

F/V Ocean Prowler
Cruise Report AL-97-01
Longline Survey of the Gulf of Alaska and Eastern Bering Sea
May 21-August 31, 1997

Prepared by

Thomas L. Rutecki

On August 31, 1997, the National Marine Fisheries Service, Alaska Fisheries Science Center (AFSC), completed the eleventh annual longline survey of sablefish (*Anoplopoma fimbria*) resources of the Gulf of Alaska. The eastern Bering Sea was also surveyed this year. The survey area extended from the upper continental slope of the eastern Bering Sea south and eastward to Dixon Entrance (Figure 1). This survey was designed to continue the time series (1979-94) of the Japan-U.S. cooperative longline survey that was discontinued after 1994. Starting in 1996, the eastern Aleutian Islands and eastern Bering Sea were added to the survey on alternating years, in addition to the Gulf of Alaska. For example, during 1997 the eastern Bering Sea and the Gulf of Alaska were surveyed, and in 1998 the eastern Aleutian Islands and Gulf of Alaska will be surveyed.

OBJECTIVES

1. Determine the relative abundance and size composition of five commercially important species whose depth range is encompassed by the survey: sablefish, shortspine thornyhead (*Sebastolobus alascanus*), roughey rockfish (*Sebastes aleutianus*), shortraker rockfish, (*S.borealis*) and Greenland turbot (*Reinhardtius hippoglossus*).
2. Determine the relative abundance and size composition of other groundfish species caught during the survey: Pacific cod (*Gadus macrocephalus*), arrowtooth flounder (*Atheresthes stomias*), grenadiers (Macrouridae), and the relative abundance of Pacific halibut (*Hippoglossus stenolepis*).

3. Tag and release sablefish, Greenland turbot, and shortspine thornyheads throughout the cruise to determine migration patterns.
4. Collect sablefish otoliths to study the age composition of the population.
5. Conduct gillnet sampling to examine distribution and abundance of young-of-the-year sablefish.

VESSEL AND GEAR

Survey operations were conducted using the F/V *Ocean Prowler*, a chartered U.S. longline vessel. The 47 m (155 ft) vessel carried standard longline hauling gear and was equipped with radios, radars, GPS receivers, LORAN receivers, video and paper track plotters, a processing line, three sets of plate freezers, and refrigerated holds. Vessel personnel consisted of a captain, an engineer, a cook, a quality-control technician, six fishermen and five processors.

Gear configuration was unchanged from that of the 1988-96 surveys. Units of gear (skates) were 100 m (55 fm) long and contained 45 size 13/0 Mustad¹ circle hooks. Hooks were attached to 38 cm (15 in) gangions that were secured to beackets tied into the groundline at 2 m (6.5 ft) intervals. Five meters (16 ft) of groundline were left bare at each end. Gangions were constructed of medium lay #60 thread nylon, beacket material was medium lay #72 thread nylon, and groundline was medium lay 9.5 mm (3/8 in) diameter nylon.

A set of gear consisted of a flag and buoy array at each end followed sequentially by a 9.5 mm diameter nylon buoyline, a 92 m (50 fm) section of 9.5 mm polypropylene floating line, a 16 kg (35 lb) piece of chain (to dampen the effect of wave surge on the buoyline), 92 m of 9.5 mm nylon, a 27 kg (60 lb) halibut anchor, and 366 m (200 fm) of 9.5 mm nylon. The groundline was weighted with 3.2 kg (7 lb) lead balls at the end of each skate. Hooks were hand baited with chopped squid (*Illex* spp.) at a rate of about 5.7 kg (12.5 lb) per 100 hooks. Squid heads and tentacles were not used for bait.

Total groundline set each day was 16 km (8.6 nmi) long and contained 160 skates and 7,200 hooks. Two eighty-skate

¹ Citation of the above brand name does not constitute U.S. government endorsement.

groundlines laid end to end were set at each station along the upper continental slope. A single groundline of eighty skates was set at each station in the gullies.

The floating gillnet is 200 m long and 3 m deep with variable mesh sizes increasing .25" every 50 m from 0.75" to 1.5". Two nets were tied together to make a 400 m net. If large numbers of fish were expected to be caught only one 200 m net was used.

