

January 16, 2008

Cruise Report OP-01-07
Longline Survey of the Gulf of Alaska and Eastern Bering Sea
May 28-September 1, 2007

Prepared by

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On September 1, 2007, the Alaska Fisheries Science Center (AFSC) completed the twenty-ninth annual longline survey of Alaska sablefish (*Anoplopoma fimbria*) resources of the upper continental slope (Figure 1). This survey was designed to continue the time series (1979-94) of the Gulf of Alaska portion of the Japan-U.S. cooperative longline survey that was discontinued after 1994. The National Marine Fisheries Service (NMFS) has surveyed the Gulf of Alaska annually since 1987, the eastern Aleutian Islands biennially since 1996, and the eastern Bering Sea biennially since 1997. The Gulf of Alaska and eastern Bering Sea were sampled in 2007.

OBJECTIVES

1. Determine the relative abundance and size composition of the most commercially important species: sablefish, shortspine thornyhead (*Sebastolobus alascanus*), Greenland turbot (*Reinhardtius hippoglossoides*) and roughey and shortraker rockfishes (*Sebastes aleutianus* and *S. borealis*).
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 Greenland turbot.
3. Tag and release sablefish, shortspine thornyhead, and Greenland turbot throughout the cruise to determine migration patterns.
4. Implant Greenland turbot, ling cod (*Ophiodon elongates*), and spiny dogfish (*Squalus acanthias*) with electronic tags that record water temperature, depth, and time.
5. Collect sablefish otoliths to study the age composition of the population.
6. Conduct an auto/hand bait gear experiment.

VESSEL AND GEAR

Survey operations were conducted using the F/V *Ocean Prowler*, a chartered U.S. longline vessel. The 47 m (155 ft) long vessel carried standard longline hauling gear and was equipped with radios, radars, GPS receivers, 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, two contract biologists, six fishermen and five processors.

Gear configuration was unchanged from that of the 1988-2006 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 becketts 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, becket 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 varying lengths by depth of 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 line, a 27 kg (60 lb) halibut anchor, and 366 m (200 fm) of 9.5 mm nylon line. 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*) 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 except in the eastern Bering Sea where 180 skates with 8,100 hooks are set. Two eighty-skate 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 except Amatuli Gully station 87 that consists of 160 skates.

OPERATIONS

The charter began on May 28 at Unalaska, Alaska, and ended on September 1 at Unalaska. The charter period was divided into seven legs of 21, 14, 17, 2, 10, 13 and 13 days. During leg 1, most of the stations along the upper continental slope of the eastern Bering Sea were sampled. During leg 2 stations in the Gulf of Alaska were sampled near the western end of Umnak Island and extending eastward to Sand Point. Leg 3 began near Dixon Entrance and continued north and westward to Yakutat. During leg 4 the hook-baiting experiment was conducted in the Yakutat vicinity. During leg 5, the area between Yakutat and Cordova was sampled, and during leg 6 the area from Cordova to Kodiak was sampled. During leg 7, the area from Kodiak to Sandpoint was sampled.

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

From 1988 to 1990 the survey period was from June 26 to September 12. The survey periods in 1991 through 1994 were 2-1/2 weeks later than in 1988 through 1990. The 1991-1994 surveys were delayed to avoid the commercial fishery that started 45 days later than in 1988 through 1990. Starting in 1995, the survey period was moved back to near the 1988-1990 time periods because of the extensive increase in length of the fishing season resulting from the implementation of the Individual Fishing Quota (IFQ) system in the sablefish and Pacific halibut longline fisheries. Beginning in 1998 the order in which the stations were sampled was changed to avoid conflicting with an early July rockfish fishery in the central Gulf of Alaska. Instead of continuing to sample in an easterly direction from Sand Point to Dixon Entrance the survey vessel transited to Dixon Entrance during early July and resumed sampling in a westerly direction going from Dixon Entrance to Sand Point.

