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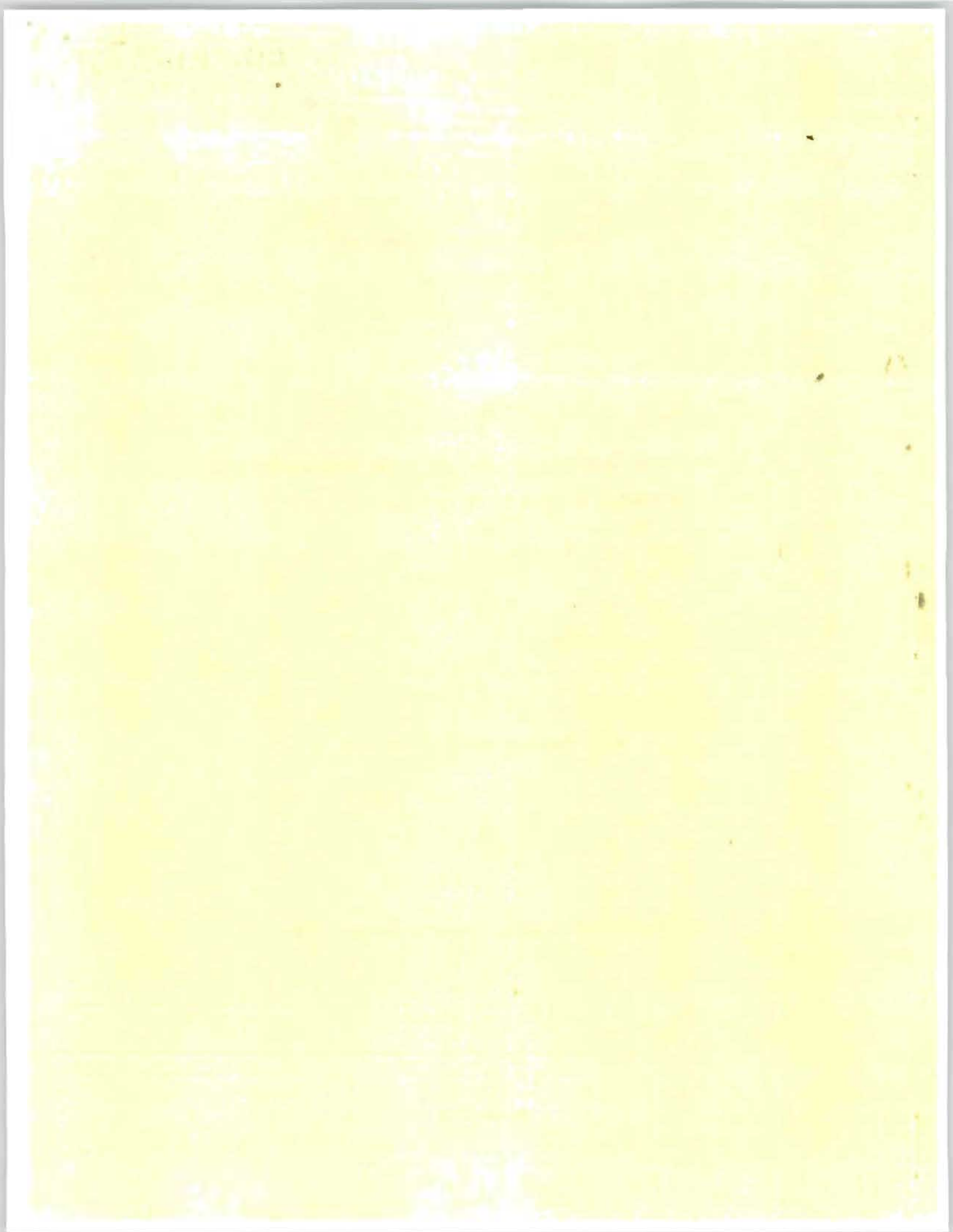
AN INVENTORY OF BIOLOGICAL SAMPLES TAKEN IN THE COMMERCIAL
GROUNDFISH FISHERY IN BRITISH COLUMBIA IN 1975

