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**Report to Industry:
1993 Triennial Bottom Trawl Survey
of the Eastern Gulf of Alaska
July-August 1993
RV Miller Freeman Cruise 93-09**

April 1996

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Report to Industry:
1993 Triennial Bottom Trawl Survey of the Eastern Gulf of Alaska
July - August 1993
***RV Miller Freeman* Cruise 93-09**

by

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INTRODUCTION

Between 20 July and 31 August 1993, scientists from the Auke Bay Laboratory (ABL) of the Alaska Fisheries Science Center (AFSC) used the NOAA RV *Miller Freeman* to conduct a bottom trawl survey of groundfish in the eastern Gulf of Alaska. The vessel completed 167 trawl hauls along the continental shelf and upper continental slope of this region from Dixon Entrance near the Alaska/British Columbia boundary to Cape St. Elias in the northern Gulf of Alaska (Fig. 1). The 1993 survey was the fourth triennial trawl survey of the eastern Gulf of Alaska; previous surveys were completed here in 1984, 1987, and 1990.

In 1993, a similar bottom trawl survey was conducted in the Gulf of Alaska west of Cape St. Elias by the AFSC Resource Assessment and Conservation Engineering Division (RACE). Three chartered commercial fishing vessels were used for this survey: the FV *Argosy*, FV *Alsea*, and FV *Progress*. An industry report for this survey has been prepared by Payne and Martin (1994), which can be obtained by contacting: Dr. Gary Stauffer, Director, RACE Division, Alaska Fisheries Science Center, 7600 Sand Point Way N. E., Bin C15700, Seattle WA 98115, Telephone (206) 526-4170.

SURVEY OBJECTIVES

1. Determine the distribution, abundance, and size composition of major groundfish species in outside waters of the eastern Gulf of Alaska.
2. Collect ancillary biological samples of selected species, such as otoliths for age determination, and electrophoretic and DNA genetic samples for stock identification.

METHODS

Fishing Vessel and Gear

The RV *Miller Freeman* is a 65.5 m (215 ft) stern trawler equipped with modern trawling and navigational systems. The vessel's main engine is rated at 2,150 horsepower.

A high opening, polyethylene Nor'eastern trawl was used for all fishing operations. This net was originally tested during the 1984 triennial survey in the Gulf of Alaska, and was selected as the most appropriate standard for a multi-species bottom trawl survey in this region. The net was constructed of polyethylene webbing with four seams, and measured 27.2 m (89.1 ft) along the headrope and 24.9 m (81.6 ft) along the footrope. The net's mesh measured 12.7 cm (5 in) stretched, with a nylon codend liner whose mesh measured 3.2 cm (1.25 in) stretched. Triple dandyines on each side, 54.9 m (180 ft) long, connected the net to a pair of steel "V" doors measuring 1.8 m by 2.7 m (6 ft by 9 ft) and weighing 998 kg (2200 lb) each. Roller gear was

attached to the footrope of the net to facilitate towing over rough bottoms, and consisted of 36 cm (14 in) diameter rubber bobbins separated by 10 cm (4 in) diameter rubber disks. See Appendix A for detailed specifications of the net and its accessories.

Survey Design

The survey design was similar to that used in previous triennial surveys of the eastern Gulf of Alaska in 1987 and 1990. For a detailed discussion of this design, see Stark and Clausen (1995). A brief description of the design follows:

The survey area was limited to offshore waters of the continental shelf and upper continental slope in depths <500 m; inshore passages and bays were not sampled. This area was divided into 15 subareas based on topography (shelf, gully, or slope) and depth for the purpose of station allocations and analysis of results (Table 1). The allocation scheme was nearly identical to that used in the 1990 survey, although the number of stations in each subarea was reduced by approximately 10% because fewer vessel days were available for the survey in 1993. This resulted in 180 planned stations for 1993. In general, density of planned stations increased with depth to obtain a better statistical sample of rockfish (*Sebastes* spp. and *Sebastolobus* spp.) and sablefish (*Anoplopoma fimbria*), which are the most valuable commercial groundfish species in this region. These species mostly inhabit depths >200 m on the continental slope and in gullies. No stations were allocated to the "Southeastern Shallows" (1-100 m depth) subarea because the 1987 survey had found virtually this entire stratum to be untrawlable using the survey's standard nets.

Station Locations

Planned station locations were randomly determined using the same procedure as in the 1987 and 1990 triennial surveys. For shelf and gully subareas, the survey area was divided into a grid of squares measuring 5 nautical miles (n mi) on each side (25 n mi²). The stations to be sampled in each of these subareas were then selected from this grid using a random number table. If records from the 1990 survey indicated that a selected grid square was completely untrawlable, another square was randomly selected. The actual geographic coordinates of a station were at the center of the square.

A slightly different approach was necessary to select station locations in slope subareas. The grid technique was not used because these subareas are relatively small and are extremely narrow and long. Instead, for each slope subarea, transect lines were drawn such that the area between transect lines was 25 n mi². Thus, the slope subareas were composed of a number of irregularly shaped segments analogous to the grid squares on the shelf and gullies. The slope stations were then selected randomly from these segments. The specific coordinates of a slope station were approximately halfway between the two transect lines bounding each segment.

For each of the 180 randomly located stations, an alternative, non-random station in the same subarea was also determined. These alternative stations were necessary as "backup" stations in case the original planned station proved to be untrawlable. The alternative stations were selected from successful trawl hauls made during 11 previous survey cruises in the eastern Gulf of Alaska from 1978 to 1990.

Fishing Operations and Catch Sampling

Fishing and catch sampling methods were generally similar to those used in previous AFSC trawl surveys. Prior to fishing, each station was surveyed using the RV *Miller Freeman*'s recording fathometer, and a trawl path was selected. This surveying was usually done at night previous to the day when the station was to be fished. The vessel's officers were given the discretion to locate the trawl path anywhere within the station's boundaries (i.e., within the boundaries of the station's grid square). If the fathometer survey indicated the station was untrawlable, the alternative station was substituted, and this alternative station was also surveyed.

Standard duration of hauls was 30 minutes, measured from the time the net reached bottom until the start of haul back. A Furuno¹ net-sounding system was used to monitor the position of the net relative to the bottom. This system allowed a precise determination of when the net touched bottom and also ensured that it remained on bottom for the rest of the tow. At some stations, because of rough bottom, net hang-ups, or expected large catches of fish, hauls were shorter than 30 minutes. Tows less than 10 minutes long, or where the net was severely ripped, were not considered valid, and results from these tows were not included in the survey's analysis. Towing speed of the RV *Miller Freeman* averaged 3.1 knots, and for individual hauls ranged from 2.5 to 4.1 knots.

An acoustic net mensuration system (the "SCANMAR") was used on hauls #1 - #59 to measure the width of the net opening. Width measurements were especially critical to determine the area swept by the trawl, data which are essential for subsequent calculations of catch per unit effort and biomass. The average net width for individual hauls ranged from 12.75 to 18.12 m. The SCANMAR system became inoperable after haul #59; consequently, net width for the remainder of the hauls was estimated based on the data collected when the system was working. Original plans were also to measure the average height of the net, but the height-sensing unit did not function properly at the start of the cruise, and was not subsequently deployed.

Catches less than approximately 2,500 lb were processed in their entirety. The catch was sorted, weighed, and counted by species. For abundant or commercially important species, sex was determined and the fish were measured for length frequency distributions. When a species was very abundant in a catch, a random subsample of about 100-200 individuals was taken for the sex determinations and length measurements. Pacific halibut (*Hippoglossus stenolepis*) and sablefish were generally measured without being sexed and returned immediately to the sea. For

¹Reference to trade names does not imply endorsement of the National Marine Fisheries Service, NOAA.

catches >2,500 lb, a load cell was used to weigh the entire catch, and a 1,000-2,000 lb subsample was retained and processed in the above manner; the unprocessed remainder of the catch was discarded overboard.

In many hauls, otoliths (earbones) from selected species were collected and retained for age determination. These species included arrowtooth flounder (*Atheresthes stomias*), juvenile sablefish, walleye pollock (*Theragra chalcogramma*), shortspine thornyhead (*Sebastolobus alascanus*), Pacific ocean perch (*Sebastes alutus*), and rougheye (*S. aleutianus*), silvergray (*S. brevispinus*), dusky (*S. ciliatus*), redstripe (*S. proriger*), sharpchin (*S. zacentrus*), and shortraker (*S. borealis*) rockfish. Two otoliths were collected from each individual fish. For all species except shortraker rockfish and juvenile sablefish, a stratified random sampling procedure was used: in an individual haul, otoliths were collected from 2 fish per cm length per sex for walleye pollock, Pacific ocean perch, and rougheye, silvergrey, dusky, redstripe, and sharpchin rockfish. For arrowtooth flounder, otoliths were taken from 2 fish per cm length per sex in each of the two former International North Pacific Fisheries Commission statistical areas covered by the survey (the Southeastern and Yakutat areas); for shortspine thornyhead, otoliths were collected from 5 fish per cm length per sex over the entire survey area, with no more than 1 fish per cm length per sex sampled in an individual haul. All shortraker rockfish caught were sampled for otoliths, and otoliths were collected randomly from juvenile sablefish in various hauls.

Genetic tissue samples were collected from shortraker and rougheye rockfish and Dover sole (*Microstomus pacificus*) for stock identification studies of these species. For the two rockfish species, heart, liver, muscle, and eye tissue samples were taken from selected specimens and returned to the laboratory for electrophoretic analysis; an additional sample of heart tissue was also collected from each fish for DNA genetic studies. For Dover sole, only heart, liver, and muscle tissue were collected for electrophoresis at the request of the National Marine Fisheries Service, Southwest Fisheries Science Center. Methods and results for these studies will be presented in future reports.

For each haul, surface and bottom water temperature were recorded. Surface temperatures were determined from a bucket thermometer, and bottom temperatures determined from the Furuno net sounder's electronic temperature sensor.

RESULTS

A total of 167 hauls was made during the cruise (Table 2; Fig. 1). Of these, 153 were considered to be successful, i.e., valid for analysis. This was slightly less than the 166 successful survey hauls in the 1990 eastern Gulf of Alaska trawl survey, but more than the 126 successful hauls in the 1987 survey. (The 1984 eastern Gulf survey used a methodology that is not directly comparable with the other three surveys.)

Of the planned, randomly located survey stations, 168 were visited (Table 1). The 12 remaining stations were skipped, either deliberately because of time or scheduling constraints, or by mistake; for example, 3 stations that were supposed to be in the Yakutat Slope 301-500 m subarea were inadvertently located in Yakutat Deep Gullies instead. Six unplanned stations were added to the end of the cruise when it became apparent the cruise would otherwise finish early.

Trawling conditions in the Southeastern area were more difficult than in Yakutat. Overall, the trawlability data in Table 1 can be summarized as follows:

<u>Area</u>	<u>Number of stations (%)</u>		
	<u>Trawlable</u>	<u>Marginally trawlable</u>	<u>Untrawlable</u>
Yakutat	69.9	19.3	10.8
Southeastern	49.4	23.5	27.1

(The true amount of untrawlability in all areas is probably somewhat underestimated in Table 1 because in the station-selection process [see *Station Locations* section], any stations found to be untrawlable in the 1990 survey were not resampled in 1993.) Clearly, much of the Southeastern area is marginally trawlable at best for the gear used in the survey. The difference in trawlability between the two areas is actually greater than these percentages indicate, because the largely untrawlable Southeastern Shallows subarea was not sampled in the survey. In the Southeastern area, only the Baranof-Chichagof Slope and Prince of Wales Slope and Gullies subareas had a high percentage of trawlable stations. In Yakutat, all the subareas were mostly trawlable, except for Yakutat Flats and Yakutat Slope 301-500 m. All these trawlability results in general were similar to those in the 1987 and 1990 eastern Gulf of Alaska surveys (Clausen 1988; Clausen 1991).

Numbers of fish sampled in the survey for length frequency distributions and for otoliths are summarized by species in Tables 3 and 4, respectively.

Pacific ocean perch and arrowtooth flounder were the two most abundant species in the catch for both the Yakutat and Southeastern areas (Tables 5 and 6). Nearly 31% of the total CPUE of Pacific ocean perch came from one extremely productive haul west of Iphigenia Bay in the Southeastern area. Other species with relatively high CPUE's in both areas included sablefish, Dover sole, shortspine thornyhead, and Pacific halibut. Two rockfish species, silvergray and redstripe, had relatively large catches in the Southeastern area, but few or none were taken in Yakutat. Catches of walleye pollock and Pacific cod, usually abundant in the central and western Gulf of Alaska, were generally sparse.

More detailed analysis of the results, including biomass estimates for principal species and estimated population size distributions, is available in Martin and Clausen (1996). Their report combines the data for the 1993 eastern Gulf of Alaska survey (conducted by ABL) with its western and central Gulf of Alaska counterpart (conducted by RACE).

A detailed fishing log of the 1993 bottom trawl survey of the eastern Gulf of Alaska is presented in Appendix B.

For more information about the 1993 bottom trawl survey of the eastern Gulf of Alaska, please contact:

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TABLES

Table 1.—Summary of planned survey stations and those actually visited during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska. Visited stations are broken into three categories: trawlable, marginally trawlable, and untrawlable. (Data in table include randomly located stations only; do not include non-random alternative hauls, mislocated hauls, or extra stations added at end of cruise.)

Depth stratum (m)	Subarea	Number of stations				
		Planned	Visited	Trawl-able ^a	Marginally trawlable ^b	Un-trawlable ^c
Yakutat ^d Area:						
0-100	Yakutat Shallows	5	5	5	0	0
101-200	Yakataga Shelf	8	8	6	2	0
101-200	Yakutat Flats	13	13	4	6	3
101-200	Fairweather Shelf	12	12	8	1	3
201-300	Yakutat Gullies	18	18	14	4	0
201-300	Yakutat Slope	11	11	8	2	1
301-500	Yakutat Deep Gullies	11	11	11	0	0
301-500	Yakutat Slope	<u>9</u>	<u>5</u>	<u>2</u>	<u>1</u>	<u>2</u>
	Total, Yakutat	87	83	58	16	9
Southeastern ^e Area:						
0-100	Southeastern Shallows	0	-	-	-	-
101-200	Baranof-Chichagof Shelf	13	13	4	4	5
101-200	Prince of Wales Shelf	19	17	6	6	5
201-300	Baranof-Chichagof Slope	10	9	7	1	1
201-300	Prince of Wales Slope and Gullies	28	25	19	2	4
301-500	Southeastern Deep Gullies	18	16	6	6	4
301-500	Southeastern Slope	<u>5</u>	<u>5</u>	<u>0</u>	<u>1</u>	<u>4</u>
	Total, Southeastern	93	85	42	20	23
Grand Total for survey		180	168	100	36	32

^aTrawlable stations: stations successfully towed with no problems encountered.

^bMarginally trawlable stations: stations successfully towed, but where, because of steep topography or rough bottom, the haul was cut short or the net hung up.

^cUntrawlable stations: stations determined to be untrawlable because of steep topography or rough bottom, based on fathometer recordings (i.e., no haul was made), or on hauls where the net hung up and ripped severely.

^dFormer Yakutat INPFC area east of 144° 30' longitude.

^eFormer Southeastern INPFC area.

Table 2.—Summary of hauls completed during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

Depth stratum (m)	Subarea name	Number of hauls		
		Total	Successful	Un- successful
Yakutat ^a Area:				
0-100	Yakutat Shallows	5	5	0
101-200	Yakataga Shelf	10	10	0
101-200	Yakutat Flats	13	12	1
101-200	Fairweather Shelf	11	11	0
201-300	Yakutat Gullies	18	18	0
201-300	Yakutat Slope	12	11	1
301-500	Yakutat Deep Gullies	16	15	1
301-500	Yakutat Slope	<u>3</u>	<u>3</u>	<u>0</u>
	Total, Yakutat	88	85	3
Southeastern ^b Area:				
101-200	Baranof-Chichagof Shelf	13	10	3
101-200	Prince of Wales Shelf	16	14	2
201-300	Baranof-Chichagof Slope	9	8	1
201-300	Prince of Wales Slope and Gullies	25	22	3
301-500	Southeastern Deep Gullies	14	13	1
301-500	Southeastern Slope	<u>2</u>	<u>1</u>	<u>1</u>
	Total, Southeastern	79	68	11
Grand Total for cruise		167	153	14

^aFormer Yakutat INPFC area east of 144° 30' longitude.

^bFormer Southeastern INPFC area.

Table 3.—Number of fish measured for length frequency distributions, by species, during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska. (Includes data from successful hauls only.)

Species	Yakutat ^a	Southeastern ^b	Total
Arrowtooth flounder	4,674	2,243	6,917
Pacific halibut	221	100	321
Flathead sole	670	0	670
Dover sole	2,082	1,603	3,685
Rex sole	963	1,850	2,813
Rock sole	0	80	80
Butter sole	73	0	73
Sablefish	443	255	698
Pacific cod	63	137	200
Walleye pollock	2,446	971	3,417
Pacific hake	0	190	190
Shortspine thornyhead	4,143	3,463	7,606
Rougheye rockfish	555	205	760
Pacific ocean perch	2,998	4,345	7,343
Silvergray rockfish	91	628	719
Dusky rockfish	206	172	378
Darkblotched rockfish	46	0	46
Redstripe rockfish	0	1,464	1,464
Redbanded rockfish	168	88	256
Harlequin rockfish	120	54	174
Sharpchin rockfish	869	1,840	2,709
Shortraker rockfish	234	42	276
Yellowmouth rockfish	<u>0</u>	<u>114</u>	<u>114</u>
Total	21,065	19,844	40,909

^aFormer Yakutat INPFC area east of 144° 30' longitude.

^bFormer Southeastern INPFC area.

Table 4.—Number of fish sampled for otoliths during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

Species	Number of fish sampled		
	Yakutat ^a	Southeastern ^b	Total
Arrowtooth flounder	215	172	387
Juvenile sablefish	77	22	99
Walleye pollock	565	289	854
Shortspine thornyhead	266	130	396
Rougeye rockfish	300	251	551
Pacific ocean perch	365	570	935
Silvergray rockfish	0	132	132
Dusky rockfish	91	19	110
Redstripe rockfish	0	42	42
Sharpchin rockfish	35	140	175
Shorthead rockfish	<u>186</u>	<u>65</u>	<u>251</u>
Total	2,100	1,832	3,932

^aFormer Yakutat INPFC area east of 144° 30' longitude.

^bFormer Southeastern INPFC area.

Table 5.—Major species caught in the Yakutat area^a during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska. (Includes data from successful hauls only.)

Rank	Species	Mean CPUE ^b (lb/h)
1	Arrowtooth flounder	498.7
2	Pacific ocean perch	431.0
3	Sablefish	362.9
4	Dover sole	173.9
5	Shortspine thornyhead	105.9
6	Pacific halibut	96.9
7	Walleye pollock	90.9
8	Shortraker rockfish	63.7
9	Rex sole	49.8
10	Sharpchin rockfish	41.0
11	Spiny dogfish	34.7
12	Flathead sole	34.2
13	Eulachon	27.9
14	Lingcod	25.4
15	Skates	24.7
16	Rougheye rockfish	24.4
17	Pacific cod	23.0
18	Dusky rockfish	22.8
19	Red squid	18.1
20	Silvergray rockfish	11.8
21	Heart urchin	11.7
22	Pacific sleeper shark	8.9
23	Giant grenadier	7.7
24	Redbanded rockfish	7.7
25	Sea urchin unident.	6.1
26	Lanternfish unident.	4.7
27	Harlequin rockfish	3.0
28	Darkblotched rockfish	2.9
29	Sponge unident.	2.8
30	Butter sole	2.6
	Other	36.6
	Total	2,256.3

^aFormer Yakutat INPFC area east of 144° 30' longitude.

^bCatch per unit effort, regardless of depth = (total weight for all successful hauls combined) / (total hours of trawl effort).

Table 6.—Major species caught in the Southeastern area^a during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska. (Includes data from successful hauls only.)

Rank	Species	Mean CPUE ^b (lb/h)
1	Pacific ocean perch	866.6
2	Arrowtooth flounder	350.4
3	Redstripe rockfish	294.9
4	Sablefish	211.5
5	Silvergray rockfish	180.9
6	Dover sole	179.5
7	Sharpchin rockfish	163.5
8	Shortspine thornyhead	114.2
9	Pacific halibut	67.7
10	Rex sole	66.5
11	Walleye pollock	59.4
12	Pacific cod	50.1
13	Yellowmouth rockfish	49.9
14	Shortraker rockfish	31.0
15	Lingcod	29.9
16	Rougheye rockfish	29.5
17	Pacific hake	28.9
18	Giant grenadier	27.2
19	Redbanded rockfish	26.8
20	Dusky rockfish	24.3
21	Sponge unident.	18.2
22	Spotted ratfish	12.6
23	Skate unident.	11.7
24	Spiny dogfish	9.4
25	Pacific sleeper shark	8.5
26	Rosethorn rockfish	8.0
27	Rock sole	7.3
28	Eulachon	6.8
29	Red squid	5.1
30	Petrale sole	4.6
	Other	<u>45.5</u>
	Total	2,990.5

^aFormer Southeastern INPFC area.

^bCatch per unit effort, regardless of depth = (total weight for all successful hauls combined) / (total hours of trawl effort).