Survey Operations

Sixteen stations along the upper continental slope of the eastern Bering Sea and 45 stations along the upper continental slope of the Gulf of Alaska were sampled at a rate of one station per day (Figure 1). 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). In addition, twenty-seven stations were sampled in gullies at the rate of one to two stations per day. The sampled gullies were 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 hours Alaska Daylight Time. Retrieval began about 0930 hours and was completed by about 1930 hours.

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. Time of day was recorded constantly from an internal clock; 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.

Hook Baiting Experiment

A gear experiment was conducted near Yakutat July 25-26 to test the differences in catching efficiencies between auto-bait gear and standard hand-baited survey gear. Auto-bait machines have increased in popularity among the fleet in Alaska and are now commonly used by many vessels as the preferred baiting method. With the increase in vessels using auto-bait gear, experienced hand-bait vessels may be more difficult to find to conduct surveys. Additionally, auto-bait machines use a different gear than what is currently used on the survey. The groundline is typically different, gangions are different lengths, swivels are used on auto-bait gear, and hooks are straight rather than offset. Conducting the survey using auto-bait gear may sacrifice the time series without statistical calibration studies whereas maintaining hand-baiting may become more difficult as more vessels switch to auto-bait gear. To ensure the future of the survey time series, we plan to conduct a series of experiments which will test the fishing effectiveness of auto-bait gear side-by-side with hand-bait gear.

Each day two sets were made for a total of four sets. For each set 80 skates were deployed. Ten skates of standard survey gear (2m spacing, 45 hooks) were placed next to each anchor to avoid gear snarls with the experimental gear. Beginning on the eleventh skate modified survey gear (1.2m spacing, 73 hooks) was alternated with auto-bait gear (1.2m spacing, 73 hooks) every tub of gear (every two skates). This configuration was done for a total of 60 skates (30 of each gear type).

Preliminary results indicate standard survey gear outfished auto-bait gear. These results indicate the potential of different catching efficiencies between the two gear types. To better understand differences in catch rates further studies will likely be done during future surveys to test the effects of hook size, gangion length, gangion swivels, and differences in groundline.

RESULTS

One hundred fifty-two longline hauls were completed (Table 1). Sablefish was the most frequently caught species, followed by giant grenadiers, arrowtooth flounder, shortspine thornyhead, and rockfish. (Table 2). A total of 79,461 sablefish, with an estimated total round weight of 255,225 kg (562,516 lb), was taken during the survey (Table 3). The highest total sablefish catch was observed at station 74 in the central Gulf of Alaska (Table 2). Station 131 in eastern Gulf of Alaska had the largest average length sablefish (Table 3).

A total of 3,531 sablefish, and 647 shortspine thornyhead were tagged and released during the survey. Electronic tags were implanted in 38 Greenland turbot, 39 lingcod,

and 67 spiny dogfish. Length-weight data and otoliths were collected from 2,083 sablefish.

Killer whales depredating on the catch occurred at 7 stations in the Bering Sea, 5 stations in the Western Gulf, and 1 station in the Central Gulf. Killer whale depredation was extensive in 2007 and included a station in the Central Gulf, which is the farthest east the survey has ever encountered killer whale preying on the catch. Whale depredation at stations 1, 2, 6, 13, 34, 70, and 71 was extensive enough to preclude their use in the survey analysis and therefore are not included in tables 1 and 2 of this report.

SCIENTIFIC PERSONNEL

Leg I (May 28 - June 18)
 Larry Haaga, Field Party Chief, RACE
 Jason Wright, Contract Biologist
 Ken Orwig, Contract Biologist

Leg II (June 18- July 3)
 Dave Csepp, Field Party Chief, ABL
 Jason Wright, Contract Biologist
 Ken Orwig, Contract Biologist

Leg III (July 8 - July 24)
 Dana Hanselman, Field Party Chief, ABL
 Kalei Shotwell, ABL
 Jason Wright, Contract Biologist
 Ken Orwig, Contract Biologist

