0.007	10	0	25	0.69
Blacksmith	0				0				
Bonito, Pacific	37	0.405	0.595	0	0.124	183	10	496	0.77
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	0				0				
Fish, Unidentified	3	0	0.667	0.333	0.010	15	0	41	0.74
Hagfish Pacific	0				0				
Hake, Pacific	0				0				
Invertebrate, Unidentified	0				0				
Lancetfish, Longnose	0				0				
Louvar	3	0	1	0	0.010	15	0	34	0.56
Mackerel, Bullet	4	0	1	0	0.013	20	0	63	1.00
Mackerel, Jack	2	0	1	0	0.007	10	0	31	0.97
Mackerel, Pacific	28	0.250	0.714	0.036	0.094	138	42	260	0.41
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	0				0				
Marlin, Striped	27	0	1	0	0.091	133	52	237	0.36
Mobula	1	1	0	0	0.003	5	0	16	0.97
Mola, Common	1674	0.863	0.135	0.002	5.617	8241	5603	11508	0.18
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	4	0	1	0	0.013	20	0	56	0.79
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	1	0	1	0	0.003	5	0	16	0.97
Ray, Bat	2	1	0	0	0.007	10	0	26	0.71
Ray, Pacific Electric	0				0				
Ray, Unidentified	0				0				
Remora	2	1	0	0	0.007	10	0	26	0.70
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	1	0	1	0	0.003	5	0	16	1.00
Scombrid	50	0	1	0	0.168	247	30	526	0.52
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	14	0	1	0	0.047	69	24	128	0.40
Shark, Blue	385	0.351	0.618	0.031	1.292	1896	1237	2655	0.19
Shark, Common Thresher	1	1	0	0	0.003	5	0	16	0.99
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	1	0	1	0	0.003	5	0	16	1.01
Shark, Salmon	1	0	1	0	0.003	5	0	16	0.99
Shark, Sevengill	0				0				
Shark, Shortfin Mako	45	0.311	0.689	0	0.151	222	124	345	0.26
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	1	0	1	0	0.003	5	0	16	0.99
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	0				0				
Stingray, Pelagic	21	0.619	0.286	0.095	0.070	104	60	153	0.23
Stingray, Round	0				0				
Swordfish, Broadbill	8	0	1	0	0.027	40	10	81	0.47
Tuna, Bluefin	10	0	1	0	0.034	50	11	103	0.47
Tuna, Skipjack	623	0.040	0.960	0	2.091	3067	1597	4887	0.27
Tuna, Yellowfin	0				0				
Tunicates, Pelagic	1550	0	0.355	0.645	5.201	7631	0	16826	0.56
Unknown Species	0				0				
Yellowtail	0				0				

2004

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	15	0	1	0	0.067	73	0	169	0.59
Anchovy, Northern	0				0				
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	195	0.010	0.990	0	0.874	948	40	2829	0.91
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	1	0	1	0	0.004	5	0	16	0.98
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	1	0	1	0	0.004	5	0	16	1.00
Fish, Other Identified	2	1	0	0	0.009	10	0	25	0.69
Fish, Unidentified	6	0	1	0	0.027	30	0	92	0.99
Hagfish Pacific	0				0				
Hake, Pacific	0				0				
Invertebrate, Unidentified	0				0				
Lancetfish, Longnose	0				0				
Louvar	1	0	1	0	0.004	5	0	16	0.98
Mackerel, Bullet	0				0				
Mackerel, Jack	0				0				
Mackerel, Pacific	36	0	1	0	0.161	175	36	368	0.50
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	0				0				
Marlin, Striped	2	0	1	0	0.009	10	0	25	0.69
Mobula	0				0				
Mola, Common	2227	0.961	0.039	0	9.987	10826	8584	12989	0.10
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	0				0				
Oilfish	2	0	1	0	0.009	10	0	25	0.67
Opah	5	0	1	0	0.022	25	5	52	0.50
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	2	0	1	0	0.009	10	0	30	0.98
Ray, Bat	4	1	0	0	0.018	20	0	61	0.98
Ray, Pacific Electric	1	1	0	0	0.004	5	0	16	1.00
Ray, Unidentified	0				0				
Remora	2	1	0	0	0.009	10	0	31	0.98
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	0				0				
Scombrid	3	0	1	0	0.013	15	0	45	0.98
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	12	0	1	0	0.054	59	20	105	0.38
Shark, Blue	251	0.323	0.669	0.008	1.126	1221	739	1776	0.22
Shark, Common Thresher	1	1	0	0	0.004	5	0	16	1.00
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	0				0				
Shark, Salmon	0				0				
Shark, Sevengill	0				0				
Shark, Shortfin Mako	29	0.276	0.690	0.034	0.130	141	63	238	0.32
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	0				0				
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	1	1	0	0	0.004	5	0	16	1.01
Skate, Unidentified	0				0				
Squid, Market	0				0				
Stingray, Pelagic	13	0.923	0	0.077	0.058	64	25	110	0.35
Stingray, Round	0				0				
Swordfish, Broadbill	44	0	1	0	0.197	214	117	326	0.25
Tuna, Bluefin	3	0	1	0	0.013	15	0	39	0.71
Tuna, Skipjack	302	0	1	0	1.354	1469	733	2273	0.27
Tuna, Yellowfin	0				0				
Tunicates, Pelagic	1550	0	1	0	6.951	7535	0	24003	1.00
Unknown Species	0				0				
Yellowtail	0				0				

2005

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	3	0	1	0	0.013	15	0	37	0.69
Anchovy, Northern	0				0				
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	0				0				
Blacksmith	0				0				
Bonito, Pacific	14	0.214	0.786	0	0.062	67	0	167	0.65
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	0				0				
Fish, Unidentified	0				0				
Hagfish Pacific	0				0				
Hake, Pacific	0				0				
Invertebrate, Unidentified	0				0				
Lancetfish, Longnose	0				0				
Louvar	0				0				
Mackerel, Bullet	0				0				
Mackerel, Jack	0				0				
Mackerel, Pacific	1	0	1	0	0.004	5	0	16	0.99
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	0				0				
Marlin, Striped	0				0				
Mobula	0				0				
Mola, Common	1090	0.998	0.002	0	4.844	5208	587	11817	0.56
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	1	0	1	0	0.004	5	0	16	1.00
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	6	0	1	0	0.027	29	0	86	0.93
Ray, Bat	0				0				
Ray, Pacific Electric	0				0				
Ray, Unidentified	0				0				
Remora	0				0				
Rockfish, Unidentified	0				0				
Sailfish	0				0				
Sardine, Pacific	0				0				
Scombrid	0				0				
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	0				0				
Shark, Bigeye Thresher	0				0				
Shark, Blue	39	0.231	0.692	0.077	0.173	187	10	484	0.74
Shark, Common Thresher	0				0				
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	0				0				
Shark, Salmon	0				0				
Shark, Sevengill	0				0				
Shark, Shortfin Mako	1	1	0	0	0.004	5	0	15	1.00
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	0				0				
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	0				0				
Stingray, Pelagic	1	0	0	1	0.004	5	0	16	0.99
Stingray, Round	0				0				
Swordfish, Broadbill	4	0	1	0	0.018	20	0	62	0.99
Tuna, Bluefin	2	0	1	0	0.009	10	0	29	0.94
Tuna, Skipjack	0				0				
Tuna, Yellowfin	0				0				
Tunicates, Pelagic	0				0				
Unknown Species	0				0				
Yellowtail	0				0				

2006

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individual s/set	Estimated catch	LoCI	HiCI	CV
Albacore	5	0	1	0	0.019	27	0	62	0.58
Anchovy, Northern	0				0				
Barracuda, California	0				0				
Billfish, Other Identified	0				0				
Billfish, Unidentified	1	0	1	0	0.004	6	0	17	0.99
Blacksmith	0				0				
Bonito, Pacific	64	0	1	0	0.241	345	108	641	0.39
Crab, Dungeness	0				0				
Crab, Pelagic Red	0				0				
Crab, Spider	0				0				
Crustacean, Unidentified	0				0				
Dogfish, Spiny	0				0				
Escolar (Smith's)	0				0				
Fish, Other Identified	0				0				
Fish, Unidentified	2	0	1	0	0.008	11	0	34	0.99
Hagfish Pacific	0				0				
Hake, Pacific	0				0				
Invertebrate, Unidentified	2	0	0	1	0.008	11	0	34	0.97
Lancetfish, Longnose	0				0				
Louvar	2	0	1	0	0.008	11	0	28	0.70
Mackerel, Bullet	0				0				
Mackerel, Jack	0				0				
Mackerel, Pacific	400	0.008	0.993	0	1.504	2155	305	4863	0.55
Mackerel, Unidentified	0				0				
Manta	0				0				
Marlin, Black	0				0				
Marlin, Blue	0				0				
Marlin, Striped	11	0	1	0	0.041	60	21	109	0.39
Mobula	0				0				
Mola, Common	1438	0.919	0.080	0.001	5.406	7747	4289	11937	0.25
Mollusk, Unidentified	0				0				
Needlefish, California	0				0				
Oarfish	0				0				
Octopus, Unidentified	0				0				
Oilfish	0				0				
Opah	8	0	1	0	0.030	44	6	96	0.54
Pipefish Bay	0				0				
Pomfret	0				0				
Pomfret, Pacific	2	0	1	0	0.008	11	0	34	0.97
Ray, Bat	1	1	0	0	0.004	6	0	18	1.01
Ray, Pacific Electric	4	1	0	0	0.015	22	6	45	0.49
Ray, Unidentified	0				0				
Remora	3	1	0	0	0.011	17	0	44	0.73
Rockfish, Unidentified	1	1	0	0	0.004	6	0	17	0.99
Sailfish	0				0				
Sardine, Pacific	0				0				
Scombrid	3	0	1	0	0.011	17	0	52	1.00
Sea Star	0				0				
Seabass, White	0				0				
Shark, Basking	1	0	1	0	0.004	6	0	17	0.97
Shark, Bigeye Thresher	24	0	1	0	0.090	130	43	241	0.39
Shark, Blue	95	0.400	0.474	0.126	0.357	512	191	954	0.39
Shark, Common Thresher	0				0				
Shark, Megamouth	0				0				
Shark, Pacific Angel	0				0				
Shark, Pelagic Thresher	0				0				
Shark, Prickly	0				0				
Shark, Salmon	0				0				
Shark, Sevengill	0				0				
Shark, Shortfin Mako	17	0.353	0.647	0	0.064	92	26	179	0.43
Shark, Sixgill	0				0				
Shark, Smooth Hammerhead	0				0				
Shark, Soupfin	0				0				
Shark, Unidentified	0				0				
Shark, White	0				0				
Skate, Big	0				0				
Skate, California	0				0				
Skate, Unidentified	0				0				
Squid, Market	0				0				
Stingray, Pelagic	19	0.737	0.263	0	0.071	103	48	168	0.30
Stingray, Round	0				0				
Swordfish, Broadbill	20	0.350	0.650	0	0.075	108	38	201	0.40
Tuna, Bluefin	0				0				
Tuna, Skipjack	432	0	0.986	0.014	1.624	2328	92	6426	0.80
Tuna, Yellowfin	4	0	1	0	0.015	22	0	68	0.99
Tunicates, Pelagic	44020	0.130	0.136	0.734	165.489	237146	74522	448519	0.41
Unknown Species	0				0				
Yellowtail	0				0				

Table 3. Observed bycatch, estimated bycatch, and coefficient of variation for the California drift gillnet fishery for swordfish and thresher shark, 1990-2006, sorted by species.