FIGURE

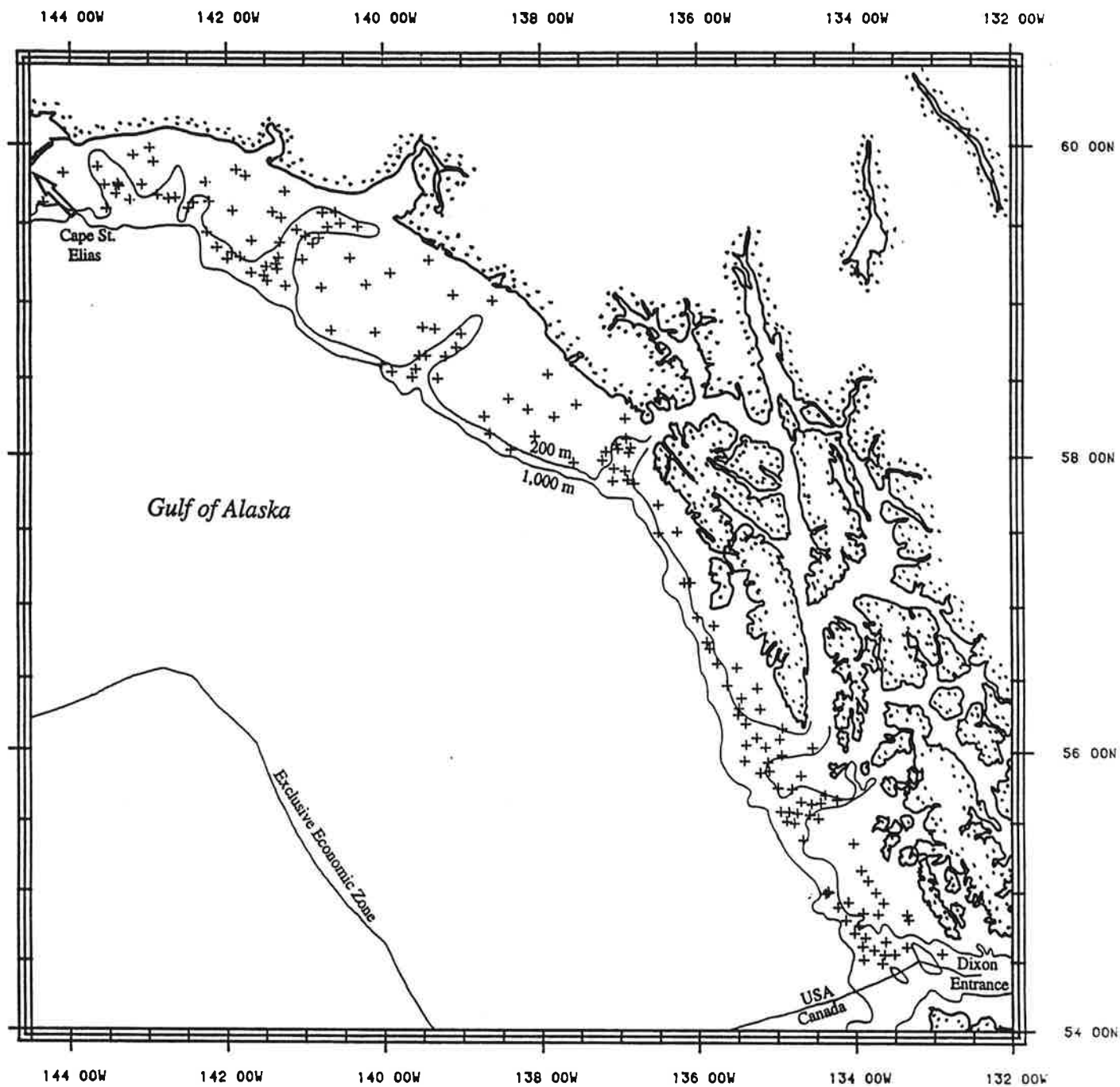


Figure 1.—Hauls completed during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

APPENDIX A

Specifications for the fishing gear used during RV *Miller Freeman* Cruise
93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

Table A.1.—Specifications for the Nor' eastern bottom trawl and its accessories used during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

Netting —	Polyethylene, 5" (12.7 cm) stretched mesh, 4-mm and 5-mm twine. 4-mm twine on top and sides; 5 mm on bottom and intermediate.
Headrope —	89' 1" (27.2 m) plus thimbled eyes, of 1/2" (1.3 cm) 6 x 19 galvanized wire rope wrapped with 3/8" (1 cm) 3-strand polypropylene rope.
Footrope —	81' 7" (24.9 m) plus thimbled eyes, of 3/8" (1 cm) galvanized wire rope (Bolsh Line), wrapped with polypropylene rope.
Fishing line —	81' (24.7 m), of 1/2" (1.3 cm) shot-peened, long-link chain. Safe working load 11,300 lb (5,126 kg).
Breastlines —	3/8" (1 cm) 6 x 19 galvanized wire rope wrapped with 3/8" (1 cm) polypropylene. Top corner 19' 6" (5.9 m); bottom corner 8' 8" (2.6 m); top side panel 19' 6" (5.9 m); bottom side panel 30' 6" (9.3 m). Overall lengths exclude thimbled eye at wing tips.
Riblines —	3/4" (1.9 cm) Sampson 2 and 1 Duralon. Top two 114.17' (34.8 m) and bottom two 104.45' (31.8 m), hung 98% of stretched seam length. Web secured to riblines using benzels every 16" (41 cm).
Restrictors —	Polypropylene rope, 1" (2.5 cm) diameter, 14' (4.3 m) circumference, and secured loosely to codend at each ribline, 4' (1.2 m) apart, 5 pieces.
Side seams —	Panels are joined to each other, gathering 3 meshes (4 knots) from each panel. Panels which are secured to framing lines have a selvaged edge created by gathering 3 meshes.
Codend —	110 meshes long x 100 meshes deep. 3½" (8.9 cm) stretched (including one knot) 4-mm double-bar mesh.
Codend chaffing gear —	5½" (14 cm) 6-mm double-bar mesh with hula skirt secured to chaffer. Full coverage of codend.
Codend liner —	Nylon, no. 18, 1¼" (3.2-cm) stretched mesh, 315 meshes circumference and 200 meshes deep, laced to the inside of codend. When stretched, the liner protrudes 2-3' (61-91 cm) beyond codend.

Table A.1.—(continued)

Splitting gear —	1/2" (1.3 cm) diameter galvanized wire rope, 21' (6.4 m) long. Wire is passed through 4 galvanized steel rings which are secured to each ribline.
Flotation —	90 pieces, 8" (20.3 cm) diameter aluminum XX Deep Sea water floats.
Roller gear —	79' 6" (24.2 m) eye to eye, 3/4" (1.9 cm) diameter 6 x 19 galvanized wire rope, with 14" (36 cm) diameter bobbins.
Rigging —	3 dandyines each side, 5/8" (1.6 cm) diameter galvanized wire rope, 180' (54.9 m) long.
Doors —	6' x 9' (1.8 x 2.7 m) steel V-doors, approximately 2200 lb (998 kg) each.

APPENDIX B

FISHING LOG OF THE 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA

This appendix consists of three sections that present detailed results of the survey in the form of a fishing log. In Section I, the location of each haul is plotted on maps of the survey area. In Section II, the geographic coordinates are listed for each haul along with other pertinent data, such as the CPUE broken down by species or other taxonomic group. An explanation of the terms and codes used in this section is given in Table B-1. Lastly, Section III shows the CPUE for major species listed by haul in descending order of magnitude, along with their corresponding average weight.

APPENDIX B

SECTION I

**Maps showing locations of hauls completed during RV *Miller Freeman* Cruise 93-09, 1993
triennial bottom trawl survey of the eastern Gulf of Alaska**

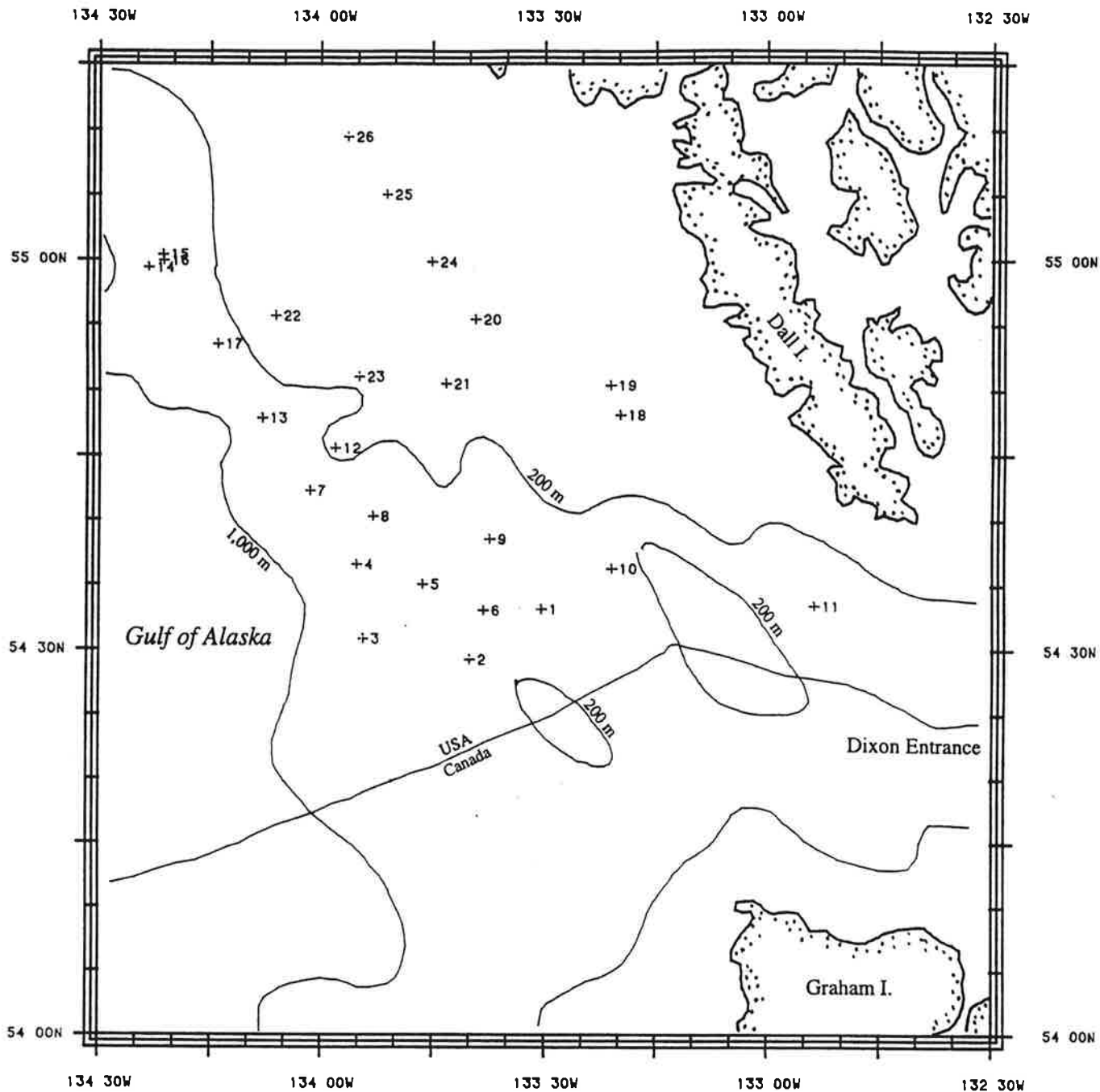


Figure B.1.—Hauls completed in the Dall Island/Dixon Entrance vicinity during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

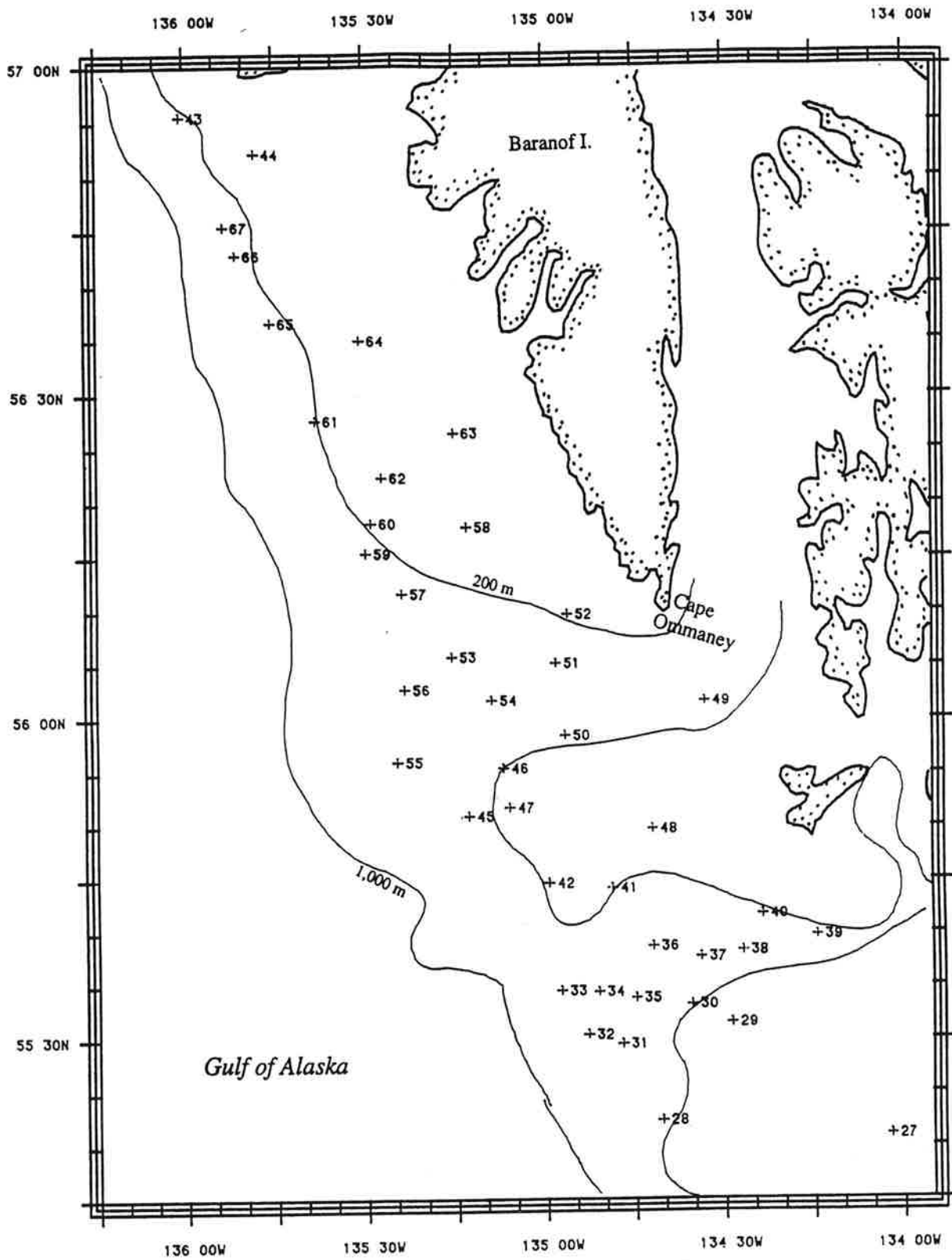


Figure B.2.—Hauls completed in the Baranof Island/Cape Ommaney vicinity during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

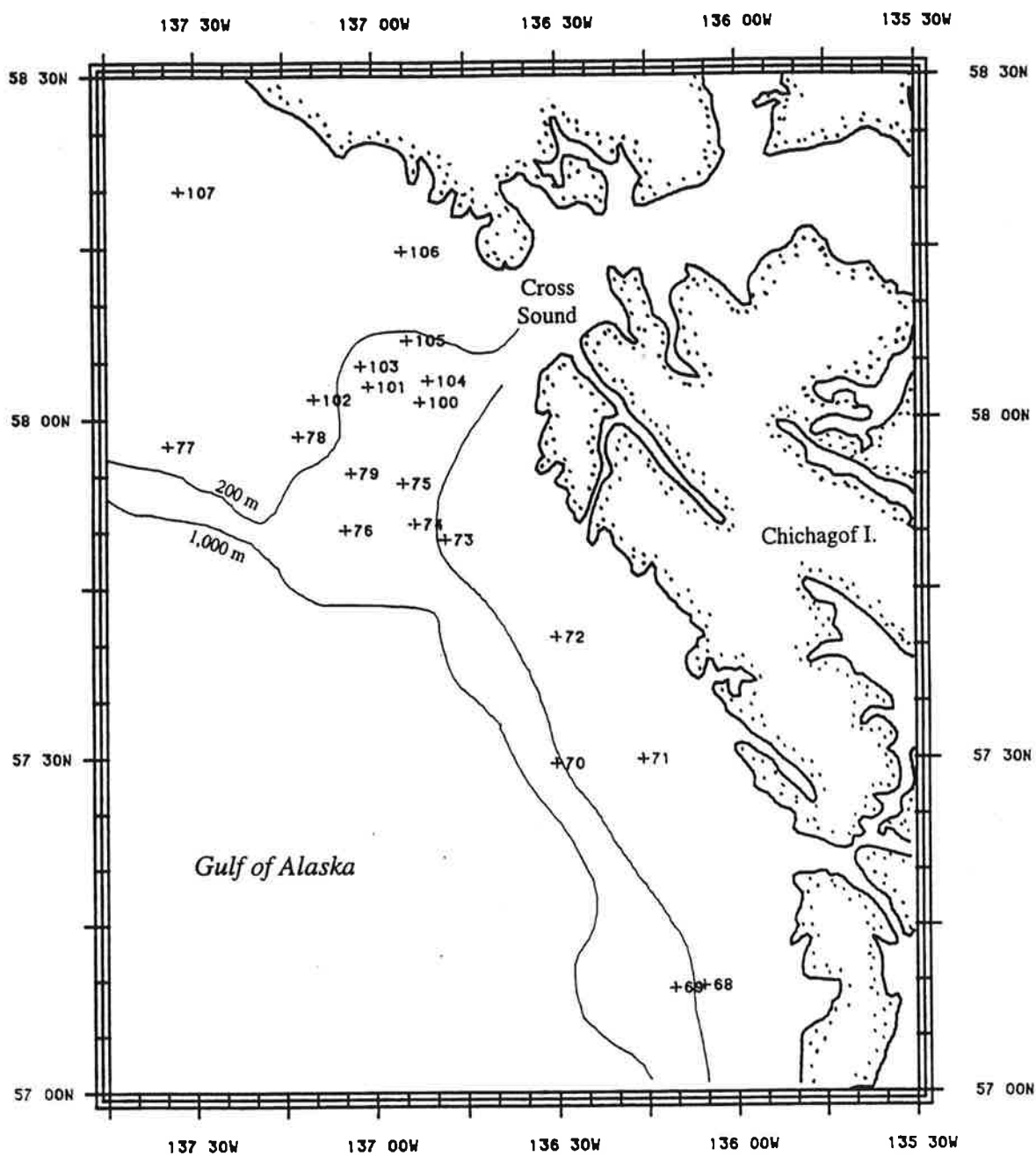


Figure B.3.—Hauls completed in the Chichagof Island/Cross Sound vicinity during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

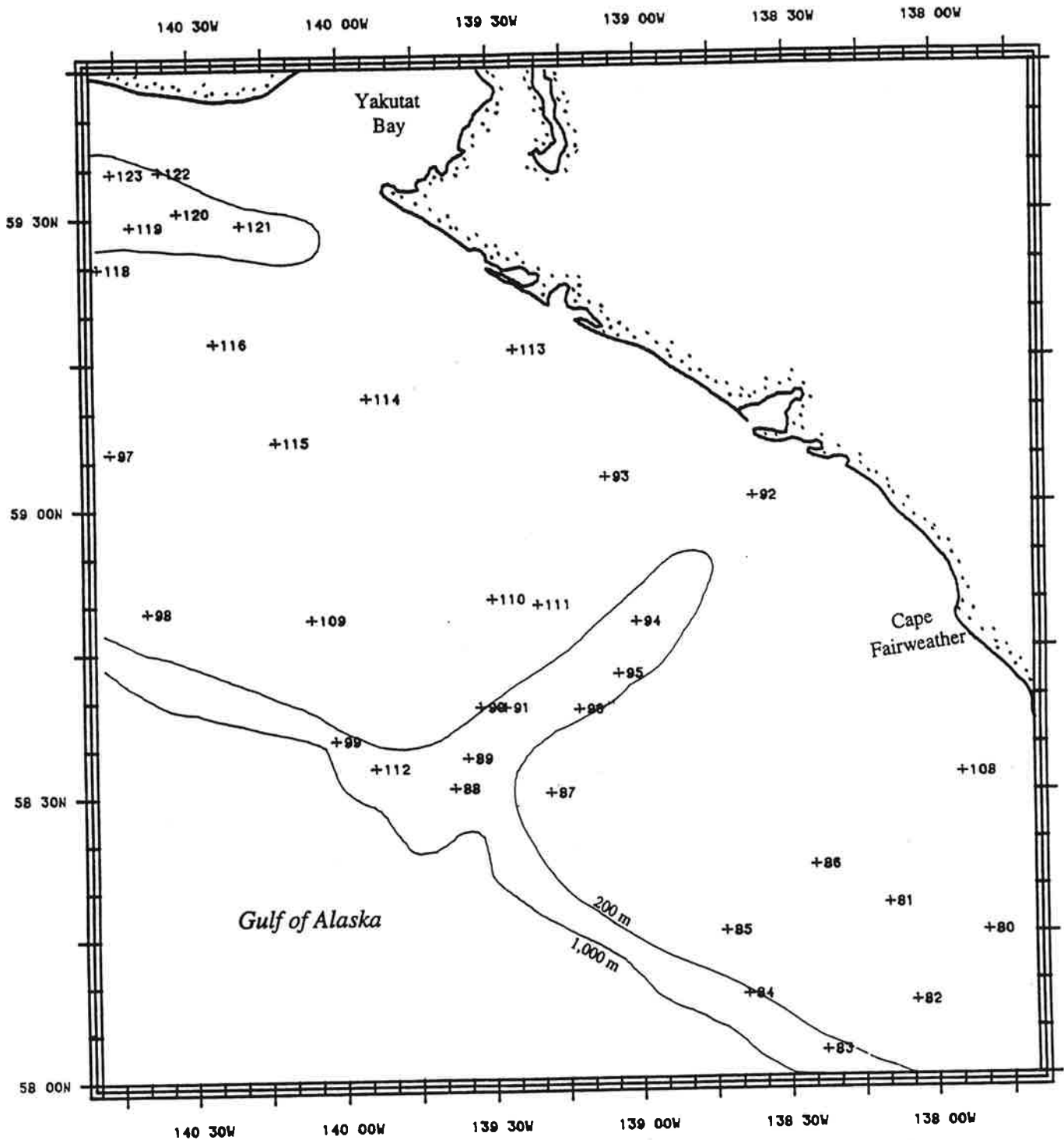


Figure B.4.—Hauls completed in the Cape Fairweather/Yakutat Bay vicinity during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