OPERATIONS

The charter began on May 21 at Unalaska, Alaska, and ended on August 31 at Juneau, Alaska. The charter period was divided into seven legs of 14, 15, 19, 19, 9, 14, and 10 days. A two-day and one-day port call occurred after legs 3 and 5, respectively. During Leg 1, the area near the western end of Umnak Island eastward to Shumagin Is was sampled, as well as the 3 most southern stations in the eastern Bering Sea. The second leg sampled the remaining stations along the upper continental slope of the eastern Bering Sea. Leg 3 began near Shumagin Is and continued eastward to Kodiak and during Leg 4, the area between Kodiak and Yakutat was sampled. During Leg 5, the area between Yakutat and Sitka was sampled. Leg 6 was dedicated to a special experiment that involved using a manned submersible to observe the longline catch process on the bottom. The rationale and results of that experiment will be available at a future date. During leg 7, the remainder of the area to Dixon Entrance was sampled.

To complete the survey 103 days were used, including 76 days of survey sampling, 14 days for the submersible study as well as 13 days for travel, port calls, loading, and unloading gear.

Survey Operations

Sixteen stations, were sampled along the upper continental slope of the eastern Bering Sea and 45 stations along the slope of the Gulf of Alaska at a rate of one station per day (Figures 1-3). Surveyed depths ranged from approximately 200 to 1,000 m, although at some stations, depths less than 150 m or more than 1,000 m were sampled (Table 1). Twenty-seven stations were sampled in gullies at the rate of one to two stations per day. The sampled gullies were Shumagin Gully, Shelikof Trough, Amatuli Gully, W-grounds, Yakutat Valley, Spencer Gully, Ommaney Trench, and Dixon Entrance. One station (42) was sampled on the continental shelf off Baranof Island.

The gear was set from shallow to deep and was retrieved in the same order, except on occasions when groundlines parted or sea conditions dictated that it be pulled from the opposite

direction. Setting began about 0630 h Alaska Daylight Time. Retrieval began about 0930 h and was completed by about 1930 h.

The gillnet was fished from around midnight to 0600 and retrieved before the longline gear was set at 0630. All fish caught in the gillnet were counted and measured for length. Juvenile sablefish and salmon were frozen for additional studies back at the laboratory.

Data Collection

Catch data were recorded on a hand-held electronic data logger. During gear retrieval a scientist recorded the species of each hooked fish, the condition of each unoccupied hook (absent, broken, or tangled), and whether bait remained on the hook. Fish that are observed, but fall off of the hook are recorded as caught. Time of day was recorded constantly from an internal clock in the data recorder and depth was entered when the first and last skates came aboard, at the beginning of each fifth skate, and when crossing into a new depth interval (0-100 m, 101-200 m, 201-300 m, 301-400 m, 401-600 m, 601-800 m, 801-1,000 m and 1,001-1,200 m).

Length frequency data were collected with a bar code based measuring board and a bar code reader/data storage device. Length was measured by depth interval for sablefish, Pacific cod, grenadiers, arrowtooth flounder, rockfish, and thornyheads. Lengths of sablefish and Pacific cod also were recorded by sex. Pacific halibut were counted and released at the rail without measuring. Catch and length frequency data were transferred to a computer and electronic backup media twice a day.

As in the previous surveys, the charter vessel was allowed to retain most of the catch once the scientific data were recorded.

RESULTS

One hundred and fifty-two longline hauls (sets) were completed (Table 1). Sablefish was the most frequently caught species, followed by giant grenadier, Pacific cod, arrowtooth flounder, Pacific halibut, shortspine thornyhead, rockfish, other species, skates, and Greenland turbot (Table 2). A total of 95,686 sablefish, with an estimated total round weight of 342,698 kg (755,512 lb), was taken during the survey (Table 3). The highest total sablefish catch was observed at two stations 21 (southeast of Kodiak) and 33 (southwest of Icy Bay) (Figure 1). The largest average length sablefish were caught at station 38 (Table 3).

Approximately, 3,850 sablefish, 495 shortspine thornyhead, and 295 Greenland turbot were tagged and released during the survey.

Length-weight data and otoliths were collected from approximately 2,600 sablefish.

Thirty-five gillnet sets were completed. A total of approximately 850 young-of-the-year sablefish were caught.

Killer whales preying on sablefish and Greenland turbot coming up on the gear were observed at eastern Bering Sea stations 4, 13, and 20.