Leg IV (July 24 - July 27)
 Dave Clausen, Field Party Chief, ABL
 Jason Wright, Contract Biologist
 Ken Orwig, Contract Biologist

Leg V (July 27 - August 7)
 Chris Lunsford, Field Party Chief, ABL
 Cara Rodgveller, ABL
 Nellie Warner, Contract Biologist
 Jason Wright, Contract Biologist
 Ken Orwig, Contract Biologist

Leg VI (August 8- August 20)
 John Karinen, Field Party Chief, ABL

Doris Alcorn, ABL
Jason Wright, Contract Biologist
Ken Orwig, Contract Biologist

Leg VII (August 20 - September 1)
Larry Haaga, Field Party Chief, RACE
Ben Frable, UW
Jason Wright, Contract Biologist
Ken Orwig, Contract Biologist

ABL - Auke Bay Laboratory
RACE - Resource Assessment and Conservation Engineering Division
UW - University of Washington

For further information contact either

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Table 1.--Haul number (set), pre-assigned station number, starting and ending positions and associated depths for the 2007 NMFS longline survey of the Eastern Bering Sea and Gulf of Alaska, May 28- September 1, 2007.

Haul Number	Station Number	Start Latitude (ddmm.m)	Start Longitude (dddmm.m)	End Latitude (ddmm.m)	End Longitude (dddmm.m)	Start Depth (m)	End Depth (m)
Eastern Bering Sea							
1	1	5846.7	17734.52	5848.7	17742.32	155	249
2	1	5848.7	17742.48	5851.1	17749.66	325	661
3	2	5837.2	17638.58	5834.3	17646.01	147	521
4	2	5834.3	17646.13	5833.1	17653.81	622	807
5	4	5829.8	17540.18	5829.2	17548.71	222	380
6	4	5829	17548.94	5830.3	17556.49	418	964
7	6	5819.6	17418.73	5824.2	17421.56	170	379
8	6	5824.2	17421.92	5823	17430.21	360	627
9	8	5737.7	17409.78	5741.9	17414.25	152	390
10	8	5742.1	17414.36	5746.6	17418.01	399	784
11	10	5649.7	17322.65	5654.4	17324.88	208	523
12	10	5654.6	17325.13	5658.9	17328.85	456	701
13	12	5637.6	17221.21	5634.3	17226.09	184	596
14	12	5634.1	17226.2	5629.8	17230.36	609	746
15	13	5627.9	17227.09	5627.7	17135.51	190	493
16	13	5627.6	17135.85	5627.4	17144.12	464	718
17	18	5614.6	16910.28	5611.1	16916.44	170	643
18	18	5611	16916.71	5707.8	16922.71	639	821
19	15	5609.6	17040.19	5607.4	17046.56	140	696
20	15	5607.3	17046.94	5609.5	17054.11	505	924
21	17	5602.2	16930.03	5559.4	16943.3	200	504
22	17	5559.4	16943.55	5559	16952.33	434	827
23	20	5548.5	16848.17	5550.4	16856.1	200	714
24	20	5550.6	16856.34	5554.4	16900.77	609	746
25	22	5527.5	16800.27	5524.6	16807.87	158	259
26	22	5525.5	16808.24	5523.5	16815.97	269	529
27	34	5321	16859.13	5318	16853.51	618	808
28	34	5318	16853.16	5317.3	16847.01	467	907
29	33	5336.7	16817.9	5336.6	16809.29	126	763
30	33	5336.6	16808.9	5337.6	16801.13	474	746
31	32	5346.3	16719.75	5343.2	16733.27	122	618
32	32	5343.2	16723.51	5341.6	16729.31	411	634
Gulf of Alaska							
33	64	5311.5	16651.32	5307.3	16653.49	213	320
34	64	5307.1	16653.7	5302.9	16656.5	321	866
35	62	5239.6	16859.41	5236.8	16905.35	138	619
36	62	5236.9	16905.65	5233.4	16910.24	370	649
37	63	5257.9	16808.16	5254.7	16812.68	109	360
38	63	5254.7	16813.04	5251	16813.45	223	761
39	65	5335	16541.05	5331	16543.18	121	262
40	65	5330.8	16543.25	5327.1	16546.45	303	467

