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# FISHERIES RESEARCH BOARD OF CANADA

MANUSCRIPT REPORT SERIES

No. 1310

**Biological Observations  
Made during IDB-supported  
Cruises of the *Gail Bernice*  
March 26, 1973-March 21, 1974  
(Data Record)**

by  
**D. Chilton and D. Lovely**

**Pacific Biological Station, Nanaimo, B.C.**

**June 1974**

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## FOREWORD

Industrial Development Branch support has been provided to Captain H. McBride of the trawler GAIL BERNICE for purposes of exploratory fishing on grounds off British Columbia. Under terms of the agreement accommodation was provided for an observer aboard the vessel. The junior author, of the Fisheries Service, Vancouver, B.C., acted in that capacity and collected detailed information by haul on localities and times fished, depth fished, species composition of catch, etc. That information was summarized by Forrester (1973), Forrester and Tremblett (1973), Forrester, Tremblett and Chilton (1973) and Chilton, Lovely and Forrester (1974a and b). This report concerns the biological observations made during the period March 26, 1973 to the final trip in March, 1974. Previous biological data was summarized in a report by Chilton and Tremblett (1973).

Prior to sorting of catches for commercial retention, and as opportunity permitted, biological information from fish species caught was collected. This included records of fish length (recorded to the nearest centimeter for total length or fork length where applicable) and sex, and collection of otoliths or scales for age determination. Table 1 contains an inventory of samples collected on cruises to Hecate Strait, Queen Charlotte Sound, and grounds off southwest Vancouver Island. The succeeding tables contain length frequencies of species sampled, by haul and locality.

Full particulars on hauls may be found in the above publications.

The explanation of locality abbreviations used in Table 1 is as follows:

TI = Triangle Island  
MG = Mitchell's Gully  
SWE = Southwest Edge Goose Island Grounds  
NEE = Northeast Edge Goose Island Grounds  
Ucl = Ucluelet  
HS = Horseshoe  
REI = Reef Island  
FR = Firing Range  
WR = White Rocks

## REFERENCES

- Chilton, D., and A. Tremblett. 1973. Biological observations made during IDB-supported cruises of the GAIL BERNICE (ex RUPERT BRAND V) August 26, 1972-March 18, 1973. Fish. Res. Board Can. MS Rep. 1283: 29 p.
- Chilton, D., D. Lovely, and C. R. Forrester. 1974a. IDB-supported GAIL BERNICE groundfish cruises 73-10 to 73-14 to Hecate Strait and Queen Charlotte Sound, August 3-December 16, 1973 (Data record). Fish. Res. Board Can. MS Rep. 1299: 59 p.

Chilton, D., D. Lovely, and C. R. Forrester. 1974b. IDB-supported GAIL BERNICE groundfish cruises 74-1 to 74-3 to Hecate Strait, Queen Charlotte Sound and southwest Vancouver Island, February 6-March 21, 1974 (Data record). Fish. Res. Board Can. MS Rep. 1315: 45 p.

Forrester, C. R. 1973. IDB-supported RUPERT BRAND V groundfish cruises 72-1 to 72-6 to Queen Charlotte Sound, August 26-December 12, 1972. Fish. Res. Board Can. MS Rep. 1231: 89 p.

Forrester, C. R., and A. Tremblett. 1973. IDB-supported GAIL BERNICE groundfish cruises 73-1 to 73-3 to Hecate Strait, Queen Charlotte Sound and southwest Vancouver Island, January 23-March 18, 1973. Fish. Res. Board Can. MS Rep. 1247: 44 p.

Forrester, C. R., A. Tremblett, and D. Chilton. 1973. IDB-supported GAIL BERNICE groundfish cruises 73-4 to 73-8 to South Hecate Strait and Queen Charlotte Sound, March 26-June 27, 1973. Fish. Res. Board Can. MS Rep. 1260: 79 p.

Table 1. Inventory of biological samples taken during cruises GB 73-4-74-3 in Hecate Strait, Queen Charlotte Sound and on grounds off southwest Vancouver Island.