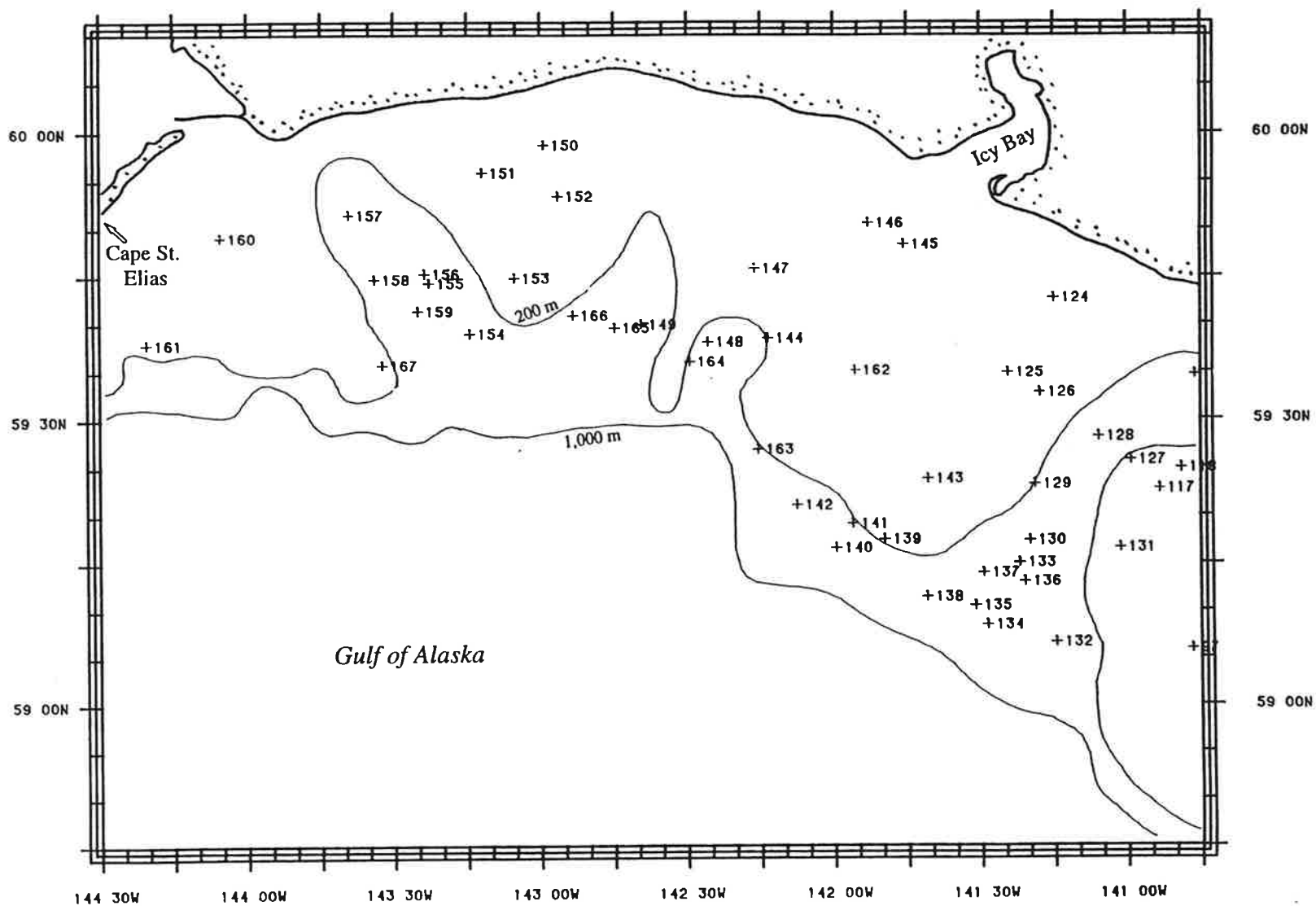


Figure B.5.—Hauls completed in the Icy Bay/Cape St. Elias vicinity during RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

APPENDIX B

SECTION II

Position and catch data for hauls completed during RV *Miller Freeman* Cruise 93-09,
1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

Table B.1.—Explanation of terms and codes used in Section II, “Position and Catch Data for Hauls Completed during RV *Miller Freeman* Cruise 93-09, 1993 Triennial Trawl Bottom Survey of the Eastern Gulf of Alaska.”

Term	Explanation
Latitude	Degrees and minutes north.
Longitude	Degrees and minutes west.
LORAN start	For haul numbers <45, rate designation is 5X (Williams Lake, BC master tower); for haul numbers >45, rate designation is 6X (Tok, AK master tower).
LORAN end	For haul numbers <45, rate designation is 5Y (Williams Lake, BC master tower); for haul numbers >45, rate designation is 6Y (Tok, AK master tower).
Gear depth	Fathoms.
Duration	On-bottom towing time in hours (0.50 h was standard duration).
Distance fished	Distance in nautical miles between start and end positions.
Performance	0 = good; no problems encountered during tow. 1 = satisfactory; net hung up or ripped during tow, but effects of damage on catch was judged to be negligible. Tow at least 10 minutes long. 5 = unsatisfactory. 6 = unsatisfactory; net hung up, and tow <10 minutes long. 7 = unsatisfactory; net ripped and some portion of the catch was probably lost.
Gear	160 = polyethylene Nor' eastern net with roller gear; SCANMAR net mensuration gear not used. 166 = polyethylene Nor' eastern net with roller gear; SCANMAR net mensuration gear used.
Catch	Catch per unit effort; expressed in pounds per hour of towing time on bottom.

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	1	2	3	4	5	6	7	8	9	10	11
MONTH/DAY/YEAR	7/23/93	7/23/93	7/23/93	7/23/93	7/23/93	7/24/93	7/24/93	7/24/93	7/24/93	7/24/93	7/25/93
LATITUDE START	54 33.1	54 29.3	54 30.9	54 36.6	54 35.0	54 33.0	54 42.3	54 40.3	54 38.5	54 36.2	54 33.4
LONGITUDE START	133 30.4	133 39.9	133 54.2	133 55.1	133 46.2	133 38.1	134 1.4	133 52.9	133 37.2	133 21.0	132 53.8
LATITUDE END	54 32.6	54 28.9	54 31.2	54 36.9	54 35.5	54 32.7	54 42.7	54 41.9	54 38.4	54 36.3	54 33.3
LONGITUDE END	133 33.0	133 42.4	133 56.6	133 57.6	133 48.8	133 37.9	134 4.0	133 52.1	133 39.0	133 24.0	132 56.5
LORAN START		11282.70	11267.90	11239.50	11250.30	11263.90	11211.60	11222.60	11236.10	11254.90	
LORAN START		30515.40	30511.40	30520.90	30522.70	30522.90	30527.60	30528.70	30533.00	30537.80	
LORAN END		11283.30	11265.30	11237.10	11246.90	11264.60	11209.00	11215.40	11236.20	11253.00	
LORAN END		30513.50	30510.50	30520.10	30522.50	30522.40	30527.50	30531.20	30532.10	30535.60	
GEAR DEPTH	192	137	134	128	130	152	118	127	171	180	213
DURATION IN HOURS	0.50	0.50	0.50	0.50	0.50	0.17	0.50	0.50	0.33	0.50	0.50
DISTANCE FISHED	1.57	1.51	1.39	1.50	1.57	0.36	1.57	1.67	1.03	1.75	1.62
PERFORMANCE / GEAR	0 /166	0 /166	0 /166	0 /166	0 /166	6 /166	0 /166	0 /166	0 /166	0 /166	7 /160
POLLOCK	0.0	4.4	2.2	67.0	25.0	0.0	46.0	31.0	7.6	0.0	0.0
PACIFIC COD	0.0	8.4	32.0	90.0	59.0	0.0	116.0	10.0	0.0	6.0	0.0
SABLEFISH	171.0	64.0	24.8	61.0	52.0	0.0	38.0	37.0	86.4	209.0	0.0
LINGCOD	0.0	51.6	0.0	21.2	14.0	0.0	0.0	0.0	0.0	0.0	0.0
PACIFIC OCN PERCH	0.0	2656.4	1831.0	1993.8	1345.0	0.0	240.0	981.0	47.3	14.0	0.0
SHORTRAKER ROCKFSH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROUGHEYE ROCKFISH	104.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0
SHARPCHIN ROCKFISH	0.0	0.0	1327.0	96.0	160.0	0.0	442.0	2.0	0.0	0.0	0.0
REDSTRIPE ROCKFISH	0.0	0.0	15.4	32.0	16.0	0.0	510.0	180.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	0.0	0.0	0.0	1.8	1.0	0.0	0.0	1.0	0.0	0.0	0.0
SILVERGRAY ROCKFSH	0.0	641.2	202.0	375.0	176.0	0.0	4088.0	169.0	0.0	0.0	0.0
REDBANDED ROCKFISH	353.0	29.6	39.0	78.0	10.0	0.0	27.0	52.0	0.0	13.0	0.0
DUSKY ROCKFISH	0.0	0.0	0.0	0.0	71.0	0.0	512.0	51.0	0.0	0.0	0.0
SHORTSPINE THORNY	103.0	73.6	101.0	125.0	247.0	0.0	104.0	147.0	445.5	177.0	0.0
OTHER ROCKFISH	0.0	31.0	24.0	41.0	20.0	0.0	110.0	15.0	0.0	0.0	0.0
OTHER ROUND FISH	106.6	1.2	4.2	11.2	105.0	0.0	11.2	8.0	91.8	234.0	0.0
TOTAL ROUND FISH	837.6	3561.4	3602.6	2993.0	2301.0	0.0	6244.2	1684.0	678.5	673.0	0.0
ARROWTOOTH FL	183.0	70.0	38.0	90.0	116.0	0.0	332.0	329.0	362.1	243.0	0.0
FLATHEAD SOLE	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REX SOLE	211.0	162.0	79.0	31.0	11.0	0.0	14.0	255.0	160.6	140.0	0.0
DOVER SOLE	214.0	65.0	76.0	114.0	12.0	0.0	85.0	106.0	166.7	142.0	0.0
PACIFIC HALIBUT	0.0	0.0	23.8	93.8	19.2	0.0	50.0	0.0	0.0	25.0	0.0
OTHER FLATFISH	0.0	8.6	2.8	11.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0
TOTAL FLATFISH	608.0	305.6	219.6	343.0	158.2	0.0	485.4	690.0	689.4	550.0	0.0
SKATES	0.0	1.6	28.4	71.0	0.0	0.0	0.0	0.0	8.5	59.0	0.0
SPINY DOGFISH	0.0	10.0	10.0	6.2	0.0	0.0	12.4	7.4	0.0	7.0	0.0
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	9.0	0.0	0.0	17.0	2.0	0.0	6.2	8.0	0.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	2.0	0.0	0.0	16.4	2.1	0.0	0.0
SIDESTRIPE SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.6	0.0
SPOT SHRIMP	0.0	0.2	10.0	6.0	10.0	0.0	10.0	2.0	0.0	0.0	0.0
OTHER INVERTS	28.2	10.4	0.0	12.0	30.0	0.0	77.0	15.0	21.8	14.0	0.0
TOTAL INVERTS	28.2	10.6	10.0	18.0	42.0	0.0	87.0	33.4	24.2	15.6	0.0
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	1482.8	3889.2	3870.6	3448.2	2503.2	0.0	6835.2	2422.8	1400.6	1304.6	0.0

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	12	13	14	15	16	17	18	19	20	21	22
MONTH/DAY/YEAR	7/27/93	7/27/93	7/27/93	7/27/93	7/27/93	7/27/93	7/28/93	7/28/93	7/28/93	7/28/93	7/28/93
LATITUDE START	54 45.6	54 47.9	54 59.4	55 0.4	54 59.9	54 53.5	54 48.1	54 50.4	54 55.4	54 50.5	54 55.7
LONGITUDE START	133 58.0	134 8.0	134 23.4	134 21.5	134 21.4	134 14.1	133 19.8	133 21.1	133 39.1	133 43.1	134 6.1
LATITUDE END	54 44.9	54 48.0	54 58.4	55 0.4	54 59.5	54 55.0	54 49.4	54 49.6	54 53.9	54 50.5	54 56.6
LONGITUDE END	133 58.6	134 10.7	134 22.2	134 21.6	134 21.2	134 15.5	133 19.9	133 20.7	133 39.0	133 43.1	134 6.1
LORAN START							11193.60	11182.00	11156.50	11177.60	
LORAN START							30558.60	30561.30	30560.80	30550.30	
LORAN END							11186.80	11186.00	11163.30	11177.60	
LORAN END							30560.40	30559.90	30558.50	30550.30	
GEAR DEPTH	116	119	228	134	134	118	83	82	59	58	97
DURATION IN HOURS	0.25	0.50	0.33	0.05	0.16	0.52	0.45	0.27	0.48	0.01	0.33
DISTANCE FISHED	0.79	1.57	1.17	0.07	0.47	1.73	1.37	0.84	1.53	0.00	0.96
PERFORMANCE / GEAR	0 /166	0 /166	7 /166	5 /166	0 /166	0 /166	0 /166	0 /166	0 /166	5 /166	1 /166
POLLOCK	120.0	129.0	0.0	0.0	35.6	234.6	1.8	1.5	1.3	0.0	0.3
PACIFIC COD	26.0	88.0	0.0	0.0	156.3	75.0	23.3	0.0	0.0	0.0	57.6
SABLEFISH	228.0	37.0	0.0	0.0	203.1	35.6	11.8	0.0	0.0	0.0	0.0
LINGCOD	0.0	0.0	0.0	0.0	81.3	0.0	0.0	0.0	39.6	0.0	36.4
PACIFIC OCN PERCH	0.0	419.0	0.0	0.0	2515.6	381.7	0.0	0.0	0.0	0.0	0.6
SHORTRAKER ROCKFSH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROUGHEYE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHARPCHIN ROCKFISH	2838.0	44.0	0.0	0.0	3040.6	173.1	0.0	0.0	1.0	0.0	142.4
REDSTRIPE ROCKFISH	4782.0	428.0	0.0	0.0	2425.0	2077.5	0.0	0.0	0.0	0.0	316.7
HARLEQUIN ROCKFISH	48.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1
SILVERGRAY ROCKFSH	350.0	126.0	0.0	0.0	162.5	502.9	0.0	0.0	0.0	0.0	163.6
REDBANDED ROCKFISH	470.0	0.0	0.0	0.0	84.4	17.3	0.0	0.0	0.0	0.0	59.1
DUSKY ROCKFISH	896.0	0.0	0.0	0.0	0.0	11.5	0.0	0.0	0.0	0.0	15.2
SHORTSPINE THORNY	46.0	263.0	0.0	0.0	287.5	220.2	0.0	0.0	0.0	0.0	0.0
OTHER ROCKFISH	406.0	43.6	0.0	0.0	2959.4	66.3	0.0	0.0	2.5	0.0	44.8
OTHER ROUND FISH	16.8	3.0	0.0	0.0	25.0	129.8	1.1	1.1	1.3	0.0	0.3
TOTAL ROUND FISH	10226.8	1581.8	0.0	0.0	11976.3	3925.6	38.0	2.6	45.6	0.0	843.0
ARROWTOOTH FL	78.0	545.0	0.0	0.0	55.0	165.4	443.3	613.0	9.0	0.0	150.0
FLATHEAD SOLE	0.0	0.0	0.0	0.0	0.0	0.0	0.7	7.4	0.0	0.0	0.0
REX SOLE	70.0	15.0	0.0	0.0	56.3	19.2	60.0	74.1	0.0	0.0	4.5
DOVER SOLE	32.0	45.0	0.0	0.0	31.3	6.7	48.0	23.0	0.0	0.0	10.6
PACIFIC HALIBUT	68.4	0.0	0.0	0.0	0.0	0.0	47.1	0.0	359.4	0.0	0.0
OTHER FLATFISH	2.4	4.0	0.0	0.0	6.3	0.0	2.4	5.2	0.0	0.0	0.0
TOTAL FLATFISH	250.8	609.0	0.0	0.0	148.8	191.3	601.6	722.6	368.3	0.0	165.2
SKATES	0.0	0.0	0.0	0.0	0.6	26.9	10.0	37.8	0.0	0.0	0.0
SPINY DOGFISH	0.0	9.0	0.0	0.0	0.0	16.3	0.0	31.5	0.0	0.0	0.0
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	10.4	6.4	0.0	0.0	0.0	4.8	121.1	100.0	53.8	0.0	3.0
TANNER CRAB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PINK SHRIMP	7.6	0.0	0.0	0.0	0.0	1.0	45.6	61.1	0.0	0.0	0.0
SIDESTRIPE SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
SPOT SHRIMP	13.2	5.0	0.0	0.0	66.9	4.8	1.1	0.0	0.0	0.0	3.0
OTHER INVERTS	123.2	345.2	0.0	0.0	35.0	53.3	10.9	8.5	54.0	0.0	0.0
TOTAL INVERTS	144.0	350.2	0.0	0.0	101.9	59.0	57.8	69.6	54.0	0.0	3.0
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	10632.0	2556.4	0.0	0.0	12227.5	4224.0	828.4	964.1	521.7	0.0	1014.2

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	23	24	25	26	27	28	29	30	31	32	33
MONTH/DAY/YEAR	7/28/93	7/29/93	7/29/93	7/29/93	7/29/93	7/29/93	7/30/93	7/30/93	7/30/93	7/30/93	7/30/93
LATITUDE START	54 51.1	54 59.8	55 5.0	55 9.4	55 21.0	55 22.4	55 31.5	55 33.2	55 29.6	55 30.4	55 34.5
LONGITUDE START	133 54.8	133 45.1	133 51.1	133 56.4	134 2.1	134 40.5	134 28.8	134 35.4	134 47.1	134 52.9	134 57.4
LATITUDE END	54 51.4	54 58.4	55 6.3	55 10.7	55 21.5	55 22.1	55 31.0	55 33.9	55 28.4	55 29.7	55 34.4
LONGITUDE END	133 56.1	133 45.2	133 52.5	133 57.7	134 2.2	134 43.2	134 26.2	134 34.6	134 45.4	134 54.0	134 54.7
LORAN START	11174.30	11138.10	11118.40	11103.50							
LORAN START	30546.30	30564.40	30569.80	30573.80							
LORAN END	11172.70	11143.70	11113.80	11099.20							
LORAN END	30546.00	30562.60	30571.50	30576.10							
GEAR DEPTH	80	59	66	72	64	116	106	148	156	162	134
DURATION IN HOURS	0.25	0.45	0.50	0.50	0.17	0.50	0.50	0.25	0.50	0.35	0.50
DISTANCE FISHED	1.03	1.40	1.52	1.53	0.52	1.54	1.53	0.78	1.49	1.00	1.56
PERFORMANCE / GEAR	1 /160	0 /166	7 /166	0 /166	0 /166	0 /166	0 /166	0 /166	0 /166	0 /166	0 /166
POLLOCK	0.0	0.0	0.0	0.2	344.1	4.0	117.0	56.0	18.0	0.0	18.4
PACIFIC COD	20.0	0.0	0.0	134.0	0.0	29.0	800.0	0.0	0.0	0.0	9.0
SABLEFISH	0.0	0.0	0.0	0.0	0.0	4.0	5.0	98.0	108.0	13.7	7.0
LINGCOD	0.0	0.0	0.0	114.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PACIFIC OCN PERCH	0.0	0.0	0.0	0.0	0.0	67.0	282.0	146.0	146.0	165.7	246.0
SHORTRAKER ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROUGHEYE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	12.0	0.0	0.0
SHARPCHIN ROCKFISH	14.0	4.4	0.0	0.0	0.0	61.0	0.0	0.0	0.0	0.0	10.2
REDSTRIPE ROCKFISH	44.0	8.9	0.0	0.0	0.0	1137.0	0.0	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	4.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	1.2
SILVERGRAY ROCKFISH	20.0	5.6	0.0	0.0	0.0	438.0	4.4	0.0	13.0	12.9	24.0
REDBANDED ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	1.2	18.0	3.0	0.0	5.0
DUSKY ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0
SHORTSPINE THORNY	0.0	0.0	0.0	0.0	0.0	10.0	0.0	110.0	78.0	167.1	90.0
OTHER ROCKFISH	14.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	12.2
OTHER ROUND FISH	0.0	0.0	0.0	1.2	0.0	12.6	1.0	414.0	17.0	18.0	20.2
TOTAL ROUND FISH	116.0	18.9	0.0	250.0	344.1	1769.6	1215.2	850.0	395.0	377.4	443.2
ARROWTOOTH FL	68.0	0.0	0.0	762.0	2229.4	0.0	262.0	342.0	81.0	41.4	45.0
FLATHEAD SOLE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4	0.0	0.0	0.0
REX SOLE	0.0	0.0	0.0	24.0	31.2	0.0	3.4	508.0	27.0	124.3	70.0
DOVER SOLE	0.0	0.0	0.0	0.0	1.2	20.0	11.4	440.0	172.0	487.1	146.0
PACIFIC HALIBUT	0.0	524.7	0.0	130.0	846.5	0.0	87.4	0.0	0.0	0.0	0.0
OTHER FLATFISH	0.0	16.9	0.0	56.8	81.8	0.0	0.0	14.0	0.4	5.1	4.0
TOTAL FLATFISH	68.0	541.6	0.0	972.8	3190.0	20.0	364.2	1310.4	280.4	658.0	265.0
SKATES	0.0	0.0	0.0	60.0	0.0	0.0	38.0	0.0	0.0	0.0	0.0
SPINY DOGFISH	0.0	0.0	0.0	8.8	0.0	0.0	11.6	0.0	0.0	0.0	0.0
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	0.0	11.1	0.0	11.0	15.3	0.0	12.8	4.0	0.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.7	0.0
SPOT SHRIMP	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	1.2
OTHER INVERTS	180.8	11.6	0.0	0.0	85.3	2.2	4.2	52.4	3.6	12.9	26.6
TOTAL INVERTS	180.8	11.6	0.0	0.0	85.3	4.2	4.2	52.4	4.0	14.6	27.8
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	364.8	583.1	0.0	1302.6	3634.7	1793.8	1646.0	2216.8	679.4	1050.0	736.0