More detailed results and comparisons to previous surveys will be reported in a subsequent technical document.

SCIENTIFIC PERSONNEL

Leg I (May 21 - June 3)
 Michael Sigler, Field Party Chief, ABL
 Kyle Hogrefe, Contract Biologist
 Steven Krane, Contract Biologist

Leg II (June 4 - June 18)
 John Karinen, Field Party Chief, ABL
 Kyle Hogrefe, Contract Biologist
 Steven Krane, Contract Biologist

Leg III (June 19 - July 7)
 Nancy Maloney, Field Party Chief, RACE
 Kyle Hogrefe, Contract Biologist
 Steven Krane, Contract Biologist

Leg IV (July 10 - July 28)
 Larry Haaga, Field Party Chief, RACE
 Kyle Hogrefe, Contract Biologist
 Steven Krane, Contract Biologist

Leg V (July 29 - August 6)
 Thomas Rutecki, Field Party Chief, RACE
 Kyle Hogrefe, Contract Biologist
 Steven Krane, Contract Biologist

Leg VI (August 8 - August 21)
 Larry Haaga, Co-Field Party Chief, RACE
 Linc Freese, Co-Field Party Chief, ABL
 Kyle Hogrefe, Contract Biologist
 Steven Krane, Contract Biologist

Leg VII (August 22 - August 31)
Larry Haaga, Field Party Chief, RACE
Linc Freese, Fisheries Biologist, ABL
Kyle Hogrefe, Contract Biologist
Steven Krane, Contract Biologist

ABL - Auke Bay Laboratory

RACE - Resource Assessment and Conservation Engineering Division

For further information contact either

Dr. Michael Dahlberg, Director, Auke Bay Laboratory, National
Marine Fisheries Service, 11305 Glacier Highway, Juneau, AK
99801-8626 Telephone (907) 789-6000

or

Dr. Gary Stauffer, Director, Resource Assessment and Conservation
Engineering Division, National Marine Fisheries Service, 7600
Sand Point Way NE., Building 4, BIN C15700, Seattle, WA 98115-
0070 -- Telephone (206) 526-4170.

Table 1.--Haul number (set), preassigned station number, and starting and ending positions and depths for the 1997 NMFS longline survey of the Gulf of Alaska and eastern Bering Sea, May 21 - August 31.

Haul no.	Station no.	Start latitude (ddmm.m)	Start longitude (dddmm.mm)	End latitude (ddmm.m)	End longitude (dddmm.mm)	Start depth (m)	End depth (m)
Eastern Bering Sea							
19	34	5321.1	16859.15	5318.1	16854.22	638	921
20	34	5318.3	16853.86	5318.1	16847.27	614	691
21	33	5336.7	16817.94	5336.7	16810.97	114	726
22	33	5336.7	16810.65	5337.8	16802.66	229	608
23	32	5346.3	16719.84	5343.2	16724.27	127	600
24	32	5343.4	16724.73	5341.6	16730.33	500	779
25	2	5837.2	17638.48	5834.4	17645.73	147	486
26	2	5834.4	17646.06	5833.2	17653.88	535	816
27	1	5846.7	17734.50	5849.0	17742.62	152	300
28	1	5849.1	17743.09	5854.4	17750.73	400	585
29	4	5829.8	17540.17	5829.0	17548.84	211	402
30	4	5828.8	17549.41	5830.2	17557.30	414	814
31	6	5820.0	17418.70	5824.7	17418.44	164	241
32	6	5825.0	17418.68	5823.1	17427.22	270	423
33	8	5737.7	17409.90	5741.8	17414.23	150	426
34	8	5742.1	17414.46	5746.2	17418.44	429	797
35	10	5649.7	17322.74	5654.3	17324.99	208	523
36	10	5654.6	17325.40	5658.6	17328.91	532	694
37	12	5637.6	17221.23	5634.0	17226.23	191	620
38	12	5633.5	17227.32	5629.1	17231.24	641	802
39	13	5628.0	17127.09	5627.7	17135.40	197	482
40	13	5627.6	17136.47	5627.3	17143.75	396	664
41	15	5607.6	17034.30	5608.5	17042.85	264	547
42	15	5608.8	17043.94	5607.8	17050.00	226	632
43	17	5602.3	16937.05	5659.4	16942.08	194	535
44	17	5559.5	16943.26	5559.2	16950.16	491	664
45	18	5614.6	16910.25	5611.2	16916.17	164	635
46	18	5610.7	16917.20	5607.6	16922.96	650	700
47	20	5548.5	16848.14	5550.3	16856.08	205	696
48	20	5550.9	16857.05	5554.6	16900.91	691	787
49	22	5527.5	16859.94	5525.6	16807.87	155	258
50	22	5525.5	16808.19	5523.5	16815.79	273	511
Gulf of Alaska							
1	10	5430.5	15915.39	5426.5	15918.94	138	275
2	10	5426.1	15919.24	5422.8	15923.56	284	702

