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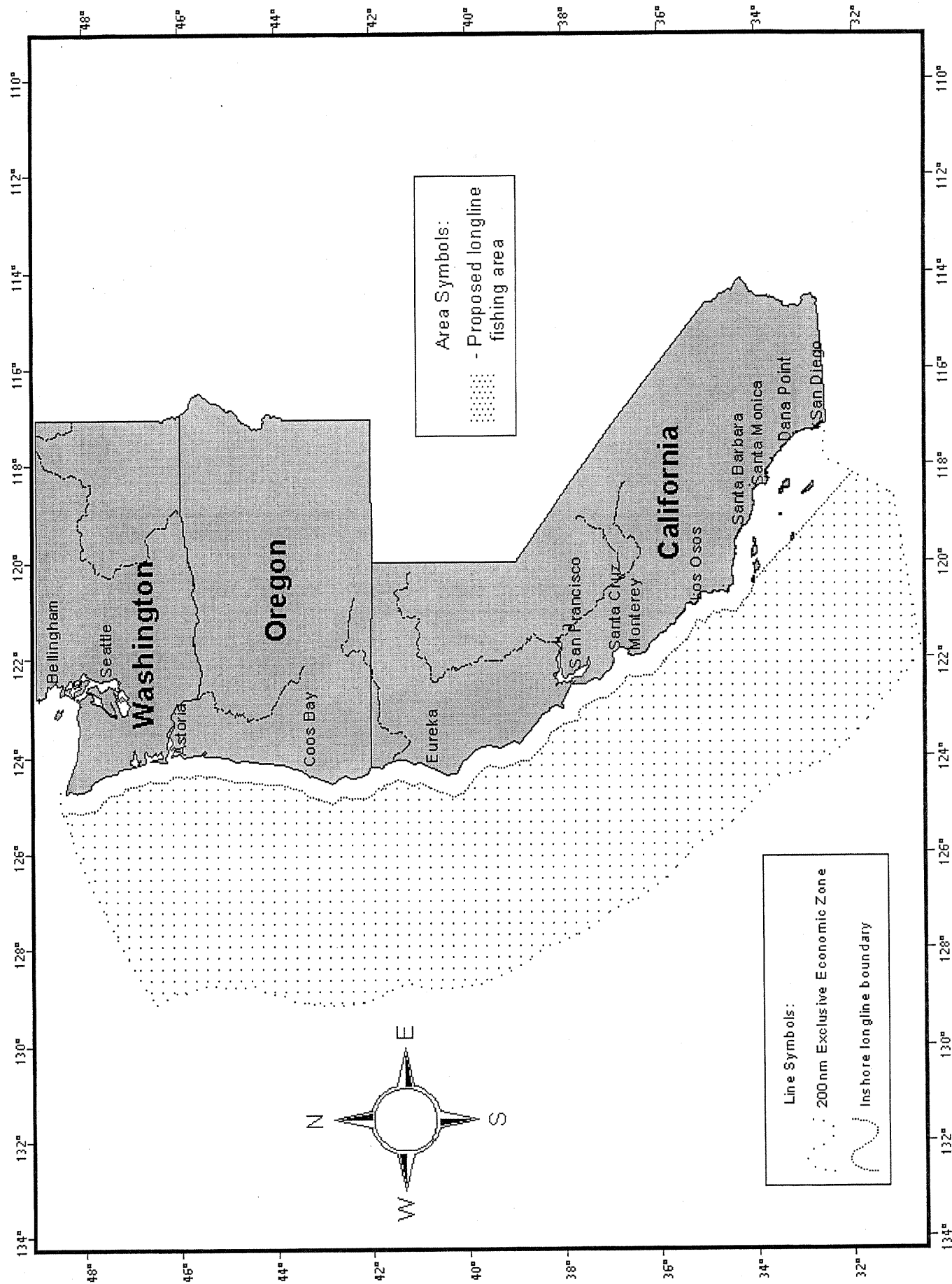
**U.S. WEST COAST
HIGHLY MIGRATORY SPECIES
FISHERY MANAGEMENT PLAN**

