Catches and Trawl Locations of M/V *Blue Waters* During Rockfish Exploration and Assessment Cruises to the West coast of the Queen Charlotte Islands and the Northwest Coast of Vancouver Island in 1978

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July 1980

Canadian Data Report of Fisheries and Aquatic Sciences No. 218

Government of Canada
Fisheries and Oceans
Gouvernement du Canada
Pêches et Océans

Canadian Data Report of Fisheries and Aquatic Sciences

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Canadian Data Report of Fisheries

and Aquatic Sciences No. 218

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CATCHES AND TRAWL LOCATIONS OF M/V BLUE WATERS DURING ROCKFISH EXPLORATION AND ASSESSMENT CRUISES TO THE WEST COAST OF THE QUEEN CHARLOTTE ISLANDS AND THE NORTHWEST COAST OF VANCOUVER ISLAND IN 1978

by

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Cat. No. Fs 97-13/218 ISSN 0706-6465

ABSTRACT

Nagtegaal, D. A., G. A. Thomas, and B. M Leaman. 1980. Catches and trawl locations of M/V BLUE WATERS during rockfish exploration and assessment cruises to the west coast of the Queen Charlotte Islands and the northwest coast of Vancouver Island in 1978. Can. Data Rep. Fish. Aquat. Sci. No. 218: 103 p.

The Pacific Biological Station conducted exploratory rockfish cruises off the west coast of the Queen Charlotte Islands (June 19-July 8, July 15-21, 1978) and off the northwest coast of Vancouver Island (Sept. 5-30, 1978). The purpose of the two cruises was to estimate the biomass of rockfishes and collect biological data and samples from these areas. This report presents the trackline and fishing positions, catch and biological data collected.

Key word: Exploratory, rockfishes, biomass, biological data.

RÉSUMÉ

Nagtegaal, D. A., G. A. Thomas, and B. M Leaman. 1980. Catches and trawl locations of M/V BLUE WATERS during rockfish exploration and assessment cruises to the west coast of the Queen Charlotte Islands and the northwest coast of Vancouver Island in 1978. Can. Data Rep. Fish. Aquat. Sci. No. 218: 103 p.

La Station de biologie du Pacifique a effectué des expéditions de pêche exploratoire des scorpènes au large de la côte ouest des îles Reine-Charlotte (du 19 juin au 8 juillet et du 15 au 21 juillet 1978) et au large de la côte nord-ouest de l'île Vancouver (du 5 au 30 septembre 1978). L'objet de ces expéditions était d'évaluer la biomasse des scorpènes et de recueillir des échantillons et des données biologiques dans ces secteurs. Le rapport présente l'itinéraire suivi, les lieux de pêche, les prises et les données biologiques recueillies.

Mots-clés: exploratoire, scorpènes, biomasse, données biologiques.

INTRODUCTION

During 1978, two trawl surveys were conducted by the Pacific Biological Station to estimate the biomass of rockfishes off the west coast of the Queen Charlotte Islands (BW78-1) and the northwest coast of Vancouver Island (BW78-2). These cruises served the dual purpose of estimating biomass and collecting the first biological samples from these areas, for many species. This Data Report presents the general results of these cruises with regard to haul locations, catches of important species and biological data collected. Analysis of data and detailed results will be presented in subsequent reports.

VESSEL AND GEAR

The M/V BLUE WATERS, a 28-m (92-ft) stern trawler, was awarded the charter for both of these cruises. Detailed vessel specifications are contained in Appendix Table 1. The trawl net used on the Queen Charlotte Islands cruise (BW78-1) was an Atlantic Western III rigged for rough-bottom trawling. The nets used on the Vancouver Island cruise were a Nor'Eastern bottom trawl, also rigged for rough-bottom trawling, and a Canadian Diamond VII midwater net. Detailed gear specifications are contained in Appendix Tables 2, 3, and 4.

FISHING LOCATIONS AND CATCH SAMPLING

Cruise BW78-1 covered the west coast of the Queen Charlotte Islands including some sounds, bays and inlets. Tracklines parallel to LORAN C lines and approximately normal to isobaths were used to position fishing locations. The lines were surveyed in two segments: the first set of lines began near Cape St. James and were positioned along Loran C lines, 80 microseconds (approximately 10 naut mi) apart, up to approximately 54°N; the second set was placed with the baseline shifted 40 microseconds (approximately 5 naut mi) from the first set and occupied in the same fashion. This pattern resulted in a set of 31 tracklines 40 microseconds apart (Fig. 1). Along each line trawl hauls were attempted in each 55-m (30-fm) stratum beginning at 55 m and extending to approximately 600 m (330 fm). If no suitable trawl location was found along the trackline in each stratum, the area five microseconds on each side of the trackline was searched within the stratum. A total of 72 hauls were made along tracklines and an additional nine hauls made in bays and inlets. Locations of these sampling stations are presented in Fig. 2 and 3.

Cruise BW78-2 covered the northwest coast of Vancouver Island from Esperanza Inlet to Triangle Island. As in BW78-1, tracklines parallel to LORAN C lines were used to position trawl locations and stations were attempted within 55-m (30-fm) strata along the tracklines. Of the 44 hauls, 14 were made with the midwater trawl and the remaining 30 with bottom gear. Tracklines were positioned along Loran C lines approximately 40 microseconds (5 naut mi) apart for bottom-trawl stations. Midwater trawl hauls often covered distances over more than one trackline. Locations of trawl stations for BW78-2 are shown in Fig. 4 and 5.

For both cruises sampling of catches was conducted in one of two general ways: (i) for hauls of <0.5 t, the entire catch was sorted and weighed by species; (ii) for hauls of ≥0.5 t, the codend was fleeted aboard and weighed with an electronic load cell[1], emptied and reweighed to obtain the weight of the catch by difference; the catch was then subsampled to obtain species composition by weight. There were occasional departures from this procedure, such as when catches were only slightly greater than 0.5 t and were all sorted and weighed, or when catches were less than 0.5 t and showed low species diversity, in which case they were subsampled. Accuracy of load cell estimation was verified on 13 hauls when the catch was weighed with the load cell and subsequently sorted and weighed by species on a platform scale.

The primary emphasis of biological sampling on both cruises was to obtain representative samples of all rockfish species in order to estimate growth, mortality and age composition of the population. Basic sample size was 100 length/sex/otoliths plus as many more length/sex measurements as were contained in the subsample. For some species, e.g. Sebastes borealis, no single haul contained 100 fish and their samples would be necessarily smaller, however the lack of information on these species renders even small samples useful.

RESULTS

Tables 1 and 2 contain summaries of the catches of major species for BW78-1 and -2, respectively. Results of the cruises indicate that the west coast of the Queen Charlotte Islands supports larger populations of rockfishes than does the northwest coast of Vancouver Island, however the species composition of the two areas is markedly different. The former area is characterized by a S. alutus/S. reedi assemblage typical of continental slope regions while the latter area is dominated by S. flavidus, a shelf form. These results are in part biased by the lack of samples from depths shallow of 180 m off the Queen Charlotte Islands where bottom topography was too rough to trawl. Large concentrations of fish were seen in these depths on the echo sounder and it is possible that shelf forms such as S. pinniger and S. flavidus may be the major species present, since they are typically

[1]SEA-WEIGH, Measurement Systems Incorporated, Seattle, WA.

present at these depths in other regions. No significant concentrations of rockfishes were discovered in areas unknown to the commercial industry. For BW78-1, locations of major catches were the Rennell Sound and Buck Point/Englefield Bay areas; Triangle Island, Cape Scott and the Quatsino Sound region were the major centres of production for BW78-2. It is also important to note that at least one area of major commercial production in each area did not yield large catches during the cruises. These results further endorse the concept that biomass surveys are not 'stand-alone' items but must be corroborated by results of other analyses such as catch-effort or yield-per-recruit examinations. Catch and bridge log information by haul is contained in Appendix Tables 5 and 6.

A summary of catch rates by species and depth strata is contained in Tables 3 and 4 for cruises BW78-1 and BW78-2, respectively. Maximum catch rates occurred in the 219-272-m (120-149-fm) range. No accurate method of calculating confidence limits has yet been determined due to the irregular distribution of the catch rates, however, the wide range of the catch rates indicates that confidence limits may be quite large. Summaries of biological samples collected on the two cruises are contained in Tables 5 and 6. Emphasis of sampling for both cruises was to obtain ageing structures (otoliths) from most rockfish species in order to estimate the age structure of their populations. The relatively recent development of fisheries for many of the species involved means that there is no historical information series for them and also generates the urgency to obtain such data. Length frequency and maturity information collected on the cruises is contained in Tables 7, 8, and 9.

ACKNOWLEDGMENTS

We are grateful to Capt. Don Vaccher and the crew of the M/V BLUE WATERS for their enthusiastic cooperation and welcome assistance. We also thank L. A. Lapi for his assistance during BW78-2. Both survey cruises were funded in part by the Ministry of Environment, Province of British Columbia.

Table 1. Summary of total catches of major species for M/V BLUE WATERS cruise, June 19-July 8; July 15-21, 1978. (Common names in Appendix 7).

Species	Catch (kg)	% of total catch
Sebastes reedi	18,342.8	33.86
S. alutus	16,200.5	29.91
S. brevispinis	5,999.7	11.07
S. aleutianus	3,014.1	5.56
S. borealis	1,714.1	3.16
Sebastolobus alascanus	1,644.3	3.03
Arrowtooth flounder	1,151.2	2.12
S. proriger	1,018.3	1.88
S. zacentrus	881.8	1.62
Walleye pollock	733.5	1.35
S. paucispinis	710.8	1.31
Other[a]	2,751.0	5.13
Total	54,162.0	100.00

[a]All those species with catches < 1.00% of total catch.

Table 2. Summary of catches of major species for M.V. BLUE WATERS cruise September 5-30, 1978. (Common names in Appendix 7.)

Species	Catch (kg)	% of total catch
Sebastes flavidus	13,407.3	41.97
S. reedi	4,472.0	14.00
S. alutus	2,928.4	9.17
S. entomelas	1,613.9	5.05
S. pinniger	1,312.2	4.11
S. brevispinis	938.5	2.94
Blackcod	757.5	2.37
S. proriger	728.9	2.28
S. zacentrus	581.5	1.82
Dover sole	558.4	1.75
S. diploproa	534.3	1.67
S. babcocki	506.7	1.59
Dogfish	395.5	1.24
Pacific hake	346.5	1.08
Sebastes paucispinis	323.4	1.01
Other[a]	2,536.5	7.94
Total	31,941.5	100.0

[a]All species with catches <1.00% of total catch.

Table 3. Mean CPUE values (kg/hr) for the west coast of the Queen Charlotte Islands by depth interval. BW 78-1, June 19-July 8; July 15-21, 1978.

Depth interval (m)	55-108	109-163	164-218	219-272
Rockfish				
Sebastes aleutianus	-	-	-	0.8
S. alutus	0.3	-	19.1	211.2
S. babcocki	-	-	4.5	18.6
S. borealis	-	-	-	7.6
S. brevispinis	21.5	-	91.1	827.4
S. ciliatus	-	-	2.0	-
S. crameri	-	-	-	1.0
S. diploproa	-	-	-	1.0
S. elongatus	-	-	3.3	-
S. entomelas	-	-	-	3.4
S. flavidus	-	-	0.9	-
S. helvomaculatus	-	-	1.9	0.7
S. maliger	1.5	-	-	-
S. paucispinis	2.9	2.7	2.0	98.2
S. pinniger	-	-	4.3	2.0
S. proriger	-	-	57.9	88.6
S. reedi	-	-	182.3	210.6
S. variegatus	-	-	5.4	-
S. zacentrus				
Sebastolobus alascanus	-	-	0.9	32.4

Table 3 (cont'd)

Depth interval (m)	273-327	328-382	383-437	549-602
Rockfish				
Sebastes aleutianus	9.1	380.6	60.6	-
S. alutus	580.7	414.7	425.5	22.7
S. babcocki	13.7	5.0	14.1	-
S. borealis	38.8	134.4	66.7	44.5
S. brevispinis	47.7	7.1	-	1.4
S. crameri	10.9	0.6	-	-
S. diploproa	10.9	0.6	-	-
S. elongatus	-	0.1	-	-
S. entomelas	-	0.1	-	-
S. helvomaculatus	2.8	5.1	4.5	-
S. paucispinis	7.5	-	-	-
S. pinniger	0.3	0.6	-	-
S. proriger	34.7	2.7	0.5	-
S. reedi	582.8	1138.4	11.6	-
S. ruberrimus	0.2	1.9	-	-
S. variegatus	-	-	-	-
S. zacentrus	7.7	0.1	-	-
Sebastolobus alascanus	52.7	56.6	56.9	36.3

Table 4. Mean CPUE values (kg/hr) for the northwest coast of Vancouver Island by depth interval, M.V. BLUE WATERS rockfish cruise, September 5-30, 1978.

	Depth interval (m)			
	0-54	109-163	164-218	219-272
Sebastes aleutianus	-	14.4	7.3	2.3
S. alutus	16.3	17.2	101.8	290.9
S. babcocki	-	23.4	48.1	51.6
S. borealis	-	-	-	5.9
S. brevispinis	-	88.4	144.2	21.2
S. crameri	-	-	0.4	0.9
S. diploproa	-	32.7	2.0	93.9
S. elongatus	-	1.8	-	0.5
S. entomelas	-	5.9	7.5	1.8
S. flavidus	3.6	41.7	59.7	10.4
S. helvomaculatus	-	0.5	0.7	1.8
S. paucispinis	-	27.3	16.6	22.8
S. pinniger	3.6	132.0	60.5	0.7
S. proriger	1.8	45.5	71.4	2.3
S. reedi	-	-	104.7	1543.6
S. ruberrimus	-	5.4	6.0	-
S. zacentrus	-	20.6	163.6	26.3
Sebastolobus alascanus	-	-	11.6	1.0

Table 4 (cont'd)

	Depth interval (m)		
	273-327	328-382	438-492
Sebastes aleutianus	-	59.9	47.6
S. alutus	11.8	5.9	93.0
S. babcocki	12.7	143.8	61.2
S. borealis	-	67.6	122.5
S. brevispinis	-	-	61.2
S. crameri	-	35.8	-
S. diploproa	-	-	74.8
S. entomelas	-	-	47.6
S. flavidus	-	-	47.6
S. proriger	-	-	27.2
S. zacentrus	16.3	-	27.2
Sebastolobus alascanus	4.5	-	-

Table 5. Biological samples taken during the M/V BLUE WATERS rockfish cruise, June 19-July 8; July 15-21, 1978. Numbers of fish sampled.

Species	L/F	L/S	L/S-mat	L/S/O-mat	L/S/O	Genetic sample[a]	Double otolith[b]
Sebastes aleutianus	-	53	-	-	493	-	-
S. alutus	40	2832	-	-	152	130	-
S. brevispinis	-	-	-	-	306	-	-
S. borealis	-	-	-	-	90	-	-
S. crameri	-	-	-	-	74	-	-
S. diploproa	-	-	-	203	-	-	-
S. paucispinis	-	-	-	86	-	-	-
S. proriger	-	-	-	-	640	-	-
S. reedi	-	496	149	-	576	196	25
S. variegatus	-	-	-	-	24	-	-
S. zacentrus	-	165	-	-	863	-	-
Sebastolobus alascanus	-	460	-	-	-	-	-
Blackcod	-	55	-	-	-	-	-
Turbot	-	148	-	-	-	-	-
Pollock	-	186	-	-	-	-	-
Total	40	4395	149	289	3218	326	25

[a] Includes length-sex-otolith and approximately 16.4 cm^3 of muscle tissue and 16.4 cm^3 of liver tissue.

[b] Includes length-sex-double otolith, pelvic fin, pectoral fin and dorsal fin.

Table 6. Biological samples taken during the M.V. BLUE WATERS rockfish cruise, September 5-30, 1978.

Species	Number of fish sampled		
	L/S	L/S/O	L/S/O[a]
Sebastes babcocki	-	51	-
S. brevispinis	-	52	-
S. diploproa	193	128	-
S. entomelas	-	135	-
S. flavidus	-	282	6
S. pinniger	-	110	-
S. proriger	178	344	-
S. reedi	-	305	-
S. zacentrus	76	438	-
Total	447	1845	6

[a] Double otolith sample.

Table 7. Size composition of species collected during M/V BLUE WATERS cruise, June 19-July 8; July 15-21, 1978.

Species:		S. aleutianus									
Date:		June 29		June 30		July 2		July 4		July 17		Total	
Haul no.		31		37		45		51		63			
		♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
Fork length (cm)	30	-	-	-	-	-	-	-	-	1	-	1	-
	31	-	-	-	-	-	-	-	-	0	-	0	-
	32	-	-	-	-	-	-	-	-	0	-	0	-
	33	-	-	-	-	-	-	-	-	0	-	0	-
	34	-	-	-	-	-	-	-	-	0	-	0	-
	35	-	-	-	-	-	-	-	-	0	-	0	-
	36	-	-	-	-	-	-	-	-	0	-	0	-
	37	-	-	1	-	-	-	-	-	0	-	1	-
	38	-	-	0	-	-	1	-	-	1	2	1	3
	39	-	-	2	1	-	0	1	-	1	1	4	2
	40	1	-	0	2	-	0	0	-	1	2	2	4
	41	1	-	2	2	-	0	1	-	3	5	7	7
	42	0	2	3	1	3	0	1	1	5	1	12	5
	43	1	1	1	2	4	1	4	6	5	2	15	12
	44	2	3	3	5	4	3	5	7	5	4	19	22
	45	5	11	3	4	7	7	9	6	5	4	29	32
	46	6	7	2	3	4	6	9	6	4	6	25	28
	47	6	12	0	2	7	7	12	12	3	6	28	39
	48	8	11	2	2	14	9	6	10	1	3	31	35
	49	6	13	3	3	6	14	10	5	1	1	26	36
	50	7	12	1	1	2	8	4	6	0	0	14	27
	51	3	5	2	0	2	7	7	8	1	2	15	22
	52	0	2	1	1	0	2	1	2	-	2	2	9
	53	1	3	0	-	0	2	5	3	-	-	6	8
	54	0	-	0	-	0	1	1	2	-	-	1	3
	55	0	-	1	-	0	1	0	3	-	-	1	4
	56	0	-	0	-	1	-	1	3	-	-	2	3
	57	0	-	0	-	0	-	-	-	-	-	0	-
	58	1	-	1	-	0	-	-	-	-	-	2	-
	59	-	-	-	-	1	-	-	-	-	-	1	-
	60	-	-	-	-	-	-	-	-	-	-	-	-
	61	-	-	-	-	-	-	-	-	-	-	-	-
	62	-	-	-	-	-	-	-	-	-	-	-	-
	63	-	-	-	-	-	-	-	-	-	-	-	-
	64	-	-	-	-	-	-	-	-	-	-	-	-
	65	-	-	-	-	-	-	-	-	-	-	-	-
Total		48	82	28	29	55	69	77	80	37	41	245	301
Depth (m)		366-366		391-323		347-358		336-384		411-311			

Table 7 (cont'd)

Species:				*S. alutus*					
Date:	June 23			June 25				June 28	
Haul no.	6		8	15		18		24	
Fork length (cm)	♂	♀	Unknown	♂	♀	♂	♀	♂	♀
10	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-
19	-	-	-	-	1	-	-	-	-
20	-	-	7	-	0	-	-	-	-
21	-	-	3	-	1	-	-	-	-
22	-	-	3	-	0	1	1	1	2
23	-	1	12	1	0	0	2	0	3
24	-	0	7	0	0	0	1	1	0
25	-	0	5	0	0	0	0	1	0
26	-	0	1	1	1	0	0	0	0
27	-	0	0	0	0	0	0	0	1
28	-	0	0	0	1	0	0	1	1
29	-	0	2	2	2	1	1	3	2
30	-	1	-	1	1	0	3	4	3
31	1	0	-	0	3	0	3	4	2
32	1	0	-	2	2	2	0	2	1
33	0	1	-	0	0	2	3	7	2
34	0	2	-	2	2	4	2	13	4
35	0	1	-	0	2	5	6	10	4
36	1	1	-	0	2	10	7	12	13
37	1	0	-	3	2	4	5	11	6
38	0	0	-	8	1	3	8	13	10
39	0	0	-	3	0	3	4	8	6
40	0	0	-	15	5	5	1	13	4
41	1	0	-	23	9	11	1	20	4
42	4	0	-	25	5	6	1	10	11
43	6	2	-	10	16	6	6	5	7
44	4	11	-	3	11	6	3	4	19
45	5	18	-	1	4	3	4	0	6
46	5	27	-	1	1	1	6	0	6
47	0	32	-	-	3	1	1	1	5
48	0	26	-	-	2	-	1	-	2
49	1	8	-	-	-	-	1	-	-
50	-	2	-	-	-	-	1	-	-
51	-	2	-	-	-	-	-	-	-
Total	30	135	40	101	77	74	72	144	124
Depth (m)	283-302		201-198	304-300		289-316		318-307	