3	9	5421.8	16014.10	5417.7	16017.70	140	314
4	9	5417.4	16018.24	5413.1	16019.59	340	669
5	8	5418.7	16103.87	5415.5	16109.33	185	411
6	8	5415.2	16109.74	5412.0	16115.26	442	890
7	7	5407.5	16138.69	5405.1	16144.23	135	323
8	7	5405.0	16144.88	5403.4	16151.57	376	835

Table 1.- continued

Haul no.	Station no.	Start latitude (ddmm.m)	Start longitude (dddmm.mm)	End latitude (ddmm.m)	End longitude (dddmm.mm)	Start depth (m)	End depth (m)
9	6	5358.0	16315.87	5354.5	16318.69	123	342
10	6	5354.3	16318.98	5352.0	16324.73	393	617
11	5	5344.0	16428.39	5340.8	16428.39	138	309
12	5	5340.7	16434.22	5337.7	16439.58	311	626
13	3	5311.1	16651.50	5306.9	16653.82	221	329
14	3	5306.5	16653.99	5302.8	16657.26	338	1038
15	2	5257.7	16808.28	5254.3	16812.68	117	408
16	2	5254.1	16812.97	5250.5	16814.74	320	550
17	1	5237.6	16906.64	5234.4	16912.02	147	317
18	1	5234.0	16912.37	5232.5	16919.21	397	558
51	4	5334.7	16541.35	5330.5	16544.32	121	285
52	4	5330.2	16544.52	5326.2	16547.61	290	473
53	11	5437.6	15835.37	5433.4	15840.30	128	335
54	11	5433.0	15840.39	5438.0	15834.80	381	721
55	31	5933.2	14339.60	5933.6	14347.81	169	745
56	13	5414.1	15640.52	5510.7	15645.43	161	245
57	12	5450.9	15744.79	5446.6	15749.50	185	407
58	12	5445.7	15750.84	5441.9	15753.58	402	447
59	31	5933.9	14349.33	5935.0	14356.82	573	638
60	13	5510.5	15645.34	5505.8	15647.00	264	488
61	14	5538.0	15550.69	5533.6	15550.17	153	217
62	14	5533.3	15550.00	5529.1	15549.56	220	212
63	149	5547.2	15604.85	5546.0	15611.83	207	236
64	249	5544.9	15612.51	5543.9	15620.05	242	249
65	151	5720.6	15502.97	5720.8	15510.81	240	242
66	251	5720.9	15515.32	5719.7	15522.38	245	257
67	148	5659.4	15503.82	5659.8	15511.95	172	234
68	248	5700.1	15518.64	5702.8	15524.81	253	264
69	150	5611.7	15558.03	5611.2	15605.13	212	238
70	250	5614.2	15608.45	5615.0	15616.40	248	269
71	15	5545.8	15508.58	5541.6	15510.85	157	326
72	15	5541.3	15511.17	5537.7	15515.77	345	602
73	16	5602.7	15434.14	5658.7	15434.59	228	504
74	16	5658.4	15435.20	5653.9	15434.72	521	880
75	17	5558.6	15401.48	5554.7	15401.71	273	540

76	17	5554.1	15401.78	5551.4	15405.89	588	750
77	18	5618.0	15305.28	5615.6	15311.87	240	638
78	18	5615.3	15313.12	5612.2	15318.86	566	695
79	19	5628.7	15213.22	5625.1	15218.55	176	452
80	19	5624.3	15219.90	5620.4	15223.35	485	552
81	20	5706.7	15113.55	5703.0	15116.83	264	535
82	20	5702.3	15117.45	5658.2	15117.61	588	854
83	21	5723.8	15034.65	5719.5	15035.73	211	497