Cruise no.	Haul no.	Location	Month	Estimated catch (lb)	Catch depth (fm)	No. of fish sampled
<b>FLATFISH</b>						
<u>Arrowtooth flounder or turbot (<i>Atheresthes stomias</i>)</u>						
73-13	7	MG	Nov.	6,000	150-148	93
74-3	3	MG	Mar.	1,500	168-167	75
74-3	14	MG	Mar.	1,700	166-168	75
<b>ROCKFISH</b>						
<u>Bocaccio (<i>Sebastes paucispinis</i>)</u>						
73-7	1	SWE	June	200	63-46	25
73-7	2	SWE	June	300	52-60	41
73-7	3	SWE	June	250	62-56	26
73-8	3	SWE	June	1,000	59-66	113
73-8	17	HS	June	250	108-107	18
73-8	17	HS	June	250	108-107	19
<u>Pacific ocean perch (<i>Sebastes alutus</i>)</u>						
73-4	4	MG	Mar.	32,500	175-166	83
73-4	7	MG	Mar.	21,500	175-168	97
73-5	15	MG	Mar.	11,000	156-162	82
73-8	17	HS	June	10,150	108-107	33
73-8	18	HS	June	10,000	110	37
73-10	6	NEE	Aug.	28,000	108-107	86
73-12	11	MG	Oct.	7,000	147-148	100
73-12	14	MG	Oct.	9,500	145-128	71
73-12	17	MG	Oct.	24,000	136-140	75
73-12	19	MG	Nov.	15,000	125-139	95
73-13	15	MG	Nov.	18,000	178-158	92
73-13	17	MG	Nov.	32,700	173-168	95
<u>Splitnose (<i>Sebastes diploproa</i>)</u>						
73-12	11	MG	Oct.	4,000	147-148	80
<u>Yellowmouth (<i>Sebastes reedi</i>)</u>						
73-10	26	TI	Aug.	62,000	102-101	80

Table 1 (cont'd)

Cruise no.	Haul no.	Location	Month	Estimated catch (lb)	Catch depth (fm)	No. of fish sampled
OTHER ROUND FISH						
<u>Lingcod (Ophiodon elongatus)</u>						
73-6	9	HS	May	400	50-46	19
73-10	2	HS	Aug.	1,800	35-29	27
74-1	14	FR	Feb.	45	29-34	31
<u>Pacific cod (Gadus macrocephalus)</u>						
73-5	3	SWE	Mar.	100	60-67	71
73-6	2	HS	May	2,300	35-51	110
73-6	2	HS	May	2,300	35-51	51
73-6	3	HS	May	35,200	54-50	46
73-6	8	HS	May	23,000	48-52	77
73-6	8	HS	May	23,000	48-52	47
73-7	1	SWE	June	3,250	63-58	126
73-12	6	HS	Oct.	1,500	36	100
73-14	3	WR	Dec.	6,000	60	173
73-14	7	ReI	Dec.	22,000	52-71	79
73-14	10	ReI	Dec.	7,000	52-63	110
73-14	15	ReI	Dec.	22,000	52-73	199
74-1	3	FR	Feb.	15,400	29-36	101
74-1	9	FR	Feb.	25,000	30-35	100
74-1	15	FR	Feb.	6,100	29-34	100
74-2	5	Ucl	Feb.	1,000	28-33	101
74-2	15	Ucl	Feb.	8,000	25-27	98
74-2	26	Ucl	Mar.	17,050	26-32	100
74-2	29	Ucl	Mar.	14,000	28-32	98
<u>Pacific pollock (Theragra chalcogramma)</u>						
73-6	6	HS	May	20,000	45-42	236
73-14	3	WR	Dec.	1,500	60	99
74-3	5	ReI	Mar.	1,350	45-72	77
<u>Sablefish or blackcod (Anoplopoma fimbria)</u>						
73-12	23	MG	Nov.	1,000	163-135	138
73-13	12	MG	Nov.	2,500	170-157	106

Table 2. Size composition of arrowtooth flounder (Atheresthes stomias) caught during GB 73-13, 74-3 by haul, by locality, November 1973 and March 1974.

Fish length (cm)	Mitchell's Gully		
	73-13	74-3	74-3
	Haul no.		
	7 <sup>a</sup>	3 <sup>a</sup>	14 <sup>a</sup>
27	-	-	1
28	1	-	1
29	-	-	-
30	1	-	2
31	-	1	6
32	-	1	4
33	-	4	3
34	1	3	2
35	-	4	5
36	-	1	2
37	2	2	3
38	4	3	3
39	4	5	5
40	6	2	4
41	2	4	-
42	5	6	2
43	5	4	2
44	7	5	7
45	2	5	5
46	3	5	4
47	7	5	4
48	6	3	3
49	8	4	4
50	5	1	1
51	3	-	1
52	6	2	-
53	5	2	-
54	3	-	1
55	2	-	-
56	2	-	-
57	1	-	-
58	1	1	-
59	-	1	-
60	1	-	-
64	-	1	-
Total	93	75	75

<sup>a</sup>Fish discarded.

