Exxon Valdez Oil Spill
State/Federal Natural Resource Damage Assessment
Final Report

COMPREHENSIVE ASSESSMENT OF COASTAL HABITAT

COASTAL HABITAT STUDY NUMBER 1A
FINAL REPORT

VOLUME VII

APPENDIX E

Raymond C. Highsmith[1]
Michael S. Stekoll[2]
Willard E. Barber[1]
Lyman McDonald[3]
Dale Strickland[3]
Wallace P. Erickson[3]

[1]School of Fisheries and Ocean Sciences
University of Alaska Fairbanks
Fairbanks, Alaska 99775-1090

[2]Juneau Center, School of Fisheries and Ocean Sciences
University of Alaska Fairbanks
Juneau, Alaska 99801

[3]Western EcoSystems Technology
1402 South Greely Highway
Cheyenne:, Wyoming 82007

DECEMBER 1994

Appendix table of contents

5 Percent Fish Found
- 40 For each MVD, visit and year with Wilcoxon
- 41 For each **MVD,** visit, year and habitat
- 42 For each MVD, visit, year, habitat by oil/ctl
- 43 For each MVD, year, habitat
- 44 For each MVD, visit, year, habitat by oil/ctl

6 Fish Sampled Both Years (n=10)
- 45 Abundance each habitat and visit
- 46 Biomass each habitat and visit
- 47 Wilcoxon abundance each habitat
- 48 Wilcoxon biomass each habitat
- 49 ANOVA abundance
- 50 ANOVA biomass
- 51 Logistic **1990**
- 52 Logistic **1991**

7 Habitat Analysis
- 53 Stepwise regreslsion for **1990** MVD **2** abundance
- 54 Stepwise regreslsion for **1990** MVD **3** abundance
- 55 Stepwise regreslsion for **1990** MVD **4** abundance
- 56 Stepwise regreslsion for **1991** MVD **2** abundance
- 57 Stepwise regreslsion for **1991** MVD **3** abundance
- 58 Stepwise regreslsion for **1991** MVD **4** abundance
- 59 Stepwise regreslsion for **1990** MVD **2,3,4** abund
- 60 Stepwise regreslsion for **1991** MVD **2,3,4** abund
- 61 Stepwise regreslsion with bootstrap **1990** bio
- 62 Stepwise regression with bootstrap **1991** bio
- 63 Logistic **1990** aibundance with bootstrap
- 64 Logistic **1991** aibundance with bootstrap
- 65 Probability of detection based on logistic

8 Statistics
- 66 ANOVA abundance
- 67 ANOVA biomass
- 68 Fishers Randomization abundance
- 69 Fishers Randomization biomass
- 70 Fishers Randomization mat covariate
- 71 Fishers Randomization moss covariate
- 72 Shannon-Weinner diversity **1990-1991**
- 73 Shannon-Weinner for visit, habitat and year
- 74 Wilcoxon abund on MVD, visit, habitat, year
- 75 Wilcoxon bio on MVD, visit, habitat, year
- 76 Shannon-Weinner **90-1** species **3** times
- 77 Shannon-Weinner **90-2** species **3** times
- 78 Shannon-Weinner **91-1** species **3** times
- 79 Shannon-Weinner **91-2** species **3** times

9 Abundance - Anovlarchus uuruurescens
80 1990 each site, MVD 2,3,4 combined
81 1991 each site, MVD 2,3,4 combined
82 90-1 each site and MVD
83 90-2 each site and MVD
84 91-1 each site and MVD
85 91-2 each site and MVD
86 Each MVD, sites combined 90,91

10 Biomass - Anoplarchus vurvurescens
87 1990 each site,. MVD 2,3.4 combined
88 1991 each site,, MVD 2,3,4 combined
89 90-1 each site and MVD
90 90-2 each site and MVD
91 91-1 each site and MVD
92 91-2 each site and MVD
93 Each MVD, sites combined 90,91
94 Biomass at MVD 2,3,4 where found

11 Habitat Analysis - Anoplarchus vuruurescens
95 Stepwise regression with bootstrap 1990 bio
96 Stepwise regression with bootstrap 1991 bio

12 Percent Fish Found - Anoularchus uurvurescens
97 For each MVD, visit and year with Wilcoxon
98 For each MVD, visit, year and habitat
99 For each MVD, visit, year, habitat by oil/ctl
100 For each MVD, year, habitat
101 For each MVD, visit, year, habitat by oil/ctl

13 Miscellaneous - Anoplarchus purpurescens
102 Mean waht MVD 2,3,4 where AP exists
103 Mean wght, each MVD, habitat,visit
104 Mean wght, each SEX, MVD, habitat, visit
105 Mean length each MVD, habitat
106 Mean length each sex, MVD, habitat
107 Mean size MVD, habitat, visit
108 Mean size MVD, habitat, visit where exists

14 Statistics - Anoplarchus vurvurescens
109 Wilcoxon abund on MVD, visit, habitat, year
110 Wilcoxon bio on MVD, visit, habitat, year

15 4 size classes - Anoplarchus uurvurescens
111 Abund at each MVD and habitat
112 Abund at each MVD, habitat, year
113 Abund at each MVD, habitat, year and visit

16 Abundance - Pholis laeta

114 **1990** each site,. MVD **2,3,4** combined
115 **1991** each site,, MVD **2,3,4** combined
116 **90-1** each site and MVD
117 **90-2** each site and MVD
118 **91-1** each site and MVD
119 **91-2** each site and MVD
120 Each MVD, sites combined **90,91**
121 Abund each habitat and visit

17 Biomass - Pholis laeta

122 **1990** each site,, MVD **2,3,4** combined
123 **1991** each site,. MVD **2,3,4** combined
124 **90-1** each site and MVD
125 **90-2** each site and MVD
126 **91-1** each site and MVD
127 **91-2** each site and MVD
128 Each MVD, sites combined **90,91**
129 Bio each habitat and visit

18 Percent Fish Found -- Pholis laeta

130 For each MVD, visit and year with Wilcoxon
131 For each MVD, visit, year and habitat
132 For each MVD, visit, year, habitat by oil/ctl
133 For each MVD, year, habitat
134 For each MVD, visit, year, habitat by oil/ctl

19 Statistics - Pholis laeta

135 Wilcox abund by visit, habitat, year
136 Wilcoxon abund on MVD, visit, habitat, year
137 Wilcoxon bio by visit, habitat, year
138 Wilcoxon bio **on** MVD, visit, habitat, year

20 Habitat analysis - Pholis laeta

139 Stepwise regression
140 Stepwise regression
141 Logistic **1990** abundance
142 Logistic **1991** abundance

21 Abundance - Xiuhister atropurpureus

143 **1990** each site,, MVD **2,3,4** combined
144 **1991** each site,, MVD **2,3,4** combined
145 **90-1** each site and MVD
146 **90-2** each site and MVD
147 **91-1** each site and MVD
148 **91-2** each site and MVD
149 Each MVD, site:; combined **90,91**
150 Abund each habitat and visit

22 Biomass - Xiphister atropurpureus
151 1990 each site, MVD 2,3,4 combined
152 1991 each site, MVD 2,3,4 combined
153 90-1 each site and MVD
154 90-2 each site and MVD
155 91-1 each site and MVD
156 91-2 each site and MVD
157 Each MVD, sites combined 90,91
158 Bio each habitat and visit

23 Percent Fish Found - Xiphister atropurpureus
159 For each MVD, visit and year with Wilcoxon
160 For each MVD, visit, year and habitat
161 For each MVD, visit, year, habitat by oil/ctl
162 For each MVD, year, habitat
163 For each MVD, visit, year, habitat by oil/ctl

24 statistics - Xiphister atropurpureus
164 Wilcox abund for sites both years n=11
165 Wilcox bio for sites both years n=11
166 Wilcox abund by visit, habitat, year
167 Wilcox bio by visit, habitat, year
168 Wilcoxon abund on MVD, visit, habitat, year
169 Wilcoxon bio by visit, habitat, year

25 Habitat analysis - Xiphister atropurpureus
170 Stepwise regression
171 Logistic 1990 abundance
172 Logistic 1991 abundance

26 Abundance - Phytichthys chirus
173 1990 each site, MVD 2,3,4 combined
174 1991 each site, MVD 2,3,4 combined
175 90-1 each site and MVD
176 90-2 each site and MVD
177 91-1 each site and MVD
178 91-2 each site and MVD
179 Each MVD, sites combined 90,91
180 Abund each habitat and visit

27 Biomass - Phytichthys chirus
181 1990 each site, MVD 2,3,4 combined
182 1991 each site, MVD 2,3,4 combined
183 90-1 each site and MVD
184 90-2 each site and MVD
185 91-1 each site and MVD
186 91-2 each site and MVD
187 Each MVD, sites combined 90,91
188 Bio each habitat and visit

28 Percent Fish Found - Phytichthys chirus

189 For each MVD, visit and year
190 For each MVD, visit and year
191 For each MVD, visit, year and habitat
192 For each MVD, visit, year, habitat by oil/ctl

29 Statistics - Phytichthys chirus

193 Wilcox abund by visit, habitat, year
194 Wilcox bio by visit, habitat, year
195 Wilcoxon abund on MVD, visit, habitat, year
196 Wilcoxon bio on MVD, visit, habitat, year

30 Liparis SD.

197 Abundance 1990 Each site
198 Abundance 1991 each site
199 Biomass 1990 each site
200 Biomass 1991 each site
201 Abundance by habitat
202 Biomass by habitat

31 Oliaocottus maculosus

203 Abundance 1990 each site
204 Abundance 1991 each site
205 Biomass 1990 each site
206 Biomass 1991 each site
207 Abundance by habitat
208 Biomass by habitat

Table E-1. List of sites visited during 1990 and 1991. There were sites visited both years (n=11) and all sites visited (n=18).

All Sites	Both Years	site	Type	1990 Visit 1	1990 visit 2	1991 visit 1	1991 Visit 2
			Sheltered Rocky Sites				
1	1	4825c	Control	*	*	*	*
		1424	Oil	*	*	*	*
2	2	453c	Control	*	*	*	*
		453	Oil	*	*	*	*
3	3	601c	Control	*	*	*	*
		601	Oil	*	*	*	*
4	4	598c	Control	*	*	*	*
		598	oil	*	*	*	
5		1522c	Control	*	*	*	
		1522	Oil				
			Coarse Textured Sites				
6		1383c	Control	*	*		
		1580	Oil	*	*	*	*
7	5	506c	Control	*	*	*	*
		506	Oil	*	*	*	*
8	6	1598c	Control	*	*	*	*
		1598	oil	*	*	*	*
9	7	846c	Control	*	*	*	*
		846	oil	*		*	*
10		1650c	Control	*	*	*	*
		1650	Oil	*	*		
11		1171c	Control	*	*		
		1171	oil	*	*		
12		1627c	Control	*	*		
		1627	Oil				
			Exposed Rocky Sites				
13	8	19c	Control	*	*	*	*
		19	Oil	*	*	*	*
14	9	4537c	Control	*	*	*	*
		979	Oil	*	*	*	*
15	10	1642c	Control	*	*	*	*
		833	Oil	*	*	*	*
16		1642c	Control	*	*		
		232	Oil	*	*		
17		2937c	Control	*	*		
		305	Oil				
			Sheltered Estuary Sites				
18	11	2397c	Control	*	*	*	*
		208/209	Oil	*	*	*	*

Table E-2. Definition of habitat variables by organic and inorganic cover classifications.

Inorganic Cover Classifications

Silt/Clay/Mud	(< 0.1 mm.)	Cobble	(75-200 mm.)
Sand	(0.1-1 mm.)	Small boulder	(200 mm. - 40cm.)
Fine gravel	(1-5 mm.)	Large boulder	(> 40 cm.)
Coarse gravel	(5-75 mm.)	Bedrock	

organic Cover Clasifications

Mat - A single species, *ox* combination Of other types as long as the dominant types are mat. Most effective at water retention. Seals in lots of moisture.

Acrosiphonia/Cladophora	Pilayella sp.
Enteromorpha sp.	Porphyra sp.
Iridaea sp.	Ulva/Monostroma

Kelp - These are seldom in a MVD, and if they are they tend to be in MVD 5 and the bottoms of MVD 4. Normally found in standing water.

Agarum cribosum	Laminaria sp.
Alaria sp.	Phyllospadix/Zostra

Moss - Luxurious in growth, but these don't seal. They are not very effective in water retention.

Bangia sp.	Odonthalia floccosa
Cystoseira geminata	Phycodrys riggi
Neoptilota asplenioides	Polysiphonia/Pterosiphonia
Neorhodemela/Rhodemela	Ptilota sp.

String - Stringy or short and doesn't cover any large area. Least effective for water retention.

Desmarestia sp.	Gloiopeltus furcata
Dictyosiphon sp.	Myelophycus/Scytosiphon
Endocladia muricata	

Bulk - Lots of it, but it doesn't seal. It tends to be in the upper quadrats and to dry out. Not the most effective, but not the least.

Constantinia sp.	Leathesia difformis
coralline (articulate/crustose)	Palmaria sp.
Devaleraea/Halosaccion	Ralfsia fungiformis
Fucus gardneri	Soranthera ulroidea

Table E-3. The number of samples taken for each MVD and the total(ttl) number of samples taken for each site during each visit in 1990 and 1991. The first of each site pair is the control site.

site Pair	1990 Visit 1						1990 Visit 2						1991 Visit 1						1991 Visit 2					
	1	2	3	4	5	ttl	1	2	3	4	5	ttl	1	2	3	4	5	ttl	1	2	3	4	5	ttl
Sheltered Rocky Sites																								
4825C	6	5	5	1		17	6	6	5			17	4	4	2			10	4	4				8
1424	6	6	6	4		22	6	5	3			14	4	4	4			12	4	4	4			12
453c	6	6	6	5	1	24	6	6	6	6	3	21	4	4	4	2		14	4	4	4	1		13
453	6	6	6	1		19	6	6	6	6		18	4	4	4	1		13	4	4	4			12
601C	6	6	6			18	6	6	4	1		15	4	4	4			12	4	3				7
601	6	6	6	2		20	6	6	5			17	4	4				8	4	4				8
598C	6	6	6	4	1	23	6	6	5	1		18	5	5	5			15	4	4	2			10
598	6	6	6	1		19	6	6	6	3		21	4	4	3	1		12	4	4	3			11
1522C	4	4	4			12	5	5	5			15	4	4	3			11						
1522	5	5	4			14	6	6	6	4	1	23	4	4	4			12						
Coarse Textured Sites																								
1383C	6	6	6	5	3	26	6	6	5	5	3	25												
1580	6	6	6	5	2	25	6	6	6	4		22												
506C	6	6	5	3		20	6	6	6	1		19	4	3	2			9	3	3	1			7
506	2	2	2	2		8	3	3	2	1		9	3	3	3			9	3	3	2			a
1598C	5	5	3			13	5	5	5	5		20	4	4				8	4	3	4			11
1598	5	5	5	5	1	21	5	5	5	5	3	23	4	4	4			12	4	4	4	3		15
846C	6	6	6	1		19	6	6	6	3		21	4	4	2			10	4	4	1			9
846	6	6	4	2	2	20	6	6	6	4		22	4	4	3			11	4	4	4	2		14
1650C	6	6	6	3		21							4	4	4			12	2	2	2			6
1650	6	6	6	4	4	26	6	6	6	6	2	26	4	4	4	3		15	4	4	4	4		16
1171C	6	6	6	3	2	23	6	6	6	5	1	24												
1171	6	6	6	5	1	24	6	6	6	3	1	22												
1627C	6	6	6	6	3	27	6	6	5	3		20												
1627	6	6	6	4	2	24	6	6	6	3		21												
Exposed Rocky																								
19C	6	6	6	3		21	5	5	3	2		15	4	4	4	3		15	3	3	2			8
19	6	6	2			14	5	5	3	1		14	3	3	3	1		10	2	2	2			6
4537C	6	6	5	1		18	6	5	2	1		14	4	4	4			12	4	4	4			12
979	6	6	6	5	1	24	6	6	4	2	1	19	4	4	4	1		13	4	4	4			12
1642C	6	6	6	5	3	26	6	6	5	3	1	21	4	4	4			12	4	4	1			9
833	2	3	3	2		11	6	6	6	4		22	3	3	3	1		10	3	3	2			8
1642C	6	6	6	5	3	26	6	6	5	3	1	21	4	4	4			12	4	4	1			9
232	2	2	1			5	2	2	2	2		8												
2937C	4	4	4	3	1	16	2	2	1	1		6												
305	6	6	6	4		22	6	6	5	3		20												
Sheltered Estuary Sites																								
2397C	6	6	3	1		16	6	6	3			15	4	4				8	2	2				4
208/209	4	4	1			9	4	4	4	1		30	2	2	2			6	2	2	2			6

Table E–4. 1990 visit 1 environmental factors at each site and MVD. V = visit

V	site	MVD	Slope	Org	M	FG	CB	LB	S	CG	SB	BR	Bulk	Kelp	Mat	Moss	Str
1	1171	2	6.282	7	0	0	9	67	0	3	1	0	1	7	0	0	0	0
1	1171	3	6.117	30	0	0	6	32	0	1	1	9	7	24	0	0	0	0
1	1171	4	4.752	42	0	0	8	29	0	1	1	0	6	28	0	0	0	0
1	1171C	2	6.130	35	0	0	7	22	0	1	9	2	5	30	0	0	0	3
1	1171C	3	7.694	51	0	0	6	19	0	5	7	9	47	0	0	0	3
1	1171C	4	7.027	65	0	0	4	10	0	4	4	1	1	43	0	1	0	0
1	1383	2	6.373	5	0	0	39	23	4	2	2	1	3	2	0	0	0	2
1	1383	3	6.061	2	0	0	15	21	18	3	3	2	6	1	0	0	0	0
1	1383	4	4.600	5	0	0	4	19	48	0	2	2	0	4	0	0	0	0
1	1424	2	19.49	50	0	0	1	32	0	3	1	10	14	0	22	8	3	
1	1424	3	18.24	80	0	0	1	3	2	0	3	1	1	3	3	1	3	0
1	1424	4	13.16	87	0	0	1	4	0	1	5	0	3	4	1	5	2	2
1	1522	2	11.82	57	0	0	3	21	0	3	6	7	28	0	4	6	0	
1	1522	3	43.68	86	0	0	0	9	0	0	0	2	2	9	0	6	1	6
1	1522C	2	19.33	37	0	0	3	1	0	0	1	5	6	3	0	0	0	0
1	1522C	3	10.12	60	0	0	1	0	0	1	1	1	2	4	29	0	0	0
1	1580	2	6.013	0	0	0	28	57	0	0	12	1	0	0	0	0	0	
1	1580	3	5.229	8	0	0	17	64	0	0	10	0	5	0	1	0	0	
1	1580	4	4.653	12	0	0	12	53	0	2	2	0	0	2	0	5	0	0
1	1598	2	4.905	12	0	0	41	1	0	29	13	0	11	0	0	0	0	
1	1598	3	6.131	19	0	0	31	0	0	3	5	1	0	0	17	0	0	0
1	1598	4	14.58	32	0	0	36	0	0	18	12	0	21	0	2	0	1	
1	1598C	2	6.798	12	0	2	1	5	3	0	6	1	3	0	9	0	0	0
1	1598C	3	19.21	15	0	0	5	0	0	4	5	1	0	1	2	0	0	0
1	1627	2	6.683	12	0	0	44	14	1	7	2	0	0	8	0	0	0	0
1	1627	3	6.211	26	0	3	28	3	2	3	7	1	8	0	8	0	0	0
1	1627	4	7.680	27	0	0	26	6	0	1	0	2	8	0	9	0	0	0
1	1627C	2	8.660	0	0	0	55	4	0	2	8	1	1	0	0	0	0	0
1	1627C	3	8.074	1	0	3	58	18	0	3	1	4	0	1	0	0	0	0
1	1627C	4	6.785	20	0	0	29	18	1	7	2	1	0	15	0	0	0	0
1	1642	2	33.53	27	0	0	1	35	0	1	2	3	2	24	0	0	0	0
1	1642	3	17.69	27	0	0	5	22	0	9	5	3	0	14	0	0	0	0
1	1642	4	8.841	63	0	4	7	5	0	8	8	2	2	9	0	3	0	6
1	1650	2	5.885	1	2	0	24	30	2	1	7	2	1	0	1	0	0	0
1	1650	3	6.184	1	2	0	13	43	2	4	3	2	0	0	0	1	0	0
1	1650	4	5.935	17	0	0	4	41	0	2	3	5	0	0	0	12	0	0
1	1650C	2	6.831	9	0	0	35	7	0	3	8	8	0	7	0	0	0	1
1	1650C	3	5.216	18	0	2	28	9	0	3	1	9	0	1	3	0	0	2
1	1650C	4	11.16	33	0	7	17	0	0	3	3	7	0	7	0	1	1	0
1	19	2	12.28	31	0	0	2	40	0	1	3	20	21	0	0	10	0	
1	19	3	10.54	65	0	0	1	25	0	1	1	5	57	0	0	7	0	
1	19C	2	14.72	7	0	0	1	19	0	0	1	6	9	3	0	0	2	0
1	19C	3	7.673	5	0	1	6	30	0	8	12	33	3	0	0	0	0	
1	19C	4	5.840	5	0	1	28	26	0	2	4	1	4	0	0	0	1	2
1	208/209	2	4.034	5	0	0	21	3	0	1	2	4	5	1	1	3	0	0
1	208/209	3	6.678	5	0	0	4	4	0	0	0	8	5	2	0	0	0	0
1	232	2	12.82	40	0	0	0	0	0	0	0	6	0	2	5	0	6	0
1	232	3	11.31	20	0	0	0	0	0	0	0	8	0	5	0	5	0	5

Table E–4. (continued)

V	site	MVD	Slope	Org	M	FG	CB	LB	S	CG	SB	BR	Bulk	Kelp	Mat	Moss	Str
1	2397C	2	2.005	35	0	3	24	7	0	1 8	1 1	0	31	0	0	0	0
1	2397C	3	2.195	6	30	3	10	0	0	15	1	0	3	1	0	0	0
1	2397C	4	1.263	40	60	0	0	0	0	0	0	0	2	3 6	0	0	0
1	2937C	2	14.52	63	0	0	2	7	0	0	2 2	3	45	0	11	0	0
1	2937	3	15.78	37	0	0	4	13	0	0	4 1	5	26	0	2	6	0
1	2937	4	11.92	55	0	0	8	24	0	0	8	5	7	0	9	3 1	0
1	305	2	20.16	45	0	0	1	9	0	0	1 4	2	44	0	0	1	0
1	305	3	16.42	61	0	0	0	0	0	0	0 3	9	44	3	1	5	0
1	305	4	8.559	78	0	0	0	13	0	3	1	1 4	6	0	1 3	1 4	0
1	453	2	14.44	20	1	0	3	23	0	9	2	37	12	0	2	2	0
1	453	3	16.91	34	2	0	5	13	0	4	0 3	9	12	0	16	3	0
1	453	4	0.	20	0	0	8	56	0	0	1 6	0	2	0	4	14	0
1	4537C	2	2.459	38	3	0	5	1	0	2	4 4	5	29	0	0	8	0
1	4537C	3	2.233	67	0	0	3	0	0	1	2 2	5	38	5	0	23	0
1	4537C	4	1.7	90	0	0	0	1	0	0	0	9	0	1 8	0	6 3	0
1	453c	2	28.22	54	0	0	2	3	0	0	0 4	0	45	0	1	0	0
1	453c	3	14.89	85	0	0	0	1	0	0	0 1	3	47	0	0	0	0
1	453c	4	13.63	64	0	0	3	1	0	1 3	0 1	8	20	0	6	0	0
1	4825C	2	17.75	62	0	0	7	23	0	0	2	4 4	8	0	0	0	0
1	4825C	3	24.11	76	0	0	1	14	0	4	3	0 2	5	0	0	8	0
1	4825C	4	0.	90	0	0	2	8	0	0	0	0	0	0	0	0	0
1	506	2	11.55	30	0	0	25	32	0	1	1 1	0	4	0	0	0	0
1	506	3	10.76	25	0	3	17	19	0	1 3	2 1	0	22	0	0	0	0
1	506	4	9.527	72	3	2	5	6	0	5	4 0	3	3	0	3 9	0	0
1	506C	2	11.74	32	5	0	16	11	0	2 0	9	3	24	0	7	0	0
1	506C	3	18.15	75	0	2	4	5	0	7	3 0	2	9	0	4 4	0	0
1	506C	4	15.79	100	0	0	0	0	0	0	0	0	5	0	4 5	0	0
1	598	2	23.93	39	0	0	5	51	0	0	2	1 3	1	0	0	0	0
1	598	3	14.93	70	1	2	3	7	0	0	1 2	2 1	8	0	0	0	0
1	598C	2	30.59	25	0	0	13	33	0	0	1 4	1 3	22	0	0	0	0
1	598C	3	16.55	66	0	0	3	10	0	1 0	9	0	50	0	0	0	0
1	598C	4	12.23	96	0	1	0	0	0	1	0	0 3	3	0	0	0	0
1	601	2	18.85	5	0	0	50	45	0	0	0	0	5	0	0	0	0
1	601	3	6.459	47	0	0	50	0	0	0	0	2 4	7	0	0	0	0
1	601C	2	28.04	48	0	0	4	17	0	0	7 2	1	37	0	0	0	0
1	601C	3	20.35	60	0	0	5	16	0	0	6 1	0	30	0	0	0	0
1	833	2	9.809	20	0	0	2	21	0	2	0 5	3	10	0	0	0	10
1	833	3	11.36	12	8	0	0	28	0	4	4 4	2	7	0	0	0	5
1	833	4	7.005	67	2	0	0	20	0	5	2 0	3	5	0	12	0	1
1	846	2	3.893	31	5	0	11	0	0	4 4	5	0	19	0	0	5	0
1	846	3	3.053	23	0	0	10	0	0	6	4 1	0	4	0	0	1 9	0
1	846	4	2.772	35	0	6	10	0	0	4 8	0	0	15	0	2	0	2
1	846C	2	1.906	30	9	8	8	1	3	3 6	1	0	30	0	0	0	0
1	846C	3	3.685	19	3	6	18	0	3	4 8	0	0	11	0	3	0	0
1	846C	4	3.276	10	13	13	9	0	0	5 4	0	0	10	0	0	0	0
1	979	2	5.357	14	0	0	6	23	0	0	4 4	9	8	0	0	0	2
1	979	3	5.069	55	0	0	3	18	0	2	1 1	8	34	0	0	8	4
1	979	4	6.882	76	1	0	3	:to	0	3	5 0	2	2 2	8	2	5	0

Table E-5. 1990 visit 2 environmental factors at *each* site and MVD. V=visit.

V	site	MVD	Slope	Org	M	FG	CB	LB	S	CG	SB	BR	Bulk	Kelp	Mat	Moss	Str
2	1171	2	4.454	19	0	4	7	3	9	0	6	1	5	6	16	0	0	0	0
2	1171	3	5.543	20	0	4	6	4	8	0	4	1	3	1	1 7	0	2	0	0
2	1171	4	10.1	35	0	6	6	3	1	0	5	1	6	0	32	0	2	0	0
2	1171C	2	6.133	25	0	0	4	2	2	0	1	3	4	1	25	0	0	0	0
2	1171C	3	6.403	29	0	0	4	2	7	0	2	0	3	5	20	0	0	8	0
2	1171C	4	4.68	56	0	0	3	1	8	0	2	3	1	5	42	0	0	13	0
2	1383	2	6.816	11	0	0	4	0	1	1	2	1	4	2	0	0	5	0	0	0	0
2	1383	3	6.871	3	0	0	4	4	1	1	3	7	2	9	0	2	0	0	0	0
2	1383	4	4.611	4	0	0	2	1	1	2	2	7	1	0	2	5	0	3	0	0	0	0
2	1424	2	22.8	7	1	0	0	1	7	0	0	1	1	8	3	2	0	16	15	3
2	1424	3	20.37	8	8	0	0	1	4	0	0	1	5	4	6	0	2	0	1	4	0
2	1522	2	11.05	7	6	0	0	1	2	0	0	1	1	7	3	6	0	2	6	5	0
2	1522	3	21.27	9	7	0	0	0	0	0	0	0	0	2	5	5	0	2	9	1	3	0
2	1522	4	25.75	9	8	0	0	0	0	0	0	0	0	1	7	7	0	2	1	9	0
2	1522C	2	19.44	7	8	0	0	0	1	0	0	1	1	7	5	8	0	1	7	1	2
2	1522C	3	15.48	9	6	0	0	0	0	0	0	0	3	7	3	0	1	9	3	0
2	1580	2	5.323	3	0	0	2	9	3	8	0	3	2	5	0	3	0	0	0	0
2	1580	3	5.365	5	0	0	6	4	9	0	9	2	9	0	4	0	0	0	0
2	1580	4	5.586	3	0	0	1	1	3	9	0	5	1	4	0	1	0	0	0	*0*
2	1598	2	5.577	11	0	1	2	8	5	0	3	2	2	0	0	11	0	0	0	*0*
2	1598	3	5.96	20	0	3	3	4	5	0	1	9	1	7	0	19	0	0	0	0
2	1598	4	5.196	25	0	5	4	1	0	0	2	2	5	0	16	0	8	0	0
2	1598C	2	7.63	13	0	0	11	2	0	68	3	1	7	0	1	3	0
2	1598C	3	7.455	43	0	0	1	1	3	0	3	2	2	6	19	0	7	15	0
2	1598C	4	8.803	49	1	5	7	0	0	3	4	0	1	1	0	18	17	2	0
2	1627	2	5.29	5	3	1	3	5	4	3	1	0	3	5	1	0	0	0	0	0
2	1627	3	6.416	6	0	5	2	3	1	6	0	9	3	8	0	6	0	0	0	0
2	1627	4	12.13	50	0	0	1	1	1	6	0	1	2	1	0	46	0	0	3	0
2	1627C	2	4.894	4	0	0	7	8	6	0	2	8	0	0	0	0	0	0	0
2	1627C	3	5.978	16	0	0	4	5	1	1	0	3	2	2	0	*12*	0	3	0	0
2	1627C	4	7.1	40	0	0	2	2	2	0	1	0	1	4	0	17	0	0	1	0
2	1642C	2	14.35	32	0	0	1	8	1	0	0	3	4	3	0	27	0	2	2	0
2	1642C	3	11.25	44	0	0	21	10	0	23	1	16	24	0	14	4	0
2	1642C	4	6.981	35	0	6	2	0	0	0	9	2	2	5	31	0	0	3	0
2	1650	2	6.513	1	0	0	2	5	3	6	0	8	2	8	0	1	0	0	0	0
2	1650	3	5.976	5	0	0	2	4	3	2	0	4	3	4	0	3	0	2	0	0
2	1650	4	5.949	11	0	0	2	1	3	1	0	3	3	2	0	2	0	5	2	0
2	19	2	11.5	23	0	0	4	3	1	0	3	9	2	7	17	0	0	5	0
2	19	3	6.794	18	0	0	1	8	4	1	0	3	1	7	0	18	0	0	0	0
2	19	4	4.171	25	0	0	1	5	3	7	0	1	5	7	0	13	0	1	1	0	0
2	19C	2	8.113	4	2	0	0	3	3	0	1	7	4	2	1	8	0	2	3	0
2	19C	3	7.212	51	0	0	9	1	7	0	0	9	1	1	21	0	0	4	0
2	19C	4	7.191	7	5	0	0	0	7	0	0	7	1	0	2	4	0	0	8	0

Table E-5. (continued)

V	site	MVD	Slope	Org	M		FG	CB	LB	S	CG	SB	BR	Bulk	Kelp	Mat	Moss	Str
2	232	2	20.45	2	5	0	0	0	1	0	0	0	73	11	0	9	3	0
2	232	3	5.229	3	5	0	0	1	55	0	6	0	1	24	4	1	5	0
2	232	4	31.21	5	2	0	0	4	to	0	27	0	5	26	4	11	0	4
2	2397	2	2.128	40	15		1	11	9	0	13	6	0	27	2	5	3	2
2	2397	3	2.886	55	3		6	11	0	3	14	6	0	21	21	6	0	6
2	2937	2	14.16	6	0	0	0	0	0	0	0	0	40	42	0	2	14	0
2	2937	3	7.632	8	0	0	0	0	0	0	0	0	20	6	4	0	4	8	4
2	2937	4	2.339	9	5	0	0	0	0	0	0	0	5	61	0	4	28	0
2	305	2	22.49	6	0	0	0	0	7	0	2	0	30	56	0	0	2	0
2	305	3	20.72	5	5	0	0	3	9	0	3	0	30	50	0	0	4	0
2	305	4	9.365	5	0	0	0	8	20	0	8	3	9	44	0	0	5	0
2	453	2	16.28	2	2	0	0	4	28	0	4	0	40	16	0	2	3	0
2	453	3	15.6	3	8	0	0	1	27	0	6	2	24	18	0	7	11	0
2	4537	2	4.036	6	3	0	0	4	1	0	1	7	21	21	6	0	3	0
2	4537	3	4.186	5	0	0	0	5	0	0	5	10	30	0	0	0	0	0
2	453c	2	22.8	5	7	0	0	0	9	0	4	0	29	25	0	7	19	3
2	453c	3	15.05	4	9	0	0	1	9	0	14	0	25	21	1	8	16	1
2	453c	4	14.03	6	8	0	0	0	1	0	10	1	18	22	3	28	13	0
2	4825C	2	22.91	5	2	0	0	4	20	0	0	1	21	38	0	10	3	1
2	4825C	3	22.61	7	6	0	0	3	16	0	0	3	0	44	0	24	5	0
2	506	2	10.68	46	0		0	14	19	0	5	13	0	35	0	2	0	8
2	506	3	5.573	25	0		0	15	12	0	28	19	0	18	0	4	2	0
2	506	4	6.768	80	0		0	14	0	0	4	2	0	24	0	56	0	0
2	506C	2	15.09	28	0		0	30	14	0	13	13	0	22	0	6	0	0
2	506C	3	15.89	70	0		0	10	4	0	9	4	0	36	0	33	0	0
2	506C	4	12.21	100	0		0	0	0	0	0	0	0	10	0	90	0	0
2	598	2	17.84	4	5	0	0	8	23	0	5	9	5	29	0	15	0	0
2	598	3	16.33	7	0	0	0	4	3	0	4	0	15	38	0	31	0	0
2	598	4	19.59	9	8	0	0	0	0	0	1	0	0	40	0	57	0	0
2	598C	2	18.03	31	0		0	10	38	0	6	1 2	0	24	0	5	0	0
2	598C	3	9.165	7	8	0	2	1	13	0	2	2	0	48	0	29	0	0
2	598C	4	5.891	9	5	0	0	5	0	0	0	0	0	9	0	85	0	0
2	601	2	11.67	4	6	0	2	7	6	0	7	6	23	32	0	13	0	0
2	601	3	11.56	6	6	0	0	7	8	0	8	7	1	45	0	19	0	0
2	601C	2	44.28	5	5	0	1	1	6	0	1	3	29	47	0	6	0	1
2	601C	3	19.67	6	8	0	0	3	11	0	4	1	10	38	0	12	5	2
2	601C	4	15.12	100	0		0	0	0	0	0	0	0	25	0	75	0	0
2	833	2	26.21	5	5	0	0	3	12	0	0	7	21	44	0	2	8	0
2	833	3	15.71	3	7	0	0	1	39	0	1	1	17	31	0	0	6	0
2	846	2	4.831	6	0		20	27	1	0	33	9	0	6	0	0	0	0
2	846	3	3.412	13	0		21	25	0	0	32	7	0	7	0	2	3	0
2	846	4	2.315	27	10		11	15	1	4	29	1	0	4	5	18	0	0
2	846C	2	1.695	34	0		25	9	2	0	23	3	0	33	0	0	0	0
2	846C	3	2.742	41	0		19	13	0	0	20	3	0	25	0	16	0	0
2	846C	4	4.305	63	0		14	4	0	0	15	0	0	6	0	56	0	0
2	979	2	5.266	15	0		0	11	31	0	0	8	32	8	2	0	3	0
2	979	3	4.955	27	0		0	15	27	0	4	15	8	19	0	2	1	0
2	979	4	6.008	47	0		0	10	39	0	1	0	1	47	0	0	0	0

Table E-6. 1991 visit 1 environmental factors at *each* site and MVD. V=visit.

V	site	MVD	Slope	Org	M	FG	CB	LB	S	CG	SB	BR	Bulk	Kelp	Mat	Moss	Str
1	1424	2	32.56	65	0	0	0	22	0	0	0	12	24	0	27	9	3
1	1424	3	16.06	82	0	0	1	12	0	1	1	0	29	0	35	15	1
1	1424	4	17.12	9	3	0	0	0	3	0	0	0	1	3	4	0	3	0	2	8	0
1	1522	2	11.76	6	5	0	2	3	1	5	0	2	3	7	1	9	0	3	1	8	6
1	1522	3	13.24	6	5	0	3	3	2	1	0	3	3	0	2	6	0	3	2	0	6
1	1522	4	13.19	9	2	0	0	2	2	0	0	3	0	2	5	0	4	6	2	0	0
1	1522C	2	12.37	3	5	0	1	1	9	0	1	1	5	1	1	8	0	1	1	3	2
1	1522C	3	22.59	2	1	0	0	5	5	0	0	5	1	2	9	0	8	0	2
1	1522C	4	25.47	7	0	0	2	2	1	0	2	4	1	8	3	1	1	12	7	1
1	1598	2	5.908	7	0	0	6	4	0	0	1	8	9	0	7	0	0	0	0
1	1598	3	5.953	22	0	0	4	7	0	0	2	6	3	0	21	0	0	0	1
1	1598	4	6.606	18	0	0	5	1	0	0	2	3	5	0	14	0	0	0	3
1	1598C	2	8.204	11	0	0	3	7	5	0	3	6	6	2	9	0	0	0	0
1	1598C	3	9.455	40	0	0	3	6	0	0	1	7	4	1	8	0	26	0	2
1	1642C	2	20.85	35	0	0	2	2	0	0	0	2	3	9	24	0	5	0	4
1	1642C	3	10.95	50	0	4	4	1	3	0	2	2	0	4	25	0	15	3	2
1	1642C	4	8.351	20	0	7	2	9	1	9	8	3	1	3	0	8	0	4	3	2
1	1650	2	6.433	5	0	0	2	3	2	3	0	5	4	0	0	0	0	0	0	0
1	1650	3	5.239	3	0	0	12	22	0	1	0	4	9	0	0	0	1	0	0
1	1650	4	5.792	5	0	0	9	3	5	0	4	4	4	0	0	0	0	0	1
1	1650C	2	6.94	12	0	0	6	2	8	0	0	1	0	4	5	0	2	0	4
1	1650C	3	6.646	3	5	0	0	4	8	9	0	1	6	0	8	0	1	7	1	5
1	1650C	4	6.367	7	6	0	0	9	0	0	4	9	0	1	6	0	4	5	5	6
1	19	2	6.292	35	0	0	5	1	9	0	1	12	26	19	0	9	0	3
1	19	3	21.57	43	0	1	4	1	5	0	1	1	9	1	4	18	0	13	0	0
1	19	4	7.21	75	0	0	4	7	0	1	1	1	0	24	1	2	3	17	4
1	19C	2	7.806	25	0	0	6	1	6	0	0	2	4	2	6	17	0	0	3	1
1	19C	3	7.356	43	0	0	0	43	0	0	0	12	22	7	5	7	0
1	19C	4	6.438	87	0	0	0	12	0	0	0	0	10	13	55	4	2
1	208/209	2	3.647	5	0	0	3	7	0	0	1	6	1	6	2	3	2	0	0	0	0
1	208/209	3	3.488	7	0	2	2	3	0	0	2	0	4	1	4	3	0	0	0	4
1	208/209	4	3.084	45	5	0	24	1	0	1	0	1	4	0	5	4	27	4	2
1	2397	2	2.045	7	8	7	6	1	0	0	4	1	0	3	6	0	3	1	0	3
1	2397	3	2.673	65	5	0	1	1	2	0	1	1	4	0	21	0	35	0	7
1	453	2	21.29	2	1	0	0	1	6	0	0	7	6	3	1	0	0	2	8	0
1	453	3	12.35	28	0	0	4	21	0	3	7	3	6	12	0	8	7	0
1	453	4	7.489	40	0	7	7	1	1	0	1	1	1	4	6	13	0	19	7	0
1	4537	2	1.972	52	0	0	3	1	0	0	2	5	2	7	26	2	2	16	3
1	4537	3	2.785	6	0	0	0	6	9	0	1	5	1	7	3	0	9	4	1	1	2
1	4537	4	2.009	9	3	0	0	0	1	0	0	0	3	3	0	1	6	1	1	1	4	1	0
1	453c	2	35.39	6	2	0	0	0	0	0	0	0	3	7	3	5	0	12	8	6
1	453c	3	38.46	80	0	0	1	12	0	1	0	5	31	0	3	9	8	1
1	453c	4	12.55	8	5	0	0	2	5	0	2	3	2	3	4	0	1	9	2	9	2

Table E-6 (continued)

V	site	MVD	Slope	Org	M	FG	CB	LB	S	CG	SB	BR	Bulk	Kelp	Mat	Moss	Str
1	4825C	2	21.13	82	0	0	2	8	0	2	5	0	25	0	5 1	3	1
1	4825C	3	24.13	95	0	0	0	2	0	0	1	0	30	0	5 3	7	2
1	4825C	4	30.	95	0	0	0	4	0	0	0	0	23	0	52	14	4
1	506	2	13.77	25	0	3	9	2 1	0	2	3 3	5	7	0	0	0	1 7
1	506	3	10.1	11	0	0	18	30	0	6	2 4	8	8	0	0	0	2
1	506	4	10.29	46	18	0	10	3	0	3	1 8	0	12	0	2 4	7	1
1	506C	2	17.3	51	0	0	16	15	0	2	1 3	0	34	0	1 4	0	1
1	506C	3	14.94	43	0	0	17	16	0	1 5	7	0	13	0	2 8	0	1
1	598	2	18.72	25	0	0	11	36	0	4	2 1	0	21	0	1	0	2
1	598	3	20.48	56	0	1 0	7	8	0	8	7	2	23	0	2 7	1	4
1	598	4	10.17	83	0	1	4	1	0	4	4	1	31	0	3 9	4	7
1	598C	2	18.45	12	0	0	12	40	0	5	3 0	0	6	0	1	0	3
1	598C	3	14.92	40	0	0	9	1 7	0	14	18	0	11	0	13	2	11
1	598C	4	15.43	76	0	3	4	6	0	3	6	0	29	0	31	10	4
1	601	2	11.9	40	0	0	1 1	0	0	0	3	4 5	27	0	5	4	2
1	601	3	14.79	78	1	3	2	0	0	0	2	9	38	0	2 6	6	7
1	601C	2	41.16	27	0	0	0	0	0	0	0	7 2	17	0	6	1	1
1	601C	3	49.32	53	0	0	3	1 1	0	1	3	2 6	17	0	2 5	8	1
1	601C	4	19.77	20	6	6	12	14	0	12	23	4	6	0	7	6	0
1	833	2	8.106	43	0	0	3	3 3	0	0	0	2 0	23	0	3	5	9
1	833	3	9.285	46	0	0	1	4 2	0	0	3	7	33	0	6	0	5
1	833	4	12.42	90	0	0	2	4	0	0	2	2	63	0	13	9	4
1	846	2	4.349	5	0	0	4 0	0	0	4 8	5	0	4	0	0	0	0
1	846	3	3.055	10	0	0	3 5	0	0	54	0	0	2	0	4	2	0
1	846	4	2.21	21	0	0	3 4	0	0	3 7	6	0	4	6	9	0	1
1	846C	2	1.829	12	0	0	2 1	2	0	52	11	0	11	0	0	0	0
1	846C	3	2.191	30	2	0	3 3	3	0	2 3	5	0	15	0	1 4	0	0
1	846C	4	5.141	22	28	0	24	0	0	1 5	9	0	10	0	12	0	0
1	979	2	4.637	26	0	0	5	2 5	0	0	5	3 6	11	2	1	8	1
1	979	3	4.353	77	0	0	4	6	0	0	4	7	43	4	11	10	3
1	979	4	3.581	95	0	0	0	1	0	0	1	1	42	19	23	0	0

Table E-7. 1991 visit 2 environmental factors for each site and MVD. V=visit.