Table 7 (cont'd)

Species:	S. alutus (continued)									
Date:	June 29				June 30				July 1	
Haul no:	29		30		34		35		38	
Fork length (cm)	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
10	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-
13	1	-	-	-	-	-	-	-	-	-
14	0	2	-	-	-	-	-	-	-	-
15	10	5	-	-	-	-	-	-	-	-
16	11	5	-	-	-	-	-	-	-	-
17	1	2	-	-	-	-	1	-	-	-
18	0	1	-	-	-	-	0	-	-	-
19	2	1	-	-	-	-	2	1	-	-
20	5	4	1	-	1	1	6	1	-	-
21	6	5	0	-	1	0	1	0	-	-
22	2	1	0	-	1	0	3	5	-	-
23	2	1	0	-	1	0	7	3	-	-
24	0	0	0	1	0	1	4	1	1	-
25	1	0	0	0	0	0	1	0	0	1
26	0	0	0	0	0	1	1	0	0	0
27	0	0	0	0	4	2	0	1	0	0
28	0	0	0	0	1	2	1	0	0	0
29	0	0	0	0	0	4	0	1	0	0
30	0	1	0	0	3	0	3	2	0	0
31	0	0	0	0	1	2	1	1	0	0
32	0	0	0	1	0	2	2	3	0	0
33	0	1	1	0	1	1	4	3	0	0
34	1	0	2	0	5	7	5	3	0	0
35	3	0	1	0	10	8	5	4	0	0
36	1	1	7	0	10	8	3	4	0	2
37	1	1	12	0	5	8	2	1	0	0
38	2	0	31	0	5	4	0	0	1	1
39	2	1	53	4	2	5	1	0	3	1
40	2	1	55	7	11	2	3	0	10	11
41	0	1	24	15	14	2	5	0	17	21
42	1	0	6	11	18	4	17	0	14	24
43	1	1	4	9	16	9	25	0	17	13
44	1	1	0	7	7	10	25	6	10	2
45	1	0	1	1	1	7	17	20	3	9
46	-	1	-	-	-	10	1	13	2	9
47	-	1	-	-	-	10	1	20	-	9
48	-	-	-	-	-	1	-	5	-	3
49	-	-	-	-	-	-	-	2	-	-
50	-	-	-	-	-	-	-	-	-	-
Total	57	38	198	56	118	111	147	100	78	106
Depth (m)	252-249		315-311		336-256		256-256		278-278	

Table 7 (cont'd)

Species:	S. alutus (continued)									
Date:	July 2		July 4		July 5		July 6			
Haul no.	44		51		52		58		61	
Fork length (cm)	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
10	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-
22	1	-	-	-	-	-	-	-	-	-
23	1	-	-	-	-	-	-	-	-	-
24	0	-	-	-	-	-	-	-	-	-
25	0	-	-	-	-	-	-	-	-	-
26	0	-	-	-	-	-	-	-	-	-
27	0	-	-	-	-	-	-	-	-	-
28	0	1	-	-	-	-	-	-	-	-
29	0	0	-	-	-	-	-	-	-	-
30	2	0	-	-	-	-	-	-	-	-
31	0	0	-	-	-	-	-	1	-	-
32	1	0	-	-	-	-	-	1	-	-
33	0	0	-	-	-	-	-	0	-	-
34	5	0	-	-	1	-	-	4	-	-
35	7	3	-	-	7	-	4	5	6	1
36	8	5	-	1	9	-	3	5	4	1
37	3	3	6	1	10	2	5	2	15	4
38	11	1	13	3	7	5	10	2	13	10
39	3	1	16	1	4	13	4	1	12	5
40	17	5	12	6	10	19	6	7	9	14
41	12	7	11	24	10	18	7	6	6	13
42	10	11	7	18	4	12	6	9	0	12
43	6	34	-	26	0	9	4	15	2	12
44	3	25	-	9	1	5	1	9	-	6
45	3	16	-	3	-	5	1	11	-	6
46	1	15	-	1	-	3	-	4	-	1
47	2	7	-	0	-	-	-	-	-	-
48	-	2	-	0	-	-	-	-	-	-
49	-	1	-	1	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-	-	-	-
Total	96	137	65	94	63	91	51	82	67	85
Depth (m)	307-304		336-384		373-439		300-475		380-758	

Table 7 (cont'd)

Species:	S. alutus (continued)								
Date:	July 17		July 20						
Haul no.	64		76		78		Total		
Fork length (cm)	♂	♀	♂	♀	♂	♀	♂	♀	Ukn
10	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	1	-	-
14	-	-	-	-	-	-	0	2	-
15	-	-	-	-	-	-	10	5	-
16	-	-	-	-	-	-	11	5	-
17	-	-	-	-	-	-	2	2	-
18	-	-	-	-	-	-	0	1	-
19	-	1	-	-	-	-	4	4	-
20	-	0	-	-	-	-	13	6	7
21	3	2	-	-	-	-	11	8	3
22	0	1	-	-	-	-	9	10	3
23	0	2	-	-	-	-	12	12	12
24	0	2	-	-	-	-	6	6	7
25	0	2	-	-	-	-	3	3	5
26	0	1	-	-	-	-	2	3	1
27	2	1	-	-	-	-	6	5	0
28	0	1	-	-	-	-	3	6	0
29	1	1	-	-	-	-	7	11	2
30	0	1	-	-	-	-	13	12	-
31	1	1	-	-	-	-	8	13	-
32	8	2	-	-	-	-	18	12	-
33	7	3	-	-	-	-	22	14	-
34	11	7	-	-	-	-	49	31	-
35	15	8	-	-	-	2	73	44	-
36	16	16	-	1	-	3	84	70	-
37	15	16	-	0	-	0	93	51	-
38	4	4	1	0	2	0	124	49	-
39	6	4	5	0	6	0	131	46	-
40	3	3	12	1	2	4	185	90	-
41	4	3	14	7	10	4	189	135	-
42	4	1	8	18	5	5	145	142	-
43	2	2	7	24	5	11	116	196	-
44	-	2	3	25	2	17	70	168	-
45	-	2	1	37	-	18	37	167	-
46	-	-	1	23	-	25	12	145	-
47	-	-	-	8	-	7	5	103	-
48	-	-	-	-	-	2	0	44	-
49	-	-	-	-	-	-	1	13	-
50	-	-	-	-	-	-	-	3	-
51	-	-	-	-	-	-	-	2	-
Total	102	89	52	144	32	98	1475	1639	
Depth (m)	320-320		293-272		274-280				-

Table 7 (contd)

Species:			S. diploproa			
Date:	June 26		July 17		Total	
Haul no.	20		64			
Fork length (cm)	♂	♀	♂	♀	♂	♀
10	-	-	-	-	-	-
11	-	-	-	-	-	-
12	-	-	-	-	-	-
13	-	-	-	-	-	-
14	-	-	-	-	-	-
15	-	-	-	-	-	-
16	-	-	-	-	-	-
17	-	-	-	-	-	-
18	-	-	-	-	-	-
19	1	-	-	1	1	1
20	1	-	-	0	1	0
21	3	-	-	0	3	0
22	1	3	-	0	1	3
23	0	3	-	0	0	3
24	2	2	-	0	2	2
25	0	1	-	0	0	1
26	1	0	1	1	2	1
27	6	0	2	1	8	1
28	5	2	1	0	6	2
29	13	2	2	5	15	7
30	13	1	3	0	16	1
31	16	1	3	2	19	3
32	15	2	1	4	16	6
33	12	2	4	3	16	5
34	17	2	3	0	20	2
35	5	4	3	1	8	5
36	1	5	-	8	1	13
37	-	2	-	2	-	4
38	-	1	-	3	-	4
39	-	1	-	2	-	3
40	-	-	-	1	-	1
Total	112	34	23	34	135	68
Depth (m)	309-293		320-300			

Table 7 (cont'd)

Species:	S. borealis							
Date:	June 30		July 1		July 17		Total	
Haul no.	37		39		63			
Fork length (cm)	♂	♀	♂	♀	♂	♀	♂	♀
30	-	-	-	-	-	1	-	1
31	-	-	-	-	-	0	-	0
32	-	-	-	-	-	0	-	0
33	-	-	-	-	-	0	-	0
34	-	-	-	-	-	0	-	0
35	-	-	-	-	-	0	-	0
36	-	-	-	-	-	0	-	0
37	-	-	-	-	1	0	1	0
38	-	-	-	-	0	0	0	0
39	-	-	-	-	0	0	0	0
40	-	-	-	-	0	0	0	0
41	-	-	-	-	0	0	0	0
42	-	-	-	-	0	0	0	0
43	-	-	-	-	0	0	0	0
44	-	-	-	-	0	0	0	0
45	-	-	-	-	0	0	0	0
46	-	-	-	-	0	2	0	2
47	-	-	-	-	0	0	0	0
48	-	-	-	-	0	0	0	0
49	-	-	-	-	0	0	0	0
50	-	-	-	-	0	2	0	2
51	-	-	-	-	0	0	0	0
52	-	-	-	-	0	2	0	2
53	-	-	-	-	0	2	0	2
54	-	-	-	-	0	0	0	0
55	-	-	-	-	0	2	0	2
56	-	1	-	-	0	0	0	1
57	-	0	-	-	1	1	1	1
58	1	0	-	-	3	1	4	1
59	0	0	-	-	1	1	1	1
60	1	0	-	-	0	1	1	1
61	0	0	-	-	1	2	1	2
62	0	0	1	-	4	0	5	0
63	0	1	0	-	0	0	0	1
64	1	0	0	-	0	0	1	0
65	0	0	0	1	0	0	0	1
66	0	0	0	0	2	0	2	0
67	0	1	0	0	-	0	0	1
68	0	-	0	0	-	0	0	0
69	0	-	1	2	-	0	1	2
70	1	-	-	-	-	1	1	1

Table 7 (cont'd)

Species:					S. borealis			
Date:	June 30		July 1		July 17		Total	
Haul no.	37		39		63			
Fork length (cm)	♂	♀	♂	♀	♂	♀	♂	♀
71	0	0	0	1	0	0	0	1
72	0	0	0	0	1	1	1	1
73	0	0	0	0	0	0	0	0
74	0	0	0	0	1	1	1	1
75	0	0	1	0	2	1	3	1
76	1	0	1	0	0	0	2	0
77	0	0	0	0	0	0	0	0
78	1	0	0	1	0	0	1	1
79	1	0	1	0	0	0	2	0
80	1	0	0	0	0	0	1	0
81	1	1	0	1	0	1	1	3
82	0	0	0	0	2	1	2	1
83	1	0	0	0	0	0	1	0
84	3	0	0	0	0	1	3	1
85	1	0	2	0	0	1	3	1
86	1	0	1	0	1	0	3	0
87	0	0	-	0	0	1	0	1
88	0	1	-	2	0	1	0	4
89	0	1	-	0	0	-	0	1
90	0	-	-	1	0	-	0	1
91	0	-	-	1	0	-	0	1
92	0	-	-	1	0	-	0	1
93	0	-	-	0	0	-	0	0
94	0	-	-	0	0	-	0	0
95	1	0	0	0	0	0	1	0
96	-	-	-	1	0	-	0	1
97	-	-	-	-	1	-	1	-
98	-	-	-	-	-	-	-	-
99	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-
Total	16	6	8	12	21	27	45	45
Depth (m)	391-373		293-278		411-311			

Table 7 (cont'd)

Species:	S. brevispinis							
Date:	June 23		June 28		July 2		Total	
Haul no.	6		26		42			
Fork length (cm)	♂	♀	♂	♀	♂	♀	♂	♀
30	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	-
38	-	-	1	-	-	-	1	-
39	-	-	0	-	-	-	0	-
40	-	2	0	-	-	-	0	2
41	-	0	0	-	-	-	0	0
42	-	1	3	1	-	-	3	2
43	1	0	3	4	-	-	4	4
44	0	0	0	3	1	1	1	4
45	1	0	7	3	0	1	8	4
46	2	2	5	4	0	2	7	8
47	3	2	3	2	1	1	7	5
48	1	1	8	1	7	2	16	4
49	3	4	12	4	12	1	27	9
50	4	1	10	0	19	3	33	4
51	2	4	6	2	20	11	28	17
52	3	1	7	2	12	5	22	8
53	2	2	0	1	11	7	13	10
54	2	-	0	0	7	11	9	11
55	-	-	2	0	7	6	9	6
56	-	-	0	2	0	5	0	7
57	-	-	1	1	1	2	2	3
58	-	-	-	0	-	2	-	2
59	-	-	-	2	-	0	-	2
60	-	-	-	1	-	0	-	1
61	-	-	-	0	-	2	-	2
62	-	-	-	0	-	-	-	0
63	-	-	-	0	-	-	-	0
64	-	-	-	1	-	-	-	1
65	-	-	-	-	-	-	-	-
Total	24	20	68	34	98	62	190	116
Depth (m)	283-302		205-201		227-225			

Table 7 (cont'd)

Species:	S. paucispinis		Species:	S. crameri	
Date:	July 2		Date:	July 2	
Haul no.	42		Haul no.	44	
Fork length (cm)	♂	♀	Fork length (cm)	♂	♀
60	-	1	31	-	-
61	-	0	32	-	-
62	1	0	33	1	-
63	5	1	34	1	-
64	3	2	35	1	-
65	7	0	36	0	2
66	7	2	37	0	0
67	7	3	38	3	0
68	8	3	39	6	1
69	3	1	40	2	2
70	5	8	41	3	0
71	1	6	42	0	4
72	2	2	43	4	5
73	6	1	44	1	6
74	-	0	45	3	4
75	-	0	46	2	5
76	-	0	47	1	4
77	-	0	48	-	5
78	-	0	49	-	2
79	-	0	51	-	2
80	-	1	52	-	3
Total	28	46		28	46
Depth (m)	227-225			307-304	

Table 7 (cont'd)

Species:					S. proriger					
Date:	June 23		July 2		July 5				Total	
Haul no.	7		42		54		55			
Fork length (cm)	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
20	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-
29	1	-	-	-	-	-	-	-	1	-
30	0	-	-	-	-	-	-	-	0	-
31	0	-	1	-	1	-	3	1	5	1
32	7	-	4	-	4	-	6	1	21	1
33	31	4	11	-	11	-	15	2	68	6
34	38	3	14	1	5	2	12	0	69	6
35	14	14	8	3	2	6	14	2	38	25
36	5	17	5	10	1	15	1	4	12	46
37	1	28	1	11	0	20	1	7	3	66
38	0	28	2	8	0	15	-	4	2	55
39	0	22	-	7	0	8	-	3	0	40
40	0	17	-	5	1	14	-	3	1	39
41	0	29	-	6	-	2	-	1	0	38
42	0	31	-	15	-	0	-	-	0	46
43	0	21	-	7	-	1	-	-	0	29
44	1	10	-	9	-	-	-	-	1	19
45	-	2	-	2	-	-	-	-	-	4
46	-	-	-	-	-	-	-	-	-	-
47	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-
Total	98	226	46	84	25	83	52	28	221	421
Depth (m)	252-238		227-225		278-274		183-190			

Table 7 (cont'd)

Species:					S. reedi					
Date:	June 23		June 29		June 30		July 2		July 4	
Haul no.	6		30		35		42		49	
Fork length (cm)	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
20	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	1	1	-	-	-	-
32	-	-	-	-	1	0	-	-	-	-
33	-	1	-	-	3	1	-	-	-	-
34	4	0	2	-	2	6	3	1	1	1
35	6	2	2	2	4	1	6	6	1	0
36	2	7	3	0	6	1	3	5	4	2
37	1	7	4	4	1	1	7	3	1	3
38	1	4	4	1	-	2	2	6	3	1
39	2	0	3	3	-	-	6	6	8	2
40	0	0	1	5	-	-	2	5	5	5
41	0	0	3	1	-	-	1	1	14	12
42	0	1	2	4	-	-	2	1	20	12
43	0	0	1	2	-	-	4	4	26	32
44	1	0	-	8	-	-	10	2	21	32
45	4	1	-	0	-	-	8	7	10	17
46	2	1	-	2	-	-	3	16	3	10
47	0	2	-	-	-	-	4	17	-	3
48	1	2	-	-	-	-	-	17	-	1
49	-	-	-	-	-	-	-	16	-	-
50	-	-	-	-	-	-	-	6	-	-
Total	24	28	25	32	18	13	61	119	117	133
Depth (m)	283-302		315-311		256-256		227-225		263-358	

Table 7 (cont'd)

Species:		*S. reedi* (continued)							
Date:		July 4		July 5		July 5		July 20	
Haul no.		51		54		55		78	
		♂	♀	♂	♀	♂	♀	♂	♀
Fork length (cm)	20	-	-	-	-	-	-	-	-
	21	-	-	-	-	-	-	-	-
	22	-	-	-	-	-	-	-	-
	23	-	-	-	-	-	-	-	-
	24	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	-	-
	26	-	-	-	-	-	-	-	-
	27	-	-	-	-	-	-	-	-
	28	-	-	-	-	-	-	-	-
	29	-	-	-	-	-	-	-	-
	30	-	-	-	-	-	-	-	-
	31	-	-	-	-	-	-	-	-
	32	-	-	-	-	-	-	-	-
	33	-	-	-	-	-	-	-	-
	34	1	-	1	1	-	-	-	-
	35	0	-	4	1	-	-	-	1
	36	0	-	11	10	-	-	7	1
	37	0	-	12	11	1	-	5	5
	38	0	-	18	18	3	-	6	5
	39	0	-	8	13	3	1	9	7
	40	1	-	8	15	4	1	16	10
	41	6	1	14	17	5	1	12	6
	42	18	5	17	22	23	7	15	12
	43	20	10	12	27	27	7	11	12
	44	9	5	6	10	20	4	2	5
	45	8	5	2	11	9	3	-	2
	46	1	-	-	3	9	2	-	-
	47	-	-	-	-	-	-	-	-
	48	-	-	-	-	-	-	-	-
	49	-	-	-	-	-	-	-	-
	50	-	-	-	-	-	-	-	-
Total		64	26	113	159	104	26	83	66
Depth (m)		336-384		278-274		183-190		274-280	

Table 7 (cont'd)

Species:	S. reedi (continued)				S. variegatus	
Date:	July 20		Total		July 5	
Haul no.	77				55	
Fork length (cm)	♂	♀	♂	♀	♂	♀
20	-	-	-	-	-	-
21	-	-	-	-	-	-
22	-	-	-	-	1	-
23	-	-	-	-	0	-
24	-	-	-	-	2	-
25	-	-	-	-	2	-
26	-	-	-	-	1	-
27	-	-	-	-	4	4
28	-	-	-	-	3	0
29	-	-	-	-	0	1
30	-	-	-	-	3	1
31	-	-	1	1	-	1
32	-	-	1	0	-	1
33	-	-	3	2	-	-
34	2	1	16	10	-	-
35	13	3	36	16	-	-
36	14	15	50	41	-	-
37	17	12	49	46	-	-
38	12	7	49	44	-	-
39	11	5	50	37	-	-
40	7	6	44	47	-	-
41	12	4	67	43	-	-
42	18	7	115	71	-	-
43	8	6	109	100	-	-
44	8	6	77	72	-	-
45	1	0	42	46	-	-
46	-	1	18	35	-	-
47	-	-	4	22	-	-
48	-	-	1	20	-	-
49	-	-	-	16	-	-
50	-	-	-	6	-	-
Total	123	73	732	675	16	8
Depth (m)	293-272				183-190	