Table 3. Size composition of bocaccio rockfish (Sebastes paucispinis) caught during GB 73-7, 73-8, by haul, by locality, June 1973.

Fish length (cm)	S.W. Edge Goose I.								Horseshoe	
	73-7				73-8				73-8	
	Haul no.									
	1		2		3		3		17	
	M <sup>a</sup>	F <sup>b</sup>	M	F	M	F	M	F	M	F
54	-	-	-	-	-	-	1	1	-	-
55	-	-	-	-	-	-	-	-	1	-
56	-	-	-	-	-	-	1	-	-	-
57	-	-	-	-	-	-	2	-	-	-
58	-	-	-	-	1	-	-	-	1	-
59	-	-	1	1	-	-	4	2	1	-
60	1	1	1	1	-	-	3	-	2	1
61	3	-	1	-	-	-	2	1	2	-
62	2	-	4	3	3	1	7	6	1	-
63	2	-	4	2	-	-	8	4	6	-
64	1	-	2	1	1	2	7	2	2	-
65	-	-	3	3	2	1	8	4	-	1
66	-	-	2	1	1	2	5	5	4	1
67	2	2	2	2	-	2	6	1	2	1
68	-	1	-	1	-	1	5	2	-	-
69	-	-	1	1	2	-	1	4	1	1
70	-	1	-	1	-	2	-	4	-	-
71	-	-	-	-	-	1	1	2	2	-
72	-	1	-	2	-	1	-	3	-	1
73	-	-	-	-	-	-	-	4	1	-
74	-	2	-	-	-	1	1	-	-	-
75	1	-	-	-	-	2	-	3	-	1
76	-	2	-	1	-	-	-	2	-	3
77	-	1	-	-	-	-	-	1	-	-
78	-	-	-	-	-	-	-	-	-	1
79	-	1	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-
82	-	1	-	-	-	-	-	-	-	-
Total	12	13	21	20	10	16	62	51	26	11

<sup>a</sup>M = male

<sup>b</sup>F = female

Table 4. Size composition of Pacific ocean perch (Sebastes alutus) caught during GB 73-4, 73-12, 73-13, by haul, by locality, March, October and November 1973.

Fish length (cm)	Mitchell's Gully													
	73-4		73-12						73-13					
	Haul no.													
	4		7		14		17		19		15		17	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
27	-	-	-	-	-	-	-	-	-	1	-	-	-	-
28	-	-	-	-	-	-	-	-	-	1	-	-	-	-
29	1	-	-	1	-	-	-	-	-	-	-	1	-	-
30	1	-	-	-	-	-	-	-	1	-	-	-	-	-
31	1	-	1	1	1	2	-	-	-	-	1	-	-	1
32	-	2	2	1	-	-	-	-	2	3	1	1	-	-
33	3	1	-	3	1	1	-	1	4	-	1	1	4	1
34	4	1	3	2	2	1	3	3	5	8	2	1	2	-
35	1	6	4	2	-	-	2	4	7	3	1	1	3	5
36	7	1	8	8	1	-	5	7	5	3	2	5	6	2
37	8	3	13	4	-	1	3	1	7	3	5	4	6	7
38	7	-	11	2	1	1	2	3	5	8	7	4	5	4
39	5	2	5	2	2	1	-	3	2	1	6	8	4	9
40	10	-	9	1	7	-	1	4	2	3	2	11	3	7
41	10	-	5	-	12	-	1	2	5	-	-	10	-	12
42	3	-	8	-	7	-	-	2	3	1	1	9	-	6
43	4	-	-	-	6	3	-	5	-	3	-	3	-	6
44	2	-	1	-	3	7	-	7	1	5	-	1	-	2
45	-	-	-	-	2	5	1	9	-	1	-	2	-	-
46	-	-	-	-	-	3	-	5	-	2	-	1	-	-
47	-	-	-	-	-	1	-	1	-	-	-	-	-	-
Total	67	16	70	27	45	26	18	57	49	46	29	63	33	62

Table 5. Size composition of Pacific ocean perch (*Sebastes alutus*) caught during 73-5, 73-8, 73-10, 73-12, by haul, by locality, April, June, August and October 1973.