V	site	MVD	Slope	Org	M	FG	CB	LB	S	CG	SB	BR	Bulk	Kelp	Mat	Moss	Str
2	1424	2	25.3	38	0	0	5	22	0	2	6	23	15	0	22	0	1
2	1424	3	29.02	85	0	0	0	13	0	0	0	0	39	0	39	3	0
2	1424	4	15.01	9	5	0	0	0	4	0	0	0	33	0	14	42	0
2	1598	2	5.892	12	0	0	2	9	0	0	34	2	30	1	0	0	0
2	1598	3	4.779	18	0	0	3	3	0	0	40	6	0	1	7	0	0
2	1598	4	5.964	16	0	0	4	2	0	0	35	6	0	1	3	0	1
2	1598C	2	7.439	17	0	0	3	6	0	0	42	3	0	4	0	3	9
2	1598C	3	8.728	55	0	0	1	7	0	0	26	1	0	1	0	0	4
2	1598C	4	8.163	58	0	0	1	2	1	0	22	2	0	8	1	5	3
2	1642C	2	22.72	4	3	0	0	2	3	0	2	1	46	29	0	8	2
2	1642C	3	8.831	6	1	0	0	7	9	0	7	6	7	20	0	21	11
2	1642C	4	11.16	10	0	4	4	72	0	4	4	0	6	0	2	0	0
2	1650	2	7.127	3	0	5	3	8	9	0	10	2	91	0	0	0	0
2	1650	3	5.263	5	0	3	20	23	0	5	4	0	01	0	0	0	0
2	1650	4	5.848	3	0	3	18	57	0	3	1	1	01	0	0	0	0
2	1650C	2	6.819	5	0	1	4	4	0	9	0	23	6	0	0	0	0	3
2	1650C	3	4.647	12	0	0	3	9	4	0	31	4	8	6	0	2	0	2
2	1650C	4	6.192	50	0	0	2	3	2	0	23	0	0	1	7	0	2	4	2	3
2	19	2	11.98	3	5	0	0	2	6	0	2	2	53	29	0	1	1	3
2	19	3	8.552	45	0	0	5	33	0	5	5	5	34	0	4	4	0
2	19	4	7.205	8	5	0	0	1	9	0	1	2	03	8	4	2	8	9	2
2	19C	2	5.809	28	0	0	4	22	0	1	3	4	01	21	0	1	3	0
2	19C	3	7.794	57	0	0	4	32	0	0	4	2	33	0	12	9	0
2	19C	4	13.05	9	5	0	0	0	1	0	0	0	2	19	47	9	9	9
2	208/209	2	3.64	7	0	0	3	6	2	0	2	1	23	9	3	0	1	0	0
2	208/209	3	3.59	27	6	0	29	2	0	17	16	0	4	0	16	3	3
2	208/209	4	3.087	75	2	0	1	4	1	0	4	2	0	9	10	46	0	2
2	2397	2	2.351	8	7	0	0	4	0	0	7	0	0	54	0	19	0	12
2	2397	3	2.042	8	7	3	0	1	0	3	4	0	0	19	12	37	0	18
2	453	2	15.67	32	0	2	6	4	0	3	1	0	40	16	0	10	4	0
2	453	3	18.34	57	0	1	13	4	0	1	10	12	28	0	21	6	0
2	453	4	9.115	32	0	8	2	1	2	0	1	8	8	8	12	0	11	2	1
2	4537C	2	1.843	72	0	0	2	2	0	2	2	1	6	40	3	3	18	2
2	4537C	3	1.375	8	2	0	0	2	1	0	2	1	8	35	8	11	16	2
2	453c	2	25.5	55	0	0	3	0	0	3	0	3	7	36	0	10	5	1
2	453c	3	22.64	71	0	0	1	0	0	0	1	1	0	7	33	0	21	10	2
2	453c	4	11.44	8	8	0	0	2	2	0	2	0	3	29	0	11	32	4
2	4825C	2	22.89	55	0	4	4	22	0	4	7	0	24	0	26	1	2
2	4825C	3	18.03	9	2	0	0	0	5	0	0	0	0	29	0	51	4	4
2	506	2	10.	33	0	0	7	28	0	7	22	0	25	0	1	0	5
2	506	3	11.11	36	0	0	13	3	0	13	21	9	26	0	4	1	1
2	506	4	8.304	60	0	4	2	2	0	0	7	7	0	12	0	32	7	3
2	506C	2	15.57	16	0	0	20	31	0	11	18	0	13	0	0	0	1
2	506C	3	12.84	7	3	0	0	7	5	0	9	4	0	20	0	48	0	2
2	506C	4	14.26	9	5	0	0	2	0	0	2	0	0	19	0	71	0	0

Table E-7. (continued)

V	site	MVD	Slope	Org	M	FG	CB	LB	S	CG	SB	BR	Bulk	Kelp	Mat	Moss	Str
2	598	2	19.75	23	0	0	5	31	0	4	10	23	13	0	10	0	0
2	598	3	14.61	7	0	0	1	6	6	0	3	4	8	28	0	38	1	2
2	598	4	13.92	8	5	0	0	1	7	4	1	1	0	25	0	46	4	6
2	598C	2	16.03	15	0	0	8	59	0	2	13	2	7	0	2	0	5
2	598C	3	14.66	50	0	2	13	14	0	10	8	0	18	0	27	0	2
2	598C	4	10.12	8	5	0	0	8	0	0	1	3	0	27	0	53	2	2
2	601	2	15.6	53	0	2	2	2	0	2	1	0	2	8	20	0	25	2	2
2	601	3	20.45	8	7	0	1	5	1	0	1	1	3	28	0	43	9	4
2	601C	2	23.62	40	0	0	0	8	0	0	5	4	6	16	0	19	1	3
2	601C	3	26.01	61	1	1	1	9	4	0	2	4	5	17	0	33	7	0
2	833	2	18.99	38	0	1	1	22	0	1	1	33	21	0	2	6	7
2	833	3	8.208	33	0	0	3	28	0	3	3	29	13	3	8	3	3
2	833	4	7.825	57	0	0	2	4	0	0	0	2	1	4	28	5	4	12	2
2	846	2	3.926	5	0	0	4	7	0	0	4	7	0	0	2	0	0	0	0
2	846	3	2.599	8	0	4	4	1	0	0	4	5	0	0	5	0	0	0	0
2	846	4	2.271	55	0	1	2	0	0	0	2	3	0	0	8	4	41	0	0
2	846C	2	2.092	13	0	0	2	3	0	0	5	5	7	0	12	0	0	0	0
2	846C	3	2.171	35	3	0	2	1	0	0	3	6	4	0	17	0	15	0	1
2	846C	4	3.004	5	0	0	2	8	0	0	6	1	4	0	1	0	2	0	0
2	979	2	5.166	12	0	0	6	37	0	3	7	32	9	0	0	1	0
2	979	3	3.78	9	2	0	0	0	1	0	0	0	4	50	9	6	9	2
2	979	4	2.321	9	5	0	0	0	2	0	0	0	0	19	38	9	9	14

Table E–8. 1990 visit 1 environmental factors for all sites and MVD combined V = visit.

V	site	Slope	Org	M	FG	CB	LB	S	CG	SB	BR	Blk	Klp	Mat	Mss	Str
1	1171	5.706	28	0	0	8	4	0	6	1	0	5	2	1	0	0	0	0
1	1171C	6.928	46	0	0	6	1	9	0	3	7	1	6	3	9	0	0	0	2
1	1383	5.813	4	0	0	21	21	20	2	26	3	2	0	0	0	0
1	1424	17.44	70	0	0	1	1	7	0	3	2	4	2	6	4	2	5	7	4
1	1522	23.77	68	0	0	2	1	6	0	2	4	5	2	9	0	5	1	0	0
1	1522C	14.73	48	0	0	2	1	0	5	1	4	0	2	9	0	0	0	0
1	1580	5.247	7	0	0	18	58	0	0	14	0	2	0	2	0	0
1	1598	8.54	21	0	0	3	6	0	0	27	12	0	1	6	0	1	0	0
1	1598C	11.45	13	0	1	1	1	2	0	5	5	2	0	1	0	0	0	0	0
1	1627	6.755	21	0	1	34	11	1	8	21	0	8	0	0	0	0
1	1627C	7.84	7	0	1	47	13	0	13	15	0	6	0	0	0	0
1	1642C	19.16	41	0	1	4	1	9	0	6	5	2	0	2	3	0	1	0	2
1	1650	6.01	5	1	0	15	37	1	8	28	0	0	0	3	0	0
1	1650C	7.051	17	0	2	2	8	6	0	3	4	8	0	1	0	0	0	2	0
1	19	11.85	40	0	0	1	3	6	0	1	2	1	6	3	0	0	0	9	0
1	19C	10.12	6	0	0	8	2	5	0	8	8	4	0	2	0	0	1	0
1	208/209	4.563	5	0	0	17	3	0	10	36	2	6	3	0	0	0	0
1	232	12.31	33	0	0	0	0	0	0	0	6	6	1	8	0	5	0	7
1	2397C	1.986	26	16	2	16	4	0	15	6	0	1	8	4	0	0	0
1	2937	14.5	51	0	0	4	1	3	0	0	4	1	6	3	0	0	7	8	0
1	305	15.82	59	0	0	0	7	0	0	0	3	0	4	4	1	4	6	0
1	453	14.47	26	1	0	4	2	1	0	6	2	3	5	1	1	0	8	3	0
1	4537	2.302	54	1	0	4	0	0	1	3	34	30	3	0	19	0
1	453c	19.49	66	0	0	1	2	0	4	0	2	5	3	8	0	2	0	0
1	4825C	18.52	70	0	0	4	1	8	0	2	2	2	3	4	0	0	3	0
1	506	10.61	42	1	2	15	19	0	6	12	0	1	9	0	1	3	0	0
1	506C	14.83	59	2	0	9	7	0	1	2	5	1	2	3	0	2	7	0	0
1	598	19.84	53	0	1	4	3	1	0	0	7	1	2	5	0	0	0	0
1	598C	20.74	58	0	0	6	1	6	0	4	9	4	3	5	0	0	0	0
1	601	12.65	26	0	0	5	0	2	2	0	0	0	1	2	6	0	0	0	0
1	601C	24.2	54	0	0	4	1	7	0	0	7	1	5	3	4	0	0	0	0
1	833	9.452	31	3	0	1	2	3	0	3	1	3	5	1	6	0	3	0	6
1	846	3.426	29	2	1	1	0	0	0	5	1	2	0	1	3	0	0	8	0
1	846C	2.761	23	7	8	1	2	0	2	4	2	0	0	2	0	0	1	0	0
1	979	5.63	45	0	0	4	1	8	0	1	3	2	5	2	1	7	0	4	2

Table E-9. 1990 visit 2 environmental factors for all sites with all MVD combined. V = visit.

V	site	Slope	Org	M	FG	CB	LB	S	CG	SB	BR	Blk	Klp	Mat	Mss	Str
2	1171	6.018	22	0	4	7	41	0	5	14	3	19	0	1	0	0
2	1171C	5.763	36	0	0	4	2	3	0	2	2	3129	0	0	6	0
2	1383	6.144	6	0	0	36	11	10	10	24	0	3	0	0	0	0
2	1424	21.89	77	0	0	1	6	0	0	1	13	37	0	17	15	2
2	1522	18.56	90	0	0	0	1	0	0	0	7	53	0	21	11	0
2	1522C	17.46	87	0	0	0	0	0	0	0	10	66	0	18	2	1
2	1580	5.41	4	0	0	15	43	0	6	23	0	3	0	0	0	0
2	1598	5.578	18	0	3	34	3	0	24	14	0	15	0	2	0	0
2	1598C	7.963	35	0	1	10	1	0	4	5	2	212	6	8	7	0
2	1627	7.109	14	1	2	25	11	1	7	33	0	12	0	0	0	0
2	1627C	5.754	16	0	0	54	11	0	2	14	0	8	0	1	0	0
2	1642C	12.02	37	0	1	19	8	0	1	1	5	2126	0	6	3	0
2	1650	6.156	6	0	0	23	33	0	5	31	0	2	0	2	0	0
2	19	9.115	21	0	0	10	35	0	5	11	1517		0	0	4	0
2	19C	7.658	51	0	0	4	8	0	0	7	2620		0	1	4	0
2	208/209	1.412	5	0	0	32	1	0	28	22	7	3	0	0	0	0
2	232	18.96	37	0	0	1	22	0	11	0	2620		2	7	2	1
2	2397C	2.381	45	11	2	11	6	1	1	4	6	025	8	5	2	3
2	2937	9.575	73	0	0	0	0	0	0	0	26	52	0	3	16	1
2	2963	14.73	38	0	0	16	15	0	17	11	1	24	0	5	4	0
2	305	18.62	55	0	0	3	1	1	0	4	0	2551	0	0	3	0
2	3598	26.88	36	0	0	15	4	0	2	2	6	1427	0	3	3	0
2	4468	13.59	24	0	0	17	20	0	11	21	4	15	0	6	2	0
2	453	15.91	30	0	0	2	2	7	0	5	1	3117	0	4	7	0
2	4537	4.066	61	0	0	4	1	0	2	8	2316		4	0	2	0
2	453c	17.6	56	0	0	0	7	0	1	0	0	25	22	1	12	16	1
2	4825C	22.78	63	0	0	3	1	8	0	0	2	11	40	0	16	4	0
2	506	8.324	45	0	0	14	13	0	12	13	0	27	0	12	0	4
2	506C	15.24	53	0	0	18	8	0	1	0	7	027	0	25	0	0
2	598	17.58	66	0	0	5	1	1	0	4	3	835	0	30	0	0
2	598C	12.9	58	0	0	5	2	3	0	3	6	034	0	23	0	0
2	601	11.62	55	0	1	7	7	0	7	7	13	38	0	15	0	0
2	601C	32.68	64	0	0	1	7	0	2	2	19	41	0	15	2	1
2	833	22.01	48	0	0	2	2	3	0	0	4	2039	0	1	7	0
2	846	3.67	14	2	18	23	0	1	3	2	6	0	6	1	5	1	0
2	846C	2.636	43	0	20	10	1	0	2	0	2	024	0	17	0	0
2	979	5.286	25	0	0	12	3	1	0	1	9	1918	1	0	2	0

Table E-10. 1991 environmantal factors for all sites with all MVD combined. V = visit.

V	site	Slope	Org	M	FG	CB	LB	S	CG	SB	BR	Blk	Klp	Mat	Mss	Str
1	1424	22.35	79	0	0	0	13	0	0	1	5	2	8	0	3	1	1	6	2
1	1522	12.49	71	0	2	3	13	0	2	3	3	2	2	0	3	5	9	5
1	1522C	19.66	39	0	0	2	5	0	0	3	2	8	1	8	0	1	0	3	1
1	1598	6.156	16	0	0	54	0	0	2	2	6	0	1	4	0	0	0	1
1	1598C	8.829	25	0	0	36	3	0	2	6	5	1	9	0	1	3	0	1
1	1642C	13.84	36	0	3	10	17	2	1	1	1	1	5	2	0	0	8	2	3
1	1650	5.821	4	0	0	15	2	7	0	6	4	5	0	0	0	0	0	0
1	1650C	6.651	41	0	0	39	6	0	2	8	1	9	0	2	1	2	5
1	19	11.69	51	0	0	4	13	0	1	14	13	20	0	15	6	2
1	19C	7.352	45	0	0	2	26	0	0	9	15	18	5	1	3	5	0
1	208/209	3.406	19	1	0	28	0	0	1	5	2	4	9	3	1	9	1	2
1	2397	2.359	71	6	3	6	1	0	7	2	0	2	8	0	3	3	0	5
1	453	13.09	31	0	3	4	12	0	5	10	32	12	0	10	7	0
1	4537C	2.256	68	0	0	3	6	0	1	3	1	5	2	8	9	5	1	3	5
1	453c	30.45	72	0	0	1	4	0	0	0	2	0	3	4	0	2	0	1	3	3
1	4825C	23.45	89	0	0	1	5	0	0	2	0	2	7	0	5	2	6	2
1	506	11.39	27	6	1	12	1	8	0	4	2	5	4	9	0	8	2	7
1	506C	16.29	47	0	0	17	16	0	7	1	0	0	2	5	0	2	0	0	1
1	598	16.68	52	0	3	8	17	0	5	12	1	2	5	0	2	0	1	4
1	598C	16.26	42	0	1	8	21	0	7	1	8	0	1	5	0	1	5	4	6
1	601	13.35	59	0	1	6	0	0	0	3	2	7	3	2	0	1	5	5	5
1	601C	39.13	34	1	1	3	7	0	3	6	4	2	1	4	0	1	2	4	1
1	833	9.228	51	0	0	2	32	0	0	1	1	1	3	3	0	6	3	7
1	846	3.295	11	0	0	36	0	0	4	7	3	0	3	1	3	1	0
1	846C	2.636	21	6	0	26	2	0	3	3	8	0	12	0	8	0	0
1	979	4.393	56	0	0	4	14	0	0	4	1	9	2	8	5	8	8	2

Table E-11. 1991 visit 2 environmental factors for all sites with all MVD combined. V = visit.

V	site	Slope	Org	M	FG	CB	LB	S	CG	SB	BR	Blk	Klp	Mat	Mss	Str
2	1424	25.81	65	0	0	2	16	0	1	2	1	0	2	8	6	0
2	1598	5.545	15	0	0	3	4	0	0	3	6	1	1	0	1	3	0	0	0	0
2	1598C	8.054	42	0	0	2	2	0	0	3	0	2	0	7	5	2	3	4	1
2	1642	16.06	46	0	0	4	14	0	4	3	2	5	2	2	0	12	5	2
2	1650	6.08	4	0	3	2	6	3	0	0	6	2	7	0	1	0	0	0	0
2	1650C	5.886	22	0	4	3	4	5	0	2	6	3	2	7	0	8	0	2
2	19	9.245	55	0	0	3	1	6	0	3	3	1	9	3	4	1	1	1	4	1
2	19C	7.677	49	0	0	3	2	2	0	0	3	2	1	2	5	7	6	6	1
2	208/209	3.439	36	2	0	2	6	1	0	1	4	1	4	3	5	3	2	1	1	1
2	2397	2.197	87	1	0	2	0	1	5	0	0	3	6	6	2	8	0	15
2	453	14.38	40	0	3	1	3	3	0	7	9	2	0	1	9	0	1	4	4	0
2	4537	1.609	77	0	0	2	2	0	2	2	12	38	5	7	1	7	2
2	453c	20.63	70	0	0	5	0	0	5	0	1	7	3	3	0	1	4	1	4	2
2	4825C	21.27	67	0	3	3	1	6	0	3	5	0	2	5	0	3	4	2	3
2	506	9.992	41	0	1	1	3	1	1	0	9	1	8	3	2	2	0	1	0	2	3
2	506C	14.21	52	0	0	1	2	1	5	0	9	9	0	1	7	0	3	1	0	1
2	598	16.53	54	0	0	5	1	6	0	3	6	1	2	2	1	0	2	8	1	2
2	598C	14.3	43	0	1	1	0	2	9	0	5	9	0	1	5	0	2	2	0	3
2	601	17.21	65	0	1	3	1	0	1	7	1	9	2	2	0	3	1	4	2
2	601C	24.64	49	0	0	8	6	0	0	4	2	9	1	6	0	2	5	3	2
2	833	12.16	41	0	0	7	1	9	0	1	2	2	7	2	0	2	5	6	4
2	846	2.932	22	0	1	3	6	0	0	3	8	0	0	5	1	1	3	0	0
2	846C	2.229	22	1	0	2	2	0	0	4	7	5	0	1	3	0	7	0	0
2	979	4.364	47	0	0	3	2	2	0	1	4	1	9	2	2	8	3	4	2

Table E-12. Mean habitat characteristics for 1990 visit 1 with oiled sites only.

Habitat	MVD	Visit	Percent Org	Percent Ino	Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	Algae Cover** K	MA	S	MO	BL
Sheltered Rocky	1	1	17	82	22.0	0	0	0	3	31	1	1	33	0	11	0	2	37
	2	1	37	62	16.8	0	0	0	7	45	6	4	22	0	13	2	7	49
	3	1	64	35	18.3	1	0	1	8	26	3	7	22	0	21	2	5	35
	4	1	75	25	13.1	0	0	0	7	24	6	11	0	10	15	1	15	19
Coarse Textured	1	1	3	96	9.1	0	0	0	32	19	17	13	5	0	1	0	0	16
	2	1	14	85	5.9	1	0	0	26	25	19	14	0	0	0	0	0	39
	3	1	18	81	5.9	0	1	1	21	31	22	17	1	0	4	0	2	50
	4	1	30	69	7.4	0	0	1	23	31	15	23	2	0	17	0	0	44
	5	1	47	52	8.1	9	0	0	12	41	17	19	0	9	18	0	0	16
	6	1	70	30	5.5	0	0	0	10	70	0	20	0	0	55	0	0	25
Exposed Rocky	1	1	14	85	20.6	0	0	0	1	19	0	1	72	0	0	18	4	33
	2	1	30	70	12.8	0	0	0	3	29	1	3	62	0	3	10	7	60
	3	1	50	50	11.9	1	0	0	3	25	2	1	49	1	2	6	11	59
	4	1	77	22	7.3	2	0	0	4	38	10	6	10	11	10	0	10	54
	5	1	100	0	7.6	0	0	0	0	0	0	0	0	0	20	0	80	0

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-13. Summary of mean environmental factors for 1990 visit 2 with oiled sites only.

Habitat	MVD	Visit	Percent Org	Percent Ino	Percent Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	Algae Cover** K	MA	S	MO	BL
Sheltered Rocky	1	Z	21	78	18.9	0	0	0	5	33	5	6	49	0	9	8	3	60
	2	Z	54	45	15.7	0	0	0	7	25	5	6	48	0	24	2	11	57
	3	Z	70	29	16.8	0	0	0	5	28	8	4	30	0	30	0	8	58
	4	Z	98	1	23.1	0	0	0	0	0	14	0	14	0	26	0	11	62
	5	Z	100	0	27.4	0	0	0	0	0	0	0	0	0	0	0	70	30
Coarse Textured	1	Z	4	95	8.9	0	0	3	29	19	18	20	9	0	0	1	0	19
	2	Z	10	89	5.7	0	0	4	26	24	16	23	1	0	0	1	0	45
	3	Z	12	87	5.4	0	0	6	22	27	16	24	0	0	8	0	3	72
	4	Z	26	73	6.7	1	0	5	27	26	16	21	0	3	34	1	4	48
	5	Z	52	47	6.1	0	0	4	30	28	18	18	0	0	41	3	11	42
Exposed Rocky	1	2	20	79	12.7	0	0	0	4	23	0	5	66	0	0	1	4	76
	2	2	34	65	15.2	0	0	0	5	24	1	7	56	4	4	0	16	67
	3	2	35	64	10.9	0	0	0	11	40	5	10	27	1	1	0	10	76
	4	2	46	53	13.3	0	0	0	15	43	18	3	20	7	3	1	10	75
	5	2	90	10	4.8	0	0	0	20	0	0	30	50	5	0	0	35	55

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-14. Mean habitat characteristics for 1991 visit 1 with oiled sites only.

Habitat	MVD	Visit	Percent Org	Percent Ino	Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	Algae Cover** K	MA	S	MO	BL
Sheltered Rocky	2	1	42	57	13.8	0	0	0	9	30	2	10	47	0	25	7	12	50
	3	1	67	33	13.0	0	0	5	10	29	4	12	23	0	37	7	11	39
	4	1	78	21	13.1	0	0	4	12	22	11	18	11	0	40	2	22	34
	5	1	90	10	10.0	0	0	0	5	30	5	50	10	0	42	5	7	45
Coarse Textured	2	1	9	90	7.2	0	0	1	39	13	21	24	1	0	0	13	4	42
	3	1	12	88	5.8	0	0	0	35	13	29	20	2	0	10	8	2	49
	4	1	21	78	6.2	4	0	0	35	14	20	25	0	2	21	18	3	35
	5	1	8	91	6.6	0	0	1	5	81	3	8	0	0	38	31	0	13
Exposed Rocky	2	1	34	66	6.1	0	0	0	7	38	1	9	44	3	10	15	19	50
	3	1	58	42	10.9	0	0	0	7	37	1	15	38	2	18	7	6	61
	4	1	91	9	6.3	0	0	0	7	20	3	13	5	18	19	3	22	33
	5	1	95	5	6.2	0	0	0	18	26	18	3	0	16	20	5	23	35

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-15 Mean habitat characteristics for 1991 visit 2 with oiled sites only.

Habitat	MVD	Visit	Percent Org	Percent Ino	Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	Algae Cover** K	MA	S	MO	BL
Sheltered Rocky	2	2	37	62	19.0	0	0	1	7	23	4	12	50	0	34	5	4	54
	3	2	76	23	19.6	0	0	1	12	26	3	11	31	0	44	2	5	45
	4	2	72	27	12.3	0	3	4	13	17	10	9	4	0	39	4	12	35
Coarse Textured	2	2	12	87	6.5	0	0	1	34	13	28	21	1	0	0	14	0	36
	3	2	16	84	5.6	0	0	2	32	9	31	18	5	0	3	7	0	59
	4	2	30	70	5.2	0	0	3	40	17	31	7	0	1	35	5	1	40
	5	2	33	66	7.7	0	0	10	29	32	23	5	0	1	48	12	7	28
Exposed Rocky	2	2	26	73	11.2	0	0	0	5	32	3	5	53	0	3	17	16	59
	3	2	63	36	6.7	0	0	0	5	30	3	5	32	9	13	5	7	58
	4	2	85	15	6.5	0	1	0	13	23	3	7	12	18	19	3	25	26

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-16. Mean habitat characteristics for 1990 visit 1 with control sites only.

Habitat	MVD	Visit	Percent Org	Ino	Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	Algae Cover** K	MA	S	MO	BL
Sheltered Rocky	1	1	24	75	23.9	0	0	0	4	32	0	6	55	0	0	0	0	63
	2	1	45	54	25.4	0	0	0	10	30	0	7	49	0	0	0	0	78
	3	1	67	32	17.5	0	0	0	7	24	10	12	27	0	0	0	1	52
	4	1	79	20	13.0	0	0	4	5	14	18	5	13	0	4	0	0	25
	5	1	85	15	21.3	32	0	0	0	0	17	0	0	0	0	0	0	2
Coarse Textured	1	1	7	92	11.7	0	0	2	24	17	33	11	5	0	0	0	0	23
	2	1	17	82	12.9	2	1	2	28	12	32	11	8	0	3	4	1	60
	3	1	26	73	11.4	0	3	2	25	15	25	13	7	0	8	3	3	53
	4	1	34	65	11.8	0	10	1	17	14	11	15	3	0	4	0	1	51
	5	1	24	75	11.8	0	36	8	13	20	6	14	0	0	0	0	12	40
Exposed Rocky	1	1	15	84	20.6	0	0	0	5	8	1	4	75	0	5	4	0	52
	2	1	32	67	16.0	1	0	0	4	19	1	3	60	0	5	2	8	60
	3	1	36	64	9.1	0	0	0	6	18	7	7	45	1	4	2	14	54
	4	1	48	51	7.9	0	0	3	15	19	13	13	25	1	11	5	17	25
	5	1	33	66	5.4	0	0	12	27	7	17	10	0	0	0	0	23	18

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-17. Mean habitat characteristics for 1990 visit 2 with control sites only.

Habitat	MVD	Visit	Percent Org	Percent Ino	Percent Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	Algae Cover** K	MA	S	MO	BL
Sheltered Rocky	1	2	27	72	24.4	0	0	0	2	36	2	6	47	0	0	6	1	74
	2	2	53	46	25.0	0	0	0	5	27	3	5	50	0	13	2	7	75
	3	2	71	28	16.0	0	0	2	6	41	9	5	26	0	26	1	10	57
	4	2	80	20	12.6	0	0	0	20	2	16	2	40	2	61	0	12	25
Coarse Textured	1	2	13	86	8.9	0	1	6	30	12	21	13	8	0	0	0	0	28
	2	2	19	80	7.0	1	0	6	33	13	23	11	10	0	3	2	2	60
	3	2	35	65	7.6	0	1	5	30	13	20	12	12	0	19	0	7	57
	4	2	43	56	6.2	0	7	4	20	18	25	10	8	3	25	0	7	40
	5	2	12	87	2.8	0	75	0	2	7	2	5	7	0	1	0	2	21
Exposed Rocky	1	2	25	75	13.9	0	0	0	9	8	3	8	68	4	1	0	7	70
	2	2	48	51	9.6	0	0	0	13	6	3	9	61	3	6	0	8	55
	3	2	47	60	8.5	0	0	0	16	16	14	5	38	0	12	0	5	50
	4	2	50	50	5.1	0	0	3	9	7	4	19	30	0	8	0	10	49

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-18. Mean habitat characteristics for 1991 visit 1 with control sites only.

Habitat	MVD	Visit	Org	Percent Ino	Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	Algae Cover** K	MA	S	MO	BL
Sheltered Rocky	2	1	42	57	8.0	0	0	0	3	21	3	14	54	0	3	17	6	44
	3	1	67	32	5.9	0	0	3	3	25	7	15	26	0	3	10	13	36
	4	1	77	22	0.2	0	0	4	3	20	8	16	11	0	4	3	19	33
	5	1	85	15	8.5	0	0	0	0	40	5	0	45	0	4	5	27	27
Coarse Textured	2	1	21	78	8.5	0	0	0	41	5	25	14	2	0	1	16	0	71
	3	1	36	63	7.8	1	0	0	51	1	24	8	2	0	4	8	2	42
	4	1	68	31	10.5	7	0	0	16	6	10	34	0	0	5	5	3	32
Exposed Rocky	2	1	37	62	10.2	0	0	0	7	20	2	13	56	1	6	9	15	50
	3	1	51	48	7.0	0	0	1	7	29	2	12	47	7	25	3	10	49
	4	1	75	24	6.9	0	2	2	12	30	1	7	17	9	25	7	14	37
	5	1	98	1	7.4	0	0	0	0	33	0	0	0	8	6	0	16	28

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-19. Mean habitat characteristics for 1991 visit 2 with control sites only.

Habitat	MVD	Visit	Percent Org	Percent Ino	Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	Algae Cover** K	MA	S	MO	BL
Sheltered Rocky	2	2	41	59	22.0	0	0	1	5	05	0	10	43	0	32	12	2	47
	3	2	70	29	20.5	0	0	1	15	24	10	3	27	0	44	4	7	36
	4	2	89	10	11.2	0	0	1	25	8	12	11	23	0	29	3	26	33
	5	2	100	0	3.8	0	0	0	0	0	0	0	0	5	30	0	50	15
Coarse Textured	2	2	14	85	7.6	0	0	2	35	9	42	10	0	0	10	17	7	58
	3	2	45	54	6.9	5	0	0	29	5	42	14	2	0	42	5	1	49
	4	2	54	45	7.7	3	0	0	31	13	47	4	0	11	53	8	0	22
Exposed Rocky	2	2	50	50	10.5	0	0	0	6	20	6	5	60	1	9	3	18	57
	3	2	75	24	8.8	0	0	0	7	18	6	6	42	6	22	4	13	46
	4	2	86	13	5.8	0	0	0	1	15	1	2	7	25	12	5	18	33

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-20. Mean habitat characteristics for 1990 visit 1 with oil and control sites combined.

Habitat	MVD	Visit	Org	Percent Ino	Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	Algae Cover** K	MA	S	MO	BL
Sheltered Rocky	1	1	21	78	23.0	0	0	0	4	37	1	4	51	0	6	0	1	56
	2	1	41	58	20.9	0	0	0	9	41	3	6	38	0	7	1	3	67
	3	1	65	34	17.9	0	0	0	9	29	8	11	29	0	12	1	3	48
	4	1	77	22	13.0	0	0	0	7	22	15	9	8	0	10	1	8	27
	5	1	85	15	21.3	30	0	0	0	0	65	0	0	0	0	0	0	2
Coarse Textured	1	1	5	94	8.9	0	0	1	29	19	27	13	5	0	0	0	0	24
	2	1	16	83	6.4	2	1	1	29	19	27	13	4	0	1	2	1	52
	3	1	22	77	7.1	0	2	2	24	23	24	15	5	0	7	1	3	55
	4	1	32	67	7.9	0	4	1	22	25	15	21	3	0	13	2	1	54
	5	1	38	61	8.8	5	14	3	12	33	13	17	0	6	12	0	5	28
Exposed Rocky	1	1	15	84	20.6	0	0	0	3	15	1	2	77	0	3	12	2	45
	2	1	31	68	14.4	0	0	0	4	25	1	3	64	0	4	6	8	60
	3	1	42	57	10.4	0	0	0	5	23	5	5	52	1	4	4	14	61
	4	1	62	37	7.6	0	0	1	11	31	13	11	20	6	11	2	15	40
	5	1	50	50	5.9	0	0	16	36	10	23	13	0	0	4	0	35	15

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-21. Mean habitat characteristics for 1990 visit 2 with oil and control sites combined.

Habitat	MVD	Visit	Percent Org	Percent Ino	Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	Algae Cover** K	MA	S	MO	BL
Sheltered Rocky	1	z	24	76	21.4	0	0	0	8	33	5	3	44	0	5	6	2	72
	2	z	49	50	20.0	0	0	0	8	27	7	a	45	0	16	2	7	72
	3	z	65	34	16.5	0	0	1	8	32	10	l -	26	0	28	0	9	59
	4	z	82	17	16.9	0	0	0	11	5	29		20	0	40	0	15	44
	5	z	100	0	27.4	0	0	0	0	0	0	e	0	0	0	0	70	30
Coarse Textured	1	2	8	91	8.9	0	0	4	3	16	20	17	9		0	0	0	24
	2	2	15	85	6.3	0	0	5	3	19	20	17	5		1	1	1	53
	3	2	23	76	6.5	0	0	5	2	21	19	19	5		13	0	5	66
	4	2	34	65	6.4	0	0	4	2	22	20	16	3		30	0	6	45
	5	2	36	63	4.8	0	30	2	1	20	12	13	3		25	2	8	34
Exposed Rocky	1	z	22	77	13.2	0	0	0	6	16	2	6	67	1	0	0	5	73
	2	z	49	59	12.7	0	0	0	9	17	2	8	61	4	5	0	14	67
	3	z	40	60	9.9	0	0	0	14	33	9	9	34	1	6	0	9	74
	4	z	48	51	9.5	0	0	1	13	30	13	11	28	4	6	1	11	67
	5	z	90	10	4.8	0	0	0	20	0	0	30	50	5	0	0	35	55

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-22. Mean habitat characteristics for 1991 visit 1 with oil and control sites combined.

Habitat	MVD	Visit	Percent Org	Percent Ino	Percent Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	Algae Cover** K	MA	S	MO	BL
Sheltered Rocky	2	1	42	57	23.9	0	0	0	7	25	3	12	50	0	28	12	9	49
	3	1	67	32	20.5	0	4	4	10	31	7	16	29	0	39	9	12	39
	4	1	77	22	19.9	0	6	6	14	28	12	23	15	0	40	2	20	39
	5	1	87	12	3.2	0	0	0	22	22	2	47	5	0	41	5	17	37
Coarse Textured	2	1	15	84	7.9	0	0	0	40	14	23	19	1	0	5	15	1	57
	3	1	24	75	6.8	0	0	0	43	12	27	14	2	0	27	8	2	45
	4	1	38	61	7.7	0	0	0	31	12	18	31	0	1	34	13	3	34
	5	1	8	91	6.6	0	1	1	5	81	3	8	0	0	38	31	0	13
Exposed Rocky	2	1	35	64	8.3	0	0	0	7	28	1	11	51	2	8	12	16	50
	3	1	54	45	8.8	0	1	1	7	32	1	13	43	4	22	5	8	54
	4	1	82	17	6.6	0	2	2	15	41	3	16	18	13	22	5	17	35
	5	1	96	3	6.7	0	0	0	18	60	18	3	0	32	13	2	20	31

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-23. Mean habitat characteristics for 1991 visit 2 with oil and control sites combined.

Habitat	MVD	Visit	Org	Percent Ino	Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	K	Algae Cover** MA	S	MO	BL
Sheltered Rocky	2	2	39	6	20.5	0	0	1	6	23	4	11	46	0	33	9	3	50
	3	2	73	2	20.0	0	0	1	15	23	7	10	34	0	44	3	6	40
	4	2	78	2	11.9	0	0	5	25	20	15	14	15	0	35	4	17	35
	5	2	100	0	3.8	0	0	0	0	0	0	0	0	30	0	50	15	
Coarse Textured	2	2	13	86	7.0	0	0	1	35	11	35	16	0	0	5	15	3	46
	3	2	29	70	6.1	2	0	1	31	7	36	16	4	0	20	6	1	54
	4	2	38	61	6.1	1	0	2	36	15	37	6	0	5	42	6	1	33
	5	2	33	66	7.7	0	0	10	29	32	23	5	0	1	48	12	7	28
Exposed Rocky	2	2	39	60	10.8	0	0	0	6	25	5	5	57	1	6	10	17	58
	3	2	70	29	7.9	0	0	0	8	29	6	7	47	7	18	4	10	52
	4	2	85	14	6.2	0	0	0	17	42	5	10	21	21	16	4	22	29

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky loaf

Table E-24. Mean habitat features at control and oiled sites for the three habitat types sampled in prince William *sand*, Alaska during *each* visit in 1990 and 1991. MVD 2, 3 and 4 were combined.

Habitat	Visit	O/C	Percent Org	Ino	Slope	Substrate Type* M	S	FG	CB	LB	CG	SB	BR	*Algae* Cover** K	MA	S	MO	BL
Sheltered	90 1	Ctl	63	35	18.6	0	0	1	7	2	2	9	83	0	1	0	1	52
Rocky	90 1	Oil	59	41	16.0	1	0	1	7	3	2	5	71	3	16	2	9	34
Coarse	90 1	Ctl	26	73	8.1	1	5	12	31	4	23	13	6	0	5	2	2	57
Textured	90 1	Oil	21	78	6.4	1	1	12	32	9	19	18	1	0	7	1	1	44
Exposed	90 1	Ctl	38	61	11.0	1	0	1	8	1	9	7	743	1	7	3	13	46
Rocky	90 1	oil	52	47	11.0	1	0	0	3	3	1	4	340	4	5	5	9	58
Sheltered	90 2	Ctl	63	31	20.1	0	0	1	10	23	9	4	39	1	33	1	10	52
Rocky	90 2	Oil	74	25	18.5	0	0	0	4	1	0	9	331	0	27	1	10	59
Coarse	90 2	Ctl	32	67	7.0	1	3	5	29	15	23	11	10	3	16	1	5	56
Textured	90 2	Oil	16	83	5.9	1	0	5	25	26	16	23	1	1	14	1	2	55
Exposed	90 2	Ctl	48	52	0.4	0	0	1	13	10	7	11	43	1	9	0	8	51
Rocky	90 2	Oil	38	61	13.1	0	0	0	10	36	8	7	35	4	3	1	12	73
sheltered	91 1	Ctl	62	37	24.7	0	0	2	7	22	6	15	30	0	36	30	13	38
Rocky	91 1	Oil	62	37	16.0	0	0	3	10	27	6	13	27	0	34	5	15	41
Coarse	91 1	Ctl	42	57	8.9	2	0	0	36	11	20	19	1	0	37	10	2	48
Textured	91 1	Oil	14	85	6.4	1	0	1	36	13	23	23	1	1	10	13	3	42
Exposed	91 1	Ctl	54	45	8.0	0	1	1	8	26	2	11	40	6	19	6	13	45
Rocky	91 1	Oil	61	39	7.8	0	0	0	7	32	2	12	29	8	16	8	16	48
sheltered	91 2	Ctl	61	32	17.9	0	0	1	15	22	8	9	31	0	35	6	12	39
Rocky	91 2	Oil	61	37	17.0	0	1	2	11	22	6	11	28	0	39	4	7	45
Coarse	91 2	Ctl	38	61	7.4	2	0	13	2	9	44	9	1	4	35	10	3	43
Textured	91 2	Oil	20	80	5.8	0	0	2	35	13	30	15	2	1	13	9	1	45
Exposed	91 2	Ctl	71	29	8.1	0	0	0	5	18	4	4	36	11	14	4	16	45
Rocky	91 2	Oil	58	41	8.1	0	1	0	8	28	3	6	32	9	12	8	16	48

Org = Percent organic cover
Ino = Percent inorganic cover

* M = Mud/Silt/Clay(<0.1mm.)
S = Sand(0.1-1mm.)
FG = Fine gravel(1-5mm.)
CG = Coarse gravel(5-75mm.)
CB = Cobble(75-200mm.)
SB = Small boulder(200mm.-40cm.)
LB = Large boulder(> 40cm.)
BR = Bedrock

** K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulk

Table E–25. Mean habitat characteristics at control and oiled sites visited in three habitat types during 1990 and 1991 in Prince William Sound, Alaska. MVD 2, 3 and 4 were combined.