Table 7 (cont'd)

Species:						S. zacentrus						
Date:	June 22				June 24			June 25		July 1	
Haul no.	2		3		10			17		40	
	♂	♀	♂	♀	♂	♀	Ukn	♂	♀	♂	♀
15	-	-	-	-	-	-	2	-	-	-	1
16	-	-	-	-	-	1	1	-	-	-	0
17	-	-	-	-	3	0	2	-	-	1	0
18	-	-	-	-	0	1	4	-	-	0	2
19	-	-	-	-	2	4	14	-	-	0	1
20	-	-	-	-	18	14	3	13	7	1	1
21	2	-	-	-	10	7	1	19	8	4	1
22	0	-	-	-	9	9	0	13	10	8	1
23	1	1	-	-	17	10	2	19	6	9	1
24	5	0	-	-	22	7	0	25	11	18	3
25	2	1	-	-	33	9	0	26	13	19	4
26	5	2	-	1	30	16	0	17	8	23	7
27	5	4	1	0	18	17	0	12	3	22	13
28	1	0	0	0	14	11	1	1	6	11	9
29	-	0	0	0	5	13	-	1	3	6	16
30	-	2	0	1	1	13	-	0	1	1	14
31	-	0	1	1	-	12	-	1	-	-	9
32	-	0	1	0	-	13	-	-	-	-	6
33	-	0	0	1	-	24	-	-	-	-	9
34	-	1	1	0	-	22	-	-	-	-	5
35	-	-	3	0	-	33	-	-	-	-	-
36	-	-	0	1	-	37	-	-	-	-	-
37	-	-	2	-	-	23	-	-	-	-	-
38	-	-	-	-	-	16	-	-	-	-	-
39	-	-	-	-	-	8	-	-	-	-	-
40	-	-	-	-	-	0	-	-	-	-	-
41	-	-	-	-	-	1	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-	-	-	-
Total	21	11	9	5	182	321	30	147	76	123	103
Depth (m)	304-304		201-201		216-192			208-199		238-234	

Fork length (cm)

Table 7 (cont'd)

Species:	S. zacentrus (cont'd)		
	Total		
Fork length (cm)	♂	♀	Ukn
15	-	1	2
16	-	1	1
17	4	0	2
18	0	3	4
19	2	5	14
20	32	22	3
21	35	16	1
22	30	20	0
23	46	18	2
24	70	21	0
25	80	27	0
26	75	34	0
27	58	37	0
28	27	26	1
29	12	32	-
30	2	31	-
31	2	22	-
32	1	19	-
33	0	34	-
34	1	28	-
35	3	33	-
36	0	38	-
37	2	23	-
38	-	16	-
39	-	8	-
40	-	0	-
41	-	1	-
42	-	-	-
43	-	-	-
44	-	-	-
45	-	-	-
Total	482	516	30

Table 7 (cont'd)

Species:				Sebastolobus alascanus				
Date:	June 25			July 20			Total	
Haul no.	15			80				
Fork length (cm)	♂	♀	Ukn	♂	♀	Ukn	♂	♀
10	-	-	-	-	-	-	-	-
11	-	-	1	-	-	-	-	-
12	-	-	-	-	-	1	-	-
13	-	-	-	-	-	0	-	-
14	-	2	-	-	-	2	-	2
15	-	3	-	-	1	1	-	4
16	3	2	-	4	1	1	7	3
17	0	9	-	4	2	0	4	11
18	6	15	-	1	0	0	7	15
19	7	15	-	3	1	10	10	16
20	17	18	-	1	5	-	18	23
21	5	9	-	6	4	-	11	13
22	14	13	-	6	9	-	20	22
23	12	10	-	4	12	-	16	22
24	17	6	-	13	13	-	30	19
25	13	10	-	9	13	-	22	23
26	11	8	-	7	10	-	18	18
27	11	6	-	7	8	-	18	14
28	3	3	-	1	11	-	4	14
29	3	1	-	7	12	-	10	13
30	2	0	-	3	6	-	5	6
31	1	2	-	2	0	-	3	2
32	-	1	-	2	1	-	2	2
33	-	0	-	2	1	-	2	1
34	-	0	-	0	1	-	0	1
35	-	1	-	1	1	-	1	2
36	-	0	-	0	0	-	0	0
37	-	0	-	0	0	-	0	0
38	-	0	-	2	1	-	2	1
39	-	0	-	0	0	-	0	0
40	-	1	-	1	1	-	1	2
41	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-
Total	125	135	1	86	114	5	211	249
Depth (m)	304-300			318-252				

Table 7 (cont'd)

Species:	Turbot			Pollock	
Date:	June 28			July 19	
Haul no.	22			73	
Fork length (cm)	♂	♀	Ukn	♂	♀
18	-	-	-	2	3
19	-	-	-	3	5
20	-	-	-	0	3
21	-	-	-	3	3
22	-	-	1	1	2
23	-	-	1	2	0
24	-	-	3	0	0
25	-	2	-	1	0
26	-	1	-	3	0
27	-	1	-	4	5
28	-	1	-	1	5
29	-	1	-	5	9
30	-	0	-	2	9
31	-	0	-	4	11
32	2	0	-	5	11
33	1	1	-	1	17
34	3	2	-	4	15
35	5	0	-	1	21
36	5	2	-	2	9
37	5	3	-	1	2
38	9	2	-	0	7
39	6	2	-	1	1
40	13	1	-	-	2
41	5	1	-	-	-
42	4	4	-	-	-
43	1	6	-	-	-
44	3	6	-	-	-
45	1	6	-	-	-
46	-	15	-	-	-
47	-	7	-	-	-
48	-	6	-	-	-
49	-	1	-	-	-
50	-	3	-	-	-
51	-	2	-	-	-
52	-	2	-	-	-
53	-	0	-	-	-
54	-	0	-	-	-
55	-	0	-	-	-
56	-	0	-	-	-
57	-	1	-	-	-
58	-	1	-	-	-
Total	63	80	5	46	140
Depth (m)	198-201			119-108	

Table 7 (cont'd)

Species:	Sablefish	
Date:	June 23	
Haul no.	5	
	♂	♀
55	-	-
56	-	-
57	-	-
58	1	-
59	3	-
60	0	-
61	2	1
62	2	0
63	6	0
64	8	3
65	4	1
66	5	0
67	3	1
68	1	0
69	1	1
70	0	1
71	2	1
72	1	4
73	-	1
74	-	0
75	-	0
76	-	1
77	-	1
78	-	-
79	-	-
80	-	-
Total	39	16
Depth (m)	366-351	

Table 8. Size composition of species collected during the M.V. BLUE WATERS cruise, September 5-30, 1978.

Species:	*S. zacentrus*							
Date:	Sept. 7		Sept. 18		Sept. 20		Total	
Haul no.	3		26		32			
Fork length (cm)	♂	♀	♂	♀	♂	♀	♂	♀
10	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-
18	1	-	-	-	-	-	1	-
19	2	-	-	-	-	-	2	-
20	1	2	-	2	-	-	1	4
21	3	4	1	0	-	1	4	5
22	4	1	1	1	-	0	5	2
23	17	1	0	0	-	0	17	1
24	13	8	4	2	4	0	21	10
25	18	13	4	3	2	2	24	18
26	13	18	6	4	4	1	23	23
27	18	17	11	5	12	3	41	25
28	3	16	8	10	4	6	15	32
29	1	9	9	8	6	11	16	28
30	-	7	1	16	4	11	5	34
31	-	6	4	11	2	5	6	22
32	-	1	1	14	-	10	1	25
33	-	3	-	15	-	4	-	22
34	-	2	-	11	-	7	-	20
35	-	2	-	8	-	15	-	25
36	-	3	-	8	-	7	-	18
37	-	-	-	3	-	11	-	14
38	-	-	-	-	-	5	-	5
39	-	-	-	-	-	3	-	3
40	-	-	-	-	-	-	-	-
Total	94	113	50	121	38	102	182	336
Depth (m)	150-157		203-208		179-176			

Table 8 (cont'd)

Species:						S. proriger						
Date:	Sept. 7		Sept. 18		Sept. 23		Sept. 22		Sept. 28		Total	
Haul no.	3		25		37		34		43			
Fork length (cm)	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	1	3	-	-	-	-	-	-	1	3
23	-	-	5	4	-	-	-	-	-	-	5	4
24	2	1	5	3	-	-	1	-	-	-	8	4
25	3	0	4	1	-	-	0	-	-	-	7	1
26	6	2	4	6	-	-	0	-	-	-	10	8
27	15	1	3	5	3	-	1	-	1	-	23	6
28	18	5	0	1	4	1	0	-	3	1	25	8
29	21	2	0	-	11	1	1	1	9	0	42	4
30	8	8	1	-	7	6	11	0	11	2	38	16
31	6	8	-	-	3	12	5	0	14	3	28	23
32	3	9	-	-	5	11	2	2	7	1	17	23
33	1	14	-	-	1	26	-	3	6	8	8	51
34	-	8	-	-	1	23	-	2	1	2	2	35
35	-	7	-	-	1	16	-	5	-	7	1	35
36	-	3	-	-	-	5	-	1	-	5	-	14
37	-	1	-	-	-	5	-	2	-	13	-	21
38	-	1	-	-	-	1	-	1	-	12	-	15
39	-	1	-	-	-	2	-	2	-	5	-	10
40	-	-	-	-	-	2	-	0	-	12	-	14
41	-	-	-	-	-	1	-	2	-	5	-	8
42	-	-	-	-	-	1	-	1	-	2	-	4
43	-	-	-	-	-	1	-	0	-	3	-	4
44	-	-	-	-	-	-	-	1	-	1	-	2
45	-	-	-	-	-	-	-	-	-	-	-	-
Total	83	71	23	23	36	114	21	23	52	32	215	313
Depth (m)	150-157		123-123		212-192		183-201		174-166			

Table 8 (cont'd)

Species:			*S. flavidus*				*S. pinniger*	
Date:	Sept. 9		Sept. 12		Total		Sept. 7	
Haul no.	7		21				3	
Fork length (cm)	♂	♀	♂	♀	♂	♀	♂	♀
30	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-
33	-	1	-	-	-	1	-	-
34	-	1	-	-	-	1	-	-
35	-	4	-	-	-	4	-	-
36	5	3	-	-	5	3	-	-
37	2	3	-	2	2	5	-	-
38	4	7	-	0	4	7	-	-
39	7	5	1	3	8	8	-	-
40	4	6	1	1	5	7	-	-
41	3	4	2	3	5	7	-	-
42	5	1	4	1	9	2	1	-
43	4	3	5	3	9	6	1	1
44	7	2	8	1	15	3	1	0
45	4	1	16	0	20	1	4	1
46	9	1	17	0	26	1	2	1
47	12	1	31	0	43	1	2	4
48	9	2	14	1	23	3	6	0
49	2	4	12	1	14	5	5	2
50	4	1	5	3	9	4	13	3
51	-	2	1	4	1	6	8	3
52	-	1	0	3	0	4	6	1
53	-	0	1	3	1	3	14	2
54	-	1	-	1	-	2	7	2
55	-	-	-	-	-	-	9	3
56	-	-	-	-	-	-	3	4
57	-	-	-	-	-	-	1	1
58	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-
Total	81	54	118	30	199	84	83	28
Depth (m)	121-121		143-155				150-157	

Table 8 (cont'd)

Species:				S. diploproa				
Date:	Sept. 9			Sept. 18		Total		
Haul no.	9			28				
Fork length (cm)	♂	♀	Unk	♂	♀	♂	♀	Unk
10	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-
18	-	-	1	1	-	1	-	1
19	-	1	1	0	-	0	1	1
20	-	4	0	0	-	0	4	0
21	-	2	1	1	-	1	2	1
22	2	6	3	3	1	5	7	3
23	4	11	3	1	5	5	16	3
24	3	10	1	3	3	6	13	1
25	5	7	-	6	1	11	8	-
26	5	3	-	6	2	11	5	-
27	0	6	-	21	5	21	11	-
28	1	1	-	19	10	20	11	-
29	0	3	-	13	12	13	15	-
30	1	5	-	6	11	7	16	-
31	1	1	-	13	5	14	6	-
32	2	2	-	8	3	10	5	-
33	3	4	-	9	5	12	9	-
34	3	0	-	7	3	10	3	-
35	1	0	-	1	1	2	1	-
36	3	0	-	1	3	4	3	-
37	1	1	-	-	3	1	4	-
38	-	4	-	-	6	-	10	-
39	-	5	-	-	1	-	6	-
40	-	4	-	-	1	-	5	-
41	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-
Total	35	80	10	119	81	154	161	10
Depth (m)		161-168			256-263			

Table 8 (cont'd)

Species:	S. brevispinis		S. babcocki		S. entomelas	
Date:	Sept. 10		Sept. 11		Sept. 12	
Haul no.	14		20		21	
Fork length (cm)	♂	♀	♂	♀	♂	♀
30	-	-	-	-	-	-
31	-	-	-	-	-	-
32	-	-	-	1	-	-
33	-	1	-	0	-	-
34	-	0	-	0	-	-
35	-	0	-	0	-	-
36	-	0	-	0	1	-
37	-	0	1	0	1	-
38	-	0	2	1	0	-
39	-	0	0	0	3	-
40	1	0	0	2	4	1
41	1	0	3	0	1	1
42	0	0	1	0	3	1
43	0	0	0	0	3	1
44	0	0	3	1	3	1
45	0	1	4	0	4	0
46	0	0	1	0	2	6
47	0	0	5	1	6	2
48	0	0	5	2	12	2
49	0	0	3	2	11	2
50	0	0	3	4	15	4
51	0	0	0	1	6	10
52	0	0	2	1	-	5
53	1	0	0	0	-	8
54	4	1	2	0	-	8
55	4	1	-	0	-	9
56	1	0	-	0	-	3
57	0	5	-	0	-	-
58	1	5	-	1	-	-
59	2	4	-	-	-	-
60	1	9	-	-	-	-
61	-	2	-	-	-	-
62	-	4	-	-	-	-
63	-	3	-	-	-	-
64	-	-	-	-	-	-
65	-	-	-	-	-	-
Total	14	34	35	17	75	63
Depth (m)	113-113		229-210		143-155	

Table 8 (cont'd)

Species:			*S. reedi*			
Date:	Sept. 20		Sept. 21		Total	
Haul no.	31		33			
Fork length (cm)	♂	♀	♂	♀	♂	♀
30	-	-	-	-	-	-
31	-	-	-	-	-	-
32	-	-	-	-	-	-
33	-	-	-	-	-	-
34	-	-	-	-	-	-
35	-	-	-	-	-	-
36	1	-	-	-	1	-
37	0	-	-	-	0	-
38	1	-	-	-	1	-
39	0	1	-	-	0	1
40	2	0	2	1	4	1
41	3	0	2	3	5	3
42	6	1	6	3	12	4
43	9	6	12	11	21	17
44	24	8	17	10	41	18
45	19	7	19	9	38	16
46	15	6	13	13	28	19
47	6	5	5	14	11	19
48	3	2	1	11	4	13
49	0	1	-	12	0	13
50	2	-	-	2	2	2
51	-	-	-	3	-	3
52	-	-	-	-	-	-
53	-	-	-	-	-	-
54	-	-	-	-	-	-
55	-	-	-	-	-	-
Total	91	37	77	92	168	129
Depth (m)	208-223		230-229			

Table 9. Summary of maturities[a] collected during M/V BLUE WATERS rockfish cruise, June 19-July 8; July 15-21, 1978.

SPECIES: S. diploproa
LOCALITY: NW Frederick Island
DATE: June 28, 1978
HAUL: No. 20
DEPTH (m): 293-309 m

	MALE								FEMALE						
CONDITION	1	9	8	8A	8B	8C	8D	8E	1	2	3	4	5	6	7
LENGTH (cm)															
19	1														
20	1														
21	3	1													
22	1								2	1					
23					1				1	2					
24	2									2					
25										1					
26															
27		1			5										
28					4						1		1		
29					15						2				
30					13					1					
31				1	14							1			
32					14								1	1	
33					12						1		1		
34					18									2	
35					5								1	3	
36					1								3	2	
37													1	1	
38														1	
39														1	
SUB TOTAL	8	2		1	102				3	7	4	1	8	11	
% MATURITY	7%	2%		1%	90%				9%	21%	13%	3%	24%	32%	
TOTAL	113								34						
SEX RATIO	77%								23%						

[a]Table 10 contains the description of rockfish maturities.

Table 9 (cont'd)

SPECIES: S. diploproa
LOCALITY: W. Mike Inlet
DATE: July 17, 1978
HAUL: No. 64
DEPTH (m): 320 m

	MALE								FEMALE						
CONDITION	1	9	8	8A	8B	8C	8D	8E	1	2	3	4	5	6	7
LENGTH (cm)															
19									1						
26	1								1						
27					2				1						
28					1										
29					2					3	2				
30				1	2										1
31					3									2	
32					1							1	1	2	
33					4								1	1	1
34					3									1	
35					3									1	
36													4	4	
37													1		
38													1	2	
39													1	1	
40														1	
SUB TOTAL	1			1	21				3	3	2	1	9	15	2
% MATURITY	4%			4%	92%				9%	9%	6%	3%	26%	43%	6%
TOTAL	23								35						
SEX RATIO	40%								60%						

Table 9 (cont'd)

SPECIES: S. paucispinis
LOCALITY: SW Englefield Bay
DATE: July 2, 1978
HAUL: No. 42
DEPTH (m): 225-227 m

	MALE								FEMALE						
CONDITION	1	9	8	8A	8B	8C	8D	8E	1	2	3	4	5	6	7
LENGTH (cm)															
60														1	
61															
62						1									
63					1	4								1	
64						3					1				
65						7									
66					1	7					1			2	
67						6								3	
68						8								3	
69						3								1	
70						5					1			6	
71						1								6	
72						2								3	
73					1	5								1	
74															
75															
76														1	
77															
78															
79															
80														1	
SUB TOTAL					3	52					3			29	
% MATURITY					5%	95%					9%			91%	
TOTAL	55								32						
SEX RATIO	63%								37%						

Table 9 (contd)

SPECIES: S. reedi
LOCALITY: Rennell Sound
DATE: July 20, 1978
HAUL: No. 78
DEPTH (m): 274-280 m

	MALE								FEMALE						
CONDITION	I	9	8	8A	8B	8C	8D	8E	I	2	3	4	5	6	7
LENGTH (cm)															
35											1				
36		2			2										
37		3			1					2	1				1
38		2			2					1	2			1	
39		4			4						2				5
40					14					2	1				6
41		1			5	1									4
42					12									1	10
43					9	1								1	9
44					2									1	3
45															1
SUB TOTAL		12			51	2				5	7			4	39
% MATURITY		18%			78%	3%				9%	13%			7%	71%
TOTAL					65						55				
SEX RATIO					54%						46%				

Table 10. Description of rockfish maturity stages[1].

Maturity code		Gonad condition
	1	IMMATURE (translucent; males, stringlike; females, small)
FEMALES:	2	MATURING (small, yellow eggs; translucent or opaque)
	3	MATURE (large, yellow eggs; opaque)
	4	FERTILIZED (large, orange-yellow eggs; translucent)
	5	EMBRYOS or LARVAE (includes eyed eggs)
	6	SPENT (large, flaccid, red ovaries. A few larvae may be present)
	7	RESTING (moderate size, firm, red-grey ovaries)
MALES:	8	MATURE (ribbon-like; small brown to large white)
	8A	RESTING (ribbon-like; small, brown)
	8B	DEVELOPING (swelling, brown-white)
	8C	DEVELOPED (large, white; easily broken)
	8D	RUNNING (running sperm)
	8E	SPENT (flaccid, red)
	9	MATURING (stringlike, translucent, white)

[1]Slightly modified version of the stages described by Harling (1971). In Sebastes flavidus an intermediate stage, characterized by small white testes, exists between the resting (8A) and the developing (8B) stages. Some color variations also occur in the female maturing stage (2). S. reedi ovaries exhibit small orange eggs while S. aleutianus and S. brevispinis eggs are small and pinkish in color.