**Supplemental
Replacement Figures and Tables for
Part B - Initial Regulatory Measures**

Pacific Fishery Management Council

October 2001

Figure 1. Proposed Longline Fishing Area



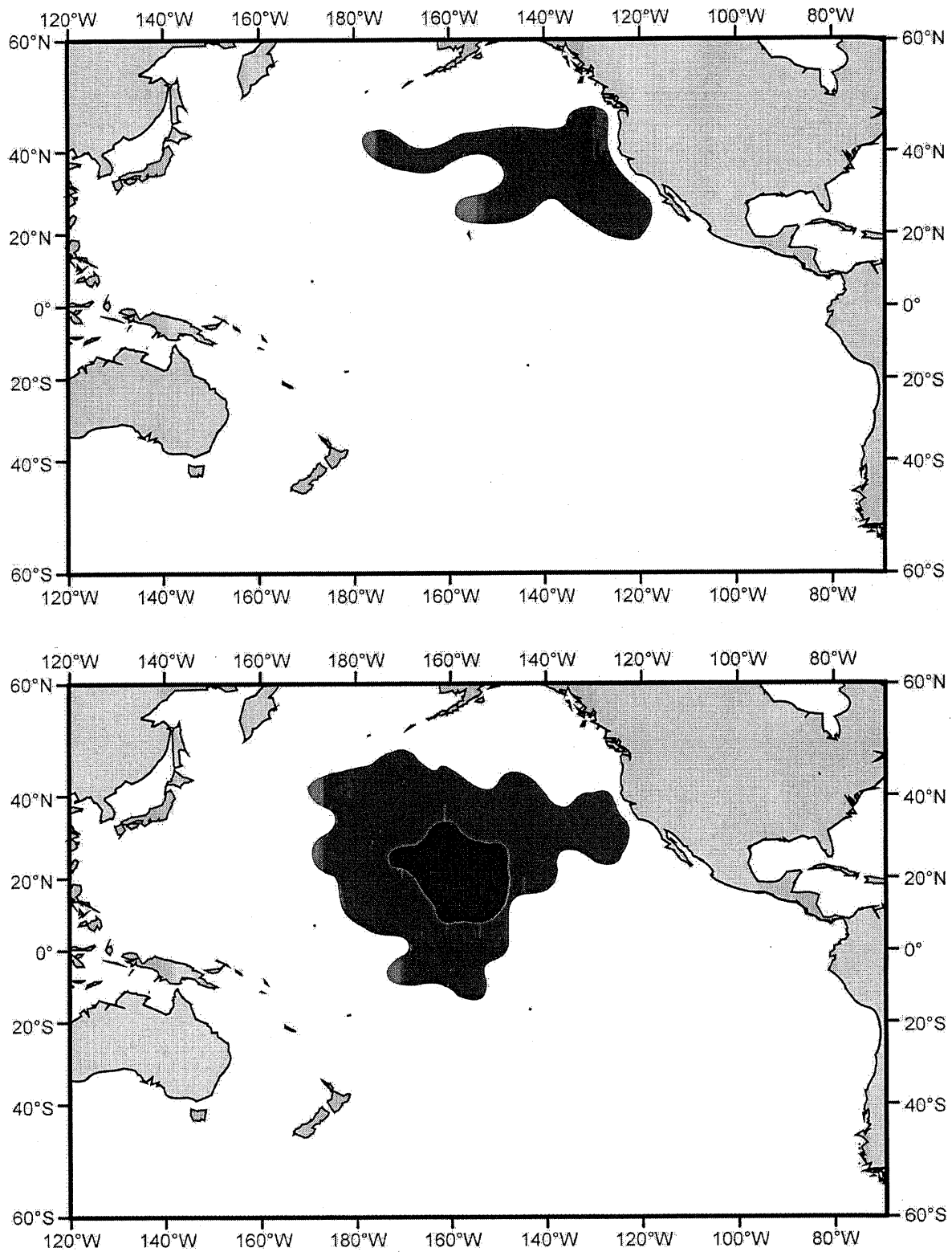


Figure 2. Distribution of California-based high seas longline effort (above) and Hawaii-based high seas longline effort (below), 1994-2000. (A. Coan, SWFSC/NMFS, La Jolla).