Habitat	Type	Percent Org	Ino	Slope	Rock M	S	FG	CB	LB	CG	SB	BR	Algae K	MA	S	MO	BL
Sheltered Rocky	control	62	34	20.4	0	0	1	10	22	8	9	33	1	26	10	9	45
	Oil	64	35	16.8	1	1	2	9	23	6	8	25	1	30	4	10	45
Coarse Textured	control	35	65	7.9	2	2	2	30	12	28	13	5	2	24	6	4	50
	Oil	18	82	6.1	1	1	2	29	21	22	20	1	1	11	6	2	47
Exposed Rocky	control	53	47	8.9	1	1	1	9	18	5	8	41	5	12	4	13	47
	Oil	52	47	10.0	1	1	0	7	32	5	7	35	6	9	6	13	57

M - Mud/Silt/Clay (< 0.1 mm.)
S - Sand (0.1–1 mm.)
FG - Fine gravel (1–5 mm.)
CG - Coarse gravel (5–75 mm.)
CB - Cobble (75–200 mm.)
SB - small boulder (200 mm. - 40cm.)
LB - Large boulder (> 40 cm.)
BR - Bedrock

K–Kelp
MA - Mat
S - String
MO - Moss
BL - Bulk

Org - Percent organic cover
InO - Percent inorganic cover

Table E-26. 1990 mean abundance (number/m^2) for each site sampled. Average number (Mean) of fish per square meter, sample size (n) standard error of the mean (S.E), standard deviation (S.D.) and the change of mean within site pairs for control minus oil (change). The numbers are for MVD 2, 3 and 4 combined.

Site Pair	1990 Visit 1				1990 Visit 2			
	n Mean	Change	S.D.	S.E.	n Mean	Change	S.D.	S.E.
Sheltered Rocky Sites								
4825c	5 2.311	1.887	0.995	0.427	6 0.678	0.357	1.186	0.484
1424	6 0.423		0.570	0.233	5 0.321		0.312	0.140
453c	6 2.372	2.241	3.646	1.489	6 0.593	0.261	0.930	0.380
453	6 0.148		0.315	0.128	6 0.332		0.292	0.119
601c	6 0.290	-0.645	0.332	0.144	6 1.241	-0.121	1.655	0.676
601	6 0.935		0.569	0.232	6 1.362		1.236	0.505
598c	6 0.380	0.158	0.506	0.206	6 1.284	0.343	1.230	0.502
598	6 0.224		0.243	0.099	6 0.941		0.787	0.321
1522c	4 0.000		-----	-----	5 0.454	0.351	0.533	0.238
1522	5 0.000		-----	-----	6 0.103		0.164	0.067
Coarse Textured Sites								
1383c	6 0.697	0.641	1.307	0.534	6 0.313	0.251	0.372	0.152
1580	6 0.055		0.084	0.034	6 0.062		0.068	0.028
506c	6 3.345	1.457	3.422	1.397	6 2.958	2.323	3.291	1.344
506	2 1.887		0.858	0.607	3 0.635		0.587	0.339
1598c	5 0.061	-0.052	0.085	0.038	5 0.287	-0.143	0.171	0.076
1598	5 0.113		0.113	0.051	5 0.431		0.389	0.174
846c	6 0.056	0.056	0.067	0.027	6 0.106	-0.146	0.173	0.070
846	6 0.000		-----	-----	6 0.252		0.233	0.095
1650c	6 1.467	1.410	0.773	0.316	No Sample Taken			
1650	6 0.057		0.089	0.036	6 0.199		0.201	0.082
1171c	6 0.236	0.121	0.281	0.115	6 0.030	-0.124	0.035	0.014
1171	6 0.115		0.134	0.055	6 0.154		0.146	0.060
1627c	6 0.175	-0.005	0.144	0.059	6 0.092	0.019	0.089	0.036
1627	6 0.180		0.256	0.105	6 0.072		0.118	0.048
Exposed Rocky Sites								
19c	6 0.690	0.561	0.755	0.308	5 0.706	0.526	0.910	0.407
19	6 0.128		0.201	0.082	5 0.180		0.214	0.096
4537c	6 0.117	-0.237	0.112	0.046	5 0.439	0.090	0.516	0.231
979	6 0.355		0.219	0.089	6 0.349		0.192	0.079
1642c	6 0.980	0.093	1.111	0.321	6 1.278	0.894	1.359	0.555
833	3 0.887		0.989	0.571	3 0.383		0.664	0.383
1642c	6 0.980	0.980	1.111	0.321	6 1.278	-0.574	1.359	0.555
232	2 0.000		-----	-----	2 1.853		0.546	0.386
2937c	4 0.000	-0.645	-----	-----	2 0.057	-0.218	0.082	0.058
305	6 0.645		0.912	0.372	6 0.276		0.329	0.107
Sheltered Estuary Sites								
2397c	6 0.028	0.028	0.034	0.014	6 0.142	0.022	0.263	0.107
208/209	4 0.000				4 0.120		0.055	0.028

Table E-27. 1991 mean abundance (number/m²) for each site sampled. Average number (mean) of fish per square meter, sample size (n) standard error of the mean (S.E), standard deviation (S.D.) and the change of mean within site pairs for control minus oil (change). The numbers are for MVD 2, 3 and 4 combined.

site Pair	1991 Visit 1				1991 Visit 2			
	n Mean	Change	S.D.	S.E.	n Mean	Change	S.D.	S.E.
Sheltered Rocky Sites								
4825c	4 0.038	-1.042	0.076	0.038	4 0.775	0.112	0.590	0.295
1424	4 1.080		0.710	0.355	4 0.662		0.859	0.429
453c	4 1.474	0.061	1.572	0.786	4 0.637	-1.074	1.003	0.501
453	4 1.413		1.413	0.706	4 1.712		1.286	0.643
601c	4 0.353	-0.455	0.541	0.271	4 0.260	-1.44	0.521	0.260
601	4 0.809		1.178	0.589	4 1.706		2.464	1.232
598c	5 1.917	0.895	1.338	0.598	4 1.668	0.467	0.859	0.429
598	4 1.022		0.882	0.441	4 1.201		1.344	0.672
1522c	4 0.121	-0.881	0.173	0.087	No Sample			
1522	4 1.002		1.013	0.507	No Sample			
Coarse Textured Sites								
506c	4 3.514	0.762	1.265	0.633	3 3.690	0.486	1.531	0.884
506	3 2.752		1.871	1.080	3 3.204		2.559	1.477
1598c	4 0.520	0.252	0.325	0.163	4 0.534	0.418	0.286	0.143
1598	4 0.268		0.231	0.115	4 0.116		0.183	0.092
846c	4 0.061	0.059	0.065	0.033	4 0.069	-0.054	0.103	0.052
846	4 0.002		0.005	0.002	4 0.123		0.114	0.057
1650c	4 1.085	1.068	0.442	0.221	2 0.710	0.694	0.848	0.600
1650	4 0.017		0.020	0.010	4 0.016		0.019	0.009
Exposed Rocky Sites								
19c	4 0.318	-1.439	0.192	0.096	3 1.531	-0.433	0.945	0.545
19	3 1.757		0.236	0.136	2 1.964		1.077	0.762
4537c	4 0.300	-0.243	0.133	0.066	4 0.363	-0.233	0.241	0.121
979	4 0.543		0.561	0.281	4 0.596		0.214	0.107
1642c	4 0.448	0.091	0.385	0.192	4 1.231	0.838	1.365	0.683
833	3 0.356		0.389	0.225	3 0.392		0.679	0.392
Sheltered Estuary Sites								
2397c	4 0.336	-0.160	0.405	0.202	2 0.443	-0.190	0.238	0.168
208/209	2 0.496		0.060	0.042	2 0.633		0.107	0.076

Table E-28. 1990 visit 1 abundance (number/m²) for *each* MVD sampled. Average number (No.) of fish per *square* meter, number of *square* meters (K) and sample size (n). The first of *each* site *pair* is the control site.

Site Pair	1 No.	1 M²	1 n	2 No.	2 M²	2 n	3 No.	3 M²	3 n	4 No.	4 M²	4 n	5 No.	5 M²	5 n
sheltered Rocky Sites															
4825C	0.00	21.0	6	0.26	17.9	5	5.77	*12.0*	5	5.71	0.4	1	—	—	—
1424	0.00	14.6	6	0.25	20.8	6	0.15	21.1	6	1.00	10.7	4	—	—	—
453C	0.00	20.4	6	0.00	16.6	6	0.64	23.5	6	6.04	20.0	5	16.38	4.7	1
453	0.00	22.6	6	0.02	27.8	6	1.03	23.5	6	0.00	0.8	1	—	—	—
601C	0.00	16.5	6	*0.12*	16.9	6	0.41	13.9	6	—	—	—	—	—	—
601	0.00	14.3	6	0.15	33.8	6	1.29	38.2	6	4.11	3.4	1	—	—	—
598C	0.00	16.2	6	0.00	15.6	6	0.40	21.3	6	1.77	7.2	4	0.00	1.7	1
598	0.00	27.1	6	0.00	18.1	6	0.25	21.7	6	1.94	1.6	1			
1522C	0.00	10.1	4	0.00	22.8	4	0.00	16.6	4						
1522	0.00	33.7	5	0.00	31.1	5	0.00	5.3	4	—	—	—	—	—	—
Coarse Textured Sites															
1383C	0.00	51.4	6	0.01	61.6	6	2.23	49.4	6	0.08	47.6	5	0.00	25.9	3
1580	0.00	39.1	6	0.00	54.3	6	0.02	61.7	6	0.24	50.8	5	0.31	15.3	2
506C	0.06	27.0	6	0.80	32.6	6	7.33	17.4	5	6.51	6.8	3			
506	0.00	8.1	2	0.00	11.0	2	0.00	10.7	2	5.64	12.3	2	—	—	—
1598C	0.00	34.7	5	0.06	48.0	5	0.00	7.2	3						
1598	0.00	40.0	5	0.01	80.3	5	0.06	52.0	5	0.55	25.2	5	0.00	2.2	1
846C	0.00	271.	6	0.02	189.	6	0.10	130.	6	0.00	3.5	1	—	—	—
846	0.00	105.	6	0.00	117.	6	0.00	52.6	4	0.00	42.3	2	0.16	12.8	2
1650C	0.00	56.8	6	0.00	51.3	6	2.83	44.7	6	4.60	7.6	3	—	—	—
1650	0.00	50.0	6	0.00	60.0	6	0.05	56.4	6	0.20	38.8	4	0.89	27.4	4
1171C	0.00	45.5	6	0.00	58.3	6	0.38	36.8	6	0.61	25.9	3	0.61	11.5	2
1171	0.00	46.0	6	0.00	57.2	6	0.00	51.4	6	0.40	45.5	5	0.46	10.8	1
1627C	0.00	36.2	6	0.00	40.4	6	0.07	42.9	6	0.39	50.1	6	0.55	6.4	3
1627	0.00	43.7	6	*0.12*	52.9	6	0.14	63.5	6	0.28	19.8	4	0.32	6.9	2
Exposed Rocky Sites															
19C	0.35	21.1	6	0.13	30.2	6	0.69	47.9	6	2.68	15.0	3	—	—	—
19	0.02	32.1	6	0.04	36.9	6	0.58	*12.0*	2	—	—	—	—	—	—
4537C	0.00	152.	6	0.03	157.	6	0.28	132.	5	0.30	33.7	1	—	—	—
979	0.00	64.5	6	0.07	66.6	6	0.36	66.6	6	0.96	47.0	5	0.80	7.5	1
1642C	0.00	15.0	6	0.00	25.7	6	0.65	32.1	6	2.45	29.2	5	1.87	10.6	3
833	0.00	6.1	3	0.00	8.6	3	0.00	12.1	3	2.65	16.9	2			
1642C	0.00	15.0	6	0.00	25.7	6	0.65	32.1	6	2.45	29.2	5	1.87	10.6	3
232	0.00	6.8	2	0.00	13.8	2	0.00	2.5	1	—	—	—	—	—	—
2937C	0.00	10.8	4	0.00	20.2	4	0.00	17.7	4	0.00	7.1	3	0.00	2.9	1
305	0.00	20.2	6	0.00	22.4	6	0.61	29.8	6	2.08	17.7	4			
sheltered Estuary Sites															
2397C	0.00	122.	6	0.01	154.	6	0.13	64.1	3	0.00	12.3	1	—	—	—
208/209	0.00	40.2	4	0.00	58.9	4	0.00	4.3	1				—	—	—

Table E-29. 1990 visit 2 abundance (number/m^2) for *each* MVD sampled. Average number (No.) of fish per square meter, number of square meters (M) and sample size (n). The first of *each* site *pair* is the control site.

Site pair	1			2			3			4			5		
	No.	M^2	n	No.	M^2	n	No.	M^2	n	No.	M^2	n	No.	M^2	n
sheltered Rocky Sites															
4825C	0.00	10.0	6	0.05	16.5	6	1.50	12.8	5	-----	----	-	-----	----	-
1424	0.00	26.2	6	0.23	13.8	5	0.24	9.8	3	----	----	-	----	----	-
453C	0.00	19.4	6	0.08	24.0	6	0.46	22.8	6	1.38	9.4	3	-----	----	-
453	0.00	22.0	6	0.26	21.0	6	0.35	24.6	6	-----	----	-	----	----	-
601C	0.00	19.5	6	0.53	13.8	6	1.97	13.2	4	2.61	2.3	1	-----	----	-
601	0.00	20.8	6	0.27	32.9	6	2.65	24.1	5	----	----	-	----	----	-
598C	0.00	18.5	6	0.27	21.3	6	2.24	18.2	5	4.11	3.4	1	----	----	-
598	0.00	21.8	6	0.00	21.8	6	1.80	19.9	6	0.50	4.2	3	-----	----	-
1522C	0.00	16.4	5	0.21	24.4	5	0.68	21.7	5	----	----	-	----	----	-
1522	0.00	32.6	6	0.14	36.2	6	0.04	18.1	6	0.00	10.9	4	0.66	1.5	1
Coarse Textured Sites															
1383C	0.00	48.5	6	0.00	59.2	6	0.98	42.4	5	0.28	54.4	5	0.00	25.5	3
1580	0.00	52.0	6	0.00	68.5	6	0.02	66.1	6	0.37	34.9	4	----	----	-
506C	0.00	24.0	6	0.35	25.7	6	4.75	16.9	6	23.08	2.6	1	----	----	-
506	0.00	18.5	3	0.00	17.8	3	0.49	26.1	2	3.20	5.9	1	----	----	-
1598C	0.00	33.0	5	0.08	46.9	5	0.36	49.2	5	0.54	47.7	5	----	----	-
1598	0.00	37.2	5	0.00	71.6	5	0.15	54.3	5	0.55	25.2	5	3.98	13.9	3
846C	0.00	239.	6	0.00	224.	6	0.35	138.	6	0.59	10.6	3	----	----	-
846	0.00	81.3	6	0.00	122.	6	0.12	172.	6	1.15	72.6	4	----	----	-
1650C	Not Sampled														
1650	0.00	50.7	6	0.00	55.2	6	0.10	58.5	6	0.51	46.5	6	1.55	8.7	2
1171C	0.00	45.9	6	0.00	57.6	6	0.00	50.5	6	0.11	47.0	5	0.56	1.8	1
1171	0.00	39.3	6	0.05	84.8	6	0.21	59.2	6	0.78	19.2	3	0.34	5.9	1
1627C	0.00	46.5	6	0.00	71.5	6	0.15	44.5	5	0.49	21.7	3	----	----	-
1627	0.00	33.8	6	0.00	87.2	6	0.01	66.3	6	0.59	15.3	3	-----	----	-
Exposed *Rocky* Sites															
19C	0.03	31.5	5	0.71	35.6	5	0.64	20.9	3	0.00	8.9	2	----	----	-
19	0.00	25.8	5	0.00	20.3	5	0.32	26.1	3	0.91	5.5	1	----	----	-
4537C	0.21	118.	6	0.44	71.3	5	0.14	28.3	2	0.69	50.4	1	----	----	-
979	0.03	59.3	6	0.32	66.8	6	0.22	31.2	4	0.79	19.1	2	0.32	9.4	1
1642C	0.11	23.8	6	0.24	30.0	6	0.35	22.0	5	4.35	20.0	3	1.33	2.3	1
833	0.91	14.4	3	0.19	10.7	3	1.10	7.0	2	----	----	-	----	----	-
1642C	0.11	23.8	6	0.24	30.0	6	0.35	22.0	5	4.35	20.0	3	1.33	2.3	1
232	0.00	8.5	2	1.09	5.8	2	1.70	22.1	2	1.76	7.5	2	-----	----	-
2937C	0.00	8.8	2	0.20	8.4	2	0.00	7.5	1	0.00	4.9	1	----	----	-
305	0.00	26.2	6	0.00	20.9	6	0.00	22.3	5	1.47	15.5	3	----	----	-
Sheltered Estuary Sites															
2397C	0.03	131.	6	0.14	268.	6	0.09	77.3	3	----	----	-	----	----	-
208/209	0.00	56.1	4	0.02	112.	4	0.20	148.	4	0.05	38.5	1	----	----	-

Table E-30. 1991 visit 1 abundance (number/m^2) for *each* MVD sampled. Average number (No.) of fish per *square* meter, number of *square* meters (M^2) and sample size (n). The first of *each* site pair is the control site.

Site Pair	1 No.	M^2	n	2 No.	M^2	n	3 No.	M^2	n	4 No.	M^2	n	5 No.	M^2	n
Sheltered Rocky Sites															
4825C	----	----	-	0.00	11.5	4	0.08	10.7	4	0.00	2.5	2	----	----	-
1424	----	----	-	0.00	8.1	4	0.43	14.7	4	2.52	14.9	4	----	----	-
453c	----	----	-	0.23	7.9	4	0.06	10.7	4	2.44	22.5	4	8.61	8.8	2
453	----	----	-	0.00	12.8	4	0.16	21.1	4	2.91	31.6	4	10.18	2.9	1
601C	----	----	-	0.00	6.6	4	'0.00	10.4	4	***0.80***	8.4	4	----	----	-
601	----	----	-	0.00	24.9	4	1.48	16.5	4	----	----	-	----	----	-
598C	----	----	-	0.00	16.8	5	1.27	20.6	5	3.89	20.5	5	----	----	-
598	----	----	-	0.00	12.5	4	0.63	13.1	4	3.01	12.4	3	2.60	1.9	1
1522C	----	----	-	----	----	-	**0.03**	23.5	4	0.23	9.4	3	----	----	-
1522	----	----	-	0.11	12.4	4	1.46	11.2	4	2.63	13.9	4	----	----	-
Coarse Textured Sites															
506C	----	----	-	1.87	16.5	4	5.14	12.2	3	8.91	1.8	2	----	----	-
506	----	----	-	0.07	13.2	3	2.84	17.2	3	5.95	10.7	3	----	----	-
1598C	----	----	-	0.00	31.4	4	**1.11**	25.5	4	----	----	-	----	----	-
1598	----	----	-	0.00	42.0	4	***0.00***	45.7	4	0.86	40.8	4	----	----	-
846C	----	----	-	0.00	129.	4	0.13	110.	4	0.13	9.1	2	----	----	-
846	----	----	-	0.00	60.7	4	0.00	88.3	4	0.01	82.3	3	----	----	-
1650C	----	----	-	0.03	34.0	4	1.18	36.5	4	2.84	22.5	4	----	----	-
1650	----	----	-	0.00	36.5	4	0.00	45.9	4	0.05	40.3	4	0.44	23.9	3
Exposed Rocky Sites															
19C	----	----	-	0.16	31.0	4	0.35	31.4	4	0.55	29.1	4	1.83	15.5	3
19	----	----	-	0.00	30.0	3	0.70	13.5	3	4.51	24.0	3	5.87	7.2	1
4537C	----	----	-	0.34	121.	4	0.34	82.5	4	0.20	130.	4	----	----	-
979	----	----	-	0.72	49.6	4	0.52	54.9	4	0.47	56.0	4	0.28	10.6	1
1642C	----	----	-	0.00	16.8	4	0.12	23.2	4	1.60	15.1	4	----	----	-
833	----	----	-	0.00	21.9	3	0.31	20.5	3	0.94	26.1	3	1.02	5.9	1
sheltered Estuary Sites															
2397C	----	----	-	0.23	114.	4	0.50	92.4	4	----	----	-	----	----	-
208/209	----	----	-	0.04	33.3	2	0.00	33.0	2	1.30	47.2	2	----	----	-

Table E-31. 1991 visit 2 abundance (number/m²) for each MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site Pair	1 No.	1 M²	1 n	2 No.	2 M²	2 n	3 No.	3 M²	3 n	4 No.	4 M²	4 n	5 No.	5 M²	5 n
sheltered Rocky Sites															
4825C	—	—	-	0.11	12.4	4	1.46	11.2	4	—	—	-	—	—	-
1424	—	—	-	0.00	14.9	4	0.20	12.3	4	1.89	11.0	4	—	—	-
453c	—	—	-	0.15	11.7	4	0.00	14.5	4	1.10	20.1	4	0.00	3.0	1
453	—	—	-	0.06	16.7	4	0.51	17.0	4	4.12	16.5	4	—	—	-
601C	—	—	-	0.00	13.2	4	0.55	9.3	3	—	—	-	—	—	-
601	—	—	-	0.97	16.7	4	2.24	17.5	4	—	—	-	—	—	-
598C	—	—	-	0.00	15.1	4	1.50	18.1	4	5.88	8.0	2	—	—	-
598	—	—	-	0.00	12.9	4	0.89	16.0	4	4.92	6.2	3	—	—	-
Coarse Textured Sites															
506C	—	—	-	0.05	12.6	3	5.52	14.2	3	10.34	2.0	1	—	—	-
506	—	—	-	0.26	17.9	3	1.28	14.5	3	11.28	11.7	2	—	—	-
1598C	—	—	-	0.03	31.4	4	0.65	21.8	3	1.23	32.3	4	—	—	-
1598	—	—	-	0.00	45.1	4	0.00	57.9	4	0.39	42.7	4	4.85	15.4	3
846C	—	—	-	0.00	120.	4	0.13	119.	4	0.08	12.0	1	—	—	-
846	—	—	-	0.00	66.5	4	0.02	114.	4	0.28	104.	4	0.62	35.4	2
1650C	—	—	-	0.00	17.2	2	0.90	28.3	2	1.99	9.6	2	—	—	-
1650	—	—	-	0.00	32.7	4	0.00	44.7	4	0.05	39.5	4	1.33	23.3	4
Exposed Rocky Sites															
19C	—	—	-	0.99	30.4	3	0.82	22.2	3	4.25	12.0	2	—	—	-
19	—	—	-	0.00	10.3	2	2.01	13.4	2	3.21	14.3	2	—	—	-
4537C	—	—	-	0.26	134.	4	0.38	167.	4	0.40	80.1	4	—	—	-
979				0.20	44.7	4	0.96	51.6	4	0.55	52.8	4	—	—	-
1642C	—	—	-	0.00	16.2	4	1.44	22.3	4	7.10	1.6	1	—	—	-
833	—	—	-	0.24	21.6	3	0.61	22.4	3	0.00	15.0	2	—	—	-
sheltered Estuary Sites															
2397C	—	—	-	0.56	49.0	2	0.37	54.5	2	—	—	-	—	—	-
208/209	—	—	-	0.00	33.7	2	0.31	32.5	2	1.53	35.7	2	—	—	-

Table E-32. Abundance (number/m^2) for each MVD for each of 3 habitats and habitats combined for all intertidal fish.

		1990						1991					
		Visit 1			Visit 2			Visit 1			Visit 2		
MVD		Sqm	#/m²	n	Sqm	#/m²	n	Sqm	#/m²	n	Sqm	#/m²	n
		All Habitats											
1	Ctl	805.3	0.02	91	701.9	0.02	83	-----	----	--	-----	----	--
1	Oil	573.7	0.01	89	570.3	0.03	90	-----	----	--	-----	----	--
2	Ctl	804.3	0.09	90	729.8	0.20	82	428.8	0.21	48	414.4	0.13	40
2	Oil	712.7	0.04	89	757.0	0.11	89	324.7	0.08	44	300.1	0.16	40
3	Ctl	645.6	1.36	86	508.5	1.08	69	397.3	0.73	48	447.9	1.16	38
3	Oil	581.1	0.30	81	707.3	0.49	79	365.6	0.55	44	381.7	0.72	40
4	Ctl	253.9	2.36	43	283.2	1.63	34	271.0	1.89	38	177.8	2.51	21
4	Oil	332.4	1.04	45	287.4	0.84	40	353.0	2.08	39	313.6	2.21	33
5	Ctl	63.7	1.78	14	29.5	0.37	5	24.2	4.54	5	3.0	0.00	1
5	Oil	82.8	0.49	13	39.3	2.04	8	52.2	2.66	8	74.0	2.34	9
		Sheltered Rocky Habitats											
1	Ctl	84.1	0.00	28	83.7	*0.00*	29	-----	----	--	-----	----	--
1	Oil	112.3	*0.00*	29	123.4	0.00	30	-----	----	--	-----	----	--
2	Ctl	89.8	0.07	27	99.9	0.22	29	48.8	0.04	20	52.4	0.06	16
2	Oil	131.5	*0.08*	29	125.8	0.17	29	70.7	0.02	19	61.2	0.25	16
3	Ctl	87.2	1.39	27	88.6	1.31	25	76.0	0.33	21	53.0	0.90	15
3	Oil	109.9	0.58	28	96.6	1.04	26	79.6	0.57	19	62.8	0.95	16
4	Ctl	27.5	4.30	10	15.0	2.17	5	63.2	1.84	18	28.1	2.70	6
4	Oil	16.2	1.35	7	15.0	0.21	7	72.7	2.75	15	33.7	3.53	11
5	Ctl	6.3	8.19	2	-----	-----	---	8.7	8.61	2	3.0	0.00	1
5	Oil	-----	-----	---	1.5	0.65	1	4.7	6.39	2			
		Coarse Textured Habitats											
1	Ctl	522.3	0.01	41	436.4	*0.00*	35	-----	----	--	-----	----	--
1	Oil	331.6	*0.00*	37	312.7	0.00	38	-----	----	--	-----	----	--
2	Ctl	481.2	0.12	41	484.4	0.07	35	211.2	0.47	16	180.9	0.02	13
2	Oil	432.9	0.02	37	506.8	0.01	38	152.4	0.01	15	162.2	0.05	15
3	Ctl	328.2	1.85	38	341.0	1.15	33	184.1	1.67	15	183.6	1.74	12
3	Oil	348.2	0.04	35	502.1	0.12	37	197.1	0.56	15	231.4	0.26	15
4	Ctl	141.4	1.80	21	184.0	1.41	22	33.3	3.68	8	56.0	2.41	8
4	Oil	234.6	0.70	27	224.8	0.86	25	174.1	1.54	14	197.7	1.82	14
5	Ctl	43.8	0.35	8	27.3	0.13	4	-----	----	--	-----	----	--
5	Oil	75.3	0.46	12	28.4	2.56	6	23.9	0.43	3	74.0	2.34	9
		Exposed Rocky Habitats											
1	Ctl	198.9	0.09	22	181.9	0.10	19	-----	----	--	-----	----	--
1	Oil	129.7	0.01	23	134.1	0.13	22	-----	----	--	-----	----	--
2	Ctl	233.3	0.04	22	145.4	0.42	18	168.7	0.16	12	181.0	0.36	11
2	Oil	148.4	0.03	23	124.5	0.21	22	101.4	0.28	10	76.6	0.16	9
3	Ctl	230.1	0.45	21	78.7	0.35	11	137.1	0.27	12	211.3	0.88	11
3	Oil	123.0	0.38	18	108.6	0.46	16	88.8	0.51	10	87.5	1.08	9
4	Ctl	84.9	1.71	12	84.1	1.96	7	174.4	0.78	12	93.7	2.46	7
4	Oil	81.6	1.68	11	47.5	1.30	8	106.2	1.82	10	82.2	1.08	8
5	Ctl	13.4	1.40	4	2.2	1.33	1	15.4	1.83	3	-----	----	--
5	Oil	7.5	*0.80*	1	9.3	0.31	1	23.6	2.39	3	-----	----	--

Table E-33. 1990 mean biomass (g/m²) for each site sampled. Average weight (mean) of fish per square meter, sample size (n), standard error of the man (S.E), standard deviation (S.D.) and the change of mean within site pairs for control minus oil (change). The numbers are for MVD 2, 3 and 4 combined.

Site pair	1990 visit 1				1990 visit 2			
	n Mean	Change	S.D.	S.E.	n Mean	Change	S.D.	S.E.
	sheltered Rocky Sites							
4825c	5 0.295	0.136	0.263	0.118	6 0.067	-0.084	0.058	0.024
1424	6 0.159		0.304	0.124	5 0.151		0.124	0.055
453c	6 0.207	0.101	0.277	0.133	6 0.279	0.042	0.403	0.164
453	6 0.106		0.179	0.073	6 0.237		0.284	0.116
601c	6 0.172	-0.685	0.165	0.068	6 0.168	-0.635	0.168	0.069
601	6 0.857		0.442	0.180	6 0.803		0.870	0.355
598c	6 0.147	0.080	0.254	0.104	6 0.388	0.216	0.499	0.204
598	6 0.067		0.113	0.046	6 0.172		0.195	0.080
1522c	4 *0.000*	No Difference			5 0.208	0.154	0.180	0.080
1522	5 *0.000*	No Difference			6 0.054		0.099	0.040
	coarse Textured Sites							
1383	6 0.627	0.536	0.994	0.406	6 0.406	0.383	0.421	0.172
1580	6 0.091		0.180	0.073	6 0.023		0.026	0.010
506c	6 1.266	0.126	1.213	0.495	6 1.076	0.710	0.922	0.376
506	2 1.140		0.474	0.335	3 0.366		0.454	0.262
1598c	5 0.051	-0.013	0.099	0.044	5 0.121	-0.174	0.143	0.064
1598	5 0.064		0.081	0.036	5 0.295		0.356	0.159
846c	6 0.023	0.023	0.027	0.011	6 0.063	-0.002	0.126	0.051
846	6 0.000				6 0.065		0.066	0.027
1650c	6 0.214	0.167	0.263	0.107	No sample			
1650	6 0.047		0.067	0.028	6 0.186		0.225	0.092
1171c	6 0.281	0.132	0.367	0.150	6 0.022	-0.081	0.029	0.012
1171	6 0.149		0.171	0.070	6 0.109		0.081	0.033
1627c	6 0.186	-0.141	0.189	0.077	6 0.106	0.051	0.135	0.055
1627	6 0.327		0.466	0.190	6 0.055		0.126	0.052
	Exposed Rocky sites							
19c	6 0.464	0.382	0.559	0.228	5 0.899	0.631	1.142	0.511
19	6 0.062		0.141	0.058	5 0.268		0.573	0.256
4537c	6 0.062	-0.196	0.094	0.038	5 0.286	0.075	0.156	0.070
979	6 0.258		0.421	0.172	6 0.211		0.151	0.061
1642c	6 1.323	1.269	1.802	0.520	6 0.597	0.567	0.590	0.170
833	3 0.054		0.066	0.038	3 0.030		0.051	0.029
1642c	6 1.323	1.323	1.802	0.520	6 0.597	0.221	0.590	0.170
232	2 0.000				2 0.376		0.387	0.273
2937c	4 0.000	-0.809			2 0.092	-0.189	0.122	0.086
305	6 0.809		1.323	0.540	6 0.281		0.475	0.194
	sheltered Estuary Sites							
2397c	6 0.019	0.019	0.025	0.010	6 0.116	0.060	0.200	0.082
208/209	4 0.000				4 0.056		0.061	0.030

Table E-34. 1991 mean biomass (g/m²) for each site sampled. Average weight (mean) of fish per square meter, sample size (n), standard error of the mean (S.E), standard deviation (S.D.) and the change of mean within site pairs for control minus oil (change). The numbers are for MVD 2, 3 and 4 combined.

site Pair	Visit 1				Visit 2			
	n Mean	Change	S.D.	S.E.	n Mean	Change	S.D.	S.E.
Sheltered Rocky Sites								
4825c	4 0.041	-0.392	0.076	0.038	4 0.249	-0.100	0.134	0.067
1424	4 0.502		0.330	0.165	4 0.349		0.558	0.279
453c	4 2.754	0.789	3.850	1.925	4 0.532	-1.152	0.898	0.449
453	4 1.946		1.811	0.905	4 1.684		1.954	0.977
601c	4 0.373	-0.470	0.541	0.271	4 0.135	-2.009	0.231	0.116
601	4 0.875		1.103	0.551	4 2.144		3.045	1.523
598c	5 1.280	0.248	1.056	0.472	4 0.794	-0.446	0.398	0.199
598	4 1.014		0.696	0.348	4 1.240		1.743	0.872
1522c	4 0.060	-0.569	0.045	0.023	No Sample			
1522	4 0.669		0.463	0.231	No Sample			
Coarse Textured Sites								
506c	4 3.770	1.874	2.450	1.225	3 2.245	0.281	1.124	0.649
506	3 1.821		0.934	0.539	3 1.964		0.531	0.307
1598c	4 0.388	0.046	0.288	0.144	4 0.490	0.413	0.336	0.168
1598	4 0.342		0.337	0.168	4 0.077		0.122	0.061
846c	4 0.136	0.130	0.105	0.053	4 0.126	0.009	0.240	0.120
846	4 0.001		0.000	0.000	4 0.117		0.131	0.066
1650c	4 0.610	0.508	0.470	0.235	2 0.409	0.395	0.556	0.393
1650	4 0.082		0.147	0.074	4 0.014		0.017	0.008
Exposed Rocky Sites								
19c	4 1.108	0.227	0.906	0.453	3 3.627	-0.272	2.257	1.303
19	3 0.882		0.316	0.183	2 3.899		2.222	1.571
4537c	4 0.595	-0.992	0.231	0.116	4 0.239	-1.126	0.218	0.109
979	4 1.599		2.134	1.067	4 1.367		0.721	0.360
1642c	4 0.425	0.079	0.417	0.209	4 3.421	3.135	4.610	2.305
833	3 0.296		0.289	0.167	3 0.286		0.485	0.280
Sheltered Estuary Sites								
2397c	4 0.350	-0.445	0.481	0.240	2 0.412	-0.256	0.094	0.066
208/209	2 0.812		0.817	0.578	2 0.668		0.124	0.088

Table E-35. 1990 visit 1 biomass (g/m²) for *each* MVD sampled. Average weight (G.) of fish per square meter, number of square meters (M²) and sample size (n). The first of *each* site *pair* is the control site.

Site pair	1			2			3			4			5		
	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n
sheltered Rocky Sites															
4825c	0.00	21.0	6	0.03	17.9	5	0.62	12.0	5	0.62	0.35	1	—	—	-
1424	0.00	14.6	6	0.05	20.8	6	0.02	21.1	6	0.54	10.7	4	—	—	-
453c	0.00	20.4	6	0.00	16.6	6	0.06	23.5	6	0.55	20.	5	1.57	4.7	1
453	0.00	22.6	6	0.02	27.8	6	0.66	23.5	6	0.00	0.85	1	—	—	-
601c	0.00	16.5	6	0.11	16.9	6	0.27	13.9	6	—	—	-	—	—	-
601	0.00	14.3	6	0.33	33.8	6	0.97	38.2	6	3.36	3.2	1	—	—	-
598c	0.00	16.2	6	0.00	15.6	6	0.11	21.3	6	0.92	7.2	4	0.00	1.68	1
598	0.00	27.1	6	0.00	18.1	6	0.09	21.7	6	0.24	1.6	1	—	—	-
1522c	0.00	10.1	4	0.00	22.8	4	0.00	16.6	4	—	—	-	—	—	-
1522	0.00	33.7	5	0.00	31.1	5	0.00	5.3	4	—	—	-	—	—	-
coarse Textured Sites															
1383c	0.00	51.4	6	0.03	61.6	6	1.91	49.4	6	0.06	47.6	5	0.00	25.9	3
1580	0.00	39.1	6	0.00	54.3	6	0.03	61.7	6	0.43	50.8	5	0.18	15.3	2
506c	0.02	27.0	6	0.48	32.6	6	2.73	17.4	5	1.96	6.75	3	—	—	-
506	0.00	8.1	2	0.00	11.0	2	0.00	10.7	2	3.06	12.3	2	—	—	-
1598c	0.00	34.7	5	0.05	48.0	5	0.00	7.2	3	—	—	-	—	—	-
1598	0.00	40.0	5	0.01	80.3	5	0.03	52.0	5	0.22	25.2	5	0.00	2.2	1
846c	0.00	271.	6	0.01	189.	6	0.04	130.	6	0.00	3.5	1	—	—	-
846	0.00	105.	6	0.00	117.	6	0.00	52.6	4	0.00	42.3	2	0.14	12.8	2
1650c	0.00	56.8	6	0.00	51.3	6	0.40	44.7	6	0.76	7.6	3	—	—	-
1650	0.00	50.0	6	0.00	60.0	6	0.08	56.4	6	0.10	38.8	4	1.01	27.4	4
1171c	0.00	45.5	6	0.00	58.3	6	0.63	36.8	6	0.35	25.9	3	0.70	11.5	2
1171	0.00	46.0	6	0.00	57.2	6	0.00	51.4	6	0.51	45.5	5	0.99	10.8	1
1627c	0.00	36.2	6	0.00	40.4	6	0.04	42.9	6	0.44	50.1	6	0.42	6.4	3
1627	0.00	43.7	6	0.27	52.9	6	0.23	63.5	6	0.36	19.8	4	0.40	6.9	2
Exposed Rocky Sites															
19c	0.16	21.1	6	0.04	30.2	6	0.62	47.9	6	1.15	15.0	3	—	—	-
19	0.04	32.1	6	0.00	36.9	6	0.41	12.0	2	—	—	-	—	—	-
4537c	0.00	152.	6	0.01	157.	6	0.12	132.	5	0.39	33.7	1	—	—	-
979	0.00	64.5	6	0.04	66.6	6	0.25	66.6	6	0.56	47.0	5	0.23	7.5	1
1642c	0.00	15.0	6	0.00	25.7	6	0.68	32.1	6	4.33	29.2	5	1.96	10.6	3
833	0.00	6.1	3	0.00	8.6	3	0.00	12.1	3	0.17	16.9	2	—	—	-
1642c	0.00	15.0	6	0.00	25.7	6	0.68	32.1	6	4.33	29.2	5	1.96	10.6	3
232	0.00	6.9	2	0.00	13.8	2	0.00	2.6	1	—	—	-	—	—	-
2937c	0.00	10.8	4	0.00	20.2	4	0.00	17.7	4	0.00	7.1	3	0.00	2.88	1
305	0.00	20.2	6	0.00	22.4	6	0.47	29.8	6	3.49	17.7	4	—	—	-
sheltered Estuary Sites															
2397c	0.00	122.	6	0.01	154.	6	0.06	64.1	3	0.00	12.3	1	—	—	-
208/209	0.00	40.2	4	0.00	58.9	4	0.00	4.3	1	—	—	-	—	—	-

Table E-36. 1990 visit 2 biomass (g/m²) for *each* MVD sampled. Average weight *(G.)* of fish per square meter, number of square meters (W) and sample size (n). The first of *each* site *pair* is the control site.