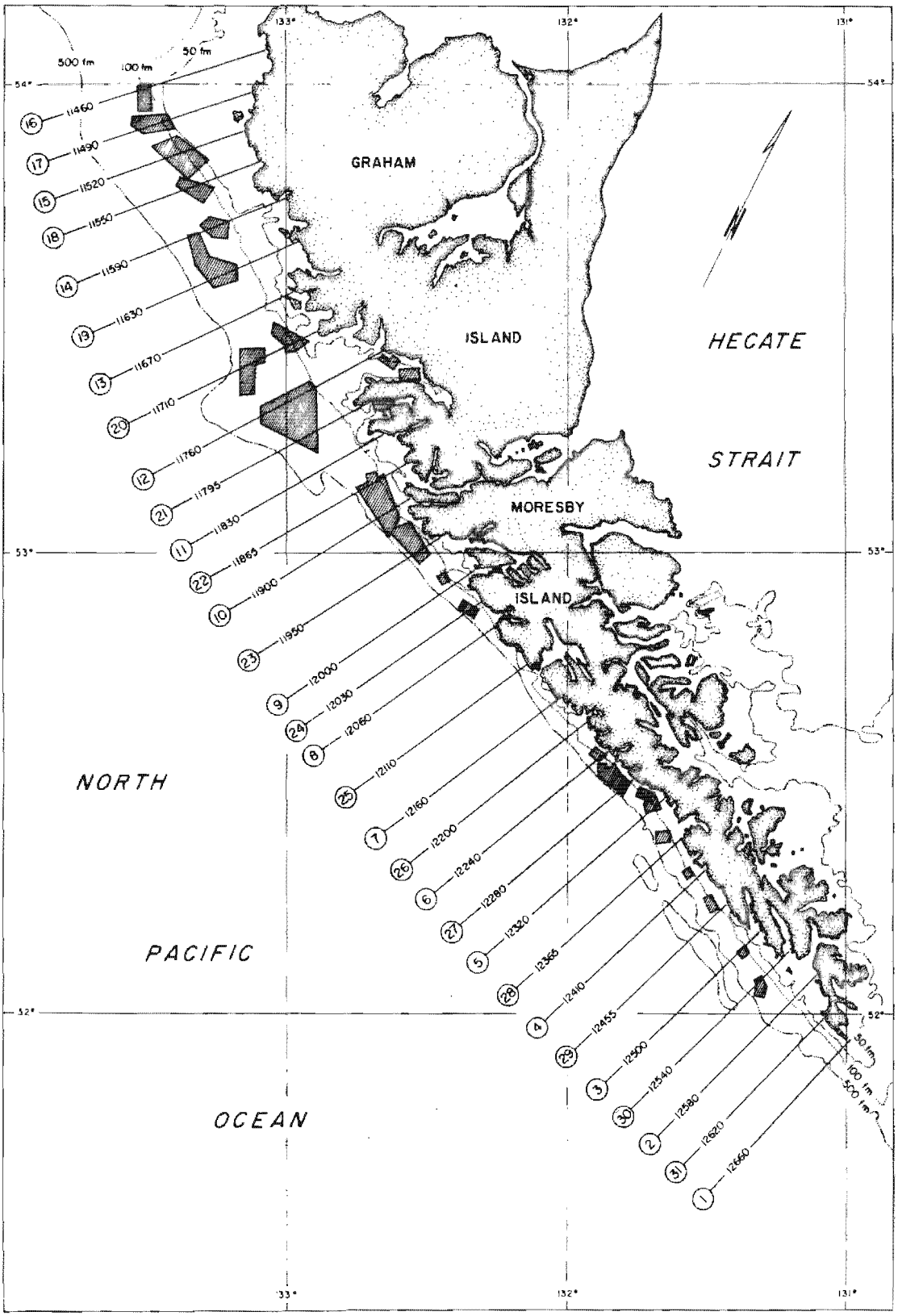


Fig. 1. Locations of tracklines and trawlable areas (hatched) for the west coast of the Queen Charlotte Islands, as estimated on BW 78-1, June 19-July 8; July 15-21, 1978.

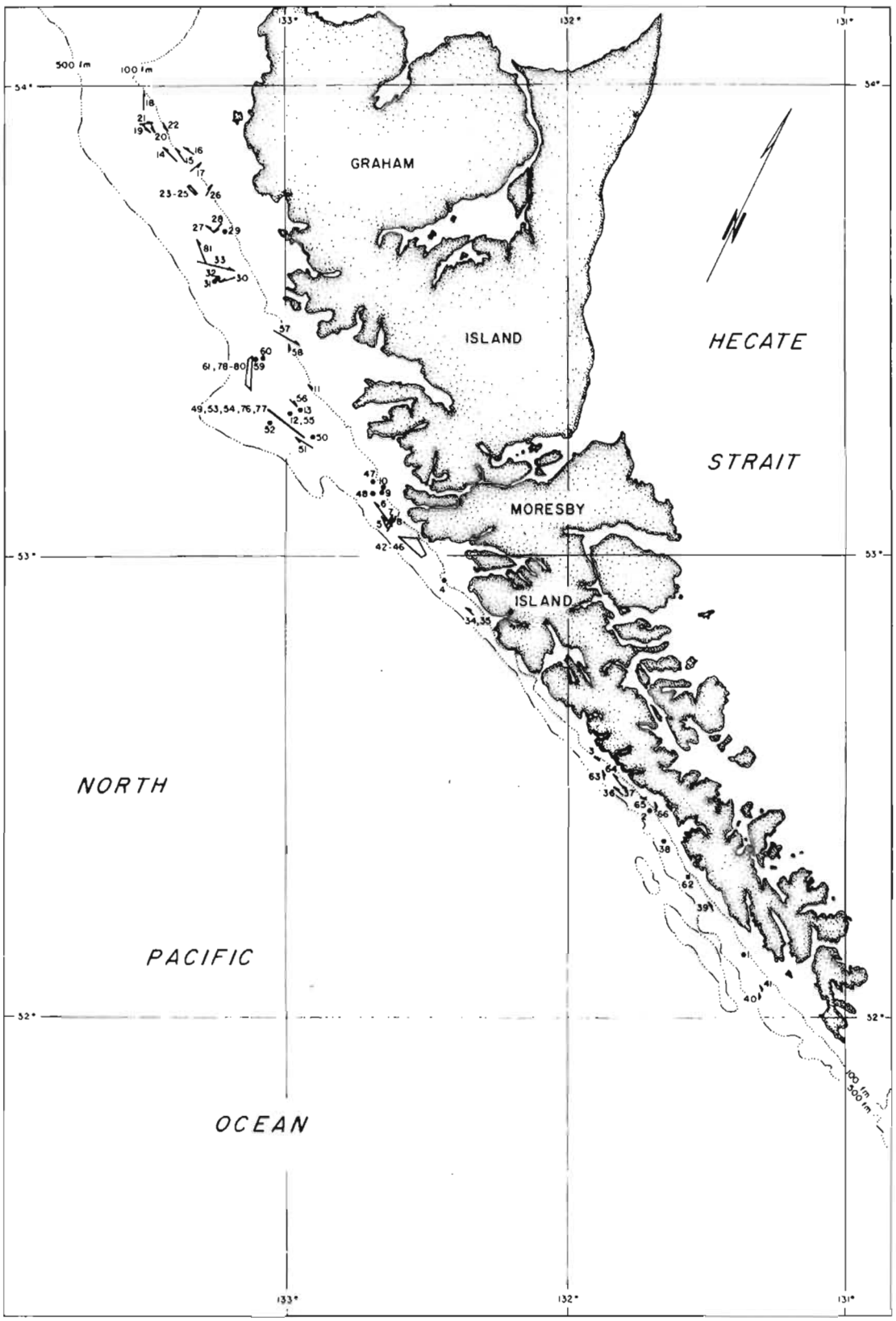


Fig. 2. Locations of trawl hauls, BLUE WATERS rockfish cruise, June 19-July 8; July 15-21, 1978.

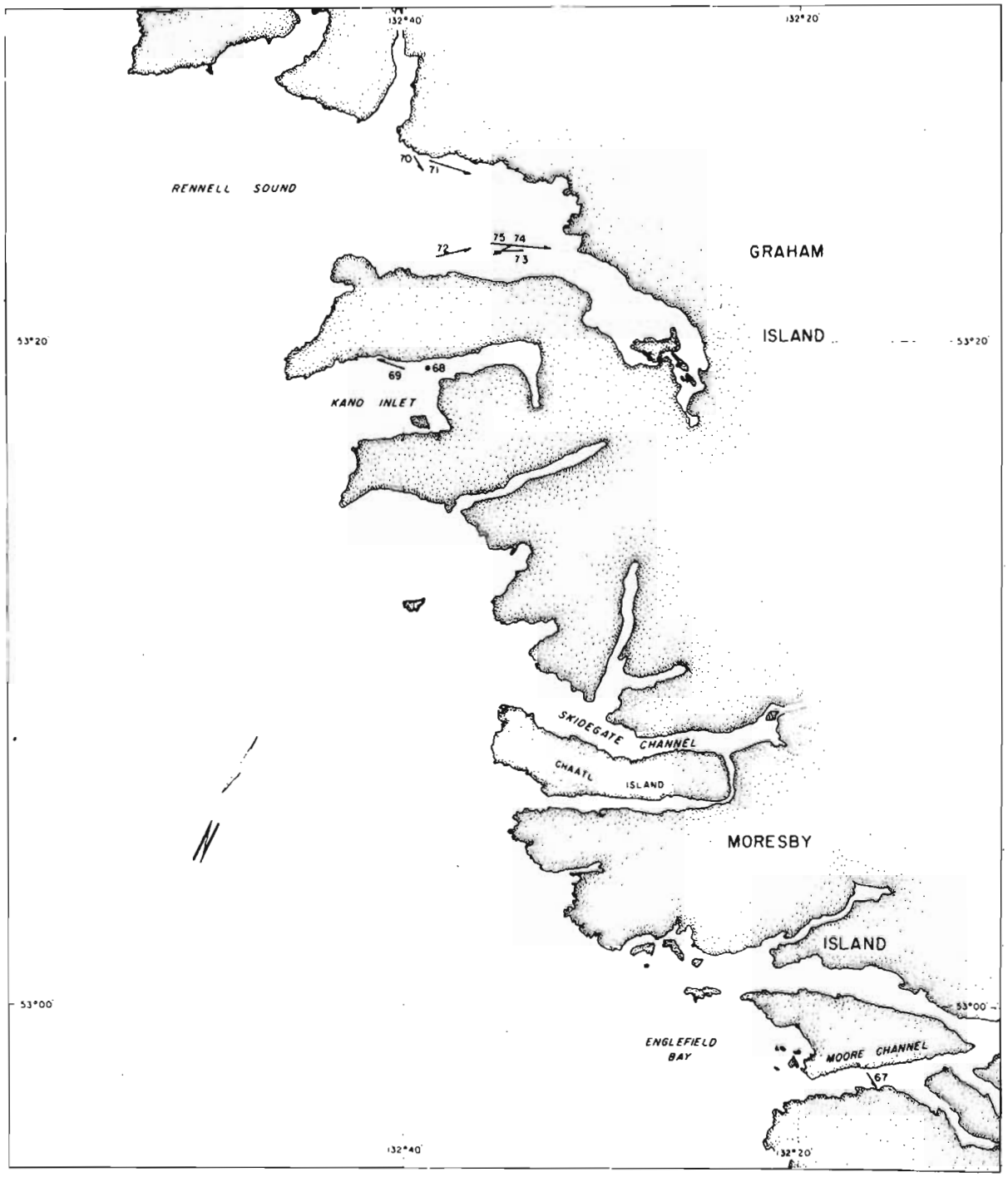


Fig. 3. Locations of hauls made by M/V BLUE WATERS, June 19-July 8; July 15-21, 1978.

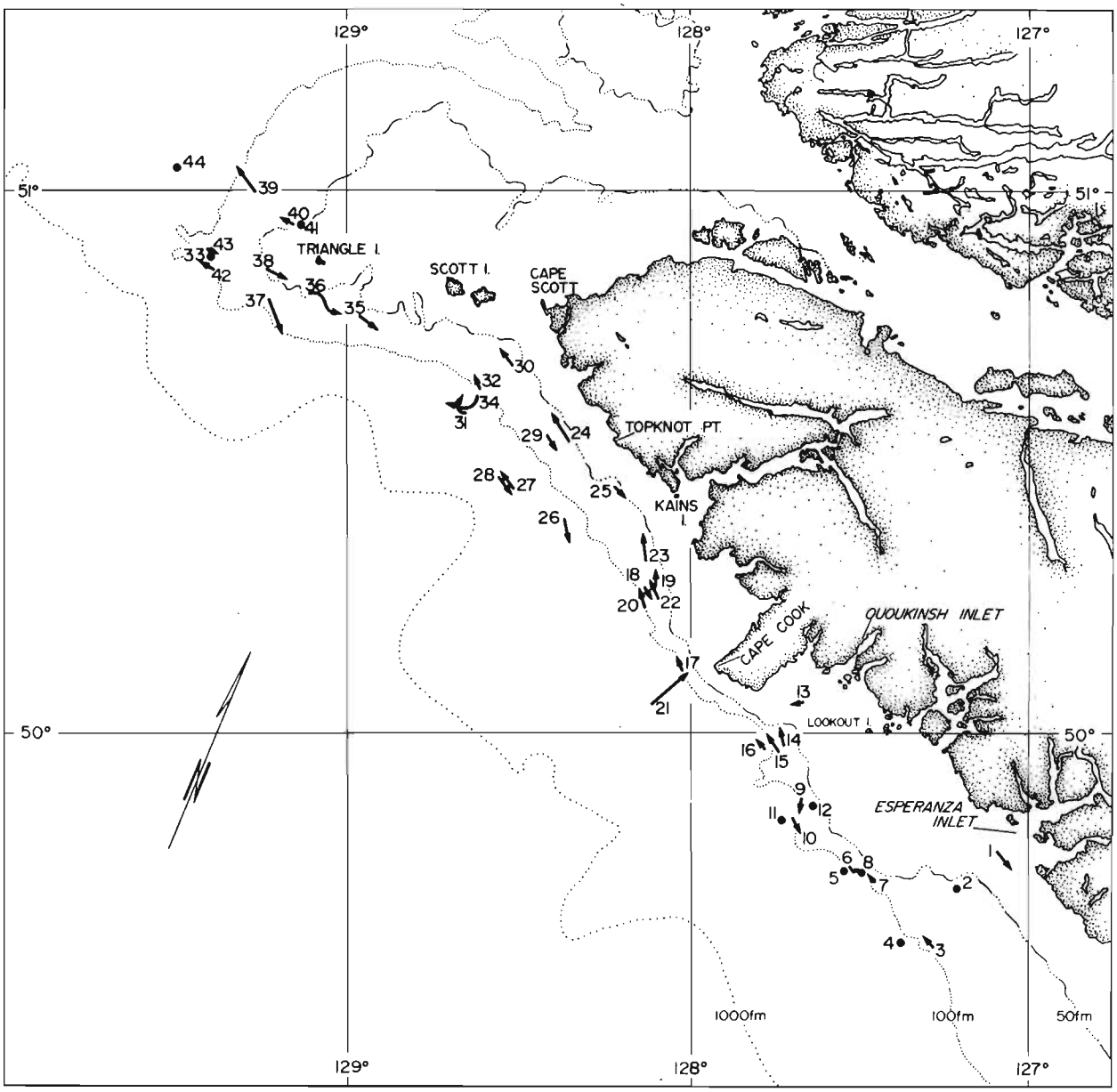


Fig. 4. Locations of hauls made by the M/V BLUE WATERS, Sept. 5-30, 1978.

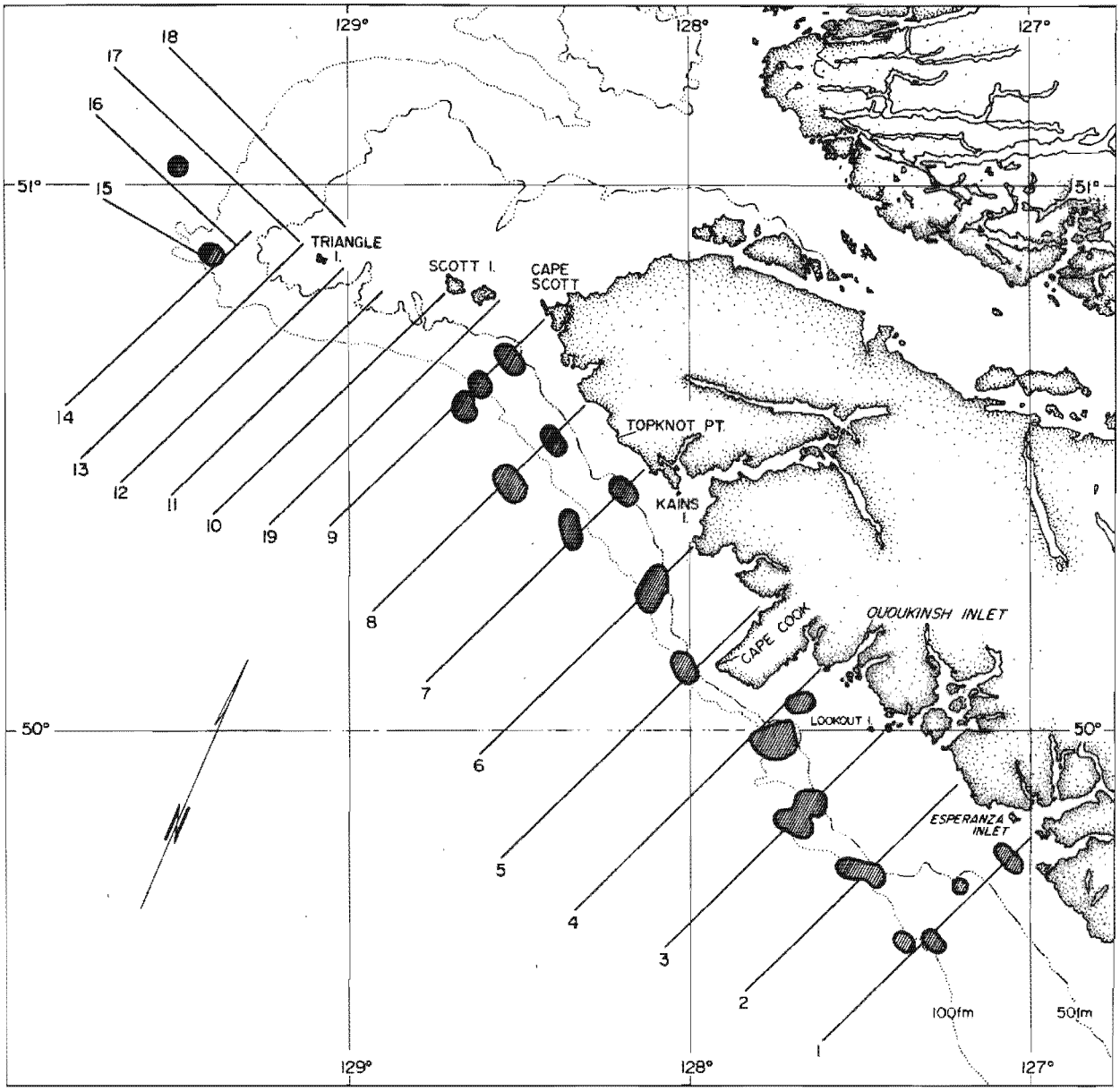


Fig. 5. Locations of tracklines and trawlable areas (hatched) for the northwest coast of Vancouver Island. BW 78-2, September 5-30, 1978.

Appendix Table 1. Vessel specifications.