Fish length (cm)	Mitchell's Gully		N.E. Edge		Horseshoe			
	73-5 <sup>a</sup>	73-12 <sup>a</sup>	73-10		73-8			
	Haul no.		Haul no.		17		18	
	15	11	6		M	F	M	F
27	-	-	1	-	-	-	-	-
28	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-
30	1	-	1	-	1	-	-	1
31	-	-	1	1	1	-	-	-
32	2	2	1	1	-	-	1	-
33	-	-	1	3	-	-	-	-
34	-	6	8	1	-	-	-	-
35	3	3	7	5	-	-	-	-
36	3	4	10	10	1	-	-	-
37	2	4	4	5	2	-	1	-
38	4	5	3	3	-	-	1	1
39	11	14	2	-	2	2	1	1
40	11	18	3	2	3	1	4	1
41	13	12	-	-	1	-	2	1
42	22	17	1	3	6	-	4	1
43	7	9	-	1	2	1	4	1
44	3	3	1	2	4	3	2	2
45	-	2	-	3	-	1	1	4
46	-	1	-	-	-	1	1	1
47	-	-	-	1	-	1	-	1
48	-	-	-	1	-	-	-	-
Total	82	100	44	42	23	10	22	15

<sup>a</sup>Unsexed fish.

Table 6. Size composition of splitnose rockfish (Sebastes diploproa) and yellowmouth rockfish (Sebastes reedi) caught during GB 73-12, 73-10, by haul, by locality, October 1973 and August 1973, respectively (unsexed fish).

Fish length (cm)	Mitchell's Gully		Triangle Island	
	(Splitnose)	73-12 Haul no.	(Yellowmouth)	73-10 Haul no.
		11		26
25		2		-
26		3		-
27		7		-
28		7		-
29		7		-
30		8		-
31		9		-
32		8		-
33		5		1
34		6		3
35		7		2
36		6		10
37		5		8
38		-		19
39		-		9
40		-		11
41		-		9
42		-		2
43		-		-
44		-		2
45		-		2
46		-		1
47		-		1
<b>Total</b>		<b>80</b>		<b>80</b>

Table 7. Size composition of lingcod (Ophiodon elongatus) caught during GB 73-6, 73-10, 74-1, by haul, by locality, February, May, August 1973 (unsexed fish).

Fish length (cm) <sup>a</sup>	Horseshoe		Fish length (cm)	Firing Range
	73-6 Haul no.	73-10 Haul no.		74-1 Haul no.
	9	2		14 <sup>b</sup>
65	2	-	26	1
68	1	-	29	5
71	1	-	32	2
74	1	1	35	5
77	-	-	38	8
80	-	2	41	3
83	-	-	44	1
86	-	3	47	4
89	1	2	50	2
92	3	2	53	-
95	1	5	56	-
98	2	1	59	-
101	3	6	62	-
104	1	1	65	-
107	1	-	68	-
110	2	2	71	-
113	-	-	74	-
116	-	1	77	-
119	-	1	80	-
Total	19	27		31

<sup>a</sup>Grouped by 3 cm intervals, i.e., 59 cm = 58, 59, 60 cm fish.

<sup>b</sup>Fish discarded.

Table 8. Size composition of Pacific cod (Gadus macrocephalus) caught during GB 73-5, 73-7, 73-14, by haul, by locality, April, June and December 1973 (unsexed fish).

Fish length (cm) <sup>a</sup>	S.W. Edge		White Rocks	Reef Island			
	73-5	73-7	73-14	73-14			
	Haul no.		Haul no.	Haul no.			
	3 <sup>b</sup>	1 <sup>b</sup>	3 <sup>b</sup>	7	10 <sup>b</sup>	15	15 <sup>b</sup>
23	-	-	-	-	1	-	4
26	-	-	-	-	-	-	11
29	-	-	-	-	1	-	6
32	-	-	1	-	-	-	1
35	-	-	2	-	14	-	5
38	4	5	14	-	31	-	23
41	21	22	61	-	46	-	30
44	24	52	48	2	17	-	16
47	21	40	34	2	-	5	4
50	1	7	13	3	-	9	-
53	-	-	-	5	-	5	-
56	-	-	-	11	-	8	-
59	-	-	-	9	-	12	-
62	-	-	-	14	-	17	-
65	-	-	-	18	-	24	-
68	-	-	-	10	-	14	-
71	-	-	-	3	-	3	-
74	-	-	-	2	-	1	-
83	-	-	-	-	-	1	-
Total	71	126	173	79	110	99	100

<sup>a</sup>Grouped by 3 cm intervals, i.e., 59 cm = 58, 59, 60 cm fish.