Table 1. Fish catches, discards and catch per thousand hooks (CPE) reported for all high seas logbook data where a trip fished east of 135°W longitude, 1994-2000. Position is based on begin set position. Catch and discards are in number of fish. Data represent 33 Hawaii trips and 276 California Trips. Data are not treated for bias.

Area	Species	Catch	CPE	Discards	Total	Area	Species	Catch	CPE	Discards	Total
East of 135°		2,520,255	Hooks:			West of 135°		830,170	Hooks		
	Blue Marlin	0	0.005	12	12		Blue Marlin	56	0.078	9	65
	Striped Marlin	12	0.024	49	61		Striped Marlin	121	0.181	29	150
	Black Marlin	2	0.008	17	19		Black Marlin	3	0.007	3	6
	Sailfish	0	0.002	5	5		Sailfish	1	0.007	5	6
	Spearfish	44	0.023	14	58		Spearfish	107	0.143	12	119
	Swordfish	32,867	13.780	1,862	34,729		Swordfish	7,908	10.027	416	8,324
	Blue Shark	406	10.614	26,344	26,750		Blue Shark	169	7.709	6,231	6,400
	Mako Shark	421	0.393	569	990		Mako Shark	65	0.210	109	174
	Thresher Shark	50	0.116	243	293		Thresher Shark	2	0.037	29	31
	Other Shark	12	0.341	848	860		Other Shark	1	0.231	191	192
	Mahimahi	5,693	2.824	1,423	7,116		Mahimahi	1,814	2.780	494	2,308
	Moonfish	240	0.123	69	309		Moonfish	72	0.099	10	82
	Wahoo	42	0.021	12	54		Wahoo	114	0.143	5	119
	Other Pelagic	31	0.112	252	283		Other Pelagic	17	0.136	96	113
	Albacore	4,809	3.713	4,548	9,357		Albacore	1,659	3.910	1,587	3,246
	Bigeye Tuna	10,163	4.229	495	10,658		Bigeye Tuna	1,849	2.339	93	1,942
	Yellowfin Tuna	490	0.242	120	610		Yellowfin Tuna	254	0.432	105	359
	Other Tuna	18	0.010	6	24		N. Bluefin Tuna	53	0.064	0	53
	N. Bluefin Tuna	2,131	0.861	40	2,171		Oilfish	31	0.219	151	182
Oilfish	321	0.270	360	681	Pomfret	38	0.049	3	41		
Pomfret	32	0.016	8	40	Skipjack Tuna	45	0.069	12	57		
Skipjack Tuna	7	0.012	24	31							
Protected species:						Protected species:					
	Sea Lion/Seal		0.0004	1	1		Sea Lion/Seal		0.0012	1	1
	Green Turtle		0.0040	10	10		Green Turtle		0.0012	1	1
	Leatherback Turtle		0.0123	31	31		Leatherback Turtle		0.0108	9	9
	Olive Ridley's Turtle		0.0067	17	17		Olive Ridley Turtle		0.0084	7	7
	Loggerhead Turtle		0.0052	13	13		Loggerhead Turtle		0.0181	15	15
	Other Turtle		0.0008	2	2		Other Turtle		0.0060	5	5
	Albatross		0.0222	56	56		Albatross		0.0458	38	38

Table 2. Summary of **observer** data (fish catches) for high-seas longline vessels that fished 1994 through 2000 both east and west of 135W longitude. CPUE is catch per 1,000 hooks, CPS is catch per set where catch is in number of fish. Data represent 6 trips, 100 sets and 86,045 hooks (West=42,198; East=43,847). Data are not treated for bias.