Type: Stern trawler

Vessel: BLUE WATERS

Skipper: Mr. Donald Vaccher

Normal landing port: Prince Rupert

Gross tons: 180

Overall length: 28 m

Hp: 640

Crew: 4

Approximate payload: 124,738 kg

Fish storage: RSW

Sounder: Simrad, Elac

Radio: 4

Radar: 1 (Furuno)

Autopilot: 1 (Decca)

Loran: 2 (Internav, Bendix)

Sounder (net): 1 (Elac)

Trawl gear: Double

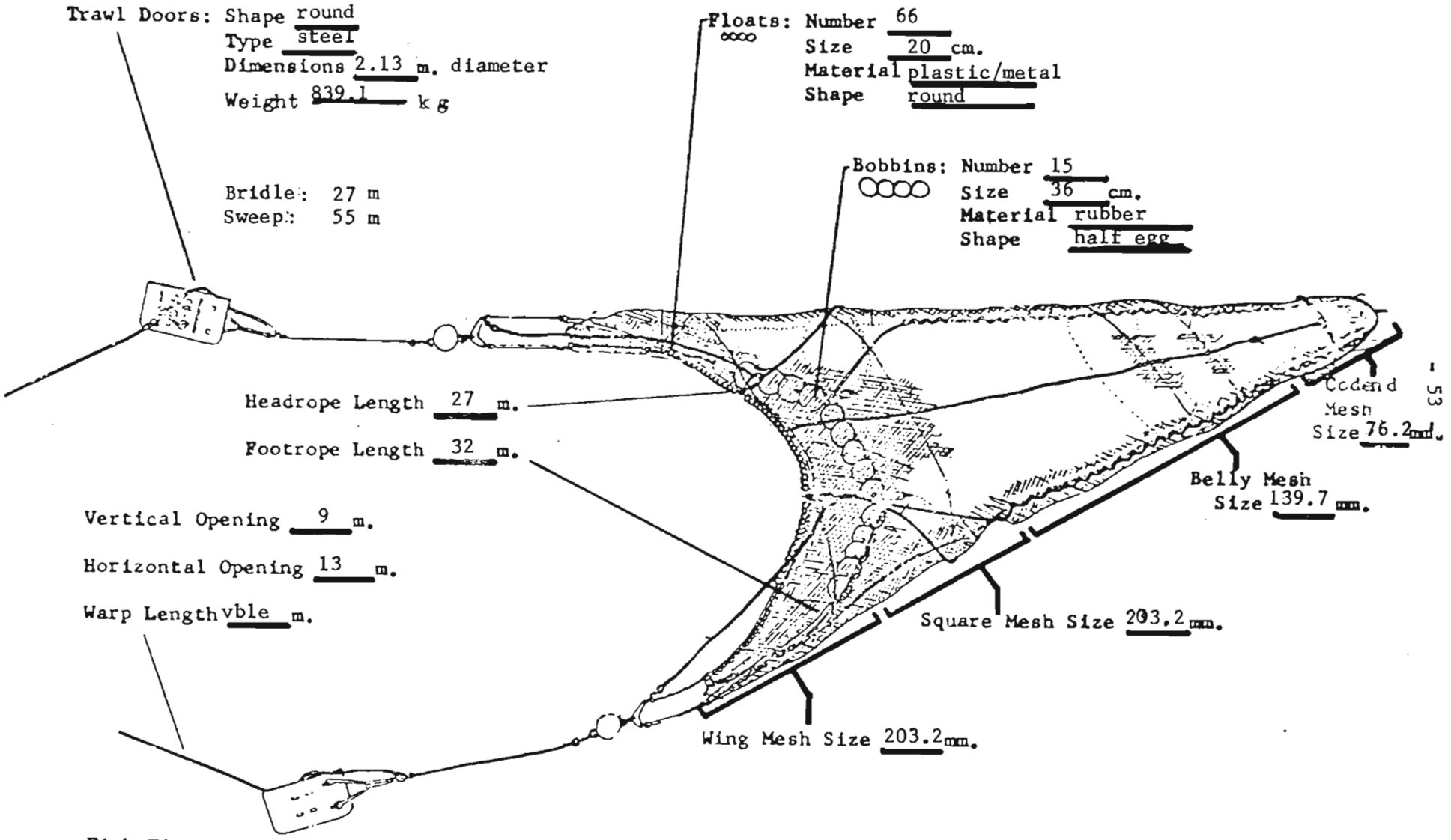
Winches: Double

Cable: amount per spool: Single -- length: 915 m; diameter: 1.9 cm

Net reel: Seine (hydraulic)

Appendix Table 2. Net dimensions of the Nor'Eastern trawl.

Vessel BLUE WATERS Observation Period September 5-30, 1978

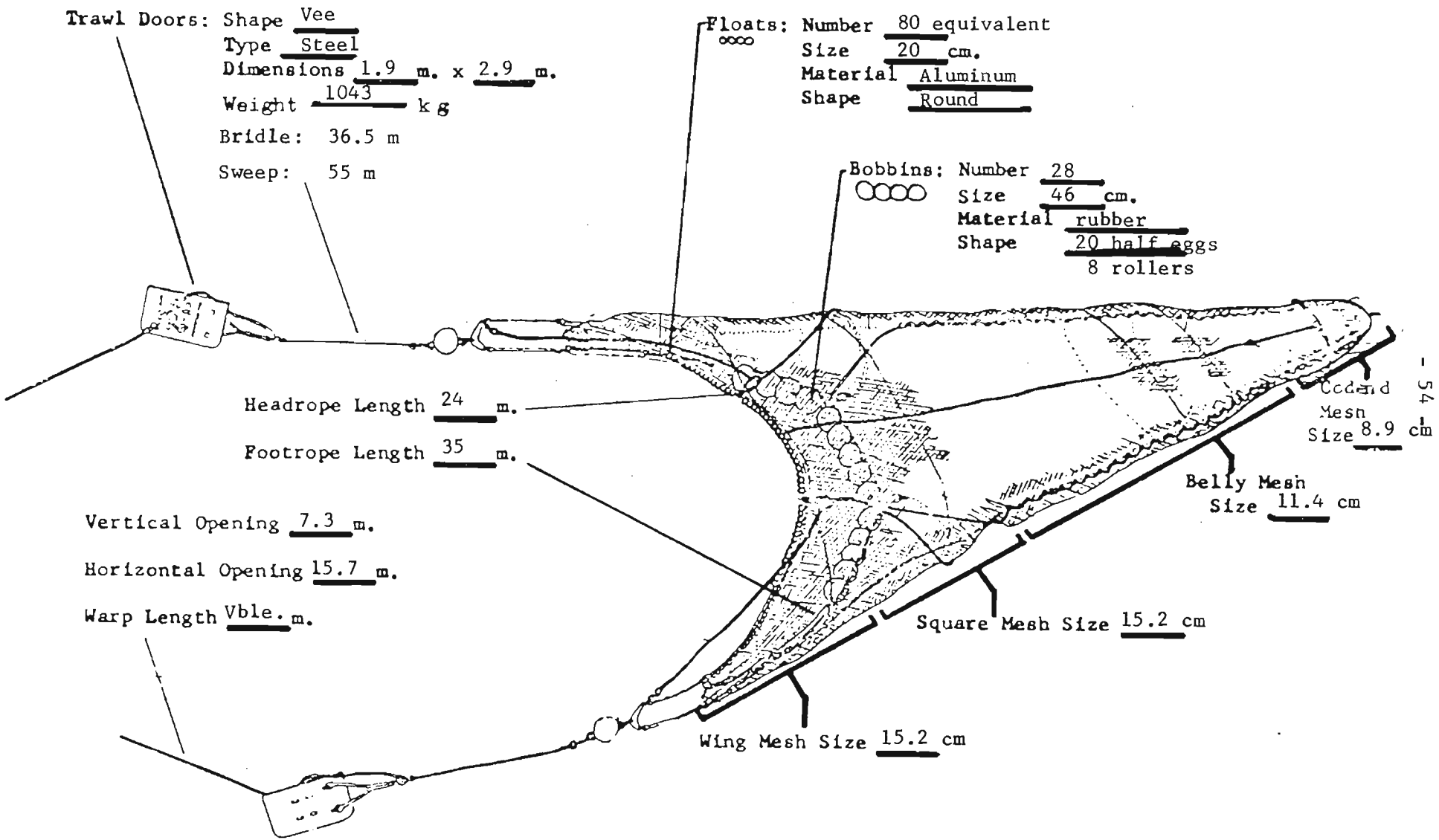


Fish Finder
Name
Model Number
Frequency kc.
Paper Type (wet or dry)
Speed of Advance

Net Recorder
Name
Model Number
Frequency kc.

Appendix Table 3. Net dimensions of the Atlantic Western III bottom trawl.

Vessel BLUE WATERS Observation Period June 19-July 8; July 15-21, 1978



Fish Finder
Name
Model Number
Frequency kc.
Paper Type (wet or dry)
Speed of Advance

Net Recorder None used
Name
Model Number
Frequency kc.

Appendix table 4. Net dimensions of the Diamond VII Midwater Trawl.

NET DIMENSIONS AND CHARACTERISTICS FOR MIDWATER TRAWL

VESSEL NAME BLUE WATERS VESSEL TYPE Stern trawler OBSERVATION PERIOD September 5-30, 1978

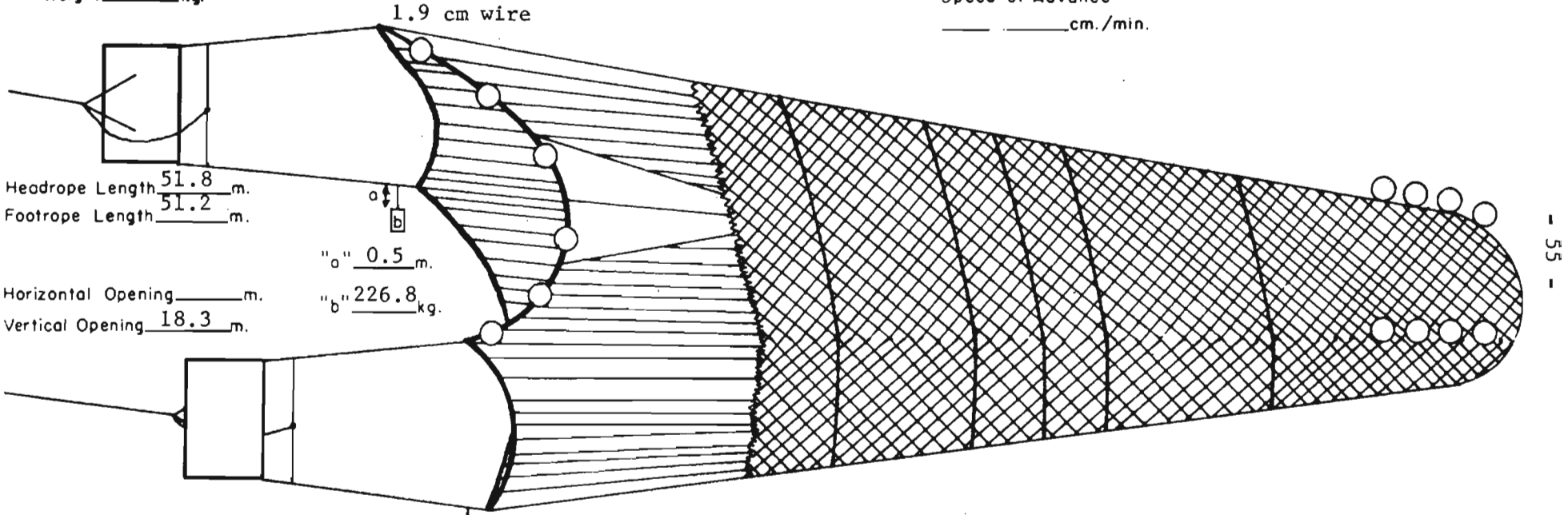
TRAWL DOORS
Shape Round
Type Steel
Dimensions ___m. x 2.13 dia. m.
Weight 839.1 kg.

SWEEPLINE / DANDYLINE
Length 73.2 m.

FLOATS
Number 60
Size 20.3 cm.
Shape round
Material Plastic

FISH FINDER
Name ___
Model No. ___
Frequency ___ kc.
Paper Type (wet or dry)
Speed of Advance
___ ___ cm./min.

NET RECORDER
Name ELAC
Model No. LAZ 72
Frequency ___ kc.



Length: 23.8 m. | 8.4 m. | 8.6 m. | 20.7 m. | 10.2 m. | 10.5 m. | 7.6 m | 6.1 m.

MESH SIZE: 81.3 cm. | 81.3 cm. | 55.9 cm. | 40.6 cm. | 20.3 cm. | 12.1 cm. | 7.6 cm | 8.9 cm.

WINGS
(mesh or line)
Mesh Size 81.3 cm.
Line Spacing ___ cm.
Line Thickness ___ cm.
Material Poly
Height of Wings ___ m.

Mesh Material
Poly

CODEND
(floats ~~or weights~~)
Number 2
Size 30.5 cm.
Weight ___ kg.
Material Plastic
Shape Round

Appendix Table 5. Fishing log for M.V. BLUE WATERS rockfish cruise (BW 78-1) June 19-July 8; July 15-21, 1978. (See footnotes for explanation of terms.)

Haul no.	1	2	3	4	5	6
Date:	June 21	June 22	June 22	June 23	June 23	June 23
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	1810	1016	1515	0840	1130	1315
Duration (min):	7	10	32	8	30	30
Start N. lat. (deg)	052	052	052	053	053	053
(min)	08.0	26.5	26.5	09.0	04.0	04.0
W. long. (deg)	131	131	131	132	132	132
(min)	23.0	42.0	53.0	31.0	39.0	38.0
Direction (deg. true):	010	340	310	360	320	310
Finish N. lat. (deg)	052	052	052	053	053	053
(min)	08.0	27.0	33.5	09.0	05.0	06.0
W. long. (deg)	131	131	131	132	132	132
(min)	23.0	42.5	53.5	31.0	40.0	41.0
Distance travelled:	0.35	0.5	1.6	0.4	1.5	1.7
Depth (meters):	293-263	304-304	201-201	219-210	366-351	203-302
Type of gear:	3	3	3	3	3	3
Total catch:	0	25	53	0	391	2953
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	1	2	3	4	5	6
Date:	June 21	June 22	June 22	June 23	June 23	June 23
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	0	25	53	0	391	2953
Flatfish						
Dover sole	-	-	-	-	23	Tr
Rex sole	-	-	8	-	-	-
Rock sole	-	-	-	-	-	-
Turbot	-	1	8	-	53	126
Others	-	-	2	-	-	-
Sub-total	-	1	18	-	76	126
Roundfish						
S. aleutianus	-	-	-	-	Tr	-
S. alutus	-	1	1	-	44	2008
S. babcocki	-	1	3	-	6	-
S. borealis	-	-	-	-	39	22
S. brevispinis	-	-	-	-	Tr	298
S. crameri	-	-	-	-	11	-
S. diploproa	-	1	-	-	Tr	-
S. helvomaculatus	-	2	Tr	-	-	-
S. paucispinis	-	-	4	-	-	65
S. pinniger	-	-	-	-	-	-
S. proriger	-	-	-	-	-	65
S. reedi	-	-	-	-	-	213
S. zacentrus	-	16	6	-	Tr	Tr
Seb. alascanus	-	1	-	-	56	2
Others	-	-	-	-	-	-
Sub-total	-	22	14	-	156	2673
Blackcod	-	Tr	-	-	157	-
Lingcod	-	-	-	-	-	Tr
Pacific cod	-	1	21	-	-	-
Walleye pollock	-	-	-	-	1	-
Others	-	-	-	-	-	-
Sub-total	-	1	21	-	158	154
Selachii						
Ratfish	-	-	-	Tr	1	Tr
Skates	-	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	-	-	-	Tr	1	Tr
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	-	Tr	-	-	-	-
Sub-total	-	Tr	-	-	-	-

Appendix Table 5 (cont'd)

Haul no.	7	8	9	10	11	12
Date:	June 23	June 23	June 24	June 24	June 24	June 24
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	1730	1910	0925	1118	1709	1847
Duration (min):	34	15	2	15	12	1
Start N. lat. (deg)	053	053	053	053	053	053
(min)	04.0	03.0	08.0	08.0	21.0	18.0
W. long. (deg)	132	132	132	132	132	133
(min)	39.0	39.0	40.0	39.0	55.0	00.0
Direction (deg. true):	320	310	320	325	300	050
Finish N. lat. (deg)	053	053	053	053	053	053
(min)	05.0	04.0	08.0	09.0	22.0	18.0
W. long. (deg)	132	132	132	132	132	132
(min)	38.0	37.0	40.0	40.0	56.0	59.0
Distance travelled:	1.7	.75	.1	.80	.6	.05
Depth (meters):	252-238	201-198	176-183	216-192	234-234	219-252
Type of gear:	3	3	3	3	3	3
Total catch:	775	48	0	612	21	0
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	7	8	9	10	11	12
Date:	June 23	June 23	June 24	June 24	June 24	June 24
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	775	48	0	612	21	0
Flatfish						
Dover sole	Tr	-	-	-	-	-
Rex sole	-	Tr	-	-	-	-
Rock sole	-	-	-	-	-	-
Turbot	161	19	-	9	1	-
Others	-	-	-	-	-	-
Sub-total	161	19	-	9	1	-
Roundfish						
S. aleutianus	-	-	-	-	-	-
S. alutus	105	11	-	6	-	-
S. babcocki	-	-	-	-	-	-
S. borealis	-	-	-	-	-	-
S. brevispinis	78	4	-	-	-	-
S. crameri	5	-	-	-	-	-
S. diploproa	-	-	-	-	-	-
S. helvomaculatus	-	-	-	Tr	-	-
S. paucispinis	44	-	-	-	-	-
S. pinniger	-	2	-	-	-	-
S. proriger	328	7	-	-	1	-
S. reedi	33	-	-	Tr	-	-
S. zacentrus	15	Tr	-	594	19	-
Seb. alascanus	-	-	-	Tr	Tr	-
Others	-	Tr	-	-	-	-
Sub-total	608	24	-	600	20	-
Blackcod	-	-	-	-	-	-
Lingcod	-	-	-	-	-	-
Pacific cod	-	5	-	-	-	-
Walleye pollock	6	Tr	-	2	Tr	-
Others	-	-	-	-	-	-
Sub-total	6	5	-	2	Tr	-
Selachii						
Ratfish	Tr	Tr	-	1	-	-
Skates	-	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	Tr	Tr	-	1	-	-
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-

Appendix Table 5 (cont'd)

Haul no.	13	14	15	16	17	18
Date:	June 24	June 25	June 25	June 25	June 25	June 26
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	2142	0727	1900	1038	1245	1551
Duration (min):	17	39	34	30	20	49
Start N. lat. (deg)	053	053	053	053	053	053
(min)	19.0	50.0	50.0	51.0	49.0	57.0
W. long. (deg)	132	133	133	133	133	133
(min)	57.0	23.0	22.0	20.0	20.0	30.0
Direction (deg. true):	330	330	330	320	320	280
Finish N. lat. (deg)	053	053	053	053	053	053
(min)	19.0	52.0	52.0	52.0	50.0	59.0
W. long. (deg)	132	133	133	133	133	133
(min)	58.0	26.0	24.0	22.0	18.0	30.0
Distance travelled:	.85	1.95	1.7	1.5	1.0	2.4
Depth (meters):	201-201	373-358	304-300	251-251	208-199	289-316
Type of gear:	3	3	3	3	3	3
Total catch:	0	212	447	162	108	350
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	13	14	15	16	17	18
Date:	June 24	June 25	June 25	June 25	June 25	June 26
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	0	212	447	162	108	340
Flatfish						
Dover sole	-	35	18	9	Tr	27
Rex sole	-	4	5	11	16	9
Rock sole	-	-	-	-	-	-
Turbot	-	7	18	10	13	23
Others	-	-	-	-	-	-
Sub-total	-	46	41	30	29	59
Roundfish						
S. aleutianus	-	13	2	-	-	-
S. alutus	-	47	157	16	1	19
S. babcocki	-	1	12	1	1	17
S. borealis	-	-	4	-	-	26
S. brevispinis	-	Tr	2	43	16	5
S. crameri	-	-	-	-	-	-
S. diploproa	-	-	Tr	-	-	-
S. helvomaculatus	-	-	7	-	2	4
S. paucispinis	-	-	-	-	-	8
S. pinniger	-	Tr	-	10	-	1
S. proriger	-	-	-	-	Tr	Tr
S. reedi	-	9	2	1	2	5
S. zacentrus	-	2	11	Tr	44	33
Seb. alascanus	-	22	203	36	1	32
Others	-	16	-	-	Tr	-
Sub-total	-	109	400	107	67	250
Blackcod	-	57	-	-	-	-
Lingcod	-	-	-	-	-	20
Pacific cod	-	-	-	2	-	-
Walleye pollock	-	-	2	7	Tr	11
Others	-	-	2	-	-	-
Sub-total	-	57	4	9	Tr	31
Selachii						
Ratfish	-	-	Tr	12	4	Tr
Skates	-	-	-	4	8	-
Others	-	-	2	-	-	-
Sub-total	-	-	2	16	12	Tr
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-