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	34	35	36	37	38	39	40	41	42	43	44
MONTH/DAY/YEAR	7/30/93	7/30/93	7/31/93	7/31/93	7/31/93	7/31/93	7/31/93	7/31/93	7/31/93	8/ 1/93	8/ 1/93
LATITUDE START	55 34.4	55 33.8	55 38.7	55 37.7	55 38.3	55 39.7	55 41.7	55 44.2	55 44.7	56 55.5	56 52.2
LONGITUDE START	134 51.1	134 44.8	134 41.9	134 33.9	134 27.0	134 14.5	134 23.6	134 48.7	134 59.4	136 0.6	135 48.1
LATITUDE END	55 34.4	55 34.5	55 37.2	55 36.5	55 36.9	55 38.2	55 43.2	55 45.4	55 44.8	56 56.1	56 52.2
LONGITUDE END	134 54.1	134 41.8	134 41.3	134 32.3	134 25.3	134 13.2	134 24.7	134 50.4	134 58.4	136 0.6	135 50.0
LORAN START											
LORAN START											
LORAN END											
LORAN END											
GEAR DEPTH	137	156	115	124	119	117	102	114	107	106	82
DURATION IN HOURS	0.50	0.50	0.50	0.50	0.50	0.51	0.50	0.50	0.17	0.17	0.33
DISTANCE FISHED	1.69	1.83	1.56	1.49	1.66	1.63	1.60	1.53	0.58	0.53	1.04
PERFORMANCE / GEAR	0 /166	0 /160	0 /166	0 /166	0 /166	0 /166	0 /166	0 /166	0 /166	0 /166	0 /166
POLLOCK	60.0	40.0	94.2	317.0	205.0	67.6	0.0	279.0	0.0	1.8	3.3
PACIFIC COD	0.0	16.0	0.0	62.0	231.0	52.9	0.0	241.0	0.0	32.4	0.0
SABLEFISH	38.0	113.0	28.0	52.0	136.0	13.7	12.4	49.0	0.0	64.7	0.0
LINGCOD	0.0	0.0	0.0	29.0	0.0	102.9	0.0	0.0	646.5	176.5	53.0
PACIFIC OCN PERCH	258.0	23.0	248.0	185.0	63.6	63.7	3.0	35.0	29405.9	121.2	0.0
SHORTRAKER ROCKFSH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROUGHEYE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHARPCHIN ROCKFISH	6.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.7	0.0
REDSTRIPE ROCKFISH	3.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	6777.1	0.0	0.0
HARLEQUIN ROCKFISH	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0
SILVERGRAY ROCKFSH	54.0	0.0	62.0	192.0	86.0	182.4	676.0	41.0	1758.2	0.0	0.0
REDBANDED ROCKFISH	4.0	7.0	4.4	19.0	29.0	21.6	0.0	0.0	255.3	30.0	0.0
DUSKY ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHORTSPINE THORNY	96.0	90.0	1.0	10.0	0.8	0.0	0.0	3.0	28.2	38.2	1.8
OTHER ROCKFISH	18.0	0.0	0.0	17.0	0.0	0.0	0.0	0.0	368.8	29.4	0.0
OTHER ROUND FISH	121.8	30.2	259.8	242.4	129.0	44.7	69.2	172.8	17.1	5.9	2.7
TOTAL ROUND FISH	661.8	320.2	697.4	1127.4	880.4	549.6	760.6	822.6	39257.1	554.7	60.9
ARROWTOOTH FL	35.0	25.0	112.0	455.0	334.0	853.9	349.2	340.4	311.8	544.1	2800.0
FLATHEAD SOLE	0.0	0.0	1.2	11.0	7.0	3.7	3.8	3.2	0.0	0.0	0.0
REX SOLE	90.0	305.2	32.0	167.0	51.0	276.5	1.8	131.0	0.0	125.3	32.1
DOVER SOLE	116.0	498.0	55.0	205.0	60.0	296.9	0.0	58.0	56.5	0.0	0.0
PACIFIC HALIBUT	0.0	63.2	0.0	0.0	0.0	0.0	0.0	147.2	0.0	0.0	3.0
OTHER FLATFISH	1.6	3.0	0.0	18.6	2.4	13.7	0.4	13.2	227.1	0.0	7.3
TOTAL FLATFISH	242.6	894.4	200.2	856.6	454.4	1444.7	355.2	693.0	595.3	669.4	2842.4
SKATES	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0
SPINY DOGFISH	0.0	18.0	0.0	5.0	0.0	11.8	52.0	33.0	0.0	94.1	0.0
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	0.0	0.0	0.0	6.0	11.0	28.4	15.0	11.0	113.5	30.0	0.0
TANNER CRAB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	0.2	1.0	0.0	0.0	0.0	0.4	6.0	0.0	0.0	0.0	0.0
SPOT SHRIMP	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.2	14.7	0.0
OTHER INVERTS	11.2	34.2	5.0	30.4	11.4	29.0	158.4	80.2	5.9	5.9	9.7
TOTAL INVERTS	16.0	35.2	5.0	30.4	11.4	29.4	164.4	80.2	34.1	20.6	9.7
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	920.4	1267.8	902.6	2025.4	1357.2	2065.1	1347.2	1639.8	40000.0	1368.8	2913.0

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	45	46	47	48	49	50	51	52	53	54	55
MONTH/DAY/YEAR	8/ 2/93	8/ 2/93	8/ 2/93	8/ 3/93	8/ 3/93	8/ 4/93	8/ 4/93	8/ 4/93	8/ 4/93	8/ 4/93	8/ 5/93
LATITUDE START	55 51.0	55 55.4	55 51.8	55 49.8	56 1.6	55 58.5	56 5.2	56 9.7	56 5.8	56 1.7	55 56.0
LONGITUDE START	135 12.8	135 7.0	135 6.0	134 42.0	134 33.1	134 56.6	134 58.1	134 56.1	135 15.5	135 8.9	135 24.7
LATITUDE END	55 50.7	55 56.4	55 51.9	55 48.1	56 2.0	55 59.4	56 6.0	56 10.6	56 7.3	56 3.3	55 56.6
LONGITUDE END	135 12.7	135 8.0	135 3.7	134 40.8	134 32.5	134 56.8	134 58.3	134 55.8	135 17.0	135 9.2	135 25.3
LORAN START	14231.70	14260.10	14247.90	14284.60	14345.10		14455.70	14476.30	14426.20	14422.30	14369.40
LORAN START	27371.30	27373.30	27343.50	27212.00	27249.40		27553.20	27605.30	27665.80	27598.00	27462.30
LORAN END	14230.80	14261.90	14252.30		14347.70	14435.40	14458.50	14480.80	14429.50	14427.50	14370.20
LORAN END	27368.40	27384.30	27332.80		27249.60	27402.30	27553.50	27607.00	27680.10	27609.10	27469.00
GEAR DEPTH	113	104	103	100	260	198	176	102	185	213	182
DURATION IN HOURS	0.12	0.30	0.45	0.50	0.16	0.23	0.30	0.33	0.50	0.50	0.25
DISTANCE FISHED	0.31	0.97	1.28	1.46	0.49	0.65	0.86	0.95	1.39	1.61	0.65
PERFORMANCE / GEAR	6 /166	1 /166	0 /166	1 /166	0 /166	1 /166	1 /166	0 /166	1 /166	0 /166	0 /166
POLLOCK	11.7	20.0	13.3	233.2	47.5	15.7	6.7	37.6	0.0	5.0	0.0
PACIFIC COD	0.0	45.0	191.1	78.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SABLEFISH	0.0	33.3	0.0	9.0	561.3	26.1	253.3	0.0	35.0	19.4	0.0
LINGCOD	0.0	11.7	24.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PACIFIC OCN PERCH	85.0	30.0	102.2	0.0	40.0	102.2	460.0	1216.7	93.0	5.2	428.0
SHORTRAKER ROCKFSH	0.0	0.0	0.0	0.0	818.8	0.0	234.7	0.0	52.0	38.8	0.0
ROUGHEYE ROCKFISH	0.0	0.0	0.0	0.0	121.9	34.8	728.3	0.0	11.0	0.0	139.2
SHARPCHIN ROCKFISH	48.3	573.3	24.4	0.2	3.1	0.0	0.0	9.4	0.8	0.0	0.0
REDSTRIPE ROCKFISH	316.7	603.3	155.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	0.0	22.7	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILVERGRAY ROCKFISH	0.0	733.3	483.3	0.0	0.0	0.0	0.0	10.9	0.0	0.0	0.0
REDBANDED ROCKFISH	0.0	4.0	0.7	0.0	0.0	0.0	56.7	0.0	6.0	0.0	4.4
DUSKY ROCKFISH	0.0	86.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHORTSPINE THORNY	23.3	0.0	0.0	0.0	1568.8	456.5	343.3	0.0	166.0	245.0	232.0
OTHER ROCKFISH	0.0	61.0	46.7	25.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0
OTHER ROUNDFISH	0.0	0.3	0.2	0.0	8.1	0.0	0.0	0.3	6.4	10.6	3.2
TOTAL ROUNDFISH	485.0	2224.7	1048.7	345.4	3169.4	635.2	2083.0	1274.8	370.2	324.0	830.8
ARROWTOOTH FL	130.8	67.3	135.6	347.0	278.1	171.7	243.3	19.7	179.0	179.0	58.4
FLATHEAD SOLE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REX SOLE	6.7	43.3	8.9	50.0	13.8	223.9	20.0	0.0	113.0	33.0	24.0
DOVER SOLE	25.0	21.3	11.1	14.0	46.3	692.2	308.3	0.0	1087.0	166.0	162.0
PACIFIC HALIBUT	0.0	0.0	50.4	143.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER FLATFISH	5.0	2.0	24.4	0.8	0.0	0.0	0.0	0.0	2.8	0.0	4.4
TOTAL FLATFISH	167.5	134.0	230.4	555.2	338.1	1087.8	571.7	19.7	1381.8	378.0	248.8
SKATES	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	9.8	0.0	0.0
SPINY DOGFISH	29.2	30.7	0.0	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	0.0	0.0	57.8	15.0	13.1	0.0	0.0	0.0	0.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.4	0.0	0.0
SPOT SHRIMP	1.7	7.3	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER INVERTS	0.0	51.0	105.8	6.0	143.1	59.1	26.3	9.4	104.6	48.4	28.8
TOTAL INVERTS	1.7	58.3	109.1	6.2	143.1	59.1	26.3	9.4	105.0	48.4	28.8
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	683.3	2447.7	1446.0	939.8	3663.8	1782.2	2689.3	1303.9	1866.8	750.4	1108.4

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	56	57	58	59	60	61	62	63	64	65	66
MONTH/DAY/YEAR	8/ 5/93	8/ 5/93	8/ 5/93	8/ 5/93	8/ 5/93	8/ 6/93	8/ 6/93	8/ 6/93	8/ 6/93	8/ 6/93	8/ 6/93
LATITUDE START	56 2.7	56 11.6	56 17.8	56 15.4	56 18.1	56 27.6	56 22.4	56 26.4	56 34.9	56 36.6	56 42.8
LONGITUDE START	135 23.4	135 23.8	135 13.0	135 29.8	135 28.9	135 38.1	135 27.1	135 15.1	135 30.7	135 45.5	135 51.3
LATITUDE END	56 4.1	56 13.0	0 0.0	56 16.9	56 19.6	56 28.9	56 22.7	56 27.2	56 35.0	56 38.0	56 44.0
LONGITUDE END	135 24.4	135 25.1	0 0.0	135 30.8	135 29.5	135 39.2	135 27.5	135 16.6	135 30.8	135 46.8	135 51.8
LORAN START	14258.20	14292.80		14296.80	14309.90	14331.80	14330.30	14369.90	14376.70	14355.90	14372.20
LORAN START	27503.20	27568.70		27624.40	27641.00	27757.20	27665.00	27641.10	27781.40	27862.70	27940.10
LORAN END	14261.40	14295.90		14301.00	14314.60	14335.00	14330.90	14370.30	14376.70	14359.60	14375.90
LORAN END	27517.60	27584.30		27640.60	27655.10	27772.70	27670.20	27653.90	27782.10	27880.40	27952.00
GEAR DEPTH	176	118	85	114	106	114	96	65	75	118	119
DURATION IN HOURS	0.50	0.50	0.00	0.50	0.50	0.50	0.10	0.38	0.00	0.50	0.40
DISTANCE FISHED	1.49	1.50	0.00	1.62	1.51	1.45	0.42	1.15	0.06	1.59	1.18
PERFORMANCE / GEAR	0 /166	0 /166	7 /166	0 /166	0 /160	0 /160	6 /160	0 /160	6 /160	0 /160	0 /160
POLLOCK	0.0	170.0	0.0	20.0	13.2	137.0	0.0	3.9	0.0	304.0	22.5
PACIFIC COD	0.0	14.4	0.0	26.0	0.0	0.0	0.0	0.0	0.0	44.0	0.0
SABLEFISH	798.0	23.6	0.0	29.0	23.0	0.0	0.0	0.0	0.0	8.0	0.0
LINGCOD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.0	0.0
PACIFIC OCN PERCH	7336.8	297.0	0.0	1292.0	1621.0	507.0	122.0	0.0	0.0	82.0	21.7
SHORTRAKER ROCKFSH	49.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROUGHEYE ROCKFISH	414.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHARPCHIN ROCKFISH	0.0	795.0	0.0	201.0	233.0	45.0	58.0	0.0	0.0	8.0	2.0
REDSTRIPE ROCKFISH	0.0	451.0	0.0	0.0	91.0	0.0	57.0	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	0.0	3.0	0.0	7.0	43.0	0.8	3.0	0.0	0.0	1.0	0.0
SILVERGRAY ROCKFSH	0.0	4.4	0.0	8.0	58.0	25.0	0.0	0.0	0.0	248.0	40.0
REDBANDED ROCKFISH	33.8	4.4	0.0	19.0	4.0	1.2	0.0	0.0	0.0	5.4	4.5
DUSKY ROCKFISH	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
SHORTSPINE THORNY	436.8	60.0	0.0	44.0	33.0	15.4	0.0	0.0	0.0	62.0	11.3
OTHER ROCKFISH	0.0	1.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER ROUND FISH	7.8	6.6	0.0	2.2	5.4	20.2	5.0	0.0	0.0	108.2	68.3
TOTAL ROUND FISH	9076.6	1830.4	0.0	1648.2	2136.6	751.6	245.0	3.9	0.0	915.6	170.3
ARROWTOOTH FL	1168.0	4.2	0.0	172.0	91.0	179.0	25.0	181.6	0.0	417.0	115.0
FLATHEAD SOLE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REX SOLE	7.0	28.0	0.0	24.0	59.0	2.4	0.0	2.1	0.0	5.2	6.8
DOVER SOLE	51.0	48.6	0.0	46.0	112.0	9.0	0.0	0.0	0.0	5.6	11.3
PACIFIC HALIBUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	203.4	0.0	0.0	0.0
OTHER FLATFISH	0.0	0.0	0.0	0.6	1.0	0.0	0.0	41.8	0.0	0.0	0.0
TOTAL FLATFISH	1226.0	80.8	0.0	242.6	263.0	190.4	25.0	428.9	0.0	427.8	133.0
SKATES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SPINY DOGFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
SPOT SHRIMP	0.0	0.8	0.0	0.6	0.4	0.4	2.0	0.0	0.0	3.0	0.5
OTHER INVERTS	57.4	13.8	0.0	6.4	3.4	2.6	1.0	7.1	0.0	1.4	0.3
TOTAL INVERTS	57.4	14.6	0.0	7.0	3.8	3.0	3.0	7.1	0.0	4.6	0.8
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	10360.0	1925.8	0.0	1897.8	2403.4	945.0	273.0	440.0	0.0	1348.0	304.0

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	67	68	69	70	71	72	73	74	75	76	77
MONTH/DAY/YEAR	8/ 7/93	8/ 7/93	8/ 7/93	8/ 7/93	8/ 8/93	8/ 8/93	8/ 8/93	8/ 8/93	8/ 8/93	8/ 8/93	8/ 9/93
LATITUDE START	56 45.5	57 9.6	57 9.3	57 29.5	57 29.9	57 40.7	57 49.3	57 50.7	57 54.3	57 50.2	57 57.6
LONGITUDE START	135 53.3	136 5.7	136 10.6	136 30.2	136 15.8	136 30.1	136 48.3	136 53.3	136 55.2	137 4.8	137 34.6
LATITUDE END	56 46.8	57 10.8	57 10.5	57 30.9	57 30.9	57 41.4	57 50.3	57 52.1	57 55.1	57 50.4	57 56.3
LONGITUDE END	135 55.0	136 7.6	136 12.5	136 31.3	136 18.1	136 31.3	136 49.3	136 53.6	136 56.2	137 7.8	137 33.6
LORAN START	14379.50	14465.60	14455.40	14515.00	14543.70	14570.60	14580.60	14578.40	14593.70	14554.10	14535.80
LORAN START	27972.00	28230.90	28249.80	28512.90	28455.40	28614.20	28768.20	28801.40	28842.70	28844.20	29033.40
LORAN END	14382.20	14467.70	14457.30	14520.00	14544.20	14571.60	14583.40	14584.90	14595.90	14549.80	14530.00
LORAN END	27989.20	28250.00	28269.10	28530.20	28474.10	28624.90	28780.50	28815.20	28854.00	28858.50	29017.30
GEAR DEPTH	118	98	114	113	65	78	98	237	249	231	98
DURATION IN HOURS	0.50	0.50	0.50	0.50	0.52	0.25	0.36	0.43	0.27	0.50	0.28
DISTANCE FISHED	1.52	1.62	1.59	1.53	1.60	0.72	1.02	1.35	0.95	1.61	0.88
PERFORMANCE / GEAR	0 /160	0 /160	0 /160	0 /160	0 /160	1 /160	1 /160	0 /160	0 /160	0 /160	1 /160
POLLOCK	45.0	46.4	47.2	74.0	0.0	369.2	48.6	0.0	0.0	21.0	3.9
PACIFIC COD	10.8	120.0	68.0	418.0	0.0	0.0	16.1	0.0	0.0	0.0	0.0
SABLEFISH	20.0	160.0	9.8	48.0	0.0	0.0	0.0	175.1	1183.3	1097.0	35.7
LINGCOD	31.0	110.0	0.0	215.0	0.0	132.0	33.3	0.0	0.0	0.0	0.0
PACIFIC OCN PERCH	150.0	0.0	152.0	976.4	0.0	0.0	126.4	0.0	0.0	0.0	4.3
SHORTTRAKER ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	162.8	25.9	189.0	0.0
ROUGHEYE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.2	55.6	14.0	0.0
SHARPCHIN ROCKFISH	161.0	0.0	76.0	566.0	0.0	0.0	3.1	0.0	0.0	0.0	303.6
REDSTRIPE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	4.4	0.0	1.4	1.2	0.0	1.2	4.2	0.0	0.0	0.0	29.3
SILVERGRAY ROCKFISH	0.0	19.8	0.0	133.0	0.0	11.2	0.0	0.0	0.0	0.0	10.7
REDBANDED ROCKFISH	3.6	13.0	4.0	27.2	0.0	0.0	0.0	0.0	0.0	0.0	8.6
DUSKY ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	203.6
SHORTSPINE THORNY	108.0	0.0	12.8	71.0	0.0	0.0	0.0	150.2	248.1	111.0	0.0
OTHER ROCKFISH	0.0	0.0	14.6	22.4	0.0	27.2	5.3	0.0	0.0	0.0	70.7
OTHER ROUND FISH	12.8	0.0	2.2	10.6	0.6	0.0	0.8	246.5	441.1	68.0	1.1
TOTAL ROUND FISH	546.6	469.2	388.0	2562.8	0.6	540.8	237.8	771.9	1954.1	1500.0	671.4
ARROWTOOTH FL	526.0	1781.0	83.0	222.0	19.6	8.0	191.7	87.2	105.6	173.0	66.1
FLATHEAD SOLE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REX SOLE	17.2	142.0	3.2	33.0	6.7	2.0	7.2	27.0	107.4	9.0	9.3
DOVER SOLE	16.6	1.8	0.0	4.8	0.0	0.0	3.1	159.3	290.7	31.0	0.0
PACIFIC HALIBUT	0.0	131.8	155.2	438.0	450.2	283.2	217.5	0.0	0.0	0.0	0.0
OTHER FLATFISH	0.0	13.4	0.0	19.0	410.2	8.8	7.8	0.0	0.0	0.0	1.4
TOTAL FLATFISH	559.8	2070.0	241.4	716.8	886.7	302.0	427.2	273.5	503.7	213.0	76.8
SKATES	0.0	0.0	0.0	65.8	0.0	0.0	0.0	8.1	0.0	0.0	0.0
SPINY DOGFISH	7.8	15.0	0.0	0.0	0.0	0.0	13.9	0.0	0.0	0.0	7.9
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	581.4	0.0	0.0	0.0
RATFISH	0.0	0.0	1.0	19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SPOT SHRIMP	5.0	0.0	3.2	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER INVERTS	34.0	4.2	6.8	142.2	5.0	27.2	4.7	33.5	167.0	15.6	23.2
TOTAL INVERTS	39.0	4.2	10.0	173.2	5.0	27.2	4.7	33.5	167.0	15.6	23.2
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	1153.2	2558.4	640.4	3537.6	892.3	870.0	683.6	1668.4	2624.8	1728.6	779.3

MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	78	79	80	81	82	83	84	85	86	87	88
MONTH/DAY/YEAR	8/ 9/93	8/ 9/93	8/ 9/93	8/ 9/93	8/10/93	8/10/93	8/10/93	8/10/93	8/10/93	8/11/93	8/11/93
LATITUDE START	57 58.5	57 55.2	58 15.2	58 18.2	58 7.9	58 2.7	58 8.7	58 15.4	58 22.3	58 30.3	58 30.8
LONGITUDE START	137 12.7	137 3.9	137 49.6	138 9.7	138 4.4	138 22.9	138 38.8	138 43.0	138 24.6	139 18.2	139 37.7
LATITUDE END	57 57.1	57 54.3	58 16.7	58 18.1	58 6.5	58 2.2	58 9.4	58 14.7	58 23.1	58 31.0	58 29.4
LONGITUDE END	137 13.5	137 1.4	137 50.3	138 6.8	138 5.9	138 21.6	138 36.7	138 45.3	138 22.4	139 20.9	139 36.0
LORAN START	14582.80	14582.20	14602.90	14580.30	14532.20	14464.20	14464.60	14494.80	14574.10	14507.40	14466.40
LORAN START	28952.90	28886.80	29254.90	29362.60	29246.80	29273.40	29390.40	29467.90	29458.90	29770.30	29815.40
LORAN END	14573.80	14582.30	14610.50	14585.80	14521.30	14464.10	14472.90	14485.50	14583.40	14505.90	14461.40
LORAN END	28942.60	28868.60	29272.30	29350.30	29240.10	29263.90	29388.40	29469.80	29457.80	29753.80	29795.60
GEAR DEPTH	125	241	88	73	82	130	96	87	71	81	146
DURATION IN HOURS	0.47	0.50	0.52	0.50	0.50	0.18	0.42	0.52	0.47	0.50	0.50
DISTANCE FISHED	1.48	1.60	1.61	1.54	1.58	0.51	1.27	1.44	1.44	1.58	1.72
PERFORMANCE / GEAR	1 /160	0 /160	0 /160	0 /160	0 /160	1 /160	0 /160	0 /160	1 /160	0 /160	0 /160
POLLOCK	29.1	0.0	36.5	19.4	0.0	27.8	7.4	15.0	14.9	13.0	469.0
PACIFIC COD	0.0	0.0	0.0	186.6	248.0	0.0	0.0	0.0	45.7	53.0	18.4
SABLEFISH	20.2	763.0	0.0	4.0	7.2	36.1	0.0	0.0	5.3	0.0	229.0
LINGCOD	0.0	0.0	0.0	69.0	202.0	210.0	25.0	32.7	46.8	104.0	101.0
PACIFIC OCN PERCH	196.8	0.0	249.6	0.0	0.0	372.2	7.9	0.0	0.0	0.0	2432.0
SHORTTRAKER ROCKFSH	0.0	278.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0
ROUGHEYE ROCKFISH	0.4	9.4	0.2	0.0	0.0	0.0	0.2	0.0	0.4	0.0	0.0
SHARPCHIN ROCKFISH	104.3	0.0	0.0	0.0	0.0	227.8	3.6	0.0	0.0	0.0	1.4
REDSTRIPE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	0.0	0.0	0.0	0.0	0.0	31.1	0.0	0.0	1.5	0.0	0.0
SILVERGRAY ROCKFSH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REDBANDED ROCKFISH	50.2	2.8	8.1	0.0	0.0	36.1	0.0	0.0	0.0	0.0	0.0
DUSKY ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHORTSPINE THORNY	33.0	110.0	0.0	0.0	0.0	7.8	0.0	0.0	0.0	0.0	105.0
OTHER ROCKFISH	0.0	0.0	0.0	0.0	0.0	11.7	0.0	0.0	0.0	0.0	4.2
OTHER ROUND FISH	12.6	358.0	151.9	73.8	32.2	0.0	0.2	17.7	26.6	0.2	49.0
TOTAL ROUND FISH	446.6	1522.0	446.3	352.8	489.4	960.6	44.3	65.4	141.3	170.2	3484.0
ARROWTOOTH FL	28.1	32.0	300.0	1496.6	1480.0	10.0	75.7	63.5	1327.7	1047.0	1129.0
FLATHEAD SOLE	0.0	0.0	17.9	0.0	0.0	0.0	0.0	0.0	10.6	0.0	12.0
REX SOLE	0.0	11.0	2.5	6.0	23.2	3.9	3.3	7.7	46.8	45.6	57.0
DOVER SOLE	11.7	407.0	26.0	16.4	8.4	0.0	0.0	0.0	26.0	0.6	589.0
PACIFIC HALIBUT	0.0	0.0	0.0	620.8	443.6	0.0	117.4	176.0	41.3	155.0	268.6
OTHER FLATFISH	0.9	0.0	0.8	8.0	12.4	1.7	0.0	0.0	0.0	4.4	2.6
TOTAL FLATFISH	40.6	450.0	347.1	2147.8	1967.6	15.6	196.4	247.1	1452.3	1252.6	2058.2
SKATES	1.9	22.4	44.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.0
SPINY DOGFISH	0.0	0.0	38.5	77.0	0.0	0.0	0.0	0.0	134.0	5.4	0.0
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.2	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.2
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	2.1	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
SPOT SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER INVERTS	43.4	21.0	24.0	85.6	99.4	26.1	9.0	26.2	86.4	36.8	16.2
TOTAL INVERTS	45.5	21.0	29.0	85.8	99.8	26.1	9.0	26.2	86.4	36.8	17.0
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	534.7	2015.4	905.8	2663.4	2556.8	1002.2	249.8	338.7	1814.0	1465.0	5600.2

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	89	90	91	92	93	94	95	96	97	98	99
MONTH/DAY/YEAR	8/11/93	8/11/93	8/11/93	8/12/93	8/12/93	8/12/93	8/12/93	8/12/93	8/13/93	8/13/93	8/13/93
LATITUDE START	58 34.0	58 39.3	58 39.2	59 0.8	59 3.0	58 48.0	58 42.6	58 39.0	59 5.9	58 49.3	58 35.8
LONGITUDE START	139 35.1	139 32.4	139 27.3	138 36.8	139 6.6	139 0.5	139 4.2	139 12.3	140 46.7	140 39.5	140 1.5
LATITUDE END	58 32.2	58 40.2	58 39.7	58 59.5	59 1.9	58 47.0	58 41.6	58 38.2	59 5.6	58 47.2	58 36.6
LONGITUDE END	139 35.0	139 29.7	139 24.0	138 35.4	139 8.6	139 3.3	139 6.7	139 15.2	140 45.0	140 38.9	140 4.3
LORAN START	14492.50	14532.50		14785.40	14741.50	14657.00	14615.10	14574.70	14537.40	14439.00	14442.40
LORAN START	29834.50	29873.40		29867.40	29999.30	29834.90	29798.60	29795.30	30382.90	30205.30	29948.40
LORAN END	14481.80	14544.70	14553.60	14779.80	14730.10	14645.30	14603.60	14563.90	14539.00	14426.10	14440.70
LORAN END	29818.00	29872.10	29845.30	29849.30	29995.90	29836.50	29798.40	29799.30	30374.00	30184.20	29965.20
GEAR DEPTH	144	120	138	79	52	121	123	130	91	109	122
DURATION IN HOURS	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.20	0.50	0.50
DISTANCE FISHED	1.71	1.70	1.77	1.51	1.52	1.72	1.62	1.67	0.57	1.58	1.63
PERFORMANCE / GEAR	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	1 /160	1 /160	0 /160
POLLOCK	50.0	19.6	55.0	66.0	37.8	242.0	187.0	58.6	6.5	73.0	60.6
PACIFIC COD	0.0	0.0	0.0	0.0	0.0	0.0	66.0	0.0	0.0	235.0	55.0
SABLEFISH	349.0	68.8	373.6	0.0	0.0	523.4	131.8	77.4	0.0	58.0	162.0
LINGCOD	24.0	29.0	0.0	70.0	27.0	0.0	44.0	24.0	0.0	42.2	119.0
PACIFIC OCN PERCH	2238.0	1794.0	356.0	0.0	0.0	29.6	391.6	138.0	0.0	20.0	983.0
SHORTRAKER ROCKFSH	31.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROUGHEYE ROCKFISH	49.0	29.0	466.0	0.0	4.0	21.0	78.2	9.8	0.0	2.8	0.2
SHARPCHIN ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	6.0	0.6	22.0
REDSTRIPE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0
SILVERGRAY ROCKFSH	0.0	0.0	0.0	0.0	0.0	0.0	19.0	0.0	0.0	0.0	0.0
REDBANDED ROCKFISH	1.2	73.0	10.0	0.0	0.0	29.0	143.0	57.0	0.0	0.0	2.6
DUSKY ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	305.0	0.0	0.0
SHORTSPINE THORNY	116.4	171.0	236.0	87.0	0.0	139.0	111.0	65.0	0.0	0.0	13.6
OTHER ROCKFISH	18.0	54.0	46.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	1.4
OTHER ROUND FISH	36.4	192.0	42.0	35.0	66.8	527.0	91.8	76.6	33.5	4.0	2.2
TOTAL ROUND FISH	2913.2	2430.4	1584.6	258.0	135.6	1511.0	1264.6	526.0	351.0	444.2	1421.6
ARROWTOOTH FL	1104.0	848.0	1108.0	1176.0	932.0	2165.0	1070.0	950.0	117.5	431.4	346.0
FLATHEAD SOLE	32.4	34.8	122.0	84.0	7.8	75.0	46.0	124.0	0.0	0.0	0.0
REX SOLE	29.0	60.0	113.0	4.4	1.2	177.0	115.0	61.4	7.5	20.0	81.0
DOVER SOLE	622.0	327.0	780.0	273.0	5.6	346.0	725.0	453.0	12.5	0.0	47.0
PACIFIC HALIBUT	0.0	0.0	21.8	0.0	0.0	12.4	29.2	0.0	0.0	318.0	214.4
OTHER FLATFISH	2.4	9.0	7.0	2.2	0.0	1.2	4.6	4.0	1.5	0.0	2.8
TOTAL FLATFISH	1789.8	1278.8	2151.8	1539.6	946.6	2776.6	1989.8	1592.4	139.0	769.4	691.2
SKATES	8.0	62.0	45.6	0.0	142.4	53.0	38.4	5.0	0.0	30.0	46.4
SPINY DOGFISH	0.0	0.0	0.0	66.0	381.4	14.0	2.6	0.0	0.0	0.0	0.0
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	0.0	0.0	1.0	1.0	0.0	4.0	6.0	1.0	0.0	0.0	0.0
SPOT SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER INVERTS	28.2	20.6	61.8	15.8	21.2	18.2	30.0	26.2	95.5	103.8	47.0
TOTAL INVERTS	28.2	20.6	62.8	16.8	21.2	22.2	36.2	27.6	95.5	103.8	47.0
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	4739.2	3791.8	3844.8	1880.4	1627.2	4376.8	3331.6	2151.0	585.5	1347.4	2206.2

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	100	101	102	103	104	105	106	107	108	109	110
MONTH/DAY/YEAR	8/14/93	8/14/93	8/14/93	8/14/93	8/14/93	8/18/93	8/18/93	8/18/93	8/18/93	8/19/93	8/19/93
LATITUDE START	58 1.4	58 2.8	58 1.8	58 4.6	58 3.3	58 6.9	58 14.6	58 19.9	58 31.9	58 48.5	58 50.5
LONGITUDE START	136 52.4	137 0.8	137 10.0	137 2.1	136 51.1	136 54.5	136 55.3	137 32.6	137 54.5	140 6.0	139 29.8
LATITUDE END	57 59.9	58 1.7	58 0.5	58 3.6	58 2.3	58 5.6	58 15.9	58 19.0	58 31.0	58 48.5	58 49.4
LONGITUDE END	136 52.0	137 3.0	137 12.1	137 1.1	136 50.3	136 55.6	136 56.9	137 35.3	137 57.1	140 6.0	139 30.8
LORAN START	14638.80		14605.40	14635.50	14648.40	14661.10	14700.60	14662.30	14689.70	14515.10	14610.50
LORAN START	28898.20		28972.00	28967.40	28910.30	28957.10	29032.70	29232.10	29431.10	30080.10	29966.80
LORAN END	14629.30		14595.00	14631.80	14644.70	14652.50	14704.90	14652.30	14679.80	14517.60	14601.90
LORAN END	28881.50		28969.20	28953.70	28898.30	28950.00	29051.20	29234.10	29432.60	30084.10	29961.40
GEAR DEPTH	219	210	96	182	192	150	77	103	77	95	81
DURATION IN HOURS	0.50	0.50	0.50	0.33	0.33	0.50	0.52	0.50	0.50	0.03	0.42
DISTANCE FISHED	1.54	1.58	1.66	1.15	1.05	1.41	1.56	1.65	1.61	0.04	1.16
PERFORMANCE / GEAR	0 /160	0 /160	0 /160	0 /160	0 /160	7 /160	0 /160	0 /160	0 /160	6 /160	0 /160
POLLOCK	5.6	8.4	8.4	171.2	10.9	51.0	6.9	167.0	23.0	0.0	2.4
PACIFIC COD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3
SABLEFISH	1670.0	2248.0	34.4	1436.4	7251.5	3677.8	47.1	61.2	0.0	0.0	0.0
LINGCOD	0.0	0.0	189.0	0.0	0.0	0.0	62.5	0.0	0.0	0.0	0.0
PACIFIC OCN PERCH	0.0	0.0	893.0	11.2	3.0	8.8	2.3	16.6	3.8	0.0	0.0
SHORTAKER ROCKFSH	100.0	110.0	0.0	645.5	625.8	46.8	0.0	0.0	0.0	0.0	0.0
ROUGHEYE ROCKFISH	70.0	15.0	3.0	137.9	243.9	48.8	8.1	20.6	2.4	0.0	2.6
SHARPCHIN ROCKFISH	0.0	0.0	140.6	0.0	0.0	1.6	0.0	0.0	1.8	0.0	1.4
REDSTRIPE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	0.0	0.0	0.0	0.0	1.5	0.0	0.4	0.0	0.0	0.0	1.4
SILVERGRAY ROCKFSH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REDBANDED ROCKFISH	0.0	0.0	203.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0
DUSKY ROCKFISH	0.0	0.0	14.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	716.9
SHORTSPINE THORNY	318.0	207.0	37.0	112.1	119.7	291.0	0.0	13.0	0.0	0.0	0.0
OTHER ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER ROUND FISH	1012.4	310.8	68.2	212.7	351.5	12.6	24.2	14.6	53.6	0.0	124.0
TOTAL ROUND FISH	3176.0	2899.2	1591.4	2727.0	8607.9	4142.0	151.5	293.0	84.6	0.0	862.1
ARROWTOOTH FL	109.0	241.0	664.0	572.7	612.1	2120.0	2261.2	156.0	439.0	0.0	291.7
FLATHEAD SOLE	0.0	0.0	0.0	0.0	0.0	5.0	25.4	6.8	0.4	0.0	5.7
REX SOLE	84.0	12.0	0.0	17.0	62.1	19.2	1.2	0.0	0.0	0.0	2.9
DOVER SOLE	2633.0	1147.0	68.0	556.1	2106.1	3040.0	401.9	2.6	65.0	0.0	20.2
PACIFIC HALIBUT	41.0	0.0	59.2	36.1	0.0	0.0	0.0	0.0	0.0	0.0	42.9
OTHER FLATFISH	0.0	0.0	3.6	0.0	0.0	0.0	8.1	1.4	0.0	0.0	0.0
TOTAL FLATFISH	2867.0	1400.0	794.8	1181.8	2780.3	5184.2	2697.7	166.8	504.4	0.0	363.3
SKATES	143.0	70.0	1.6	0.0	63.6	88.4	156.7	0.0	0.0	0.0	0.0
SPINY DOGFISH	0.0	0.0	6.2	0.0	0.0	0.0	207.7	19.2	51.0	0.0	15.5
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	0.0	0.0	0.0	0.0	0.0	0.0	140.4	0.0	29.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	4.4	0.0	9.0	0.0	2.4	0.0	5.6	0.0	0.0	0.0	0.0
SPOT SHRIMP	0.0	0.0	1.2	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
OTHER INVERTS	143.2	68.4	23.8	26.4	15.2	87.0	2.1	13.8	20.6	0.0	52.4
TOTAL INVERTS	147.6	68.4	34.0	26.4	17.6	87.0	8.5	14.2	20.8	0.0	52.4
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	6333.6	4437.6	2428.0	3935.2	11469.4	9501.6	3362.5	493.2	689.8	0.0	1293.3

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	111	112	113	114	115	116	117	118	119	120	121
MONTH/DAY/YEAR	8/19/93	8/19/93	8/20/93	8/20/93	8/20/93	8/20/93	8/20/93	8/21/93	8/21/93	8/21/93	8/21/93
LATITUDE START	58 49.8	58 32.9	59 16.2	59 11.3	59 6.9	59 17.1	59 22.7	59 24.9	59 29.2	59 30.6	59 29.2
LONGITUDE START	139 20.5	139 53.6	139 25.0	139 54.5	140 13.0	140 25.2	140 53.4	140 48.9	140 42.2	140 32.5	140 19.7
LATITUDE END	58 48.8	58 32.4	59 14.7	59 10.3	59 6.2	59 15.8	59 21.7	59 23.9	59 28.1	59 29.6	59 28.4
LONGITUDE END	139 21.7	139 55.2	139 24.3	139 56.1	140 12.9	140 23.5	140 50.9	140 47.1	140 40.1	140 30.9	140 17.8
LORAN START	14626.80	14442.70	14792.50	14696.80	14625.00	14669.10	14643.80	14670.70	14718.40	14750.70	14769.70
LORAN START	29926.60	29892.80	30192.70	30252.40	30276.50	30414.50	30563.00	30568.20	30586.70	30567.40	30511.10
LORAN END	14617.60	14435.10	14784.00	14686.90	14620.20	14663.70	14642.30	14667.60	14715.00	14746.90	14767.50
LORAN END	29921.70	29893.20	30176.40	30248.50	30269.30	30396.10	30545.10	30553.20	30569.20	30552.40	30496.90
GEAR DEPTH	78	113	62	55	70	70	94	84	159	143	133
DURATION IN HOURS	0.38	0.23	0.50	0.42	0.25	0.50	0.50	0.45	0.50	0.50	0.50
DISTANCE FISHED	1.21	0.77	1.48	1.26	0.74	1.58	1.64	1.33	1.54	1.30	1.23
PERFORMANCE / GEAR	1 /160	7 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160
POLLOCK	2.6	5.7	71.6	2.9	0.0	5.0	0.4	2.2	123.0	154.0	351.0
PACIFIC COD	0.0	102.2	0.0	6.2	34.0	39.6	0.0	0.0	0.0	0.0	0.0
SABLEFISH	0.0	0.0	0.0	0.0	0.0	37.0	3.2	9.8	529.0	441.0	294.6
LINGCOD	52.1	87.0	0.0	8.3	0.0	36.0	0.0	0.0	0.0	22.0	0.0
PACIFIC OCN PERCH	0.0	65.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	2.0
SHORTRAKER ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.0	33.0	0.0
ROUGHEYE ROCKFISH	5.8	0.0	0.0	0.5	0.0	1.6	5.0	0.0	41.0	15.2	0.0
SHARPCHIN ROCKFISH	0.0	669.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REDSTRIPE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	0.0	27.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILVERGRAY ROCKFISH	0.0	113.0	0.0	0.0	0.0	0.0	0.0	18.9	0.0	0.0	0.0
REDBANDED ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DUSKY ROCKFISH	181.6	652.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHORTSPINE THORNY	0.0	8.3	1.6	0.0	0.0	0.0	0.0	0.0	170.0	259.0	109.0
OTHER ROCKFISH	0.0	28.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER ROUNDFISH	107.1	5.2	140.6	25.0	8.0	11.2	50.0	34.0	4.4	0.2	1.4
TOTAL ROUNDFISH	349.2	1764.3	213.8	42.9	42.0	130.4	58.6	64.9	940.4	926.8	758.0
ARROWTOOTH FL	582.9	206.5	598.8	269.0	20.4	1296.0	176.0	177.8	291.0	944.6	1310.0
FLATHEAD SOLE	14.2	0.0	8.4	0.0	0.0	0.8	5.0	8.4	442.0	148.0	165.0
REX SOLE	1.1	28.3	1.8	1.2	4.0	1.0	8.6	12.4	153.0	133.0	224.0
DOVER SOLE	27.9	0.0	8.0	0.0	0.0	0.0	0.0	27.1	548.0	443.0	168.0
PACIFIC HALIBUT	39.5	0.0	0.0	66.7	2.0	255.6	64.8	150.0	48.8	155.6	0.0
OTHER FLATFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
TOTAL FLATFISH	665.5	234.8	617.0	336.9	26.4	1553.4	254.8	375.8	1482.8	1824.2	1867.0
SKATES	0.0	0.0	5.0	0.0	0.0	0.0	1.6	0.0	0.0	50.2	15.4
SPINY DOGFISH	12.4	0.0	984.6	29.8	0.0	0.0	0.0	0.0	0.0	0.0	6.4
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	118.0	190.0
RATFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.4	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.0	1.2
SPOT SHRIMP	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
OTHER INVERTS	48.7	265.2	140.6	25.2	16.8	26.4	62.0	11.3	48.2	183.0	166.2
TOTAL INVERTS	48.7	265.2	141.0	25.2	18.0	26.4	63.6	11.3	59.4	183.0	167.4
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	1075.8	2264.3	1961.4	434.8	86.4	1710.2	378.6	452.0	2482.6	3102.2	3004.2

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	122	123	124	125	126	127	128	129	130	131	132
MONTH/DAY/YEAR	8/21/93	8/21/93	8/22/93	8/22/93	8/22/93	8/22/93	8/22/93	8/23/93	8/23/93	8/23/93	8/23/93
LATITUDE START	59 34.8	59 34.6	59 42.6	59 34.8	59 32.7	59 25.7	59 28.1	59 23.2	59 17.4	59 16.6	59 6.6
LONGITUDE START	140 36.2	140 46.0	141 15.0	141 24.4	141 17.9	140 59.3	141 6.0	141 19.0	141 20.1	141 1.5	141 14.7
LATITUDE END	59 33.6	59 33.4	59 42.6	59 34.9	59 32.7	59 25.4	59 27.1	59 23.6	59 17.3	59 16.9	59 8.1
LONGITUDE END	140 34.3	140 44.0	141 18.4	141 27.5	141 21.0	141 2.4	141 8.3	141 21.9	141 23.1	141 4.4	141 16.1
LORAN START	14773.70	14750.30	14743.80	14659.80	14659.80	14651.90	14654.20	14584.20	14537.40	14578.70	14471.60
LORAN START	30619.90	30651.60	30822.50	30777.80	30737.50	30610.80	30655.60	30651.10	30600.10	30532.20	30483.00
LORAN END	14769.00	14746.30	14735.40	14652.10	14651.80	14642.80	14640.30	14579.50	14528.80	14574.20	14478.70
LORAN END	30602.10	30633.40	30832.60	30787.90	30746.70	30618.50	30652.70	30663.80	30608.80	30545.20	30501.10
GEAR DEPTH	132	144	24	61	75	158	174	184	188	87	161
DURATION IN HOURS	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.48
DISTANCE FISHED	1.55	1.58	1.69	1.59	1.54	1.59	1.61	1.52	1.56	1.52	1.63
PERFORMANCE / GEAR	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160
POLLOCK	232.0	233.0	625.4	9.0	131.0	241.0	73.0	15.0	116.0	50.4	191.7
PACIFIC COD	0.0	0.0	154.6	0.0	0.0	7.6	0.0	0.0	0.0	1.8	0.0
SABLEFISH	210.0	136.8	0.0	3.0	13.4	93.0	1329.6	2100.0	698.0	48.0	81.3
LINGCOD	23.6	0.0	68.6	78.0	0.0	0.0	0.0	0.0	0.0	96.0	0.0
PACIFIC OCN PERCH	6.6	0.0	0.0	0.0	0.0	54.6	0.0	0.0	2.8	4.2	113.5
SHORTRAKER ROCKFISH	0.0	33.2	0.0	0.0	0.0	387.0	81.6	21.2	0.0	0.0	0.0
ROUGHEYE ROCKFISH	25.0	13.8	0.0	0.8	0.0	90.6	11.2	0.0	9.6	0.0	0.4
SHARPCHIN ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REDSTRIPE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILVERGRAY ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REDBANDED ROCKFISH	3.2	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DUSKY ROCKFISH	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHORTSPINE THORNY	366.0	247.0	0.0	0.0	0.8	280.4	348.0	270.0	287.0	1.6	79.0
OTHER ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	108.3
OTHER ROUND FISH	5.0	2.4	114.8	19.4	35.8	51.4	1.0	2.8	17.6	3.8	0.0
TOTAL ROUND FISH	871.4	677.0	963.4	110.2	181.0	1205.6	1844.4	2409.0	1131.0	205.8	574.2
ARROWTOOTH FL	366.0	427.0	219.0	492.0	604.0	666.8	606.6	215.0	205.0	577.0	117.7
FLATHEAD SOLE	112.0	257.0	0.0	72.0	104.0	47.0	31.0	0.0	0.0	0.0	16.5
REX SOLE	265.0	258.0	57.0	2.0	3.8	172.0	86.0	51.0	41.0	21.0	50.4
DOVER SOLE	36.0	475.0	7.6	24.0	151.0	59.0	550.0	1055.0	753.0	0.0	145.4
PACIFIC HALIBUT	71.4	0.0	24.6	38.4	0.0	0.0	336.6	0.0	0.0	120.8	0.0
OTHER FLATFISH	0.4	0.0	205.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
TOTAL FLATFISH	850.8	1417.0	513.2	628.4	862.8	944.8	1610.2	1321.0	999.0	718.8	336.0
SKATES	0.0	91.0	387.6	0.0	2.0	0.0	61.0	17.0	34.0	32.0	0.0
SPINY DOGFISH	23.0	4.6	418.0	46.0	72.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER ELASMOBRH	0.0	450.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.8	0.0	0.0	0.0
SPOT SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER INVERTS	176.8	101.0	1.4	0.6	9.2	24.0	21.8	25.6	40.2	108.0	8.8
TOTAL INVERTS	176.8	101.0	1.4	0.8	9.4	24.0	22.8	26.4	40.2	108.2	8.8
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	1922.0	2740.6	2283.6	785.4	1127.2	2174.4	3538.4	3773.4	2204.2	1064.8	919.0