<sup>b</sup>Fish discarded.

Table 9. Size composition of Pacific cod (Gadus macrocephalus) caught during GB 73-6, 73-12, by haul, by locality, May, October 1973 (unsexed fish).

Fish length (cm) <sup>a</sup>	Horseshoe				
	73-6			73-12	
	Haul no.				
	8 <sup>b</sup>	3	2 <sup>b</sup>	2 <sup>b</sup>	6 <sup>b</sup>
23	-	-	-	2	-
26	-	-	1	13	1
29	1	-	15	20	-
32	5	-	7	32	8
35	10	-	5	18	25
38	20	-	10	7	26
41	56	-	8	12	26
44	30	2	3	6	13
47	2	2	2	-	-
50	-	1	-	-	1
53	-	4	-	-	-
56	-	7	-	-	-
59	-	14	-	-	-
62	-	10	-	-	-
65	-	3	-	-	-
68	-	1	-	-	-
71	-	-	-	-	-
74	-	-	-	-	-
77	-	-	-	-	-
80	-	1	-	-	-
83	-	-	-	-	-
86	-	1	-	-	-
Total	124	46	51	110	100

<sup>a</sup>Grouped by 3 cm intervals, i.e., 59 cm = 58, 59, 60 cm fish.

<sup>b</sup>Fish discarded.

Table 10. Size composition of Pacific cod (Gadus macrocephalus) caught during GB 74-1, 74-2, by haul, by locality, February, March 1973 (unsexed fish).

Fish length (cm) <sup>a</sup>	Ucluelet and Firing Range						
	74-1			74-2			
	3 <sup>b</sup>	9 <sup>b</sup>	15	Haul no.			
				5	15	26	29
35	3	-	-	1	-	-	-
38	-	-	2	-	-	-	-
41	3	1	-	2	-	-	-
44	4	2	1	4	-	-	-
47	1	-	1	1	1	-	-
50	1	-	1	3	4	1	-
53	1	1	2	-	9	3	8
56	5	6	7	9	13	11	11
59	9	12	11	17	14	21	16
62	18	18	16	24	23	27	17
65	21	24	25	16	16	8	20
68	18	17	18	11	9	19	8
71	9	13	7	5	7	6	12
74	6	3	5	3	1	-	3
77	1	2	3	3	-	3	2
80	-	1	1	2	1	-	1
83	1	-	-	-	-	1	-
Total	101	100	100	101	98	100	98

<sup>a</sup>Grouped by 3 cm intervals, i.e., 59 cm = 58, 59, 60 cm fish.

<sup>b</sup>Fish under 50 cm discarded.

Table 11. Size composition of Pacific pollock (*Theragra chalcogramma*) caught during GB 73-6, 73-14, 74-3, by haul, by locality, May-December 1973 and March 1974 (unsexed fish).

Fish length (cm)	Horseshoe	White Rocks	Reef Island
	73-6	73-14	74-3
	Haul no. <u>6<sup>a</sup></u>	Haul no. <u>3<sup>a</sup></u>	Haul no. <u>5<sup>a</sup></u>
28	1	-	-
29	7	1	-
30	17	1	-
31	44	3	-
32	50	-	-
33	43	2	-
34	29	1	-
35	23	-	-
36	10	2	-
37	2	10	1
38	2	9	-
39	-	8	-
40	-	23	1
41	-	16	-
42	1	17	5
43	1	4	3
44	2	1	11
45	2	-	10
46	1	1	15
47	1	-	9
48	-	-	9
49	-	-	5
50	-	-	5
51	-	-	-
52	-	-	-
53	-	-	-
54	-	-	-
55	-	-	-
56	-	-	-
57	-	-	2
58	-	-	-
59	-	-	1
Total	236	99	77

<sup>a</sup>Fish discarded.

Table 12. Size composition of sablefish (*Anoplopoma fimbria*) caught during GB 73-12, 73-13, by haul, by locality, November 1973 (unsexed fish).

Fish length (cm) <sup>a</sup>	Mitchell's Gully	
	73-12	73-13
	Haul no.	
	23 <sup>b</sup>	12
50	26	11
53	19	19
56	22	16
59	11	9
62	5	7
65	8	10
68	17	12
71	12	8
74	8	9
77	3	2
80	3	3
83	2	-
86	-	-
89	1	-
92	1	-
Total	138	106

<sup>a</sup>Grouped by 3 cm intervals.

<sup>b</sup>Fish under 53 cm discarded.