Appendix Table 5 (continued)

Haul no.	19	20	21	22	23	24
Date:	June 28	June 28	June 28	June 28	June 28	June 28
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	1005	1145	1310	1440	1730	1833
Duration (min):	30	30	35	32	20	44
Start N. lat. (deg)	053	053	053	053	053	053
(min)	55.0	55.0	54.0	55.0	46.0	47.0
W. long. (deg)	133	133	133	133	133	133
(min)	31.0	29.0	29.0	26.0	19.0	22.0
Direction (deg. true):	145	310	310	180	310	150
Finish N. lat. (deg)	053	053	053	053	053	053
(min)	54.0	54.0	55.0	54.0	47.0	46.0
W. long. (deg)	133	133	133	133	133	133
(min)	29.0	28.0	28.0	25.0	21.0	19.0
Distance travelled:	1.4	1.5	1.7	1.7	1.0	2.2
Depth (meters):	380-347	309-293	263-249	198-201	266-369	318-307
Type of gear:	3	3	3	3	3	3
Total catch:	133	298	102	204	123	411
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	19	20	21	22	23	24
Date:	June 28	June 28	June 28	June 28	June 28	June 28
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	133	298	102	204	123	411
Flatfish						
Dover sole	23	40	Tr	-	7	28
Rex sole	2	5	4	24	1	4
Rock sole	-	-	-	-	-	-
Turbot	3	20	11	107	24	14
Others	-	2	-	5	Tr	-
Sub-total	28	67	15	136	32	46
Roundfish						
S. aleutianus	13	1	-	-	14	5
S. alutus	17	65	10	4	33	245
S. babcocki	4	15	-	-	6	14
S. borealis	42	-	-	-	21	18
S. brevispinis	-	1	35	21	2	4
S. crameri	-	-	-	-	-	-
S. diploproa	-	99	5	-	-	-
S. helvomaculatus	1	-	-	-	-	1
S. paucispinis	-	-	8	4	-	-
S. pinniger	-	-	-	-	2	-
S. proriger	-	-	Tr	-	-	Tr
S. reedi	-	Tr	Tr	-	-	1
S. zacentrus	-	-	Tr	-	-	5
Seb. alascanus	78	34	4	Tr	9	63
Others	-	Tr	3	-	-	-
Sub-total	95	215	65	29	87	356
Blackcod	8	-	-	-	1	2
Lingcod	-	14	10	-	-	-
Pacific cod	-	-	-	30	-	-
Walleye pollock	2	1	8	Tr	3	5
Others	-	Tr	-	-	Tr	Tr
Sub-total	10	15	18	30	4	7
Selachii						
Ratfish	-	1	4	1	Tr	-
Skates	-	-	-	-	-	-
Others	-	-	-	8	-	-
Sub-total	-	1	4	9	Tr	-
Invertebrates						
Jellyfish	-	Tr	-	-	-	-
Others	-	Tr	-	-	Tr	2
Sub-total	-	Tr	-	-	Tr	2

Appendix Table 5 (cont'd)

Haul no.	25	26	27	28	29	30
Date:	June 28	June 28	June 29	June 29	June 29	June 29
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	2025	2220	0720	0825	0950	1300
Duration (min):	30	25	30	30	30	30
Start N. lat. (deg)	053	053	053	053	053	053
(min)	47.0	46.0	41.0	42.0	41.0	35.0
W. long. (deg)		133	133	133	133	133
(min)	20.0	17.0	15.0	14.0	13.0	11.0
Direction (deg. true):	150	345	320	150	330	135
Finish N. lat. (deg)	053	053	053	053	053	053
(min)	46.0	47.0	42.0	41.0	42.0	34.0
W. long. (deg)	133	133	133	133	133	133
(min)	19.0	16.0	17.0	15.0	13.0	14.0
Distance travelled:	1.4	1.2	1.6	1.5	1.7	1.3
Depth (meters):	252-256	205-201	366-366	311-311	252-249	315-311
Type of gear:	3	3	3	3	3	3
Total catch:	174	372	205	289	203	379
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	25	26	27	28	29	30
Date:	June 28	June 28	June 29	June 29	June 29	June 29
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	174	372	205	289	203	379
Flatfish						
Dover sole	7	3	17	25	1	2
Rex sole	11	25	4	3	Tr	2
Rock sole	-	-	-	-	-	-
Turbot	60	16	28	46	17	2
Others	1	2	-	-	-	
Sub-total	79	46	49	74	18	6
Roundfish						
S. aleutianus	-	-	36	-	1	4
S. alutus	25	21	32	113	29	254
S. babcocki	29	9	2	22	3	Tr
S. borealis	-	-	33	15	-	11
S. brevispinis	10	152	14	8	27	12
S. crameri	-	-	-	-	-	5
S. diploproa	-	-	-	1	-	-
S. helvomaculatus	-	2	1	-	Tr	4
S. paucispinis	-	-	-	-	-	2
S. pinniger	-	9	1	-	-	-
S. proriger	Tr	14	1	Tr	Tr	4
S. reedi	1	Tr	-	Tr	Tr	54
S. zacentrus	-	Tr	-	Tr	1	-
Seb. alascanus	9	Tr	29	52	74	23
Others	-	12	2	Tr	-	-
Sub-total	74	219	151	211	135	373
Blackcod	-	-	3	1	-	-
Lingcod	8	-	-	-	7	-
Pacific cod	-	1	-	-	14	-
Walleye pollock	9	71	2	1	19	-
Others	-	Tr	Tr	Tr	Tr	Tr
Sub-total	17	72	5	2	40	Tr
Selachii						
Ratfish	4	2	-	-	9	Tr
Skates	-	10	-	-	-	-
Others	-	Tr	-	2	1	-
Sub-total	4	12	-	2	10	Tr
Invertebrates						
Jellyfish	-	23	-	-	-	-
Others	-	-	Tr	Tr	-	-
Sub-total	-	23	Tr	Tr	-	-

Table 5 (cont'd)

Haul no.	31	32	33	34	35	36
Date:	June 29	June 29	June 29	June 30	June 30	June 30
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	1430	1720	1913	0850	0910	1740
Duration (min):	30	10	15	35	32	30
Start N. lat. (deg)	053	053	053	052	052	052
(min)	34.0	35.0	37.0	52.0	52.0	29.0
W. long. (deg)	133	133	133	132	132	131
(min)	15.0	15.0	19.0	20.0	20.0	48.0
Direction (deg. true):	340	340	135	345	340	330
Finish N. lat. (deg)	053	053	053	052	052	052
(min)	35.0	35.0	36.0	53.0	52.0	30.0
W. long. (deg)	133	133	133	132	132	131
(min)	16.0	15.0	11.0	20.0	21.0	49.0
Distance travelled:	1.5	0.5	0.7	0.7	1.6	1.6
Depth (meters):	366-366	300-293	300-326	376-256	256-256	271-260
Type of gear:	3	3	3	3	3	3
Total catch:	504	13	77	524	836	220
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	31	32	33	34	35	36
Date:	June 29	June 29	June 29	June 30	June 30	June 30
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	504	13	77	524	836	220
Flatfish						
Dover sole	7	1	3	3	-	-
Rex sole	6	-	Tr	2	-	-
Rock sole	-	-	-	-	-	-
Turbot	Tr	1	Tr	30	53	16
Others	-	-	-	2	-	-
Sub-total	13	2	3	37	53	16
Roundfish						
S. aleutianus	230	2	4	16	3	-
S. alutus	213	9	53	215	615	109
S. babcocki	1	-	1	15	Tr	14
S. borealis	15	-	-	159	-	38
S. brevispinis	2	-	-	Tr	24	2
S. crameri	1	-	-	-	-	-
S. diploproa	-	-	-	-	Tr	Tr
S. helvomaculatus	-	Tr	Tr	Tr	-	2
S. paucispinis	-	-	-	2	21	16
S. pinniger	-	-	-	1	-	-
S. proriger	Tr	-	-	Tr	-	-
S. reedi	Tr	-	8	4	28	1
S. zacentrus	-	-	-	-	6	-
Seb. alascanus	28	Tr	4	46	13	15
Others	-	-	-	Tr	-	-
Sub-total	490	11	70	458	710	197
Blackcod	1	-	-	2	-	-
Lingcod	-	-	-	-	-	-
Pacific cod	-	-	-	-	-	
Walleye pollock	-	-	-	9	21	7
Others	Tr	Tr	-	Tr	Tr	Tr
Sub-total	1	Tr	-	11	21	7
Selachii						
Ratfish	-	-	-	18	52	Tr
Skates	-	-	-	-	Tr	-
Others	-	-	4	-	-	-
Sub-total	-	-	4	18	52	Tr
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	-	-	-	Tr	-	-
Sub-total	-	-	-	Tr	-	-

Appendix Table 5 (cont'd)

Haul no.	37	38	39	40	41	42
Date:	June 30	July 1	July 1	July 1	July 1	July 2
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	1853	0840	1210	1210	2118	1008
Duration (min):	30	15	30	5	12	37
Start N. lat. (deg)	052	052	052	052	052	053
(min)	30.0	23.0	14.0	03.5	04.0	02.0
W. long. (deg)	131	131	131	131	131	132
(min)	47.0	40.0	29.0	19.0	18.5	33.0
Direction (deg. true):	150	115	350	330	330	150
Finish N. lat. (deg)	052	052	052	052	052	053
(min)	29.5	23.0	15.0	03.8	05.0	00.0
W. long. (deg)	131	131	131	131	131	132
(min)	46.0	39.0	30.0	19.3	19.0	32.0
Distance travelled:	1.7	0.7	1.4	0.2	0.6	1.8
Depth (meters):	391-373	278-278	293-278	238-234	238-223	227-225
Type of gear:	3	3	3	3	3	3
Total catch:	366	223	348	0	80	7171
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	37	38	39	40	41	42
Date:	June 30	July 1	July 1	July 1	July 1	July 2
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	366	223	348	0	80	7171
Flatfish						
Dover sole	1	-	Tr	-	-	-
Rex sole	1	-	Tr	-	Tr	-
Rock sole	-	-	-	-	-	-
Turbot	19	2		-	1	50
Others	-	-	-	-	-	-
Sub-total	21	2	13	-	1	50
Roundfish						
S. aleutianus	81	-	9	-	-	-
S. alutus	74	191	70	-	8	220
S. babcocki	9	7	14	-	-	57
S. borealis	168	18	181	-	-	-
S. brevispinis	-	1	2	-	-	4852
S. crameri	-	-	-	-	-	-
S. diploproa	-	-	-	-	-	-
S. helvomaculatus	-	Tr	4	-	Tr	Tr
S. paucispinis	-	-	-	-	-	505
S. pinniger	-	-	2	-	-	Tr
S. proriger	-	-	-	-	-	185
S. reedi	-	-	-	-	1	1224
S. zacentrus	-	Tr	Tr	-	65	50
Seb. alascanus	9	4	31		5	-
Others	-	-	-	-	-	21
Sub-total	341	221	313	-	79	7114
Blackcod	4	-	-	-	-	-
Lingcod	-	-	-	-	-	-
Pacific cod	-	-	-	-	-	-
Walleye pollock	Tr	-	-	-	-	7
Others	-	-	Tr	-	-	Tr
Sub-total	4	-	Tr	-	-	7
Selachii						
Ratfish	Tr	Tr	4	-	-	Tr
Skates	-	-	-	-	-	Tr
Others	-	-	-	-	-	-
Sub-total	Tr	Tr	4	-	-	Tr
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	-	-	18	-	Tr	Tr
Sub-total	-	-	18	-	Tr	Tr

Appendix Table 5 (cont'd)

Haul no.	43	44	45	46	47	48
Date:	July 2	July 2	July 2	July 2	July 3	July 3
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	1257	1758	1914	2047	1840	1906
Duration (min):	53	30	31	30	5	3
Start N. lat. (deg)	053	053	053	053	053	053
(min)	02.0	02.0	00.0	00.0	08.5	08.5
W. long. (deg)	132	132	132	132	132	132
(min)	36.0	35.0	32.0	31.0	41.5	42.0
Direction (deg. true):	150	140	320	320	330	345
Finish N. lat. (deg)	053	053	053	053	053	053
(min)	00.0	00.0	01.0	02.0	09.0	08.0
W. long. (deg)	132	132	132	132	132	132
(min)	31.0	32.0	34.0	34.0	42.0	42.0
Distance travelled:	2.6	1.7	1.6	1.5	0.2	0.1
Depth (meters):	219-238	307-304	347-358	212-219	256-293	201-216
Type of gear:	3	3	3	3	3	3
Total catch:	0	969	984	0	0	0
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	43	44	45	46	47	48
Date:	July 2	July 2	July 2	July 2	July 3	July 3
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	0	969	984	0	0	0
Flatfish						
Dover sole	-	21	14	-	-	-
Rex sole	-	6	2	-	-	-
Rock sole	-	-	-	-	-	-
Turbot	-	103	25	-	-	-
Others	-	-	-	-	-	-
Sub-total	-	130	41	-	-	-
Roundfish						
S. aleutianus	-	10	604	-	-	-
S. alutus	-	567	190	-	-	-
S. babcocki	-	29	2	-	-	-
S. borealis	-	Tr	59	-	-	-
S. brevispinis	-	6	-	-	-	-
S. crameri	-	134	2	-	-	-
S. diploproa	-	-	Tr	-	-	-
S. helvomaculatus	-	-	-	-	-	-
S. paucispinis	-	-	-	-	-	-
S. pinniger	-	-	-	-	-	-
S. proriger	-	14			-	-
S. reedi	-	1	-	-	-	-
S. zacentrus	-	9	-	-	-	-
Seb. alascanus	-	14	18	-	-	-
Others	-	-	-	-	-	-
Sub-total	-	784	875	-	-	-
Blackcod	-	25	68	-	-	-
Lingcod	-	-	-	-	-	-
Pacific cod	-	-	-	-	-	-
Walleye pollock	-	21	-	-	-	-
Others	-	Tr	Tr	-	-	-
Sub-total	-	46	68	-	-	-
Selachii						
Ratfish	-	9	-	-	-	-
Skates	-	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	-	9	-	-	-	-
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	-	Tr	Tr	-	-	-
Sub-total	-	Tr	Tr	-	-	-

Appendix Table 5 (cont'd)

Haul no.	49	50	51	52	53	54
Date:	July 4	July 4	July 4	July 5	July 5	July 5
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	1134	1523	1634	1908	1035	1146
Duration (min):	31	19	38	35	37	30
Start N. lat. (deg)	053	053	053	053	053	053
(min)	15.0	15.0	14.0	17.0	18.0	19.0
W. long. (deg)	132	132	132	133	133	133
(min)	57.0	55.0	55.0	03.0	02.0	04.0
Direction (deg. true):	300	315	285	320	310	140
Finish N. lat. (deg)	053	053	053	053	053	053
(min)	17.0	15.0	15.0	17.0	19.0	18.0
W. long. (deg)	133	132	132	133	133	133
(min)	00.0	55.0	58.0	04.0	04.0	03.0
Distance travelled:	1.7	0.9	1.9	1.7	1.8	1.5
Depth (meters):	263-358	439-380	336-384	373-439	326-322	278-274
Type of gear:	3	3	3	3	3	3
Total catch:	7711	0	4031	477	171	5942
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	49	50	51	52	53	54
Date:	July 4	July 4	July 4	July 5	July 5	July 5
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	7711	0	4031	477	171	5942
Flatfish						
Dover sole	Tr	-	4	22	9	Tr
Rex sole	-	-	-	Tr	Tr	Tr
Rock sole	-	-	-	-	-	-
Turbot	-	-	-	Tr	Tr	Tr
Others	-	-	-	-	-	-
Sub-total	Tr	-	4	22	9	Tr
Roundfish						
S. aleutianus	15	-	1579	68	7	-
S. alutus	560	-	1303	343	93	111
S. babcocki	-	-	-	Tr	4	-
S. borealis	-	-	217	Tr	-	-
S. brevispinis	15	-	13	Tr	2	187
S. crameri	-	-	89	Tr	2	-
S. diploproa	-	-	4	-	-	-
S. helvomaculatus	31	-	Tr	-	4	Tr
S. paucispinis	-	-	-	-	-	-
S. pinniger	-	-	-	-	-	-
S. proriger	15	-	Tr	-	-	332
S. reedi	7075	-	677	1	15	5312
S. zacentrus	-	-	-	-	-	-
Seb. alascanus	-	-	145	43	33	Tr
Others	Tr	-	-	-	-	-
Sub-total	7711	-	4027	455	160	5942
Blackcod	-	-	-	Tr	2	-
Lingcod	-	-	-	-	-	-
Pacific cod	-	-	-	-	-	-
Walleye pollock	-	-	-	-	-	-
Others	Tr	-	-	-	Tr	-
Sub-total	Tr	-	-	Tr	2	-
Selachii						
Ratfish	-	-	-	-	-	-
Skates	Tr	-	-	Tr	-	-
Others	-	-	-	-	-	-
Sub-total	Tr	-	-	Tr	-	-
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	Tr	-	Tr	-	-	-
Sub-total	Tr	-	Tr	-	-	-

Appendix Table 5 (cont'd)

Haul no.	55	56	57	58	59	60
Date:	July 5	July 5	July 6	July 5	July 6	July 6
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	1456	1625	0911	1017	1155	1354
Duration (min):	8	30	29	30	9	8
Start N. lat. (deg)	053	053	053	053	053	053
(min)	18.0	20.0	29.0	26.0	25.0	25.0
W. long. (deg)	133	132	133	132	133	133
(min)	30.0	59.0	03.0	59.0	07.0	05.0
Direction (deg. true):	005	140	090	300	060	320
Finish N. lat. (deg)	053	053	053	053	053	053
(min)	18.0	19.0	27.0	27.0	25.0	25.0
W. long. (deg)	133	132	132	132	133	133
(min)	00.0	58.0	57.0	59.0	06.0	05.0
Distance travelled:	0.4	1.7	1.6	1.8	0.4	0.5
Depth (meters):	182-190	366-366	366-227	300-475	205-201	345-227
Type of gear:	3	3	3	3	3	3
Total catch:	244	59	39	263	0	0
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	55	56	57	58	59	60
Date:	July 5	July 5	July 6	July 5	July 6	July 6
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	244	59	39	263	0	0
Flatfish						
Dover sole	-	1	-	2	-	-
Rex sole	-	2	-	Tr	-	-
Rock sole	-	-	-	-	-	-
Turbot	-	-	-	3	-	-
Others	-	-	-	-	-	-
Sub-total	-	3	-	5	-	-
Roundfish						
S. aleutianus	-	33	14	2	-	-
S. alutus	-	2	-	131	-	-
S. babcocki	-	-	-	14	-	-
S. borealis	-	-	8	67	-	-
S. brevispinis	22	1	-	-	-	-
S. crameri	-	-	-	Tr	-	-
S. diploproa	-	-	-	-	-	-
S. helvomaculatus	-	-	-	-	-	-
S. paucispinis	-	-	-	-	-	-
S. pinniger	-	-	-	-	-	-
S. proriger	46	1	-	Tr	-	-
S. reedi	169	12	-	11	-	-
S. zacentrus	-	-	-	Tr	-	-
Seb. alascanus	Tr	4	3	20	-	-
Others	7	Tr	-	-	-	-
Sub-total	244	53	25	249	-	-
Blackcod	-	3	14	-	-	-
Lingcod	-	-	-	-	-	-
Pacific cod	-	-	-	-	-	-
Walleye pollock	-	-	-	5	-	-
Others	-	-	Tr	-	-	-
Sub-total	-	3	14	5	-	-
Selachii						
Ratfish	-	-	-	-	-	-
Skates	-	-	-	4	-	-
Others	-	-	-	-	-	-
Sub-total	-	-	-	4	-	-
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-