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/set	Estimated catch	LoCI	HiCI	CV
1990	Albacore	17	0	0	1	0.096	390	112	710	0.39
1991	Albacore	19	0	1	0	0.040	194	56	374	0.43
1992	Albacore	164	0	1	0	0.275	1205	598	1933	0.28
1993	Albacore	513	0	1	0	0.705	3835	1809	6305	0.30
1994	Albacore	68	0	1	0	0.090	381	188	611	0.28
1995	Albacore	64	0	1	0	0.112	411	208	640	0.27
1996	Albacore	67	0	1	0	0.159	540	262	854	0.28
1997	Albacore	156	0	1	0	0.225	686	387	1045	0.25
1998	Albacore	269	0	1	0	0.458	1537	929	2226	0.22
1999	Albacore	782	0.017	0.983	0	1.487	3916	1953	6899	0.34
2000	Albacore	232	0	1	0	0.523	1012	652	1414	0.19
2001	Albacore	149	0	0.993	0.007	0.440	732	257	1310	0.38
2002	Albacore	91	0	1	0	0.253	413	168	714	0.34
2003	Albacore	10	0	1	0	0.034	50	5	114	0.58
2004	Albacore	15	0	1	0	0.067	73	0	169	0.59
2005	Albacore	3	0	1	0	0.013	15	0	37	0.69
2006	Albacore	5	0	1	0	0.019	27	0	62	0.58
1990	Anchovy, Northern	0				0				
1991	Anchovy, Northern	1	0	1	0	0.002	11	0	33	1.00
1992	Anchovy, Northern	0				0				
1993	Anchovy, Northern	0				0				
1994	Anchovy, Northern	2	0.500	0.500	0	0.003	12	0	29	0.71
1995	Anchovy, Northern	0				0				
1996	Anchovy, Northern	1	0	1	0	0.002	9	0	27	1.02
1997	Anchovy, Northern	0				0				
1998	Anchovy, Northern	1	0	1	0	0.002	6	0	18	1.00
1999	Anchovy, Northern	0				0				
2000	Anchovy, Northern	1	1	0	0	0.002	5	0	14	0.98
2001	Anchovy, Northern	0				0				
2002	Anchovy, Northern	0				0				
2003	Anchovy, Northern	0				0				
2004	Anchovy, Northern	0				0				
2005	Anchovy, Northern	0				0				
2006	Anchovy, Northern	0				0				
1990	Barracuda, California	0				0				
1991	Barracuda, California	0				0				
1992	Barracuda, California	0				0				
1993	Barracuda, California	0				0				
1994	Barracuda, California	0				0				
1995	Barracuda, California	0				0				
1996	Barracuda, California	0				0				
1997	Barracuda, California	8	0.125	0.875	0	0.012	36	5	81	0.57
1998	Barracuda, California	0				0				
1999	Barracuda, California	0				0				
2000	Barracuda, California	0				0				
2001	Barracuda, California	0				0				
2002	Barracuda, California	0				0				
2003	Barracuda, California	0				0				
2004	Barracuda, California	0				0				
2005	Barracuda, California	0				0				
2006	Barracuda, California	0				0				
1990	Billfish, Other Identified	0				0				
1991	Billfish, Other Identified	0				0				
1992	Billfish, Other Identified	0				0				
1993	Billfish, Other Identified	0				0				
1994	Billfish, Other Identified	1	0	1	0	0.001	6	0	19	1.00
1995	Billfish, Other Identified	0				0				
1996	Billfish, Other Identified	0				0				
1997	Billfish, Other Identified	0				0				
1998	Billfish, Other Identified	2	0.500	0.500	0	0.003	12	0	30	0.71
1999	Billfish, Other Identified	0				0				
2000	Billfish, Other Identified	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
2001	Billfish, Other Identified	0				0				
2002	Billfish, Other Identified	0				0				
2003	Billfish, Other Identified	0				0				
2004	Billfish, Other Identified	0				0				
2005	Billfish, Other Identified	0				0				
2006	Billfish, Other Identified	0				0				
1990	Billfish, Unidentified	0				0				
1991	Billfish, Unidentified	0				0				
1992	Billfish, Unidentified	0				0				
1993	Billfish, Unidentified	0				0				
1994	Billfish, Unidentified	0				0				
1995	Billfish, Unidentified	0				0				
1996	Billfish, Unidentified	0				0				
1997	Billfish, Unidentified	0				0				
1998	Billfish, Unidentified	0				0				
1999	Billfish, Unidentified	0				0				
2000	Billfish, Unidentified	0				0				
2001	Billfish, Unidentified	1	0	1	0	0.003	5	0	16	0.99
2002	Billfish, Unidentified	0				0				
2003	Billfish, Unidentified	2	0	1	0	0.007	10	0	25	0.69
2004	Billfish, Unidentified	0				0				
2005	Billfish, Unidentified	0				0				
2006	Billfish, Unidentified	1	0	1	0	0.004	6	0	17	0.99
1990	Blacksmith	0				0				
1991	Blacksmith	0				0				
1992	Blacksmith	0				0				
1993	Blacksmith	0				0				
1994	Blacksmith	0				0				
1995	Blacksmith	0				0				
1996	Blacksmith	0				0				
1997	Blacksmith	0				0				
1998	Blacksmith	1	1	0	0	0.002	6	0	18	1.00
1999	Blacksmith	0				0				
2000	Blacksmith	0				0				
2001	Blacksmith	0				0				
2002	Blacksmith	0				0				
2003	Blacksmith	0				0				
2004	Blacksmith	0				0				
2005	Blacksmith	0				0				
2006	Blacksmith	0				0				
1990	Bonito, Pacific	17	0	0	1	0.096	390	0	1032	0.71
1991	Bonito, Pacific	1	0	1	0	0.002	11	0	33	1.01
1992	Bonito, Pacific	10	0	1	0	0.017	74	0	221	0.85
1993	Bonito, Pacific	3	0	1	0	0.004	23	0	72	0.99
1994	Bonito, Pacific	0				0				
1995	Bonito, Pacific	48	0	1	0	0.084	309	0	911	0.89
1996	Bonito, Pacific	2	0	1	0	0.005	17	0	52	1.01
1997	Bonito, Pacific	40	0	1	0	0.058	176	40	363	0.47
1998	Bonito, Pacific	13	0	1	0	0.022	75	23	144	0.42
1999	Bonito, Pacific	4	0	1	0	0.008	21	0	58	0.79
2000	Bonito, Pacific	2	0.500	0.500	0	0.005	9	0	23	0.70
2001	Bonito, Pacific	4	0	1	0	0.012	20	0	62	1.00
2002	Bonito, Pacific	22	0	1	0	0.061	100	0	306	0.96
2003	Bonito, Pacific	37	0.405	0.595	0	0.124	183	10	496	0.77
2004	Bonito, Pacific	195	0.010	0.990	0	0.874	948	40	2829	0.91
2005	Bonito, Pacific	14	0.214	0.786	0	0.062	67	0	167	0.65
2006	Bonito, Pacific	64	0	1	0	0.241	345	108	641	0.39
1990	Crab, Dungeness	0				0				
1991	Crab, Dungeness	0				0				
1992	Crab, Dungeness	0				0				
1993	Crab, Dungeness	1	1	0	0	0.001	8	0	24	0.99
1994	Crab, Dungeness	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
1995	Crab, Dungeness	0				0				
1996	Crab, Dungeness	0				0				
1997	Crab, Dungeness	0				0				
1998	Crab, Dungeness	0				0				
1999	Crab, Dungeness	0				0				
2000	Crab, Dungeness	0				0				
2001	Crab, Dungeness	0				0				
2002	Crab, Dungeness	0				0				
2003	Crab, Dungeness	0				0				
2004	Crab, Dungeness	0				0				
2005	Crab, Dungeness	0				0				
2006	Crab, Dungeness	0				0				
1990	Crab, Pelagic Red	0				0				
1991	Crab, Pelagic Red	0				0				
1992	Crab, Pelagic Red	1	1	0	0	0.002	8	0	24	0.99
1993	Crab, Pelagic Red	5	0	0.400	0.600	0.007	38	0	107	0.82
1994	Crab, Pelagic Red	0				0				
1995	Crab, Pelagic Red	0				0				
1996	Crab, Pelagic Red	0				0				
1997	Crab, Pelagic Red	28	0.393	0.607	0	0.040	123	0	366	0.89
1998	Crab, Pelagic Red	1	1	0	0	0.002	6	0	18	1.00
1999	Crab, Pelagic Red	0				0				
2000	Crab, Pelagic Red	0				0				
2001	Crab, Pelagic Red	0				0				
2002	Crab, Pelagic Red	0				0				
2003	Crab, Pelagic Red	0				0				
2004	Crab, Pelagic Red	0				0				
2005	Crab, Pelagic Red	0				0				
2006	Crab, Pelagic Red	0				0				
1990	Crab, Spider	0				0				
1991	Crab, Spider	0				0				
1992	Crab, Spider	0				0				
1993	Crab, Spider	0				0				
1994	Crab, Spider	0				0				
1995	Crab, Spider	0				0				
1996	Crab, Spider	0				0				
1997	Crab, Spider	0				0				
1998	Crab, Spider	0				0				
1999	Crab, Spider	0				0				
2000	Crab, Spider	0				0				
2001	Crab, Spider	0				0				
2002	Crab, Spider	0				0				
2003	Crab, Spider	0				0				
2004	Crab, Spider	1	0	1	0	0.004	5	0	16	0.98
2005	Crab, Spider	0				0				
2006	Crab, Spider	0				0				
1990	Crustacean, Unidentified	0				0				
1991	Crustacean, Unidentified	0				0				
1992	Crustacean, Unidentified	0				0				
1993	Crustacean, Unidentified	0				0				
1994	Crustacean, Unidentified	0				0				
1995	Crustacean, Unidentified	0				0				
1996	Crustacean, Unidentified	0				0				
1997	Crustacean, Unidentified	20	0.250	0.150	0.600	0.029	88	0	235	0.72
1998	Crustacean, Unidentified	9	0	1	0	0.015	52	0	160	0.98
1999	Crustacean, Unidentified	0				0				
2000	Crustacean, Unidentified	0				0				
2001	Crustacean, Unidentified	0				0				
2002	Crustacean, Unidentified	0				0				
2003	Crustacean, Unidentified	0				0				
2004	Crustacean, Unidentified	0				0				
2005	Crustacean, Unidentified	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
2006	Crustacean, Unidentified	0				0				
1990	Dogfish, Spiny	0				0				
1991	Dogfish, Spiny	0				0				
1992	Dogfish, Spiny	0				0				
1993	Dogfish, Spiny	0				0				
1994	Dogfish, Spiny	0				0				
1995	Dogfish, Spiny	0				0				
1996	Dogfish, Spiny	0				0				
1997	Dogfish, Spiny	0				0				
1998	Dogfish, Spiny	1	0	1	0	0.002	6	0	19	1.01
1999	Dogfish, Spiny	1	1	0	0	0.002	6	0	16	1.01
2000	Dogfish, Spiny	1	1	0	0	0.002	5	0	14	0.98
2001	Dogfish, Spiny	0				0				
2002	Dogfish, Spiny	0				0				
2003	Dogfish, Spiny	0				0				
2004	Dogfish, Spiny	0				0				
2005	Dogfish, Spiny	0				0				
2006	Dogfish, Spiny	0				0				
1990	Escolar (Smith's)	0				0				
1991	Escolar (Smith's)	0				0				
1992	Escolar (Smith's)	0				0				
1993	Escolar (Smith's)	0				0				
1994	Escolar (Smith's)	0				0				
1995	Escolar (Smith's)	0				0				
1996	Escolar (Smith's)	0				0				
1997	Escolar (Smith's)	0				0				
1998	Escolar (Smith's)	0				0				
1999	Escolar (Smith's)	0				0				
2000	Escolar (Smith's)	0				0				
2001	Escolar (Smith's)	0				0				
2002	Escolar (Smith's)	0				0				
2003	Escolar (Smith's)	0				0				
2004	Escolar (Smith's)	1	0	1	0	0.004	5	0	16	1.00
2005	Escolar (Smith's)	0				0				
2006	Escolar (Smith's)	0				0				
1990	Fish, Other Identified	2	0	0	1	0.011	46	0	140	0.94
1991	Fish, Other Identified	28	0.929	0.071	0	0.060	285	0	823	0.87
1992	Fish, Other Identified	11	0.455	0.545	0	0.018	81	23	153	0.41
1993	Fish, Other Identified	8	0	0.500	0.500	0.011	60	0	166	0.76
1994	Fish, Other Identified	18	0.111	0.833	0.056	0.024	101	48	161	0.29
1995	Fish, Other Identified	28	0.607	0.357	0.036	0.049	180	38	425	0.60
1996	Fish, Other Identified	3	0.333	0.667	0	0.007	25	0	55	0.56
1997	Fish, Other Identified	34	0.029	0.971	0	0.049	150	18	368	0.64
1998	Fish, Other Identified	12	0.750	0.250	0	0.020	69	18	132	0.42
1999	Fish, Other Identified	2	0	1	0	0.004	11	0	26	0.69
2000	Fish, Other Identified	4	0.250	0.750	0	0.009	18	0	41	0.61
2001	Fish, Other Identified	0				0				
2002	Fish, Other Identified	4	0.500	0.500	0	0.011	19	0	43	0.61
2003	Fish, Other Identified	0				0				
2004	Fish, Other Identified	2	1	0	0	0.009	10	0	25	0.69
2005	Fish, Other Identified	0				0				
2006	Fish, Other Identified	0				0				
1990	Fish, Unidentified	17	0	0	1	0.096	390	129	727	0.39
1991	Fish, Unidentified	13	0.077	0.846	0.077	0.028	133	29	274	0.48
1992	Fish, Unidentified	5	0	1	0	0.008	37	0	118	1.00
1993	Fish, Unidentified	72	0.042	0.958	0	0.099	539	172	1011	0.40
1994	Fish, Unidentified	20	0	1	0	0.026	112	36	204	0.39
1995	Fish, Unidentified	120	0.008	0.992	0	0.210	771	251	1437	0.40
1996	Fish, Unidentified	9	0.111	0.889	0	0.021	73	17	145	0.45
1997	Fish, Unidentified	82	0.085	0.915	0	0.118	361	201	561	0.26
1998	Fish, Unidentified	45	0	0.978	0.022	0.077	258	109	439	0.33
1999	Fish, Unidentified	4	0	1	0	0.008	21	0	57	0.78