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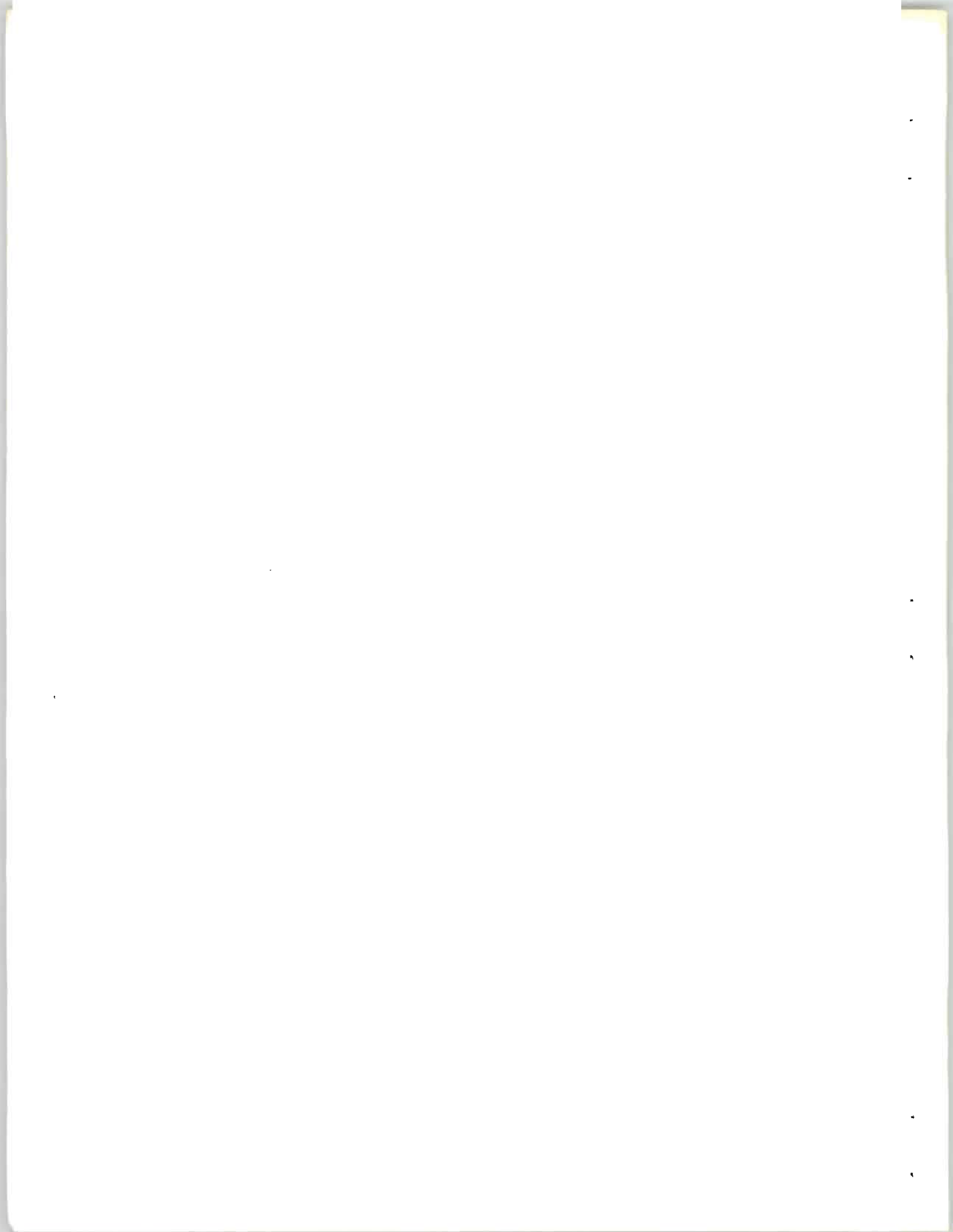
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INTRODUCTION

The collection of statistics and biological samples from the Canadian groundfish fishery off the west coast of Canada is an important function of the groundfish investigation. Sampling to monitor conditions in the fishery is conducted primarily at the ports of Vancouver, Steveston and Prince Rupert on commercial landings, and occasionally at sea aboard commercial vessels.

Since late 1974 the groundfish fishery has seen the advent of Refrigerated Sea-Water (RSW) vessels, and improved unloading procedures with pumps and conveyor systems to carry the fish from the vessels to the filleting lines in the processing plant. Prior to 1975, it was generally possible to obtain samples from a vessel which fished on more than one fishing ground by first ascertaining where these fish were stored aboard the vessel, and then watching the unloading procedure until the fish for sampling were unloaded. Now, this is almost impossible because the pump is generally lowered into the center of the hold and the fish from the individual storage pens are pushed into the center of the hold, further mixing the load. The actual time of unloading has also decreased. What was previously an 8-hr procedure has now become a 4-hr one, and this also decreased the availability of samples. The RSW vessels have further complicated the collection of samples. Vessels using ice generally store their fish in eight to twelve storage pens in the hold, each pen having a capacity of 4,000 to 15,000 pounds of fish, whereas the RSW vessels have four or six tanks, each having a capacity of 15,000 to 75,000 pounds of fish.

In 1975 a total of 119 biological samples was collected from the British Columbia landings or catches. A total of 25,301 fish was processed for length measurements, while 13,856 of these were also processed for sex and age with the collection of otolith or scales.