Site pair	1 G.	1 M²	1 n	2 G.	2 M²	2 n	3 G.	3 M²	3 n	4 G.	4 M²	4 n	5 G.	5 M²	5 n
Sheltered Rocky Sites															
4825C	0.00	10.0	6	0.00	16.5	6	0.15	12.8	5	—	—	-	—	—	-
1424	0.00	26.2	6	0.11	13.8	5	0.10	9.8	3	—	—	-	—	—	-
453c	0.00	19.4	6	0.06	24.0	6	0.16	22.8	6	0.83	9.4	3	—	—	-
453	0.00	22.0	6	0.28	21.0	6	0.18	24.6	6	—	—	-	—	—	-
601C	0.00	19.5	6	0.08	13.8	6	0.22	13.2	4	0.66	2.3	1	—	—	-
601	0.00	20.8	6	0.16	32.9	6	1.55	24.1	5	—	—	-	—	—	-
598C	0.00	18.5	6	0.04	21.3	6	0.82	18.2	5	0.79	3.4	1	—	—	-
598	0.00	21.8	6	0.00	21.8	6	0.31	19.9	6	0.05	4.2	3	—	—	-
1522C	0.00	16.4	5	0.11	24.4	5	0.38	21.7	5	—	—	-	—	—	-
1522	0.00	32.6	6	0.06	36.2	6	0.01	18.1	6	0.00	10.9	4	0.57	1.5	1
Coarse Textured Sites															
1383C	0.00	48.5	6	0.00	59.2	6	1.08	42.4	5	0.50	54.4	5	0.00	25.5	3
1580	0.00	52.0	6	0.00	68.5	6	0.00	66.1	6	0.16	34.9	4	—	—	-
506C	0.00	24.0	6	0.16	25.7	6	2.29	16.9	6	3.38	2.6	1	—	—	-
506	0.00	18.5	3	0.00	17.8	3	0.12	26.1	2	2.51	5.9	1	—	—	-
1598C	0.00	33.0	5	0.03	46.9	5	0.13	49.2	5	0.28	47.7	5	—	—	-
1598	0.00	37.2	5	0.00	71.6	5	0.02	54.3	5	0.72	30.5	4	0.60	13.9	3
846C	0.00	239.	6	0.00	224.	6	0.17	138.	6	0.17	10.6	3	—	—	-
846	0.00	81.3	6	0.00	122.	6	0.02	172.	6	0.37	72.6	4	—	—	-
1650C	Not Sampled														
1650	0.00	50.7	6	0.00	55.2	6	0.14	58.5	6	0.49	46.5	6	2.66	8.7	2
1171C	0.00	45.9	6	0.00	57.6	6	0.00	50.5	6	0.08	47.0	5	0.19	1.8	1
1171	0.00	39.3	6	0.05	84.8	6	0.15	59.2	6	0.23	19.2	3	1.07	5.9	1
1627C	0.00	46.5	6	0.00	71.5	6	0.25	44.5	5	0.32	21.7	3	—	—	-
1627	0.00	33.8	6	0.00	87.2	6	0.00	66.3	6	0.38	15.3	3	—	—	-
Exposed Rocky Sites															
19C	0.11	31.5	5	0.84	35.6	5	0.85	20.9	3	0.00	8.9	2	—	—	-
19	0.00	25.8	5	0.00	20.3	5	0.65	26.1	3	0.12	5.5	1	—	—	-
4537C	0.05	118.	6	0.21	71.3	5	0.25	28.3	2	0.57	50.4	1	—	—	-
979	0.02	59.3	6	0.24	66.8	6	0.11	31.2	4	0.36	19.1	2	0.32	9.4	1
1642C	0.16	23.8	6	0.12	30.0	6	0.15	22.0	5	2.08	20.0	3	0.27	2.3	1
833	0.13	14.4	3	0.01	10.7	3	0.09	7.0	2	—	—	-	—	—	-
1642C	0.16	23.8	6	0.12	30.0	6	0.15	22.0	5	2.08	20.0	3	0.27	2.3	1
232	0.00	8.5	2	0.21	5.8	2	0.35	22.1	2	0.44	7.5	2	—	—	-
2937C	0.00	8.7	2	0.33	8.4	2	0.00	7.5	1	0.00	4.9	1	—	—	-
305	0.00	26.2	6	0.00	20.9	6	0.00	22.3	5	1.64	15.5	3	—	—	-
Sheltered Estuary Sites															
2397C	0.05	131.	6	0.12	268.	6	0.08	77.3	3	—	—	-	—	—	-
208/209	0.00	56.1	4	0.00	112.	4	0.10	148.	4	0.01	38.5	1	—	—	-

Table E-37. 1991 visit 1 biomass (g/m²) for *each* MVD sampled. Average weight (G.) of fish per square meter, number of square meters (M²) and sample size (n). The first of *each* site *pair* is the control site.

Site Pair	1 G.	1 M²	1 n	2 G.	2 M²	2 n	3 G.	3 M²	3 n	4 G.	4 M²	4 n	5 G.	5 M²	5 n
sheltered *Rocky* Sites															
4825C	-----	----	-	0.00	11.5	4	0.09	10.7	4	0.00	2.5	2	----	----	-
1424	-----	----	-	0.00	8.1	4	0.24	14.7	4	1.11	14.9	4	----	----	-
453c	-----	----	-	0.07	7.9	4	0.07	10.7	4	4.76	22.5	4	20.51	8.8	2
453	-----	----	-	0.00	12.8	4	0.09	21.1	4	4.29	31.6	4	29.88	2.8	1
601C	-----	----	-	0.00	6.6	4	0.00	10.4	4	0.85	8.4	4	----	----	-
601	-----	----	-	0.00	24.9	4	1.70	16.5	4			-	-----	----	-
598C	-----	----	-	0.00	16.8	5	0.71	20.6	5	2.64	20.5	5	----	----	-
598	-----	----	-	0.00	12.5	4	1.12	13.1	4	2.12	12.4	3	3.20	1.9	1
1522C	-----	----	-	0.00	6.0	3	0.02	23.5	4	0.11	9.4	3	----	----	-
1522	-----	----	-	0.03	12.5	3	0.09	14.3	3	1.25	13.9	4	----	----	-
***coarse* Textured Sites**															
506C	----	----	-	2.75	16.5	4	4.05	12.2	3	4.22	1.8	2	----	----	-
506	----	----	-	0.06	13.2	3	1.06	17.2	3	5.08	10.7	3	----	----	-
1598C	-----	----	-	0.00	31.4	4	0.84	25.5	4	-----	----	-	-----	----	-
1598	----	----	-	0.00	42.0	4	0.00	45.7	4	1.08	40.8	4	----	----	-
846C	----	----	-	0.00	129.	4	0.31	110.	4	0.14	9.0	2	----	----	-
846	----	----	-	0.00	60.7	4	0.00	88.3	4	0.01	82.3	3	----	----	-
1650C	----	----	-	0.00	34.0	4	0.75	36.5	4	1.92	22.5	4	----	----	-
1650	----	----	-	0.00	36.5	4	0.00	45.9	4	0.23	40.3	4	0.46	23.9	3
Exposed *Rocky* Sites															
19C	-----	----	-	0.05	31.0	4	1.23	31.4	4	2.53	29.1	4	6.19	15.5	3
19	-----	----	-	0.00	30.0	3	0.15	13.5	3	2.41	24.0	3	2.51	7.2	1
4537C	----	----	-	0.26	121.	4	1.14	82.5	4	0.50	130.	4	-----	----	-
979	----	----	-	1.31	49.6	4	2.06	54.9	4	1.44	56.0	4	0.62	10.6	1
1642C	----	----	-	0.00	16.8	4	0.03	23.2	4	1.67	15.1	4	----	----	-
833	----	----	-	0.00	21.9	3	0.09	20.5	3	0.99	26.1	3	0.84	5.9	1
Sheltered Estuary Sites															
2397C	-----	----	-	0.26	114.	4	0.50	92.4	4	----	----	-	-----	----	-
208/209	-----	----	-	0.03	33.3	2	0.00	33.0	2	1.81	47.2	2	----	----	-

Table E-38. 1991 visit 2 bianass (g/m²) for *each* MVD sampled. Average weight (G.) of fish per *square meter*, number of *square* meters (W) and sample size (n). The first of *each* site *pair* is the control **site.**

site	1			2			3			4			5		
Fair	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n
sheltered *Rocky* sites															
4825C	———	———	-	0.03	12.4	4	0.55	11.2	4	———	———	-	———	———	-
1424	———	———	-	0.00	14.9	4	0.11	12.3	4	0.99	11.0	4	———	———	-
453c	———	———	-	0.13	11.7	4	0.00	14.5	4	0.89	20.1	4	0.00	3.	1
453	———	———	-	0.02	16.7	4	0.18	17.0	4	4.48	16.5	4	———	———	-
601C	———	———	-	0.00	13.2	4	0.28	9.3	3	———	———	-	———	———	-
601	———	———	-	1.01	16.7	4	2.92	17.5	4	———	———	-	———	———	-
598C	———	———	-	0.00	15.1	4	0.65	18.1	4	3.15	8.0	2	———	———	-
598	———	———	-	0.00	12.9	4	0.95	16.0	4	5.23	6.2	3	———	———	-
Coarse Textured Sites															
506C	———	———	-	0.02	12.6	3	4.11	14.2	3	1.54	2.0	1	———	———	-
506	———	———	-	0.88	17.9	3	0.94	14.5	3	4.39	11.7	2	———	———	-
1598C	———	———	-	0.01	31.4	4	0.58	21.8	3	1.20	32.3	4	———	———	-
1598	———	———	-	0.00	45.1	4	0.00	57.9	4	0.26	42.7	4	3.72	15.4	3
846C	———	———	-	0.00	120.	4	0.24	119.	4	0.05	12.0	1	———	———	-
846	———	———	-	0.00	66.5	4	0.03	114.	4	0.24	104.	4	0.69	35.4	2
1650C	———	———	-	0.00	17.2	2	0.40	28.3	2	1.58	9.6	2	———	———	-
1650	———	———	-	0.00	32.7	4	0.00	44.7	4	0.04	39.5	4	1.71	23.3	4
Exposed *Rocky* Sites															
19C	———	———	-	1.56	30.4	3	2.60	22.2	3	10.43	12.0	2	———	———	-
19	———	———	-	0.00	10.3	2	2.74	13.4	2	7.56	14.3	2	———	———	-
4537C	———	———	-	0.14	134.	4	0.16	167.	4	0.39	80.1	4	———	———	-
979	———	———	-	0.80	44.7	4	1.34	51.6	4	1.80	52.8	4	———	———	-
1642C	———	———	-	0.00	16.2	4	4.06	22.3	4	17.73	1.5	1	———	———	-
833	———	———	-	0.13	21.6	3	0.50	22.4	3	0.00	15.0	2	———	———	-
sheltered Estuary Sites															
2397C	———	———	-	0.59	49.0	2	0.30	54.5	2	———	———	-	———	———	-
208/209	———	———	-	0.00	33.7	2	0.28	32.5	2	1.65	35.7	2	———	———	-

Table E–39. Biomass (g/m²) for each MVD over each of 3 habitats and habitats combined for all intertidal fish.

MVD		1990 Visit 1 Sqm	1990 Visit 1 g/m²	1990 Visit 1 N	1990 Visit 2 Sqm	1990 Visit 2 g/m²	1990 Visit 2 N	1991 Visit 1 Sqm	1991 Visit 1 g/m²	1991 Visit 1 N	1991 Visit 2 Sqm	1991 Visit 2 g/m²	1991 Visit 2 N
		All habitats											
1	Ctl	805.3	0.01	91	701.9	0.02	83	-----	-----	--	-----	-----	--
1	Oil	573.7	0.01	89	570.3	0.01	90	-----	-----	--	-----	-----	--
2	Ctl	804.3	0.04	90	729.8	0.11	82	428.8	0.26	48	414.4	0.14	40
2	Oil	712.7	0.04	89	757.0	0.06	89	324.7	0.12	44	300.1	0.25	40
3	Ctl	645.6	0.53	86	508.5	0.50	69	397.3	0.69	48	447.9	1.21	38
3	Oil	581.1	0.21	81	707.3	0.20	79	365.6	0.56	44	381.7	0.79	40
4	Ctl	253.9	1.04	43	283.2	0.58	34	271.0	1.87	38	177.8	2.84	21
4	Oil	332.4	0.81	45	287.4	0.47	40	353.0	1.78	39	313.6	2.15	33
5	Ctl	63.7	0.72	14	29.5	0.09	5	24.2	11.9	5	3.0	0.00	1
5	Oil	82.8	0.51	13	39.3	1.13	8	52.2	4.8	8	74.1	2.15	9
		sheltered Rocky habitat											
1	Ctl	84.1	0.00	28	83.7	0.00	29	-----	-----	--	-----	-----	--
1	Oil	112.3	0.00	29	123.4	0.00	30	-----	-----	--	-----	-----	--
2	Ctl	89.8	0.02	27	99.9	0.05	29	48.9	0.01	20	52.5	0.03	16
2	Oil	131.5	0.08	29	125.8	0.12	29	70.8	0.01	19	61.3	0.25	16
3	Ctl	87.2	0.21	27	88.6	0.34	25	76.0	0.20	21	53.0	0.37	15
3	Oil	109.9	0.37	28	96.6	0.42	26	79.6	0.67	19	62.8	1.04	16
4	Ctl	27.5	0.70	10	15.0	0.78	5	63.3	2.00	18	28.2	1.64	6
4	Oil	16.2	0.82	7	15.0	0.02	7	72.8	2.20	15	33.7	3.42	11
5	Ctl	6.3	0.78	2	-----	-----	--	8.8	20.5	2	3.0	0.00	1
5	Oil	-----	-----	--	1.5	0.57	1	4.8	16.5	2	-----	-----	--
		coarse Textured habitats											
1	Ctl	522.3	0.01	41	436.4	0.00	35	-----	-----	--	-----	-----	--
1	Oil	331.6	0.00	37	312.7	0.00	38	-----	-----	--	-----	-----	--
2	Ctl	481.2	0.08	41	484.4	0.03	35	211.2	0.68	16	180.9	0.01	13
2	Oil	432.9	0.04	37	506.8	0.01	38	152.4	0.01	15	162.2	0.17	15
3	Ctl	328.2	0.83	38	341.0	0.66	33	184.1	1.32	15	183.6	1.32	12
3	Oil	348.2	0.06	35	502.1	0.05	37	197.1	0.21	15	231.4	0.19	15
4	Ctl	141.4	0.58	21	184.0	0.41	22	33.3	2.05	8	56.0	1.19	8
4	Oil	234.6	0.50	27	224.8	0.49	25	174.1	1.47	14	197.7	0.78	14
5	Ctl	43.8	0.33	8	27.3	0.04	4	-----	-----	--	-----	-----	--
5	Oil	75.3	0.53	12	28.4	1.37	6	23.9	0.45	3	74.1	2.15	9
		Exposed Rocky habitats											
1	ctl	198.9	0.04	22	181.9	0.09	19	-----	-----	--	-----	-----	--
1	Oil	129.7	0.01	23	134.1	0.02	22	-----	-----	--	-----	-----	--
2	Ctl	233.3	0.01	22	145.4	0.37	18	168.7	0.10	12	181.0	0.47	11
2	Oil	148.4	0.01	23	124.5	0.08	22	101.4	0.52	10	76.6	0.39	9
3	ctl	230.1	0.40	21	78.8	0.34	11	137.1	0.79	12	211.3	2.24	11
3	Oil	123.0	0.28	18	108.6	0.20	16	88.8	0.89	10	87.5	1.37	9
4	Ctl	84.9	2.13	12	84.1	0.97	7	174.4	1.57	12	93.7	5.74	7
4	Oil	81.6	1.55	11	47.5	0.82	8	106.2	1.60	10	82.2	2.79	8
5	Ctl	83.4	1.47	4	2.3	0.27	1	15.5	6.19	3	-----	-----	--
5	Oil	7.5	0.23	1	9.4	0.31	1	23.6	1.33	3	-----	-----	--

Table E-40. The total number of MVD's visited (total), the percent of these that contained fish (%) at each MVD during two visits each in 1990 and 1991 at oil and control sites. The probability value (p) is from the Wilcoxon test.

			Control		Oiled		
Year	Visit	MVD	Total	%	Total	%	P
1990	1	2	90	15.6	89	10.1	0.202
1990	1	3	86	47.7	81	34.6	0.190
1990	1	4	43	65.1	46	65.2	0.812
1990	2	2	82	29.3	89	18.0	0.209
1990	2	3	69	59.4	79	46.8	0.300
1990	2	4	34	70.6	41	80.5	0.310
1991	1	2	49	24.5	45	13.3	0.224
1991	1	3	48	60.4	45	42.2	0.205
1991	1	4	38	73.7	39	82.1	0.611
1991	2	2	40	27.5	40	25.0	0.916
1991	2	3	38	73.7	40	50.0	0.168
1991	2	4	21	90.5	33	84.8	0.336

Table E-41. The number of MVD's that contained intertidal fish found (Fnd) out of the total possible number of MVD's (Ttl), and the percent (%) of MVD's that contained fish for the 3 habitat types, and all 3 combined.

			Overall			Exp Rcky			Crse Txt			Shlt Rcky		
Year	MVD	Visit	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990	2	1	23	179	12.8	9	45	20.0	9	78	11.5	5	56	8.9
1990	3	1	69	167	41.3	19	39	48.7	25	73	34.2	25	55	45.5
1990	4	1	58	89	65.2	18	23	78.3	29	48	60.4	11	18	61.1
1990	2	2	40	171	23.4	16	40	40.0	6	73	8.2	18	58	31.0
1990	3	2	78	148	52.7	14	27	51.9	34	70	48.6	30	51	58.8
1990	4	2	57	75	76.0	11	15	73.3	41	48	85.4	5	12	41.7
1991	2	1	18	94	19.1	10	22	45.5	5	31	16.1	3	41	7.32
1991	3	1	48	93	51.6	16	22	72.7	15	30	50.0	17	41	41.5
1991	4	1	60	77	77.9	21	22	95.5	17	22	77.3	22	33	66.7
1991	2	2	21	80	26.3	11	20	55.0	3	28	10.7	7	32	21.9
1991	3	2	48	78	61.5	15	20	75.0	15	27	55.6	18	31	58.1
1991	4	2	47	54	87.0	12	15	80.0	19	22	86.4	16	17	94.1

Exp Rcky = Exposed Rocky; Crse Txt = Coarse Textuured
Shlt Rcky = Sheltered Rocky; Overall = All 3 habitats combined

Table E-42. The number of MVD's that **oiled** intertidal **fish (Fnd)** art **of** the **total possible number of MVD's** (TU), **and the percent** (%) of **MVD's that** contained fish for the 3 habitats **types and all 3 combined.**

	Overall						Exposed Rocky					
	Oil			Control			Oil			Control		
Year MVD	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990 2	25	178	14.0	38	172	22.1	11	45	24.4	14	40	35.0
1990 3	65	160	40.6	82	155	52.9	15	34	44.1	18	32	56.3
1990 4	63	87	72.4	52	77	67.5	17	19	89.5	12	19	63.2
1991 2	16	85	18.8	23	89	25.8	8	19	42.1	13	23	56.5
1991 3	39	85	45.9	57	86	66.3	15	19	78.9	16	23	69.6
1991 4	60	72	83.3	47	59	79.7	15	18	83.3	18	19	94.7
	Coarse Textured						Sheltered Rocky					
1990 2	4	75	5.3	11	76	14.5	10	58	17.2	13	56	23.2
1990 3	22	72	30.6	37	71	52.1	28	54	51.9	27	52	51.9
1990 4	39	53	73.6	31	43	72.1	7	15	46.7	9	15	60.0
1991 2	2	30	6.6	6	29	20.7	6	36	16.7	4	37	10.8
1991 3	6	30	20.0	24	27	88.9	18	36	50.0	17	36	47.2
1991 4	21	28	75.0	15	16	93.8	24	26	92.3	14	24	58.3

Table E-43. The number of MVD's that contained **intertidal** fish **found (fnd) out of** the **total possible number of MVD's (ttl)**, and the **percent** (%) of MVD's that **oiled** fish for the 3 habitat **types,** and **all 3 combined.**

	Overall			Exp Rcky			Crse Txt			Shlt Rcky		
Year MVD	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990 2	63	350	18.0	25	85	29.4	15	151	9.93	23	114	20.2
1990 3	147	315	46.7	33	66	50.0	59	143	41.3	55	106	51.9
1990 4	115	164	70.1	29	38	76.3	70	96	72.9	16	30	53.3
1991 2	39	174	22.4	21	42	50.0	8	59	13.6	10	73	13.7
1991 3	96	171	56.1	31	42	73.8	30	57	52.6	35	72	48.6
1991 4	107	131	81.7	33	37	89.2	36	44	81.8	38	50	76.0

Exp Rcky - Exposed Rocky, Crse Txt - Coarse Textured
Shlt Rcky - Sheltered Rocky, Overall - All 3 habitats combined

Table E-44. The number of MVD's that contained intertidal fish (W) out of the number of MVD's visited (tu), and the perecnt (%) of MVD's that contained fish for all 3 habitat types, and habitats cleel

			Overall						Exposed Rocky					
			Oil			Control			Oil			Control		
Year	MVD	Visit	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990	2	1	9	89	10.1	14	90	15.6	4	23	17.4	5	22	22.7
1990	3	1	28	81	34.6	41	86	47.7	9	18	50.	10	21	47.6
1990	4	1	30	46	65.2	28	43	65.1	10	11	90.9	8	12	66.7
1990	2	2	16	89	18.	24	82	29.3	7	22	31.8	9	18	50.
1990	3	2	37	79	46.8	41	69	59.4	6	16	37.5	8	11	72.7
1990	4	2	33	41	80.5	24	34	70.6	7	8	87.5	4	7	57.1
1991	2	1	6	45	13.3	12	49	24.5	3	10	30.	7	12	58.3
1991	3	1	19	45	42.2	29	48	60.4	8	10	80.	8	12	66.7
1991	4	1	32	39	82.1	28	38	73.7	9	10	90.	12	12	100.
1991	2	2	10	40	25.	11	40	27.5	5	9	55.6	6	11	54.5
1991	3	2	20	40	50.	28	38	73.7	7	9	77.8	8	11	72.7
1991	4	2	28	33	84.8	19	21	90.5	6	8	75.	6	7	85.7
			cause						Sheltered Rocky					
1990	2	1	2	37	5.41	7	41	17.1	3	29	10.3	2	27	7.41
1990	3	1	6	35	17.1	19	38	50.	13	28	46.4	12	27	44.4
1990	4	1	15	27	55.6	14	21	66.7	5	8	62.5	6	10	60.
1990	2	2	2	38	5.26	4	35	11.4	7	29	24.1	11	29	37.9
1990	3	2	16	37	43.2	18	33	54.5	15	26	57.7	15	25	60.
1990	4	2	24	26	92.3	17	22	77.3	2	7	28.6	3	5	60.
1991	2	1	1	15	6.67	4	1.6	25.	2	20	10.	1	21	4.76
1991	3	1	2	15	13.3	13	15	86.7	9	20	45.	8	21	38.1
1991	4	1	10	14	71.4	7	8	87.5	13	15	86.7	9	18	50.
1991	2	2	1	15	6.67	2	13	15.4	4	16	25.	3	16	18.8
1991	3	2	4	15	26.7	11	1.2	91.7	9	16	56.3	9	15	60.
1991	4	2	11	14	78.6	8	8	100.	11	11	100.	5	6	83.3

Table E-45. Mean abundance (number/m²) for all habitats using site pairs sampled both years (n=10). MVD 2, 3 and 4 were combined.

		1990					1991				
			Visit			Visit				Visit	
Habitat	O/C	N	1	Ratio	N	2	Ratio	N	1	Ratio	N	2	Ratio
Sheltered	C	4	1.296	3.00	4	0.949	1.25	4	1.002	0.93	4	0.835	0.63
Rocky	O		0.432			0.757			1.080			1.320	
Coarse	C	3	1.218	3.65	3	1.166	2.92	3	1.365	1.61	3	1.226	1.27
Textured	O		0.334			0.398			0.848			0.961	
Exposed	C	3	0.595	1.61	3	0.837	2.82	3	0.355	0.41	3	0.997	1.19
Rocky	O		0.370			0.296			0.851			0.832	
Habitats	C	10	1.056	2.71	10	0.982	1.85	10	0.919	0.96	10	0.995	0.91
Combined	O		0.390			0.532			0.950			1.088	

O = Oiled; C = Control

Table E-46. Mean biomass (g/m²) for all habitats using site pairs sampled both years (n=10). MVD 2, 3 and 4 were combined.

		1990					1991				
			Visit			Visit			visit			Visit	
Habitat	O/C	N	1	Ratio	N	2	Ratio	N	1	Ratio	N	2	Ratio
Sheltered	C	4	0.201	0.67	4	0.226	0.65	4	1.122	1.03	4	0.428	0.31
Rocky	O		0.297			0.349			1.085			1.354	
Coarse	C	3	0.470	2.35	3	0.438	2.06	3	1.432	2.30	3	0.836	1.38
Textured	O		0.200			0.212			0.622			0.606	
Exposed	C	3	0.616	4.43	3	0.594	3.08	3	0.709	0.71	3	2.321	1.48
Rocky	O		0.139			0.193			0.993			1.570	
Habitats	C	10	0.409	1.80	10	0.392	1.46	10	1.092	1.18	10	1.094	0.92
Combined	O		0.227			0.268			0.922			1.180	

O = Oiled; C = Control

Table E-47. Wilcoxon matched-pairs test on abundance (number/m²) for sites visited both years (n=10).

Year	Visit	Habitat	Sample Size	p(Value)
1990	1	Sheltered Rocky	4	0.273
1990	2	Sheltered Rocky	4	0.144
1991	1	Sheltered Rocky	4	0.715
1991	2	Sheltered Rocky	4	0.465
1990	1	Coarse Textured	3	0.285
1990	2	Coarse Textured	3	1.000
1991	1	Coarse Textured	3	0.109
1992	1	Coarse Textured	3	0.285
1990	1	Exposed Rocky	3	0.593
1990	2	Exposed Rocky	3	0.109
1991	1	Exposed Rocky	3	0.285
1991	2	Exposed Rocky	3	1.000
1990	1	Both Year Sites	10	0.139
1990	2	Both Year Sites	10	0.059
1991	1	Both Year Sites	10	0.878
1991	2	Both Year Sites	10	0.959

Table E-48. Wilcoxon matched-pairs test on biomass (g/m²) for sites visited both years (n=10).

Year	Visit	Habitat	Sample Size	2-tailed p(Value)
1990	1	Sheltered Rocky	4	0.715
1990	2	Sheltered Rocky	4	0.715
1991	1	Sheltered Rocky	4	1.000
1991	2	Sheltered Rocky	4	0.068
1990	1	Coarse Textured	3	0.285
1990	2	Coarse Textured	3	1.000
1991	1	Coarse Textured	3	0.109
1992	1	Coarse Textured	3	0.109
1990	1	Exposed Rocky	3	0.285
1990	2	Exposed Rocky	3	0.109
1991	1	Exposed Rocky	3	1.000
1991	2	Exposed Rocky	3	1.000
1990	1	Both Year Sites	10	0.285
1990	2	Both Year Sites	10	0.386
1991	1	Both Year Sites	10	0.575
1991	2	Both Year Sites	10	0.445

Table E-49. ANOVA summary on ,abundancefor site pairs visited both years (n=10).

	Main Effects		Interaction	
Habitat	Oil	Time	Oil*Time	N
Sheltered Rocky	0.581	0.880	0,251	31
Coarse Textured	0.091	0.462	0.947	24
Exposed Rocky	0.833	0.312	0.356	24
All Habitats	0.123	0.140	0.145	79

Table E-50. ANOVA summary on biomass for site pairs visited both years (n=10).

	Main Effects		Interaction	
Habitat	Oil	Time	Oil*Time	N
Sheltered Rocky	0.220	0.009	0.285	31
Coarse Textured	0.226	0.121	0.759	24
Exposed Rocky	0.437	0.023	0.890	24
All Habitats	0.656	0.000	0.917	79

Table E-51. Coefficients for the lqistic models to predict the probability of detecting fish in 1990 at those site pairs (n=10) sampled in Prince William Sound on all four visits. Only those variables which *entered* the logistic stepwise regression analyses were included. Because of the increased relative fish abundance in MVD 3 and 4, several levels of abundance were used in the analyses. see methods and materials for further explanations.

MVD	2	3	3	4	4	4
Definition	0:Absent 1:Present	0:Absent 1:Present	0:0-0.2/m2 1: >0.2/m2	0:Absent 1:Present	0:0-0.2/m2 1: >0.2/m2	0:0-0.6/m2 1: >0.6/m2
Constant	-0.635	0.265	-0.075	1.872	1.872	0.427
Slope	-0.046	-0.092	-0.077	-0.094	-0.094	
Organic		0.016	0.015			
FG*			-0.081			
MAT*	0.056	0.029	0.036			
Exposed Rocky	0.941					
Coarse Textured	-0.349					
Oil	-0.892					
N*	110	177	177	76	76	76

* FG = Fine gravel: MAT = Matting Algae: N = sample Size

Table E-52. Coefficients for the final logistic models to predict the probability of detecting fish in 1991 at those site pairs (n=10) sampled in Prince William Sound on all four visits. Only those variables which entered the logistic stepwise regression analysis were included. Because of the increased relative fish abundance (number/m^2) in MVD 3 and 4 several levels of abundance were used in the analyses.

MVD	2	3	3	4	4	4
Definition	0: 0 1: >0	0: 0 1: >0	0: 0–0.2 1: >0.2	0: 0 1: X	0: 0–0.2 1: X . 2	0: 0–0.6 1: >0.6
Constant	-1.102	0.803	0.125	1.771	1.027	-0.358
Slope	-0.099	-0.123	-0.079			0.071
Bulk	0.031					
Mat		0.034	0.030			
Moss	0.123					
String		0.228	0.208			
Exposed Rocky	0.667					
coarse Textured	-0.497					
N	151	148	148	110	110	110

Table E-53. Coefficients resulting from the forward stepwise regression analyses of fish abundance (number/m²) for MVD 2 at control and oiled sites for all habitat types combined and the three habitat types sampled in Prince William Sound, Alaska during the first and second visits in 1990. Where no value is given that habitat variable was not selected in the analyses.

Habitat	Visit	C	Substrate Type								Algae Cover					Slope	Oil	N	R^2
			M	S	FG	CB	LB	CG	SB	BR	K	MA	S	MO	BL				
All Habitats	1	0.078										0.014					-0.073	169	0.082
	2	0.340				-0.003	-0.003										-0.124	174	0.046
Shelter Rocky	1	0.033										0.011						52	0.134
	2	0.312					-0.011		0.025									64	0.140
Exposed Rocky	1	0.069													-0.001			43	0.072
	2	0.435			0.849										-0.006			38	0.142
Coarse Textured	1	0.045										0.059						74	0.185
	2	0.082										0.046				-0.012		72	0.299

C = Regression constant
M = Mud
FG = Fine Gravel
CB = Cobble
LB = Large boulder
CG = Coarse gravel
SB = Small boulder
BR = Bedrock
SF = Shell fragments
S = Sand
K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-54. Coefficients resulting from the forward stepwise regression analyses of fish abundance (number/m²) for MVD 3 at control and oiled sites for all habitat types combined and the three habitat types sampled in Prince William Sound, Alaska during the first and second visits in 1990. Where no value is given that habitat variable was not selected in the analyses.

Habitat	Visit	C	Substrate Type								Algae Cover					Slope	Oil	N	R^2
			M	S	FG	CB	LB	CG	SB	BR	K	MA	S	MO	BL				
All Habitats	1	1.271								-0.013		0.083					-1.295	153	0.260
	2	0.779	3.897									0.037					-0.623	152	0.187
Shelter Rocky	1	1.291												0.011			-1.384	47	0.193
	2	1.353	2.997		0.385	0.074						0.031				-0.065		59	0.308
Exposed Rocky	1	0.125						0.053			0.031							35	0.319
	2	0.349									0.251							25	0.228
Coarse Textured	1	1.861										0.133				-0.093	-1.353	71	0.494
	2	-0.749				0.013						0.071				0.107		68	0.529

C = Regression constant
M = Mud
FG = Fine Gravel
CB = Cobble
LB = Large boulder
CG = Coarse gravel
SB = Small boulder
BR = Bedrock
SF = Shell fragments
S = Sand
K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-55. Coefficients resulting from the forward stepwise regression analyses of fish abundance (number/m²) for MVD 4 at control and oiled sites for all habitat types combined and the three habitat types sampled in Prince William Sound, Alaska during the first and second visits in 1990. Where no value is given that habitat variable was not selected in the analyses.

Habitat	Visit	C	Substrate Type								Algae Cover					Slope	Oil	N	R^2
			M	S	FG	CB	LB	CG	SB	BR	K	MA	S	MO	BL				
All Habitats	1	1.563						0.037		0.071		0.085					-1.634	81	0.245
	2	0.493										0.050						76	0.180
Shelter Rocky	1	5.508				1.599	-0.317	-0.339		0.245						-0.304		15	0.896
	2	-0.326						0.107				0.031						15	0.653
Exposed Rocky	1	1.255						0.083										21	0.172
	2	0.220			0.083	0.118	-0.021	0.048										13	0.921
Coarse Textured	1	1.056							-0.023			0.086				0.107	-1.266	45	0.531
	2	-0.751										0.079				0.146		48	0.342

C = Regression constant
M = Mud
FG = Fine Gravel
CB = Cobble
LB = Large boulder
CG = Coarse gravel
SB = Small boulder
BR = Bedrock
SF = Shell fragments
S = Sand
K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-56. Coefficients resulting from the forward stepwise regression analyses of fish abundance (number/m²) for MVD 2 at control and oiled sites for all habitat types combined and the three habitat types sampled in Prince William Sound, Alaska during the first and second visits in 1991. Where no value is given that habitat variable was not selected in the analyses.

Habitat	Visit	C	Substrate Type								Algae Cover					Slope	Oil	N	R^2
			M	S	FG	CB	LB	CG	SB	BR	K	MA	S	MO	BL				
All Habitats	1	0.051									0.138	0.009						93	0.103
	2	0.088										0.008						80	0.042
Shelter Rocky	1	0.054																40	0.000
	2	-0.030										0.012						32	0.122
Exposed Rocky	1	0.088									0.133							22	0.253
	2	-0.012				0.116	0.017	-0.074					0.046				-0.685	20	0.747
Coarse Textured	1	-0.046					0.010					0.090						31	0.768
	2	-0.077										0.022	0.010		0.007		0.049	28	0.845

C = Regression constant
M = Mud
FG = Fine Gravel
CB = Cobble
LB = Large boulder
CG = Coarse gravel
SB = Small boulder
BR = Bedrock
SF = Shell fragments
S = Sand
K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-57. Coefficients resulting from the forward stepwise regression analyses of fish abundance (number/m²) for MVD 3 at control and oiled sites for all habitat types combined and the three habitat types sampled in Prince William Sound, Alaska during the first and second visits in 1991. Where no value is given that habitat variable was not selected in the analyses.

Habitat	Visit	C	Substrate Type								Algae Cover					Slope	Oil	N	R^2
			M	S	FG	CB	LB	CG	SB	BR	K	MA	S	MO	BL				
All Habitats	1	0.681											0.262	-0.037			-0.571	86	0.000
	2	0.893																70	0.205
Shelter Rocky	1	-0.287				-0.081			0.100			-0.014			0.040			34	0.393
	2	0.095			0.287								0.145					27	0.645
Exposed Rocky	1	0.889			-0.034								-0.087		-0.011	-0.022	0.523	22	0.774
	2	-0.004					0.025					0.057						16	0.397
Coarse Textured	1	-1.745						0.018		0.267		0.039				0.263		30	0.721
	2	-0.505	-0.343									0.049	0.528	-0.330		0.102		27	0.819

C = Regression constant
M = Mud
FG = Fine Gravel
CB = Cobble
LB = Large boulder
CG = Coarse gravel
SB = Small boulder
BR = Bedrock
SF = Shell fragments
S = Sand
K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-58. Coefficients resulting from the forward stepwise regression analyses of fish abundance (number/m²) for MVD 4 at control and oiled sites for all habitat types combined and the three habitat types sampled in Prince William Sound, Alaska during the first and second visits in 1991. Where no value is given that habitat variable was not selected in the analyses.

			Substrate Type								Algae Cover								
Habitat	Visit	C	M	S	FG	CB	LB	CG	SB	BR	K	MA	S	MO	BL	Slope	Oil	N	R^2
All Habitats	1	1.405		-0.906					0.169		-0.149	0.057		0.091		-0.085		59	0.457
	2	-2.331										0.072				0.383		41	0.391
Shelter Rocky	1	2.599										0.055		0.087		-0.148		25	0.531
	2	5.124										0.094				-0.030		12	0.560
Exposed Rocky	1	-1.265						0.345		-0.465			0.082	0.122		0.186	1.293	14	0.954
	2	5.073						0.490				0.078					-5.100	7	0.983
Coarse Textured	1	-3.688	0.034									0.097				0.332		20	0.803
	2	-1.426												1.083		0.419		22	0.635

C = Regression constant
M = Mud
FG = Fine Gravel
CB = Cobble
LB = Large boulder
CG = Coarse gravel
SB = Small boulder
BR = Bedrock
SF = Shell fragments
S = Sand
K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-59. Coefficients resulting from the forward stepwise regression analyses of intertidal fish abundance (number/m²) at control and oiled sites for all habitat types combined and the three habitat types sampled in Prince William Sound, Alaska during the first and second visits in 1990. Only MVD 2, 3 and 4 were used for these analyses. Where no value is given that habitat variable was not selected in the analyses.

			Substrate Type*								Algae Cover**							
Habitat	Visit	C	M	S	FG	CB	LB	CG	SB	BR	K	MA	S	MO	BL	Slope	Oil	N	R^2
All Habitats	1	0.905								-0.008		0.077					-0.851	425	0.188
	2	0.597										0.042				-0.013	-0.363	420	0.171
Shelter Rocky	1	0.972						0.091						0.072			-1.305	144	0.144
	2	0.471	3.890			0.059						0.026			0.010	-0.025	-0.649	138	0.230
Exposed Rocky	1	1.037			-0.117		-0.016	0.097		-0.014		0.050	0.043		-0.011			99	0.470
	2	0.303			0.110	0.018		0.014										76	0.122
Coarse Textured	1	0.728										0.111					-0.729	190	0.416
	2	-0.311										0.078				0.064		188	0.386

*C = Regression constant
M = Mud
FG = Fine Gravel
CB = Cobble
LB = Large boulder
CG = Coarse gravel
SB = Small boulder
BR = Bedrock
SF = Shell fragments
S = Sand
**K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-60. Coefficients resulting from the forward stepwise regression analyses of intertidal fish abundance (number/m²) at control and oiled sites for all habitat types combined and the three habitat types sampled in Prince William Sound, Alaska during the first and second visits in 1991. Only MVD 2, 3 and 4 were used for these analyses. Where no value is given that habitat variable was not selected in the analyses

			Substrate Type*								Algae Cover**								
Habitat	Visit	C	M	S	FG	CB	LB	CG	SB	BR	K	MA	S	MO	BL	Slope	Oil	N	R^2
All Habitats	1	0.065				0.009			0.012		-0.054	0.033		0.075		-0.022		252	0.236
	2	0.908	-0.185					-0.013				0.039				-0.034		201	0.162
Shelter Rocky	1	0.168					-0.017	0.052	0.040			0.026		0.080		-0.031		99	0.368
	2	1.337										0.023				-0.050		71	0.158
Exposed Rocky	1	-0.401			0.050	0.043					-0.028	0.034		0.080	-0.011		0.724	58	0.474
	2	-0.443			0.560		0.029				0.069	0.076						43	0.537
Coarse Textured	1	-0.593								0.149		0.049		0.130		0.119		81	0.530
	2	-0.700									-0.110	0.062				0.160		77	0.350

*C = Regression constant
M = Mud
FG = Fine Gravel
CB = Cobble
LB = Large boulder
CG = Coarse gravel
SB = Small boulder
BR = Bedrock
SF = Shell fragments
S = Sand
**K = Kelp
MA = Mat
S = String
MO = Mossy
BL = Bulky leaf

Table E-61. Coefficients resulting from the forward multiple linear stepwise regression analysis to predict the probability of finding intertidal fish based on biomass at all sites sampled during 1990 in Prince William Sound, Alaska. Only those habitat variables which entered the forward multiple linear stapwise regression analyses were included. The coefficients were then estimated by bootstrapping the selected factors. The standard error is given in parentheses.

MVD	2	3	4
Constant	0.041	0.293	0.610
Oil	-0.018(0.042)	-0.305(0.159)*	----------
visit	0.044(0.040)	-0.179(0.174)	----------
Mat	----------	0.024(0.011)	0.013(0.009)
Bulk	----------	0.005(0.003)*	----------
String	----------	----------	0.184(0.222)
Slope	----------	-0.013(0.009)	-0.027(0.022)
Cobble	----------	0.010(0.008)	----------
Small Boulder	----------	-0.013(0.009)	----------
Fine Gravel	----------	----------	-0.035(0.036)
Exposed Rocky	0.063(0.059)	----------	0.435(0.406)
Number of Quadrats	367	319	159

Level of Significance: * - P < 0.05; ** - P < 0.01

Table E-62. Coefficients resulting from the forward multiple linear stepwise regression analysis *to* predict the probability of finding intertidal fish based on biomass at all sites sampled during 1991 in Prince William Sound, Alaska. Only those habitat variables which entered the Forward multiple linear stepwise regression analyses were included. The coefficients were then estimated by bootstrapping the selected factors. The standard error is given in parentheses.

MVD	2	3	4
Constant	-0.570	0.075	3.509
Visit	----------	----------	1.432(0.812)*
Mat	0.028(0.019)	0.026(0.011)**	----------
Kelp	0.108(0.124)	----------	----------
Bulk	0.006(0.006)	-0.013(0.009)	----------
Bedrock	0.010(0.005)*	----------	-0.193(0.060)**
Large Boulder	-0.013(0.009)	----------	----------
Exposed Rocky	----------	1.460(0.638)*	----------
Coarse Textured	0.552(0.473)	0.469(0.363)	-3.145(0.857)**
Sheltered Rocky	-0.309(0.179)*	----------	----------
Number of Quadrats	183	166	104

Level of Significance: * - $P < 0.05$; ** - $P < 0.01$

Table E-63. Coefficients resulting from the logistic stepwise regression analysis to predict the probability of finding fish at all sites sampled during 1990 in Prince William Sound, Alaska. Only those habitat variables which entered the logistic stepwise regression analyses were included. The coefficients were then estimated by bootstrapping the selected factors. The standard error is given in parentheses. Probability of detection is how accurate our logistic model was in predicting fish presence.