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
2000	Fish, Unidentified	19	0	1	0	0.043	83	9	187	0.56
2001	Fish, Unidentified	2	0	0.500	0.500	0.006	10	0	26	0.70
2002	Fish, Unidentified	0				0				
2003	Fish, Unidentified	3	0	0.667	0.333	0.010	15	0	41	0.74
2004	Fish, Unidentified	6	0	1	0	0.027	30	0	92	0.99
2005	Fish, Unidentified	0				0				
2006	Fish, Unidentified	2	0	1	0	0.008	11	0	34	0.99
1990	Hagfish Pacific	0				0				
1991	Hagfish Pacific	0				0				
1992	Hagfish Pacific	0				0				
1993	Hagfish Pacific	0				0				
1994	Hagfish Pacific	1	0	1	0	0.001	6	0	18	1.01
1995	Hagfish Pacific	0				0				
1996	Hagfish Pacific	0				0				
1997	Hagfish Pacific	0				0				
1998	Hagfish Pacific	0				0				
1999	Hagfish Pacific	0				0				
2000	Hagfish Pacific	0				0				
2001	Hagfish Pacific	0				0				
2002	Hagfish Pacific	0				0				
2003	Hagfish Pacific	0				0				
2004	Hagfish Pacific	0				0				
2005	Hagfish Pacific	0				0				
2006	Hagfish Pacific	0				0				
1990	Hake, Pacific	1	0	0	1	0.006	23	0	77	1.01
1991	Hake, Pacific	12	0	1	0	0.026	122	21	241	0.46
1992	Hake, Pacific	25	0	1	0	0.042	184	71	333	0.37
1993	Hake, Pacific	130	0.138	0.862	0	0.179	972	189	2087	0.51
1994	Hake, Pacific	44	0	1	0	0.058	247	66	487	0.44
1995	Hake, Pacific	3	0	1	0	0.005	20	0	53	0.75
1996	Hake, Pacific	14	0	1	0	0.033	113	0	328	0.85
1997	Hake, Pacific	3	0	1	0	0.004	14	0	36	0.73
1998	Hake, Pacific	0				0				
1999	Hake, Pacific	3	0	1	0	0.006	16	0	41	0.74
2000	Hake, Pacific	9	0	1	0	0.020	40	5	87	0.54
2001	Hake, Pacific	1	0	1	0	0.003	5	0	16	1.01
2002	Hake, Pacific	3	0	1	0	0.008	14	0	32	0.57
2003	Hake, Pacific	0				0				
2004	Hake, Pacific	0				0				
2005	Hake, Pacific	0				0				
2006	Hake, Pacific	0				0				
1990	Invertebrate, Unidentified	0				0				
1991	Invertebrate, Unidentified	100	0	0.930	0.070	0.213	1017	0	2491	0.63
1992	Invertebrate, Unidentified	20	1	0	0	0.034	147	0	466	1.00
1993	Invertebrate, Unidentified	3436	0.138	0.266	0.596	4.720	25686	7934	50691	0.44
1994	Invertebrate, Unidentified	1801	0.157	0.304	0.539	2.373	10080	2876	19185	0.42
1995	Invertebrate, Unidentified	0				0				
1996	Invertebrate, Unidentified	86	0	0	1	0.204	693	0	1843	0.74
1997	Invertebrate, Unidentified	533	0.032	0.735	0.233	0.770	2341	430	4987	0.51
1998	Invertebrate, Unidentified	181	0.006	0.028	0.967	0.308	1034	57	2456	0.60
1999	Invertebrate, Unidentified	266722	0	0.010	0.990	507.076	1335639	531843	2338421	0.35
2000	Invertebrate, Unidentified	1051	0	0	1	2.367	4583	0	13728	0.94
2001	Invertebrate, Unidentified	0				0				
2002	Invertebrate, Unidentified	0				0				
2003	Invertebrate, Unidentified	0				0				
2004	Invertebrate, Unidentified	0				0				
2005	Invertebrate, Unidentified	0				0				
2006	Invertebrate, Unidentified	2	0	0	1	0.008	11	0	34	0.97
1990	Lancetfish, Longnose	0				0				
1991	Lancetfish, Longnose	0				0				
1992	Lancetfish, Longnose	0				0				
1993	Lancetfish, Longnose	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
1994	Lancetfish, Longnose	0				0				
1995	Lancetfish, Longnose	0				0				
1996	Lancetfish, Longnose	0				0				
1997	Lancetfish, Longnose	0				0				
1998	Lancetfish, Longnose	0				0				
1999	Lancetfish, Longnose	0				0				
2000	Lancetfish, Longnose	0				0				
2001	Lancetfish, Longnose	0				0				
2002	Lancetfish, Longnose	1	1	0	0	0.003	5	0	15	1.00
2003	Lancetfish, Longnose	0				0				
2004	Lancetfish, Longnose	0				0				
2005	Lancetfish, Longnose	0				0				
2006	Lancetfish, Longnose	0				0				
1990	Louvar	2	0	0	1	0.011	46	0	118	0.69
1991	Louvar	2	0	1	0	0.004	21	0	51	0.68
1992	Louvar	12	0	1	0	0.020	89	39	145	0.31
1993	Louvar	4	0	1	0	0.005	30	8	64	0.50
1994	Louvar	2	0	1	0	0.003	12	0	29	0.70
1995	Louvar	14	0	1	0	0.024	90	40	149	0.31
1996	Louvar	7	0.143	0.857	0	0.017	57	17	103	0.39
1997	Louvar	7	0	0.857	0.143	0.010	31	9	58	0.41
1998	Louvar	9	0	1	0	0.015	52	12	99	0.43
1999	Louvar	21	0.048	0.952	0	0.040	106	49	173	0.30
2000	Louvar	9	0.111	0.889	0	0.020	40	18	65	0.31
2001	Louvar	5	0	1	0	0.015	25	6	47	0.42
2002	Louvar	6	0	1	0	0.017	28	5	54	0.44
2003	Louvar	3	0	1	0	0.010	15	0	34	0.56
2004	Louvar	1	0	1	0	0.004	5	0	16	0.98
2005	Louvar	0				0				
2006	Louvar	2	0	1	0	0.008	11	0	28	0.70
1990	Mackerel, Bullet	104	0	0	1	0.584	2383	613	4960	0.47
1991	Mackerel, Bullet	45	0	0.956	0.044	0.096	458	21	1144	0.66
1992	Mackerel, Bullet	56	0	1	0	0.094	412	0	1023	0.65
1993	Mackerel, Bullet	1	0	1	0	0.001	8	0	24	1.01
1994	Mackerel, Bullet	0				0				
1995	Mackerel, Bullet	0				0				
1996	Mackerel, Bullet	4	0	1	0	0.010	33	0	104	1.00
1997	Mackerel, Bullet	1310	0.004	0.996	0	1.893	5754	2715	10118	0.33
1998	Mackerel, Bullet	469	0	1	0	0.799	2679	754	6011	0.54
1999	Mackerel, Bullet	37	0	1	0	0.070	186	0	475	0.69
2000	Mackerel, Bullet	52	0	1	0	0.117	227	39	468	0.49
2001	Mackerel, Bullet	20	0.050	0.950	0	0.059	99	5	255	0.70
2002	Mackerel, Bullet	2	0	1	0	0.006	10	0	29	1.00
2003	Mackerel, Bullet	4	0	1	0	0.013	20	0	63	1.00
2004	Mackerel, Bullet	0				0				
2005	Mackerel, Bullet	0				0				
2006	Mackerel, Bullet	0				0				
1990	Mackerel, Jack	0				0				
1991	Mackerel, Jack	3	0	1	0	0.006	31	0	86	0.76
1992	Mackerel, Jack	3	0	1	0	0.005	23	0	50	0.57
1993	Mackerel, Jack	3	0	1	0	0.004	23	0	61	0.73
1994	Mackerel, Jack	15	0.067	0.933	0	0.020	84	12	203	0.61
1995	Mackerel, Jack	0				0				
1996	Mackerel, Jack	1	0	1	0	0.002	9	0	26	0.98
1997	Mackerel, Jack	13	0.077	0.923	0	0.019	58	5	125	0.54
1998	Mackerel, Jack	0				0				
1999	Mackerel, Jack	1	0	1	0	0.002	6	0	16	1.00
2000	Mackerel, Jack	2	0	1	0	0.005	9	0	28	0.99
2001	Mackerel, Jack	6	0.333	0.667	0	0.018	30	0	92	0.99
2002	Mackerel, Jack	2	0	1	0	0.006	10	0	29	1.00
2003	Mackerel, Jack	2	0	1	0	0.007	10	0	31	0.97
2004	Mackerel, Jack	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
2005	Mackerel, Jack	0				0				
2006	Mackerel, Jack	0				0				
1990	Mackerel, Pacific	20	0	0	1	0.112	459	125	947	0.46
1991	Mackerel, Pacific	292	0.048	0.949	0.003	0.621	2969	618	6935	0.60
1992	Mackerel, Pacific	492	0.030	0.965	0.004	0.826	3615	434	9582	0.71
1993	Mackerel, Pacific	63	0.016	0.984	0	0.087	471	123	984	0.49
1994	Mackerel, Pacific	922	0.012	0.987	0.001	1.215	5161	2453	8706	0.31
1995	Mackerel, Pacific	359	0.025	0.975	0	0.628	2306	1229	3723	0.28
1996	Mackerel, Pacific	512	0.008	0.992	0	1.216	4126	1714	7158	0.34
1997	Mackerel, Pacific	266	0.030	0.962	0.008	0.384	1169	743	1653	0.20
1998	Mackerel, Pacific	41	0.049	0.927	0.024	0.070	235	79	428	0.39
1999	Mackerel, Pacific	23	0.043	0.957	0	0.044	116	51	196	0.33
2000	Mackerel, Pacific	329	0.015	0.985	0	0.741	1435	341	3198	0.55
2001	Mackerel, Pacific	58	0.034	0.966	0	0.171	285	160	430	0.24
2002	Mackerel, Pacific	296	0.041	0.956	0.003	0.822	1341	258	3337	0.65
2003	Mackerel, Pacific	28	0.250	0.714	0.036	0.094	138	42	260	0.41
2004	Mackerel, Pacific	36	0	1	0	0.161	175	36	368	0.50
2005	Mackerel, Pacific	1	0	1	0	0.004	5	0	16	0.99
2006	Mackerel, Pacific	400	0.008	0.993	0	1.504	2155	305	4863	0.55
1990	Mackerel, Unidentified	0				0				
1991	Mackerel, Unidentified	0				0				
1992	Mackerel, Unidentified	0				0				
1993	Mackerel, Unidentified	0				0				
1994	Mackerel, Unidentified	0				0				
1995	Mackerel, Unidentified	0				0				
1996	Mackerel, Unidentified	0				0				
1997	Mackerel, Unidentified	18	0	1	0	0.026	80	0	235	0.86
1998	Mackerel, Unidentified	1	0	1	0	0.002	6	0	18	1.00
1999	Mackerel, Unidentified	67	0	1	0	0.127	336	0	1061	1.01
2000	Mackerel, Unidentified	0				0				
2001	Mackerel, Unidentified	0				0				
2002	Mackerel, Unidentified	1	0	1	0	0.003	5	0	15	1.00
2003	Mackerel, Unidentified	0				0				
2004	Mackerel, Unidentified	0				0				
2005	Mackerel, Unidentified	0				0				
2006	Mackerel, Unidentified	0				0				
1990	Manta	0				0				
1991	Manta	0				0				
1992	Manta	1	1	0	0	0.002	8	0	24	1.01
1993	Manta	0				0				
1994	Manta	0				0				
1995	Manta	0				0				
1996	Manta	0				0				
1997	Manta	9	0.222	0.667	0.111	0.013	40	0	111	0.79
1998	Manta	4	0.500	0.500	0	0.007	23	0	54	0.60
1999	Manta	0				0				
2000	Manta	0				0				
2001	Manta	0				0				
2002	Manta	0				0				
2003	Manta	0				0				
2004	Manta	0				0				
2005	Manta	0				0				
2006	Manta	0				0				
1990	Marlin, Black	0				0				
1991	Marlin, Black	0				0				
1992	Marlin, Black	0				0				
1993	Marlin, Black	4	0	1	0	0.005	30	0	96	1.00
1994	Marlin, Black	1	0	1	0	0.001	6	0	18	1.01
1995	Marlin, Black	0				0				
1996	Marlin, Black	0				0				
1997	Marlin, Black	0				0				
1998	Marlin, Black	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
1999	Marlin, Black	0				0				
2000	Marlin, Black	0				0				
2001	Marlin, Black	0				0				
2002	Marlin, Black	0				0				
2003	Marlin, Black	0				0				
2004	Marlin, Black	0				0				
2005	Marlin, Black	0				0				
2006	Marlin, Black	0				0				
1990	Marlin, Blue	0				0				
1991	Marlin, Blue	0				0				
1992	Marlin, Blue	0				0				
1993	Marlin, Blue	1	0	1	0	0.001	8	0	24	1.00
1994	Marlin, Blue	4	0	1	0	0.005	23	6	48	0.51
1995	Marlin, Blue	4	0	1	0	0.007	26	6	54	0.50
1996	Marlin, Blue	9	0	1	0	0.021	73	8	166	0.57
1997	Marlin, Blue	4	0	1	0	0.006	18	0	41	0.60
1998	Marlin, Blue	10	0	0.900	0.100	0.017	58	0	177	0.98
1999	Marlin, Blue	4	0	1	0	0.008	21	0	52	0.70
2000	Marlin, Blue	2	0	1	0	0.005	9	0	28	0.99
2001	Marlin, Blue	9	0	1	0	0.027	45	0	119	0.71
2002	Marlin, Blue	2	0	1	0	0.006	10	0	24	0.70
2003	Marlin, Blue	0				0				
2004	Marlin, Blue	0				0				
2005	Marlin, Blue	0				0				
2006	Marlin, Blue	0				0				
1990	Marlin, Striped	11	0	0	1	0.062	253	108	433	0.33
1991	Marlin, Striped	21	0	1	0	0.045	214	58	438	0.46
1992	Marlin, Striped	11	0	1	0	0.018	81	37	134	0.31
1993	Marlin, Striped	34	0.029	0.971	0	0.047	255	108	448	0.34
1994	Marlin, Striped	54	0.037	0.944	0.019	0.071	303	168	467	0.25
1995	Marlin, Striped	16	0	1	0	0.028	103	50	165	0.29
1996	Marlin, Striped	5	0.200	0.800	0	0.012	41	0	101	0.65
1997	Marlin, Striped	42	0	1	0	0.061	185	101	284	0.25
1998	Marlin, Striped	35	0	1	0	0.060	200	94	332	0.31
1999	Marlin, Striped	12	0	1	0	0.023	61	11	129	0.51
2000	Marlin, Striped	6	0	1	0	0.014	27	5	52	0.45
2001	Marlin, Striped	15	0	1	0	0.044	74	31	127	0.34
2002	Marlin, Striped	22	0	1	0	0.061	100	26	197	0.44
2003	Marlin, Striped	27	0	1	0	0.091	133	52	237	0.36
2004	Marlin, Striped	2	0	1	0	0.009	10	0	25	0.69
2005	Marlin, Striped	0				0				
2006	Marlin, Striped	11	0	1	0	0.041	60	21	109	0.39
1990	Mobula	0				0				
1991	Mobula	0				0				
1992	Mobula	0				0				
1993	Mobula	1	1	0	0	0.001	8	0	24	1.00
1994	Mobula	0				0				
1995	Mobula	0				0				
1996	Mobula	0				0				
1997	Mobula	1	1	0	0	0.001	5	0	14	1.01
1998	Mobula	0				0				
1999	Mobula	0				0				
2000	Mobula	0				0				
2001	Mobula	0				0				
2002	Mobula	0				0				
2003	Mobula	1	1	0	0	0.003	5	0	16	0.97
2004	Mobula	0				0				
2005	Mobula	0				0				
2006	Mobula	0				0				
1990	Mola, Common	1036	0	0	1	5.820	23735	17602	30499	0.14
1991	Mola, Common	2129	0.853	0.017	0.129	4.530	21644	14900	29978	0.18
1992	Mola, Common	2343	0.953	0.044	0.003	3.931	17215	11865	25730	0.22