Species	WEST OF 135W			EAST OF 135W			ALL AREAS					
	Catch	Discards	CPUE	CPS	Catch	Discards	CPUE	CPS	Catch	Discards	CPUE	CPS
Albacore	337	208	7.986	6.878	513	422	11.700	10.059	850	630	9.879	8.500
Bigeye Thresher Shark	0	0	0.000	0.000	5	2	0.114	0.098	5	2	0.058	0.050
Bigeye Tuna	35	1	0.829	0.714	129	15	2.942	2.529	164	16	1.906	1.640
Blue Shark	702	702	16.636	14.327	861	861	19.636	16.882	1563	1563	18.165	15.630
Bluefin Tuna	8	1	0.190	0.163	15	1	0.342	0.294	23	2	0.267	0.230
Cartilaginous Fishes	3	3	0.071	0.061	1	1	0.023	0.020	4	4	0.046	0.040
Cookie Cutter Shark	1	1	0.024	0.020	1	1	0.023	0.020	2	2	0.023	0.020
Crestfish	0	0	0.000	0.000	1	1	0.023	0.020	1	1	0.012	0.010
Escolar	15	12	0.355	0.306	20	14	0.456	0.392	35	26	0.407	0.350
Fish, Unidentified	4	4	0.095	0.082	9	9	0.205	0.176	13	13	0.151	0.130
Indo-Pacific Blue Marline	0	0	0.000	0.000	1	1	0.023	0.020	1	1	0.012	0.010
Longfin Mako	1	0	0.024	0.020	0	0	0.000	0.000	1	0	0.012	0.010
Louvar	0	0	0.000	0.000	1	0	0.023	0.020	1	0	0.012	0.010
Mahimahi	22	3	0.521	0.449	17	1	0.388	0.333	39	4	0.453	0.390
Northern Lancetfish	11	11	0.261	0.224	28	28	0.639	0.549	39	39	0.453	0.390
Ocean Sunfish (Common Mola)	15	15	0.355	0.306	8	7	0.182	0.157	23	22	0.267	0.230
Oilfish	3	2	0.071	0.061	9	9	0.205	0.176	12	11	0.139	0.120
Opah (Moonfish)	1	0	0.024	0.020	7	4	0.160	0.137	8	4	0.093	0.080
Pacific Pomfret	2	0	0.047	0.041	2	0	0.046	0.039	4	0	0.046	0.040
Pelagics Stingray	26	26	0.616	0.531	11	11	0.251	0.216	37	37	0.430	0.370
Rainbow Runner	1	0	0.024	0.020	0	0	0.000	0.000	1	0	0.012	0.010
Remora	10	10	0.237	0.204	10	10	0.228	0.196	20	20	0.232	0.200
Shortbill Spearfish	1	0	0.024	0.020	1	1	0.023	0.020	2	1	0.023	0.020
Shortfin Mako (Mackerel Shark)	14	11	0.332	0.286	17	16	0.388	0.333	31	27	0.360	0.310
Sickle (Bigscale) Pomfret	2	1	0.047	0.041	0	0	0.000	0.000	2	1	0.023	0.020
Skipjack Tuna	2	1	0.047	0.041	1	0	0.023	0.020	3	1	0.035	0.030
Snake Mackerel	6	6	0.142	0.122	2	2	0.046	0.039	8	8	0.093	0.080
Striped Marlin	2	0	0.047	0.041	2	2	0.046	0.039	4	2	0.046	0.040
Swordfish, Broadbill	524	44	12.418	10.694	770	46	17.561	15.098	1294	90	15.039	12.940
Tuna and Mackerels	0	0	0.000	0.000	3	3	0.068	0.059	3	3	0.035	0.030
Wahoo	1	0	0.024	0.020	0	0	0.000	0.000	1	0	0.012	0.010
Yellowfin Tuna	3	1	0.071	0.061	5	3	0.114	0.098	8	4	0.093	0.080

Table 3. Summary of selected observer data (protected species) for high-seas longline vessels that fished 1994 through 2000 both east and west of 135W longitude. Data not treated for bias.