Table 1.- continued

Haul no.	Station no.	Start latitude (ddmm.m)	Start longitude (dddmm.mm)	End latitude (ddmm.m)	End longitude (dddmm.mm)	Start depth (m)	End depth (m)
84	21	5719.0	15035.88	5714.8	15035.77	538	740
85	22	5737.3	14955.17	5732.9	14957.45	423	580
86	22	5732.8	14958.30	5728.7	14959.44	592	933
87	186	5759.9	14950.23	5759.2	14928.25	221	264
88	286	5804.9	14955.08	5803.9	15002.36	297	307
89	23	5758.1	14910.39	5754.8	14915.02	173	492
90	23	5754.4	14915.50	5751.5	14918.82	511	735
91	24	5817.1	14837.39	5813.0	14840.13	250	528
92	24	5812.5	14840.73	5808.7	14843.53	550	685
93	159	5843.7	14911.70	5846.0	14904.98	176	214
94	259	5848.1	14902.64	5850.3	14856.45	233	250
95	187	5904.9	14924.54	5902.3	14931.12	180	226
96	287	5856.8	14430.92	5855.0	14938.50	240	238
97	26	5907.5	14839.08	5903.0	14839.04	154	200
98	26	5902.8	14839.17	5858.3	14839.13	207	242
99	25	5841.9	14820.37	5836.7	14820.41	280	459
100	25	5836.2	14820.46	5832.0	14821.23	495	745
101	27	5909.2	14736.45	5905.6	14736.31	242	504
102	27	5905.0	14736.36	5901.2	14738.46	528	778
103	28	5915.6	14651.82	5913.1	14658.44	192	597
104	28	5912.7	14600.20	5910.1	14706.81	545	888
105	188	5936.8	14658.56	5933.3	14703.58	209	211
106	288	5930.7	14709.31	5926.5	14709.12	214	204
107	29	5930.1	14532.10	5931.3	14540.41	157	583
108	29	5931.7	14541.52	5931.6	14549.04	619	495
109	30	5931.2	14443.31	5928.7	14450.86	180	519
110	30	5928.5	14451.94	5926.6	14458.96	521	907
111	262	5940.4	14323.35	5942.9	14330.07	295	309
112	162	5944.8	14336.03	5946.2	14343.97	295	152
113	32	5933.0	14234.52	5935.3	14241.02	126	580
114	32	5935.7	14242.16	5934.2	14248.40	578	650
115	33	5923.4	14210.69	5925.1	14218.85	238	588
116	33	5925.7	14220.00	5924.4	14222.60	642	707

117	34	5903.0	14121.16	5903.1	14129.56	292	521
118	34	5903.2	14130.52	5903.5	14137.95	552	823
119	163	5924.9	14056.52	5925.5	14104.98	219	295
120	263	5924.6	14110.66	5921.3	14115.57	321	326
121	35	5841.1	14038.44	5840.9	14046.04	226	597
122	35	5841.2	14047.11	5843.6	14053.72	711	615
123	36	5828.1	13928.49	5827.3	13935.90	180	509
124	36	5827.3	13936.99	5825.7	13943.18	514	457
125	37	5808.3	13844.45	5809.6	13852.34	340	614
126	37	5809.9	13853.19	5811.0	13859.86	859	880

Table 1.- continued

Haul no.	Station no.	Start latitude (ddmm.m)	Start longitude (dddmm.mm)	End latitude (ddmm.m)	End longitude (dddmm.mm)	Start depth (m)	End depth (m)
127	38	5752.6	13722.93	5752.7	13729.77	216	692
128	38	5753.1	13731.21	5753.7	13739.04	742	809
129	160	5755.1	13701.22	5755.3	13709.45	390	442
130	260	5758.0	13705.02	5757.2	13713.25	204	409
131	39	5737.2	13632.37	5736.8	13639.38	197	638
132	39	573.07	13640.20	5739.8	13645.32	607	697
133	40	5711.6	13614.55	5712.8	13621.01	230	800
134	40	5713.8	13622.21	5717.9	13633.26	666	923
135	41	5651.2	13600.20	5654.0	13606.43	238	912
136	41	5654.9	13607.09	5655.1	13607.26	738	869
137	42	5623.0	13521.24	5623.0	13528.70	154	185
138	42	5623.2	13528.97	5622.3	13535.89	185	228
139	43	5558.9	13626.88	5601.1	13632.32	373	650
140	43	5601.5	13532.55	5604.2	13536.41	652	814
141	153	5556.0	13554.43	5559.9	13454.66	204	357
142	253	5605.5	13501.45	5602.1	13456.16	321	373
143	44	5533.4	13458.79	5534.4	13503.97	221	676
144	44	5535.5	13505.58	5538.3	13509.27	528	714
145	45	5521.2	13444.73	5523.8	13450.92	340	580
146	45	5524.0	13451.64	5524.6	13459.59	556	704
147	46	5454.4	13417.71	5457.6	13422.12	233	540
148	46	5458.1	13423.19	5501.9	13427.17	642	897
149	47	5428.1	13355.89	5430.0	13402.14	280	870
150	47	5431.8	13402.46	5434.6	13405.02	614	961
151	161	5418.7	13250.24	5436.1	13255.57	147	379
152	261	5435.8	13301.80	5435.6	13307.46	408	400