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
1993	Mola, Common	5319	0.955	0.035	0.010	7.306	39761	30598	49817	0.12
1994	Mola, Common	3133	0.935	0.056	0.009	4.128	17535	14280	21191	0.10
1995	Mola, Common	3502	0.972	0.026	0.002	6.122	22488	16929	29059	0.14
1996	Mola, Common	1968	0.971	0.024	0.006	4.675	15857	12645	19397	0.11
1997	Mola, Common	2447	0.959	0.034	0.007	3.536	10747	7854	14243	0.15
1998	Mola, Common	4081	0.976	0.021	0.003	6.952	23312	18312	28988	0.12
1999	Mola, Common	1681	0.963	0.034	0.004	3.196	8418	6523	10765	0.13
2000	Mola, Common	3988	0.976	0.021	0.004	8.982	17390	14180	20675	0.10
2001	Mola, Common	2541	0.927	0.068	0.005	7.496	12481	9087	16400	0.15
2002	Mola, Common	2775	0.984	0.013	0.003	7.708	12565	9785	15563	0.12
2003	Mola, Common	1674	0.863	0.135	0.002	5.617	8241	5603	11508	0.18
2004	Mola, Common	2227	0.961	0.039	0	9.987	10826	8584	12989	0.10
2005	Mola, Common	1090	0.998	0.002	0	4.844	5208	587	11817	0.56
2006	Mola, Common	1438	0.919	0.080	0.001	5.406	7747	4289	11937	0.25
1990	Mollusk, Unidentified	0				0				
1991	Mollusk, Unidentified	0				0				
1992	Mollusk, Unidentified	0				0				
1993	Mollusk, Unidentified	0				0				
1994	Mollusk, Unidentified	0				0				
1995	Mollusk, Unidentified	0				0				
1996	Mollusk, Unidentified	0				0				
1997	Mollusk, Unidentified	2	0	1	0	0.003	9	0	23	0.69
1998	Mollusk, Unidentified	0				0				
1999	Mollusk, Unidentified	0				0				
2000	Mollusk, Unidentified	0				0				
2001	Mollusk, Unidentified	0				0				
2002	Mollusk, Unidentified	1	1	0	0	0.003	5	0	15	0.99
2003	Mollusk, Unidentified	0				0				
2004	Mollusk, Unidentified	0				0				
2005	Mollusk, Unidentified	0				0				
2006	Mollusk, Unidentified	0				0				
1990	Needlefish, California	0				0				
1991	Needlefish, California	0				0				
1992	Needlefish, California	0				0				
1993	Needlefish, California	0				0				
1994	Needlefish, California	0				0				
1995	Needlefish, California	0				0				
1996	Needlefish, California	0				0				
1997	Needlefish, California	0				0				
1998	Needlefish, California	1	0	1	0	0.002	6	0	18	1.00
1999	Needlefish, California	1	1	0	0	0.002	6	0	17	1.01
2000	Needlefish, California	0				0				
2001	Needlefish, California	0				0				
2002	Needlefish, California	0				0				
2003	Needlefish, California	0				0				
2004	Needlefish, California	0				0				
2005	Needlefish, California	0				0				
2006	Needlefish, California	0				0				
1990	Oarfish	0				0				
1991	Oarfish	0				0				
1992	Oarfish	0				0				
1993	Oarfish	0				0				
1994	Oarfish	4	0	1	0	0.005	23	0	54	0.61
1995	Oarfish	1	0	1	0	0.002	7	0	21	1.02
1996	Oarfish	0				0				
1997	Oarfish	1	0	1	0	0.001	5	0	14	0.98
1998	Oarfish	1	0	1	0	0.002	6	0	18	0.98
1999	Oarfish	0				0				
2000	Oarfish	0				0				
2001	Oarfish	0				0				
2002	Oarfish	0				0				
2003	Oarfish	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
2004	Oarfish	0				0				
2005	Oarfish	0				0				
2006	Oarfish	0				0				
1990	Octopus, Unidentified	0				0				
1991	Octopus, Unidentified	0				0				
1992	Octopus, Unidentified	0				0				
1993	Octopus, Unidentified	3	1	0	0	0.004	23	0	51	0.56
1994	Octopus, Unidentified	1	1	0	0	0.001	6	0	18	1.00
1995	Octopus, Unidentified	0				0				
1996	Octopus, Unidentified	0				0				
1997	Octopus, Unidentified	0				0				
1998	Octopus, Unidentified	0				0				
1999	Octopus, Unidentified	1	0	1	0	0.002	6	0	16	1.00
2000	Octopus, Unidentified	1	0	1	0	0.002	5	0	14	1.00
2001	Octopus, Unidentified	0				0				
2002	Octopus, Unidentified	0				0				
2003	Octopus, Unidentified	0				0				
2004	Octopus, Unidentified	0				0				
2005	Octopus, Unidentified	0				0				
2006	Octopus, Unidentified	0				0				
1990	Oilfish	0				0				
1991	Oilfish	0				0				
1992	Oilfish	0				0				
1993	Oilfish	0				0				
1994	Oilfish	0				0				
1995	Oilfish	0				0				
1996	Oilfish	0				0				
1997	Oilfish	0				0				
1998	Oilfish	0				0				
1999	Oilfish	0				0				
2000	Oilfish	0				0				
2001	Oilfish	0				0				
2002	Oilfish	0				0				
2003	Oilfish	0				0				
2004	Oilfish	2	0	1	0	0.009	10	0	25	0.67
2005	Oilfish	0				0				
2006	Oilfish	0				0				
1990	Opah	0				0				
1991	Opah	3	0.333	0.333	0.333	0.006	31	0	71	0.58
1992	Opah	5	0	1	0	0.008	37	8	80	0.52
1993	Opah	3	0	1	0	0.004	23	0	71	1.00
1994	Opah	7	0	0.857	0.143	0.009	40	6	95	0.61
1995	Opah	10	0	1	0	0.017	65	19	129	0.46
1996	Opah	8	0	0.875	0.125	0.019	65	24	114	0.36
1997	Opah	23	0.043	0.957	0	0.033	102	41	173	0.33
1998	Opah	17	0	1	0	0.029	98	34	182	0.39
1999	Opah	11	0	1	0	0.021	56	15	111	0.45
2000	Opah	17	0.294	0.706	0	0.038	75	34	126	0.32
2001	Opah	11	0	1	0	0.032	55	20	94	0.35
2002	Opah	18	0	1	0	0.050	82	27	157	0.41
2003	Opah	4	0	1	0	0.013	20	0	56	0.79
2004	Opah	5	0	1	0	0.022	25	5	52	0.50
2005	Opah	1	0	1	0	0.004	5	0	16	1.00
2006	Opah	8	0	1	0	0.030	44	6	96	0.54
1990	Pipefish Bay	1	0	0	1	0.006	23	0	74	0.98
1991	Pipefish Bay	0				0				
1992	Pipefish Bay	0				0				
1993	Pipefish Bay	0				0				
1994	Pipefish Bay	0				0				
1995	Pipefish Bay	0				0				
1996	Pipefish Bay	0				0				
1997	Pipefish Bay	2	0	1	0	0.003	9	0	28	1.01

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
1998	Pipefish Bay	0				0				
1999	Pipefish Bay	0				0				
2000	Pipefish Bay	0				0				
2001	Pipefish Bay	0				0				
2002	Pipefish Bay	0				0				
2003	Pipefish Bay	0				0				
2004	Pipefish Bay	0				0				
2005	Pipefish Bay	0				0				
2006	Pipefish Bay	0				0				
1990	Pomfret	0				0				
1991	Pomfret	0				0				
1992	Pomfret	0				0				
1993	Pomfret	0				0				
1994	Pomfret	0				0				
1995	Pomfret	0				0				
1996	Pomfret	0				0				
1997	Pomfret	0				0				
1998	Pomfret	0				0				
1999	Pomfret	0				0				
2000	Pomfret	1	0	1	0	0.002	5	0	14	0.98
2001	Pomfret	0				0				
2002	Pomfret	0				0				
2003	Pomfret	0				0				
2004	Pomfret	0				0				
2005	Pomfret	0				0				
2006	Pomfret	0				0				
1990	Pomfret, Pacific	1	0	0	1	0.006	23	0	71	0.95
1991	Pomfret, Pacific	3	0	1	0	0.006	31	0	85	0.76
1992	Pomfret, Pacific	48	0.021	0.979	0	0.081	353	63	878	0.67
1993	Pomfret, Pacific	22	0	0.955	0.045	0.030	165	30	381	0.57
1994	Pomfret, Pacific	7	0	1	0	0.009	40	12	74	0.41
1995	Pomfret, Pacific	4	0	0.750	0.250	0.007	26	0	62	0.60
1996	Pomfret, Pacific	12	0	1	0	0.029	97	18	191	0.45
1997	Pomfret, Pacific	4	0.250	0.750	0	0.006	18	5	37	0.49
1998	Pomfret, Pacific	7	0	1	0	0.012	40	12	77	0.41
1999	Pomfret, Pacific	23	0	0.957	0.043	0.044	116	20	275	0.59
2000	Pomfret, Pacific	17	0.059	0.941	0	0.038	75	25	152	0.45
2001	Pomfret, Pacific	9	0	1	0	0.027	45	10	89	0.46
2002	Pomfret, Pacific	13	0.077	0.923	0	0.036	59	9	125	0.51
2003	Pomfret, Pacific	1	0	1	0	0.003	5	0	16	0.97
2004	Pomfret, Pacific	2	0	1	0	0.009	10	0	30	0.98
2005	Pomfret, Pacific	6	0	1	0	0.027	29	0	86	0.93
2006	Pomfret, Pacific	2	0	1	0	0.008	11	0	34	0.97
1990	Ray, Bat	0				0				
1991	Ray, Bat	3	0.667	0	0.333	0.006	31	0	68	0.56
1992	Ray, Bat	2	1	0	0	0.003	15	0	48	1.00
1993	Ray, Bat	1	1	0	0	0.001	8	0	24	1.00
1994	Ray, Bat	0				0				
1995	Ray, Bat	1	1	0	0	0.002	7	0	20	0.98
1996	Ray, Bat	0				0				
1997	Ray, Bat	1	1	0	0	0.001	5	0	14	1.00
1998	Ray, Bat	1	1	0	0	0.002	6	0	18	0.98
1999	Ray, Bat	0				0				
2000	Ray, Bat	0				0				
2001	Ray, Bat	0				0				
2002	Ray, Bat	2	1	0	0	0.006	10	0	24	0.71
2003	Ray, Bat	2	1	0	0	0.007	10	0	26	0.71
2004	Ray, Bat	4	1	0	0	0.018	20	0	61	0.98
2005	Ray, Bat	0				0				
2006	Ray, Bat	1	1	0	0	0.004	6	0	18	1.01
1990	Ray, Pacific Electric	2	0	0	1	0.011	46	0	116	0.68
1991	Ray, Pacific Electric	1	0	0	1	0.002	11	0	33	1.00