MVD	2	3	4
Constant	-2.146	-0.044	1.674
Visit	0.962(0.636)	----------	----------
Oil	-0.510(0.477)	-0.559(0.437)	----------
Slope	----------	-0.107(0.045)**	-0.087(0.049)*
Mat	0.030(0.030)	0.037(0.025)	----------
Mud	-0.202(1.425)	----------	----------
Cobble	----------	0.034(0.016)*	----------
Organic	----------	0.019(0.008)**	----------
Sand	----------	----------	0.232(0.866)
Exposed Rocky	1.185(0.996)	0.664(0.767)	----------
Coarse Textured	-0.722(0.936)	-0.640(0.671)	----------
Number of Quadrats	367	319	159
Probability of Correct Determination	83%	68%	71%

Level of Significance: * - $P < 0.05$; ** - $P < 0.01$

Table E-64. Coefficients resulting from the logistic stepwise regression analysis to predict the probability of finding fish at all sites sampled during 1991 in Prince William Sound, Alaska. Only those habitat variables which entered the logistic stepwise regression analyses were included. The coefficients were then estimated by bootstrapping the selected factors. The standard error is given in parentheses. Probability of detection is how accurate our logistic model was in predicting fish presence.

MVD	2	3	4
Constant	-1.253	1.629	2.774
Oil	----------	-1.360(0.642)*	----------
Slope	-0.116(0.076)	-0.117(0.047)**	-0.092(0.063)
Mat	----------	0.035(0.015)*	----------
Moss	----------	-0.041(0.055)	----------
string	-0.217(0.137)	0.269(0.128)*	----------
Organic	0.039(0.014)**	----------	----------
Exposed Rocky	1.395(1.643)	0.824(0.802)	----------
Coarse Textured	-0.791(2.058)	-0.512(0.826)	----------
Number of Quadrats	183	166	104
Probability of Correct classification	*82%*	75%	*88%*

Level of Significance: * - P < 0.05; ** - P < 0.01

Table E-65. Probability of detection based on factors in the logistic equations.

Year	MVD	Total	Abund > 0 Prob > 50%	Abund = 0 Prob < 50%	Prob = 50%	%Correct
1990	2	367	8	286	11	83
1990	3	319	97	116	6	68
1990	4	159	106	5	2	71
1991	2	183	21	129	1	82
1991	3	166	79	45	1	75
1991	4	104	88	3	1	88

Prob = Probability; Abund = Abundance

Table E-66. ANOVA summary on abundance for all sites visited (n=17).

	Main Effects		Interaction	
Habitat	Oil	Time	Oil*Time	N
Sheltered Rocky	0.789	0.770	0.197	37
Coarse Textured	0.008	0.432	0.948	42
Exposed Rocky	0.808	0.342	0.657	30
All Habitats	0.133	0.079	0.160	119

Table E-67. ANOVA summary on biomass for all sites visited (n=17).

	Main Effects		Interaction	
Habitat	oil	Time	Oil*Time	N
Sheltered Rocky	0.120	*0.005*	0.232	37
Coarse Textured	0.042	0.022	0.457	42
Exposed Rocky	0.564	0.009	0.895	30
All Habitats	0.772	*0.000*	0.948	119

Table E-68. Fishers 2-sample randomization test on abundance (number/m²).

Site Pair	Type	1990 Visit 1 N	1990 Visit 1 p(rt)	1990 Visit 2 N	1990 Visit 2 p(rt)	1991 Visit 1 N	1991 Visit 1 p(rt)	1991 Visit 2 N	1991 Visit 2 p(rt)
				Sheltered Rocky Sites					
4825c	Control	5	0.01*	6	0.74	4	0.03*	4	0.72
1424	Oil	6		5		4		4	
453c	Control	6	0.35	6	0.44	4	1.00	4	0.17
453	Oil	6		6		4		4	
601c	Control	6	0.03*	6	0.87	4	0.54	4	0.29
601	oil	6		6		4		4	
598c	Control	6	0.51	6	0.59	5	0.27	4	0.62
598	Oil	6		6		4		4	
1522c	Control	6	-----	5	0.10	4	0.18	No	Sample
1522	Oil	6		6		4		No	Sample
				Coarse Textured Sites					
1383c	Control	6	0.25	6	0.12	No	Sample	No	Sample
1580	Oil	6		6		No	Sample	No	Sample
506c	Control	6	0.71	6	0.30	4	0.54	3	0.90
506	Oil	2		3		3		3	
1598c	Control	5	0.43	5	0.83	4	0.28	4	0.03*
1598	oil	5		5		4		4	
846c	Control	6	0.18	6	0.25	4	0.12	4	0.47
846	Oil	6		6		4		4	
1650c	Control	6	0.01*	No	Sample	4	0.01*	2	0.06
1650	oil	6		6		4		4	
1171c	Control	6	0.36	6	0.43	No	Sample	No	Sample
1171	oil	6		6		No	Sample	No	Sample
1627c	Control	6	0.99	6	0.57	No	Sample	No	Sample
1627	oil	6		6		No	Sample	No	Sample
				Exposed Rocky Sites					
19c	Control	6	0.11	6	0.22	4	0.01*	3	0.59
19	Oil	6		6		3		2	
4537c	Control	6	0.02*	6	0.74	4	0.46	4	0.17
979	Oil	6		6		4		4	
1642c	Control	6	0.84	6	0.35	4	0.79	4	0.45
833	Oi1	3		6		3		3	
1642c	Control	6	0.31	6	0.60	4		4	
232	Oil	2		6		No	Sample	No	Sample
2937	Control	4	0.16	6	0.59	No	Sample	No	Sample
305	Oil	6		6		No	Sample	No	Sample

Table E-69. Fishers 2-sample randomization test on biomass (g/m^2).

			1990				1991			
			Visit 1		Visit 2		visit 1		Visit 2	
Site	Type	N	P(rt)	N	P(rt)	N	P(rt)	N	P(rt)	
			Sheltered Rocky Sites							
4825c	Control	5	0.84	6	0.40	4	0.09	4	0.96	
1424	Oil	6		5		4		4		
453c	Control	6	0.59	6	0.85	4	0.87	4	0.22	
453	Oil	6		6		4		4		
601c	Control	6	0.01*	6	0.11	4	0.63	4	0.06	
601	Oil	6		6		4		4		
598c	Control	6	0.71	6	0.42	5	0.67	4	0.87	
598	Oil	6		6		4		4		
1522c	Control	6	-----	5	0.14	4	0.15	No	Sample	
1522	Oil	6		6		4		No	Sample	
			Coarse Textured Sites							
1383	Control	6	0.21	6	0.06	No	Sample	No	Sample	
1580	oil	6		6		No	Sample	No	Sample	
506c	Control	6	0.95	6	0.26	4	0.28	3	0.90	
506	*Oil*	2		3		3		3		
1598c	Control	5	0.97	5	0.33	4	0.79	4	0.05*	
1598	Oil	5		5		4		4		
846c	Control	6	0.09	6	0.89	4	0.14	4	0.78	
846	Oil	6		6		4		4		
1650c	Control	6	0.30	No	Sample	4	0.05*	2	0.32	
1650	oil	6		6		4		4		
1171c	Control	6	0.45	6	0.06	No	Sample	No	Sample	
1171	oil	6		6		No	Sample	No	Sample	
1627c	Control	6	0.50	6	0.68	No	Sample	No	Sample	
1627	Oil	6		6		No	Sample	No	Sample	
			Exposed Rocky Sites							
19c	Control	6	0.09	5	0.31	4	0.66	3	0.90	
19	Oil	6		5		3		2		
4537c	Control	6	0.33	5	0.44	4	0.45	4	0.05*	
979	Oil	6		6		4		4		
1642c	Control	6	0.21	6	0.27	4	0.76	4	0.37	
833	Oil	3		3		3		3		
1642c	Control	6	0.46	6	0.61	4		4		
232	oil	2		2		No	Sample	No	Sample	
2937c	Control	4	0.17	2	0.73	No	Sample	No	Sample	
305	Oil	6		6		No	Sample	No	Sample	

Table E-70. Fishers 2-sample randomization test on abundance (number/m²) using mat algae as a covariate for 1990 and 1991.

		1990				1991			
		Visit 1		Visit: 2		Visit 1		Visit 2	
Site	Ty pe	N	P(Mat)	N	P(Mat)	N	P(Mat)	N	P(Mat)
				Sheltered Rocky Sites					
4825c	Control	5	0.01*	6	0.42	4	0.01*	4	0.81
1424	Oil	6		5		4		4	
453c	Control	6	0.46	6	0.56	4	0.98	4	0.53
453	Oil	6		6		4		4	
601c	Control	6	0.17	6	0.95	4	0.63	4	0.19
601	Oil	6		6		4		4	
598c	Control	6	0.18	6	0.96	5	0.23	4	0.84
598	Oil	6		6		4		4	
1522c	Control	6	-----	5	0.15	4	0.36	No Sample	
1522	oil	6		6		4		No Sample	
				Coarse Textured Sites					
1383c	Control	6	0.26	6	0.23	No Sample		No Sample	
1580	Oil	6		6		No Sample		No Sample	
506c	Control	6	0.67	6	0.55	4	0.71	3	0.39
506	Oil	2		3		3		3	
1598c	Control	5	0.62	5	0.15	4	0.39	4	0.03*
1598	Oil	5		5		4		4	
846c	Control	6	0.18	6	0.67	4	0.14	4	0.45
846	Oil	6		6		4		4	
1650c	Control	6	0.01*	No Sample		4	0.03*	2	0.06
1650	Oil	6		6		4		4	
1171c	Control	6	0.26	6	0.83	No Sample		No Sample	
1171	Oil	6		6		No Sample		No Sample	
1627c	Control	6	0.56	6	0.57	No Sample		No Sample	
1627	Oil	6		6		No Sample		No Sample	
				Exposed Rocky Sites					
19c	Control	6	0.22	6	0.28	4	0.02*	3	0.40
19	Oil	6		6		3		2	
4537c	Control	6	0.94	6	0.74	4	0.73	4	0.37
979	Oil	6		6		4		4	
1642c	Control	6	0.89	6	0.35	4	0.42	4	0.97
833	Oil	3		6		3		3	
1642c	Control	6	0.43	6	0.60	4		4	
232	oil	2		6		No Sample		No Sample	
2937c	Control	4	0.11	6	0.59	No Sample		No Sample	
305	oil	6		6		No Sample		No Sample	

Table E-71. Fishers 2-sample randomization test on abundance (number m^2) using mossy algae as a covariate for 1990 and 1991.

		1990				1991			
		Visit 1		Visit 2		Visit 1		visit 2	
Site	Type	N	p(Moss)	N	p(Moss)	N	p(Moss)	N	p(MOSS)
	Sheltered Rocky Sites								
4825c	Control	5	0.01*	6	0.40	4	0.06	4	0.77
1424	Oil	6		5		4		4	
453c	Control	6	0.46	6	0.66	4	0.91	4	0.28
453	Oil	6		6		4		4	
601c	Control	6	0.16	6	0.38	4	0.33	4	0.05*
601	oil	6		6		4		4	
598c	Control	6	0.16	6	0.63	5	0.72	4	0.78
598	oil	6		6		4		4	
1522c	Control	6	-----	5	0.06	4	0.34	No	Sample
1522	oil	6		6		4		No	Sample
	Coarse Textured Sites								
1383c	Control	6	0.27	6	0.23	No	Sample	No	Sample
1580	Oil	6		6		No	Sample	No	Sample
506c	Control	6	0.43	6	0.42	4	0.83	3	0.39
506	Oil	*2*		3		3		3	
1598c	Control	5	0.66	5	0.10	4	0.19	4	0.05
1598	Oil	5		5		4		4	
846c	Control	6	0.18	6	0.41	4	0.06	4	0.47
846	oil	6		6		4		4	
1650c	Control	6	0.01*	No	Sample	4	0.03*	2	0.06
1650	oil	6		6		4		4	
1171c	Control	6	0.26	6	0.09	No	Sample	No	Sample
1171	Oil	6		6		No	Sample	No	Sample
1627c	Control	6	0.56	6	*0.82*	No	Sample	No	Sample
1627	Oil	6		6		No	Sample	No	Sample
	Exposed Rocky Sites								
19c	Control	6	0.16	5	0.08	4	0.02*	3	0.50
19	oil	6		5		3		*2*	
4537c	Control	6	0.01*	5	0.23	4	0.28	4	0.16
979	Oil	6		6		4		4	
1642c	Control	6	0.96	6	0.64	4	0.77	4	0.71
833	Oil	3		3		3		3	
1642c	Control	6	0.41	6	0.03*	4		4	
232	Oil	2		*2*		No	Sample	No	Sample
2937c	Control	4	0.04*	2	0.53	No	Sample	No	Sample
305	Oil	6		6		No	Sample	No	Sample

Table E-72. Shannon-Wienner diversity index values for 1990 and 1991.

Site	Class	1990 Visit 1	1990 Visit. 2	1991 visit 1	1991 Visit 2
	Sheltered Rocky Sites				
4825c	Control	0.2255	0.2485	0.0000	0.2300
1424	Oil	0.3829	0.1781	0.2442	0.2442
453c	Control	0.1926	0.4721	0.3260	0.4788
453	Oil	0.1636	0.3270	0.2787	0.1658
601c	Control	0.0000	0.1716	0.1636	0.1515
601	Oil	0.4162	0.1588	0.3441	0.2229
598c	Control	0.1982	0.2005	0.0702	0.0518
598	Oil	0.3686	0.1179	0.0862	0.2919
1522c	Control	0.0000	0.1211	0.1957	No Sample
1522	Oil	0.0000	0.0000	0.3062	No Sample
	Coarse Textured Sites				
1383	Control	0.1564	0.2492	No Sample	No Sample
1580	Oil	0.2983	0.2458	No Sample	No Sample
506c	Control	0.1054	0.0298	0.0683	0.1279
506	Oil	0.0597	0.0528	0.0843	0.0992
1598c	Control	0.2442	0.2808	0.0688	0.2300
1598	Oil	0.3500	0.1357	0.0000	0.0000
846c	Control	0.0932	0.2204	0.2831	0.3003
846	Oil	0.0000	0.2237	0.0000	0.3225
1650c	Control	0.2329	No Sample	0.2849	0.0651
1650	Oil	0.4868		0.0000	0.0000
1171c	Control	0.4642	0.2173	No Sample	No Sample
1171	Oil	0.1836	0.2969	No Sample	No Sample
1627c	Control	0.4318	0.1636	No Sample	No Sample
1627	Oil	0.2300	0.4739	No Sample	No Sample
	Exposed Rocky Sites				
19c	Control	0.6102	0.5984	0.7502	0.6620
19	Oil	0.5929	0.3290	0.4043	0.4198
4537c	Control	0.4321	0.4533	0.5574	0.4052
979	Oil	0.4994	0.4466	0.6844	0.5909
1642c	Control	0.1480	0.0585	0.1297	0.2992
833	Oil	0.6232	0.2681	0.5064	0.6493
1642c	Control	0.1480	0.0585	0.1297	0.2992
232	Oil	0.0000	0.3698	No Sample	No Sample
2937c	Control	0.0000	0.0000	No Sample	No Sample
305	Oil	0.6152	0.5267	No Sample	No Sample

Table **E-73.** Shannon-Wienner diversity indicies for intertidal fish found at control and oiled sites sampled in Prince William Sound Alaska. The average (range in parentheses) is within habitat type for each **of** two visits in **1990** and **1991.**

Habitat	Type	Year	Visit 1	visit 2
Sheltered Rocky	Control	**1990**	0.20 (0.19-0.23)	0.24 (0.12-0.47)
	oil	**1990**	0.33 (0.16-0.42)	0.20 (0.12-0.33)
Coarse Textured	Control	**1990**	0.25 (0.09-0.46)	0.19 (0.03-0.28)
	Oil	**1990**	0.27 (0.06-0.49)	0.24 (0.06-0.47)
Exposed Rocky	Control	**1990**	0.33 (0.15-0.61)	0.29 (0.06-0.60)
	Oil	**1990**	0.58 (0.50-0.62)	0.39 (0.26-0.53)
Habitats Combined	Control	**1990**	0.26 (0.09-0.61)	0.24 (0.03-0.60)
	Oil	**1990**	0.38 (0.60-0.62)	0.28 (0.06-0.53)
Sheltered Rocky	Control	**1991**	0.19 (0.07-0.33)	0.23 (0.05-0.48)
	Oil	**1991**	0.25 (0.09-0.34)	0.23 (0.17-0.29)
Coarse Textured	Control	**1991**	0.18 (0.07-0.28)	O.lE (0.07-0.30)
	Oil	**1991**	0.08 (0.08)	0.21 (0.10-0.33)
Exposed Rocky	Control	**1991**	0.48 (0.13-0.75)	0.46 (0.30-0.66)
	Oil	**1991**	0.53 (0.40-0.68)	0.55 (0.42-0.65)
Habitats Combined	Control	**1991**	0.26 (0.07-0.75)	0.27 (0.05-0.65)
	Oil	**1991**	0.33 (0.08-0.68)	0.33 (0.10-0.65)

Table E-74. 1990 abundance (number/m²) for all intertidal fish at each MVD. The p value is from the Wilcoxon matched pairs test.

Year	Visit	Habitat	MVD	N	P
90	1	All	2	10	0.342
90	1	Exposed Rocky	2	2	0.327
90	1	Coarse Textured	2	5	0.172
90	1	Sheltered Rocky	2	3	0.142
90	1	All	3	16	0.044*
90	1	Exposed Rocky	3	5	0.172
90	1	Coarse Textured	3	7	0.032*
90	1	Sheltered Rocky	3	4	0.500
90	1	All	4	15	0.167
90	1	Exposed Rocky	4	5	0.343
90	1	Coarse Textured	4	6	0.172
90	1	Sheltered Rocky	4	4	0.232
90	2	All	2	13	0.098
90	2	Exposed Rocky	2	5	0.250
90	2	Coarse Textured	2	3	0.142
90	2	Sheltered Rocky	2	5	0.250
90	2	All	3	16	0.134
90	2	Exposed Rocky	3	4	0.137
90	2	Coarse Textured	3	7	0.064
90	2	Sheltered Rocky	3	5	0.172
90	2	All	4	15	0.213
90	2	Exposed Rocky	4	5	0.343
90	2	Coarse Textured	4	7	0.119
90	2	Sheltered Rocky	4	3	0.055

Table E-74. (continued) Wilcoxon abundance(number/m^2).

Year	Visit	Habitat	MVD	N	P
91	1	All	2	6	0.300
91	1	Exposed Rocky	2	2	0.327
91	1	Coarse Textured	2	2	0.090
91	1	Sheltered Rocky	2	2	0.327
91	1	All	3	12	0.417
91	1	Exposed Rocky	3	3	0.055
91	1	Coarse Textured	3	4	0.034*
91	1	Sheltered Rocky	3	5	0.172
91	1	All	4	12	0.468
91	1	Exposed Rocky	4	3	0.296
91	1	Coarse Textured	4	4	0.134
91	1	Sheltered Rocky	4	5	0.250
91	2	All	2	8	0.500
91	2	Exposed Rocky	2	3	0.296
91	2	Coarse Textured	2	2	0.327
91	2	Sheltered Rocky	2	3	0.500
91	2	All	3	11	0.182
91	2	Exposed Rocky	3	3	0.293
91	2	Coarse Textured	3	4	0.034*
91	2	Sheltered Rocky	3	4	0.500
91	2	All	4	10	0.323
91	2	Exposed Rocky	4	3	0.142
91	2	Coarse Textured	4	4	0.357
91	2	Sheltered Rocky	4	3	0.142

Table E-75. 1990 biomass (g/m²) for all intertidal fish at each MVD. The p value is from the Wilcoxon matched pairs test.

Year	Visit	Habitat	MVD	N	P
90	1	All	2	10	0.438
90	1	Exposed Rocky	2	2	0.327
90	1	Coarse Textured	2	5	0.172
90	1	Sheltered Rocky	2	3	0.055
90	1	All	3	16	0.098
90	1	Exposed Rocky	3	5	0.172
90	1	Coarse Textured	3	7	0.046*
90	1	Sheltered Rocky	3	4	0.290
90	1	All	4	15	0.346
90	1	Exposed Rocky	4	5	0.172
90	1	Coarse Textured	4	6	0.172
90	1	Sheltered Rocky	4	4	0.358
90	2	All	2	13	0.325
90	2	Exposed Rocky	2	5	0.112
90	2	Coarse Textured	2	3	0.293
90	2	Sheltered Rocky	2	5	0.112
90	2	All	3	16	0.055
90	2	Exposed Rocky	3	4	0.232
90	2	Coarse Textured	3	7	0.064
90	2	Sheltered Rocky	3	5	0.343
90	2	All	4	15	0.233
90	2	Exposed Rocky	4	5	0.250
90	2	Coarse Textured	4	7	0.306
90	2	Sheltered Rocky	4	3	0.055

Table E-75. (continued) 1991 Wilcoxon biomass(g/m^2).

Year	Visit	Habitat	MVD	N	P
91	1	All	2	6	0.232
91	1	Exposed Rocky	2	2	0.327
91	1	Coarse Textured	2	2	0.090
91	1	Sheltered Rocky	2	2	0.327
91	1	All	3	12	0.422
91	1	Exposed Rocky	3	3	*0.500*
91	1	Coarse Textured	3	4	0.034*
91	1	Sheltered Rocky	3	5	0.022*
91	1	All	4	12	0.319
91	1	Exposed Rocky	4	3	0.500
91	1	Coarse Textured	4	4	0.500
91	1	Sheltered Rocky	4	*5*	0.342
91	2	All	2	8	0.287
91	2	Exposed Rocky	2	3	0.500
91	2	Coarse Textured	2	2	0.327
91	2	Sheltered Rocky	2	3	0.500
91	2	All	3	11	0.212
91	2	Exposed Rocky	3	3	0.500
91	2	Coarse Textured	3	4	0.034*
91	2	Sheltered Rocky	3	4	0.232
91	2	All	4	10	0.399
91	2	Exposed Rocky	4	3	0.142
91	2	Coarse Textured	4	4	0.500
91	2	Sheltered Rocky	4	3	0.055

Table E-76. 1990 visit 1 Shannon-Weinner diversity values for each site for species that show up at least 3 times.

Site	Shannon-Weinner
Sheltered Rocky	
4825C	0.1729
1424	0.3829
453c	0.1397
453	0.1636
601C	0.
601	0.4161
598C	0.1981
598	0.1781
Coarse Textured	
1383C	0.1563
1580	0.4309
506C	0.1047
506	0.0596
1598C	0.2442
1598	0.3499
846C	0.0931
846	0.2764
1650C	0.1691
1650	0.5877
1171C	0.4835
1171	0.1593
1627C	0.3883
1627	0.2114
Exposed Rocky	
19C	0.6186
19	0.5683
4537C	0.4321
979	0.4905
1642C	0.1440
833	0.5366
2937C	0.0000
305	0.5888

Table E-77. Shannon-Weinner for 1990 visit 2 with species that show up at least 3 times for all sites.

Siteno	Shannon-weinner
Sheltered Rocky	
4825C	0.2485
1424	0.1781
453c	0.4721
453	0.3270
601C	0.1715
601	0.1588
598C	0.2004
598	0.1177
1522C	0.1210
1522	0.
Coarse Textured	
1383C	0.2492
1580	0.2458
506C	0.0297
506	0.0528
1598C	0.2808
1598	0.2429
846C	0.2203
846	0.2237
1171C	0.1956
1171	0.3350
1627C	0.1636
1627	0.4739
Exposed Rocky	
19C	0.5986
19	0.3296
4537C	0.4389
979	0.4483
1642C	0.0551
833	0.2965
1642C	0.0551
232	0.3698
2937C	0.
305	0.5266

Table E-78. Shannon-Weinner for 1991 visit 1 using only species that show up at least 3 times.

Siteno	Shannon-Weinner
Sheltered Rocky	
4825C	0.
1424	0.2442
453c	0.3720
453	0.3530
601C	0.1636
601	0.3441
598C	0.0702
598	0.1063
1522C	0.1956
1522	0.3062
Coarse Textured	
506C	0.0683
506	0.0842
1598C	0.0688
1598	0.
846C	0.2830
846	0.
1650C	0.2849
1650	0.2949
Exposed Rocky	
19C	0.7309
19	0.4818
4537C	0.5378
979	0.6720
1642C	0.1297
833	0.5831

Table E-79. Shannon-Weinner diversity values for each site for 1991 visit 2. Only species that showed up at least 3 times were included.

Siteno	Shannon-Weinner
Sheltered Rocky	
4825C	0.2300
1424	0.2442
453c	0.4787
453	0.1658
601C	0.1514
601	0.2229
598C	0.0517
598	0.2918
Coarse Textured	
506C	0.1278
506	0.0991
1598C	0.2300
1598	0.1918
846C	0.3002
846	0.3326
1650C	0.0651
1650	0.3674
Exposed Rocky	
19C	0.6619
19	0.4197
4537C	0.4052
979	0.5909
1642C	0.2992
833	0.6492

Table E-80. Mean abundance (number/m²) of the high cockscomb Anoplarchus purpurescens collected in Prince William Sound, Alaska at each site in 1990 for 2 visits. The difference between the oil and control matched site is also given. SE is the standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

site		1990 Visit 1			1990 Visit 2		
Pair	Type	Mean	Change	SE	Mean	Change	SE
		Sheltered Rocky Sites					
4825C	Control	1.984	1.699	0.455	0.512	0.247	0.328
1424	Oil	0.285		0.192	0.265		0.091
453c	Control	2.027	1.898	1.268	0.452	0.237	0.308
453	Oil	0.129		0.109	0.215		0.083
601C	Control	0.290	-0.228	0.143	1.079	-0.168	0.560
601	oil	0.518		0.096	1.247		0.457
598C	Control	0.335	0.182	0.178	1.125	0.263	0.381
598	Oil	0.153		0.108	0.862		0.315
1522C	Control	0.000	0.000	----	0.415	0.312	0.202
1522	Oil	0.000		----	0.103		0.066
		Coarse Textured Sites					
1383C	Control	0.069	0.045	0.050	0.060	0.007	0.052
1580	oil	0.024		0.008	0.053		0.025
506C	Control	3.145	1.319	1.342	2.922	2.307	1.309
506	Oil	1.826		0.667	0.615		0.323
1598C	Control	0.050	-0.021	0.031	0.229	-0.171	0.051
1598	oil	0.071		0.040	0.400		0,160
846C	Control	0.053	0.053	0.025	0.077	-0.021	0.061
846	Oil	0.000		-----	0.098		0.053
1650C	Control	1.299	1.268	0.282	No Sample		
1650	Oil	0.031		0.019	0.150		0.054
1171C	Control	0.088	0.009	0.051	0.024	-0.100	0.015
1171	oil	0.097		0.051	0.124		0.055
1627C	Control	0.117	-0.027	0.039	0.080	0.039	0.032
1627	Oil	0.144		0.084	0.041		0.024
		Exposed Rocky Sites					
19C	Control	0.340	0.302	0.213	0.340	0.214	0.340
19	Oil	0.038		0.038	0.126		0.066
4537C	Control	0.049	-0.183	0.025	0.298	0.082	0.188
979	oil	0.232		0.039	0.214		0.066
1642C	Control	0.902	0.548	0.297	1.245	0.980	0.354
833	Oil	0.354		0.179	0.265		0.265
1642C	Control	0.902	0.902	0.297	1.245	-0.182	0.354
232	Oil	0.000		-----	1.427		0.151
2937C	Control	0.000	-0.275	-----	0.000	-0.174	-----
305	Oil	0.275		0.237	0.174		0.095
		Sheltered Estuary Sites					
2397C	Control	0.025	0.025	0.013	0.104	-0.012	0.070
208/209	Oil	0.000		-----	0.116		0.027

Table E-81. Mean abundance (number/m²) of the high cockscomb AnODlarchus Durvurescens collected in Prince William Sound, Alaska at each site in 1991 for 2 visits. The difference between the oil and control matched site is also given. SE = standar error of the mean. MVD 2, 3 and 4 were combined for these analysis

Site Pair	Type	1991 Visit 1 Mean	Change	SE	1991 Visit 2 Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.037	-0.776	0.037	0.606	0.116	0.213
1424	Oil	0.813		0.337	0.490		0.259
453c	Control	1.147	0.001	0.672	0.384	-1.218	0.331
453	Oil	1.146		0.589	1.602		0.584
601C	Control	0.319	-0.177	0.276	0.231	-1.167	0.231
601	Oil	0.496		0.341	1.398		0.924
598C	Control	1.858	0.886	0.570	1.625	0.706	0.417
598	Oil	0.972		0.398	0.919		0.422
1522C	Control	0.106	-0.509	0.087	No Sample		
1522	Oil	0.615		0.383	No Sample		
	Coarse Textured Sites						
506C	Control	3.417	0.764	0.585	3.396	0.362	0.824
506	Oil	2.652		1.040	3.034		1.151
1598C	Control	0.508	0.240	0.168	0.423	0.307	0.124
1598	Oil	0.268		0.115	0.116		0.091
846C	Control	0.040	0.038	0.023	0.038	-0.056	0.025
846	Oil	0.002		0.002	0.094		0.049
1650C	Control	0.900	0.883	0.197	0.684	0.668	0.573
1650	Oil	0.017		0.009	0.016		0.009
	Exposed Rocky Sites						
19C	Control	0.072	-1.145	0.044	0.534	-0.784	0.096
19	Oil	1.217		0.062	1.318		0.596
4537C	Control	0.148	-0.070	0.041	0.246	-0.098	0.080
979	Oil	0.218		0.033	0.344		0.071
1642C	Control	0.412	0.203	0.195	0.973	0.763	0.500
833	Oil	0.209		0.155	0.210		0.210
1642C	Control	0.412		0.195	0.973		0.500
232	Oil	No Sample		No Sample			
	Sheltered Estuary Sites						
2397C	Control	0.275	-0.132	0.171	0.370	-0.226	0.182
208/209	Oil	0.407		0.131	0.596		0.087

Table E-82. The number, distance (M^2), and abundance (Num/m^2) of Anoplarchus purpurescens collected in Prince William Sound, Alaska during 1990 visit 1 at MVD 2, 3 and 4.

	MVD 2			MVD 3			MVD 4		
Site	Number	M^2	Num/m^2	Number	M^2	Num/m2	Number	M^2	Num/m2
sheltered Rocky Sites									
4825C	6	17.93	0.33	49	11.99	4.09	2	0.35	5.71
1424	4	20.76	0.19	2	21.08	0.09	10	10.66	0.94
453c	0	16.60	0.00	19	23.48	0.81	134	20.02	6.69
453	1	27.77	0.04	6	23.49	0.26	0	0.85	0.00
601C	1	16.92	0.06	7	13.87	0.50	0	0.00	
601	4	33.75	0.12	29	38.22	0.76	3	3.15	0.95
598C	0	15.61	0.00	11	21.28	0.52	10	7.20	1.39
598	0	18.08	0.00	3	21.72	0.14	3	1.55	1.94
1522C	0	22.75	0.00	0	16.62	0.00	0	0.00	
1522	0	31.15	0.00	0	5.36	0.00	0	0.00	
Coarse Textured Sites									
1383C	0	61.59	0.00	8	49.43	0.16	3	47.62	0.06
1580	0	54.34	0.00	1	61.67	0.02	3	50.76	0.06
506C	29	32.57	0.89	152	17.43	8.72	38	6.75	5.63
506	0	10.99	0.00	0	10.72	0.00	63	12.33	5.11
1598C	3	48.03	0.06	0	7.19	0.00	0	0.00	
1598	1	80.35	0.01	1	51.95	0.02	12	25.18	0.48
846C	5	189.09	0.03	12	129.79	0.09	0	3.50	0.00
846	0	117.13	0.00	0	52.57	0.00	0	42.26	0.00
1650C	0	51.26	0.00	110	44.66	2.46	28	7.55	3.71
1650	0	59.99	0.00	2	56.43	0.04	4	38.77	0.10
1171C	0	58.26	0.00	5	36.84	0.14	9	25.85	0.35
1171	0	57.17	0.00	0	51.44	0.00	17	45.47	0.37
1627C	0	40.38	0.00	3	42.90	0.07	13	50.14	0.26
1627	4	52.88	0.08	4	63.45	0.06	6	19.82	0.30
Exposed Rocky sites									
19C	0	30.23	0.00	23	47.91	0.48	8	15.03	0.53
19	0	36.91	0.00	4	11.96	0.33	0	0.00	
4537C	3	157.21	0.02	11	132.35	0.08	8	33.70	0.24
979	5	66.64	0.08	14	66.61	0.21	25	46.99	0.53
1642C	0	25.67	0.00	22	32.13	0.68	56	29.16	1.92
833	0	8.63	0.00	0	12.15	0.00	19	16.90	1.12
1642C	0	25.67	0.00	22	32.13	0.68	56	29.16	1.92
232	0	13.80	0.00	0	2.55	0.00	0	0.00	
2937C	0	20.22	0.00	0	17.74	0.00	0	7.06	0.00
305	0	22.37	0.00	12	29.76	0.40	19	17.73	1.07
sheltered Estuary Sites									
2397C	1	153.97	0.01	7	64.14	0.11	0	12.25	0.00
208/209	0	58.90	0.00	0	4.30	0.00	0	0.00	

Table E-83. The **number,** distance **(M²),** and **abundance (Num/m²) of** Anoplarchus **purpurescens collected** at MVD 2, 3 or 4 in **prince** William Sound, Alaska ***during*** 1990 visit 2.

	MVD 2			MVD 3			MVD 4		
Site	Number	M²	Num/m²	Number	M²	Num/m2	Number	M²	Num/m2
sheltered ***Rocky*** Sites									
4825C	1	16.45	0.06	19	12.77	1.49	0	0.00	
1424	3	13.83	0.22	3	9.83	0.31	0	0.00	
453c	0	23.95	0.00	9	22.80	0.39	14	9.37	1.49
453	1	20.98	0.05	11	24.65	0.45	0	0.00	
601C	5	13.81	0.36	34	13.18	2.58	6	2.30	2.61
601	6	32.93	0.18	73	24.07	3.03	0	0.00	
598C	5	21.33	0.23	46	18.21	2.53	13	3.41	3.81
598	0	21.83	0.00	35	19.91	1.76	1	4.18	0.24
1522C	6	24.40	0.25	17	21.73	0.78	0	0.00	
1522	5	36.18	0.14	1	18.14	0.06	0	10.86	0.00
coarse Textured Sites									
1383C	0	59.15	0.00	4	42.39	0.09	6	54.43	0.11
1580	0	68.50	0.00	1	66.10	0.02	9	34.87	0.26
506C	13	25.73	0.51	83	16.90	4.91	58	2.60	22.31
506	0	17.80	0.00	19	26.07	0.73	18	5.94	3.03
1598C	4	46.87	0.09	14	49.19	0.28	14	47.70	0.29
1598	0	71.56	0.00	7	54.30	0.13	41	30.47	1.35
846C	0	223.64	0.00	24	137.53	0.17	7	10.58	0.66
846	0	121.68	0.00	1	171.66	0.01	26	72.60	0.36
1650C	0	0.00		0	0.00		0	0.00	
1650	0	55.22	0.00	2	58.49	0.03	24	46.50	0.52
1171C	0	57.56	0.00	0	50.54	0.00	4	47.00	0.09
1171	2	84.85	0.02	11	59.15	0.19	8	19.20	0.42
1627C	0	71.48	0.00	5	44.45	0.11	9	21.72	0.41
1627	0	87.15	0.00	0	66.30	0.00	7	15.25	0.46
Exposed Rocky Sites									
19C	9	35.64	0.25	0	20.89	0.00	0	8.87	0.00
19	0	20.34	0.00	5	26.06	0.19	5	5.50	0.91
4537C	17	71.31	0.24	1	28.30	0.04	25	50.40	0.50
979	8	66.80	0.12	9	31.23	0.29	13	19.12	0.68
1642C	10	30.01	0.33	7	22.04	0.32	80	19.95	4.01
833	2	10.66	0.19	7	7.00	1.00	0	0.00	
1642C	10	30.01	0.33	7	22.04	0.32	80	19.95	4.01
232	0	5.80	0.00	32	22.08	1.45	19	7.45	2.55
2937C	0	8.42	0.00	0	7.53	0.00	0	4.90	0.00
305	0	20.86	0.00	0	22.27	0.00	13	15.46	0.84
Sheltered **Estuary** Sites									
2397C	11	267.82	0.04	8	77.35	0.10	0	0.00	
208/209	2	112.40	0.02	30	148.30	0.20	2	38.50	0.05

Table E–84. The number, distance (M^2), and abundance (Num/m^2) of Anoplarchus purpurescens collected in Prince William Sound, Alaska during 1991 visit 1 for Mm 2, 3 and 4.

	MVD 2			MVD 3			MVD 4		
Site	Number	M^2	Num/m^2	Number	M^2	Num/m^2	Number	M^2	Num/m^2
sheltered Rocky Sites									
4825C	0	11.52	0.00	1	10.66	0.09	0	2.50	0.00
1424	0	8.05	0.00	4	14.68	0.27	26	14.87	1.75
453c	0	7.94	0.00	0	10.74	0.00	44	22.46	1.96
453	0	12.82	0.00	2	21.09	0.09	71	31.59	2.25
601C	0	6.62	0.00	0	10.45	0.00	7	8.43	0.83
601	0	24.89	0.00	15	16.51	0.91	0	0.00	
598C	0	16.79	0.00	24	20.64	1.16	95	20.45	4.65
598	0	12.52	0.00	8	13.08	0.61	30	12.37	2.43
1522C	0	6.02	0.00	1	23.52	0.04	4	9.44	0.42
1522	2	12.51	0.16	1	14.25	0.07	32	13.94	2.30
coarse Textured sites									
506C	25	16.54	1.51	62	12.20	5.08	18	1.83	9.84
506	0	13.23	0.00	49	17.19	2.85	57	10.71	5.32
1598C	0	31.40	0.00	26	25.52	1.02	0	0.00	
1598	0	42.01	0.00	0	45.74	0.00	28	40.77	0.69
846C	0	129.31	0.00	8	109.83	0.07	1	9.05	0.11
846	0	60.72	0.00	0	88.31	0.00	1	82.29	0.01
1650C	0	33.96	0.00	33	36.55	0.90	47	22.47	2.09
1650	0	36.49	0.00	0	45.90	0.00	2	40.28	0.05
Exposed *Rocky* Sites									
19C	0	30.97	0.00	3	31.43	0.10	4	29.13	0.14
19	0	29.97	0.00	10	13.50	0.74	72	24.05	2.99
4537C	14	120.86	0.12	18	82.48	0.22	16	130.18	0.12
979	1	49.60	0.02	12	54.92	0.22	16	56.02	0.29
1642C	0	16.83	0.00	1	23.24	0.04	26	15.09	1.72
833	0	21.86	0.00	7	20.45	0.34	7	26.11	0.27
Sheltered Estuary Sites									
2397C	18	114.25	0.16	26	92.43	0.28	0	0.00	
208/209	1	33.30	0.03	0	33.03	0.00	41	47.20	0.87

Table E-85. The number, distance (M^2), and abundance (Num/m^2) of Anoplarchus purpurescens collected in Prince William Sound, Alaska during 1991 visit 2 for MVD 2, 3 and 4.

	MVD 2			MVD 3			MVD 4		
Site	Number	M^2	Num/m^2	Number	M^2	Num/m^2	Number	M^2	Num/m^2
sheltered Rocky Sites									
4825C	2	12.43	0.16	12	11.16	1.08	0	0.00	
1424	0	14.93	0.00	4	12.28	0.33	14	11.02	1.27
453c	1	11.71	0.09	0	14.50	0.00	11	20.13	0.55
453	1	16.68	0.06	12	16.97	0.71	77	16.45	4.68
601C	0	13.16	0.00	8	9.26	0.86	0	0.00	
601	10	16.74	0.60	30	17.50	1.71	0	0.00	
598C	0	15.15	0.00	31	18.11	1.71	45	8.03	5.60
598	0	12.92	0.00	12	16.05	0.75	22	6.22	3.54
Coarse Textured Sites									
506C	1	12.55	0.08	73	14.20	5.14	21	2.03	10.34
506	3	17.94	0.17	19	14.48	1.31	125	11.68	10.70
1598C	1	31.42	0.03	14	21.82	0.64	20	32.33	0.62
1598	0	45.11	0.00	0	57.88	0.00	11	42.73	0.26
846C	0	119.79	0.00	8	119.22	0.07	1	12.02	0.08
846	0	66.54	0.00	4	114.26	0.04	26	103.82	0.25
1650C	0	17.19	0.00	18	28.34	0.64	10	9.61	1.04
1650	0	32.65	0.00	0	44.73	0.00	2	39.51	0.05
Exposed Rocky Sites									
19C	7	30.43	0.23	3	22.19	0.14	24	12.01	2.00
19	0	10.26	0.00	20	13.45	1.49	28	14.31	1.96
4537C	32	134.37	0.24	36	166.82	0.22	31	80.13	0.39
979	3	44.74	0.07	25	51.64	0.48	24	52.82	0.45
1642C	0	16.17	0.00	29	22.25	1.30	8	1.55	5.16
833	6	21.58	0.28	9	22.42	0.40	0	15.03	0.00
sheltered Estuary Sites									
2397C	23	49.03	0.47	9	54.46	0.17	0	0.00	
208/209	0	33.70	0.00	10	32.48	0.31	49	35.72	1.37

Table E-86. Abundance (number/m²) for Anoplarchus purpurescens at every MVD over 3 habitats and habitats combined.