Appendix Table 5 (cont'd)

Haul no.	61	62	63	64	65	66
Date:	July 6	July 17	July 17	July 17	July 17	July 17
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	1533	1148	1547	1725	1935	2020
Duration (min):	32	7	23	40	10	30
Start N. lat. (deg)	053	052	052	052	052	052
(min)	24.0	19.0	31.0	30.0	88.0	27.0
W. long. (deg)	133	131	131	131	131	131
(min)	08.0	34.0	52.0	47.0	43.5	41.0
Direction (deg. true):	330	110	340	330	340	330
Finish N. lat. (deg)	053	052	052	052	052	052
(min)	25.0	19.0	32.0	32.0	28.8	28.0
W. long. (deg)	133	131	131	131	131	131
(min)	08.0	34.0	53.0	50.5	45.0	42.0
Distance travelled:	1.6	0.3	1.1	2.0	0.5	1.6
Depth (meters):	380-358	274-274	411-311	320-320	347-357	265-283
Type of gear:	3	3	3	3	3	3
Total catch:	611	0	392	291	0	361
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	61	62	63	64	65	66
Date:	July 6	July 17	July 17	July 17	July 17	July 17
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	611	0	392	291	0	361
Flatfish						
Dover sole	6	-	4	2	-	-
Rex sole	-	-	Tr	1	-	Tr
Rock sole	-	-	-	-	-	-
Turbot	-	-	6	13	-	14
Others	-	-	-	-	-	-
Sub-total	6	-	10	16	-	14
Roundfish						
S. aleutianus	65	-	110	38	-	26
S. alutus	480	-	18	122	-	61
S. babcocki	Tr	-	-	12	-	20
S. borealis	Tr	-	242	13	-	220
S. brevispinis	-	-	-	3	-	-
S. crameri	-	-	-	-	-	-
S. diploproa	Tr	-	1	38	-	7
S. helvomaculatus	4	-	-	1	-	-
S. paucispinis	-	-	-	18	-	-
S. pinniger	-	-	-	-	-	-
S. proriger	-	-	-	-	-	-
S. reedi	-	-	-	-	-	-
S. zacentrus	-	-	-	2	-	Tr
Seb. alascanus	56	-	9	20	-	10
Others	-	-	-	-	-	-
Sub-total	605	-	380	267	-	344
Blackcod	-	-	2	5	-	5
Lingcod	-	-	-	-	-	-
Pacific cod	-	-	-	-	-	-
Walleye pollock	-	-	-	-	-	-
Others	Tr	-	Tr	1	-	-
Sub-total	Tr	-	2	8	-	3
Selachii						
Ratfish	-	-	-	Tr	-	-
Skates	Tr	-	-	-	-	-
Others	-	-	-	Tr	-	-
Sub-total	Tr	-	-	Tr	-	-
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	Tr	-	-	Tr	-	-
Sub-total	Tr	-	-	Tr	-	-

Appendix Table 5 (cont'd)

Haul no.	67	68	69	70	71	72
Date:	July 18	July 18	July 18	July 19	July 19	July 19
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	1326	2045	2120	0853	0910	1120
Duration (min):	15	5	35	2	30	13
Start N. lat. (deg)	052	053	053	053	053	053
(min)	57.0	19.0	19.0	25.0	24.5	23.0
W. long. (deg)	132	132	132	132	132	132
(min)	13.0	39.0	41.0	39.0	38.0	35.0
Direction (deg. true):	080	225	270	140	095	090
Finish N. lat. (deg)	052	053	053	053	053	053
(min)	57.0	19.0	19.0	25.0	25.0	23.0
W. long. (deg)	132	132	132	132	132	132
(min)	12.0	39.0	41.5	39.0	37.0	34.0
Distance travelled:	0.7	0.2	1.6	0.1	1.5	0.6
Depth (meters):	282 265	68-88	79-69	64-64	77-73	101-113
Type of gear:	3	3	3	3	3	3
Total catch:	70	0	171	0	60	0
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	67	68	69	70	71	72
Date:	July 18	July 18	July 18	July 19	July 19	July 19
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	70	0	171	0	60	0
Flatfish						
Dover sole	-	-	Tr	-	-	-
Rex sole	-	-	Tr	-	-	-
Rock sole	-	Tr	-	-	39	-
Turbot	Tr	-	Tr	-	Tr	-
Others	Tr	Tr	1	-	1	-
Sub-total	Tr	Tr	1	-	40	-
Roundfish						
S. aleutianus	Tr	-	-	-	-	-
S. alutus	Tr	Tr	Tr	-	-	-
S. babcocki	Tr	-	-	-	-	-
S. borealis	-	-	-	-	-	-
S. brevispinis	-	-	38	-	-	-
S. crameri	-	-	-	-	-	-
S. diploproa	Tr	-	-	-	-	-
S. helvomaculatus	-	-	-	-	-	-
S. paucispinis	-	-	5	-	-	-
S. pinniger	-	-	-	-	-	-
S. proriger	-	-	-	-	-	-
S. reedi	-	-	-	-	-	-
S. zacentrus	-	-	-	-	-	-
Seb. alascanus	Tr	-	-	-	-	-
Others	-	Tr	Tr	-	2	-
Sub-total	Tr	Tr	43	-	2	-
Blackcod	Tr	-	-	-	-	-
Lingcod	-	-	-	-	Tr	-
Pacific cod	-	-	Tr	-	-	-
Walleye pollock	Tr	Tr	113	-	-	-
Others	Tr	-	Tr	-	Tr	-
Sub-total	Tr	Tr	113	-	Tr	-
Selachii						
Ratfish	Tr	Tr	14	-	3	-
Skates	-	-	-	-	15	-
Others	-	-	-	-	-	-
Sub-total	Tr	Tr	14	-	18	-
Invertebrates						
Jellyfish	68	-	-	-	-	-
Others	2	-	-	-	-	-
Sub-total	70	-	-	-	-	-

Appendix Table 5 (cont'd)

Haul no.	73	74	75	76	77	78
Date:	July 19	July 19	July 19	July 20	July 20	July 20
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Time start:	1247	1855	2114	0851	1040	1555
Duration (min):	33	20	54	59	75	75
Start N. lat. (deg)	053	053	053	053	053	053
(min)	23.0	23.0	22.5	18.0	19.0	25.0
W. long. (deg)	132	132	132	133	133	133
(min)	32.5	33.0	34.5	02.0	04.5	07.5
Direction (deg. true):	275	240	080	330	130	150
Finish N. lat. (deg)	053	053	053	053	053	053
(min)	32.5	22.5	22.5	19.0	17.0	22.0
W. long. (deg)	132	132	132	133	133	133
(min)	33.0	33.0	32.0	04.0	00.0	08.0
Distance travelled:	1.6	1.0	2.6	2.9	4.0	3.7
Depth (meters):	119-108	101-82	101-128	293-318	293-272	274-280
Type of gear:	3	3	3	3	3	3
Total catch:	320	24	7	648	2208	4502
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	73	74	75	76	77	78
Date:	July 19	July 19	July 19	July 20	July 20	July 20
Area:	QCI	QCI	QCI	QCI	QCI	QCI
Catch total:	320	24	7	648	2208	4502
Flatfish						
Dover sole	-	-	-	9	Tr	4
Rex sole	Tr	Tr	Tr	-	Tr	Tr
Rock sole	1	-	-	-	-	-
Turbot	-	-	-	3	Tr	-
Others	2	Tr	Tr	-	-	-
Sub-total	3	Tr	Tr	12	Tr	4
Roundfish						
S. aleutianus	-	-	-	8	-	-
S. alutus	Tr	Tr	Tr	513	1422	7806
S. babcocki	-	-	-	4	4	-
S. borealis	-	-	-	24	Tr	-
S. brevispinis	-	-	-	3	35	59
S. crameri	-	-	-	21	19	-
S. diploproa	-	-	-	-	-	-
S. helvomaculatus	-	-	-	4	12	-
S. paucispinis	3	-	-	5	-	-
S. pinniger	-	-	-	-	-	-
S. proriger	-	-	-	-	Tr	Tr
S. reedi	-	-	-	26	685	2601
S. zacentrus	-	-	-	-	-	-
Seb. alascanus	-	-	-	24	31	28
Others	-	-	-	-	-	-
Sub-total	3	Tr	Tr	632	2208	4494
Blackcod	11	1	Tr	-	Tr	-
Lingcod	-	-	-	-	-	-
Pacific cod	79	-	2	-	-	-
Walleye pollock	219	23	1	-	-	-
Others	3	-	Tr	Tr	Tr	-
Sub-total	312	24	3	Tr	Tr	4
Selachii						
Ratfish	2	Tr	Tr	4	-	-
Skates	-	-	-	-	-	-
Others	-	-	4	-	-	-
Sub-total	2	Tr	4	4	-	-
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	-	Tr	Tr	-	-	-
Sub-total	-	Tr	Tr	-	-	-

Appendix Table 5 (cont'd)

Haul no.	79	80	81
Date:	July 20	July 20	July 21
Area:	QCI	QCI	QCI
Time start:	1817	2055	1125
Duration (min):	110	78	130
Start N. lat. (deg)	053	053	053
(min)	21.0	25.0	37.0
W. long. (deg)	133	133	133
(min)	07.5	08.0	17.0
Direction (deg. true):	330	150	325
Finish N. lat. (deg)	053	053	053
(min)	25.5	22.0	40.0
W. long. (deg)	133	133	133
(min)	08.0	08.0	19.0
Distance travelled:	5.5	3.9	6.5
Depth (meters):	307-274	318-252	530-585
Type of gear:	3	3	3
Total catch:	3162	810	195
Remarks:	Usable	Usable	Usable

Appendix Table 5 (cont'd)

Haul no.	79	80	81
Date:	July 20	July 20	July 21
Area:	QCI	QCI	QCI
Catch total:	3162	810	195
Flatfish			
Dover sole	68	32	47
Rex sole	12	Tr	4
Rock sole	-	-	-
Turbot	Tr	Tr	Tr
Others	Tr	-	-
Sub-total	80	32	51
Roundfish			
S. aleutianus	-	-	-
S. alutus	2629	679	23
S. babcocki	19	3	-
S. borealis	-	9	44
S. brevispinis	19	-	1
S. crameri	-	-	-
S. diploproa	-	-	-
S. helvomaculatus	-	Tr	-
S. paucispinis	-	-	-
S. pinniger	-	-	-
S. proriger	-	-	-
S. reedi	130	39	-
S. zacentrus	-	-	-
Seb. alascanus	285	43	36
Others	-	Tr	-
Sub-total	3082	773	104
Blackcod	Tr	-	24
Lingcod	-	-	-
Pacific cod	-	-	-
Walleye pollock	-	Tr	-
Others	Tr	-	6
Sub-total	Tr	Tr	30
Selachii			
Ratfish	-	-	-
Skates	-	-	-
Others	Tr	5	2
Sub-total	Tr	5	2
Invertebrates			
Jellyfish	-	-	-
Others	-	Tr	5
Sub-total	-	Tr	5

FOOTNOTES TO APPENDIX TABLE 5

Area: QCI = West coast of Queen Charlotte Islands.

Time start: Pacific Standard Time.

Distance travelled: Nautical miles. Estimates only.

Depth (meters): Depth at beginning and end of haul.

Type of gear: 3 = Atlantic western III trawl (24-m headrope, 35-m footrope) 3.8-cm mesh liner in codend. 1043-kg steel "V" doors.

Total catch: Kilograms.

Remarks: Usable haul.

Flatfish: Dover sole (Microstomus pacificus); rex sole (Glyptocephalus zachirus); rock sole (Lepidopsetta bilineata); turbot (Atheresthes stomias); others include: Pacific sanddab (Citharichthys sordidus); English sole (Parophrys vetulus); halibut (Hippoglossus stenolepis); petrale sole (Eopsetta jordani), slender sole (Lyopsetta exilis).

Rockfish: Others include: S. ciliatus, S. elongatus, S. entomelas, S. flavidus, S. maliger, S. ruberrimus, S. variegatus.

Other Roundfish: Blackcod (Anoplopoma fimbria); lingcod (Ophiodon elongatus); Pacific cod (Gadus macrocephalus); walleye pollock (Theragra chalcogramma); others include: eelpout (Zoarcidae), herring (Clupea harengus pallasi); hake (Merluccius productus); rattail (Macrouridae); sculpin (Cottidae); snailfish (Careproctus melanurus).

Selachii: Ratfish (Hydrolagus colliei); skate (Rajidae); others include: dogfish (Squalus acanthias).

Invertebrates: Sponges, crinoids, octopus, squid, shrimp, crab.

Trace = Tr: 23-kg qualification level.

Appendix Table 6. Fishing log for M.V. BLUE WATERS rockfish cruise, September 5-30, 1978. (See footnotes for explanation of terms.)

Haul no.	1	2	3	4	5	6
Date:	Sept. 7	Sept. 7	Sept. 7	Sept. 7	Sept. 7	Sept. 7
Area:	ESIN	ESIN	ESIN	ESIN	ESIN	ESIN
Time start:	0947	1225	1425	1705	1955	2105
Duration (min):	33	10	30	15	15	30
Start N. lat. (deg)	049	049	049	049	049	049
(min)	46.5	42.5	36.0	36.0	45.0	44.5
W. long. (deg)	127	127	127	127	127	127
(min)	05.5	12.5	16.5	22.0	32.5	31.0
Direction (deg. true):	135	140	300	280	110	190
Finish N. lat. (deg)	049	049	049	049	049	049
(min)	44.5	42.5	36.5	36.5	44.5	44.5
W. long. (deg)	127	127	127	127	127	127
(min)	03.5	12.5	18.5	22.5	32.0	30.0
Distance travelled:	1.6	0.5	1.7	0.75	0.50	1.5
Depth (meters):	55-55	110-113	150-157	293-229	366-283	183-219
Type of gear:	8	8	8	8	8	8
Total catch:	27	1	1860	142	47	509
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 6 (cont'd)

Haul No.	1	2	3	4	5	6
Date:	Sept. 7	Sept. 7	Sept. 7	Sept. 7	Sept. 7	Sept. 7
Area:	ESIN	ESIN	ESIN	ESIN	ESIN	ESIN
Catch total:	27	1	1860	142	47	509
Flatfish						
Dover sole	-	Tr	39	-	7	30
Rex sole	Tr	1	6	1	1	10
Turbot	-	-	364	11	4	47
Others	Tr	Tr	24	Tr	Tr	-
Sub-total	Tr	1	433	12	12	87
Roundfish						
S. aleutianus	-	-	-	-	-	8
S. alutus	-	-	Tr	6	12	245
S. babcocki	-	-	-	6	3	22
S. borealis	-	-	-	-	-	-
S. brevispinis	-	-	138	2	-	9
S. diploproa	-	-	-	11	Tr	5
S. entomelas	-	-	5	-	-	-
S. flavidus	-	-	32	7	-	-
S. paucispinis	-	-	59	-	-	-
S. pinniger	-	-	598	-	-	-
S. proriger	-	Tr	205	-	-	-
S. reedi	-	-	-	-	-	-
S. zacentrus	-	-	103	36	4	11
Seb. alascanus	-	-	-	2	Tr	29
Others	-	-	26	2	-	1
Sub-total	-	Tr	1166	126	19	330
Blackcod	-	-	85	-	16	42
Hake	-	-	-	4	-	50
Lingcod	-	-	29	-	-	-
Pacific cod	-	-	24	-	-	-
Herring	-	-	Tr	-	-	-
Others	Tr	Tr	Tr	-	-	-
Sub-total	Tr	Tr	38	4	16	92
Selachii						
Dogfish	-	-	123	-	-	-
Ratfish	-	Tr	Tr	Tr	-	Tr
Others	Tr	-	Tr	-	-	-
Sub-total	Tr	Tr	123	Tr	-	Tr
Invertebrates						
Jellyfish	27	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	27	-	-	-	-	-

Appendix Table 6 (cont'd)

Haul no.	7	8	9	10	11	12
Date:	Sept. 9	Sept. 9	Sept. 9	Sept. 9	Sept. 9	Sept. 10
Area:	ESIN	ESIN	KYSD	KYSD	KYSD	KYSD
Time start:	1650	1800	2035	2138	2310	0122
Duration (min):	25	10	30	30	4	10
Start N. lat. (deg)	049	049	049	049	049	049
(min)	43.0	44.5	52.0	50.0	50.0	51.5
W. long. (deg)	127	127	127	127	127	127
(min)	27.5	30.0	40.0	41.0	43.5	38.0
Direction (deg. true):	320	130	145	110	310	345
Finish N. lat. (deg)	049	049	049	049	049	049
(min)	44.5	44.0	51.0	49.0	50.0	52.5
W. long. (deg)	127	127	127	127	127	127
(min)	28.5	29.0	40.5	40.5	43.5	38.5
Distance travelled:	1.2	0.5	1.5	1.7	0.2	0.7
Depth (meters):	121-121	146-168	161-168	201-274	421-604	117-117
Type of gear:	8	8	8	8	8	8
Total catch:	249	150	646	290	152	14
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 6 (cont'd)

Haul No.	7	8	9	10	11	12
Date:	Sept. 9	Sept. 9	Sept. 9	Sept. 9	Sept. 9	Sept. 10
Area:	ESIN	ESIN	KYSD	KYSD	KYSD	KYSD
Catch total:	249	150	646	290	152	14
Flatfish						
Dover sole	-	-	52	8	8	-
Rex sole	-	-	33	3	2	Tr
Turbot	15	8	221	15	6	-
Others	-	-	3	5	Tr	-
Sub-total	15	8	309	31	16	Tr
Roundfish						
S. aleutianus	-	-	-	-	3	1
S. alutus	162	13	26	112	93	8
S. babcocki	-	8	72	11	4	-
S. borealis	-	-	-	-	8	-
S. brevispinis	-	3	28	20	4	-
S. diploproa	-	52	53	26	5	1
S. entomelas	13	2	5	2	3	1
S. flavidus	-	39	61	10	3	2
S. paucispinis	11	2	3	9	-	-
S. pinniger	8	-	5	-	-	-
S. proriger	2	-	2	6	2	1
S. reedi	-	-	-	-	-	-
S. zacentrus	-	4	Tr	10	2	-
Seb. alascanus	-	-	8	5	1	-
Others	5	6	-	3	Tr	-
Sub-total	201	129	263	214	128	14
Blackcod	-	-	22	18	1	-
Hake	-	-	29	27	7	-
Lingcod	10	-	10	-	-	-
Pacific cod	11	-	-	-	-	Tr
Herring	-	-	-	-	-	-
Others	2	-	12	-	-	Tr
Sub-total	23	-	73	45	8	Tr
Selachii						
Dogfish	10	2	-	-	-	-
Ratfish	-	11	1	-	-	-
Others	-	-	-	-	-	-
Sub-total	10	13	1	-	-	-
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-

Appendix Table 6 (cont'd)

Haul no.	13	14	15	16	17	18
Date:	Sept 10	Sept 10	Sept 10	Sept 10	Sept 11	Sept 11
Area:	KYSD	KYSD	KYSD	KYSD	QUSD	QUSD
Time start:	0750	1345	1525	1745	0900	1115
Duration (min):	15	20	30	25	25	25
Start N. lat. (deg)	050	049	049	049	050	050
(min)	03.5	58.0	58.0	58.0	06.5	16.5
W. long. (deg)	127	127	127	127	128	128
(min)	40.0	43.5	43.5	46.0	00.5	07.5
Direction (deg. true):	270	350	310	310	335	165
Finish N. lat. (deg)	050	050	049	049	050	050
(min)	03.5	00.0	59.0	58.5	07.5	15.5
W. long. (deg)	127	127	127	127	128	128
(min)	41.5	44.0	45.5	47.5	02.0	06.5
Distance travelled:	0.7	1.0	1.5	1.1	1.3	1.2
Depth (meters):	60-40	113-113	148-256	366-311	128-183	154-157
Surface water temp. (^{o}C)	-	-	-	-	14.0	14.0
Type of gear:	8	8	8	8	8	8
Total catch:	16	286	620	240	329	159
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 6 (cont'd)