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
1992	Ray, Pacific Electric	5	0.800	0	0.200	0.008	37	7	81	0.53
1993	Ray, Pacific Electric	1	1	0	0	0.001	8	0	25	1.01
1994	Ray, Pacific Electric	2	0.500	0.500	0	0.003	12	0	29	0.71
1995	Ray, Pacific Electric	1	0	0	1	0.002	7	0	21	0.98
1996	Ray, Pacific Electric	2	1	0	0	0.005	17	0	42	0.69
1997	Ray, Pacific Electric	6	0.833	0.167	0	0.009	27	5	61	0.57
1998	Ray, Pacific Electric	3	1	0	0	0.005	18	0	40	0.58
1999	Ray, Pacific Electric	3	0.333	0.667	0	0.006	16	0	41	0.74
2000	Ray, Pacific Electric	5	0.600	0	0.400	0.011	22	5	42	0.43
2001	Ray, Pacific Electric	1	0	1	0	0.003	5	0	16	0.99
2002	Ray, Pacific Electric	4	0.500	0.500	0	0.011	19	5	38	0.48
2003	Ray, Pacific Electric	0				0				
2004	Ray, Pacific Electric	1	1	0	0	0.004	5	0	16	1.00
2005	Ray, Pacific Electric	0				0				
2006	Ray, Pacific Electric	4	1	0	0	0.015	22	6	45	0.49
1990	Ray, Unidentified	1	0	0	1	0.006	23	0	77	1.02
1991	Ray, Unidentified	2	0	0.500	0.500	0.004	21	0	54	0.71
1992	Ray, Unidentified	3	0.333	0.667	0	0.005	23	0	61	0.74
1993	Ray, Unidentified	0				0				
1994	Ray, Unidentified	1	1	0	0	0.001	6	0	18	0.98
1995	Ray, Unidentified	1	1	0	0	0.002	7	0	21	1.00
1996	Ray, Unidentified	1	1	0	0	0.002	9	0	26	0.99
1997	Ray, Unidentified	0				0				
1998	Ray, Unidentified	0				0				
1999	Ray, Unidentified	1	0	1	0	0.002	6	0	16	1.00
2000	Ray, Unidentified	0				0				
2001	Ray, Unidentified	0				0				
2002	Ray, Unidentified	0				0				
2003	Ray, Unidentified	0				0				
2004	Ray, Unidentified	0				0				
2005	Ray, Unidentified	0				0				
2006	Ray, Unidentified	0				0				
1990	Remora	0				0				
1991	Remora	3	1	0	0	0.006	31	0	83	0.74
1992	Remora	3	1	0	0	0.005	23	0	51	0.57
1993	Remora	0				0				
1994	Remora	13	0.923	0	0.077	0.017	73	33	121	0.31
1995	Remora	24	1	0	0	0.042	155	82	237	0.26
1996	Remora	14	0.929	0.071	0	0.033	113	26	238	0.50
1997	Remora	27	0.926	0.037	0.037	0.039	119	61	185	0.26
1998	Remora	5	0.800	0	0.200	0.009	29	6	62	0.51
1999	Remora	5	1	0	0	0.010	26	0	57	0.58
2000	Remora	3	1	0	0	0.007	14	0	36	0.75
2001	Remora	3	1	0	0	0.009	15	0	40	0.74
2002	Remora	5	0.800	0	0.200	0.014	23	0	56	0.64
2003	Remora	2	1	0	0	0.007	10	0	26	0.70
2004	Remora	2	1	0	0	0.009	10	0	31	0.98
2005	Remora	0				0				
2006	Remora	3	1	0	0	0.011	17	0	44	0.73
1990	Rockfish, Unidentified	0				0				
1991	Rockfish, Unidentified	0				0				
1992	Rockfish, Unidentified	0				0				
1993	Rockfish, Unidentified	0				0				
1994	Rockfish, Unidentified	0				0				
1995	Rockfish, Unidentified	0				0				
1996	Rockfish, Unidentified	0				0				
1997	Rockfish, Unidentified	0				0				
1998	Rockfish, Unidentified	2	0.500	0.500	0	0.003	12	0	36	1.00
1999	Rockfish, Unidentified	0				0				
2000	Rockfish, Unidentified	0				0				
2001	Rockfish, Unidentified	0				0				
2002	Rockfish, Unidentified	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
2003	Rockfish, Unidentified	0				0				
2004	Rockfish, Unidentified	0				0				
2005	Rockfish, Unidentified	0				0				
2006	Rockfish, Unidentified	1	1	0	0	0.004	6	0	17	0.99
1990	Sailfish	0				0				
1991	Sailfish	0				0				
1992	Sailfish	0				0				
1993	Sailfish	0				0				
1994	Sailfish	1	0	1	0	0.001	6	0	18	1.00
1995	Sailfish	0				0				
1996	Sailfish	0				0				
1997	Sailfish	0				0				
1998	Sailfish	0				0				
1999	Sailfish	0				0				
2000	Sailfish	0				0				
2001	Sailfish	0				0				
2002	Sailfish	0				0				
2003	Sailfish	0				0				
2004	Sailfish	0				0				
2005	Sailfish	0				0				
2006	Sailfish	0				0				
1990	Sardine, Pacific	0				0				
1991	Sardine, Pacific	2	0	1	0	0.004	21	0	53	0.70
1992	Sardine, Pacific	0				0				
1993	Sardine, Pacific	10	0	1	0	0.014	75	0	186	0.67
1994	Sardine, Pacific	2	0	1	0	0.003	12	0	29	0.70
1995	Sardine, Pacific	0				0				
1996	Sardine, Pacific	1	0	1	0	0.002	9	0	26	0.99
1997	Sardine, Pacific	19	0	1	0	0.027	84	5	224	0.71
1998	Sardine, Pacific	0				0				
1999	Sardine, Pacific	0				0				
2000	Sardine, Pacific	1	0	1	0	0.002	5	0	14	1.00
2001	Sardine, Pacific	0				0				
2002	Sardine, Pacific	1	0	1	0	0.003	5	0	15	1.00
2003	Sardine, Pacific	1	0	1	0	0.003	5	0	16	1.00
2004	Sardine, Pacific	0				0				
2005	Sardine, Pacific	0				0				
2006	Sardine, Pacific	0				0				
1990	Scombrid	0				0				
1991	Scombrid	0				0				
1992	Scombrid	0				0				
1993	Scombrid	0				0				
1994	Scombrid	0				0				
1995	Scombrid	0				0				
1996	Scombrid	0				0				
1997	Scombrid	0				0				
1998	Scombrid	0				0				
1999	Scombrid	0				0				
2000	Scombrid	0				0				
2001	Scombrid	3	0	1	0	0.009	15	0	40	0.73
2002	Scombrid	24	0	1	0	0.067	109	33	208	0.42
2003	Scombrid	50	0	1	0	0.168	247	30	526	0.52
2004	Scombrid	3	0	1	0	0.013	15	0	45	0.98
2005	Scombrid	0				0				
2006	Scombrid	3	0	1	0	0.011	17	0	52	1.00
1990	Sea Star	0				0				
1991	Sea Star	0				0				
1992	Sea Star	0				0				
1993	Sea Star	0				0				
1994	Sea Star	0				0				
1995	Sea Star	2	1	0	0	0.003	13	0	41	0.99
1996	Sea Star	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
1997	Sea Star	0				0				
1998	Sea Star	0				0				
1999	Sea Star	0				0				
2000	Sea Star	0				0				
2001	Sea Star	0				0				
2002	Sea Star	0				0				
2003	Sea Star	0				0				
2004	Sea Star	0				0				
2005	Sea Star	0				0				
2006	Sea Star	0				0				
1990	Seabass, White	0				0				
1991	Seabass, White	0				0				
1992	Seabass, White	0				0				
1993	Seabass, White	0				0				
1994	Seabass, White	0				0				
1995	Seabass, White	1	0	1	0	0.002	7	0	21	1.00
1996	Seabass, White	0				0				
1997	Seabass, White	0				0				
1998	Seabass, White	0				0				
1999	Seabass, White	0				0				
2000	Seabass, White	0				0				
2001	Seabass, White	0				0				
2002	Seabass, White	0				0				
2003	Seabass, White	0				0				
2004	Seabass, White	0				0				
2005	Seabass, White	0				0				
2006	Seabass, White	0				0				
1990	Shark, Basking	0				0				
1991	Shark, Basking	0				0				
1992	Shark, Basking	0				0				
1993	Shark, Basking	1	0	1	0	0.001	8	0	24	1.00
1994	Shark, Basking	0				0				
1995	Shark, Basking	0				0				
1996	Shark, Basking	0				0				
1997	Shark, Basking	0				0				
1998	Shark, Basking	0				0				
1999	Shark, Basking	0				0				
2000	Shark, Basking	0				0				
2001	Shark, Basking	0				0				
2002	Shark, Basking	1	1	0	0	0.003	5	0	15	0.99
2003	Shark, Basking	0				0				
2004	Shark, Basking	0				0				
2005	Shark, Basking	0				0				
2006	Shark, Basking	1	0	1	0	0.004	6	0	17	0.97
1990	Shark, Bigeye Thresher	2	0	0	1	0.011	46	0	145	0.96
1991	Shark, Bigeye Thresher	3	0	1	0	0.006	31	0	83	0.73
1992	Shark, Bigeye Thresher	3	0	1	0	0.005	23	0	51	0.57
1993	Shark, Bigeye Thresher	8	0	1	0	0.011	60	8	134	0.55
1994	Shark, Bigeye Thresher	7	0.143	0.857	0	0.009	40	7	78	0.46
1995	Shark, Bigeye Thresher	7	0.143	0.857	0	0.012	45	7	100	0.55
1996	Shark, Bigeye Thresher	1	0	1	0	0.002	9	0	26	1.00
1997	Shark, Bigeye Thresher	0				0				
1998	Shark, Bigeye Thresher	1	0	1	0	0.002	6	0	18	0.99
1999	Shark, Bigeye Thresher	1	0	1	0	0.002	6	0	16	1.01
2000	Shark, Bigeye Thresher	0				0				
2001	Shark, Bigeye Thresher	1	0	1	0	0.003	5	0	16	0.99
2002	Shark, Bigeye Thresher	0				0				
2003	Shark, Bigeye Thresher	14	0	1	0	0.047	69	24	128	0.40
2004	Shark, Bigeye Thresher	12	0	1	0	0.054	59	20	105	0.38
2005	Shark, Bigeye Thresher	0				0				
2006	Shark, Bigeye Thresher	24	0	1	0	0.090	130	43	241	0.39
1990	Shark, Blue	744	0	0	1	4.180	17046	11020	24102	0.20