Trips	Sets	Hooks	Catch				CPUE (number/1000 hooks)			
			Albatross	Leatherback	Loggerhead	Striped Marlin	Albatross	Leatherback	Loggerhead	Striped Marlin
Entire area: 6	100	86,045	15	6	5	4	0.174	0.070	0.058	0.046
East of 135W: 6	51	43,847	11	2	2	2	0.251	0.046	0.046	0.046
West of 135W: 5	49	42,198	4	4	3	2	0.095	0.095	0.095	0.047

Table 4. Comparative Species Ranking. Taken in the High Seas Longline Fishery and the CA/OR Drift Gill Net Fishery in the EEZ (1997-1999), based on Longline Observer, Longline Logbook, and Drift Net Observer Data*, including Catches of Vessels That Fished East of 135 W Longitude. Protected Species Ranked Separately. (Data are preliminary, unedited, not treated for bias and require more detailed analysis before extrapolation.)

High Seas LL Observed Catch Rates (East 135W) N= 43,847 hooks, 1994:2000	High Seas LL Logbook Reported Catch Rates (East 135W) CA/HLI -based vessels N=2,520,255 Hooks, 1994-2000	High Seas LL Logbook Reported Catch Rates ALL AREAS- California-Based vessels N= 7,071,745 hooks-Aug 1995-Dec 1999	DGN Observed Catch/Interactions (~20% observer Coverage 1997, 1998, 1999)
<p>Fishes:</p> <p><i>CPUE > 0.30/1000 hooks</i></p> <ol style="list-style-type: none"> Blue Shark Broadbill Swordfish Albacore Bigeye tuna Northern Lancetfish Escolar Shortfin mako shark Dorado (Mahimahi) Bluefin tuna <p><i>CPUE <= 0.30 and > .05/1000 hooks</i></p> <ol style="list-style-type: none"> Pelagic stingray Remora Olfish Fish, Unid. Mola Mola Opah (Moonfish) Bigeye thresher shark yellowfin tuna Tunas and mackerels, undet. <p><i>CPUE < .05/1000 hooks:</i></p> <ol style="list-style-type: none"> Pacific pomfret snake mackerel Striped marlin Cartilaginous fishes, undet. Cresfish Blue marlin Louvar Shortbill Spearfish Skipjack tuna <p>Protected species (includes releases):</p> <ol style="list-style-type: none"> Black-footed abbatross CPUE=-.25 Leatherback Turtle CPUE=.05 Loggerhead Turtle CPUE=-.05 	<p>Fishes:</p> <p><i>CPUE > 0.30/1000 hooks</i></p> <ol style="list-style-type: none"> Broadbill Swordfish Blue Shark Bigeye tuna Albacore Dorado (mahimahi) Northern Bluefin Tuna Shortfin mako shark Other Shark <p><i>CPUE <= 0.30 and > .05/1000 hooks</i></p> <ol style="list-style-type: none"> Olfish Yellowfin tuna Moonfish <p><i>CPUE < .05/1000 hooks</i></p> <ol style="list-style-type: none"> Thresher shark, undet. Other pelagic fishes Striped marlin Wahoo Spearfish Pacific pomfret Skipjack tuna Black Marlin Other tuna <p>Protected species (includes releases):</p> <ol style="list-style-type: none"> Albatross (CPUE = 0.022) Leatherback turtle (CPUE= 0.012) Olive Ridley turtle (CPUE= 0.007) Loggerhead turtle (CPUE= 0.005) Green turtle (CPUE= 0.004) Other turtle (CPUE< 0.001) Seal (CPUE<0.001) 	<p>Fishes:</p> <p><i>CPUE > 0.30/1000 hooks</i></p> <ol style="list-style-type: none"> Broadbill swordfish Blue shark Albacore tuna Bigeye tuna Dorado (mahimahi) <p><i>CPUE <= 0.30 and > .05/1000 hooks</i></p> <ol style="list-style-type: none"> Bluefin tuna Mako shark Yellowfin tuna Other fishes, undet. <p><i>CPUE < .05/1000 hooks</i></p> <ol style="list-style-type: none"> Thresher shark, undet. Opah Olfish Other shark, undet. Wahoo Striped marlin Sailfish Blue marlin Spearfish <p>Protected species (includes releases):</p> <ol style="list-style-type: none"> Albatross, unspecified (CPUE=0.141) Leatherback turtle (CPUE=0.005) Loggerhead turtle (CPUE=0.003) Olive ridley turtle (CPUE=0.003) Green turtle (CPUE=0.002) Turtle, other (CPUE=0.001) Bird, other (CPUE=0.001) Monk seal (CPUE<0.001) Sea lion (CPUE= <0.001) 	<p>Fishes</p> <p><i>Numbers > 1000:</i></p> <ol style="list-style-type: none"> Mola mola Blue shark Albacore Swordfish Skipjack tuna Bullet mackerel Bluefin tuna Mako shark Opah Common thresher shark <p><i>Numbers<200:</i></p> <ol style="list-style-type: none"> Louvar Yellowfin tuna Bigeye thresher <p><i>Numbers <100:</i></p> <ol style="list-style-type: none"> Striped marlin Pelagic thresher shark Blue marlin Bigeye tuna Dorado (Mahimahi) <p>Protected species (includes releases):**</p> <ol style="list-style-type: none"> 5.0 to 25 per yr Common dolphin (short-beaked and long) California Sea Lion Elephant seal 1.0 to 3.0 per year Northern Right Whale Dolphin Leatherback Sea Turtle Dall's Porpoise Loggerhead Sea Turtle 0.3 to 1.0 per year: Risso's Dolphin Pacific White-sided dolphin Grey Whale Less than 0.3 per yr: Short-finned Pilot Whale Fin Whale Minke Whale Humpback whale Sperm Whale Olive Ridley Turtle