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	133	134	135	136	137	138	139	140	141	142	143
MONTH/DAY/YEAR	8/23/93	8/23/93	8/24/93	8/24/93	8/24/93	8/24/93	8/24/93	8/25/93	8/25/93	8/25/93	8/25/93
LATITUDE START	59 15.0	59 8.5	59 10.5	59 13.0	59 14.0	59 11.4	59 17.5	59 16.6	59 19.1	59 21.1	59 23.8
LONGITUDE START	141 22.1	141 28.7	141 31.2	141 21.1	141 29.5	141 41.0	141 49.7	141 59.5	141 56.1	142 7.5	141 40.9
LATITUDE END	59 13.6	59 7.1	59 8.9	59 13.0	59 13.9	59 12.4	59 15.8	59 16.5	59 18.1	59 20.5	59 23.8
LONGITUDE END	141 23.1	141 29.9	141 31.3	141 24.1	141 32.4	141 43.4	141 49.5	141 57.6	141 53.8	142 6.4	141 37.8
LORAN START	14514.70	14448.70	14457.20	14502.50	14487.40	14437.50	14459.80	14425.80	14455.30	14437.90	14531.70
LORAN START	30584.90	30545.80	30572.50	30563.20	30598.60	30612.20	30694.90	30717.20	30729.90	30782.40	30725.70
LORAN END	14501.40	14435.40	14445.10	14494.60	14478.90	14437.90	14447.30	14430.30	14452.90	14436.70	14540.20
LORAN END	30574.80	30537.40	30558.40	30572.90	30607.10	30627.90	30678.60	30710.50	30713.20	30774.00	30716.80
GEAR DEPTH	192	198	181	194	179	118	113	171	118	138	102
DURATION IN HOURS	0.50	0.45	0.50	0.50	0.50	0.50	0.50	0.33	0.50	0.25	0.50
DISTANCE FISHED	1.54	1.50	1.58	1.56	1.50	1.51	1.69	0.97	1.59	0.78	1.55
PERFORMANCE / GEAR	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	1 /160	0 /160	0 /160	0 /160
POLLOCK	62.0	76.7	257.6	212.0	95.0	9.4	26.4	730.3	50.6	34.0	7.8
PACIFIC COD	0.0	0.0	0.0	0.0	0.0	79.2	69.0	0.0	65.4	41.6	0.0
SABLEFISH	522.0	94.4	369.0	181.0	702.2	679.4	263.0	43.9	88.6	50.0	0.0
LINGCOD	0.0	0.0	0.0	0.0	0.0	35.8	87.0	75.8	56.6	0.0	0.0
PACIFIC OCN PERCH	7.2	4.2	85.6	7.8	8.6	7632.2	1490.2	4223.6	7309.0	2792.8	0.0
SHORTRAKER ROCKFISH	0.0	187.8	236.6	0.0	0.0	0.0	0.0	337.9	0.0	0.0	0.0
ROUGHEYE ROCKFISH	9.2	7.6	7.8	11.0	63.4	18.0	0.0	100.9	0.0	0.0	27.0
SHARPCHIN ROCKFISH	0.0	4.7	0.0	0.0	0.0	3.2	741.0	0.0	175.4	24.4	0.0
REDSTRIPE ROCKFISH	3.8	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	0.0	0.0	0.0	1.0	0.0	4.0	159.0	0.0	5.4	0.0	0.0
SILVERGRAY ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	714.0	0.0	0.0	0.0	0.0
REDBANDED ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DUSKY ROCKFISH	0.0	0.0	0.0	0.0	0.0	8.2	339.0	0.0	25.0	10.4	0.0
SHORTSPINE THORNY	313.0	355.6	285.0	237.0	298.0	67.2	13.2	284.8	13.0	106.4	3.0
OTHER ROCKFISH	8.0	0.0	0.0	0.0	0.0	0.0	15.2	1.5	0.0	0.0	0.0
OTHER ROUND FISH	2.0	2.0	1.2	0.0	26.6	0.4	84.6	14.5	17.2	5.6	19.4
TOTAL ROUND FISH	927.2	732.9	1242.8	649.8	1193.8	8537.0	4002.2	5813.3	7806.2	3065.2	57.2
ARROWTOOTH FL	101.4	196.7	257.0	85.0	91.0	314.0	133.0	307.6	98.2	519.2	144.0
FLATHEAD SOLE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
REX SOLE	0.0	74.4	31.0	0.8	30.0	39.6	57.0	3.3	19.6	66.0	4.4
DOVER SOLE	23.6	314.4	417.0	0.0	113.0	39.6	33.6	72.7	18.4	96.4	57.0
PACIFIC HALIBUT	0.0	126.4	379.4	0.0	0.0	396.8	538.2	0.0	572.2	0.0	0.0
OTHER FLATFISH	0.0	0.9	0.0	0.0	0.0	0.0	0.6	0.9	0.0	4.4	0.6
TOTAL FLATFISH	125.0	712.9	1084.4	85.8	234.0	790.0	762.4	384.5	708.4	686.0	211.8
SKATES	38.8	58.9	20.0	14.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0
SPINY DOGFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	2.4	0.0	1.4	3.0	2.0	0.0	0.0	1.8	0.0	3.2	0.0
SPOT SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
OTHER INVERTS	60.8	144.7	106.8	143.0	83.8	13.2	35.6	83.9	5.4	18.8	22.4
TOTAL INVERTS	63.2	144.7	108.2	146.0	85.8	13.2	36.6	85.8	5.4	22.0	22.4
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	1154.2	1649.3	2455.4	895.6	1548.6	9340.2	4801.2	6283.6	8520.0	3773.2	297.2

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	144	145	146	147	148	149	150	151	152	153	154
MONTH/DAY/YEAR	8/25/93	8/26/93	8/26/93	8/26/93	8/26/93	8/26/93	8/27/93	8/27/93	8/27/93	8/27/93	8/27/93
LATITUDE START	59 38.5	59 48.3	59 50.5	59 45.8	59 38.1	59 39.9	59 58.7	59 55.9	59 53.4	59 44.8	59 39.0
LONGITUDE START	142 13.3	141 45.6	141 52.8	142 16.1	142 25.5	142 39.2	142 59.2	143 11.8	142 56.3	143 5.1	143 14.3
LATITUDE END	59 37.5	59 46.9	59 49.0	59 44.4	59 36.6	59 39.8	59 57.3	59 54.4	59 52.3	59 44.0	59 37.8
LONGITUDE END	142 11.6	141 47.0	141 52.3	142 14.9	142 26.6	142 42.4	142 58.0	143 11.1	142 54.1	143 4.3	143 13.3
LORAN START	14560.40	14713.10	14712.70	14612.10	14523.30	14498.80	14599.60	14537.30	14562.10	14463.20	14386.10
LORAN START	30961.30	30971.20	31014.50	31037.70	30992.90	31048.30	31277.20	31282.80	31220.10	31164.00	31134.80
LORAN END	14557.40	14698.10	14702.10	14603.80	14507.70	14488.80	14590.50	14526.90	14559.20	14458.70	14378.90
LORAN END	30947.10	30961.70	30998.70	31021.00	30981.60	31056.20	31260.40	31267.20	31203.70	31154.30	31121.10
GEAR DEPTH	117	34	34	82	132	217	69	79	81	98	138
DURATION IN HOURS	0.42	0.50	0.50	0.50	0.52	0.50	0.50	0.50	0.50	0.30	0.38
DISTANCE FISHED	1.30	1.59	1.53	1.55	1.64	1.62	1.60	1.54	1.55	0.92	1.31
PERFORMANCE / GEAR	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160
POLLOCK	16.7	56.0	38.6	12.0	50.0	24.4	153.0	38.0	254.0	0.0	185.0
PACIFIC COD	0.0	119.0	59.0	0.0	0.0	0.0	0.0	0.0	0.0	20.7	104.7
SABLEFISH	13.1	8.8	2.6	0.0	41.2	920.0	9.0	5.2	8.6	24.3	10846.3
LINGCOD	0.0	3.4	54.0	0.0	0.0	0.0	8.0	0.0	30.0	0.0	0.0
PACIFIC OCN PERCH	41.7	0.0	0.0	0.0	35.6	0.0	0.0	0.0	0.0	0.0	281.6
SHORTRAKER ROCKFSH	0.0	0.0	0.0	0.0	0.0	1336.6	0.0	0.0	0.0	0.0	32.1
ROUGHEYE ROCKFISH	404.3	0.0	0.0	4.8	49.0	89.0	0.0	4.0	10.0	0.7	0.0
SHARPCHIN ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REDSTRIPE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	1.2	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0
SILVERGRAY ROCKFSH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REDBANDED ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DUSKY ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	65.0	0.0
SHORTSPINE THORNY	126.2	0.0	0.0	22.0	171.7	253.0	26.8	33.0	28.0	3.3	40.3
OTHER ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER ROUND FISH	82.4	28.6	48.8	28.2	36.9	101.0	55.0	41.6	31.8	10.3	0.0
TOTAL ROUND FISH	685.5	215.8	203.0	67.0	386.0	2724.0	251.8	121.8	362.4	124.3	11490.0
ARROWTOOTH FL	209.5	101.0	296.0	425.0	177.9	296.0	270.6	136.8	86.0	91.3	4231.3
FLATHEAD SOLE	9.0	44.0	60.4	10.8	0.0	0.0	5.2	4.0	0.0	0.3	0.0
REX SOLE	10.7	22.8	32.0	2.2	7.5	94.0	0.0	4.6	0.0	8.0	148.2
DOVER SOLE	272.6	1.2	12.4	3.2	133.7	137.0	24.0	11.0	0.0	40.0	168.9
PACIFIC HALIBUT	0.0	83.8	103.4	0.0	0.0	63.2	0.0	0.0	35.4	108.7	588.4
OTHER FLATFISH	0.0	37.6	20.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL FLATFISH	501.9	290.4	525.0	441.2	319.0	590.2	299.8	156.4	121.4	248.3	5136.8
SKATES	18.8	12.4	0.0	54.4	6.5	27.8	0.0	35.0	7.2	13.7	0.0
SPINY DOGFISH	42.6	99.0	71.0	23.0	8.1	0.0	73.8	57.0	11.0	0.0	0.0
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0
TANNER CRAB	0.2	0.0	0.0	0.6	0.0	0.0	0.0	1.4	0.6	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
SPOT SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER INVERTS	5.0	3.2	6.6	7.8	34.8	336.2	18.8	14.8	20.4	11.0	0.0
TOTAL INVERTS	5.2	3.2	6.6	8.4	34.8	336.2	18.8	16.2	21.0	11.0	4.7
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	1254.0	620.8	805.6	594.0	754.4	3678.2	644.2	386.4	531.0	397.3	16631.6

RV MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	155	156	157	158	159	160	161	162	163	164	165
MONTH/DAY/YEAR	8/27/93	8/27/93	8/28/93	8/28/93	8/28/93	8/28/93	8/28/93	8/29/93	8/29/93	8/29/93	8/29/93
LATITUDE START	59 44.3	59 45.3	59 51.5	59 44.7	59 41.4	59 49.1	59 37.9	59 35.1	59 26.9	59 36.1	59 39.6
LONGITUDE START	143 22.7	143 23.6	143 39.1	143 33.8	143 25.0	144 5.3	144 20.3	141 55.7	142 15.4	142 29.3	142 44.7
LATITUDE END	59 45.4	59 44.0	59 51.1	59 44.3	59 43.0	59 47.6	59 38.5	59 33.9	59 25.4	59 36.3	59 38.9
LONGITUDE END	143 23.5	143 22.2	143 41.1	143 31.0	143 24.8	144 5.1	144 17.7	141 53.9	142 14.4	142 26.0	142 47.7
LORAN START	14405.00	14410.60	14414.80	14373.40	14372.70	14308.40	14161.20	14581.00	14461.10	14495.70	14480.30
LORAN START	31204.30	31215.80	31309.90	31235.80	31183.56	31350.10	31285.70	30876.80	30859.20	30984.70	31060.40
LORAN END	14411.40	14404.10	14404.70	14378.10	14387.00	14295.70	14174.80	14576.00	14452.70	14506.90	14466.20
LORAN END	31216.10	31200.80	31311.00	31224.60	31197.60	31335.90	31284.50	30860.10	30843.00	30977.60	31062.80
GEAR DEPTH	173	172	149	169	170	50	112	90	124	130	210
DURATION IN HOURS	0.33	0.50	0.33	0.50	0.50	0.50	0.43	0.50	0.50	0.23	0.50
DISTANCE FISHED	1.13	1.43	1.09	1.48	1.63	1.55	1.44	1.54	1.55	0.71	1.64
PERFORMANCE / GEAR	5 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	0 /160	1 /160	0 /160
POLLOCK	0.0	40.0	121.2	113.0	77.0	11.2	9.8	4.2	4.8	28.3	31.0
PACIFIC COD	0.0	0.0	0.0	0.0	0.0	30.4	0.0	0.0	56.0	43.5	0.0
SABLEFISH	0.0	237.0	231.8	147.0	179.0	49.0	7.0	8.6	310.0	56.5	838.0
LINGCOD	0.0	0.0	0.0	0.0	0.0	4.0	13.5	0.0	34.6	0.0	0.0
PACIFIC OCN PERCH	0.0	0.0	0.0	3.0	3.8	0.0	87.2	0.2	1337.0	271.3	0.0
SHORTRAKER ROCKFISH	0.0	19.6	106.1	78.0	126.0	0.0	0.0	0.0	0.0	0.0	992.4
ROUGHEYE ROCKFISH	0.0	7.2	27.3	8.4	5.0	0.0	42.6	7.0	0.0	0.0	51.0
SHARPCHIN ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	1654.6	13.0	0.0
REDSTRIPE ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARLEQUIN ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	1.8	4.8	0.0
SILVERGRAY ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	206.0	13.5	0.0
REDBANDED ROCKFISH	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.7	0.0
DUSKY ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	26.5	0.0	13.4	0.0	0.0
SHORTSPINE THORNY	0.0	218.0	269.7	423.2	102.0	0.0	110.5	61.0	147.0	187.0	588.0
OTHER ROCKFISH	0.0	0.0	0.0	0.0	0.0	0.0	11.6	4.8	11.6	0.0	0.0
OTHER ROUND FISH	0.0	34.0	19.1	8.0	2.0	26.6	43.5	32.0	23.0	52.2	75.2
TOTAL ROUND FISH	0.0	557.8	775.2	780.6	494.8	121.2	376.0	117.8	3799.8	685.7	2575.6
ARROWTOOTH FL	0.0	141.2	159.1	75.0	55.0	724.0	157.9	473.2	767.0	287.8	580.0
FLATHEAD SOLE	0.0	4.2	125.8	457.6	4.6	113.0	6.7	35.6	0.0	0.0	0.0
REX SOLE	0.0	5.0	469.7	290.0	1.8	12.8	3.5	18.2	125.0	60.9	90.0
DOVER SOLE	0.0	20.0	600.0	355.0	7.4	6.0	25.8	174.0	260.0	41.3	178.0
PACIFIC HALIBUT	0.0	0.0	0.0	0.0	111.6	232.0	13.0	0.0	185.2	71.7	162.0
OTHER FLATFISH	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.4	2.2	0.0	0.0
TOTAL FLATFISH	0.0	170.4	1354.5	1177.6	180.4	1087.8	211.4	701.4	1339.4	461.7	1010.0
SKATES	0.0	15.4	0.0	33.2	4.0	0.0	95.3	14.2	0.0	0.0	39.0
SPINY DOGFISH	0.0	0.0	0.0	0.0	0.0	48.0	0.0	95.0	0.0	0.0	0.0
OTHER ELASMOBRH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RATFISH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANNER CRAB	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.0
PINK SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SIDESTRIPE SHRIMP	0.0	7.8	0.0	6.6	5.2	0.0	0.0	0.0	0.0	1.3	0.0
SPOT SHRIMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER INVERTS	0.0	227.8	178.8	284.6	200.6	25.0	57.0	9.6	30.0	86.1	189.8
TOTAL INVERTS	0.0	235.6	178.8	291.2	205.8	25.0	57.2	10.0	30.0	87.4	189.8
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL CATCH	0.0	979.2	2308.5	2282.6	885.0	1282.0	740.0	938.4	5169.2	1234.8	3814.4

MILLER FREEMAN CRUISE 93-09, 1993 TRIENNIAL BOTTOM TRAWL SURVEY OF THE EASTERN GULF OF ALASKA; CATCH IS IN LB/1.0 HR.

HAUL #	166	167
MONTH/DAY/YEAR	8/30/93	8/30/93
LATITUDE START	59 40.9	59 35.7
LONGITUDE START	142 53.2	143 32.2
LATITUDE END	59 41.0	59 35.1
LONGITUDE END	142 50.5	143 34.4
LORAN START	14466.00	14302.60
LORAN START	31095.60	31151.00
LORAN END	14474.60	14290.40
LORAN END	31089.90	31151.00
GEAR DEPTH	130	75
DURATION IN HOURS	0.42	0.43
DISTANCE FISHED	1.35	1.26
PERFORMANCE / GEAR	0 /160	1 /160
POLLOCK	367.9	5.3
PACIFIC COD	0.0	101.2
SABLEFISH	140.0	20.7
LINGCOD	11.7	0.0
PACIFIC OCN PERCH	637.6	52.8
SHORTRAKER ROCKFSH	0.0	0.0
ROUGHEYE ROCKFISH	28.1	0.0
SHARPCHIN ROCKFISH	1.7	36.7
REDSTRIPE ROCKFISH	0.0	0.0
HARLEQUIN ROCKFISH	0.0	5.1
SILVERGRAY ROCKFSH	0.0	0.0
REDBANDED ROCKFISH	2.4	0.0
DUSKY ROCKFISH	8.6	12.6
SHORTSPINE THORNY	116.7	0.0
OTHER ROCKFISH	0.0	8.8
OTHER ROUND FISH	45.5	68.6
TOTAL ROUND FISH	1360.0	311.9
ARROWTOOTH FL	210.7	187.2
FLATHEAD SOLE	6.0	0.0
REX SOLE	11.2	16.3
DOVER SOLE	47.6	29.1
PACIFIC HALIBUT	16.4	517.0
OTHER FLATFISH	1.2	7.9
TOTAL FLATFISH	293.1	757.4
SKATES	19.8	224.4
SPINY DOGFISH	0.0	0.0
OTHER ELASMOBRH	0.0	0.0
RATFISH	0.0	0.0
TANNER CRAB	0.5	0.0
PINK SHRIMP	0.0	0.0
SIDESTRIPE SHRIMP	0.0	0.0
SPOT SHRIMP	0.0	0.0
OTHER INVERTS	54.3	76.7
TOTAL INVERTS	54.8	76.7
OTHER	0.0	0.0
TOTAL CATCH	1727.6	1370.5

APPENDIX B

SECTION III

CPUE and average weight for major species, listed by haul in descending order of CPUE, RV *Miller Freeman* Cruise 93-09, 1993 triennial bottom trawl survey of the eastern Gulf of Alaska.