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
1991	Shark, Blue	660	0.321	0.629	0.050	1.404	6710	5341	8147	0.11
1992	Shark, Blue	2324	0.314	0.668	0.019	3.899	17076	14600	19706	0.08
1993	Shark, Blue	1625	0.314	0.662	0.023	2.232	12148	10046	14485	0.09
1994	Shark, Blue	1038	0.279	0.696	0.025	1.368	5810	4388	7410	0.13
1995	Shark, Blue	2622	0.237	0.746	0.017	4.584	16837	13694	20205	0.10
1996	Shark, Blue	1574	0.288	0.698	0.014	3.739	12682	9935	15905	0.12
1997	Shark, Blue	2220	0.319	0.669	0.012	3.208	9750	7689	11925	0.11
1998	Shark, Blue	2459	0.329	0.658	0.013	4.189	14047	9774	18965	0.17
1999	Shark, Blue	2446	0.433	0.549	0.018	4.650	12249	8997	15596	0.14
2000	Shark, Blue	1491	0.445	0.540	0.015	3.358	6502	4823	8349	0.14
2001	Shark, Blue	559	0.436	0.560	0.004	1.649	2746	1696	4206	0.24
2002	Shark, Blue	543	0.313	0.650	0.037	1.508	2459	1559	3448	0.20
2003	Shark, Blue	385	0.351	0.618	0.031	1.292	1896	1237	2655	0.19
2004	Shark, Blue	251	0.323	0.669	0.008	1.126	1221	739	1776	0.22
2005	Shark, Blue	39	0.231	0.692	0.077	0.173	187	10	484	0.74
2006	Shark, Blue	95	0.400	0.474	0.126	0.357	512	191	954	0.39
1990	Shark, Common Thresher	1	0	0	1	0.006	23	0	78	1.02
1991	Shark, Common Thresher	9	0.111	0.889	0	0.019	92	0	280	0.89
1992	Shark, Common Thresher	1	0	1	0	0.002	8	0	23	0.98
1993	Shark, Common Thresher	0				0				
1994	Shark, Common Thresher	2	0	1	0	0.003	12	0	29	0.70
1995	Shark, Common Thresher	0				0				
1996	Shark, Common Thresher	1	0	1	0	0.002	9	0	26	1.00
1997	Shark, Common Thresher	0				0				
1998	Shark, Common Thresher	2	1	0	0	0.003	12	0	36	1.01
1999	Shark, Common Thresher	2	0.500	0	0.500	0.004	11	0	26	0.70
2000	Shark, Common Thresher	0				0				
2001	Shark, Common Thresher	1	1	0	0	0.003	5	0	16	1.00
2002	Shark, Common Thresher	6	0.667	0.333	0	0.017	28	0	70	0.70
2003	Shark, Common Thresher	1	1	0	0	0.003	5	0	16	0.99
2004	Shark, Common Thresher	1	1	0	0	0.004	5	0	16	1.00
2005	Shark, Common Thresher	0				0				
2006	Shark, Common Thresher	0				0				
1990	Shark, Megamouth	0				0				
1991	Shark, Megamouth	0				0				
1992	Shark, Megamouth	0				0				
1993	Shark, Megamouth	0				0				
1994	Shark, Megamouth	0				0				
1995	Shark, Megamouth	0				0				
1996	Shark, Megamouth	0				0				
1997	Shark, Megamouth	0				0				
1998	Shark, Megamouth	0				0				
1999	Shark, Megamouth	1	1	0	0	0.002	6	0	16	0.99
2000	Shark, Megamouth	0				0				
2001	Shark, Megamouth	1	1	0	0	0.003	5	0	16	1.01
2002	Shark, Megamouth	0				0				
2003	Shark, Megamouth	0				0				
2004	Shark, Megamouth	0				0				
2005	Shark, Megamouth	0				0				
2006	Shark, Megamouth	0				0				
1990	Shark, Pacific Angel	0				0				
1991	Shark, Pacific Angel	3	0.333	0	0.667	0.006	31	0	71	0.58
1992	Shark, Pacific Angel	0				0				
1993	Shark, Pacific Angel	0				0				
1994	Shark, Pacific Angel	0				0				
1995	Shark, Pacific Angel	0				0				
1996	Shark, Pacific Angel	0				0				
1997	Shark, Pacific Angel	0				0				
1998	Shark, Pacific Angel	0				0				
1999	Shark, Pacific Angel	1	1	0	0	0.002	6	0	16	1.00
2000	Shark, Pacific Angel	0				0				
2001	Shark, Pacific Angel	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
2002	Shark, Pacific Angel	0				0				
2003	Shark, Pacific Angel	0				0				
2004	Shark, Pacific Angel	0				0				
2005	Shark, Pacific Angel	0				0				
2006	Shark, Pacific Angel	0				0				
1990	Shark, Pelagic Thresher	0				0				
1991	Shark, Pelagic Thresher	0				0				
1992	Shark, Pelagic Thresher	0				0				
1993	Shark, Pelagic Thresher	0				0				
1994	Shark, Pelagic Thresher	1	0	1	0	0.001	6	0	18	1.01
1995	Shark, Pelagic Thresher	0				0				
1996	Shark, Pelagic Thresher	0				0				
1997	Shark, Pelagic Thresher	1	0	1	0	0.001	5	0	14	1.00
1998	Shark, Pelagic Thresher	0				0				
1999	Shark, Pelagic Thresher	0				0				
2000	Shark, Pelagic Thresher	0				0				
2001	Shark, Pelagic Thresher	0				0				
2002	Shark, Pelagic Thresher	0				0				
2003	Shark, Pelagic Thresher	0				0				
2004	Shark, Pelagic Thresher	0				0				
2005	Shark, Pelagic Thresher	0				0				
2006	Shark, Pelagic Thresher	0				0				
1990	Shark, Prickly	0				0				
1991	Shark, Prickly	0				0				
1992	Shark, Prickly	1	1	0	0	0.002	8	0	24	1.00
1993	Shark, Prickly	0				0				
1994	Shark, Prickly	1	1	0	0	0.001	6	0	19	1.01
1995	Shark, Prickly	0				0				
1996	Shark, Prickly	0				0				
1997	Shark, Prickly	1	1	0	0	0.001	5	0	14	0.99
1998	Shark, Prickly	0				0				
1999	Shark, Prickly	1	0	1	0	0.002	6	0	16	0.98
2000	Shark, Prickly	0				0				
2001	Shark, Prickly	0				0				
2002	Shark, Prickly	1	1	0	0	0.003	5	0	15	0.99
2003	Shark, Prickly	1	0	1	0	0.003	5	0	16	1.01
2004	Shark, Prickly	0				0				
2005	Shark, Prickly	0				0				
2006	Shark, Prickly	0				0				
1990	Shark, Salmon	0				0				
1991	Shark, Salmon	1	0	1	0	0.002	11	0	33	1.00
1992	Shark, Salmon	0				0				
1993	Shark, Salmon	1	0	1	0	0.001	8	0	24	0.99
1994	Shark, Salmon	0				0				
1995	Shark, Salmon	0				0				
1996	Shark, Salmon	1	0	1	0	0.002	9	0	26	0.98
1997	Shark, Salmon	5	0	1	0	0.007	22	0	70	1.00
1998	Shark, Salmon	1	0	1	0	0.002	6	0	18	1.00
1999	Shark, Salmon	53	0	1	0	0.101	266	5	804	0.91
2000	Shark, Salmon	1	0	1	0	0.002	5	0	14	0.99
2001	Shark, Salmon	14	0.214	0.786	0	0.041	69	0	214	0.99
2002	Shark, Salmon	8	0	1	0	0.022	37	0	116	1.00
2003	Shark, Salmon	1	0	1	0	0.003	5	0	16	0.99
2004	Shark, Salmon	0				0				
2005	Shark, Salmon	0				0				
2006	Shark, Salmon	0				0				
1990	Shark, Sevengill	0				0				
1991	Shark, Sevengill	0				0				
1992	Shark, Sevengill	0				0				
1993	Shark, Sevengill	0				0				
1994	Shark, Sevengill	0				0				
1995	Shark, Sevengill	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
1996	Shark, Sevengill	0				0				
1997	Shark, Sevengill	0				0				
1998	Shark, Sevengill	0				0				
1999	Shark, Sevengill	0				0				
2000	Shark, Sevengill	0				0				
2001	Shark, Sevengill	0				0				
2002	Shark, Sevengill	1	1	0	0	0.003	5	0	15	1.01
2003	Shark, Sevengill	0				0				
2004	Shark, Sevengill	0				0				
2005	Shark, Sevengill	0				0				
2006	Shark, Sevengill	0				0				
1990	Shark, Shortfin Mako	2	0	0	1	0.011	46	0	115	0.68
1991	Shark, Shortfin Mako	6	0.667	0.333	0	0.013	61	20	112	0.39
1992	Shark, Shortfin Mako	8	0.500	0.375	0.125	0.013	59	22	107	0.38
1993	Shark, Shortfin Mako	6	0.167	0.833	0	0.008	45	8	90	0.46
1994	Shark, Shortfin Mako	8	0.625	0.375	0	0.011	45	10	94	0.49
1995	Shark, Shortfin Mako	6	0.667	0.167	0.167	0.010	39	7	78	0.46
1996	Shark, Shortfin Mako	16	0.563	0.375	0.063	0.038	129	8	305	0.61
1997	Shark, Shortfin Mako	24	0.417	0.542	0.042	0.035	106	59	158	0.24
1998	Shark, Shortfin Mako	11	0.727	0.273	0	0.019	63	25	110	0.34
1999	Shark, Shortfin Mako	14	0.429	0.571	0	0.027	71	19	139	0.45
2000	Shark, Shortfin Mako	28	0.357	0.643	0	0.063	123	49	213	0.34
2001	Shark, Shortfin Mako	44	0.250	0.750	0	0.130	217	97	383	0.35
2002	Shark, Shortfin Mako	32	0.375	0.625	0	0.089	145	73	229	0.27
2003	Shark, Shortfin Mako	45	0.311	0.689	0	0.151	222	124	345	0.26
2004	Shark, Shortfin Mako	29	0.276	0.690	0.034	0.130	141	63	238	0.32
2005	Shark, Shortfin Mako	1	1	0	0	0.004	5	0	15	1.00
2006	Shark, Shortfin Mako	17	0.353	0.647	0	0.064	92	26	179	0.43
1990	Shark, Sixgill	0				0				
1991	Shark, Sixgill	0				0				
1992	Shark, Sixgill	0				0				
1993	Shark, Sixgill	0				0				
1994	Shark, Sixgill	0				0				
1995	Shark, Sixgill	0				0				
1996	Shark, Sixgill	0				0				
1997	Shark, Sixgill	0				0				
1998	Shark, Sixgill	0				0				
1999	Shark, Sixgill	0				0				
2000	Shark, Sixgill	1	1	0	0	0.002	5	0	14	0.98
2001	Shark, Sixgill	0				0				
2002	Shark, Sixgill	0				0				
2003	Shark, Sixgill	0				0				
2004	Shark, Sixgill	0				0				
2005	Shark, Sixgill	0				0				
2006	Shark, Sixgill	0				0				
1990	Shark, Smooth Hammerhead	0				0				
1991	Shark, Smooth Hammerhead	0				0				
1992	Shark, Smooth Hammerhead	5	0	1	0	0.008	37	0	93	0.66
1993	Shark, Smooth Hammerhead	13	0	1	0	0.018	98	0	248	0.67
1994	Shark, Smooth Hammerhead	0				0				
1995	Shark, Smooth Hammerhead	0				0				
1996	Shark, Smooth Hammerhead	0				0				
1997	Shark, Smooth Hammerhead	6	0	1	0	0.009	27	5	53	0.46
1998	Shark, Smooth Hammerhead	1	0	1	0	0.002	6	0	18	0.99
1999	Shark, Smooth Hammerhead	0				0				
2000	Shark, Smooth Hammerhead	7	0	1	0	0.016	31	5	68	0.54
2001	Shark, Smooth Hammerhead	0				0				
2002	Shark, Smooth Hammerhead	0				0				
2003	Shark, Smooth Hammerhead	1	0	1	0	0.003	5	0	16	0.99
2004	Shark, Smooth Hammerhead	0				0				
2005	Shark, Smooth Hammerhead	0				0				
2006	Shark, Smooth Hammerhead	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
1990	Shark, Soupfin	0				0				
1991	Shark, Soupfin	0				0				
1992	Shark, Soupfin	0				0				
1993	Shark, Soupfin	0				0				
1994	Shark, Soupfin	0				0				
1995	Shark, Soupfin	0				0				
1996	Shark, Soupfin	0				0				
1997	Shark, Soupfin	0				0				
1998	Shark, Soupfin	0				0				
1999	Shark, Soupfin	1	0	1	0	0.002	6	0	16	0.99
2000	Shark, Soupfin	0				0				
2001	Shark, Soupfin	0				0				
2002	Shark, Soupfin	0				0				
2003	Shark, Soupfin	0				0				
2004	Shark, Soupfin	0				0				
2005	Shark, Soupfin	0				0				
2006	Shark, Soupfin	0				0				
1990	Shark, Unidentified	0				0				
1991	Shark, Unidentified	1	0	0	1	0.002	11	0	32	0.99
1992	Shark, Unidentified	0				0				
1993	Shark, Unidentified	0				0				
1994	Shark, Unidentified	0				0				
1995	Shark, Unidentified	0				0				
1996	Shark, Unidentified	1	0	1	0	0.002	9	0	26	1.01
1997	Shark, Unidentified	0				0				
1998	Shark, Unidentified	1	0	1	0	0.002	6	0	18	1.00
1999	Shark, Unidentified	0				0				
2000	Shark, Unidentified	1	0	0	1	0.002	5	0	14	0.99
2001	Shark, Unidentified	0				0				
2002	Shark, Unidentified	0				0				
2003	Shark, Unidentified	0				0				
2004	Shark, Unidentified	0				0				
2005	Shark, Unidentified	0				0				
2006	Shark, Unidentified	0				0				
1990	Shark, White	0				0				
1991	Shark, White	0				0				
1992	Shark, White	0				0				
1993	Shark, White	0				0				
1994	Shark, White	0				0				
1995	Shark, White	0				0				
1996	Shark, White	0				0				
1997	Shark, White	1	0	1	0	0.001	5	0	14	0.99
1998	Shark, White	0				0				
1999	Shark, White	0				0				
2000	Shark, White	0				0				
2001	Shark, White	0				0				
2002	Shark, White	0				0				
2003	Shark, White	0				0				
2004	Shark, White	0				0				
2005	Shark, White	0				0				
2006	Shark, White	0				0				
1990	Skate, Big	0				0				
1991	Skate, Big	0				0				
1992	Skate, Big	0				0				
1993	Skate, Big	0				0				
1994	Skate, Big	1	1	0	0	0.001	6	0	18	0.99
1995	Skate, Big	0				0				
1996	Skate, Big	0				0				
1997	Skate, Big	0				0				
1998	Skate, Big	0				0				
1999	Skate, Big	0				0				
2000	Skate, Big	1	1	0	0	0.002	5	0	14	1.01