Table 1. Continued

Haul Number	Station Number	Start Latitude (ddmm.m)	Start Longitude (dddmm.m)	End Latitude (ddmm.m)	End Longitude (dddmm.m)	Start Depth (m)	End Depth (m)
41	66	5344.2	16428.01	5341	16433.55	138	276
42	66	5340.9	16433.66	5337.8	16439.16	294	584
43	67	5358.2	16315.82	5354.4	16319.33	114	398
44	67	5354.4	16319.61	5351.7	16325.4	365	760
45	68	5407.9	16138.3	5405.3	16143.74	118	396
46	68	5405.3	16143.98	5403.8	16150.79	282	770
47	69	5418.7	16103.95	5415.8	16109.49	178	377
48	69	5416.1	16109.82	5412.5	16113.72	365	816
49	70	5421.9	16014.09	5417.9	16017.71	142	302
50	70	5417.9	16017.72	5413.7	16018.81	323	614
51	72	5437.8	15834.92	5433.9	15838.74	128	344
52	72	5433.8	15838.84	5429.7	15842.67	365	782
53	71	5430.1	15915.54	5426.3	15919.13	146	277
54	71	5426.1	15919.25	5422.6	15923.46	284	740
55	74	5514.3	15640.41	5510.3	15644.37	176	343
56	74	5510.1	15644.2	5505.8	15645.19	361	809
57	73	5451.1	15744.22	5447.5	15748.76	186	369
58	73	5447.4	15748.9	5443.2	15751.52	350	556
59	75	5538.5	15550.85	5534.1	15551.67	139	211
60	75	5534	15551.51	5529.6	15549.82	211	213
61	148	5438.8	13250.24	5436.3	13255.35	146	370
62	149	5435.9	13301.4	5435.8	13308.34	410	417
63	108	5427.4	13355.66	5429.3	13400.57	258	624
64	108	5429.4	13400.66	5432.7	13204.42	441	855
65	107	5454	13417.19	5457.4	13420.91	221	536
66	107	5457.6	13420.96	5500.4	13426.35	491	921
67	106	5520.8	13444.08	5523.4	13449.44	375	565
68	106	5523.8	13449.73	5523.3	13456.56	435	816
69	105	5533.5	13457.99	5534.6	13503.04	247	531
70	105	5534.9	13502.29	5537.5	13508.05	560	821
71	144	5555.8	13454.27	5600.2	13454.89	201	365
72	145	5601.9	13455.7	5605.4	13501.47	352	384
73	104	5559	13526.4	5601.8	13532.36	376	692
74	104	5601.8	13532.66	5605.1	13537.56	647	843
75	103	5622.9	13520.89	5622.9	13529.07	155	188
76	103	5623	13529.35	5622	13537.12	190	234
77	102	5651.1	13559.9	5654	13605.62	299	860
78	102	5654.1	13605.83	5658.1	13606.94	620	916
79	101	5711.3	13614.26	5713.1	13620.49	238	764
80	101	5713.2	13620.33	5716.9	13622.42	603	973
81	100	5737.1	13632.42	5736.8	13639.53	270	814
82	100	5736.9	13639.85	5739.8	13644.53	664	916
83	142	5755.1	13708.45	5754.9	13700.92	396	443