		1990						1991					
		Visit 1			Visit 2			Visit 1			Visit 2		
MVD		Sqm	#/m²	N	Sqm	#/m²	N	Sqm	#/m²	N	Sqm	#/m²	N
		All habitats											
1	Ctl	805.3	0.01	91	701.9	0.01	83	----	----	--	----	----	--
1	Oil	573.7	0.01	89	570.3	0.01	90	----	----	--	----	----	--
2	Ctl	804.3	0.08	90	729.8	0.15	82	428.8	0.16	48	414.4	0.06	40
2	Oil	712.7	0.02	89	757.0	0.05	89	324.7	0.01	44	300.1	0.12	40
3	Ctl	645.6	1.07	86	508.5	0.89	69	397.3	0.65	48	447.9	0.97	38
3	Oil	581.1	0.19	81	707.3	0.43	79	365.6	0.44	44	381.7	0.56	40
4	Ctl	253.9	1.90	43	283.2	1.49	34	271.0	1.72	38	177.8	2.03	21
4	Oil	232.4	0.69	45	287.4	0.65	40	353.0	1.66	39	313.6	1.85	33
5	Ctl	63.7	1.66	14	29.6	0.37	5	24.2	2.94	5	3.0	0.00	1
5	Oil	82.8	0.30	13	39.3	1.24	8	52.3	1.58	8	74.1	1.95	9
		sheltered Rockys habitats											
1	Ctl	84.1	0.00	28	83.7	0.00	29	----	----	--	----	----	--
1	Oil	112.3	0.00	29	123.4	0.00	30	----	----	--	----	----	--
2	Ctl	89.8	0.07	27	99.9	0.18	29	48.9	0.00	20	52.5	0.04	16
2	Oil	131.5	0.05	29	125.8	*0.12*	29	70.8	0.02	19	61.3	0.23	16
3	Ctl	87.2	1.19	27	88.7	1.11	25	76.0	0.32	21	53.0	0.78	15
3	Oil	109.9	0.42	28	96.6	0.97	26	79.6	0.41	19	62.8	0.79	16
4	Ctl	27.6	3.75	10	15.1	1.87	5	63.3	1.68	18	28.2	2.38	6
4	Oil	16.2	0.81	7	15.0	*0.12*	7	72.8	2.19	15	33.7	2.85	11
5	Ctl	6.4	8.09	2	----	----	--	8.7	6.15	2	3.0	0.00	1
5	Oil				1.5	0.65	1	4.8	4.20	2	----	----	--
		coarse Textured habitats											
1	Ctl	522.3	0.01	41	436.4	0.00	35	----	----	--	----	----	--
1	Oil	331.6	0.00	37	312.7	0.00	38	----	----	--	----	----	--
2	Ctl	481.2	0.12	41	484.4	0.06	35	211.2	0.46	16	180.9	0.02	13
2	Oil	432.9	0.01	37	506.8	0.01	38	152.4	0.00	15	162.2	0.02	15
3	Ctl	328.2	1.39	38	341.0	0.97	33	184.1	1.54	15	183.6	1.6	12
3	Oil	348.2	0.03	35	502.1	0.08	37	197.1	0.56	15	231.4	0.24	15
4	Ctl	141.4	1.44	21	184.0	1.27	*22*	33.3	3.47	8	56.0	2.18	8
4	Oil	234.6	0.58	27	224.8	0.69	25	174.1	1.47	14	197.7	1.75	14
5	Ctl	43.8	0.25	8	27.3	0.13	4	----	----	--	----	----	--
5	Oil	75.3	0.29	12	28.4	1.50	6	23.9	0.21	3	74.1	1.95	9
		Exposed Rocky habitats											
1	Ctl	198.9	0.00	22	181.9	0.03	19	----	----	--	----	----	--
1	Oil	129.7	0.01	23	134.1	0.01	22	----	----	--	----	----	--
2	Ctl	233.3	0.01	22	145.4	0.25	18	168.7	0.04	12	181.0	0.15	11
2	Oil	148.4	0.01	23	124.5	0.04	22	101.4	0.01	10	76.6	0.07	9
3	Ctl	230.1	0.33	21	78.7	0.16	11	137.1	0.13	12	211.3	0.53	11
3	Oil	123.0	0.17	18	108.6	0.36	16	88.9	0.32	10	87.5	0.67	9
4	Ctl	84.9	1.16	12	84.1	1.88	7	174.4	0.60	12	93.7	1.55	7
4	Oil	81.6	0.89	11	47.5	1.01	*8*	106.2	1.15	10	82.2	0.65	*8*
5	Ctl	13.5	1.25	4	2.3	1.33	1	15.5	0.79	3	----	----	--
5	Oil	7.5	0.53	1	9.4	0.21	1	23.6	1.20	3	----	----	--

Table E-87. Mean biomass (g/m²) of the high cockscomb AnODlarchus purpurescens collected in Prince William Sound, Alaska at each site for 2 visits in 1990. The difference between the oil and control matched site is'alsogiven. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

Site Pair	Type	1990 visit 1 Mean	Change	SE	1990 visit 2 Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.280	0.180	0.118	0.054	-0.089	0.033
1424	Oil	0.100		0.072	0.143		0.092
453c	Control	0.157	0.060	0.095	0.206	0.103	0.130
453	Oil	0.097		0.073	0.103		0.052
601C	Control	0.172	-0.317	0.092	0.135	-0.588	0.068
601	Oil	0.489		0.125	0.723		0.320
598C	Control	0.112	0.047	0.071	0.360	0.195	0.177
598	Oil	0.065		0.051	0.165		0.088
1522C	Control	0.000	0.000	-----	0.204	0.150	0.089
1522	oil	0.000		-----	0.054		0.049
	Coarse Textured Sites						
1383C	Control	0.137	0.106	0.120	0.100	0.084	0.071
1580	Oil	0.031		0.018	0.016		0.011
506C	Control	1.218	0.498	0.479	1.071	0.875	0.374
506	Oil	0.720		0.076	0.196		0.116
1598C	Control	0.029	-0.033	0.022	0.113	-0.180	0.053
1598	Oil	0.062		0.038	0.293		0.162
846C	Control	0.020	0.020	0.009	0.053	0.021	0.046
846	oil	0.000		-----	0.032		0.015
1650C	Control	0.156	0.123	0.074	No Sample		
1650	Oil	0.033		0.021	0.113		0.039
1171C	Control	0.056	-0.043	0.042	0.015	-0.044	0.012
1171	oil	0.099		0.067	0.059		0.022
1627C	Control	0.083	-0.088	0.044	0.041	0.019	0.017
1627	Oil	0.171		0.113	0.022		0.021
	Exposed Rocky Sites						
19C	Control	0.120	0.095	0.063	0.237	0.171	0.237
19	Oil	0.025		0.025	0.066		0.055
4537C	Control	0.034	-0.041	0.022	0.171	0.100	0.078
979	Oil	0.075		0.027	0.071		0.035
1642C	Control	0.926	0.907	0.366	0.588	0.569	0.171
833	oil	0.019		0.011	0.019		0.019
1642C	Control	0.926	0.926	0.366	0.588	0.347	0.171
232	Oil	0.000		-----	0.241		0.144
2937C	Control	0.000	-0.113	-----	0.000	-0.054	----
305	Oil	0.113		0.111	0.054		0.036
	Sheltered Estuary Sites						
2397C	Control	0.012	0.012	0.008	0.092	0.036	0.061
208/209	Oil	0.000		-----	0.056		0.030

Table E-88. Mean biomass(g/m^2) of the high cockscomb AnODlarchus purpurescens collected in Prince William Sound, Alaska at each site for 2 visits in 1991. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

site		1991 Visit 1			1991 Visit 2		
Pair	Type	Mean	Change	SE	Mean	Change	SE
	Sheltered Rocky Site:;						
4825C	Control	0.041	-0.241	0.041	0.180	-0.056	0.076
1424	Oil	0.282		0.090	0.236		0.182
453c	Control	1.006	-0.195	0.591	0.318	-0.982	0.267
453	Oil	1.201		0.713	1.300		0.682
601C	Control	0.314	-0.270	0.291	0.134	-1.792	0.134
601	Oil	0.584		0.419	1.926		1.314
598C	Control	1.177	0.211	0.394	0.768	-0.040	0.177
598	Oil	0.966		0.364	0.808		0.461
1522C	Control	0.050	-0.162	0.044	No Sample		
1522	Oil	0.212		0.140	No Sample		
	Coarse Textured Sites						
506C	Control	3.722	2.110	1.294	2.046	1.052	0.504
506	Oil	1.612		0.382	0.994		0.286
1598C	Control	0.383	0.041	0.152	0.463	0.386	0.163
1598	Oil	0.342		0.172	0.077		0.071
846C	Control	0.053	0.052	0.031	0.054	-0.047	0.048
846	Oil	0.001		0.001	0.101		0.058
1650C	Control	0.480	0.398	0.219	0.333	0.319	0.311
1650	Oil	0.082		0.079	0.014		0.008
	Exposed Rocky Sites						
19C	Control	0.107	-0.499	0.068	0.677	-0.342	0.300
19	Oil	0.603		0.104	1.019		0.456
4537C	Control	0.136	-0.009	0.022	0.151	-0.185	0.056
979	Oil	0.145		0.051	0.336		0.140
1642C	Control	0.370	0.224	0.186	1.562	1.477	0.739
833	Oil	0.146		0.130	0.085		0.085
	Sheltered Estuary Sites						
2397C	Control	0.260	0.006	0.183	0.360	-0.209	0.090
208/209	Oil	0.254		0.018	0.569		0.011

Table E-89. The weight (gr), distance (M^2), and biomass (gr/m^2) of Anoplarchus purpurescens collected in Prince William Sound, Alaska during 1990 visit 1.

	MVD 2			MVD 3			MVD 4		
Site	Weight	M^2	Gr/m^2	Weight	M^2	Gr/m2	Weight	M^2	Gr/m2
sheltered Rocky Sites									
4825C	0.61	17.93	0.034	7.75	11.99	0.646	0.22	0.35	0.623
1424	1.43	20.76	0.069	0.30	21.08	0.014	3.94	10.66	0.370
453c	0.00	16.60	0.000	1.97	23.48	0.084	10.76	20.02	0.538
453	0.71	27.77	0.026	4.57	23.49	0.194	0.00	0.85	0.000
601C	0.90	16.92	0.053	3.86	13.87	0.278	0.00	0.00	
601	8.90	33.75	0.264	20.09	38.22	0.526	3.52	3.15	1.118
598C	0.00	15.61	0.000	3.22	21.28	0.152	4.00	7.20	0.555
598	0.00	18.08	0.000	2.41	21.72	0.111	0.37	1.55	0.239
1522C	0.00	22.75	0.000	0.00	16.62	0.000	0.00	0.00	
1522	0.00	31.15	0.000	0.00	5.36	0.000	0.00	0.00	
Coarse Textured Sites									
1383C	0.00	61.59	0.000	19.23	49.43	0.389	2.49	47.62	0.052
1580	0.00	54.34	0.000	1.85	61.67	0.030	2.77	50.76	0.054
506C	17.41	32.57	0.534	53.80	17.43	3.087	11.88	6.75	1.760
506	0.00	10.99	0.000	0.00	10.72	0.000	24.61	12.33	1.996
1598C	2.35	48.03	0.049	0.00	7.19	0.000	0.00	0.00	
1598	0.77	80.35	0.010	1.60	51.95	0.031	9.73	25.18	0.387
846C	1.91	189.09	0.010	4.56	129.79	0.035	0.00	3.50	0.000
846	0.00	117.13	0.000	0.00	52.57	0.000	0.00	42.26	0.000
1650C	0.00	51.26	0.000	13.51	44.66	0.303	4.39	7.55	0.581
1650	0.00	59.99	0.000	2.81	56.43	0.050	3.58	38.77	0.092
1171C	0.00	58.26	0.000	6.47	36.84	0.176	2.72	25.85	0.105
1171	0.00	57.17	0.000	0.00	51.44	0.000	17.30	45.47	0.380
1627C	0.00	40.38	0.000	1.54	42.90	0.036	9.62	50.14	0.192
1627	6.56	52.88	0.124	3.20	63.45	0.050	5.78	19.82	0.292
Exposed Rocky Sites									
19C	0.00	30.23	0.000	9.64	47.91	0.201	1.48	15.03	0.098
19	0.00	36.91	0.000	2.69	11.96	0.225	0.00	0.00	
4537C	1.18	157.21	0.008	9.45	132.35	0.071	5.89	33.70	0.175
979	2.68	66.64	0.040	3.95	66.61	0.059	8.66	46.99	0.184
1642C	0.00	25.67	0.000	22.36	32.13	0.696	63.26	29.16	2.169
833	0.00	8.63	0.000	0.00	12.15	0.000	1.08	16.90	0.064
1642C	0.00	25.67	0.000	22.36	32.13	0.696	63.26	29.16	2.169
232	0.00	13.80	0.000	0.00	2.55	0.000	0.00	0.00	
2937C	0.00	20.22	0.000	0.00	17.74	0.000	0.00	7.06	0.000
305	0.00	22.37	0.000	2.36	29.76	0.079	11.07	17.73	0.624
sheltered Estuary Sites									
2397C	0.85	153.97	0.006	2.80	64.14	0.044	0.00	12.25	0.000
208/209	0.00	58.90	0.000	0.00	4.30	0.000	0.00	0.00	

Table E-90. The weight (g), distance (W), and biomass (gr/m²) of Anoplarchus purpurescens collected in prince William Sand, Alaska during 1990 visit 2 for MVD 2, 3 and 4.

	MVD 2			MVD 3			MVD 4		
Pair	Weight	M²	Gr/m²	Weight	M²	Gr/m2	Weight	M²	Gr/m2
Sheltered Rocky Sites									
4825C	0.03	16.45	0.002	2.06	12.77	0.161	0.00	0.00	
1424	1.77	13.83	0.128	1.62	9.83	0.165	0.00	0.00	
453c	0.00	23.95	0.000	3.25	22.80	0.143	9.01	9.37	0.962
453	1.43	20.98	0.068	4.19	24.65	0.170	0.00	0.00	
601C	0.55	13.81	**0.040**	3.74	13.18	0.283	1.53	2.30	0.664
601	3.72	32.93	0.113	44.07	24.07	1.831	0.00	0.00	
598C	1.18	21.33	0.055	18.87	18.21	1.036	2.56	3.41	0.750
598	0.00	21.83	0.000	6.13	19.91	0.308	***0.12***	4.18	0.028
1522C	2.51	24.40	0.103	8.48	21.73	0.390	0.00	0.00	
1522	2.59	36.18	0.072	0.21	18.14	**0.012**	0.00	10.86	0.000
coarse Textured **Sites**									
1383C	0.00	59.15	0.000	3.25	42.39	0.077	13.12	54.43	0.241
1580	0.00	68.50	0.000	0.05	66.10	0.001	3.07	34.87	0.088
506C	5.87	25.73	0.228	43.19	16.90	2.556	8.53	2.60	3.283
506	0.00	17.80	0.000	4.77	26.07	0.183	6.59	5.94	1.109
1598C	2.27	46.87	0.049	7.55	49.19	0.153	9.36	47.70	0.196
1598	0.00	71.56	0.000	0.59	54.30	0.011	27.07	30.47	0.888
846C	0.00	223.64	0.000	19.58	137.53	0.142	2.40	10.58	0.226
846	0.00	121.68	0.000	0.06	171.66	3.5E-4	12.61	72.60	0.174
1650C	0.00	0.00		0.00	0.00		0.00	0.00	
1650	0.00	55.22	0.000	3.75	58.49	0.064	14.62	46.50	0.314
1171C	0.00	57.56	0.000	0.00	50.54	0.000	2.65	47.00	0.056
1171	1.36	84.85	0.016	4.99	59.15	0.084	3.47	19.20	0.181
1627C	0.00	71.48	0.000	3.38	44.45	0.076	3.76	21.72	0.173
1627	0.00	87.15	0.000	0.00	66.30	0.000	4.32	15.25	0.284
Exposed Rocky sites									
19C	6.29	35.64	0.176	0.00	20.89	0.000	0.00	8.87	0.000
19	0.00	20.34	0.000	4.14	26.06	0.159	0.67	5.50	0.121
4537C	6.86	71.31	0.096	3.58	28.30	0.127	14.90	50.40	0.296
979	2.96	66.80	0.044	3.09	31.23	0.099	5.87	19.12	0.307
1642C	5.19	30.01	0.173	3.36	22.04	0.152	35.69	19.95	1.789
833	0.11	10.66	0.011	0.54	7.00	0.078	0.00	0.00	
1642C	5.19	30.01	0.173	3.36	22.04	0.152	35.69	19.95	1.789
232	0.00	5.80	0.000	4.36	22.08	0.198	4.75	7.45	0.637
2937C	0.00	8.42	0.000	0.00	7.53	0.000	0.00	4.90	0.000
305	0.00	20.86	0.000	0.00	22.27	0.000	5.83	15.46	0.377
sheltered Estuary Sites									
2397C	9.74	267.82	0.036	7.16	77.35	0.093	0.00	0.00	
208/209	0.25	112.40	0.002	16.31	148.30	0.110	0.33	38.50	0.009

Table E-91. **The** weight ***(g)*, distance** (M^2), and biomass (Gr/m^2) **of** Anoplarchus purpurescens **collected** in ***Prince*** William **Sound, Alaska during** 1991 visit 1 **for** MVD 2, 3 and 4.

	MVD 2			MVD 3			MVD 4		
Site	Weight	M^2	Gr/m^2	Weight	M^2	Gr/m^2	Weight	M^2	Gr/m^2
sheltered *Rocky* Sites									
4825C	0.00	11.52	0.00	**1.11**	10.66	0.10	0.00	2.50	0.00
1424	0.00	8.05	0.00	2.13	14.68	0.14	***8.28***	14.87	0.56
453c	0.00	7.94	0.00	0.00	10.74	0.00	38.71	22.46	1.72
453	0.00	12.82	0.00	1.28	21.09	0.06	76.04	31.59	2.41
601C	0.00	6.62	0.00	0.00	10.45	0.00	6.74	8.43	***0.80***
601	0.00	24.89	0.00	16.59	16.51	1.00	**0.00**	0.00	
598C	0.00	16.79	0.00	14.21	20.64	0.69	63.31	20.45	3.10
598	0.00	12.52	0.00	13.27	13.08	1.01	19.70	12.37	1.59
1522C	0.00	6.02	0.00	0.31	23.52	0.01	1.99	9.44	0.21
1522	0.38	12.51	0.03	1.18	14.25	**0.08**	10.74	13.94	0.77
Coarse *Textured* Sites									
506C	32.30	16.54	1.95	49.12	12.20	4.03	8.57	1.83	4.68
506	0.00	13.23	0.00	17.85	17.19	1.04	48.10	10.71	4.49
1598C	0.00	31.40	0.00	18.85	25.52	0.74	0.00	0.00	
1598	0.00	42.01	0.00	0.00	45.74	0.00	36.52	40.77	0.90
846C	0.00	129.31	0.00	9.95	109.83	0.09	1.10	9.05	**0.12**
846	0.00	60.72	0.00	0.00	88.31	0.00	0.65	82.29	0.01
1650C	0.00	33.96	0.00	21.41	36.55	0.59	16.33	22.47	0.73
1650	0.00	36.49	0.00	0.00	45.90	0.00	10.07	40.28	0.25
Exposed Rocky Sites									
19C	0.00	30.97	0.00	1.18	31.43	0.04	9.30	29.13	0.32
19	0.00	29.97	0.00	1.31	13.50	0.10	38.89	24.05	1.62
4537C	12.08	120.86	0.10	10.53	82.48	0.13	23.25	130.18	**0.18**
979	1.99	49.60	0.04	3.81	54.92	0.07	13.08	56.02	0.23
1642C	0.00	16.83	0.00	0.01	23.24	6E-4	24.26	15.09	1.61
833	0.00	21.86	0.00	2.21	20.45	0.11	7.35	26.11	0.28
Sheltered Estuary Sites									
2397C	18.56	114.25	0.16	21.47	92.43	0.23	0.00	0.00	
208/209	0.89	33.30	0.03	0.00	33.03	0.00	28.57	47.20	0.61

Table E-92. The weight (g), distance (M^2), and biomass (Gr/m^2) of *Anoplarchus purpurescens* collected in Prince William Sound, Alaska during 1991 visit 2 for MVD 2, 3 and 4.

	MVD 2			MVD 3			MVD 4		
Site	weight	M^2	Gr/m^2	Weight	M^2	Gr/m^2	Weight	M^2	Gr/m^2
Sheltered Rocky Sites									
4825C	0.53	12.43	0.04	4.08	11.16	0.37	0.00	0.00	
1424	0.00	14.93	0.00	2.26	12.28	0.18	6.28	11.02	0.57
453c	1.79	11.71	0.15	0.00	14.50	0.00	8.37	20.13	0.42
453	0.38	16.68	0.02	3.99	16.97	0.24	78.56	16.45	4.78
601C	0.00	13.16	0.00	4864	9.26	0.50	0.00	0.00	
601	11.29	16.74	0.67	42.21	17.50	2.41	0.00	0.00	
598C	0.00	15.15	0.00	11.88	18.11	0.66	23.46	8.03	2.92
598	0.00	12.92	0.00	11.862	16.05	0.72	18.56	6.22	2.98
Coarse Textured Sites									
506C	0.41	12.55	0.03	55.23	14.20	3.89	3.13	2.03	1.54
506	2.22	17.94	0.12	12.81	14.48	0.88	31.83	11.68	2.73
1598C	0.54	31.42	0.02	14.45	21.82	0.66	24.08	32.33	0.74
1598	0.00	45.11	0.00	0.00	57.88	0.00	6.70	42.73	0.16
846C	0.00	119.79	0.00	12.87	119.22	0.11	0.57	12.02	0.05
846	0.00	66.54	0.00	5.79	114.26	0.05	28.63	103.82	0.28
1650C	0.00	17.19	0.00	7.64	28.34	0.27	5.48	9.61	0.57
1650	0.00	32.65	0.00	0.00	44.73	0.00	1.70	39.51	0.04
Exposed Rocky Sites									
19C	7.35	30.43	0.24	1.23	22.19	0.06	36.63	12.01	3.05
19	0.00	10.26	0.00	15.28	13.45	1.14	21.88	14.31	1.53
4537C	17.87	134.37	0.13	19.158	166.82	0.12	23.27	80.13	0.29
979	0.66	44.74	0.01	20.34	51.64	0.39	30.88	52.82	0.58
1642C	0.00	16.17	0.00	40.61	22.25	1.83	20.43	1.55	13.18
833	2.55	21.58	0.12	3.53	22.42	0.16	0.00	15.03	0.00
Sheltered *Estuary* Sites									
2397C	25.58	49.03	0.52	8.57	54.46	0.16	0.00	0.00	
208/209	0.00	33.70	0.00	9.24	32.48	0.28	48.52	35.72	1.36

Table E-93. Biomass (g/m²) for Anoplarchus purpurescens for every MVD over 3 habitats and habitats combined.

MVD		1990 Visit 1 Sqm	1990 Visit 1 g/m²	1990 Visit 1 N	1990 Visit 2 Sqm	1990 Visit 2 g/m²	1990 Visit 2 N	1991 Visit 1 Sqm	1991 Visit 1 g/m²	1991 Visit 1 N	1991 Visit 2 Sqm	1991 Visit 2 g/m²	1991 Visit 2 N
		All habitats											
1	Ctl	805.3	0.01	91	701.9	0.01	83	-----	----	--	-----	----	--
1	Oil	573.7	0.01	89	570.3	0.01	90	-----	----	--	-----	----	--
2	Ctl	804.3	0.04	90	729.8	0.05	82	428.8	0.23	48	414.4	0.04	40
2	Oil	712.7	0.03	89	757.0	0.02	89	324.7	0.01	44	300.1	0.11	40
3	c u	645.6	0.33	86	508.5	0.35	69	397.3	0.47	48	447.9	0.7	38
3	Oil	581.1	0.12	81	707.3	0.15	79	365.6	0.31	44	381.7	0.53	40
4	c u	253.9	0.63	43	283.2	0.49	34	271.0	1.16	38	177.8	1.8	21
4	oil	332.4	0.30	45	287.4	0.27	40	353.0	1.21	39	313.6	1.14	33
5	c u	63.7	0.46	14	29.6	0.09	5	24.2	3.34	5	3.0	0.00	1
5	Oil	82.8	0.32	13	39.3	0.60	8	52.3	1.92	8	74.1	1.89	9
		sheltered Rocky habitats											
1	Ctl	84.1	0.00	28	83.7	0.00	29	-----	----	--	-----	----	--
1	Oil	112.3	0.00	29	123.4	0.00	30	-----	----	--	-----	----	--
2	Ctl	89.8	0.02	27	99.9	0.03	29	48.9	0.00	20	52.5	0.03	16
2	Oil	131.5	0.06	29	125.8	0.07	29	70.8	0.01	19	61.3	0.24	16
3	c u	87.2	0.20	27	88.7	0.31	25	76.0	0.18	21	53.0	0.32	15
3	Oil	109.9	0.29	28	96.6	0.38	26	79.6	0.52	19	62.8	0.88	16
4	c u	27.6	0.51	10	15.1	0.65	5	63.3	1.22	18	28.2	1.38	6
4	oil	16.2	0.27	7	15.0	0.01	7	72.8	1.4	15	33.7	2.3	11
5	c u	6.4	0.60	2	-----	----	--	8.8	6.52	2	3.0	0.	1
5	Oil	-----	----	--	1.5	0.57	1	4.8	6.43	2	-----	----	--
		Coarse Textured habitats											
1	Ctl	522.3	0.01	41	436.4	0.00	35	-----	----	--	-----	----	--
1	Oil	331.6	0.	37	312.7	0.00	38	-----	----	--	-----	----	--
2	Ctl	481.2	0.07	41	484.4	0.03	35	211.2	0.68	16	180.9	0.01	13
2	Oil	432.9	0.02	37	506.8	0.01	38	152.4	0.	15	162.2	0.01	15
3	c u	328.2	0.47	38	341.0	0.47	33	184.1	1.21	15	183.6	1.19	12
3	Oil	348.2	0.03	35	502.1	0.03	37	197.1	0.21	15	231.4	0.18	15
4	c u	141.4	0.42	21	184.0	0.32	22	33.3	1.74	8	56.0	1.00	8
4	Oil	234.6	0.31	27	224.8	0.34	25	174.1	1.34	14	197.7	0.53	14
5	c u	43.8	0.07	8	27.3	0.04	4	-----	----	--	-----	----	--
5	Oil	75.3	0.33	12	28.4	0.66	6	23.9	0.27	3	74.1	1.89	9
		Exposed *Rocky* habitats											
1	Ctl	198.9	0.00	22	181.9	0.05	19	-----	----	--	-----	----	--
1	Oil	129.7	0.01	23	134.1	0.01	22	-----	----	--	-----	----	--
2	c u	233.3	0.01	22	145.4	0.14	18	168.7	0.03	12	181.0	0.12	11
2	oil	148.4	0.01	23	124.5	0.01	22	101.4	0.01	10	76.6	0.02	9
3	Ctl	230.1	0.26	21	78.7	0.09	11	137.1	0.05	12	211.3	0.66	11
3	Oil	123.0	0.05	18	108.6	0.07	16	88.9	0.07	10	87.5	0.49	9
4	c u	84.9	1.11	12	84.1	0.91	7	174.4	0.67	12	93.7	3.07	7
4	Oil	81.6	0.30	11	47.5	0.30	8	106.2	0.73	10	82.2	0.60	8
5	Ctl	13.5	1.18	4	2.3	0.27	1	15.5	1.22	3	-----	----	--
5	Oil	7.5	0.15	1	9.4	0.28	1	23.6	0.55	3	-----	----	--

Table E-94. Biomass (g/m^2) for exposed rocky, coarse textured, sheltered rocky and all habitats combined at MVD 2, 3 and 4 for Anovlarchus purpurescens using MVD's where they were found only.

Type	MVD	Visit 1 1990	Visit 2 1990	Visit 1 1991	Visit 2 1991
		Exposed Rocky			
Ctl	2	0.013	0.508	0.101	0.221
Oil	2	0.104	0.056	0.174	0.117
Ctl	3	0.617	0.256	0.111	1.049
Oil	3	0.126	0.203	0.090	0.636
Ctl	4	2.214	1.609	0.807	3.577
Oil	4	0.370	0.351	0.922	0.964
		Coarse Textured			
Ctl	2	0.509	0.284	3.664	0.061
Oil	2	0.474	0.104	0.922	0.290
Ctl	3	1.004	0.987	1.512	1.432
Oil	3	0.231	0.104	1.589	0.676
Ctl	4	0.638	0.506	1.990	1.003
Oil	4	0.569	0.375	1.871	0.751
		Sheltered Rocky			
Ctl	2	0.397	0.101	1.990	0.251
Oil	2	0.637	0.303	0.102	0.971
Ctl	3	0.493	0.531	0.562	0.549
Oil	3	0.751	0.673	1.112	1.566
Ctl	4	0.865	1.095	2.437	2.073
Oil	4	0.631	0.097	1.614	2.301
		All habitats			
Ctl	2	0.353	0.247	1.628	0.195
Oil	2	0.438	0.193	0.138	0.629
Ctl	3	0.764	0.708	0.910	1.023
Oil	3	0.434	0.389	0.732	1.063
Ctl	4	1.054	0.800	1.690	2.099
Oil	4	0.510	0.360	1.519	1.448

Table E-95. Coefficients resulting from the forward multiple linear stepwise regression analysis to predict the probability of finding Anodlarchus purpurescens based on biomass (g/m^2) at all sites sampled during 1990 in Prince William Sound, Alaska. Only those habitat variables which entered the forward multiple linear stepwise regression analyses were included. The coefficients were then estimated by bootstrapping the selected factors. The standard error is given in parentheses.

MVD	2	3	4
Constant	0.043	0.342	0.497
oil	-0.027(0.027)	-0.167 (0.111)	-0.227(0.185)
Visit	----------	-0.109 (0.116)	----------
Mat	0.004(0.003)	0.023(0.010)*	0.010(0.007)
String	----------	----------	0.100(0.122)
Slope	----------	-0.011(0.007)	-0.014(0.012)
Number of Quadrats	367	319	159

Level of Significance: * - $P < 0.05$; ** - $P < 0.01$

Table E-96. Coefficients resulting from the forward multiple linear stepwise regression analysis to predict the probability of finding Anovlarchus vurvurescens based on biomass at all sites sampled during 1991 in Prince William Sound, Alaska. Only those habitat variables which entered the forward multiple linear stepwise regression analyses were included. The coefficients 'were then estimated by bootstrapping the selected factors. The standard error is given in parentheses.

MVD	2	3	4
Constant	0.019	0.218	1.660
Oil	----------	-0.270(0.142)*	----------
Mat	0.018(0.015)	0.013(0.006)*	----------
Bedrock	----------	----------	-0.101(0.030)**
Cobble	-0.006(0.005)	----------	----------
Coarse Gravel	-0.005(0.004)	----------	-0.029(0.010)**
Coarse Textured	0.461(0.368)	0.412(0.286)	----------
Sheltered Rocky	-0.126(0.121)	----------	0.997(0.512)*
Number of Quadrats	183	166	104

Level of Significance: * - $P < 0.05$; ** - $P < 0.01$

Table E-97. The number of MVDs that Anoplarchus purpurescens was found (Fnd) in out of the total possible number of quadrats (Ttl), and the percent (%) of MVDs that *contained* fish for the 3 habitat types, and all 3 cbd

			Overall			Exp Rcky			Crse Txt			Shlt Rcky		
Year	MVD	Visit	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990	2	1	18	179	10.1	5	45	11.1	8	78	10.3	5	56	8.9
1990	3	1	62	167	37.1	17	39	43.6	23	73	31.5	22	55	40.0
1990	4	1	54	89	60.7	15	23	65.2	29	48	60.4	10	18	55.6
1990	2	2	32	171	18.7	10	40	25.0	5	73	6.8	17	58	29.3
1990	3	2	67	148	45.3	10	27	37.0	27	70	38.6	30	51	58.8
1990	4	2	53	75	70.7	11	15	73.3	38	48	79.2	4	12	33.3
1991	2	1	9	94	9.6	5	22	22.7	3	31	9.7	1	41	2.4
1991	3	1	44	93	47.3	14	22	63.6	14	30	46.7	16	41	39.0
1991	4	1	57	77	74.0	18	22	81.8	17	22	77.3	22	33	66.7
1991	2	2	17	80	21.3	8	20	40.0	3	28	10.7	6	32	18.8
1991	3	2	46	78	59.0	14	20	70.0	14	27	51.9	18	31	58.1
1991	4	2	44	54	81.5	11	15	73.3	18	22	81.8	15	17	88.2

Table E-98. The number of samples at *each* of three meter vertical drops in which Anoplarchus purpurescens were found during two visits *each* in 1990 and 1991. The percent (%) of the total found and the probability value (p) is from the Wilcoxon test.

			Control		Oiled		
Year	Visit	MVD	Total	%	Total	%	p
1990	1	2	90	12.2	89	7.9	0.153
1990	1	3	86	44.2	81	29.6	0.043*
1990	1	4	43	60.5	46	60.9	0.276
1990	2	2	82	23.2	89	14.6	0.145
1990	2	3	69	50.7	79	40.5	0.399
1990	2	4	34	61.8	41	78.0	0.155
1991	1	2	49	14.3	45	4.4	0.138
1991	1	3	48	52.1	45	42.2	0.297
1991	1	4	38	68.4	39	79.5	0.241
1991	2	2	40	25.0	40	17.5	0.351
1991	2	3	38	68.4	40	50.0	0.179
1991	2	4	21	85.7	33	78.8	0.138

Table E-99. The number of MVD's that Anoplarchus purpurescens was found (fnd) in out of the total possible number of MVD's (TU), and the percent (%) of MVD's that contained fish for the 3 habitat types, and all 3 combined.

	Overall						Exposed Rocky					
	Oil			Control			Oil			Control		
Year MVD	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990 2	20	178	11.2	30	172	17.4	7	45	15.6	8	40	20.0
1990 3	56	160	35.0	73	155	47.1	14	34	41.2	13	32	40.6
1990 4	60	87	69.0	47	77	61.0	16	19	84.2	10	19	52.6
1991 2	9	85	10.6	17	89	19.1	3	19	15.8	10	23	43.5
1991 3	39	85	45.9	51	86	59.3	15	19	78.9	13	23	56.5
1991 4	57	72	79.2	44	59	74.6	13	18	72.2	16	19	84.2
	Case											
1990 2	3	75	4.0	10	76	13.2	10	58	17.2	12	56	21.4
1990 3	16	72	22.2	34	71	47.9	26	54	48.1	26	52	50.0
1990 4	39	53	73.6	28	43	65.1	5	15	33.3	9	15	60.0
1991 2	1	30	3.3	5	29	17.2	5	36	13.9	2	37	5.4
1991 3	6	30	20.0	22	27	81.5	18	36	50.0	16	36	44.4
1991 4	20	28	71.4	15	16	93.8	24	26	92.3	13	24	54.2

Table E-100. The number of MVD's that Anoplarchus purpurescens was found (Fnd) in *cut* of the total possible number of MVDs (Ttl), and the percent (%) of MVD's that contained fish for the 3 habitat types, and all 3 habitats mined. Bath visits were mined for *each* year and MVD.

	Overall			Exp Rcky			Crse Txt			Shlt Rcky		
Year MVD	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990 2	50	350	14.3	15	85	17.6	13	151	8.6	22	114	19.3
1990 3	129	315	41.0	27	66	40.9	50	143	35.0	52	106	49.1
1990 4	107	164	65.2	26	38	68.4	67	96	69.8	14	30	46.7
1991 2	26	174	14.9	13	42	31.0	6	59	10.2	7	73	9.6
1991 3	90	171	52.6	28	42	66.7	28	57	49.1	34	72	47.2
1991 4	101	131	77.1	29	37	78.4	35	44	79.5	37	50	74.0

Table E-101. The number of each MVD that Anoplarchus purpurescens was found (Fnd) in *out* of the total possible number of MVDs (Ttl), and the percent (%) of MVDs that contained fish for the 3 habitat types, and all 3 combined.

			Overall				Exposed Rocky			
			Oil		Control		Oil		Control	
Year	MVD	Visit	Fnd Ttl %		Fnd Ttl %		Fnd Ttl %		Fnd Ttl %	
1990	2	1	7	89 7.9	11	90 12.2	2	23 8.7	3	22 13.6
1990	3	1	24	81 29.6	38	86 44.2	8	18 44.4	9	21 42.9
1990	4	1	28	46 60.9	26	43 60.5	9	11 81.8	6	12 50.0
1990	2	2	13	89 14.6	19	82 23.2	5	22 22.7	5	18 27.8
1990	3	2	32	79 40.5	35	69 50.7	6	16 37.5	4	11 36.4
1990	4	2	32	41 78.0	21	34 61.8	7	8 87.5	4	7 57.1
1991	2	1	2	45 4.4	7	49 14.3	1	10 10.0	4	12 33.3
1991	3	1	19	45 42.2	25	48 52.1	8	10 80.0	6	12 50.0
1991	4	1	31	39 79.5	26	38 68.4	8	10 80.0	10	12 83.3
1991	2	2	7	40 17.5	10	40 25.0	2	9 22.2	6	11 54.5
1991	3	2	20	40 50.0	26	38 68.4	7	9 77.8	7	11 63.6
1991	4	2	26	33 78.8	18	21 85.7	5	8 62.5	6	7 85.7
			coarse Textured							
1990	2	1	2	37 5.4	6	41 14.6	3	29 10.3	2	27 7.4
1990	3	1	5	35 14.3	18	38 47.4	11	28 39.3	11	27 40.7
1990	4	1	15	27 55.6	14	21 66.7	4	8 50.0	6	10 60.0
1990	2	2	1	38 2.6	4	35 11.4	7	29 24.1	10	29 34.5
1990	3	2	11	37 29.7	16	33 48.5	15	26 57.7	15	25 60.0
1990	4	2	24	26 92.3	14	22 63.6	1	7 14.3	3	5 60.0
1991	2	1	0	15 0.0	3	16 18.8	1	20 5.0	0	21 0.0
1991	3	1	2	15 13.3	12	15 80.0	9	20 45.0	7	21 33.3
1991	4	1	10	14 71.4	7	8 87.5	13	15 86.7	9	18 50.0
1991	2	2	1	15 6.67	2	13 15.4	4	16 25.0	2	16 12.5
1991	3	2	4	15 26.7	10	12 83.3	9	16 56.3	9	15 60.0
1991	4	2	10	14 71.4	8	8 100.	11	11 100.	4	6 66.7

Table **E-102.** Mean weight (g) **of** the Anovlarchus vurvurescens at MVD **2, 3, 4** using only MVD they were found in. Results for exposed rocky, coarse textured, sheltered rocky and all habitats combined are presented here.

		1990		1991	
Type	MVD	Visit 1	Visit 2	Visit 1	Visit 2
	Exposed Rocky				
Ctl	2	0.394	0.590	0.612	1.044
Oil	2	0.670	0.494	1.990	0.322
Ctl	3	0.824	1.361	0.459	0.891
Oil	3	0.260	0.309	0.226	0.883
Ctl	4	0.756	0.466	1.474	1.232
Oil	4	0.224	0.372	0.704	0.961
	Coarse Textured				
Ctl	2	0.612	0.683	1.093	0.478
Oil	2	1.208	0.680	0.704	0.740
Ctl	3	0.488	0.566	0.832	0.787
Oil	3	1.292	0.552	0.812	1.290
Ctl	4	0.500	0.872	0.544	0.703
Oil	4	0.766	0.688	1.743	0.611
	Sheltered Rocky				
Ctl	2	0.500	0.232	0.544	1.029
Oil	2	1.099	0.748	0.192	1.149
Ctl	3	0.342	0.335	0.619	0.464
Oil	3	0.653	0.359	1.079	0.769
Ctl	4	0.473	0.365	0.695	0.597
Oil	4	0.842	0.115	0.577	0.582
	All Habitats				
Ctl	2	0.532	0.421	0.818	0.927
Oil	2	1.008	0.645	1.091	0.854
Ctl	3	0.525	0.558	0.683	0.703
Oil	3	0.655	0.416	0.691	0.913
Ctl	4	0.553	0.722	0.954	0.856
oil	4	0.603	0.601	0.986	0.666

Table E-103. Mean weight (g), range, variance (var.) standard deviation (StDEv), standard error (StErr) for Anoularchus puruurescens at each habitat and MVD. CT = Coarse Textured; SR = Sheltered Rocky; ER = Exposed Rocky.