* Data Obtained from NMFS longline observer, longline logbook, and drift gill net observer data; M. Vojkovich, Calif. Dep. Fish and Game (7/11/00); and from Cameron, G. and K.M. Fomey, (1999, 2000) cetacean mortality papers presented to the International Whaling Comm.

** See also NOAA (2000) for expanded take rates 1990-2000.

Table 5. Observer catch data from Southern California experimental cable drift longline fishery for mako and blue shark, 1988 and 1989*. Includes releases. CPUE=catch or take/1000 hooks. Data based on O'Brien and Sunada (1994), and pers. commun., J. O'Brien, CDFG, 7/30/01.

	Number 1988	Number 1989	Total	CPUE
Fishes:				
Blue shark	1,900	1,320	3,220	82.14
Shortfin mako shark	883	610	1,493	38.08
Pelagic sting ray	265	194	459	11.71
Mola mola	1	2	3	0.07
Hammerhead shark	2	0	2	0.05
Pacific mackerel	2	0	2	0.05
Finescale triggerfish	1	0	1	0.03
Giant seabass	1	0	1	0.03
Common thresher shark	1	0	1	0.03
Protected species:				
California sea lion	3	2	5	0.13
Green sea turtle	2	0	2	0.05

* Observer coverage approx 19%; no program in 1990-91. Total No. observed hooks set in 1988-89 = 39200

Table 6. NMFS/SWFSC Longline Shark Survey Catch Tally Summaries: Southern California Bight 1994-2000 *

Year	N. Hooks	SFMako	CThreshShrk	BShark	PeiRay	SoupShrk	SpDogfish	DskyShrk	Unid. Shrk	BatRay	Ylowtail	Pnack	BSndBass	Mola	WSeaBass	Opah	Dorado	Unkn
1994	3,637	146	1	119	117							7						
1995	5,633	162	1	263	28													
1996	6,212	206	0	695	73									1				
1997	5,529	108	0	195	45				1					1			3	1
1998	1,872	40	27	12	8			1					1					
1999	606	40	28	17	8		1		1									
2000	7,596	51	34	1,003	26	2				1	1	2	13	1	2	1		1
Totals	31,085	753	91	2,304	305	2	1	1	2	1	1	9	14	3	2	1	3	2
CPUE		24.20	2.33	74.12	9.81	0.06	0.03	0.03	0.06	0.03	0.03	0.29	0.45	0.10	0.06	0.03	0.10	0.06

* Sampling protocol and target species not uniform over time (see text). Source: D. Prescott, NMFS, Southwest Fisheries Science Center, La Jolla, CA 7/16/2001
 CPUE = Catch per 1,000 hooks