Table 1. Continued

Haul Number	Station Number	Start Latitude (ddmm.m)	Start Longitude (dddmm.m)	End Latitude (ddmm.m)	End Longitude (dddmm.m)	Start Depth (m)	End Depth (m)
84	143	5758	13704.6	5758.2	13712.86	225	418
85	99	5752.6	13722.73	5753.1	13729.48	217	728
86	99	5753.2	13729.73	5753.4	13736.96	490	778
87	98	5808.3	13843.85	5809.3	13851.23	299	821
88	98	5809.4	13851.39	5811	13857.37	472	728
89	97	5828.1	13929.21	5827.5	13935.81	196	491
90	97	5827.6	13936.04	5825.3	13941.11	451	741
95	138	5924.9	14056.22	5925.5	14104.65	199	296
96	139	5924.8	14110.2	5921.3	14115.09	319	325
97	96	5841.1	14038.56	5841.4	14046.79	240	554
98	96	5841.4	14046.84	5843.9	14053.62	411	626
99	95	5903	14120.65	5903	14128.98	276	486
100	95	5903	14129.18	5903	14137.84	516	838
101	94	5923.2	14209.93	5925.5	14217.42	231	450
102	94	5928	14224.33	5925.6	14217.49	403	951
103	93	5933	14233.88	5935.4	14241.04	125	613
104	93	5935.5	14242.33	5934.3	14248.09	582	642
105	136	5940.5	14322.49	5943	14329.19	293	311
106	137	5944.7	14335.33	5945	14342.84	159	299
107	92	5933.4	14339.14	5933.7	14347.54	168	764
108	92	5933.8	14347.73	5935	14355.54	620	900
109	91	5931	14442.84	5929.1	14450.58	186	453
110	91	5929	14450.64	5926.9	14457.9	479	803
111	90	5930.1	14532.22	5931.3	14540.66	159	809
112	90	5931.3	14540.72	5931.6	14548.9	483	721
113	89	5915.7	14651.12	5913.1	14658.11	191	591
114	89	5913	14658.31	5910	14704.01	576	864
115	134	5930.8	14657.97	5933.8	14704.25	207	210
116	135	5931	14709.11	5927.1	14709	209	215
117	88	5909.2	14736.22	5904.8	14737.03	250	481
118	88	5904.7	14737.05	5937.6	14737.66	506	822
119	87	5907.5	14838.99	5903.1	14838.94	152	200
120	87	5903	14839.01	5858.7	14839.01	208	238
121	132	5904.9	14924.1	5902.2	14931.09	180	227
122	133	5856.9	14930.49	5855.2	14937.85	238	243
123	130	5843.6	14911.68	5846.1	14904.66	174	216
124	131	5848.1	14902.81	5850.5	14855.5	235	252
125	85	5817.5	14837.11	5813.1	14839.54	235	528
126	85	5813	14839.61	5808.6	14842.02	554	830
127	86	5841.2	14820	5836.7	14819.91	279	470
128	86	5836.6	14819.97	5832	14819.89	511	984
129	128	5759.9	14950.52	5759	14957.99	222	264
130	129	5805	14954.51	5803.9	15002.63	294	307

Table 1. Continued

Haul Number	Station Number	Start Latitude (ddmm.m)	Start Longitude (dddmm.m)	End Latitude (ddmm.m)	End Longitude (dddmm.m)	Start Depth (m)	End Depth (m)
131	84	5747.7	14946.27	5743.5	14945.29	277	573
132	84	5743.4	14945.16	5739.1	14944.34	575	830
133	83	5737.9	14955.03	5739.9	14957.23	402	545
134	83	5733.9	14957.26	5729.7	14959.04	550	831
135	82	5723.9	15034.53	5719.8	15035.53	214	486
136	82	5719.8	15035.53	5715.8	15035.47	484	691
137	81	5707.2	15112.79	5703.1	15116.49	239	514
138	81	5703.1	15116.3	5659	15117.28	530	829
139	80	5629.1	15212.77	5625.5	15217.75	136	497
140	80	5625.4	15217.72	5621.3	15220.95	389	817
141	79	5618.1	15304.58	5615.7	15311.57	243	567
142	79	5615.7	15311.61	5612.9	15317.03	553	794
143	78	5558.7	15401.21	5554.5	15401.2	278	548
144	78	5554.5	15401.26	5550.9	15403.11	541	840
145	77	5602.6	15434.14	5558.1	15434.22	232	534
146	77	5558	15434.29	5553.8	15434.3	559	882
147	76	5545.9	15508.31	5541.7	15510.78	157	316
148	76	5541.7	15510.85	5538.1	15514.43	316	589
149	124	5659.3	15503.89	5659.9	15511.5	171	235
150	125	5700	15518.21	5702.5	15524.25	252	264
151	126	5720.8	15502.49	5721	15510.67	245	259
152	127	5720.8	15514.68	5719.6	15522.42	237	242
153	122	5611.1	15557.77	5611	15605.35	197	239
154	123	5613.9	15607.82	5615.1	15614.56	246	265
155	120	5547.2	15604.5	5545.9	15611.23	205	236
156	121	5544.9	15611.97	5543.9	15618.77	242	252