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
2001	Skate, Big	0				0				
2002	Skate, Big	0				0				
2003	Skate, Big	0				0				
2004	Skate, Big	0				0				
2005	Skate, Big	0				0				
2006	Skate, Big	0				0				
1990	Skate, California	0				0				
1991	Skate, California	0				0				
1992	Skate, California	0				0				
1993	Skate, California	0				0				
1994	Skate, California	0				0				
1995	Skate, California	0				0				
1996	Skate, California	0				0				
1997	Skate, California	0				0				
1998	Skate, California	0				0				
1999	Skate, California	0				0				
2000	Skate, California	0				0				
2001	Skate, California	0				0				
2002	Skate, California	0				0				
2003	Skate, California	0				0				
2004	Skate, California	1	1	0	0	0.004	5	0	16	1.01
2005	Skate, California	0				0				
2006	Skate, California	0				0				
1990	Skate, Unidentified	0				0				
1991	Skate, Unidentified	1	1	0	0	0.002	11	0	34	1.02
1992	Skate, Unidentified	0				0				
1993	Skate, Unidentified	0				0				
1994	Skate, Unidentified	0				0				
1995	Skate, Unidentified	0				0				
1996	Skate, Unidentified	0				0				
1997	Skate, Unidentified	0				0				
1998	Skate, Unidentified	0				0				
1999	Skate, Unidentified	1	0	1	0	0.002	6	0	16	1.00
2000	Skate, Unidentified	0				0				
2001	Skate, Unidentified	0				0				
2002	Skate, Unidentified	0				0				
2003	Skate, Unidentified	0				0				
2004	Skate, Unidentified	0				0				
2005	Skate, Unidentified	0				0				
2006	Skate, Unidentified	0				0				
1990	Squid, Market	1	0	0	1	0.006	23	0	76	0.99
1991	Squid, Market	1	0	1	0	0.002	11	0	32	0.99
1992	Squid, Market	0				0				
1993	Squid, Market	1	0	1	0	0.001	8	0	24	1.01
1994	Squid, Market	0				0				
1995	Squid, Market	0				0				
1996	Squid, Market	0				0				
1997	Squid, Market	2	0	1	0	0.003	9	0	23	0.69
1998	Squid, Market	1	0	1	0	0.002	6	0	19	1.01
1999	Squid, Market	1	0	1	0	0.002	6	0	16	0.98
2000	Squid, Market	1	0	1	0	0.002	5	0	14	0.99
2001	Squid, Market	0				0				
2002	Squid, Market	0				0				
2003	Squid, Market	0				0				
2004	Squid, Market	0				0				
2005	Squid, Market	0				0				
2006	Squid, Market	0				0				
1990	Stingray, Pelagic	2	0	0	1	0.011	46	0	152	1.00
1991	Stingray, Pelagic	7	0.571	0.286	0.143	0.015	72	23	127	0.37
1992	Stingray, Pelagic	8	0.500	0.375	0.125	0.013	59	22	103	0.35
1993	Stingray, Pelagic	26	0.654	0.308	0.038	0.036	195	105	300	0.26
1994	Stingray, Pelagic	34	0.824	0.118	0.059	0.045	191	121	276	0.21

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
1995	Stingray, Pelagic	22	0.864	0.091	0.045	0.038	142	64	238	0.31
1996	Stingray, Pelagic	17	0.588	0.353	0.059	0.040	137	61	237	0.32
1997	Stingray, Pelagic	34	0.794	0.176	0.029	0.049	150	88	222	0.23
1998	Stingray, Pelagic	26	0.808	0.192	0	0.044	149	84	227	0.25
1999	Stingray, Pelagic	29	0.690	0.276	0.034	0.055	146	81	223	0.25
2000	Stingray, Pelagic	36	0.861	0.083	0.056	0.081	157	93	229	0.22
2001	Stingray, Pelagic	10	0.800	0.200	0	0.029	50	20	85	0.35
2002	Stingray, Pelagic	28	0.821	0.143	0.036	0.078	127	77	184	0.22
2003	Stingray, Pelagic	21	0.619	0.286	0.095	0.070	104	60	153	0.23
2004	Stingray, Pelagic	13	0.923	0	0.077	0.058	64	25	110	0.35
2005	Stingray, Pelagic	1	0	0	1	0.004	5	0	16	0.99
2006	Stingray, Pelagic	19	0.737	0.263	0	0.071	103	48	168	0.30
1990	Stingray, Round	0				0				
1991	Stingray, Round	0				0				
1992	Stingray, Round	0				0				
1993	Stingray, Round	0				0				
1994	Stingray, Round	2	0.500	0.500	0	0.003	12	0	36	0.99
1995	Stingray, Round	0				0				
1996	Stingray, Round	0				0				
1997	Stingray, Round	1	1	0	0	0.001	5	0	14	0.99
1998	Stingray, Round	1	1	0	0	0.002	6	0	18	0.99
1999	Stingray, Round	3	1	0	0	0.006	16	0	41	0.74
2000	Stingray, Round	0				0				
2001	Stingray, Round	1	1	0	0	0.003	5	0	16	0.99
2002	Stingray, Round	0				0				
2003	Stingray, Round	0				0				
2004	Stingray, Round	0				0				
2005	Stingray, Round	0				0				
2006	Stingray, Round	0				0				
1990	Swordfish, Broadbill	15	0	0	1	0.084	344	23	921	0.73
1991	Swordfish, Broadbill	4	0	1	0	0.009	41	0	95	0.59
1992	Swordfish, Broadbill	14	0	1	0	0.023	103	44	176	0.33
1993	Swordfish, Broadbill	6	0	1	0	0.008	45	8	91	0.46
1994	Swordfish, Broadbill	3	0	1	0	0.004	17	0	38	0.57
1995	Swordfish, Broadbill	13	0	1	0	0.023	84	40	132	0.29
1996	Swordfish, Broadbill	4	0	1	0	0.010	33	8	67	0.49
1997	Swordfish, Broadbill	25	0	1	0	0.036	110	56	174	0.28
1998	Swordfish, Broadbill	36	0	1	0	0.061	206	111	322	0.26
1999	Swordfish, Broadbill	10	0	1	0	0.019	51	21	86	0.33
2000	Swordfish, Broadbill	14	0	1	0	0.032	62	21	112	0.39
2001	Swordfish, Broadbill	10	0	1	0	0.029	50	15	94	0.43
2002	Swordfish, Broadbill	15	0	1	0	0.042	68	23	124	0.38
2003	Swordfish, Broadbill	8	0	1	0	0.027	40	10	81	0.47
2004	Swordfish, Broadbill	44	0	1	0	0.197	214	117	326	0.25
2005	Swordfish, Broadbill	4	0	1	0	0.018	20	0	62	0.99
2006	Swordfish, Broadbill	20	0.350	0.650	0	0.075	108	38	201	0.40
1990	Tuna, Bluefin	13	0	0	1	0.073	298	42	648	0.53
1991	Tuna, Bluefin	5	0	1	0	0.011	51	0	132	0.70
1992	Tuna, Bluefin	23	0	1	0	0.039	169	52	322	0.41
1993	Tuna, Bluefin	9	0	1	0	0.012	68	15	139	0.48
1994	Tuna, Bluefin	0				0				
1995	Tuna, Bluefin	77	0	1	0	0.135	495	100	1028	0.49
1996	Tuna, Bluefin	11	0	1	0	0.026	89	25	172	0.43
1997	Tuna, Bluefin	30	0	1	0	0.043	132	64	214	0.29
1998	Tuna, Bluefin	39	0	1	0	0.066	223	78	434	0.42
1999	Tuna, Bluefin	19	0	1	0	0.036	96	44	157	0.30
2000	Tuna, Bluefin	23	0	1	0	0.052	101	45	170	0.32
2001	Tuna, Bluefin	18	0	1	0	0.053	89	11	201	0.58
2002	Tuna, Bluefin	29	0	1	0	0.081	132	15	320	0.64
2003	Tuna, Bluefin	10	0	1	0	0.034	50	11	103	0.47
2004	Tuna, Bluefin	3	0	1	0	0.013	15	0	39	0.71
2005	Tuna, Bluefin	2	0	1	0	0.009	10	0	29	0.94

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
2006	Tuna, Bluefin	0				0				
1990	Tuna, Skipjack	3	0	0	1	0.017	69	0	231	1.01
1991	Tuna, Skipjack	67	0.030	0.970	0	0.143	682	88	1632	0.64
1992	Tuna, Skipjack	108	0	1	0	0.181	794	291	1540	0.41
1993	Tuna, Skipjack	848	0	1	0	1.165	6340	1876	13307	0.47
1994	Tuna, Skipjack	34	0	1	0	0.045	191	36	401	0.50
1995	Tuna, Skipjack	1035	0.001	0.999	0	1.809	6647	2672	12630	0.39
1996	Tuna, Skipjack	54	0	1	0	0.128	436	154	834	0.41
1997	Tuna, Skipjack	700	0	1	0	1.012	3075	1715	4694	0.25
1998	Tuna, Skipjack	1317	0.001	0.999	0	2.244	7523	3861	11883	0.27
1999	Tuna, Skipjack	10	0	1	0	0.019	51	10	108	0.52
2000	Tuna, Skipjack	17	0	1	0	0.038	75	5	182	0.64
2001	Tuna, Skipjack	49	0	1	0	0.145	241	10	590	0.64
2002	Tuna, Skipjack	3	0	1	0	0.008	14	0	43	0.99
2003	Tuna, Skipjack	623	0.040	0.960	0	2.091	3067	1597	4887	0.27
2004	Tuna, Skipjack	302	0	1	0	1.354	1469	733	2273	0.27
2005	Tuna, Skipjack	0				0				
2006	Tuna, Skipjack	432	0	0.986	0.014	1.624	2328	92	6426	0.80
1990	Tuna, Yellowfin	1	0	0	1	0.006	23	0	77	1.01
1991	Tuna, Yellowfin	0				0				
1992	Tuna, Yellowfin	4	0	1	0	0.007	30	8	60	0.48
1993	Tuna, Yellowfin	0				0				
1994	Tuna, Yellowfin	0				0				
1995	Tuna, Yellowfin	1	0	1	0	0.002	7	0	21	1.02
1996	Tuna, Yellowfin	2	0	1	0	0.005	17	0	52	0.99
1997	Tuna, Yellowfin	10	0	1	0	0.014	44	0	103	0.60
1998	Tuna, Yellowfin	4	0	1	0	0.007	23	6	47	0.49
1999	Tuna, Yellowfin	0				0				
2000	Tuna, Yellowfin	13	0	1	0	0.029	57	18	110	0.42
2001	Tuna, Yellowfin	30	0	1	0	0.088	148	59	252	0.33
2002	Tuna, Yellowfin	0				0				
2003	Tuna, Yellowfin	0				0				
2004	Tuna, Yellowfin	0				0				
2005	Tuna, Yellowfin	0				0				
2006	Tuna, Yellowfin	4	0	1	0	0.015	22	0	68	0.99
1990	Tunicates, Pelagic	0				0				
1991	Tunicates, Pelagic	0				0				
1992	Tunicates, Pelagic	0				0				
1993	Tunicates, Pelagic	58	0.793	0.207	0	0.080	434	0	1074	0.65
1994	Tunicates, Pelagic	936	0.078	0.429	0.493	1.233	5239	2657	8340	0.28
1995	Tunicates, Pelagic	28	0.143	0.036	0.821	0.049	180	0	494	0.76
1996	Tunicates, Pelagic	62	0	0.452	0.548	0.147	500	0	1228	0.67
1997	Tunicates, Pelagic	161	0	0.112	0.888	0.233	708	22	1657	0.59
1998	Tunicates, Pelagic	442	0.023	0.005	0.973	0.753	2525	359	5985	0.59
1999	Tunicates, Pelagic	2695	0	0	1	5.124	13496	0	41416	0.94
2000	Tunicates, Pelagic	7909	0	0.994	0.006	17.813	34487	713	93793	0.77
2001	Tunicates, Pelagic	20898	0	0	1	61.646	102641	0	309112	0.93
2002	Tunicates, Pelagic	8700	0	0	1	24.167	39392	0	106285	0.73
2003	Tunicates, Pelagic	1550	0	0.355	0.645	5.201	7631	0	16826	0.56
2004	Tunicates, Pelagic	1550	0	1	0	6.951	7535	0	24003	1.00
2005	Tunicates, Pelagic	0				0				
2006	Tunicates, Pelagic	44020	0.130	0.136	0.734	165.489	237146	74522	448519	0.41
1990	Unknown Species	0				0				
1991	Unknown Species	0				0				
1992	Unknown Species	0				0				
1993	Unknown Species	0				0				
1994	Unknown Species	0				0				
1995	Unknown Species	0				0				
1996	Unknown Species	0				0				
1997	Unknown Species	0				0				
1998	Unknown Species	0				0				
1999	Unknown Species	0				0				