Table 2. --Catch in number by species for the 1997 NMFS longline survey of the eastern Bering Sea and the Gulf of Alaska, May 21 - August 31. SF = sablefish, PC = Pacific cod, GR = giant grenadiers, PH = Pacific halibut, ATF = arrowtooth flounder, GT = Greenland Turbot, RF = roughey and shortraker rockfish, ST = thornyheads, SK = skate, OS = other species.

Station	SF	PC	GR	PH	ATF	GT	RF	ST	SK	OS
Eastern Bering Sea										
1	66	1,877	1,092	95	269	618	17	5	257	80
2	33	827	2,040	43	277	312	7	8	155	209
4	54	658	1,327	110	392	370	23	6	150	137
6	152	682	760	610	647	293	29	4	297	46
8	221	397	1,353	151	434	309	76	32	313	30
10	252	355	1,556	171	484	427	68	51	220	55
12	253	411	2,283	181	438	387	1	22	148	21
13	78	1,126	1,112	457	706	77	48	14	198	189
15	388	56	1,439	99	235	248	418	147	76	18
17	487	742	634	115	1,132	499	29	34	85	77
18	522	496	1,168	79	413	496	12	5	196	81
20	337	292	373	118	869	404	4	31	121	94
22	4	1,521	3	23	563	40	6	4	193	333
32	467	337	148	362	412	460	39	235	67	114
33	253	778	95	290	501	551	90	318	45	77
34	706	0	165	9	264	1,041	0	106	401	57
Gulf of Alaska										
1	862	320	2,272	165	175	1	275	63	47	55
2	695	708	1,112	512	452	1	544	193	42	25
3	1,441	248	1,587	270	223	2	101	155	37	186
4	676	1,047	1,643	222	513	0	21	117	66	19
5	1,338	428	1,105	501	285	4	37	139	106	14
6	1,178	457	1,171	657	313	0	125	152	28	50
7	562	764	1,181	526	267	0	351	86	19	15
8	1,593	197	1,946	368	125	0	36	129	16	34
9	824	939	1,454	834	271	0	9	78	51	51
10	1,364	1,168	685	1,113	311	0	30	73	76	27
11	1,325	373	1,587	87	76	0	51	134	3	41
12	1,423	123	845	145	168	0	150	147	21	100
13	2,177	143	413	146	247	0	27	156	58	130
14	392	1,316	0	1,163	397	0	5	0	154	73
15	2,296	198	1,420	282	395	0	61	140	101	66
16	2,126	18	2,047	35	114	0	36	119	3	73
17	1,793	7	2,465	72	99	0	86	144	13	253
18	2,254	0	919	55	77	0	27	334	12	16
19	1,539	42	690	322	196	0	340	180	17	87
20	1,700	13	1,948	37	232	0	10	105	20	374
21	2,454	131	825	66	133	0	21	230	2	66
22	1,808	0	1,880	2	39	0	5	309	2	365
23	1,612	318	939	208	114	0	27	325	34	186
24	1,784	75	1,323	23	327	0	113	328	19	43

25	1,813	104	695	61	106	0	286	388	19	48
26	1,494	240	0	204	192	0	11	78	103	93
27	1,777	521	658	47	76	0	151	214	33	110