Table 2. Catch in number by species for the 2007 NMFS longline survey of the Eastern Bering Sea and the Gulf of Alaska May 28 - September 1. SF = sablefish, PC = Pacific cod, GR = giant grenadiers, PH = Pacific halibut, ATF = arrowtooth flounder, GT = Greenland turbot, RF = rougheye and shortraker rockfish, ST = thornyheads, SK = skate, OS = other species.

Station	SF	PC	GR	PH	ATF	GT	RF	ST	SK	OS
Eastern Bering Sea										
4	25	433	19	78	153	67	4	0	147	132
8	421	488	1,371	183	305	50	91	39	231	94
10	533	152	2,311	238	566	65	107	103	276	73
12	427	228	2,435	344	504	154	21	68	311	52
15	760	728	1,450	116	255	60	107	215	135	148
17	475	506	1,047	67	307	46	147	40	180	84
18	777	207	113	107	628	289	9	50	249	73
20	1,510	189	119	452	771	245	3	71	168	48
22	385	1,365	20	212	722	124	11	6	577	236
32	1,962	277	63	210	560	46	36	206	78	96
33	1,198	533	344	204	377	123	242	329	131	82
Gulf of Alaska										
62	489	55	2,571	60	171	0	516	175	3	69
63	122	361	0	172	114	0	201	47	46	69
64	46	1	0	3	33	0	0	0	7	7
65	1,363	313	1,300	290	98	0	44	77	47	48
66	1,468	131	2,227	73	76	1	36	52	10	32
67	1,033	262	1,350	170	270	0	465	168	143	80
68	108	292	1	347	65	0	56	139	50	40
69	881	48	2,724	124	94	0	55	153	36	32
72	1,568	100	1,789	185	190	0	23	88	32	45
73	84	33	0	17	8	0	0	1	19	11
74	2,539	8	610	43	132	0	10	301	19	85
75	450	439	0	1,223	279	0	22	1	89	124
76	503	116	218	189	434	0	90	146	105	89
77	1,487	0	2,844	6	53	0	56	232	12	111
78	1,011	0	2,218	40	38	0	177	305	8	564
79	2,197	0	1,371	49	84	0	74	148	3	112
80	1,546	33	923	216	107	0	333	198	17	78
81	1,452	0	2,055	13	113	0	58	163	5	341
82	1,262	0	1,727	82	178	0	26	148	2	53
83	789	0	2,853	1	30	0	1	113	5	124
84	1,276	0	1,728	6	85	0	71	194	8	124
85	1,795	2	918	42	192	0	91	302	16	68
86	464	0	802	47	81	0	180	246	12	243
87	735	15	0	110	228	0	8	156	246	107
88	1,470	116	696	29	88	0	336	339	28	254
89	991	15	1,378	86	57	0	71	221	22	219
90	664	15	678	35	21	0	247	328	25	33
91	1,144	47	850	73	66	0	243	274	66	148
92	1,646	1	394	35	16	0	68	270	14	37
93	1,429	0	1,263	87	7	0	49	429	21	30