Haul No.	13	14	15	16	17	18
Date:	Sept 10	Sept 10	Sept 10	Sept 10	Sept 11	Sept 11
Area:	KYSD	KYSD	KYSD	KYSD	QUSD	QUSD
Catch total:	16	286	620	240	329	159
Flatfish						
Dover sole	-	1	108	20	74	2
Rex sole	Tr	5	30	-	12	3
Turbot	-	5	81	4	8	5
Others	6	6	5	-	Tr	Tr
Sub-total	6	17	224	24	94	10
Roundfish						
S. aleutianus	-	-	10	25	-	-
S. alutus	4	-	12	6	-	-
S. babcocki	-	1	86	60	23	7
S. borealis	-	-	-	28	-	-
S. brevispinis	-	166	88	-	40	15
S. diploproa	-	-	-	Tr	-	-
S. entomelas	Tr	1	-	-	-	-
S. flavidus	1	6	115	-	26	4
S. paucispinis	-	16	4	-	-	14
S. pinniger	1	20	7	-	59	89
S. proriger	Tr	-	-	-	32	5
S. reedi	-	-	-	-	-	-
S. zacentrus	-	Tr	11	Tr	-	15
Seb. alascanus	-	-	4	2	3	-
Others	Tr	-	Tr	15	-	-
Sub-total	6	210	337	136	183	149
Blackcod	-	-	2	40	6	-
Hake	-	-	31	40	1	-
Lingcod	-	53	8	-	-	-
Pacific cod	-	1	5	-	7	-
Herring	Tr	-	Tr	-	-	-
Others	Tr	4	3	-	5	-
Sub-total	Tr	58	49	80	19	-
Selachii						
Dogfish	-	-	7	-	11	-
Ratfish	Tr	1	-	-	Tr	-
Others	4	-	3	-	17	-
Sub-total	4	1	10	-	28	-
Invertebrates						
Jellyfish	-	-	-	-	5	-
Others	Tr	-	-	-	-	-
Sub-total	Tr	-	-	-	5	-

Appendix Table 6 (cont'd)

Haul no.	19	20	21	22	23	24
Date:	Sept 11	Sept 11	Sept 12	Sept 12	Sept 13	Sept 13
Area:	QUSD	QUSD	QUSD	QUSD	QUSD	QUSD
Time start:	1420	1750	1140	2020	1025	1845
Duration (min):	20	30	115	50	60	100
Start N. lat. (deg)	050	050	050	050	050	050
(min)	16.5	14.5	02.0	15.0	19.0	32.0
W. long. (deg)	128	128	128	128	128	128
(min)	06.0	07.0	06.5	05.0	07.0	21.0
Direction (deg. true):	300	300	270	310	340	340
Finish N. lat. (deg)	050	050	050	050	050	050
(min)	17.5	15.5	06.5	16.5	21.5	35.0
W. long. (deg)	128	128	128	128	128	128
(min)	06.0	08.0	00.0	06.5	08.0	23.0
Distance travelled:	1.0	1.5	5.7	2.5	3.5	5.0
Depth (meters):	115-123	229-210	143-155	95-128	117-115	101-110
Surface water temp (^{o}C)	14.0	14.0	14.0	14.0	14.0	14.1
Type of gear:	8	8	21	21	21	21
Total catch:	114	827	14,914	33	39	34
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 6 (cont'd)

Haul No.	19	20	21	22	23	24
Date:	Sept 11	Sept 11	Sept 12	Sept 12	Sept 13	Sept 13
Area:	QUSD	QUSD	QUSD	QUSD	QUSD	QUSD
Catch total:	114	827	14,914	33	39	34
Flatfish						
Dover sole	-	53	-	-	-	-
Rex sole	2	13	-	-	-	-
Turbot	-	136	-	-	-	-
Others	Tr	1	-	-	-	-
Sub-total	2	203	-	-	-	-
Roundfish						
S. aleutianus	-	8	-	-	-	-
S. alutus	-	136	-	-	-	-
S. babcocki	-	141	-	-	-	-
S. borealis	-	20	-	-	-	-
S. brevispinis	32	40	21	-	-	-
S. diploproa	-	5	-	-	-	-
S. entomelas	2	2	1,537	-	-	-
S. flavidus	3	13	12,972	21	15	14
S. paucispinis	24	20	Tr	-	11	-
S. pinniger	16	Tr	363	-	-	-
S. proriger	-	-	21	-	-	-
S. reedi	-	-	-	-	-	-
S. zacentrus	1	10	Tr	-	-	-
Seb. alascanus	-	20	-	-	-	-
Others	-	Tr		-	-	-
Sub-total	78	415	14,914	21	26	14
Blackcod	-	33	-	-	-	-
Hake	-	132	-	5	-	-
Lingcod	12	1	Tr	-	-	-
Pacific cod	Tr	5	-	-	-	-
Herring	-	-	-	-	1	Tr
Others	-	5	-	-	-	4
Sub-total	12	176	Tr	5	1	4
Selachii						
Dogfish	22	25	-	7	-	-
Ratfish	Tr	8	-	-	-	-
Others	-	Tr	-	-	12	-
Sub-total	22	33	-	7	12	-
Invertebrates						
Jellyfish	-	-	-	Tr	-	-
Others	-	-	-	-	-	16
Sub-total	-	-	-	Tr	-	16

Appendix Table 6 (cont'd)

Haul no.	25	26	27	28	29	30
Date:	Sept 18	Sept 18	Sept 18	Sept 18	Sept 18	Sept 19
Area:	QUSD	QUSD	QUSD	QUSD	QUSD	CSCO
Time start:	0728	1025	1305	1510	1749	0757
Duration (min):	32	30	31	41	31	37
Start N. lat. (deg)	050	050	050	050	050	050
(min)	27.0	23.5	27.0	26.5	33.0	40.5
W. long. (deg)	128	128	128	128	128	128
(min)	13.0	22.0	30.5	31.5	24.5	31.0
Direction (deg. true):	110	150	320	140	150	340
Finish N. lat. (deg)	050	050	050	050	050	050
(min)	26.5	20.5	28.5	28.5	31.5	42.0
W. long. (deg)	128	128	128	128	128	128
(min)	11.5	21.0	32.5	33.0	23.5	32.5
Distance travelled:	1.6	1.4	1.5	2.0	1.7	1.8
Depth (meters):	123-123	203-208	219-225	256-263	161-165	113-110
Surface water temp (^{o}C)	14.0	14.0	14.0	14.0	14.0	14.0
Type of gear:	8	8	8	8	8	8
Total catch:	196	683	704	2,269	341	35
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 6 (cont'd)

Haul No.	25	26	27	28	29	30
Date:	Sept 18	Sept 18	Sept 18	Sept 18	Sept 18	Sept 19
Area:	QUSD	QUSD	QUSD	QUSD	QUSD	CSCO
Catch total:	196	683	704	2,269	341	35
Flatfish						
Dover sole	13	18	11	32	6	2
Rex sole	2	7	2	12	23	5
Turbot	85	59	14	44	120	9
Others	1	Tr	-	-	6	Tr
Sub-total	101	84	27	88	155	16
Roundfish						
S. aleutianus	-	-	-	-	-	-
S. alutus	-	220	457	1,271	13	2
S. babcocki	-	4	2	20	28	-
S. borealis	-	-	-	-	-	-
S. brevispinis	3	22	2	72	30	5
S. diploproa	-	-	-	376	-	-
S. entomelas	Tr	-	2	-	-	-
S. flavidus	-	Tr	Tr	-	6	Tr
S. paucispinis	8	34	23	38	12	-
S. pinniger	-	4	2	-	15	-
S. proriger	9	78	2	-	32	-
S. reedi	-	9	74	6	-	-
S. zacentrus	-	201	10	-	-	-
Seb. alascanus	-	3	4	6	2	-
Others	Tr	9	2	Tr	Tr	-
Sub-total	20	584	580	1,729	138	7
Blackcod	2	Tr	97	388	-	-
Hake	-	-	Tr	-	-	-
Lingcod	20	-	-	-	12	-
Pacific cod	8	-	-	-	20	5
Herring	-	-	-	-	Tr	-
Others	4	-	-	6	Tr	-
Sub-total	34	Tr	97	394	32	5
Selachii						
Dogfish	41	15	-	26	14	2
Ratfish	Tr	Tr	Tr	32	2	Tr
Others	-	-	-	-	-	-
Sub-total	41	15	Tr	58	16	2
Invertebrates						
Jellyfish	-	-	-	-	-	-
Others	-	-	-	Tr	-	5
Sub-total	-	-	-	Tr	-	5

Appendix Table 6 (cont'd)

Haul no.	31	32	33	34	35	36
Date:	Sept 20	Sept 20	Sept 21	Sept 22	Sept 22	Sept 22
Area:	CSCO	CSCO	CSCO	CSCO	CSCO	CSCO
Time start:	0607	1315	1802	1304	1800	2105
Duration (min):	33	25	23	102	55	140
Start N. lat. (deg)	050	050	050	050	050	050
(min)	35.5	38.0	50.0	37.0	45.5	48.0
W. long. (deg)	128	128	128	128	128	129
(min)	39.0	36.5	26.5	37.0	57.5	02.0
Direction (deg. true):	300	000	105	180	130	120
Finish N. lat. (deg)	050	050	050	050	050	050
(min)	36.5	38.5	49.5	36.0	44.5	44.5
W. long. (deg)	128	128	128	128	128	129
(min)	39.0	37.0	25.5	41.0	52.5	06.5
Distance travelled:	1.6	1.2	1.0	5.1	2.7	7.0
Depth (meters):	208-223	179-176	230-229	183-201	110-128	92-128
Surface water temp (^{o}C)	14.0	14.0	14.0	13.0	13.2	13.3
Type of gear:	8	8	8	21	21	21
Total catch:	507	727	4,082	99	72	25
Remarks:						

Appendix Table 6 (cont'd)

Haul No.	31	32	33	34	35	36
Date:	Sept 20	Sept 20	Sept 21	Sept 22	Sept 22	Sept 22
Area:	CSCO	CSCO	CSCO	CSCO	CSCO	CSCO
Catch total:	507	727	4,082	99	72	25
Flatfish						
Dover sole	2	73	Tr	-	-	-
Rex sole	26	21	-	-	-	-
Turbot	5	33	Tr	-	-	-
Others	1	-	-	-	-	-
Sub-total	34	127	Tr	-	-	-
Roundfish						
S. aleutianus	-	-	-	-	-	-
S. alutus	17	15	-	43	1	-
S. babcocki	4	4	-	-	-	-
S. borealis	-	-	-	-	-	-
S. brevispinis	36	174	Tr	-	-	-
S. diploproa	-	-	-	-	-	-
S. entomelas	18	2	-	4	-	-
S. flavidus	1	28	-	3	1	1
S. paucispinis	3	-	-	-	-	-
S. pinniger	-	117	Tr	-	-	-
S. proriger	42	52	-	26	-	-
S. reedi	262	12	4,082	10	-	-
S. zacentrus	39	126	Tr	Tr	-	-
Seb. alascanus	Tr	-	-	-	-	-
Others	Tr	7	-	-	-	-
Sub-total	422	537	4,082	86	2	1
Blackcod	6	-	-	-	-	-
Hake	8	-	-	13	-	-
Lingcod	-	-	-	-	-	-
Pacific cod	-	21	Tr	-	-	-
Herring	-	Tr	-	-	1	3
Others	-	-	-	-	-	Tr
Sub-total	14	21	Tr	13	1	3
Selachii						
Dogfish	31	42	-	-	-	18
Ratfish	2	Tr	-	-	-	-
Others	4	-	-	-	-	-
Sub-total	37	42	-	-	-	18
Invertebrates						
Jellyfish	-	-	-	-	69	3
Others	-	-	-	-	-	-
Sub-total	-	-	-	-	69	3

Appendix Table 6 (cont'd)

Haul no.	37	38	39	40	41	42
Date:	Sept 23	Sept 23	Sept 26	Sept 26	Sept 26	Sept 28
Area:	CSCO	CSCO	TRII	TRII	TRII	TRII
Time start:	1208	1557	1110	1615	1816	1513
Duration (min):	75	59	90	50	37	32
Start N. lat. (deg)	050	050	050	050	050	050
(min)	44.5	00.5	59.0	55.5	55.0	00.5
W. long. (deg)	129	129	129	129	129	129
(min)	15.5	14.5	18.0	10.0	08.5	24.0
Direction (deg. true):	100	120	330	240	160	320
Finish N. lat. (deg)	050	049	051	050	050	050
(min)	44.0	49.5	01.5	55.5	55.5	01.0
W. long. (deg)	129	129	129	129	129	129
(min)	12.5	12.5	19.0	11.5	08.5	25.5
Distance travelled:	3.7	2.9	4.5	2.5	1.8	1.6
Depth (meters):	212-192	91-91	159-177	90-112	79-91	183-179
Surface water temp.(^{o}C)	13.0	13.0	13.5	13.0	13.0	13.5
Type of gear:	21	21	21	21	21	21
Total catch:	181	99	46	0	0	0
Remarks:	Usable	Usable	Usable	Usable	Usable	Usable

Appendix Table 6 (cont'd)

Haul No.	37	38	39	40	41	42
Date:	Sept 23	Sept 23	Sept 26	Sept 26	Sept 26	Sept 28
Area:	CSCO	CSCO	TRII	TRII	TRII	TRII
Catch total:	181	99	46	0	0	0
Flatfish						
Dover sole	-	-	-	-	-	-
Rex sole	-	-	-	-	-	-
Turbot	-	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-
Roundfish						
S. aleutianus	-	-	-	-	-	-
S. alutus	-	-	-	-	-	-
S. babcocki	-	-	-	-	-	-
S. borealis	-	-	-	-	-	-
S. brevispinis	12	12	1	-	-	-
S. diploproa	-	-	-	-	-	-
S. entomelas	9	Tr	-	-	-	-
S. flavidus	14	4	-	-	-	-
S. paucispinis	15	2	-	-	-	-
S. pinniger	-	-	-	-	-	-
S. proriger	130	Tr	-	-	-	-
S. reedi	1	-	-	-	-	-
S. zacentrus	Tr	Tr	-	-	-	-
Seb. alascanus	-	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	181	8	1	-	-	-
Blackcod	-	-	-	-	-	-
Hake	-	-	-	-	-	-
Lingcod	-	-	-	-	-	-
Pacific cod	-	-	-	-	-	-
Herring	Tr	91	45	-	-	Tr
Others	-	-	-	-	-	-
Sub-total	Tr	91	45	-	-	Tr
Selachii						
Dogfish	-	-	-	-	-	-
Ratfish	-	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-
Invertebrates						
Jellyfish	Tr	-	-	-	-	-
Others	-	-	-	-	-	-
Sub-total	Tr	-	-	-	-	-

Appendix Table 6 (cont'd)

Haul no.	43	44
Date:	Sept 28	Sept 29
Area:	TRII	TRII
Time start:	1955	0855
Duration (min):	50	25
Start N. lat. (deg)	050	051
(min)	53.0	01.0
W. long. (deg)	129	129
(min)	25.0	31.0
Direction (deg. true):	180	190
Finish N. lat. (deg)	050	051
(min)	52.0	01.0
W. long. (deg)	129	129
(min)	26.0	31.0
Distance travelled:	2.5	1.2
Depth (meters):	174-166	276-262
Surface water temp. (°C)	13.5	13.5
Type of gear:	21	8
Total catch	179	0
Remarks	Usable	Usable

Appendix Table 6 (cont'd)

Haul No.	43	44
Date:	Sept 28	Sept 29
Area:	TRII	TRII
Catch total:	179	0
Flatfish		
Dover sole	-	-
Rex sole	-	-
Turbot	2	-
Others	Tr	-
Sub-total	2	-
Roundfish		
S. aleutianus	-	-
S. alutus	-	Tr
S. babcocki	-	-
S. borealis	-	-
S. brevispinis	33	-
S. diploproa	-	-
S. entomelas	5	-
S. flavidus	6	-
S. paucispinis	14	-
S. pinniger	8	-
S. proriger	8	-
S. reedi	16	-
S. zacentrus	-	Tr
Seb. alascanus	-	-
Others	4	-
Sub-total	167	Tr
Blackcod	-	-
Hake	-	-
Lingcod	-	-
Pacific cod	-	-
Herring	10	-
Others	-	-
Sub-total	10	-
Selachii		
Dogfish	-	-
Ratfish	-	-
Others	-	-
Sub-total	-	-
Invertebrates		
Jellyfish	Tr	-
Others	-	-
Subtotal	Tr	-

FOOTNOTES TO APPENDIX TABLE 6

Area: ESIN = Esperanza Inlet, KYSD = Kyuquot Sound, QUSO = Quatsino Sound; CSCO = Cape Scott, TRII = Triangle Is.

Time Start: Pacific Standard Time.

Distance travelled = Nautical miles.

Depth (meters): Depth at beginning and end of haul.

Water temperature: Taken at surface with standard thermometer.

Type of gear: 8 = Nor' Eastern otter trawl (12.7-cm mesh in body, 8.9-cm mesh in intermediate and codend).
3.2-cm mesh liner in codend. 839-kg round steel doors.
21 = Diamond VII midwater trawl (81.3-cm mesh in wings, 20.3-cm mesh in body, 8.9-cm mesh in codend).
3.2-cm mesh liner in codend. 839-kg round steel doors.

Total catch: Kilograms.

Remarks: Usable haul.

Flatfish: Dover sole (Microstomus pacificus); rex sole (Glyptocephalus zachirus); turbot (Atheresthes stomias); others include: Pacific sanddab (Citharichthys sordidus); English sole (Parophrys vetulus); flathead sole (Hippoglossoides elassodon); petrale sole (Eopsetta jordani); rock sole (Lepidopsetta bilineata), slender sole (Lyopsetta exilis).

Rockfish: Others include: S. aurora, S. crameri, S. elongatus, S. emphaeus, S. helvomaculatus, S. ruberrimus.

Other roundfish: Blackcod (Anoplopoma fimbria); hake (Merluccius productus); lingcod (Ophiodon elongatus); Pacific cod (Gadus macrocephalus); herring (Clupea harengus pallasi); others include: walleye pollock (Theragra chalcogramma), chinook salmon (Oncorhynchus tshawytscha), eulachon (Thaleichthys pacificus), greenlings (Hexagrammidae), saury (Cololabis saira), sculpins (Cottidae), snailfish (Careproctus melanurus), wolf eel (Anarrhichthys ocellatus).

Selachii: Dogfish (Squalus acanthias); ratfish (Hydrolagus colliei); others include: skates (Rajidae), Pacific electric ray (Torpedo californica).

Invertebrates: Jellyfish, octopus, squid, crab.

Trace: Tr = 45 kg qualification level.

Appendix Table 7. Common and scientific names of species captured.

Common name	Scientific name
FLATFISH	
Dover sole	Microstomus pacificus
English sole	Parophrys vetulus
Halibut	Hippoglossus stenolepis
Petrale sole	Eopsetta jordani
Rex sole	Glyptocephalus zachirus
Rock sole	Lepidopsetta bilineata
Turbot	Atheresthes stomias
ROUNDFISH	
Rougheye rockfish	Sebastes aleutianus
Pacific ocean perch	S. alutus
Red banded or convict rockfish	S. babcocki
Shortraker rockfish	S. borealis
Silvergray rockfish	S. brevispinis
Dark blotched rockfish	S. crameri
Split lip rockfish	S. diploproa
Greenstriped rockfish	S. elongatus
Widow rockfish	S. entomelas
Yellowtail rockfish or greenies	S. flavidus
Rosethorn rockfish	S. helvomaculatus
Bocaccio rockfish or longjaw	S. paucispinis
Canary rockfish	S. pinniger
Redstripe rockfish	S. proriger
Yellowmouth rockfish	S. reedi
Sharpchin rockfish	S. zacentrus
Idiot or shortspine thornyhead	Sebastolobus alascanus
Blackcod	Anoplopoma fimbria
Lingcod	Ophiodon elongatus
Pacific cod	Gadus macrocephalus
Walleye pollock	Theragra chalcogramma
Hake	Merluccius productus
Herring	Clupea harengus pallasi
SELACHII	
Ratfish	Hydrolagus colliei