Year	Vis	MVD	Hab	O/C	N	Range	Mean	Var.	StDev	StErr
90	1	1	CT	Ctl	2	0.493	0.416	0.122	0.349	0.247
90	1	1	ER	Oil	1	*0.000*	1.899	-----	-----	-----
90	1	2	CT	Ctl	37	4.268	0.585	0.532	0.729	0.120
90	1	2	CT	Oil	5	3.999	1.468	2.810	1.676	0.750
90	1	2	ER	Ctl	3	0.475	0.394	0.060	0.244	0.141
90	1	2	ER	Oil	5	0.742	0.536	0.123	0.351	0.157
90	1	2	SR	Ctl	7	0.883	0.216	0.100	0.317	0.120
90	1	2	SR	Oil	9	3.351	1.227	1.417	1.190	0.397
90	1	3	CT	Ctl	290	5.261	0.342	0.399	0.632	0.037
90	1	3	CT	Oil	8	1.862	1.184	0.470	0.685	0.242
90	1	3	ER	Ctl	56	4.713	0.740	0.862	0.929	0.124
90	1	3	ER	Oil	30	1.664	0.300	0.187	0.433	0.079
90	1	3	SR	Ctl	86	1.714	0.195	0.125	0.354	0.038
90	1	3	SR	Oil	40	2.738	0.684	0.482	0.694	0.110
90	1	4	CT	Ctl	91	2.149	0.342	0.234	0.483	0.051
90	1	4	CT	Oil	105	3.871	0.607	0.620	0.787	0.077
90	1	4	ER	Ctl	72	5.681	0.981	1.511	1.229	0.145
90	1	4	ER	Oil	63	4.492	0.330	0.550	0.741	0.093
90	1	4	SR	Ctl	146	1.646	0.103	0.073	0.270	0.022
90	1	4	SR	Oil	16	2.168	0.490	0.361	0.601	0.150
90	1	5	CT	Ctl	9	0.927	0.332	0.076	0.276	0.092
90	1	5	CT	Oil	25	4.348	1.256	1.430	1.196	0.239
90	1	5	ER	Ctl	15	2.438	0.869	0.539	0.734	0.190
90	1	5	ER	Oil	4	0.270	0.288	0.016	0.127	0.063
90	1	5	SR	Ctl	76	1.618	0.074	0.046	0.214	0.025
90	2	1	ER	Ctl	6	4.901	1.415	3.622	1.903	0.777
90	2	1	ER	Oil	2	0.813	0.469	0.330	0.575	0.407
90	2	2	CT	Ctl	17	2.312	0.479	0.359	0.599	0.145
90	2	2	CT	Oil	2	0.700	0.680	0.245	0.495	0.350
90	2	2	ER	Ctl	36	1.772	0.509	0.183	0.428	0.071
90	2	2	ER	Oil	10	2.014	0.308	0.390	0.625	0.198
90	2	2	SR	Ctl	17	1.162	0.252	0.121	0.348	0.084
90	2	2	SR	Oil	15	1.670	0.635	0.450	0.671	0.173
90	2	3	CT	Ct1	130	3.836	0.592	0.438	0.662	0.058
90	2	3	CT	oil	41	2.843	0.347	0.261	0.511	0.080
90	2	3	ER	Ct1	8	3.512	0.867	1.526	1.235	0.437
90	2	3	ER	Oil	53	1.423	0.229	0.128	0.358	0.049
90	2	3	SR	Ctl	125	1.933	0.291	0.169	0.411	0.037
90	2	3	SR	Oil	123	4.576	0.457	0.492	0.702	0.063
90	2	4	CT	Ctl	98	4.330	0.406	0.434	0.659	0.067
90	2	4	CT	Oil	133	3.711	0.539	0.517	0.719	0.062
90	2	4	ER	Ctl	105	3.173	0.482	0.351	0.593	0.058
90	2	4	ER	oil	50	2.698	0.342	0.357	0.597	0.084
90	2	4	SR	Ct1	33	3.819	0.397	0.582	0.763	0.133
90	2	4	SR	Oil	1	*0.000*	0.115	------	-----	------
90	2	5	CT	Ct1	1	*0.000*	0.334	------	-----	------

Table E-103(continued)

Year	Vis	MVD	Hab	O/C	N	Range	Mean	Var.	StDev	StErr
90	2	5	CT	Oil	32	2.682	0.515	0.521	0.722	0.128
90	2	5	ER	Ctl	3	0.224	0.203	0.014	0.117	0.067
90	2	5	ER	Oil	2	2.501	1.341	3.128	1.768	1.251
90	2	5	SR	Oil	1	*0.000*	0.871	-----	-----	-----
91	1	2	CT	Ctl	25	4.490	1.292	1.330	1.153	0.231
91	1	2	ER	Ctl	14	2.175	0.863	0.415	0.644	0.172
91	1	2	ER	Oil	1	*0.000*	1.990	-----	-----	-----
91	1	2	SR	Oil	2	0.006	0.192	0.000	0.004	0.003
91	1	3	CT	Ctl	129	3.489	0.770	0.573	0.757	0.067
91	1	3	CT	Oil	49	2.991	0.364	0.309	0.556	0.079
91	1	3	ER	Ctl	22	1.599	0.533	0.164	0.405	0.086
91	1	3	ER	Oil	35	2.123	0.332	0.148	0.384	0.065
91	1	3	SR	Ctl	26	2.605	0.601	0.486	0.697	0.137
91	1	3	SR	Oil	30	6.596	1.148	2.084	1.444	0.264
91	1	4	CT	Ctl	66	3.357	0.394	0.372	0.610	0.075
91	1	4	CT	oil	88	9.701	1.083	1.915	1.384	0.148
91	1	4	ER	Ctl	46	5.714	1.235	1.695	1.302	0.192
91	1	4	ER	Oil	95	4.411	0.624	0.781	0.884	0.091
91	1	4	SR	Ct1	150	5.611	0.738	0.763	0.873	0.071
91	1	4	SR	Oil	159	3.875	0.722	0.705	0.840	0.067
91	1	5	CT	Oil	5	2.434	1.244	1.473	1.214	0.543
91	1	5	ER	Ctl	12	3.073	1.508	1.466	1.211	0.350
91	1	5	ER	Oil	26	2.823	0.514	0.525	0.724	0.142
91	1	5	SR	Ct1	53	4.374	1.068	1.076	1.037	0.142
91	1	5	SR	Oil	22	4.950	1.573	2.323	1.524	0.325
91	2	2	CT	Ctl	2	0.127	0.479	0.008	0.090	0.064
91	2	2	CT	oil	3	1.010	0.740	0.264	0.514	0.297
91	2	2	ER	Ctl	39	2.133	0.647	0.224	0.473	0.076
91	2	2	ER	Oil	9	1.407	0.357	0.173	0.416	0.139
91	2	2	SR	Ctl	3	1.560	0.775	0.778	0.882	0.509
91	2	2	SR	Oil	11	2.793	1.061	0.789	0.888	0.268
91	2	3	CT	Ctl	113	5.719	0.798	0.785	0.886	0.083
91	2	3	CT	Oil	23	3.979	0.809	1.065	1.032	0.215
91	2	3	ER	Ctl	68	4.977	0.903	0.995	0.997	0.121
91	2	3	ER	oil	54	4.347	0.725	1.043	1.021	0.139
91	2	3	SR	Ctl	51	1.568	0.404	0.127	0.356	0.050
91	2	3	SR	Oil	58	4.358	1.036	1.304	1.142	0.150
91	2	4	CT	Ctl	52	4.373	0.640	0.723	0.850	0.118
91	2	4	CT	oil	164	4.206	0.420	0.335	0.579	0.045
91	2	4	ER	Ctl	63	6.061	1.275	1.811	1.346	0.170
91	2	4	ER	Oil	52	4.953	1.015	1.627	1.275	0.177
91	2	4	SR	Ct1	56	2.934	0.568	0.367	0.606	0.081
91	2	4	SR	Oil	113	3.856	0.915	0.796	0.892	0.084
91	2	5	CT	oil	69	4.293	1.150	1.047	1.023	0.123

Table E-104. Mean weight (g), ranges, variance, standard deviation and standard error of Anoplarchus purpurescens at each habitat, visit, year and MVD for each sex. CT = coarse textured, ER = exposed rocky, SR = sheltered rocky.

Year	Vis	MVD	Hab	O/C	Sex	N	Range	Mean	Varia	StDev	StErr
90	1	1	CT	Ctl	F	1	0.000	0.662	.	.	.
90	1	1	CT	Ctl	U	1	0.000	0.169	.	.	.
90	1	1	ER	Oil	F	1	0.000	1.899			
90	1	2	CT	Ctl	F	21	1.300	0.633	0.153	0.391	0.085
90	1	2	C T	C U	M	9	4.077	0.847	1.700	1.304	0.435
90	1	2	CT	Ctl	U	7	0.520	0.107	0.037	0.193	0.073
90	1	2	CT	Oil	F	4	3.999	1.641	3.547	1.883	0.942
90	1	2	CT	Oil	U	1	0.000	0.775			
90	1	2	ER	Ctl	F	2	0.141	0.260	0.010	0.100	0.071
90	1	2	E R	C U	M	1	0.000	0.664			
90	1	2	ER	Oil	F	4	0.731	0.631	0.103	0.321	0.161
90	1	2	ER	Oil	M	1	0.000	0.154			
90	1	2	S R	C U	F	1	0.000	0.898			
90	1	2	S R	C U	U	6	0.245	0.102	0.012	0.109	0.045
90	1	2	SR	Oil	M	7	3.121	1.489	1.500	1.225	0.463
90	1	2	SR	Oil	U	2	0.585	0.310	0.171	0.414	0.293
90	1	3	CT	Ctl	F	67	4.774	0.626	0.507	0.712	0.087
90	1	3	CT	Ctl	M	64	5.148	0.755	0.742	0.862	0.108
90	1	3	CT	Ctl	U	159	1.692	0.055	0.037	0.192	0.015
90	1	3	CT	Oil	F	4	IL.141	1.156	0.307	0.555	0.277
90	1	3	CT	Oil	M	4	IL.862	1.212	0.787	0.887	0.444
90	1	3	E R	C U	F	16	4.495	1.222	1.442	1.201	0.300
90	1	3	ER	Ctl	M	18	2.926	0.900	0.712	0.844	0.199
90	1	3	ER	Ctl	U	22	2.075	0.259	0.211	0.459	0.098
90	1	3	ER	Oil	F	8	1.510	0.547	0.265	0.514	0.182
90	1	3	ER	Oil	M	6	1.165	0.693	0.201	0.448	0.183
90	1	3	ER	Oil	U	16	0.037	0.030	0.000	0.010	0.003
90	1	3	S R	C U	F	12	1.564	0.604	0.253	0.503	0.145
90	1	3	S R	C U	M	12	1.377	0.610	0.189	0.435	0.126
90	1	3	S R	C U	U	62	0.218	0.036	0.002	0.049	0.006
90	1	3	SR	Oil	F	12	2.572	0.833	0.571	0.756	0.218
90	1	3	SR	Oil	M	15	2.625	0.901	0.608	0.780	0.201
90	1	3	SR	Oil	U	13	0.989	0.297	0.091	0.301	0.083
90	1	4	CT	Ctl	F	13	0.810	0.429	0.053	0.230	0.064
90	1	4	CT	Ctl	M	30	1.984	0.734	0.399	0.632	0.115
90	1	4	CT	Ctl	U	48	0.513	0.073	0.014	0.119	0.017
90	1	4	CT	Oil	F	28	2.612	0.735	0.388	0.623	0.118
90	1	4	CT	Oil	M	34	3.704	1.093	0.930	0.965	0.165
90	1	4	CT	Oil	U	43	1.698	0.140	0.128	0.358	0.055
90	1	4	E R	C U	F	20	2.235	0.811	0.434	0.659	0.147
90	1	4	E R	C U	M	13	2.742	1.330	0.730	0.854	0.237
90	1	4	ER	Ctl	U	39	5.681	0.952	2.319	1.523	0.244
90	1	4	ER	Oil	F	12	1.606	0.597	0.228	0.477	0.138
90	1	4	ER	Oil	M	9	4.391	1.365	2.166	1.472	0.491

Table E–104 (continued)

Year	Vis	MVD	Hab	O/C	Sex	N	Range	Mean	Varia	StDev	StErr
90	1	4	ER	Oil	U	42	0.128	0.032	0.000	0.019	0.003
90	1	4	SR	Ctl	F	7	1.027	0.535	0.162	0.402	0.152
90	1	4	SR	Ctl	M	10	1.525	0.717	0.302	0.549	0.174
90	1	4	SR	Ctl	U	129	1.075	0.032	0.009	0.096	0.008
90	1	4	SR	Oil	F	7	1.053	0.725	0.103	0.322	0.122
90	1	4	SR	Oil	M	1	0.000	2.182			
90	1	4	SR	Oil	U	8	0.411	0.072	0.020	0.143	0.050
90	1	5	CT	Ctl	F	4	0.728	0.496	0.101	0.318	0.159
90	1	5	CT	Ctl	M	3	0.040	0.322	0.000	0.021	0.012
90	1	5	CT	Ctl	U	2	0.005	0.020	0.000	0.004	0.003
90	1	5	CT	Oil	F	11	3.092	1.398	1.329	1.153	0.348
90	1	5	CT	Oil	M	11	4.101	1.445	1.598	1.264	0.381
90	1	5	CT	Oil	U	3	0.081	0.041	0.002	0.046	0.027
90	1	5	ER	Ctl	F	6	2.424	1.391	0.690	0.831	0.339
90	1	5	ER	Ctl	M	3	0.622	0.517	0.127	0.357	0.206
90	1	5	ER	Ctl	U	6	1.214	0.523	0.224	0.473	0.193
90	1	5	ER	Oil	F	3	0.245	0.315	0.020	0.141	0.081
90	1	5	ER	Oil	M	1	0.000	0.207			
90	1	5	SR	Ctl	F	3	1.361	0.855	0.487	0.698	0.403
90	1	5	SR	Ctl	M	3	0.467	0.376	0.069	0.264	0.152
90	1	5	SR	Ctl	U	70	0.215	0.028	0.001	0.034	0.004
90	2	1	ER	Ctl	F	2	4.720	2.918	11.139	3.338	2.360
90	2	1	ER	Ctl	M	4	0.618	0.664	0.065	0.256	0.128
90	2	1	ER	Oil	F	1	0.000	0.875			
90	2	1	ER	Oil	U	1	0.000	0.062			
90	2	2	CT	Ctl	F	9	1.094	0.525	0.164	0.404	0.135
90	2	2	CT	Ctl	M	5	2.234	0.622	0.974	0.987	0.441
90	2	2	CT	Ctl	U	3	0.053	0.103	0.001	0.027	0.015
90	2	2	CT	Oil	F	1	0.000	1.030	.	.	.
90	2	2	CT	Oil	M	1	0.000	0.330			
90	2	2	ER	Ctl	F	8	1.641	0.799	0.315	0.561	0.199
90	2	2	ER	Ctl	M	18	1.088	0.617	0.089	0.298	0.070
90	2	2	ER	Ctl	U	10	0.041	0.084	0.000	0.014	0.004
90	2	2	ER	Oil	F	3	1.964	0.845	1.135	1.065	0.615
90	2	2	ER	Oil	M	1	0.000	0.110			
90	2	2	ER	Oil	U	6	0.066	0.072	0.001	0.025	0.010
90	2	2	SR	Ctl	F	3	0.895	0.588	0.263	0.513	0.296
90	2	2	SR	Ctl	M	4	0.787	0.516	0.120	0.346	0.173
90	2	2	SR	Ctl	U	10	0.062	0.045	0.000	0.020	0.006
90	2	2	SR	Oil	F	4	1.414	1.265	0.450	0.671	0.335
90	2	2	SR	Oil	M	5	1.146	0.834	0.275	0.525	0.235
90	2	2	SR	Oil	U	6	0.087	0.048	0.001	0.029	0.012
90	2	3	CT	Ctl	F	53	1.888	0.763	0.247	0.497	0.068
90	2	3	CT	Ctl	M	41	3.680	0.840	0.730	0.854	0.133
90	2	3	CT	Ctl	U	36	0.098	0.057	0.001	0.025	0.004
90	2	3	CT	Oil	F	8	0.822	0.421	0.094	0.307	0.108

Table E–104 (continued)

Year	Rnd	Quad	Hab	O_C	Sex	N	Range	Mean	varia	StDev	StErr
90	2	3	CT	Oil	M	12	2.704	0.802	0.500	0.707	0.204
90	2	3	CT	Oil	U	21	0.089	0.058	0.000	0.019	0.004
90	2	3	ER	Ctl	F	3	2.223	2.109	1.625	1.275	0.736
90	2	3	ER	C U	M	2	0.170	0.177	0.014	0.120	0.085
90	2	3	ER	Ctl	U	3	0.031	0.085	0.000	0.016	0.009
90	2	3	ER	Oil	F	9	11.299	0.608	0.202	0.450	0.150
90	2	3	ER	Oil	M	6	11.327	0.643	0.358	0.599	0.244
90	2	3	ER	oil	U	38	0.109	0.074	0.001	0.026	0.004
90	2	3	SR	Ctl	F	23	1.346	0.591	0.155	0.394	0.082
90	2	3	SR	C U	M	26	1.786	0.704	0.272	0.522	0.102
90	2	3	SR	Ctl	U	76	0.435	0.059	0.003	0.050	0.006
90	2	3	SR	Oil	F	39	2.140	0.756	0.312	0.559	0.089
90	2	3	SR	Oil	M	23	4.379	1.045	1.198	1.094	0.228
90	2	3	SR	Oil	U	61	0.094	0.044	0.000	0.021	0.003
90	2	4	CT	Ctl	F	19	2.475	0.927	0.602	0.776	0.178
90	2	4	CT	Ctl	M	26	4.157	0.715	0.703	0.839	0.164
90	2	4	CT	Ctl	U	53	0.079	0.068	0.000	0.019	0.003
90	2	4	CT	Oil	F	30	2.533	1.148	0.467	0.683	0.125
90	2	4	CT	Oil	M	31	3.483	1.067	0.607	0.779	0.140
90	2	4	CT	Oil	U	72	0.202	0.059	0.001	0.032	0.004
90	2	4	ER	Ctl	F	46	3.095	0.696	0.509	0.714	0.105
90	2	4	ER	Ctl	M	29	1.994	0.557	0.232	0.482	0.090
90	2	4	ER	Ctl	U	30	0.138	0.082	0.001	0.029	0.005
90	2	4	ER	Oil	F	5	1.290	0.860	0.289	0.538	0.241
90	2	4	ER	Oil	M	11	2.595	0.940	0.857	0.926	0.279
90	2	4	ER	Oil	U	34	0.098	0.073	0.001	0.024	0.004
90	2	4	SR	Ctl	F	7	3.303	1.139	1.459	1.208	0.456
90	2	4	SR	C U	M	4	2.078	0.779	1.001	1.001	0.500
90	2	4	SR	Ctl	U	22	0.628	0.091	0.017	0.132	0.028
90	2	4	SR	Oil	F	1	0.000	0.115			
90	2	5	CT	Ctl	F	1	0.000	0.334			
90	2	5	CT	Oil	F	7	1.207	0.901	0.191	0.437	0.165
90	2	5	CT	Oil	M	7	2.410	1.342	0.861	0.928	0.351
90	2	5	CT	Oil	U	18	0.058	0.043	0.000	0.014	0.003
90	2	5	ER	C U	F	2	0.055	0.269	0.002	0.039	0.028
90	2	5	ER	Ctl	U	1	0.000	0.072			
90	2	5	ER	Oil	M	1	0.000	2.591			
90	2	5	ER	Oil	U	1	0.000	0.090			
90	2	5	SR	Oil	M	1	0.000	0.871			
91	1	2	CT	Ctl	F	13	4.274	1.654	1.886	1.373	0.381
91	1	2	CT	Ctl	M	11	1.941	0.980	0.491	0.701	0.211
91	1	2	CT	Ctl	U	1	0.000	0.022			
91	1	2	ER	Ctl	F	6	2.175	1.191	0.667	0.817	0.333
91	1	2	ER	C U	M	7	1.107	0.646	0.148	0.385	0.145
91	1	2	ER	Ctl	U	1	0.000	0.415			
91	1	2	ER	Oil	F	1	0.000	1.990			

Table E-104 (continued)

Year	vis	MVD	Hab	O/C	sex	N	Range	Mean	Varia	StDev	StErr
91	1	2	SR	Oil	F	1	0.000	0.195			
91	1	2	SR	Oil	M	1	0.000	0.189			
91	1	3	CT	Ctl	F	54	2.687	0.835	0.469	0.685	0.093
91	1	3	CT	Ctl	M	63	3.390	0.858	0.660	0.812	0.102
91	1	3	CT	Ctl	U	12	0.010	0.017	0.000	0.003	0.001
91	1	3	CT	Oil	F	14	2.952	0.446	0.581	0.762	0.204
91	1	3	CT	Oil	M	27	2.032	0.399	0.254	0.504	0.097
91	1	3	CT	Oil	U	8	0.049	0.106	0.000	0.016	0.006
91	1	3	ER	Ctl	F	12	1.447	0.596	0.241	0.491	0.142
91	1	3	ER	Ctl	M	7	0.591	0.511	0.048	0.218	0.082
91	1	3	ER	Ctl	U	3	0.778	0.328	0.168	0.410	0.236
91	1	3	ER	Oil	F	15	2.062	0.374	0.266	0.515	0.133
91	1	3	ER	Oil	M	12	0.821	0.412	0.072	0.269	0.078
91	1	3	ER	Oil	U	8	0.273	0.134	0.012	0.111	0.039
91	1	3	SR	Ctl	F	6	0.701	0.453	0.106	0.325	0.133
91	1	3	SR	Ctl	M	20	2.605	0.646	0.603	0.776	0.174
91	1	3	SR	Oil	F	6	2.625	0.955	1.209	1.100	0.449
91	1	3	SR	Oil	M	21	6.546	1.347	2.514	1.586	0.346
91	1	3	SR	Oil	U	3	0.136	0.142	0.006	0.077	0.045
91	1	4	CT	Ctl	F	17	1.572	0.548	0.196	0.443	0.108
91	1	4	CT	Ctl	M	25	3.208	0.649	0.651	0.807	0.161
91	1	4	CT	Ctl	U	24	0.019	0.018	0.000	0.003	0.001
91	1	4	CT	Oil	F	41	4.045	1.157	1.237	1.112	0.174
91	1	4	CT	Oil	M	43	9.656	1.105	2.692	1.641	0.250
91	1	4	CT	oil	U	4	0.029	0.101	0.000	0.013	0.007
91	1	4	ER	Ctl	F	18	1.921	0.910	0.431	0.656	0.155
91	1	4	ER	Ctl	M	24	5.498	1.214	1.727	1.314	0.268
91	1	4	ER	Ctl	U	4	4.827	2.826	5.732	2.394	1.197
91	1	4	ER	Oil	F	39	3.160	0.735	0.754	0.868	0.139
91	1	4	ER	Oil	M	42	4.305	0.721	0.948	0.974	0.150
91	1	4	ER	Oil	U	14	0.086	0.026	0.001	0.027	0.007
91	1	4	SR	Ctl	F	63	3.146	0.663	0.458	0.677	0.085
91	1	4	SR	Ctl	M	81	5.570	0.843	1.021	1.010	0.112
91	1	4	SR	ctl	U	6	0.126	0.114	0.002	0.046	0.019
91	1	4	SR	Oil	F	65	2.613	0.589	0.390	0.624	0.077
91	1	4	SR	oil	M	84	3.844	0.899	0.950	0.974	0.106
91	1	4	SR	Oil	U	10	0.178	0.103	0.003	0.050	0.016
91	1	5	CT	Oil	M	5	2.434	1.244	1.473	1.214	0.543
91	1	5	ER	Ctl	F	5	2.865	1.301	2.108	1.452	0.649
91	1	5	ER	Ctl	M	7	3.073	1.656	1.222	1.105	0.418
91	1	5	ER	Oil	F	8	2.718	0.751	0.860	0.927	0.328
91	1	5	ER	Oil	M	13	2.016	0.559	0.449	0.670	0.186
91	1	5	ER	Oil	U	5	0.004	0.018	0.000	0.002	0.001
91	1	5	SR	Ctl	F	15	3.566	1.136	1.437	1.199	0.310
91	1	5	SR	Ctl	M	35	4.342	1.113	0.984	0.992	0.168
91	1	5	SR	Ctl	U	3	0.265	0.212	0.019	0.138	0.080
91	1	5	SR	Oil	F	4	1.875	0.876	0.777	0.882	0.441
91	1	5	SR	Oil	M	17	4.950	1.824	2.576	1.605	0.389

Table E–104 (continued)

Year	VIS	MVD	Hab	O/C	SEX	N	Range	Mean	Varia	StDev	StErr
91	1	5	SR	Oil	U	1	0.000	0.089			
91	2	2	m	C U	F	2	0.127	0.479	0.008	0.090	0.064
91	2	2	a	Oil	F	2	0.343	0.461	0.059	0.243	0.172
91	2	2	m	Oil	M	1	0.000	1.299			
91	2	2	ER	C U	F	19	1.467	0.681	0.179	0.423	0.097
91	2	2	ER	C U	M	20	2.133	0.614	0.275	0.525	0.117
91	2	2	ER	Oil	F	3	1.227	0.613	0.491	0.700	0.404
91	2	2	ER	Oil	M	5	0.281	0.271	0.012	0.111	0.050
91	2	2	ER	oil	U	1	0.000	0.015			
91	2	2	SR	C U	F	1	0.000	1.793			
91	2	2	SR	C U	M	2	0.066	0.266	0.002	0.047	0.033
91	2	2	SR	Oil	F	1	0.000	0.381			
91	2	2	SR	Oil	M	10	2.793	1.129	0.820	0.906	0.286
91	2	3	CT	Ctl	F	45	i!.531	0.755	0.452	0.672	0.100
91	2	3	CT	C U	M	56	5.584	0.997	1.067	1.033	0.138
91	2	3	a	Ctl	U	12	0.030	0.033	0.000	0.008	0.002
91	2	3	m	Oil	F	5	1.740	0.973	0.736	0.858	0.384
91	2	3	CT	Oil	M	9	3.683	1.509	1.287	1.134	0.378
91	2	3	a	Oil	U	9	0.014	0.017	0.000	0.005	0.002
91	2	3	ER	C U	F	33	41.977	0.910	1.052	1.026	0.179
91	2	3	ER	C U	M	35	41.271	0.896	0.970	0.985	0.166
91	2	3	ER	Oil	F	19	3.047	1.058	1.017	1.009	0.231
91	2	3	ER	Oil	M	22	4.142	0.841	1.356	1.164	0.248
91	2	3	ER	Oil	U	13	0.189	0.042	0.003	0.050	0.014
91	2	3	SR	Ctl	F	15	1.245	0.419	0.098	0.313	0.081
91	2	3	SR	C U	M	33	1.476	0.424	0.146	0.382	0.067
91	2	3	SR	Ctl	U	3	0.167	0.111	0.007	0.087	0.050
91	2	3	SR	Oil	F	18	2.834	0.957	0.763	0.874	0.206
91	2	3	SR	Oil	M	35	4.270	1.220	1.616	1.271	0.215
91	2	3	SR	Oil	U	5	0.060	0.030	0.001	0.024	0.011
91	2	4	CT	C U	F	14	2.159	0.787	0.507	0.712	0.190
91	2	4	CT	C U	M	23	4.230	0.935	1.030	1.015	0.212
91	2	4	CT	Ctl	U	15	0.301	0.049	0.006	0.075	0.019
91	2	4	CT	Oil	F	59	2.177	0.536	0.300	0.548	0.071
91	2	4	CT	Oil	M	60	4.102	0.606	0.460	0.678	0.088
91	2	4	CT	Oil	U	45	0.027	0.019	0.000	0.006	0.001
91	2	4	ER	Ctl	F	35	5.885	1.296	1.684	1.298	0.219
91	2	4	ER	C U	M	26	5.220	1.343	2.070	1.439	0.282
91	2	4	ER	Ctl	U	2	0.027	0.027	0.000	0.019	0.014
91	2	4	ER	Oil	F	26	4.792	1.257	2.450	1.565	0.307
91	2	4	ER	Oil	M	22	3.781	0.898	0.778	0.882	0.188
91	2	4	ER	Oil	U	4	0.209	0.075	0.010	0.100	0.050
91	2	4	SR	Ctl	F	18	1.928	0.787	0.323	0.568	0.134
91	2	4	SR	Ctl	M	36	i!.790	0.490	0.372	0.610	0.102
91	2	4	SR	Ctl	U	2	0.013	0.017	0.000	0.009	0.007
91	2	4	SR	Oil	F	44	2.784	0.957	0.721	0.849	0.128
91	2	4	SR	Oil	M	60	3.753	1.007	0.871	0.933	0.120
91	2	4	SR	Oil	U	9	0.336	0.096	0.016	0.125	0.042
91	2	5	CT	Oil	F	28	3.958	1.264	0.766	0.875	0.165

Table E-105. Mean length (cm), range, variance (var.), standard deviation (StDev), and standard error (StErr) of Anowlarchus purpurescens collected during 2 visits (Vis) each during 1990 and 1991 at each MVD.

Year	Vis	MVD	Hab	O/C	N	Range	Mean	Varia	StDev	StErr
90	1	1	CT	Ctl	2	2.400	5.300	2.880	1.697	1.200
90	1	1	ER	Oil	1	0.000	9.000			
90	1	2	CT	Ctl	37	9.500	5.154	4.063	2.016	0.331
90	1	2	CT	Oil	5	5.400	6.740	5.193	2.279	1.019
90	1	2	ER	Ctl	3	2.200	5.033	1.223	1.106	0.639
90	1	2	ER	Oil	5	2.800	5.120	1.837	1.355	0.606
90	1	2	SR	Ctl	7	5.200	3.514	3.678	1.918	0.725
90	1	2	SR	oil	9	8.200	6.389	7.296	2.701	0.900
90	1	3	CT	Ctl	290	10.300	3.685	4.524	2.127	0.125
90	1	3	CT	Oil	8	5.100	6.875	2.965	1.722	0.609
90	1	3	ER	Ctl	56	8.800	5.238	4.697	2.167	0.290
90	1	3	ER	Oil	30	7.400	3.663	4.136	2.034	0.371
90	1	3	SR	Ctl	86	8.000	3.058	3.443	1.856	0.200
90	1	3	SR	Oil	40	8.100	5.248	3.747	1.936	0.306
90	1	4	CT	Ctl	91	7.300	3.929	4.202	2.050	0.215
90	1	4	CT	Oil	105	10.000	4.610	5.952	2.440	0.238
90	1	4	ER	Ctl	72	9.600	5.742	6.028	2.455	0.289
90	1	4	ER	Oil	63	10.500	3.351	4.836	2.199	0.277
90	1	4	SR	Ctl	146	7.400	2.368	1.874	1.369	0.113
90	1	4	SR	Oil	16	7.000	4.400	5.741	2.396	0.599
90	1	5	CT	Ctl	9	5.300	4.289	2.681	1.637	0.546
90	1	5	CT	Oil	25	10.300	6.764	8.171	2.858	0.572
90	1	5	ER	Ctl	15	5.000	6.260	3.067	1.751	0.452
90	1	5	ER	Oil	4	1.700	4.625	0.629	0.793	0.397
90	1	5	SR	Ctl	76	6.600	2.196	1.233	1.110	0.127
90	2	1	ER	Ct1	6	6.100	6.800	4.884	2.210	0.902
90	2	1	ER	Oil	2	3.700	4.450	6.845	2.616	1.850
90	2	2	CT	Ctl	17	6.300	4.965	3.014	1.736	0.421
90	2	2	CT	Oil	2	2.500	5.850	3.125	1.768	1.250
90	2	2	ER	Ctl	36	6.100	5.078	3.011	1.735	0.289
90	2	2	ER	Oil	10	5.900	3.620	3.348	1.830	0.579
90	2	2	SR	Ctl	17	6.000	3.635	3.349	1.830	0.444
90	2	2	SR	Oil	15	6.900	4.973	6.204	2.491	0.643
90	2	3	CT	Ctl	130	8.900	5.155	4.115	2.029	0.178
90	2	3	CT	Oil	41	8.100	4.146	3.594	1.896	0.296
90	2	3	ER	Ctl	8	6.900	5.275	7.579	2.753	0.973
90	2	3	ER	Oil	53	5.500	3.558	2.071	1.439	0.198
90	2	3	SR	Ctl	125	6.500	3.666	2.915	1.707	0.153
90	2	3	SR	Oil	123	9.400	4.235	4.833	2.198	0.198
90	2	4	CT	Ctl	98	9.500	4.348	4.057	2.014	0.203
90	2	4	CT	Oil	133	9.200	4.476	5.487	2.342	0.203
90	2	4	ER	Ctl	105	7.600	4.741	3.059	1.749	0.171
90	2	4	ER	Oil	50	7.400	3.872	3.639	1.908	0.270
90	2	4	SR	Ctl	33	8.200	3.830	4.056	2.014	0.351
90	2	4	SR	Oil	1	0.000	3.500			

Table E-105(continued)

Year	Vis	MVD	Hab	O/C	N	Range	Mean	Varia	StDev	StErr
90	2	5	CT	Ctl	1	0.000	4.800			
90	2	5	CT	Oil	32	7.700	4.266	5.951	2.440	0.431
90	2	5	ER	Ctl	3	1.800	4.067	1.023	1.012	0.584
90	2	5	ER	Oil	2	6.300	6.150	19.845	4.455	3.150
90	2	5	SR	Oil	1	0.000	6.900			
91	1	2	CT	Ctl	25	0.900	6.292	4.902	2.214	0.443
91	1	2	ER	Ctl	14	5.900	6.014	3.183	1.784	0.477
91	1	2	ER	Oil	1	0.000	7.900			
91	1	2	SR	Oil	2	0.000	3.400	0.000	0.000	0.000
91	1	3	CT	Ctl	129	7.800	5.308	4.090	2.022	0.178
91	1	3	CT	oil	49	6.400	4.027	1.686	1.299	0.186
91	1	3	ER	Ctl	22	5.400	5.068	1.670	1.292	0.276
91	1	3	ER	oil	35	7.100	4.280	1.910	1.382	0.234
91	1	3	SR	Ctl	26	5.700	4.892	2.898	1.702	0.334
91	1	3	SR	Oil	30	9.000	5.554	4.954	2.226	0.406
91	1	4	CT	Ctl	66	7.500	3.861	3.530	1.879	0.231
91	1	4	CT	Oil	88	9.000	5.583	3.900	1.975	0.211
91	1	4	ER	Ctl	46	10.300	6.698	4.828	2.197	0.324
91	1	4	ER	Oil	95	8.900	4.859	4.734	2.176	0.223
91	1	4	SR	Ctl	150	11.200	5.079	3.448	1.857	0.152
91	1	4	SR	Oil	159	7.200	5.003	3.744	1.935	0.153
91	1	5	CT	Oil	5	4.000	5.820	4.022	2.005	0.897
91	1	5	ER	Ctl	12	6.300	7.042	5.983	2.446	0.706
91	1	5	ER	Oil	26	7.100	4.508	4.126	2.031	0.398
91	1	5	SR	Ctl	53	7.100	5.764	3.327	1.824	0.251
91	1	5	SR	Oil	22	7.600	6.295	6.488	2.547	0.543
91	2	2	CT	Ctl	2	0.900	5.350	0.405	0.636	0.450
91	2	2	CT	Oil	3	2.600	6.033	1.743	1.320	0.762
91	2	2	ER	Ct1	39	5.300	5.803	1.600	1.265	0.203
91	2	2	ER	Oil	9	6.200	4.522	2.619	1.618	0.539
91	2	2	SR	Ctl	3	5.400	6.133	8.623	2.937	1.695
91	2	2	SR	Oil	11	4.900	6.373	2.966	1.722	0.519
91	2	3	CT	Ct1	113	9.900	5.781	4.491	2.119	0.199
91	2	3	CT	Oil	23	8.900	4.748	7.934	2.817	0.587
91	2	3	ER	Ctl	68	8.100	6.193	3.134	1.770	0.215
91	2	3	ER	Oil	54	9.200	5.124	5.955	2.440	0.332
91	2	3	SR	Ctl	51	6.300	4.798	1.527	1.236	0.173
91	2	3	SR	oil	58	9.100	5.852	5.597	2.366	0.311
91	2	4	CT	Ct1	52	9.700	4.990	6.186	2.487	0.345
91	2	4	CT	Oil	164	10.100	4.345	4.223	2.055	0.160
91	2	4	ER	Ct1	63	10.700	6.733	5.129	2.265	0.285
91	2	4	ER	oil	52	9.700	5.946	5.581	2.362	0.328
91	2	4	SR	Ctl	56	7.700	5.141	2.418	1.555	0.208
91	2	4	SR	Oil	113	9.500	5.751	5.072	2.252	0.212
91	2	5	CT	Oil	69	8.300	6.671	3.779	1.944	0.234

Table E–106. **The mean length** (cm) **, variance** (var) **, standard** deviation (Stdev) **, standard error** (StErr) of Anoplarchus **purpurescens collected at *each*** of **two** visits (vis) **for *each*** habaitat, **MVD** and ***sex*** **during** 1990 and 1991.

Year	Vis	MVD	Hab	O/C	Sex	N	Range	Mean	Var.	StDev	StErr
90	1	1	CT	Ctl	F	1	0.000	6.500	.	.	.
90	1	1	CT	Ctl	U	1	0.000	4.100	.	.	.
90	1	1	ER	Oil	F	1	0.000	9.000	.	.	.
90	1	2	CT	Ctl	F	21	3.900	5.795	1.698	1.303	0.284
90	1	2	CT	Ctl	M	9	7.000	5.700	4.768	2.183	0.728
90	1	2	CT	Ctl	U	7	4.200	2.529	2.432	1.560	0.589
90	1	2	CT	Oil	F	4	5.400	6.800	6.900	2.627	1.313
90	1	2	CT	Oil	U	1	0.000	6.500			
90	1	2	ER	Ctl	F	2	0.900	4.450	0.405	0.636	0.450
90	1	2	ER	Ctl	M	1	0.000	6.200			
90	1	2	ER	Oil	F	4	2.700	5.500	1.487	1.219	0.610
90	1	2	ER	Oil	M	1	0.000	3.600			
90	1	2	SR	Ctl	F	1	0.000	7.100			
90	1	2	SR	Ctl	U	6	2.600	2.917	1.414	1.189	0.485
90	1	2	SR	Oil	M	7	6.300	7.200	5.367	2.317	0.876
90	1	2	SR	Oil	U	2	3.300	3.550	5.445	2.333	1.650
90	1	3	CT	Ctl	F	67	8.400	5.419	2.381	1.543	0.189
90	1	3	CT	Ctl	M	64	'8.000	5.683	2.920	1.709	0.214
90	1	3	CT	Ctl	U	159	6.400	2.150	0.853	0.924	0.073
90	1	3	CT	Oil	F	4	2.400	6.950	1.283	1.133	0.566
90	1	3	CT	Oil	M	4	5.100	6.800	5.620	2.371	1.185
90	1	3	ER	Ctl	F	16	6.100	6.663	3.149	1.775	0.444
90	1	3	ER	Ctl	M	18	5.800	6.033	2.456	1.567	0.369
90	1	3	ER	Ctl	U	22	'7.000	3.550	2.991	1.730	0.369
90	1	3	ER	Oil	F	8	4.900	5.225	2.799	1.673	0.592
90	1	3	ER	Oil	M	6	3.900	5.817	2.246	1.499	0.612
90	1	3	ER	Oil	U	16	1.300	2.075	0.094	0.307	0.077
90	1	3	SR	Ctl	F	12	5.500	5.508	2.988	1.729	0.499
90	1	3	SR	Ctl	M	12	4.300	5.675	1.771	1.331	0.384
90	1	3	SR	Ctl	U	62	'3.200	2.077	0.434	0.659	0.084
90	1	3	SR	Oil	F	12	5.400	5.892	3.499	1.871	0.540
90	1	3	SR	Oil	M	15	15.500	5.860	3.664	1.914	0.494
90	1	3	SR	Oil	U	13	5.600	3.946	1.976	1.406	0.390
90	1	4	CT	Ctl	F	13	2.800	5.069	0.694	0.833	0.231
90	1	4	CT	Ctl	M	30	15.200	5.777	3.116	1.765	0.322
90	1	4	CT	Ctl	U	48	4.100	2.465	1.218	1.104	0.159
90	1	4	CT	Oil	F	28	6.600	5.525	2.354	1.534	0.290
90	1	4	CT	Oil	M	34	'7.400	6.359	3.492	1.869	0.320
90	1	4	CT	Oil	U	43	'7.000	2.630	3.435	1.853	0.283
90	1	4	ER	Ctl	F	20	5.800	5.955	2.958	1.720	0.385
90	1	4	ER	Ctl	M	13	5.200	6.931	3.191	1.786	0.495
90	1	4	ER	Ctl	U	39	9.600	5.236	8.005	2.829	0.453
90	1	4	ER	Oil	F	12	8.400	5.017	4.707	2.170	0.626
90	1	4	ER	Oil	M	9	6.200	6.856	4.765	2.183	0.728

Table E-106 (continued)

Year	Vis	MVD	Hab	O/C	Sex	N	Range	Mean	Var.	StDev	StErr
90	1	4	ER	Oil	U	42	1.500	2.124	0.069	0.263	0.041
90	1	4	SR	Ctl	F	7	3.300	5.229	1.796	1.340	0.506
90	1	4	SR	Ctl	M	10	4.800	5.760	2.929	1.712	0.541
90	1	4	SR	Ctl	U	129	6.200	1.950	0.311	0.558	0.049
90	1	4	SR	Oil	F	7	4.300	6.029	1.739	1.319	0.498
90	1	4	SR	Oil	M	1	0.000	8.700			
90	1	4	SR	Oil	U	8	3.300	2.438	1.117	1.057	0.374
90	1	5	CT	Ctl	F	4	2.800	5.275	1.583	1.258	0.629
90	1	5	CT	Ctl	M	3	0.300	4.633	0.023	0.153	0.088
90	1	5	CT	Ctl	U	2	0.200	1.800	0.020	0.141	0.100
90	1	5	CT	Oil	F	11	7.800	7.564	6.789	2.605	0.786
90	1	5	CT	Oil	M	11	7.100	7.200	5.610	2.369	0.714
90	1	5	CT	Oil	U	3	1.500	2.233	0.703	0.839	0.484
90	1	5	ER	Ctl	F	6	4.800	7.567	2.803	1.674	0.683
90	1	5	ER	Ctl	M	3	2.100	5.333	1.403	1.185	0.684
90	1	5	ER	Ctl	U	6	3.500	5.417	1.806	1.344	0.549
90	1	5	ER	Oil	F	3	1.600	4.800	0.760	0.872	0.503
90	1	5	ER	Oil	M	1	0.000	4.100			
90	1	5	SR	Ctl	F	3	3.800	6.067	3.663	1.914	1.105
90	1	5	SR	Ctl	M	3	2.100	4.733	1.403	1.185	0.684
90	1	5	SR	Ctl	U	70	2.600	1.921	0.185	0.431	0.051
90	2	1	ER	Ctl	F	2	5.100	8.650	13.005	3.606	2.550
90	2	1	ER	Ctl	M	4	1.500	5.875	0.383	0.618	0.309
90	2	1	ER	Oil	F	1	0.000	6.300			
90	2	1	ER	Oil	U	1	0.000	2.600			
90	2	2	CT	Ctl	F	9	3.600	5.444	2.015	1.420	0.473
90	2	2	CT	Ctl	M	5	5.400	5.100	5.300	2.302	1.030
90	2	2	CT	Ctl	U	3	0.900	3.300	0.210	0.458	0.265
90	2	2	CT	Oil	F	1	0.000	7.100			
90	2	2	CT	Oil	M	1	0.000	4.600			
90	2	2	ER	Ctl	F	8	4.900	6.300	2.949	1.717	0.607
90	2	2	ER	Ctl	M	18	4.200	5.706	1.233	1.111	0.262
90	2	2	ER	Ctl	U	10	0.600	2.970	0.036	0.189	0.060
90	2	2	ER	Oil	F	3	5.200	5.533	6.973	2.641	1.525
90	2	2	ER	Oil	M	1	0.000	3.100			
90	2	2	ER	Oil	U	6	0.700	2.750	0.079	0.281	0.115
90	2	2	SR	Ctl	F	3	3.100	5.933	3.203	1.790	1.033
90	2	2	SR	Ctl	M	4	1.800	5.250	0.810	0.900	0.450
90	2	2	SR	Ctl	U	10	0.600	2.300	0.071	0.267	0.084
90	2	2	SR	Oil	F	4	3.700	7.250	3.017	1.737	0.868
90	2	2	SR	Oil	M	5	3.200	6.240	1.928	1.389	0.621
90	2	2	SR	Oil	U	6	1.700	2.400	0.320	0.566	0.231
90	2	3	CT	Ctl	F	53	4.700	6.091	1.745	1.321	0.181
90	2	3	CT	Ctl	M	41	6.600	6.183	2.780	1.667	0.260
90	2	3	CT	Ctl	U	36	1.600	2.606	0.149	0.385	0.064
90	2	3	CT	Oil	F	8	3.400	5.050	1.420	1.192	0.421