Year	Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
2000	Unknown Species	1	0	0	1	0.002	5	0	14	1.02
2001	Unknown Species	0				0				
2002	Unknown Species	0				0				
2003	Unknown Species	0				0				
2004	Unknown Species	0				0				
2005	Unknown Species	0				0				
2006	Unknown Species	0				0				
1990	Yellowtail	1	0	0	1	0.006	23	0	76	0.99
1991	Yellowtail	0				0				
1992	Yellowtail	0				0				
1993	Yellowtail	0				0				
1994	Yellowtail	1	0	1	0	0.001	6	0	18	0.98
1995	Yellowtail	0				0				
1996	Yellowtail	0				0				
1997	Yellowtail	0				0				
1998	Yellowtail	0				0				
1999	Yellowtail	0				0				
2000	Yellowtail	0				0				
2001	Yellowtail	0				0				
2002	Yellowtail	0				0				
2003	Yellowtail	0				0				
2004	Yellowtail	0				0				
2005	Yellowtail	0				0				
2006	Yellowtail	0				0				

Table 4. Observed bycatch, estimated bycatch, and coefficient of variation for the California drift gillnet fishery for swordfish and thresher shark, summarized over the years 1990-2006.

Species	Observed catch	Proportion alive	Proportion dead	Proportion unknown	Individuals/ set	Estimated catch	LoCI	HiCI	CV
Blacksmith	1	1	0	0	0.000	7	0	20	1.07
Crab, Dungeness	1	1	0	0	0.000	7	0	20	0.89
Crab, Spider	1	0	1	0	0.000	7	0	26	1.03
Escolar (Smith's)	1	0	1	0	0.000	7	0	20	1.02
Hagfish Pacific	1	0	1	0	0.000	7	0	20	0.93
Lancetfish, Longnose	1	1	0	0	0.000	7	0	20	0.89
Pomfret	1	0	1	0	0.000	7	0	20	0.98
Saifish	1	0	1	0	0.000	7	0	26	1.08
Seabass, White	1	0	1	0	0.000	7	0	20	1.00
Shark, Sevengill	1	1	0	0	0.000	7	0	20	0.98
Shark, Sixgill	1	1	0	0	0.000	7	0	20	0.91
Shark, Soupfin	1	0	1	0	0.000	7	0	20	1.02
Shark, White	1	0	1	0	0.000	7	0	20	0.99
Skate, California	1	1	0	0	0.000	7	0	20	0.95
Unknown Species	1	0	0	1	0.000	7	0	20	0.86
Needlefish, California	2	0.500	0.500	0	0.000	13	0	32	0.65
Oilfish	2	0	1	0	0.000	13	0	33	0.78
Sea Star	2	1	0	0	0.000	13	0	52	1.09
Shark, Megamouth	2	1	0	0	0.000	13	0	40	0.77
Shark, Pelagic Thresher	2	0	1	0	0.000	13	0	33	0.68
Skate, Big	2	1	0	0	0.000	13	0	32	0.69
Skate, Unidentified	2	0.500	0.500	0	0.000	13	0	33	0.66
Yellowtail	2	0	0.500	0.500	0.000	13	0	33	0.66
Billfish, Other Identified	3	0.333	0.667	0	0.000	20	0	52	0.61
Dogfish, Spiny	3	0.667	0.333	0	0.000	20	0	45	0.59
Mobula	3	1	0	0	0.000	20	7	39	0.58
Mollusk, Unidentified	3	0.333	0.667	0	0.000	20	0	40	0.55
Pipefish Bay	3	0	0.667	0.333	0.000	20	0	52	0.67
Rockfish, Unidentified	3	0.667	0.333	0	0.000	20	0	50	0.65
Shark, Basking	3	0.333	0.667	0	0.000	20	0	45	0.64
Billfish, Unidentified	4	0	1	0	0.001	26	7	59	0.50
Shark, Pacific Angel	4	0.500	0	0.500	0.001	26	7	52	0.48
Shark, Unidentified	4	0	0.500	0.500	0.001	26	7	57	0.48
Marlin, Black	5	0	1	0	0.001	33	0	104	0.84
Anchovy, Northern	6	0.333	0.667	0	0.001	39	7	78	0.45
Octopus, Unidentified	6	0.667	0.333	0	0.001	39	13	72	0.37
Shark, Prickly	6	0.667	0.333	0	0.001	39	7	71	0.44
Oarfish	7	0	1	0	0.001	45	13	85	0.44
Barracuda, California	8	0.125	0.875	0	0.001	52	7	105	0.51
Squid, Market	8	0	0.875	0.125	0.001	52	13	91	0.40
Stingray, Round	8	0.875	0.125	0	0.001	52	13	98	0.40
Ray, Unidentified	10	0.400	0.400	0.200	0.001	65	20	111	0.35
Manta	14	0.357	0.571	0.071	0.002	90	26	182	0.48
Ray, Bat	18	0.944	0	0.056	0.002	116	52	184	0.30
Shark, Common Thresher	27	0.407	0.519	0.074	0.004	174	82	296	0.34
Crustacean, Unidentified	29	0.172	0.414	0.414	0.004	187	0	525	0.79
Shark, Smooth Hammerhead	33	0	1	0	0.004	212	78	331	0.32
Crab, Pelagic Red	35	0.371	0.543	0.086	0.005	225	7	555	0.64
Sardine, Pacific	37	0	1	0	0.005	238	65	393	0.39
Ray, Pacific Electric	41	0.659	0.171	0.171	0.005	264	172	352	0.17
Marlin, Blue	49	0	0.980	0.020	0.006	315	158	542	0.29
Mackerel, Jack	51	0.078	0.922	0	0.007	328	150	513	0.29
Tuna, Yellowfin	69	0	0.986	0.014	0.009	443	278	659	0.22
Scombrid	83	0	1	0	0.011	533	214	939	0.35
Shark, Bigeye Thresher	84	0.024	0.952	0.024	0.011	540	410	708	0.16
Shark, Salmon	86	0.035	0.965	0	0.011	552	101	1201	0.56
Mackerel, Unidentified	87	0	1	0	0.011	559	7	1441	0.76
Louvar	106	0.028	0.943	0.028	0.014	681	529	853	0.11
Remora	112	0.946	0.018	0.036	0.015	719	546	933	0.14
Opah	151	0.046	0.934	0.020	0.020	969	723	1223	0.14
Fish, Other Identified	156	0.423	0.526	0.051	0.020	1002	545	1442	0.23
Pomfret, Pacific	181	0.022	0.956	0.022	0.024	1162	742	1694	0.22
Swordfish, Broadbill	245	0.029	0.910	0.061	0.032	1573	1265	1874	0.11
Hake, Pacific	248	0.073	0.923	0.004	0.032	1592	792	2709	0.32
Shark, Shortfin Mako	297	0.380	0.596	0.024	0.039	1906	1523	2282	0.10
Tuna, Bluefin	311	0	0.958	0.042	0.040	1996	1450	2730	0.16
Marlin, Striped	324	0.012	0.951	0.037	0.042	2080	1672	2587	0.11
Stingray, Pelagic	333	0.754	0.192	0.054	0.043	2137	1822	2516	0.07
Fish, Unidentified	419	0.031	0.919	0.050	0.055	2689	1831	3663	0.16
Bonito, Pacific	476	0.044	0.920	0.036	0.062	3055	1339	6667	0.43
Mackerel, Bullet	2104	0.003	0.947	0.050	0.274	13501	8690	21097	0.24
Albacore	2624	0.005	0.988	0.007	0.341	16838	12745	21639	0.13
Mackerel, Pacific	4138	0.023	0.970	0.007	0.539	26553	19645	34051	0.15
Tuna, Skipjack	5602	0.005	0.993	0.002	0.729	35947	25060	48816	0.16
Shark, Blue	21075	0.320	0.627	0.053	2.743	135233	124009	146093	0.04
Mola, Common	43372	0.929	0.037	0.034	5.644	278306	263196	304576	0.04
Tunicates, Pelagic	89009	0.066	0.184	0.750	11.584	571145	265537	940153	0.30
Invertebrate, Unidentified	273932	0.003	0.017	0.980	35.650	1757743	639131	2625600	0.31

Table 5. Species that are both bycatch in the California drift gillnet fishery and listed in the 2007 third quarter Fish Stock Sustainability Index (FSSI) and their status.

Common name	Scientific name	Overfishing?	Overfished?	Approaching overfished conditions?
Albacore	<i>Thunnus alalunga</i>	Unknown	Unknown	Unknown
Dogfish, Spiny	<i>Squalus acanthias</i>	Unknown	Unknown	Unknown
Mackerel, Jack	<i>Trachurus symmetricus</i>	No	Undefined	Unknown
Mackerel, Pacific	<i>Scomber japonicus</i>	No	No	No
Marlin, Striped	<i>Tetrapturus audax</i>	No	No	No
Rockfish, Unidentified	<i>Sebastes sp.</i>	^a	^a	^a
Sardine, Pacific	<i>Sardinops sagax</i>	No	No	No
Shark, Blue	<i>Prionace glauca</i>	No	No	No
Squid, Market	<i>Loligo opalescens</i>	Unknown	Unknown	Unknown
Swordfish, Broadbill	<i>Xiphias gladius</i>	No	No	No
Tuna, Bluefin	<i>Thunnus thynnus</i>	Unknown	Unknown	Unknown
Tuna, Skipjack	<i>Katsuwonus pelamis</i>	No	No	No
Tuna, Yellowfin	<i>Thunnus albacares</i>	Yes	No	No

^a Dependent upon species.

RECENT TECHNICAL MEMORANDUMS

SWFSC Technical Memorandums are accessible online at the SWFSC web site (<http://swfsc.noaa.gov>). Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161 (<http://www.ntis.gov>). Recent issues of NOAA Technical Memorandums from the NMFS Southwest Fisheries Science Center are listed below:

- NOAA-TM-NMFS-SWFSC-416 An assessment of the accuracy and precision of localization of a stationary sound source using a two-element towed hydrophone array.
S. RANKIN, J. BARLOW, and J. OSWALD
(January 2008)
- 417 A guide to constructing hydrophones and hydrophone arrays for monitoring marine mammal vocalizations.
J. BARLOW, S. RANKIN, and S. DAWSON
(February 2008)
- 418 Diet of the striped dolphin, *Stenella coeruleoalba*, in the eastern tropical Pacific ocean.
W.F. PERRIN, K.M. ROBERTSON, and W.A. WALKER
(March 2008)
- 419 Report of a hydrographic survey of Clipperton Ridge conducted aboard the *David Starr Jordan* during the *Stenella* abundance research cruise 2006.
C. HALL, K.W. ROBERTS, S.M. FINNEY, W.P. MOWITT, D. GOTHAN, and L.T. BALLANCE
(March 2008)
- 420 Marine mammal data collected during the Pacific islands cetacean and ecosystem assessment survey (PICEAS) conducted aboard the NOAA ship *McArthur II*, July - November 2005.
J. BARLOW, S. RANKIN, A. JACKSON, and A. HENRY
(March 2008)
- 421 Marine mammal data collected during a survey in the eastern tropical Pacific ocean aboard NOAA ships *David Starr Jordan* and *McArthur II*, July 28 - December 7, 2006.
A. JACKSON, T. GERRODETTE, S. CHIVERS, M. LYNN, S. RANDIN, and S. MESNICK
(April 2008)
- 422 Estimates of 2006 dolphin abundance in the eastern tropical Pacific, with revised estimates from 1986-2003.
T. GERRODETTE, G. WATTERS, W. PERRYMAN, and L. BALLANCE
(April 2008)
- 423 A framework for assessing the viability of threatened and endangered salmon and steelhead in the north-central California coast recovery domain.
B.C. SPENCE, E.P. BJORKSTEDT, J.C. GARZA, J.J. SMITH, D.G. HANKIN, D. FULLER, W.E. JONES, R. MACEDO, T.H. WILLIAMS, and E. MORA
(April 2008)
- 424 Zooplankton night/day ratios and the oxygen minimum layer in the eastern Pacific.
P.C. FIEDLER and J.F. LORDA
(April 2008)
- 425 Habitat restoration cost references for salmon recovery planning.
C.J. THOMSON and C. PINKERTON
(April 2008)