Table 2.-continued

Station	SF	PC	GR	PH	ATF	GT	RF	ST	SK	OS
28	1,347	88	714	40	73	0	69	253	6	449
29	704	37	1,043	60	62	1	269	242	76	210
30	1,625	40	942	116	126	0	259	244	29	350
31	1,650	32	980	10	225	1	63	279	14	27
32	2,369	3	400	159	67	0	40	455	22	33
33	2,454	0	197	57	175	0	250	369	14	47
34	2,417	0	510	34	166	0	587	243	40	78
35	1,866	0	324	28	278	0	496	196	25	42
36	1,629	0	392	14	73	0	388	260	21	23
37	1,038	0	630	6	22	0	523	66	3	49
38	1,361	0	485	1	17	0	226	98	6	134
39	2,314	7	253	2	21	1	59	266	5	61
40	1,930	40	334	4	98	0	177	234	8	127
41	2,216	10	407	3	63	0	164	182	6	164
42	341	437	0	207	62	0	0	46	45	729
43	2,109	1	209	9	33	0	589	328	7	94
44	1,784	29	172	42	42	0	406	144	10	195
45	1,726	7	99	2	31	0	508	155	5	51
46	1,233	3	137	5	8	0	323	167	9	53
47	1,330	1	164	6	26	0	1,153	100	12	129
148	48	830	0	314	237	0	2	0	86	51
149	863	298	0	336	300	0	2	0	217	12
150	615	150	0	280	186	0	2	0	125	30
151	369	485	0	219	231	0	2	0	161	47
153	287	61	0	68	81	0	76	330	20	76
159	791	18	0	15	7	0	4	21	37	14
160	955	0	44	6	26	0	79	354	14	22
161	623	167	0	59	79	0	35	162	95	525
162	355	4	0	53	25	0	4	85	146	61
163	910	0	0	51	87	0	115	64	10	182
186	422	919	0	211	278	0	3	15	56	54
187	780	683	0	98	87	0	1	17	123	48
188	428	5	0	5	19	0	47	12	119	575
248	372	897	0	309	183	0	0	0	137	24
249	594	311	0	211	75	0	26	0	322	16
250	976	166	0	290	169	0	0	0	187	7
251	495	1,071	0	279	200	0	2	0	104	60
253	882	0	2	64	88	0	53	301	34	131
259	1,447	66	0	33	61	0	23	49	57	33

Table 2.-continued

Station	SF	PC	GR	PH	ATF	GT	RF	ST	SK	OS
260	1,314	1	8	58	56	0	102	111	22	39
261	1,042	3	0	42	3	0	31	98	54	49
262	251	0	0	50	49	0	2	98	40	14
263	1,020	0	0	41	124	0	117	71	94	33
286	557	800	0	402	515	0	0	2	82	21
287	937	172	0	126	65	0	2	24	127	91
288	337	6	0	44	9	0	138	11	104	1,015
Total	95,686	28,301	56,704	15,505	18,867	6,543	11,220	11,690	6,960	10,493

Table 3. - Mean length, mean round weight, mean dressed weight, number and estimated total round weight of sablefish by station, for the 1997 NMFS longline survey of the Gulf of Alaska and eastern Bering Sea, May 21 -August 31.

Station Number	Mean length (cm)	Mean round weight (kg) ²	Mean dressed weight (lb) ³	Number of sablefish	Estimated total round weight (kg) ⁴
Eastern Bering Sea					
1	70.1	3.8	5.2	66	248
2	70.2	3.8	5.3	33	125
4	71.2	4.0	5.5	54	214
6	73.4	4.4	6.1	152	662
8	73.9	4.5	6.3	221	996
10	71.3	4.0	5.6	252	1,009
12	68.8	3.6	5.0	253	902
13	72.2	4.1	5.8	78	323
15	74.7	4.7	6.5	388	1,809
17	68.0	3.4	4.7	487	1,655
18	68.3	3.5	4.8	522	1,800
20	68.0	3.4	4.7	337	1,150
22	65.8	3.1	4.3	4	12
32	68.0	3.4	4.8	467	1,605
33	68.6	3.5	4.9	253	894
34	69.0	3.6	5.0	706	2,547
Gulf of Alaska					
1	66.0	3.2	4.4	862	2,715
2	64.8	3.0	4.2	695	2,100
3	58.2	2.1	2.9	1,441	2,982
4	61.7	2.5	3.4	676	1,676
5	59.8	2.3	3.2	1,338	3,058
6	62.4	2.7	3.7	1,178	3,135
7	65.1	3.1	4.4	562	1,766
8	59.1	2.3	3.2	1,593	3,648
9	62.1	2.6	3.6	824	2,143
10	59.8	2.3	3.2	1,364	3,153
11	67.1	3.3	4.6	1,325	4,339

² Mean weight was estimated by applying a weight-length relationship to the length frequency distribution from each station.