Particular emphasis in the sampling was placed on catches from major fishing grounds and on those species which are or have been of greatest commercial importance. Thus, about 74% of the samples were those of Pacific cod. Pacific ocean perch, rock sole and English sole accounted for 18% of the samples.

Length measurements were collected from whole or dressed fish or from frames. Pacific cod and lingcod were generally landed whole, as was Pacific ocean perch, and length and otolith or scale collections were carried on prior to filleting. Various flatfishes were landed whole, and samples taken from their frames, after filleting, when sex could be determined.

A summary of the sampling by species by area is given in Table 1. The type and quality of data collected in samples are given for each species in Tables 2-11.

The general areas of capture of fish sampled are shown in Fig. 1. Within the Strait of Georgia region (Area 4B) a separation into sub-areas has been used as illustrated in Fig. 2 and described as follows:

- (1) 4BJ - the inlets and channels of Johnstone Strait and of Queen Charlotte Strait.
- (2) 4BL - the western side of the Strait of Georgia from Cape Mudge south to Parksville, which includes grounds in the region of Cape Lazo and Baynes Sound.
- (3) 4BG - the Gulf Islands region of the southern Strait of Georgia which includes the Nanoose Bay ground and other grounds south to the international boundary, and the Strait of Juan de Fuca.
- (4) 4BF - the area on the east side of the Strait southward from Westview to the Fraser River estuary and international boundary.

ACKNOWLEDGEMENTS

The task of collecting samples from the commercial fishery has been the responsibility of the senior author and N. L. Venables, the liaison officers between the Pacific Biological Station and the fishing industry.

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Table 1. Numbers of samples collected from British Columbia trawl landings in 1975, by International Area.

Species	Area						Total	
	3C	3D	4B	5A	5B	5C		5D
Flatfish								
Dover sole	-	-	-	-	-	-	1	1
English sole	-	-	1	-	-	-	4	5
Petrable sole	1	-	-	-	-	-	-	1
Rock sole	1	-	-	-	-	2	2	5
Starry flounder	-	-	-	-	-	-	1	1
Rockfish								
Pacific ocean perch	-	-	-	-	11	1	-	12
Other roundfish								
Lingcod	3	-	-	-	-	-	-	3
Pacific cod	29	-	17	-	5	8	29	88
Pacific pollock	-	-	-	-	-	-	2	2
Sablefish	1	-	-	-	-	-	-	1
Total	35	-	18	-	16	11	39	119

Table 2. Dover sole (Microstomus pacificus) samples, 1975.

Area	Month	Depth caught (fm)	Number sampled					
			Length			Age (otolith)		
			Male	Female	Total	Male	Female	Total
5D	May	70-90	67	232	299	67	232	299
Total fish sampled			299					

Table 3. English sole (Parophrys vetulus) samples, 1975.

Area	Month	Depth caught (fm)	Number sampled					
			Length			Age (otolith)		
			Male	Female	Total	Male	Female	Total
5D	Jan.	60-63	38	200	238	38	200	238
	Apr.	22-60	100	156	256	100	156	256
		36	100	209	309	100	209	309
	May	32-35	122	218	340	122	218	340
4BG	Oct.	22-26	52	159	211	52	159	211
Total fish sampled					1,354			

Table 4. Petrale sole (Eopsetta jordanii) samples, 1975.

Area	Month	Depth caught (fm)	Number sampled					
			Length			Age (otolith)		
			Male	Female	Total	Male	Female	Total
3C	June	54-57	132	204	336	132	204	336
Total fish sampled					336			

Table 5. Rock sole (Lepidopsetta bilineata) samples, 1975

Area	Month	Depth caught (fm)	Number sampled					
			Length			Age (otolith)		
			Male	Female	Total	Male	Female	Total
3C	Mar.	32-34	11	113	124	11	113	124
5C	June	17-35	84	239	323	84	239	323
		29-40	25	220	245	25	220	245
5D	May	17-18	18	197	215	18	197	215
	Nov.	15-22	71	170	241	71	170	241
Total fish sampled					1,148			

Table 6. Starry flounder (Platichthys stellatus) samples, 1975.

Area	Month	Depth caught (fm)	Number sampled (length)		
			Left handed	Right handed	Total
5D	Feb.	25-26	145	50	195
Total fish sampled					195

Table 7. Pacific ocean perch (Sebastes alutus) samples, 1975.

Area	Month	Depth caught (fm)	Number sampled						
			Age (otolith and length)			Length only			
			Male	Female	Total	Male	Female	Total	Total
5B	June	108-153	60	42	102	106	45	151	253
		85-135	59	40	99	119	81	200	299
		110-130	58	44	102	113	86	199	301
	July	105	49	50	99	114	90	204	303
	Sept.	105-140	65	38	103	101	100	201	304
		112-118	43	57	100	74	109	183	283
		110-155	61	39	100	110	90	200	300
	Oct.	149-177	54	46	100	123	77	200	300
		148-184	71	32	103	149	55	204	307
	Nov.	158-180	53	47	100	77	74	151	251
	Dec.	130-160	45	55	100	99	97	196	296
	5C	May	108-115	90	11	101	183	21	204
Total fish sampled								3,502	

Table 8. Lingcod (Ophiodon elongatus) samples, 1975.