Table 2.- Continued

Station	SF	PC	GR	PH	ATF	GT	RF	ST	SK	OS
94	1,215	0	410	41	99	0	566	317	63	225
95	1,337	0	1,339	38	7	0	729	370	85	63
96	1,568	0	824	21	39	0	711	156	49	104
97	1,230	0	419	19	100	0	414	465	57	67
98	1,141	0	805	3	22	0	585	72	11	43
99	795	0	977	6	20	0	387	91	15	117
100	1,555	0	462	7	22	0	48	262	8	105
101	1,557	0	546	10	63	0	104	343	9	100
102	1,145	0	471	4	125	0	99	269	25	87
103	392	383	0	318	71	0	1	30	88	1,255
104	1,958	0	603	4	10	0	154	382	25	230
105	1,404	35	291	55	51	0	222	361	42	212
106	1,224	0	258	3	87	0	1,033	275	46	149
107	1,686	2	200	42	60	0	928	240	25	229
108	1,212	0	183	24	75	0	546	208	24	193
120	545	292	0	233	359	0	0	2	249	17
121	985	10	0	79	189	0	0	19	333	43
122	968	402	0	96	377	0	0	0	122	17
123	1,226	12	0	27	225	0	1	0	302	43
124	311	369	0	381	604	0	1	0	179	25
125	701	59	0	192	236	0	1	2	474	33
126	676	179	0	97	295	0	0	0	416	111
127	356	106	0	149	255	0	1	0	436	66
128	680	60	0	151	112	0	0	38	31	14
129	1,268	0	0	111	294	0	0	70	57	11
130	835	40	0	44	162	0	2	91	44	31
131	1,039	7	0	61	52	0	10	100	45	73
132	499	15	0	56	51	0	0	17	201	124
133	980	4	0	44	91	0	4	123	145	103
134	174	0	0	12	24	0	20	40	167	764
135	175	3	0	25	19	0	20	55	60	512
136	1,050	0	1	43	26	0	14	54	55	28
137	275	2	0	60	8	0	5	77	77	270
138	317	0	0	43	73	0	69	116	33	75
139	1,385	0	0	52	35	0	29	23	112	54
142	1,032	0	452	5	24	0	36	206	10	7
143	1,536	0	76	27	59	0	26	59	44	75
144	292	46	0	91	310	0	236	258	82	173
145	1,101	0	0	13	113	0	102	220	60	138
148	543	171	0	146	68	0	35	113	186	510
149	608	0	0	100	30	0	21	289	150	109
Total	79,461	9,706	53,097	8,997	13,498	1,270	11,545	12,354	8,241	11,100

Table 3. – Mean length, round weight, mean dressed weight, number and estimated total round weight of sablefish by station, for the 2007 NMFS longline survey of the Eastern Bering Sea and Gulf of Alaska.