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES ARROWTOOTH FLOUNDER

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
154	4231.3	6.4	138
44	2800.0	1.5	82
106	2261.2	1.6	77
27	2229.4	3.1	64
94	2165.0	2.3	121
105	2120.0	4.6	150
68	1781.0	1.6	98
81	1496.6	1.1	73
82	1480.0	1.3	82
86	1327.7	1.1	71
121	1310.0	0.0	133
116	1296.0	1.7	70
92	1176.0	1.0	79
56	1168.0	3.6	176
88	1129.0	2.5	146
91	1108.0	2.3	138
89	1104.0	2.3	144
95	1070.0	1.7	123
87	1047.0	0.9	81
96	950.0	1.2	130
120	944.6	4.3	143
93	932.0	1.8	52
39	853.9	1.4	117
90	848.0	2.5	120
163	767.0	4.0	124
26	762.0	1.9	72
160	724.0	1.2	50
127	666.8	3.7	158
102	664.0	1.7	96
19	613.0	0.8	82
104	612.1	3.6	192
128	606.6	4.9	174
126	604.0	1.4	75
113	598.8	1.9	62
111	582.9	1.5	78
165	580.0	5.1	210
131	577.0	1.6	87
103	572.7	4.6	182
13	545.0	2.3	119
43	544.1	2.1	106
67	526.0	2.8	118
142	519.2	5.0	138
125	492.0	1.1	61
162	473.2	1.7	90
37	455.0	1.5	124
18	443.3	1.1	83
108	439.0	2.0	77
98	431.4	1.4	109

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES ARROWTOOTH FLOUNDER

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
123	427.0	4.4	144
147	425.0	1.5	82
65	417.0	2.2	118
122	366.0	3.8	132
9	362.1	2.3	171
40	349.2	0.6	102
48	347.0	0.6	100
99	346.0	1.8	122
30	342.0	2.9	148
41	340.4	1.5	114
38	334.0	1.8	119
7	332.0	2.1	118
8	329.0	1.3	127
138	314.0	4.9	118
42	311.8	1.4	107
140	307.6	3.6	171
80	300.0	1.1	88
146	296.0	1.8	34
149	296.0	4.6	217
110	291.7	1.5	81
119	291.0	3.8	159
164	287.8	3.9	130
49	278.1	4.9	260
150	270.6	1.5	69
114	269.0	1.5	55
29	262.0	2.1	106
135	257.0	4.9	181
51	243.3	2.4	176
10	243.0	2.6	180
101	241.0	4.2	210
70	222.0	2.8	113
124	219.0	2.7	24
129	215.0	5.1	184
166	210.7	2.2	130
144	209.5	1.7	117
112	206.5	1.2	113
130	205.0	6.4	188
134	196.7	5.2	198
73	191.7	1.1	98
167	187.2	1.7	75
1	183.0	2.9	192
63	181.6	0.6	65
53	179.0	2.3	185
54	179.0	2.7	213
61	179.0	3.2	114
148	177.9	3.1	132
118	177.8	1.2	84
117	176.0	0.8	94

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES ARROWTOOTH FLOUNDER

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
76	173.0	3.5	231
59	172.0	3.2	114
50	171.7	3.9	198
17	165.4	2.4	118
157	159.1	4.8	149
161	157.9	2.5	112
107	156.0	2.0	103
22	150.0	1.6	97
143	144.0	0.9	102
156	141.2	5.9	172
151	136.8	1.1	79
47	135.6	0.7	103
139	133.0	2.0	113
45	130.8	1.7	113
132	117.7	6.3	161
97	117.5	1.7	91
5	116.0	1.2	130
66	115.0	2.6	119
36	112.0	1.0	115
100	109.0	2.7	219
75	105.6	0.0	249
133	101.4	7.2	192
145	101.0	1.3	34
141	98.2	3.3	118
153	91.3	1.8	98
60	91.0	2.7	106
137	91.0	6.5	179
4	90.0	1.7	128
74	87.2	2.7	237
152	86.0	1.1	81
136	85.0	2.8	194
69	83.0	1.9	114
31	81.0	2.7	156
12	78.0	1.6	116
84	75.7	1.1	96
158	75.0	4.7	169
2	70.0	1.9	137
23	68.0	2.8	80
46	67.3	1.1	104
77	66.1	1.3	98
85	63.5	0.4	87
55	58.4	2.9	182
16	55.0	2.9	134
159	55.0	4.6	170
33	45.0	1.1	134
32	41.4	2.1	162
3	38.0	3.8	134
34	35.0	1.6	137

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES ARROWTOOTH FLOUNDER

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
79	32.0	2.7	241
78	28.1	1.3	125
35	25.0	2.1	156
62	25.0	2.5	96
115	20.4	0.6	70
52	19.7	2.2	102
71	19.6	0.1	65
83	10.0	1.8	130
20	9.0	0.5	59
72	8.0	0.3	78
57	4.2	2.1	118

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES PACIFIC HALIBUT

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
27	846.5	12.0	64
81	620.8	23.9	73
154	588.4	44.7	138
141	572.2	19.1	118
139	538.2	38.4	113
24	524.7	14.8	59
167	517.0	55.6	75
71	450.2	13.0	65
82	443.6	8.9	82
70	438.0	27.4	113
138	396.8	24.8	118
135	379.4	37.9	181
20	359.4	19.2	59
128	336.6	56.1	174
98	318.0	9.4	109
72	283.2	11.8	78
88	268.6	26.9	146
116	255.6	9.8	70
160	232.0	8.3	50
73	217.5	26.1	98
99	214.4	8.2	122
63	203.4	15.5	65
163	185.2	23.1	124
85	176.0	8.3	87
165	162.0	20.3	210
120	155.6	38.9	143
69	155.2	38.8	114
87	155.0	6.5	81
118	150.0	33.8	84
41	147.2	36.8	114
48	143.4	71.7	100
68	131.8	33.0	98
26	130.0	65.0	72
134	126.4	28.5	198
131	120.8	12.1	87
84	117.4	16.4	96
159	111.6	55.8	170
153	108.7	32.6	98
146	103.4	5.7	34
4	93.8	23.5	128
29	87.4	43.7	106
145	83.8	4.2	34
164	71.7	16.5	130
122	71.4	35.7	132
12	68.4	17.1	116
114	66.7	14.0	55
117	64.8	16.2	94
35	63.2	31.6	156

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES PACIFIC HALIBUT

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
149	63.2	31.6	217
102	59.2	29.6	96
47	50.4	22.7	103
7	50.0	25.0	118
119	48.8	24.4	159
18	47.1	21.2	83
110	42.9	18.0	81
86	41.3	9.7	71
100	41.0	20.5	219
111	39.5	15.0	78
125	38.4	9.6	61
103	36.1	11.9	182
152	35.4	17.7	81
95	29.2	14.6	123
10	25.0	12.5	180
124	24.6	6.2	24
3	23.8	11.9	134
91	21.8	10.9	138
5	19.2	9.6	130
166	16.4	6.9	130
161	13.0	5.6	112
94	12.4	6.2	121
44	3.0	0.3	82
115	2.0	0.5	70

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES FLATHEAD SOLE

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
158	457.6	0.8	169
119	442.0	1.0	159
123	257.0	0.7	144
121	165.0	0.8	133
120	148.0	0.8	143
157	125.8	0.7	149
96	124.0	0.6	130
91	122.0	0.5	138
160	113.0	1.2	50
122	112.0	0.6	132
126	104.0	0.5	75
92	84.0	0.4	79
94	75.0	0.4	121
125	72.0	0.6	61
146	60.4	0.8	34
127	47.0	1.1	158
95	46.0	0.3	123
145	44.0	0.9	34
162	35.6	0.5	90
90	34.8	0.4	120
89	32.4	0.5	144
128	31.0	1.3	174
106	25.4	0.8	77
80	17.9	0.3	88
132	16.5	0.6	161
111	14.2	0.4	78
88	12.0	0.8	146
37	11.0	0.5	124
147	10.8	0.7	82
86	10.6	1.3	71
144	9.0	1.3	117
118	8.4	1.9	84
113	8.4	0.1	62
93	7.8	0.2	52
19	7.4	2.0	82
38	7.0	0.7	119
107	6.8	1.1	103
161	6.7	0.7	112
30	6.4	0.5	148
166	6.0	0.1	130
143	5.8	0.1	102
110	5.7	0.6	81
150	5.2	0.4	69
105	5.0	2.5	150
117	5.0	0.3	94
159	4.6	1.2	170
156	4.2	1.1	172
151	4.0	1.0	79

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES FLATHEAD SOLE

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
40	3.8	0.3	102
39	3.7	0.6	117
4	3.2	1.6	128
41	3.2	0.4	114
36	1.2	0.3	115
116	0.8	0.1	70
18	0.7	0.3	83
108	0.4	0.1	77
153	0.3	0.1	98

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES DOVER SOLE

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
105	3040.0	2.1	150
100	2633.0	1.4	219
104	2106.1	1.7	192
101	1147.0	1.7	210
53	1087.0	1.1	185
129	1055.0	2.1	184
91	780.0	2.0	138
130	753.0	1.7	188
95	725.0	2.1	123
50	692.2	1.8	198
89	622.0	1.6	144
157	600.0	1.9	149
88	589.0	1.7	146
103	556.1	2.7	182
128	550.0	1.9	174
119	548.0	1.9	159
35	498.0	1.1	156
32	487.1	1.0	162
123	475.0	1.9	144
96	453.0	2.1	130
120	443.0	2.1	143
30	440.0	0.9	148
135	417.0	1.4	181
79	407.0	1.7	241
106	401.9	2.8	77
158	355.0	1.7	169
94	346.0	2.4	121
90	327.0	1.2	120
134	314.4	1.6	198
51	308.3	1.9	176
39	296.9	1.7	117
75	290.7	2.1	249
92	273.0	1.9	79
144	272.6	2.2	117
163	260.0	1.6	124
1	214.0	2.0	192
37	205.0	1.4	124
165	178.0	2.3	210
162	174.0	2.4	90
31	172.0	1.0	156
154	168.9	1.3	138
121	168.0	2.2	133
9	166.7	1.2	171
54	166.0	1.6	213
55	162.0	0.9	182
74	159.3	1.3	237
126	151.0	2.1	75
33	146.0	0.9	134

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES DOVER SOLE

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
132	145.4	0.8	161
10	142.0	1.3	180
149	137.0	2.2	217
148	133.7	2.5	132
34	116.0	0.7	137
4	114.0	1.0	128
137	113.0	1.3	179
60	112.0	0.9	106
8	106.0	1.0	127
142	96.4	1.6	138
7	85.0	0.8	118
3	76.0	0.7	134
140	72.7	1.7	171
102	68.0	1.5	96
2	65.0	1.1	137
108	65.0	1.5	77
38	60.0	1.4	119
127	59.0	2.1	158
41	58.0	1.4	114
143	57.0	2.2	102
42	56.5	1.0	107
36	55.0	1.0	115
56	51.0	1.4	176
57	48.6	1.0	118
18	48.0	0.9	83
166	47.6	2.2	130
99	47.0	1.6	122
49	46.3	2.5	260
59	46.0	1.0	114
13	45.0	0.7	119
164	41.3	1.6	130
153	40.0	2.4	98
138	39.6	1.7	118
122	36.0	1.4	132
139	33.6	1.2	113
12	32.0	1.1	116
16	31.3	0.6	134
76	31.0	2.2	231
167	29.1	1.8	75
111	27.9	1.5	78
118	27.1	1.5	84
80	26.0	2.7	88
86	26.0	1.5	71
161	25.8	2.2	112
45	25.0	0.8	113
125	24.0	2.0	61
150	24.0	2.0	69
133	23.6	1.1	192

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES DOVER SOLE

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
19	23.0	0.8	82
46	21.3	0.8	104
110	20.2	2.1	81
28	20.0	0.8	116
156	20.0	1.7	172
141	18.4	0.6	118
67	16.6	1.4	118
81	16.4	1.4	73
48	14.0	1.4	100
97	12.5	2.5	91
146	12.4	1.6	34
5	12.0	0.8	130
78	11.7	0.9	125
29	11.4	1.4	106
66	11.3	1.1	119
47	11.1	0.5	103
151	11.0	2.8	79
22	10.6	1.8	97
61	9.0	0.8	114
82	8.4	0.8	82
113	8.0	1.3	62
124	7.6	3.8	24
159	7.4	1.9	170
17	6.7	0.6	118
160	6.0	1.5	50
65	5.6	0.9	118
93	5.6	2.8	52
70	4.8	0.6	113
147	3.2	1.6	82
73	3.1	1.1	98
107	2.6	1.3	103
68	1.8	0.9	98
145	1.2	0.6	34
27	1.2	0.2	64
87	0.6	0.3	81

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES REX SOLE

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
30	508.0	0.4	148
157	469.7	0.6	149
35	305.2	0.5	156
158	290.0	0.5	169
39	276.5	0.5	117
122	265.0	0.6	132
123	258.0	0.7	144
8	255.0	0.3	127
121	224.0	0.6	133
50	223.9	0.6	198
1	211.0	0.5	192
94	177.0	0.5	121
127	172.0	0.5	158
37	167.0	0.5	124
2	162.0	0.4	137
9	160.6	0.5	171
119	153.0	0.0	159
154	148.2	0.7	138
68	142.0	0.5	98
10	140.0	0.6	180
120	133.0	0.5	143
41	131.0	0.0	114
43	125.3	0.5	106
163	125.0	0.5	124
32	124.3	0.5	162
95	115.0	0.3	123
53	113.0	0.5	185
91	113.0	0.4	138
75	107.4	0.4	249
149	94.0	0.6	217
34	90.0	0.5	137
165	90.0	0.5	210
128	86.0	0.6	174
100	84.0	0.4	219
99	81.0	0.6	122
3	79.0	0.4	134
134	74.4	0.4	198
19	74.1	0.0	82
12	70.0	0.4	116
33	70.0	0.4	134
142	66.0	0.4	138
104	62.1	0.6	192
96	61.4	0.4	130
164	60.9	0.5	130
90	60.0	0.5	120
18	60.0	0.5	83
60	59.0	0.4	106
88	57.0	0.5	146

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES REX SOLE

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
124	57.0	0.7	24
139	57.0	0.5	113
16	56.3	0.4	134
38	51.0	0.5	119
129	51.0	0.7	184
132	50.4	0.3	161
48	50.0	0.5	100
86	46.8	0.5	71
87	45.6	0.4	81
46	43.3	0.4	104
130	41.0	0.5	188
138	39.6	0.5	118
54	33.0	0.6	213
70	33.0	0.4	113
44	32.1	0.6	82
36	32.0	0.5	115
146	32.0	0.4	34
27	31.2	0.3	64
4	31.0	0.0	128
135	31.0	0.4	181
137	30.0	0.4	179
89	29.0	0.4	144
112	28.3	0.6	113
57	28.0	0.5	118
31	27.0	0.5	156
74	27.0	0.5	237
26	24.0	0.5	72
55	24.0	0.5	182
59	24.0	0.6	114
82	23.2	0.6	82
145	22.8	0.4	34
131	21.0	0.6	87
51	20.0	0.7	176
98	20.0	0.5	109
141	19.6	0.4	118
17	19.2	0.2	118
105	19.2	0.6	150
162	18.2	0.3	90
67	17.2	0.5	118
103	17.0	0.7	182
167	16.3	0.6	75
13	15.0	0.3	119
7	14.0	0.4	118
49	13.8	0.7	260
160	12.8	0.6	50
118	12.4	0.5	84
101	12.0	0.5	210
166	11.2	0.1	130

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES REX SOLE

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
5	11.0	0.3	130
79	11.0	0.5	241
144	10.7	0.2	117
77	9.3	0.5	98
76	9.0	0.5	231
47	8.9	0.3	103
117	8.6	0.3	94
153	8.0	0.6	98
85	7.7	0.4	87
148	7.5	0.3	132
97	7.5	0.5	91
73	7.2	0.5	98
56	7.0	0.5	176
66	6.8	0.4	119
71	6.7	0.3	65
45	6.7	0.4	113
81	6.0	0.8	73
65	5.2	0.7	118
156	5.0	0.3	172
151	4.6	1.2	79
22	4.5	0.4	97
92	4.4	0.5	79
143	4.4	0.2	102
115	4.0	0.5	70
83	3.9	0.7	130
126	3.8	0.9	75
161	3.5	0.4	112
29	3.4	0.4	106
140	3.3	0.6	171
84	3.3	0.7	96
69	3.2	0.1	114
110	2.9	0.2	81
80	2.5	0.3	88
61	2.4	0.6	114
147	2.2	1.1	82
63	2.1	0.8	65
72	2.0	0.3	78
125	2.0	0.5	61
40	1.8	0.1	102
113	1.8	0.3	62
159	1.8	0.5	170
93	1.2	0.1	52
114	1.2	0.5	55
106	1.2	0.6	77
111	1.1	0.2	78
116	1.0	0.5	70
136	0.8	0.4	194

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES SABLEFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
154	10846.3	9.9	138
104	7251.5	8.1	192
105	3677.8	10.8	150
101	2248.0	7.7	210
129	2100.0	6.4	184
100	1670.0	7.0	219
103	1436.4	7.9	182
128	1329.6	6.5	174
75	1183.3	6.3	249
76	1097.0	6.3	231
149	920.0	7.5	217
165	838.0	7.5	210
56	798.0	9.7	176
79	763.0	7.1	241
137	702.2	6.4	179
130	698.0	7.1	188
138	679.4	7.7	118
49	561.3	5.3	260
119	529.0	7.1	159
94	523.4	10.5	121
133	522.0	5.6	192
120	441.0	4.0	143
91	373.6	8.5	138
135	369.0	6.1	181
89	349.0	6.7	144
163	310.0	2.7	124
121	294.6	4.0	133
139	263.0	4.2	113
51	253.3	5.1	176
156	237.0	6.6	172
157	231.8	6.4	149
88	229.0	6.0	146
12	228.0	9.5	116
122	210.0	3.5	132
10	209.0	3.6	180
16	203.1	2.7	134
136	181.0	4.8	194
159	179.0	5.0	170
74	175.1	4.7	237
1	171.0	2.8	192
99	162.0	5.1	122
68	160.0	3.1	98
158	147.0	6.7	169
166	140.0	6.5	130
123	136.8	4.6	144
38	136.0	4.9	119
95	131.8	11.0	123
35	113.0	5.6	156

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES SABLEFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
31	108.0	3.0	156
30	98.0	3.1	148
134	94.4	4.7	198
127	93.0	3.9	158
141	88.6	3.7	118
9	86.4	2.9	171
132	81.3	2.3	161
96	77.4	4.3	130
90	68.8	8.6	120
43	64.7	5.5	106
2	64.0	2.3	137
107	61.2	7.6	103
4	61.0	3.8	128
98	58.0	2.6	109
164	56.5	6.5	130
5	52.0	2.9	130
37	52.0	2.4	124
142	50.0	3.1	138
41	49.0	2.0	114
160	49.0	1.9	50
70	48.0	3.4	113
131	48.0	1.7	87
106	47.1	8.2	77
140	43.9	4.8	171
148	41.2	10.7	132
7	38.0	3.2	118
34	38.0	3.2	137
8	37.0	2.3	127
13	37.0	4.6	119
116	37.0	1.9	70
83	36.1	6.5	130
77	35.7	10.0	98
17	35.6	3.7	118
53	35.0	2.2	185
102	34.4	5.7	96
46	33.3	10.0	104
59	29.0	4.8	114
36	28.0	2.0	115
50	26.1	3.0	198
3	24.8	3.1	134
153	24.3	3.7	98
57	23.6	5.9	118
60	23.0	5.8	106
167	20.7	3.0	75
78	20.2	9.5	125
67	20.0	5.0	118
54	19.4	3.2	213
39	13.7	2.3	117

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES SABLEFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
32	13.7	2.4	162
126	13.4	1.7	75
144	13.1	2.8	117
40	12.4	2.1	102
18	11.8	1.8	83
69	9.8	1.6	114
118	9.8	2.2	84
48	9.0	2.3	100
150	9.0	0.9	69
145	8.8	1.5	34
152	8.6	2.2	81
162	8.6	2.2	90
65	8.0	2.0	118
82	7.2	3.6	82
33	7.0	1.8	134
161	7.0	3.0	112
86	5.3	2.5	71
151	5.2	2.6	79
29	5.0	2.5	106
28	4.0	2.0	116
81	4.0	2.0	73
117	3.2	1.6	94
125	3.0	1.5	61
146	2.6	1.3	34

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES PACIFIC COD

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
29	800.0	5.8	106
70	418.0	4.8	113
82	248.0	8.9	82
41	241.0	6.7	114
98	235.0	5.6	109
38	231.0	7.2	119
47	191.1	5.1	103
81	186.6	5.8	73
16	156.3	8.3	134
124	154.6	6.4	24
26	134.0	4.8	72
68	120.0	4.0	98
145	119.0	5.4	34
7	116.0	4.1	118
154	104.7	6.6	138
112	102.2	7.8	113
167	101.2	4.8	75
4	90.0	6.4	128
13	88.0	5.5	119
138	79.2	3.0	118
48	78.0	6.5	100
17	75.0	6.5	118
139	69.0	3.8	113
69	68.0	4.3	114
95	66.0	6.6	123
141	65.4	3.6	118
37	62.0	7.8	124
5	59.0	4.9	130
146	59.0	4.2	34
22	57.6	6.3	97
163	56.0	3.5	124
99	55.0	5.5	122
87	53.0	6.6	81
39	52.9	5.4	117
86	45.7	7.2	71
46	45.0	4.5	104
65	44.0	7.3	118
164	43.5	5.0	130
142	41.6	3.5	138
116	39.6	5.0	70
115	34.0	8.5	70
43	32.4	5.5	106
3	32.0	5.3	134
160	30.4	5.1	50
28	29.0	14.5	116
12	26.0	6.5	116
59	26.0	4.3	114
18	23.3	5.3	83

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES PACIFIC COD

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
153	20.7	6.2	98
23	20.0	5.0	80
88	18.4	9.2	146
73	16.1	5.8	98
35	16.0	8.0	156
57	14.4	7.2	118
110	13.3	5.6	81
67	10.8	5.4	118
8	10.0	5.0	127
33	9.0	4.5	134
2	8.4	4.2	137
127	7.6	3.8	158
114	6.2	2.6	55
10	6.0	3.0	180
131	1.8	0.9	87

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES WALLEYE POLLOCK

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
140	730.3	1.6	171
124	625.4	0.6	24
88	469.0	0.9	146
72	369.2	0.2	78
166	367.9	1.7	130
121	351.0	0.3	133
27	344.1	0.2	64
37	317.0	1.8	124
65	304.0	2.1	118
41	279.0	2.2	114
135	257.6	1.5	181
152	254.0	1.2	81
94	242.0	1.7	121
127	241.0	1.7	158
17	234.6	0.7	118
48	233.2	0.0	100
123	233.0	0.5	144
122	232.0	0.4	132
136	212.0	1.7	194
38	205.0	1.8	119
132	191.7	1.1	161
95	187.0	1.2	123
154	185.0	1.6	138
103	171.2	1.6	182
57	170.0	2.1	118
107	167.0	0.3	103
120	154.0	1.3	143
150	153.0	0.8	69
61	137.0	2.0	114
126	131.0	0.8	75
13	129.0	1.4	119
119	123.0	1.4	159
157	121.2	1.3	149
12	120.0	2.0	116
29	117.0	1.3	106
130	116.0	1.5	188
158	113.0	1.6	169
137	95.0	1.5	179
36	94.2	1.7	115
159	77.0	1.4	170
134	76.7	1.7	198
70	74.0	0.8	113
98	73.0	0.3	109
128	73.0	1.4	174
113	71.6	0.9	62
39	67.6	2.2	117
4	67.0	0.0	128
92	66.0	0.7	79

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES WALLEYE POLLOCK

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
133	62.0	1.6	192
99	60.6	0.4	122
34	60.0	2.3	137
96	58.6	0.8	130
30	56.0	2.8	148
145	56.0	0.7	34
91	55.0	1.4	138
105	51.0	1.6	150
141	50.6	0.5	118
131	50.4	0.1	87
89	50.0	1.4	144
148	50.0	1.9	132
73	48.6	0.2	98
49	47.5	3.8	260
69	47.2	0.7	114
68	46.4	0.7	98
7	46.0	1.5	118
67	45.0	1.7	118
35	40.0	2.5	156
156	40.0	1.4	172
146	38.6	0.3	34
151	38.0	0.8	79
93	37.8	0.1	52
52	37.6	2.1	102
80	36.5	0.2	88
16	35.6	1.4	134
142	34.0	1.7	138
8	31.0	2.6	127
165	31.0	2.6	210
78	29.1	1.7	125
164	28.3	1.3	130
83	27.8	0.6	130
139	26.4	0.3	113
5	25.0	1.8	130
149	24.4	2.4	217
108	23.0	0.7	77
66	22.5	3.0	119
76	21.0	1.5	231
46	20.0	2.0	104
59	20.0	2.0	114
90	19.6	1.2	120
81	19.4	0.1	73
33	18.4	1.8	134
31	18.0	3.0	156
144	16.7	1.4	117
50	15.7	0.0	198
85	15.0	0.1	87
129	15.0	1.3	184