Area	Month	Depth caught (fm)	Number sampled		Total
			Age (scales and length)	Length only	
3C	May	38-40	120	128	248
	June	35-52	120	18	138
	Aug.	32-38	-	209	209
Total fish sampled					595

Table 9. Pacific cod (Gadus macrocephalus) samples, 1975.

Area	Month	Depth caught (fm)	Number sampled ^a		
			Length plus scales	Length	Total
5B	May	50-73	120	88	208
		36-62	-	171	171
	Sept.	50-76	-	146	146
		52-64	-	136	136
		40-70	153	-	153
5C	Jan.	55-60	120	194	314
	Apr.	17-18	120	57	177
		23-27	120	91	211
	May	25-48	120	189	309
		47	120	106	226
		31-42	119	91	210
	June	29-40	-	173	173
		Dec.	54-56	143	-
	5D	Jan.	60-63	-	102 ^b
48-55			120	37	157
48-53			121	44	165
31-35			121	73	194
50-54			119	94	213
Feb.		50-53	-	205 ^b	205
		30-55	-	102	102
		50-52	-	120 ^c	120
		48-60	120	81	201
		48-53	120	89	209
		48-53	-	120 ^c	120
		44-57	120	50	170
Mar.		44-57	-	100 ^c	100
		42-50	120	71	191
		27-35	120	102	222
Apr.		22-60	120	115	235
		46	120	164	284
		36	120	136	256
		17-18	120	79	199
May		25-40	117	104	221
		12-18	121	96	217
	22-32	120	146	266	
	22-32	120 ^d	153 ^d	273 ^d	
	24-33	120 ^d	195 ^d	315 ^d	

Table 9 (cont'd)

Area	Month	Depth caught (fm)	Number sampled*		
			Length plus scales	Length	Total
(5D)	July	52-62	120	-	120
	Oct.	32-54	251	-	251
		48-58	195	-	195
	Nov.	88-90	177	-	177
	Dec.	51-52	118	-	118
3C	Jan.	30-40	120	135	255
		34-37	-	133 ^b	133
	Feb.	34	119	113	232
		34-36	-	150 ^b	150
		24-50	-	110 ^c	110
		24-50	120	5	125
		29-45	121	18	139
		36-38	119	43	162
		36-38	-	120 ^c	120
	Mar.	26	120	67	187
		23-42	120	41	161
		23-42	-	120 ^c	120
		32-40	120	62	182
		32-40	-	100 ^c	100
		32-34	120	103	223
		31-47	120	109	229
	Apr.	34-60	120	93	213
		30-50	120	119	239
		38-40	120	75	195
		41-61	120	89	209
	May	34-42	120	107	227
		54-57	120	71	191
		49-56	120	105	225
	June	31-45	120	58	178
		40-45	120	99	219
	July	47-55	212	-	212
		50-55	184	-	184
45-48		170	-	170	
45-55		174	-	174	
4BG	Jan.	25-30	-	466	466
	Feb.	36-45	120	91	211
		34-42	120	84	204
	Mar.	30-35	120	276	396
		40-50	120	201	321
	Apr.	30-50	120	201	321

Table 9 (cont'd)

Area	Month	Depth caught (fm)	Number sampled ^a		
			Length plus scales	Length	Total
(4BG)	June	35-40	119	19	138
	Oct.	44-46	193	-	193
		46-52	247	-	247
	Nov.	38-45	116	-	116
	Dec.	38-52	89	-	89
4BJ	Feb.	28-60	120	25	145
4BL	Mar.	37-42	120	89	209
		40-50	120	70	190
		40-50	120	48	168
	May	25-45	120	116	236
	Nov.	40	133	-	133
Total fish sampled					17,222

^aAll specimens examined for tumours.

^bSampled by sex.

^cSpecial sample - sex, maturity and some egg calibrations.

^dSpecial sample - small fish separated by graders and not filleted.

Table 10. Pacific pollock (Theragra chalcogramma) samples, 1975.

Area	Month	Depth caught (fm)	Number sampled (length only)		
			Male	Female	Total
5D	Oct.	98-105	(Unsexed)		239
		98-105	128	108	236
Total fish sampled					475

Table 11. Sablefish (Anoplopoma fimbria) samples, 1975.

Area	Month	Depth caught (fm)	Number sampled (length only)
			Total
3C	June	53-55	175
Total fish sampled			175