³ Mean dressed weight was estimated using a recovery rate of 0.6 of round weight in pounds.

⁴ Estimated total round weight is the product of mean round weight and the number of hooked sablefish that came to the surface, including a small percentage that was lost during landing.

12	66.4	3.2	4.5	1,423	4,582
13	65.8	3.1	4.3	2,177	6,698
14	70.0	3.8	5.3	392	1,488
15	68.5	3.5	4.9	2,296	8,131

Table 3.- continued.

Station Number	Mean length (cm)	Mean round weight (kg)	Mean dressed weight (lb)	Number of sablefish	Estimated total round weight (kg)
16	69.0	3.6	5.0	2,126	7,636
17	70.9	3.9	5.5	1,793	7,064
18	72.2	4.2	5.8	2,254	9,462
19	72.3	4.2	5.8	1,539	6,451
20	70.0	3.8	5.3	1,700	6,507
21	70.0	3.8	5.3	2,454	9,359
22	72.2	4.2	5.9	1,808	7,636
23	72.4	4.3	5.9	1,612	6,859
24	71.3	4.1	5.7	1,784	7,263
25	70.5	3.9	5.4	1,813	7,103
26	63.5	2.9	4.0	1,494	4,301
27	70.8	4.0	5.6	1,777	7,177
28	71.0	4.1	5.7	1,347	5,521
29	66.9	3.5	4.9	704	2,473
30	71.5	4.1	5.8	1,625	6,723
31	67.9	3.5	4.9	1,650	5,789
32	71.4	4.1	5.7	2,369	9,692
33	67.6	3.5	4.9	2,454	8,602
34	70.8	4.0	5.5	2,417	9,634
35	71.5	4.2	5.8	1,866	7,742
36	70.5	4.0	5.5	1,629	6,459
37	72.5	4.3	6.0	1,038	4,506
38	74.8	4.8	6.6	1,361	6,510
39	71.7	4.1	5.7	2,314	9,570
40	71.9	4.2	5.8	1,930	8,068
41	73.7	4.5	6.3	2,216	10,036
42	60.7	2.7	3.7	341	904
43	67.7	3.5	4.8	2,109	7,301
44	70.4	3.9	5.4	1,784	6,954
45	68.4	3.6	5.0	1,726	6,147
46	69.1	3.7	5.1	1,233	4,536
47	70.4	3.9	5.4	1,330	5,193
148	68.3	3.5	4.9	48	168
149	68.6	3.5	4.8	863	3,006
150	67.4	3.3	4.6	615	2,027
151	67.3	3.3	4.6	369	1,218
153	66.4	3.3	4.6	287	954
159	67.4	3.4	4.7	791	2,661

160	68.0	3.5	4.9	955	3,333
161	66.0	3.2	4.5	623	2,002
162	58.5	2.5	3.4	355	875
163	53.5	1.6	2.2	910	1,457
186	67.3	3.4	4.7	422	1,413
187	65.6	3.0	4.2	780	2,374

Table 3.- continued.

Station Number	Mean length (cm)	Mean round weight (kg)	Mean dressed weight (lb)	Number of sablefish	Estimated total round weight (kg)
188	55.1	2.0	2.7	428	833
248	64.8	3.0	4.2	372	1,114
249	69.3	3.6	5.1	594	2,164
250	68.2	3.4	4.8	976	3,344
251	68.3	3.5	4.8	495	1,707
253	68.2	3.7	5.1	882	3,260
259	71.7	4.1	5.7	1,447	5,956
260	68.3	3.6	5.0	1,314	4,739
261	61.0	2.5	3.4	1,042	2,558
262	58.6	2.2	3.0	251	545
263	61.1	2.5	3.5	1,020	2,544
286	69.2	3.6	5.1	557	2,029
287	66.4	3.2	4.5	937	3,023
288	54.7	1.9	2.7	337	647
Total				95,686	342,698