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES WALLEYE POLLOCK

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
86	14.9	0.2	71
47	13.3	2.0	103
60	13.2	1.7	106
87	13.0	0.1	81
147	12.0	1.2	82
45	11.7	1.4	113
160	11.2	0.9	50
104	10.9	1.8	192
161	9.8	1.1	112
138	9.4	1.2	118
125	9.0	0.6	61
101	8.4	2.1	210
102	8.4	1.1	96
143	7.8	1.9	102
9	7.6	2.5	171
84	7.4	0.3	96
106	6.9	0.7	77
51	6.7	2.0	176
97	6.5	0.1	91
112	5.7	0.1	113
100	5.6	2.8	219
167	5.3	0.4	75
54	5.0	2.5	213
116	5.0	0.1	70
163	4.8	0.6	124
2	4.4	1.1	137
162	4.2	0.7	90
28	4.0	1.0	116
63	3.9	0.2	65
77	3.9	0.2	98
44	3.3	0.3	82
114	2.9	0.1	55
111	2.6	0.2	78
110	2.4	0.2	81
118	2.2	0.1	84
3	2.2	1.1	134
18	1.8	0.2	83
43	1.8	0.3	106
19	1.5	0.4	82
20	1.3	0.2	59
117	0.4	0.2	94
22	0.3	0.1	97
26	0.2	0.1	72

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES LINGCOD

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
42	646.5	11.0	107
70	215.0	21.5	113
83	210.0	18.9	130
82	202.0	10.1	82
102	189.0	8.6	96
43	176.5	15.0	106
72	132.0	6.6	78
99	119.0	14.9	122
26	114.6	14.3	72
68	110.0	13.8	98
87	104.0	13.0	81
39	102.9	17.5	117
88	101.0	16.8	146
131	96.0	12.0	87
139	87.0	14.5	113
112	87.0	6.7	113
16	81.3	13.0	134
125	78.0	19.5	61
140	75.8	25.0	171
92	70.0	17.5	79
81	69.0	11.5	73
124	68.6	8.6	24
106	62.5	16.3	77
141	56.6	9.4	118
146	54.0	9.0	34
44	53.0	17.5	82
111	52.1	9.9	78
2	51.6	12.9	137
86	46.8	11.0	71
65	45.0	11.3	118
95	44.0	11.0	123
98	42.2	10.6	109
20	39.6	9.5	59
22	36.4	12.0	97
116	36.0	9.0	70
138	35.8	17.9	118
163	34.6	8.7	124
73	33.3	12.0	98
85	32.7	17.0	87
67	31.0	15.5	118
152	30.0	15.0	81
37	29.0	14.5	124
90	29.0	14.5	120
93	27.0	13.5	52
84	25.0	10.5	96
47	24.4	11.0	103
89	24.0	12.0	144
96	24.0	12.0	130

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES LINGCOD

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
122	23.6	11.8	132
120	22.0	11.0	143
4	21.2	10.6	128
5	14.0	7.0	130
161	13.5	5.8	112
46	11.7	3.5	104
166	11.7	4.9	130
114	8.3	3.5	55
150	8.0	4.0	69
160	4.0	2.0	50
145	3.4	1.7	34

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES SHORTSPINE THORNYHEAD

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
49	1568.8	1.1	260
165	588.0	0.8	210
50	456.5	0.6	198
9	445.5	0.9	171
56	436.8	0.5	176
158	423.2	0.7	169
122	366.0	0.8	132
134	355.6	0.4	198
128	348.0	0.5	174
51	343.3	0.7	176
100	318.0	0.7	219
133	313.0	0.4	192
137	298.0	0.3	179
105	291.0	0.6	150
16	287.5	0.3	134
130	287.0	0.4	188
135	285.0	0.4	181
140	284.8	0.3	171
127	280.4	0.6	158
129	270.0	0.5	184
157	269.7	0.7	149
13	263.0	0.4	119
120	259.0	0.8	143
149	253.0	0.6	217
75	248.1	0.6	249
5	247.0	0.4	130
123	247.0	0.8	144
54	245.0	0.7	213
136	237.0	0.3	194
91	236.0	0.5	138
55	232.0	0.2	182
17	220.2	0.3	118
156	218.0	0.5	172
101	207.0	0.9	210
164	187.0	0.2	130
10	177.0	0.8	180
148	171.7	0.4	132
90	171.0	0.3	120
119	170.0	0.7	159
32	167.1	0.3	162
53	166.0	0.5	185
74	150.2	0.3	237
8	147.0	0.4	127
163	147.0	0.2	124
94	139.0	0.5	121
144	126.2	0.4	117
4	125.0	0.3	128
104	119.7	0.7	192

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES SHORTSPINE THORNYHEAD

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
166	116.7	0.3	130
89	116.4	0.3	144
103	112.1	1.2	182
76	111.0	0.7	231
95	111.0	0.3	123
161	110.5	0.3	112
30	110.0	0.5	148
79	110.0	0.7	241
121	109.0	1.0	133
67	108.0	0.2	118
142	106.4	0.2	138
88	105.0	0.3	146
7	104.0	0.5	118
1	103.0	0.4	192
159	102.0	0.6	170
3	101.0	0.3	134
34	96.0	0.3	137
33	90.0	0.3	134
35	90.0	0.4	156
92	87.0	0.4	79
132	79.0	0.4	161
31	78.0	0.5	156
2	73.6	0.4	137
70	71.0	0.2	113
138	67.2	0.3	118
96	65.0	0.3	130
65	62.0	0.4	118
162	61.0	0.3	90
57	60.0	0.4	118
12	46.0	1.0	116
59	44.0	0.3	114
154	40.3	0.5	138
43	38.2	0.2	106
102	37.0	0.2	96
60	33.0	0.3	106
151	33.0	0.5	79
78	33.0	0.1	125
42	28.2	0.5	107
152	28.0	0.6	81
150	26.8	0.4	69
45	23.3	0.4	113
147	22.0	0.3	82
61	15.4	0.4	114
99	13.6	0.2	122
139	13.2	0.2	113
107	13.0	0.9	103
141	13.0	0.2	118
69	12.8	0.3	114

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES SHORTSPINE THORNYHEAD

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
66	11.3	0.2	119
28	10.0	0.3	116
37	10.0	0.7	124
112	8.3	0.2	113
83	7.8	0.2	130
153	3.3	0.5	98
41	3.0	1.5	114
143	3.0	0.3	102
44	1.8	0.6	82
113	1.6	0.8	62
131	1.6	0.8	87
36	1.0	0.3	115
38	0.8	0.4	119
126	0.8	0.2	75

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES ROUGH-EYE ROCKFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
51	728.3	3.5	176
91	466.0	2.4	138
56	414.0	3.0	176
144	404.3	1.2	117
104	243.9	2.0	192
55	139.2	1.7	182
103	137.9	3.0	182
49	121.9	3.9	260
1	104.0	8.7	192
140	100.9	1.4	171
127	90.6	2.4	158
149	89.0	2.8	217
95	78.2	1.3	123
100	70.0	3.5	219
137	63.4	3.5	179
75	55.6	3.0	249
165	51.0	2.8	210
148	49.0	0.9	132
89	49.0	2.7	144
105	48.8	1.5	150
161	42.6	0.6	112
119	41.0	2.9	159
74	37.2	3.2	237
50	34.8	2.0	198
90	29.0	2.9	120
166	28.1	0.7	130
157	27.3	1.8	149
143	27.0	1.0	102
122	25.0	1.4	132
94	21.0	1.5	121
107	20.6	0.7	103
10	20.0	3.3	180
138	18.0	9.0	118
120	15.2	1.5	143
101	15.0	3.8	210
76	14.0	3.5	231
123	13.8	1.1	144
31	12.0	6.0	156
128	11.2	1.9	174
53	11.0	1.8	185
136	11.0	1.4	194
152	10.0	0.7	81
96	9.8	0.8	130
130	9.6	1.6	188
79	9.4	4.7	241
133	9.2	2.3	192
158	8.4	2.1	169
106	8.1	0.5	77

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES ROUGH-EYE ROCKFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
30	8.0	2.0	148
135	7.8	1.9	181
134	7.6	0.8	198
156	7.2	1.2	172
162	7.0	0.3	90
111	5.8	0.5	78
117	5.0	2.5	94
159	5.0	2.5	170
147	4.8	0.2	82
93	4.0	0.2	52
151	4.0	1.0	79
102	3.0	0.2	96
98	2.8	0.2	109
110	2.6	0.4	81
108	2.4	0.2	77
116	1.6	0.2	70
125	0.8	0.2	61
153	0.7	0.2	98
114	0.5	0.2	55
78	0.4	0.1	125
86	0.4	0.2	71
132	0.4	0.1	161
84	0.2	0.1	96
99	0.2	0.1	122
80	0.2	0.0	88

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES PACIFIC OCEAN PERCH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
42	29405.9	1.9	107
138	7632.2	1.4	118
56	7336.8	2.0	176
141	7309.0	1.3	118
140	4223.6	1.7	171
142	2792.8	1.7	138
2	2656.4	1.7	137
16	2515.6	2.1	134
88	2432.0	0.9	146
89	2238.0	0.8	144
4	1993.8	1.2	128
3	1831.0	1.9	134
90	1794.0	0.7	120
60	1621.0	1.0	106
139	1490.2	1.7	113
5	1345.0	1.4	130
163	1337.0	1.7	124
59	1292.0	1.0	114
52	1216.7	1.6	102
99	983.0	0.9	122
8	981.0	1.1	127
70	976.4	0.6	113
102	893.0	0.6	96
166	637.6	1.1	130
61	507.0	1.4	114
51	460.0	2.1	176
55	428.0	1.4	182
13	419.0	0.7	119
95	391.6	0.8	123
17	381.7	0.7	118
83	372.2	0.6	130
91	356.0	1.2	138
57	297.0	1.5	118
29	282.0	0.4	106
154	281.6	1.6	138
164	271.3	1.5	130
34	258.0	0.8	137
80	249.6	0.6	88
36	248.0	0.4	115
33	246.0	0.9	134
7	240.0	0.9	118
78	196.8	0.9	125
37	185.0	0.5	124
32	165.7	1.0	162
69	152.0	0.6	114
67	150.0	0.7	118
30	146.0	1.0	148
31	146.0	1.0	156

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES PACIFIC OCEAN PERCH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
96	138.0	0.8	130
73	126.4	0.7	98
62	122.0	1.4	96
43	121.2	0.5	106
132	113.5	1.1	161
47	102.2	0.3	103
50	102.2	2.1	198
53	93.0	1.6	185
161	87.2	1.0	112
135	85.6	1.8	181
45	85.0	0.7	113
65	82.0	0.7	118
28	67.0	0.7	116
112	65.2	0.9	113
39	63.7	0.8	117
38	63.6	0.6	119
127	54.6	0.7	158
167	52.8	1.3	75
9	47.3	1.6	171
144	41.7	1.2	117
49	40.0	2.1	260
148	35.6	1.2	132
41	35.0	0.2	114
46	30.0	0.4	104
94	29.6	0.9	121
35	23.0	1.0	156
66	21.7	0.5	119
98	20.0	0.3	109
107	16.6	0.9	103
10	14.0	3.5	180
103	11.2	1.9	182
105	8.8	1.5	150
137	8.6	2.2	179
84	7.9	0.2	96
136	7.8	1.3	194
133	7.2	1.2	192
122	6.6	1.1	132
54	5.2	2.6	213
77	4.3	0.2	98
134	4.2	1.9	198
131	4.2	0.3	87
108	3.8	1.9	77
159	3.8	1.9	170
104	3.0	0.5	192
40	3.0	0.1	102
158	3.0	1.5	169
130	2.8	1.4	188
120	2.4	1.2	143

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES PACIFIC OCEAN PERCH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
106	2.3	1.2	77
121	2.0	1.0	133
22	0.6	0.2	97
162	0.2	0.1	90

RV MILLER FREEMAN CRUISE 93-09
 EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES SILVERGRAY ROCKFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
7	4088.0	4.0	118
42	1758.2	3.4	107
46	733.3	2.8	104
139	714.0	2.7	113
40	676.0	4.4	102
2	641.2	4.4	137
17	502.9	3.2	118
47	483.3	3.1	103
28	438.0	3.5	116
4	375.0	4.6	128
12	350.0	2.7	116
65	248.0	2.7	118
163	206.0	3.1	124
3	202.0	4.4	134
37	192.0	3.4	124
39	182.4	3.1	117
5	176.0	4.6	130
8	169.0	3.7	127
22	163.6	3.0	97
16	162.5	3.3	134
70	133.0	7.4	113
13	126.0	3.5	119
112	113.0	4.3	113
38	86.0	3.3	119
36	62.0	3.4	115
60	58.0	3.6	106
34	54.0	4.5	137
41	41.0	4.1	114
66	40.0	2.3	119
61	25.0	2.5	114
33	24.0	4.0	134
23	20.0	2.5	80
68	19.8	5.0	98
95	19.0	2.4	123
96	19.0	4.8	130
118	18.9	8.5	84
164	13.5	3.1	130
31	13.0	3.3	156
32	12.9	4.5	162
72	11.2	2.8	78
52	10.9	3.6	102
77	10.7	1.5	98
59	8.0	2.0	114
161	6.0	2.6	112
24	5.6	2.5	59
29	4.4	2.2	106
57	4.4	2.2	118

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES DUSKY ROCKFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
12	896.0	3.0	116
110	716.9	3.1	81
112	652.2	3.4	113
7	512.0	3.5	118
139	339.0	3.3	113
97	305.0	2.9	91
77	203.6	3.4	98
111	181.6	3.0	78
46	86.7	2.9	104
5	71.0	3.0	130
153	65.0	2.8	98
8	51.0	3.2	127
161	26.5	2.9	112
141	25.0	4.2	118
22	15.2	2.5	97
102	14.8	3.7	96
163	13.4	3.4	124
167	12.6	2.7	75
17	11.5	3.0	118
142	10.4	2.6	138
166	8.6	3.6	130
138	8.2	4.1	118
123	6.4	3.2	144
60	5.0	2.5	106
29	4.6	2.3	106

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES REDSTRIPE ROCKFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
42	6777.1	1.4	107
12	4782.0	1.0	116
16	2425.0	1.4	134
17	2077.5	1.3	118
28	1137.0	1.5	116
46	603.3	1.1	104
7	510.0	1.0	118
57	451.0	1.1	118
13	428.0	1.3	119
22	316.7	1.0	97
45	316.7	1.2	113
8	180.0	0.9	127
47	155.6	1.0	103
60	91.0	1.1	106
62	57.0	0.9	96
23	44.0	0.8	80
4	32.0	1.0	128
5	16.0	0.8	130
3	15.4	1.3	134
24	8.9	1.0	59
133	3.8	1.9	192
34	3.0	1.5	137
37	2.0	1.0	124
139	0.6	0.3	113

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES REDBANDED ROCKFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
12	470.0	2.6	116
1	353.0	3.6	192
42	255.3	4.3	107
102	203.0	1.5	96
95	143.0	1.7	123
16	84.4	1.7	134
4	78.0	1.2	128
90	73.0	1.3	120
22	59.1	3.3	97
96	57.0	1.7	130
51	56.7	2.1	176
8	52.0	1.0	127
78	50.2	1.7	125
3	39.0	1.2	134
83	36.1	3.3	130
56	33.8	1.4	176
43	30.0	2.6	106
2	29.6	1.1	137
38	29.0	2.1	119
94	29.0	2.9	121
70	27.2	0.6	113
7	27.0	0.7	118
39	21.6	1.6	117
37	19.0	1.9	124
59	19.0	1.2	114
30	18.0	4.5	148
17	17.3	1.8	118
164	15.7	0.7	130
10	13.0	1.6	180
68	13.0	6.5	98
5	10.0	5.0	130
91	10.0	5.0	138
77	8.6	0.6	98
80	8.1	4.2	88
35	7.0	1.8	156
53	6.0	1.5	185
65	5.4	0.7	118
33	5.0	0.5	134
66	4.5	1.8	119
55	4.4	0.6	182
36	4.4	2.2	115
57	4.4	0.5	118
123	4.4	2.2	144
34	4.0	1.0	137
46	4.0	0.6	104
60	4.0	1.0	106
69	4.0	0.7	114
67	3.6	0.4	118

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES REDBANDED ROCKFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
105	3.6	0.9	150
122	3.2	1.6	132
31	3.0	1.5	156
79	2.8	1.4	241
99	2.6	0.4	122
166	2.4	0.5	130
156	2.0	1.0	172
29	1.2	0.6	106
61	1.2	0.6	114
89	1.2	0.6	144
47	0.7	0.3	103

RV MILLER FREEMAN CRUISE 93-09
 EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES HARLEQUIN ROCKFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
139	159.0	0.5	113
12	48.0	0.4	116
60	43.0	0.4	106
83	31.1	0.3	130
77	29.3	0.3	98
112	27.8	0.7	113
46	22.7	0.4	104
59	7.0	0.5	114
47	6.7	0.5	103
22	6.1	0.3	97
141	5.4	0.4	118
167	5.1	0.4	75
28	5.0	0.3	116
164	4.8	0.6	130
67	4.4	0.4	118
73	4.2	0.4	98
23	4.0	0.2	80
138	4.0	0.5	118
161	4.0	0.8	112
34	3.0	0.5	137
57	3.0	0.5	118
62	3.0	0.3	96
4	1.8	0.9	128
41	1.8	0.5	114
163	1.8	0.3	124
148	1.5	0.8	132
104	1.5	0.5	192
86	1.5	0.7	71
110	1.4	0.6	81
69	1.4	0.7	114
13	1.2	0.6	119
33	1.2	0.6	134
70	1.2	0.3	113
72	1.2	0.3	78
95	1.2	0.6	123
144	1.2	0.5	117
5	1.0	0.5	130
8	1.0	0.5	127
65	1.0	0.5	118
136	1.0	0.5	194
61	0.8	0.4	114
106	0.4	0.1	77

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES SHARPCHIN ROCKFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
16	3040.6	0.7	134
12	2838.0	0.8	116
163	1654.6	0.8	124
3	1327.0	0.7	134
57	795.0	0.7	118
139	741.0	0.6	113
112	669.6	0.6	113
46	573.3	0.7	104
70	566.0	0.5	113
7	442.0	0.9	118
77	303.6	0.4	98
60	233.0	0.6	106
83	227.8	0.4	130
59	201.0	0.7	114
141	175.4	0.5	118
17	173.1	1.0	118
67	161.0	0.6	118
5	160.0	0.6	130
22	142.4	0.5	97
102	140.6	0.4	96
78	104.3	0.5	125
4	96.0	0.6	128
69	76.0	0.5	114
28	61.0	0.4	116
62	58.0	0.7	96
43	54.7	0.8	106
45	48.3	0.4	113
61	45.0	0.6	114
13	44.0	0.0	119
167	36.7	0.3	75
47	24.4	0.3	103
142	24.4	0.7	138
99	22.0	0.5	122
23	14.0	0.1	80
161	14.0	0.5	112
164	13.0	0.4	130
33	10.2	0.6	134
52	9.4	0.6	102
65	8.0	0.4	118
34	6.0	0.4	137
97	6.0	0.4	91
134	4.7	0.7	198
24	4.4	0.2	59
84	3.6	0.5	96
138	3.2	0.2	118
49	3.1	0.3	260
73	3.1	1.1	98
8	2.0	0.3	127

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES SHARPCHIN ROCKFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
66	2.0	0.4	119
108	1.8	0.9	77
166	1.7	0.7	130
105	1.6	0.8	150
110	1.4	0.1	81
88	1.4	0.7	146
20	1.0	0.1	59
35	1.0	0.5	156
53	0.8	0.4	185
96	0.6	0.3	130
98	0.6	0.3	109
48	0.2	0.1	100

RV MILLER FREEMAN CRUISE 93-09
EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES SHORTRAKER ROCKFISH

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
149	1336.6	12.2	217
165	992.4	5.4	210
49	818.8	32.8	260
103	645.5	10.1	182
104	625.8	11.5	192
127	387.0	12.1	158
140	337.9	15.9	171
79	278.8	7.7	241
135	236.6	9.9	181
51	234.7	14.1	176
76	189.0	9.4	231
134	187.8	9.4	198
74	162.8	10.0	237
159	126.0	15.8	170
101	110.0	11.0	210
157	106.1	11.7	149
100	100.0	10.0	219
128	81.6	13.6	174
158	78.0	13.0	169
88	75.0	12.5	146
119	73.0	12.2	159
53	52.0	13.0	185
56	49.4	12.3	176
105	46.8	23.4	150
54	38.8	19.4	213
123	33.2	8.3	144
120	33.0	16.5	143
154	32.1	12.2	138
89	31.2	15.6	144
75	25.9	7.0	249
129	21.2	10.6	184
156	19.6	9.8	172

RV MILLER FREEMAN CRUISE 93-09
 EASTERN GULF OF ALASKA SURVEY, 1993

SPECIES SPOT SHRIMP

HAUL	CATCH LB/1.0 HR	AV WGT (LB)	GEAR DEPTH (FM)
16	66.9	0.2	134
70	31.0	0.1	113
42	28.2	0.1	107
43	14.7	0.3	106
12	13.2	0.2	116
3	10.0	0.2	134
5	10.0	0.1	130
7	10.0	0.2	118
46	7.3	0.1	104
4	6.0	0.2	128
13	5.0	0.2	119
67	5.0	0.2	118
17	4.8	0.1	118
34	4.6	0.2	137
47	3.3	0.1	103
69	3.2	0.1	114
22	3.0	0.2	97
65	3.0	0.2	118
62	2.0	0.2	96
8	2.0	0.3	127
28	2.0	0.1	116
45	1.7	0.2	113
33	1.2	0.1	134
102	1.2	0.2	96
115	1.2	0.3	70
18	1.1	0.3	83
139	1.0	0.3	113
57	0.8	0.2	118
106	0.8	0.1	77
59	0.6	0.3	114
66	0.5	0.2	119
60	0.4	0.2	106
61	0.4	0.2	114
2	0.2	0.1	137