Station	Mean Length	Mean Round Weight ¹	Mean Dressed Weight ²	Number of Sablefish	Est. Total Round Weight ³
Eastern Bering Sea					
4	65.44	2.98	4.13	25	74.41
8	67.92	3.41	4.73	421	1,434.83
10	66.62	3.17	4.41	533	1,690.56
12	64.79	2.93	4.07	427	1,252.29
15	68.59	3.49	4.84	760	2,649.77
17	66.85	3.2	4.45	475	1,521.46
18	63.18	2.68	3.72	777	2,082.54
20	64.73	2.88	4	1,510	4,351.23
22	62.01	2.5	3.47	385	962.49
32	63.77	2.78	3.86	1,962	5,447.78
Gulf of Alaska					
33	65.23	3.01	4.18	1,198	3,604.05
62	61.3	2.56	3.55	489	1,250.00
63	63.48	2.73	3.79	122	332.57
64	52.73	1.46	2.03	46	67.11
65	60.75	2.35	3.27	1,363	3,206.54
66	58.02	2.05	2.84	1,468	3,003.18
67	61.38	2.53	3.51	1,033	2,608.58
68	62.19	2.62	3.64	108	283.01
69	57.96	2.07	2.88	881	1,828.05
72	60.53	2.37	3.29	1,568	3,710.29
73	55.75	1.81	2.52	84	152.15
74	65.55	3.1	4.3	2,539	7,863.00
75	61.26	2.54	3.53	450	1,143.74
76	63.94	2.85	3.96	503	1,435.60
77	67.13	3.34	4.64	1,487	4,965.31
78	67.6	3.38	4.7	1,011	3,420.76
79	66.81	3.25	4.51	2,197	7,130.34
80	68.88	3.58	4.97	1,546	5,530.59
81	67.7	3.4	4.72	1,452	4,932.06
82	66.03	3.14	4.35	1,262	3,956.56
83	67.7	3.41	4.74	789	2,691.98
84	67.8	3.44	4.78	1,276	4,390.38
85	68.66	3.57	4.96	1,795	6,415.29
86	67.08	3.32	4.62	464	1,542.30
87	67.18	3.43	4.76	735	2,519.99
88	68.89	3.65	5.07	1,470	5,371.29
89	69.44	3.71	5.15	991	3,674.95
90	65.52	3.08	4.28	664	2,047.91
91	69.05	3.66	5.09	1,144	4,190.44
92	68.27	3.53	4.9	1,646	5,808.67
93	69.85	3.83	5.32	1,429	5,476.35

Table 2.- Continued

94	69.13	3.72	5.17	1,215	4,520.97
95	72.13	4.3	5.97	1,337	5,745.57
96	70.64	3.98	5.52	1,568	6,233.78
97	68.4	3.6	4.99	1,230	4,423.50
98	71.8	4.2	5.84	1,141	4,795.81
99	71.33	4.13	5.73	795	3,279.84
100	71.73	4.18	5.81	1,555	6,504.54
101	69.47	3.74	5.19	1,557	5,817.44
102	70.25	3.88	5.4	1,145	4,448.24
103	65.86	3.24	4.5	392	1,270.12
104	68.14	3.55	4.94	1,958	6,960.14
105	68.57	3.58	4.98	1,404	5,029.23
106	66.55	3.22	4.47	1,224	3,936.70
107	69.9	3.8	5.28	1,686	6,407.84
108	69.87	3.82	5.31	1,212	4,635.43
120	64.67	2.93	4.07	545	1,596.03
121	64.21	2.86	3.97	985	2,812.51
122	59.02	2.15	2.99	968	2,081.07
123	61.64	2.47	3.43	1,226	3,031.34
124	62.28	2.57	3.57	311	799.99
125	57.41	1.99	2.77	701	1,397.29
126	57.16	1.98	2.75	676	1,337.76
127	55.61	1.85	2.57	356	658.01
128	62.69	2.66	3.7	680	1,809.26
129	68.4	3.52	4.89	1,268	4,465.55
130	66.04	3.16	4.4	835	2,642.68
131	72.34	4.33	6.02	1,039	4,503.31
132	63.76	2.83	3.93	499	1,412.14
133	64.12	2.88	4	980	2,820.96
134	62	2.62	3.64	174	456.04
135	59.85	2.39	3.32	175	417.95
136	55.53	2.4	3.33	1,050	2,516.70
137	65.31	3.25	4.51	275	893.86
138	56.17	1.97	2.73	317	622.96
139	59.3	2.28	3.16	1,385	3,151.58
142	64.68	2.94	4.09	1,032	3,038.28
143	66.59	3.22	4.48	1,536	4,950.18
144	68.91	3.65	5.07	292	1,066.00
145	65.79	3.18	4.42	1,101	3,500.94
148	64.53	2.91	4.04	543	1,579.66
149	63.03	2.69	3.73	608	1,633.17
Total				79,461	255,224.77

¹ Mean weight was estimated by applying a length-weight relationship to the length frequency distribution from each station.

²Mean dressed weight was estimated using a recovery rate of 0.6 of round weight in pounds.

³Estimated 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.