Table E-106 (continued)

Year	vis	MVD	Hab	o/c	Sex	N	Range	Mean	Var.	StDev	StErr
90	2	3	CT	Oil	M	12	6.400	6.167	2.639	1.624	0.469
90	2	3	CT	Oil	U	21	1.500	2.648	0.105	0.323	0.071
90	2	3	E R C U		F	3	2.200	8.467	1.373	1.172	0.677
90	2	3	ER	Ctl	M	2	1.200	3.800	0.720	0.849	0.600
90	2	3	ER	Ctl	U	3	0.300	3.067	0.023	0.153	0.088
90	2	3	ER	Oil	F	9	4.400	5.311	2.391	1.546	0.515
90	2	3	ER	Oil	M	6	4.000	5.367	3.611	1.900	0.776
90	2	3	ER	Oil	U	38	1.400	2.858	0.124	0.352	0.057
90	2	3	SR	Ctl	F	23	4.800	5.487	1.437	1.199	0.250
90	2	3	SR	Ctl	M	26	3.900	5.554	1.669	1.292	0.253
90	2	3	S R C U		U	76	3.000	2.470	0.140	0.374	0.043
90	2	3	SR	Oil	F	39	5.200	5.897	1.997	1.413	0.226
90	2	3	SR	Oil	M	23	15.900	6.357	3.780	1.944	0.405
90	2	3	SR	Oil	U	61	1.600	2.372	0.127	0.356	0.046
90	2	4	CT	Ctl	F	19	5.600	6.437	3.074	1.753	0.402
90	2	4	CT	Ctl	M	26	'7.300	5.931	2.447	1.564	0.307
90	2	4	CT	Ctl	U	53	1.800	2.823	0.109	0.330	0.045
90	2	4	CT	Oil	F	30	6.300	6.803	2.159	1.469	0.268
90	2	4	CT	Oil	M	31	6.600	6.684	2.389	1.546	0.278
90	2	4	CT	Oil	U	72	2.100	2.556	0.152	0.390	0.046
90	2	4	ER	Ctl	F	46	15.500	5.611	2.783	1.668	0.246
90	2	4	ER	Ctl	M	29	5.400	5.248	1.690	1.300	0.241
90	2	4	E R C U		U	30	1.800	2.917	0.119	0.344	0.063
90	2	4	ER	Oil	F	5	34.300	6.040	2.953	1.718	0.769
90	2	4	ER	Oil	M	11	6.100	6.064	5.089	2.256	0.680
90	2	4	ER	Oil	U	34	1.300	2.844	0.101	0.318	0.055
90	2	4	S R C U		F	7	5.400	6.357	3.666	1.915	0.724
90	2	4	SR	Ctl	M	4	4.400	5.525	4.109	2.027	1.014
90	2	4	SR	Ctl	U	22	3.800	2.718	0.575	0.758	0.162
90	2	4	SR	Oil	F	1	0.000	3.500			
90	2	5	CT	Ctl	F	1	0.000	4.800			
90	2	5	CT	Oil	F	7	2.900	6.400	1.177	1.085	0.410
90	2	5	CT	Oil	M	7	4.700	7.086	3.578	1.892	0.715
90	2	5	CT	Oil	U	18	1.100	2.339	0.093	0.305	0.072
90	2	5	E R C U		F	2	0.100	4.650	0.005	0.071	0.050
90	2	5	E R C U		U	1	0.000	2.900			
90	2	5	ER	Oil	M	1	0.000	9.300			
90	2	5	ER	Oil	U	1	0.000	3.000	.	.	.
90	2	5	SR	Oil	M	1	0.000	6.900			
91	1	2	CT	Ctl	F	13	6.900	6.985	5.895	2.428	0.673
91	1	2	C T C U		M	11	4.100	5.873	1.944	1.394	0.420
91	1	2	CT	Ctl	U	1	0.000	1.900			
91	1	2	E R C U		F	6	5.900	6.900	4.944	2.224	0.908
91	1	2	E R C U		M	7	3.300	5.414	1.365	1.168	0.442
91	1	2	E R C U		U	1	0.000	4.900			
91	1	2	ER	Oil	F	1	0.000	7.900			

Table E-106 (continued)

Year	Vis	MVD	Hab	O/C	Sex	N	Range	Mean	Var.	StDev	StErr
91	1	2	SR	Oil	F	1	0.000	3.400			
91	1	2	SR	Oil	M	1	0.000	3.400			
91	1	3	CT	C U	F	54	6.000	5.807	2.875	1.695	0.231
91	1	3	CT	C U	M	63	6.500	5.541	3.374	1.837	0.231
91	1	3	CT	Ctl	U	12	0.400	1.833	0.013	0.115	0.033
91	1	3	CT	Oil	F	14	6.000	4.279	2.291	1.514	0.405
91	1	3	CT	Oil	M	27	4.700	4.189	1.600	1.265	0.243
91	1	3	CT	Oil	U	8	0.400	3.038	0.017	0.130	0.046
91	1	3	ER	C U	F	12	3.500	5.242	1.583	1.258	0.363
91	1	3	ER	C U	M	7	2.200	5.214	0.681	0.825	0.312
91	1	3	ER	Ctl	U	3	4.400	4.033	4.923	2.219	1.281
91	1	3	ER	Oil	F	15	5.200	4.473	2.055	1.434	0.370
91	1	3	ER	Oil	M	12	3.200	4.808	1.164	1.079	0.312
91	1	3	ER	Oil	U	8	2.800	3.125	1.256	1.121	0.396
91	1	3	SR	Ctl	F	6	2.400	4.750	1.143	1.069	0.436
91	1	3	SR	Ctl	M	20	5.700	4.935	3.503	1.872	0.419
91	1	3	SR	Oil	F	6	5.000	5.367	4.691	2.166	0.884
91	1	3	SR	Oil	M	21	8.400	5.953	4.937	2.222	0.485
91	1	3	SR	Oil	U	3	0.800	3.133	0.173	0.416	0.240
91	1	4	CT	Ctl	F	17	4.700	4.953	1.813	1.346	0.327
91	1	4	CT	C U	M	25	5.900	4.940	2.612	1.616	0.323
91	1	4	CT	Ctl	U	24	1.100	1.963	0.081	0.284	0.058
91	1	4	CT	Oil	F	41	6.000	5.900	3.493	1.869	0.292
91	1	4	CT	Oil	M	43	8.600	5.530	3.965	1.991	0.304
91	1	4	CT	Oil	U	4	0.300	2.900	0.020	0.141	0.071
91	1	4	ER	C U	F	18	6.000	6.289	3.394	1.842	0.434
91	1	4	ER	C U	M	24	7.700	6.800	4.141	2.035	0.415
91	1	4	ER	Ctl	U	4	9.100	7.925	18.349	4.284	2.142
91	1	4	ER	Oil	F	39	7.000	5.387	4.485	2.118	0.339
91	1	4	ER	Oil	M	42	7.400	5.300	3.506	1.873	0.289
91	1	4	ER	Oil	U	14	11.300	2.064	0.182	0.427	0.114
91	1	4	SR	C U	F	63	6.600	5.065	2.680	1.637	0.206
91	1	4	SR	C U	M	81	111.200	5.242	3.985	1.996	0.222
91	1	4	SR	Ctl	U	6	1.300	3.017	0.214	0.462	0.189
91	1	4	SR	Oil	F	65	5.900	4.806	2.992	1.730	0.215
91	1	4	SR	Oil	M	84	6.700	5.396	4.123	2.030	0.222
91	1	4	SR	Oil	U	10	11.400	2.980	0.160	0.399	0.126
91	1	5	CT	Oil	M	5	4.000	5.820	4.022	2.005	0.897
91	1	5	ER	C U	F	5	5.600	6.360	8.328	2.886	1.291
91	1	5	ER	Ctl	M	7	6.300	7.529	4.752	2.180	0.824
91	1	5	ER	Oil	F	8	5.600	5.375	3.825	1.956	0.691
91	1	5	ER	Oil	M	13	5.200	4.946	2.991	1.729	0.480
91	1	5	ER	Oil	U	5	0.200	1,980	0.007	0.084	0.037
91	1	5	SR	C U	F	15	6.400	5.713	4.341	2.084	0.538
91	1	5	SR	C U	M	35	6.800	5.951	2.859	1.691	0.286
91	1	5	SR	Ctl	U	3	2.200	3.833	1.293	1.137	0.657

Table **E-106(continued)**

Year	Vis	MVD	Hab	O/C	Sex	N	Range	Mean	Var.	StDev	StErr
91	1	5	SR	Oil	F	4	4.900	5.375	5.229	2.287	1.143
91	1	5	SR	Oil	M	17	7.400	6.718	6.370	2.524	0.612
91	1	5	SR	Oil	U	1	0.000	2.800			
91	2	2	CT	Ctl	F	2	0.900	5.350	0.405	0.636	0.450
91	2	2	CT	Oil	F	2	1.700	5.450	1.445	1.202	0.850
91	2	2	CT	Oil	M	1	0.000	7.200			
91	2	2	E R C U		F	19	4.000	5.911	1.411	1.188	0.273
91	2	2	E R C U		M	20	5.300	5.700	1.841	1.357	0.303
91	2	2	ER	Oil	F	3	3.900	5.467	4.823	2.196	1.268
91	2	2	ER	Oil	M	5	1.400	4.500	0.305	0.552	0.247
91	2	2	ER	Oil	U	1	0.000	1.800			
91	2	2	S R C U		F	1	0.000	9.500			
91	2	2	S R C U		M	2	0.700	4.450	0.245	0.495	0.350
91	2	2	SR	Oil	F	1	0.000	5.100			
91	2	2	SR	Oil	M	10	4.900	6.500	3.098	1.760	0.557
91	2	3	CT	Ctl	F	45	6.400	6.002	2.792	1.671	0.249
91	2	3	C T C U		M	56	7.700	6.386	3.589	1.894	0.253
91	2	3	CT	Ctl	U	12	0.800	2.133	0.033	0.183	0.053
91	2	3	CT	Oil	F	5	4.300	6.140	3.928	1.982	0.886
91	2	3	CT	Oil	M	9	5.600	6.933	3.403	1.845	0.615
91	2	3	CT	Oil	U	9	0.400	1.789	0.016	0.127	0.042
91	2	3	E R C U		F	33	7.900	6.236	3.283	1.812	0.315
91	2	3	E R C U		M	35	6.800	6.151	3.081	1.755	0.297
91	2	3	ER	Oil	F	19	5.800	6.395	4.516	2.125	0.488
91	2	3	ER	Oil	M	22	6.700	5.686	4.212	2.052	0.438
91	2	3	ER	Oil	U	13	2.800	2.315	0.473	0.688	0.191
91	2	3	S R C U		F	15	4.600	4.927	1.348	1.161	0.300
91	2	3	SR	Ctl	M	33	4.600	4.888	1.453	1.205	0.210
91	2	3	S R C U		U	3	2.100	3.167	1.243	1.115	0.644
91	2	3	SR	Oil	F	18	'6.200	6.167	3.701	1.924	0.453
91	2	3	SR	Oil	M	35	'7.500	6.249	5.033	2.243	0.379
91	2	3	SR	Oil	U	5	1.300	1.940	0.293	0.541	0.242
91	2	4	CT	Ctl	F	14	5.100	6.036	3.324	1.823	0.487
91	2	4	C T C U		M	23	'7.800	6.213	4.563	2.136	0.445
91	2	4	CT	Ctl	U	15	0.600	2.140	0.025	0.159	0.041
91	2	4	CT	Oil	F	59	6.900	5.198	2.449	1.565	0.204
91	2	4	CT	Oil	M	60	'7.700	5.397	2.534	1.592	0.206
91	2	4	CT	Oil	U	45	1.200	1.824	0.036	0.188	0.028
91	2	4	ER	Ctl	F	35	8.500	6.923	4.067	2.017	0.341
91	2	4	ER	Ctl	M	26	'7.600	6.838	5.367	2.317	0.454
91	2	4	E R C U		U	2	0.500	2.050	0.125	0.354	0.250
91	2	4	ER	Oil	F	26	'7.600	6.396	6.100	2.470	0.484
91	2	4	ER	Oil	M	22	6.800	6.045	3.581	1.892	0.403
91	2	4	ER	Oil	U	4	2.300	2.475	1.076	1.037	0.519
91	2	4	S R C U		F	18	4.600	6.039	2.175	1.475	0.348
91	2	4	SR	Ctl	M	36	5.700	4.881	1.602	1.266	0.211
91	2	4	SR	Ctl	U	2	0.100	1.750	0.005	0.071	0.050
91	2	4	SR	Oil	F	44	6.900	6.043	4.326	2.080	0.314
91	2	4	SR	Oil	M	60	13.000	6.050	4.402	2.098	0.271

Table E-106 (continued)

Year	Vis	MVD	Hab	O/C	Sex	N	Range	Mean	Var.	StDev	StErr
91	2	5	CT	Oil	F	28	5.800	7.104	2.674	1.635	0.309
91	2	5	CT	Oil	M	40	7.100	6.475	4.096	2.024	0.320
91	2	5	CT	Oil	U	1	0.000	2.400	.		

Table E-107. Mean size (g) of Anodlarchus purpurescens collected at 3 habitats and habitats combined for 2 visits in 1990 and 1991. MVD 2, 3 and 4 were analyzed.

		1990		1991	
Type	MVD	Visit 1	Visit 2	Visit 1	Visit 2
	Exposed Rocky				
Ctl	2	0.686	1.458	1.777	3.690
Oil	2	0.487	0.927	0.790	0.994
Ctl	3	2.413	2.295	2.280	3.901
Oil	3	1.505	1.462	3.172	4.184
Ctl	4	2.678	2.662	5.878	5.687
Oil	4	2.600	3.478	4.172	3.659
	Coarse Textured				
Ctl	2	0.800	0.617	1.115	0.823
Oil	2	0.359	0.153	0.000	0.402
Ctl	3	2.044	2.499	4.312	4.794
Oil	3	1.023	1.417	0.675	1.660
Ctl	4	3.143	3.649	3.952	5.553
Oil	4	3.059	4.385	4.214	3.885
	Sheltered Rocky				
Ctl	2	0.371	1.141	0.000	0.871
Oil	2	0.663	1.271	0.170	1.626
Ctl	3	1.634	2.369	1.697	2.953
Oil	3	2.043	2.277	2.500	3.059
Ctl	4	2.369	2.267	2.455	3.447
Oil	4	2.636	0.500	4.057	4.780
	All Habitats				
Ctl	2	0.643	0.987	0.799	1.631
Oil	2	0.491	0.709	0.251	1.025
Ctl	3	2.005	2.420	2.660	3.809
Oil	3	1.483	1.709	2.041	2.787
Ctl	4	2.833	3.242	3.851	4.996
Oil	4	2.875	3.545	4.143	4.129

Table E-108. Mean size (g) for exposed rocky, coarse textured, sheltered rocky and all habitats combined for AnODlarchus purpurescens collected during 2 visits each in 1990 and 1990. Only MVD with AnODlarchus purpurescens present are included.

		1990		1991	
Type	MVD	Visit 1	Visit 2	Visit 1	Visit 2
	Exposed Rocky				
Ctl	2	5.033	5.249	5.331	6.765
Oil	2	5.600	4.080	7.900	4.475
Ctl	3	5.630	6.310	4.560	6.131
oil	3	3.386	3.900	3.965	5.379
Ctl	4	5.357	4.658	7.053	6.635
Oil	4	3.177	3.975	5.215	5.855
	Coarse Textured				
Ctl	2	5.471	5.406	5.948	5.350
Oil	2	6.650	5.850	5.215	6.033
Ctl	3	4.315	5.155	5.391	5.753
Oil	3	7.160	4.768	5.062	6.224
Ctl	4	4.714	5.733	4.517	5.553
Oil	4	5.505	4.750	5.8'99	5.439
	Sheltered Rocky				
Ctl	2	5.008	3.308	4.517	6.975
Oil	2	6.417	5.265	3.400	6.504
Ctl	3	4.011	3.949	5.0'92	4.921
Oil	3	5.200	3.946	5.556	5.438
Ctl	4	3.948	3.778	4.909	5.170
Oil	4	5.272	3.500	4.681	4.780
	All habitats				
Ctl	2	5.267	4.260	5.596	6.524
Oil	2	6.250	4.854	5.650	5.857
Ctl	3	4.538	4.770	5.108	5.567
Oil	3	5.004	4.220	4.834	5.575
Ctl	4	4.686	5.249	5.628	5.829
Oil	4	4.724	4.542	5.212	5.240

Table E-109. 1990 Anodlarchus purpurescens abundance (number/m²) for each MVD. The p value is from the Wilcoxon matched pairs test.

Year	Visit	Habitat	MVD	N	p
90	1	All	2	8	0.264
90	1	Exposed Rocky	2	1	0.158
90	1	Coarse Textured	2	4	0.232
90	1	Sheltered Rocky	2	3	0.296
90	1	All	3	16	0.049*
90	1	Exposed Rocky	3	5	0.171
90	1	Coarse Textured	3	7	0.031*
90	1	Sheltered Rocky	3	4	0.500
90	1	All	4	15	0.128
90	1	Exposed Rocky	4	5	0.172
90	1	Coarse Textured	4	6	0.373
90	1	Sheltered Rocky	4	4	0.232
90	2	All	2	12	0.008*
90	2	Exposed Rocky	2	4	0.034*
90	2	Coarse Textured	2	3	0.142
90	2	Sheltered Rocky	2	5	0.172
90	2	All	3	16	0.358
90	2	Exposed Rocky	3	4	0.034*
90	2	Coarse Textured	3	7	0.088
90	2	Sheltered Rocky	3	5	0.172
90	2	All	4	15	0.153
90	2	Exposed Rocky	4	5	0.343
90	2	Coarse Textured	4	7	0.249
90	2	Sheltered Rocky	4	3	0.055

Table E-109. (continued) Wilcoxon on AnODlarchus Durvurescens abundance(number/m²).

Year	Visit	Habitat	MVD	N	P
91	1	All	2	3	0.296
91	1	Exposed Rocky	2	1	0.158
91	1	Coarse Textured	2	1	0.158
91	1	Sheltered Rocky	2	1	0.158
91	1	All	3	12	0.319
91	1	Exposed Rocky	3	3	0.142
91	1	Coarse Textured	3	4	0.034*
91	1	Sheltered Rocky	3	5	0.172
91	1	All	4	12	0.468
91	1	Exposed Rocky	4	3	0.297
91	1	Coarse Textured	4	4	0.119
91	1	Sheltered Rocky	4	5	0.250
91	2	All	2	8	0.444
91	2	Exposed Rocky	2	3	0.142
91	2	Coarse Textured	2	2	0.328
91	2	Sheltered Rocky	2	3	0.296
91	2	All	3	11	0.222
91	2	Exposed Rocky	3	3	0.297
91	2	Coarse Textured	3	4	0.034*
91	2	Sheltered Rocky	3	4	0.500
91	2	All	4	10	0.323
91	2	Exposed Rocky	4	3	0.142
91	2	Coarse Textured	4	4	0.182
91	2	Sheltered Rocky	4	3	0.296

Table E-110. 1990 Anodlarchus purpurescens biomass (g/m^2) for each MVD. The p value is the result of the Wilcoxon matched pairs test.

Year	Visit	Habitat	MVD	N	P
90	1	All	2	8	0.242
90	1	Exposed Rocky	2	1	0.158
90	1	Coarse Textured	2	4	0.232
90	1	Sheltered Rocky	2	3	0.055
90	1	All	3	16	0.077
90	1	Exposed Rocky	3	5	0.112
90	1	Coarse Textured	3	7	0.046*
90	1	Sheltered Rocky	3	4	0.500
90	1	All	4	15	0.230
90	1	Exposed Rocky	4	5	0.172
90	1	Coarse Textured	4	6	0.172
90	1	Sheltered Rocky	4	4	0.232
90	2	All	2	12	0.079
90	2	Exposed Rocky	2	4	0.034*
90	2	Coarse Textured	2	3	0.142
90	2	Sheltered Rocky	2	5	0.112
90	2	All	3	16	0.081
90	2	Exposed Rocky	3	4	0.500
90	2	Coarse Textured	3	7	0.045*
90	2	Sheltered Rocky	3	5	0.250
90	2	All	4	15	0.128
90	2	Exposed Rocky	4	5	0.343
90	2	Coarse Textured	4	7	0.306
90	2	Sheltered Rocky	4	3	0.054

Table **E-110.** (continued) Wilcoxon on Anoplarchus purpurescens biomass(g/m^2).

Year	Visit	Habitat	MVD	N	P
91	**1**	All	**2**	**3**	**0.142**
91	**1**	Exposed Rocky	**2**	**1**	**0.153**
91	**1**	Coarse Textured	**2**	**1**	**0.153**
91	**1**	Sheltered Rocky	**2**	**1**	**0.153**
91	**1**	All	**3**	**12**	**0.437**
91	**1**	Exposed Rocky	**3**	**3**	**0.296**
91	**1**	Coarse Textured	**3**	**4**	**0.034***
91	**1**	Sheltered Rocky	**3**	**5**	**0.022***
91	**1**	All	**4**	**12**	**0.265**
91	**1**	Exposed Rocky	**4**	**3**	**0.296**
91	**1**	Coarse Textured	**4**	**4**	**0.358**
91	**1**	Sheltered Rocky	**4**	**5**	**0.172**
91	**2**	All	**2**	**8**	**0.363**
91	**2**	Exposed Rocky	**2**	**3**	**0.142**
91	**2**	Coarse Textured	**2**	**2**	**0.328**
91	**2**	Sheltered Rocky	**2**	**3**	**0.500**
91	**2**	All	**3**	**11**	**0.297**
91	**2**	Exposed Rocky	**3**	**3**	**0.500**
91	**2**	Coarse Textured	**3**	**4**	**0.034***
91	**2**	Sheltered Rocky	**3**	**4**	**0.232**
91	**2**	All	**4**	**10**	**0.437**
91	**2**	Exposed Rocky	**4**	**3**	**0.142**
91	**2**	Coarse Textured	**4**	**4**	**0.500**
91	**2**	Sheltered Rocky	**4**	**3**	**0.055**

Table E-111. Abundance (number/m²) for coarse textured, exposed rocky, sheltered rocky and all habitats combined for 4 size classes for AnODlarchus purpurescens. Both years and visits were combined.

Type	MVD	Length Range 0-36	37-50	51-70	71 up
All Habitats					
Ctl	2	0.028	0.034	0.032	0.028
Oil	2	0.012	0.010	0.013	0.013
Ctl	3	0.368	0.256	0.19'7	0.126
Oil	3	0.150	0.096	0.071	0.065
Ctl	4	0.717	0.497	0.320	0.260
Oil	4	0.425	0.333	0.224	0.193
Coarse Textured					
Ctl	2	0.012	0.057	0.040	0.044
Oil	2	*0.000*	0.005	0.002	0.004
Ctl	3	0.443	0.370	0.32'7	0.210
Oil	3	0.073	0.045	0.024	0.020
Ctl	4	0.814	0.495	0.330	0.147
Oil	4	0.353	0.300	0.18'7	0.146
Exposed Rocky					
Ctl	2	0.019	0.021	0.051	0.022
Oil	2	0.014	0.009	0.006	0.003
Ctl	3	0.048	0.068	0.102	0.079
Oil	3	0.167	0.100	0.042	0.038
Ctl	4	0.193	0.294	0.279	0.446
Oil	4	0.430	0.213	0.15'7	0.137
Sheltered Rocky					
Ctl	2	0.052	0.018	0.011	0.013
Oil	2	0.024	0.016	0.030	0.031
Ctl	3	0.484	0.247	0.111	0.063
oil	3	0.229	0.152	0.142	0.131
Ctl	4	1.079	0.698	0.344	0.251
Oil	4	0.564	0.509	0.360	0.340

Table E-112. Abundance (number/m²) for coarse textured, exposed rocky, sheltered rocky and all habitats combined for Anoplarchus purpurescens for 4 different size classes. Bath visits within each year are combined.

		0 to 36mm		37 to 50mm		51 to 70mm		71mm up	
Type	MVD	1990	1991	1990	1991	1990	1991	1990	1991
All Habitats									
ctl	2	0.042	0.002	0.031	0.042	0.034	0.029	0.019	0.046
Oil	2	0.015	0.007	0.007	0.015	0.008	0.023	0.011	0.018
Ctl	3	0.517	0.099	0.224	0.314	0.186	0.216	0.106	0.163
Oil	3	0.157	0.138	0.058	0.169	0.065	0.081	0.041	0.111
Ctl	4	0.958	0.403	0.396	0.1529	0.259	0.400	0.160	0.392
Oil	4	0.372	0.488	0.099	0.609	0.129	0.336	0.090	0.315
Coarse Textured									
ctl	2	0.014	0.007	0.043	0.091	0.035	0.054	0.017	0.115
Oil	2	0.000	0.000	0.004	0.004	0.002	0.004	0.004	0.004
Ctl	3	0.532	0.206	0.302	0.550	0.279	0.452	0.155	0.356
Oil	3	0.019	0.203	0.015	0.117	0.017	0.039	0.009	0.047
Ctl	4	0.743	1.006	0.334	0.927	0.243	0.565	0.081	0.322
Oil	4	0.304	0.443	0.106	0.660	0.131	0.291	0.109	0.214
Exposed Rocky									
Ctl	2	0.031	0.000	0.017	0.028	0.056	0.043	0.025	0.023
Oil	2	0.019	0.004	0.004	0.024	0.007	0.004	0.002	0.008
ctl	3	0.075	0.012	0.067	0.069	0.072	0.145	0.066	0.098
Oil	3	0.192	0.124	0.030	0.227	0.028	0.070	0.022	0.068
ctl	4	0.334	0.053	0.498	0.091	0.313	0.247	0.331	0.563
Oil	4	0.636	0.214	0.104	0.328	0.120	0.197	0.089	0.189
Sheltered Rocky									
Ctl	2	0.085	0.000	0.023	0.012	0.018	0.000	0.019	0.006
Oil	2	0.030	0.015	0.015	0.020	0.019	0.051	0.029	0.036
Ctl	3	0.768	0.075	0.216	0.293	0.130	0.085	0.064	0.062
Oil	3	0.320	0.089	0.133	0.181	0.154	0.124	0.095	0.189
Ctl	4	2.362	0.279	0.445	0.856	0.236	0.412	0.167	0.303
Oil	4	0.264	0.726	0.068	0.747	0.135	0.482	0.022	0.512

Table E-113. Abundance (number/m²) for Anoplarchus purpurescens for coarse textured, exposed rocky, sheltered rocky and all habitats combined at each MVD for 4 differeent size classes for oil and control sites.

		Length 0 to 36mm				Length 37 to 50mm				Length 51 to 70mm				Length 71mm and up			
Type	MVD	Visit 1 1990	Visit 2 1990	Visit 1 1991	Visit 2 1991	Visit 1 1990	Visit 2 1990	Visit 1 1991	Visit 2 1991	Visit 1 1990	Visit 2 1990	Visit 1 1991	Visit 2 1991	Visit 1 1990	Visit 2 1990	Visit 1 1991	Visit 2 1991
		All Habitats Combined															
Ctl	2	0.020	0.065	0.004	0.000	0.024	0.037	0.055	0.026	0.034	0.035	0.033	0.024	0.018	0.019	0.072	0.014
Oil	2	0.002	0.026	0.012	0.001	0.006	0.009	0.000	0.032	0.010	0.006	0.000	0.049	0.009	0.014	0.002	0.036
Ctl	3	0.601	0.412	0.093	0.108	0.236	0.210	0.284	0.351	0.176	0.199	0.152	0.298	0.088	0.129	0.125	0.213
Oil	3	0.058	0.258	0.164	0.109	0.063	0.052	0.155	0.183	0.040	0.091	0.064	0.100	0.042	0.039	0.059	0.168
Ctl	4	1.080	0.803	0.416	0.379	0.457	0.318	0.569	0.738	0.204	0.329	0.471	0.272	0.191	0.120	0.258	0.634
Oil	4	0.339	0.409	0.518	0.452	0.135	0.060	0.472	0.771	0.150	0.106	0.391	0.273	0.084	0.096	0.282	0.355
		Coarse Textured															
Ctl	2	0.024	0.003	0.013	0.000	0.042	0.046	0.155	0.012	0.057	0.011	0.091	0.008	0.022	0.011	0.208	0.000
Oil	2	0.000	0.000	0.000	0.000	0.007	0.002	0.000	0.008	0.001	0.002	0.000	0.008	0.007	0.002	0.000	0.008
Ctl	3	0.713	0.324	0.211	0.200	0.346	0.250	0.615	0.470	0.268	0.292	0.383	0.539	0.125	0.190	0.331	0.388
Oil	3	0.000	0.037	0.298	0.108	0.006	0.023	0.197	0.037	0.009	0.025	0.034	0.044	0.014	0.005	0.037	0.058
Ctl	4	0.691	0.793	1.131	0.882	0.484	0.191	1.176	0.679	0.201	0.284	0.868	0.263	0.124	0.041	0.292	0.353
Oil	4	0.236	0.378	0.247	0.640	0.138	0.072	0.545	0.775	0.124	0.140	0.375	0.209	0.098	0.121	0.300	0.130
		Exposed Rocky															
Ctl	2	0.000	0.069	0.000	0.000	0.003	0.034	0.016	0.042	0.001	0.123	0.010	0.080	0.000	0.050	0.013	0.033
Oil	2	0.002	0.036	0.000	0.008	0.002	0.004	0.000	0.050	0.010	0.004	0.000	0.008	0.000	0.004	0.008	0.008
Ctl	3	0.064	0.093	0.024	0.000	0.090	0.024	0.056	0.083	0.110	0.000	0.047	0.252	0.076	0.046	0.003	0.200
Oil	3	0.103	0.290	0.108	0.141	0.029	0.030	0.164	0.297	0.031	0.023	0.048	0.093	0.018	0.024	0.000	0.144
Ctl	4	0.219	0.531	0.046	0.064	0.378	0.701	0.041	0.177	0.233	0.451	0.323	0.115	0.330	0.333	0.197	1.189
Oil	4	0.547	0.757	0.357	0.034	0.126	0.074	0.341	0.314	0.140	0.094	0.250	0.131	0.078	0.104	0.199	0.178
		Sheltered Rocky															
Ctl	2	0.031	0.135	0.000	0.000	0.015	0.029	0.000	0.027	0.027	0.009	0.000	0.000	0.027	0.011	0.000	0.013
Oil	2	0.006	0.053	0.028	0.000	0.006	0.023	0.000	0.044	0.023	0.014	0.000	0.110	0.018	0.039	0.000	0.079
Ctl	3	0.859	0.669	0.047	0.113	0.196	0.239	0.179	0.452	0.098	0.164	0.046	0.139	0.044	0.085	0.047	0.081
Oil	3	0.102	0.554	0.087	0.092	0.157	0.107	0.118	0.257	0.085	0.228	0.096	0.158	0.094	0.096	0.108	0.284
Ctl	4	2.930	1.225	0.346	0.076	0.495	0.345	0.651	1.470	0.175	0.357	0.393	0.467	0.166	0.169	0.284	0.362
Oil	4	0.407	0.121	0.879	0.517	0.136	0.000	0.491	1.098	0.269	0.000	0.499	0.457	0.044	0.000	0.322	0.771

Table E-114. Mean abundance (number/m²) of the crescent gunnel Pholis laeta collected in Prince William Sound, Alaska at each site in 1990 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

Site Pair	Type	Visit 1 Mean	Visit 1 Change	Visit 1 SE	Visit 2 Mean	Visit 2 Change	Visit 2 SE
	Sheltered Rocky Sites						
4825C	Control	0.271	0.166	0.164	0.167	0.111	0.167
1424	Oil	0.105		0.038	0.056		0.056
453c	Control	0.323	0.305	0.234	0.011	0.011	0.011
453	Oil	0.019		0.019	0.000		0.000
601C	Control	0.000	-0.344	0.000	0.162	0.070	0.129
601	oil	0.344		0.146	0.092		0.073
598C	Control	0.030	0.010	0.030	0.145	0.066	0.128
598	Oil	0.021		0.021	0.079		0.037
1522C	Control	0.000	0.000	0.000	0.039	0.039	0.039
1522	Oil	0.000		0.000	0.000		0.000
	Coarse Textured Sites						
1383C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1580	Oil	0.000		0.000	0.000		0.000
506C	Control	0.185	0.185	0.085	0.037	0.037	0.037
506	Oil	0.000		0.000	0.000		0.000
1598C	Control	0.011	-0.027	0.011	0.053	0.022	0.036
1598	Oil	0.038		0.021	0.031		0.020
846C	Control	0.003	0.003	0.003	0.029	-0.125	0.020
846	Oil	0.000		0.000	0.154		0.084
1650C	Control	0.015	0.009	0.015	0.000	-0.033	
1650	Oil	0.005		0.005	0.033		0.021
1171C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1171	Oil	0.000		0.000	0.000		0.000
1627C	Control	0.035	0.035	0.027	0.000	-0.021	0.000
1627	Oil	0.000		0.000	0.021		0.015
	Exposed Rocky Sites						
19C	Control	0.014	0.014	0.014	0.000	0.000	0.000
19	Oil	0.000		0.000	0.000		0.000
4537C	Control	0.005	-0.051	0.005	0.012	0.007	0.012
979	Oil	0.057		0.034	0.005		0.005
1642C	Control	0.044	0.006	0.014	0.034	0.034	0.023
833	Oil	0.037		0.019	0.000		0.000
1642C	Control	0.044	0.044	0.014	0.034	0.034	0.023
232	Oil	0.000		0.000	0.000		0.000
2937C	Control	0.000	-0.051	0.000	0.000	-0.047	0.000
305	Oil	0.051		0.035	0.047		0.033
	Sheltered Estuary Sites						
2397C	Control	0.000	0.000	0.000	0.037	0.037	0.037
208/209	Oil	0.000		0.000	0.000		0.000

Table E-115. Mean abundance (number/m²) of the crescent gunnel Pholis laeta collected in Prince William Sound, Alaska at each site in 1991 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

		1991 Visit 1			1991 Visit 2		
Site	Type	Mean	Change	SE	Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.000	-0.267	0.000	0.168	-0.003	0.101
1424	Oil	0.267		0.090	0.171		0.171
453c	Control	0.081	-0.117	0.081	0.177	0.128	0.146
453	Oil	0.198		0.118	0.049		0.049
601C	Control	0.034	-0.242	0.034	0.029	-0.241	0.029
601	Oil	0.276		0.211	0.270		0.270
598C	Control	0.044	-0.006	0.018	0.044	-0.187	0.026
598	Oil	0.049		0.049	0.231		0.231
1522C	Control	0.014	-0.269	0.014	-----		
1522	oil	0.284		0.172	-----		
	Coarse Textured Sites						
506C	Control	0.098	0.071	0.072	0.295	0.245	0.248
506	Oil	0.026		0.026	0.050		0.026
1598C	Control	0.011	0.011	0.011	0.111	0.111	0.029
1598	Oil	0.000		0.000	0.000		0.000
846C	Control	0.021	0.021	0.010	0.031	0.008	0.027
846	Oil	0.000		0.000	0.023		0.015
1650C	Control	0.078	0.078	0.040	0.000	0.000	0.000
1650	Oil	0.000		0.000	0.000		0.000
	Exposed Rocky Sites						
19C	Control	0.023	-0.183	0.013	0.139	-0.213	0.110
19	Oil	0.206		0.093	0.352		0.112
4537C	Control	0.008	-0.039	0.005	0.017	-0.023	0.008
979	Oil	0.047		0.023	0.040		0.006
1642C	Control	0.024	0.009	0.024	0.066	0.038	0.066
833	Oil	0.016		0.016	0.028		0.028
	Sheltered Estuary Sites						
2397C	Control	0.046	-0.044	0.019	0.058	0.021	0.020
208/209	Oil	0.089		0.089	0.037		0.012

Table E-116. 1990 visit 1 Pholis laeta abundance (number/m²) for each MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site pair	1			2			3			4			5		
	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n
Sheltered Rocky Habitat															
4825C	0.00	21.0	6	0.00	17.9	5	0.87	12.0	5	0.00	0.3	1	0.00	0.0	0
1424	0.00	14.6	6	0.06	20.8	6	0.04	21.1	6	0.22	10.7	4	0.00	0.0	0
453c	0.00	20.4	6	0.00	16.6	6	0.06	23.5	6	0.78	20.0	5	0.00	4.7	1
453	0.00	22.6	6	0.00	27.8	6	0.17	23.5	6	0.00	0.9	1	0.00	0.0	0
601C	0.00	16.5	6	0.00	16.9	6	0.00	13.9	6	0.00	0.0	0	0.00	0.0	0
601	0.00	14.3	6	0.03	33.8	6	0.34	38.2	6	2.54	3.2	1	0.00	0.0	0
598C	0.00	16.2	6	0.00	15.6	6	0.00	21.3	6	0.30	7.2	4	0.00	1.7	1
598	0.00	27.1	6	0.00	18.1	6	0.04	21.7	6	0.00	1.5	1	0.00	0.0	0
1522C	0.00	10.1	4	0.00	22.8	4	0.00	16.6	4	0.00	0.0	0	0.00	0.0	0
1522	0.00	33.7	5	0.00	31.1	5	0.00	5.4	4	0.00	0.0	0	0.00	0.0	0
Coarse *Textured* Habitat															
1383	0.00	51.4	6	0.00	61.6	6	0.00	49.4	6	0.00	47.6	5	0.00	25.9	3
1580	0.00	39.1	6	0.00	54.3	6	0.00	61.7	6	0.00	50.8	5	0.00	15.3	2
506C	0.00	27.0	6	0.00	32.6	6	0.28	17.4	5	1.14	6.8	3	0.00	0.0	0
506	0.00	8.1	2	0.00	11.0	2	0.00	10.7	2	0.00	12.3	2	0.00	0.0	0
1598C	0.00	34.7	5	0.01	48.0	5	0.00	7.2	3	0.00	0.0	0	0.00	0.0	0
1598	0.00	40.0	5	0.00	80.3	5	0.05	52.0	5	0.21	25.2	5	0.00	2.2	1
846C	0.00	270.7	6	0.00	189.1	6	****	129.8	6	0.00	3.5	1	0.00	0.0	0
846	0.00	104.8	6	0.00	117.1	6	0.00	52.6	4	0.00	42.3	2	0.00	12.8	2
1650C	0.00	56.8	6	0.00	51.3	6	0.00	44.7	6	0.25	7.6	3	0.00	0.0	0
1650	0.00	50.0	6	0.00	60.0	6	0.00	56.4	6	0.02	38.8	4	0.17	27.4	4
1171C	0.00	45.5	6	0.00	58.3	6	0.00	36.8	6	0.00	25.9	3	0.00	11.5	2
1171	0.00	46.0	6	0.00	57.2	6	0.00	51.4	6	0.00	45.5	5	0.00	10.8	1
1627C	0.00	36.2	6	0.00	40.4	6	0.00	42.9	6	0.09	50.1	6	0.00	6.4	3
1627	0.00	43.7	6	0.00	52.9	6	0.00	63.5	6	0.00	19.8	4	0.00	6.9	2
Exposed Rocky Habitat															
19C	0.00	21.1	6	0.00	30.2	6	0.00	47.9	6	0.22	15.0	3	0.00	0.0	0
19	0.00	32.1	6	0.00	36.9	6	0.00	12.0	2	0.00	0.0	0	0.00	0.0	0
4537C	0.00	152.0	6	0.00	157.2	6	0.01	132.4	5	0.03	33.7	1	0.00	0.0	0
979	0.00	64.5	6	0.01	66.6	6	0.06	66.6	6	0.10	47.0	5	0.27	7.5	1
1642C	0.00	15.0	6	0.00	25.7	6	0.03	32.1	6	0.09	29.2	5	0.00	10.6	3
833	0.00	6.1	3	0.00	8.6	3	0.00	12.1	3	0.12	16.9	2	0.00	0.0	0
1642C	0.00	15.0	6	0.00	25.7	6	0.03	32.1	6	0.09	29.2	5	0.00	10.6	3
232	0.00	6.8	2	0.00	13.8	2	0.00	2.5	1	0.00	0.0	0	0.00	0.0	0
2937C	0.00	10.8	4	0.00	20.2	4	0.00	17.7	4	0.00	7.1	3	0.00	2.9	1
305	0.00	20.2	6	0.00	22.4	6	0.02	29.8	6	0.24	17.7	4	0.00	0.0	0
Sheltered Estuary Habitat															
2397C	0.00	121.6	6	0.00	154.0	6	0.00	64.1	3	0.00	12.3	1	0.00	0.0	0
208/209	0.00	40.2	4	0.00	58.9	4	0.00	4.3	1	0.00	0.0	0	0.00	0.0	0

Table E-117. 1990 visit 2 Pholis laeta abundance (number/m²) for each MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site Pair	1			2			3			4			5		
	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n
sheltered Rocky Habitat															
4825C	0.00	10.0	6	0.00	16.5	6	0.40	12.8	5	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*
1424	0.00	26.2	6	0.06	13.8	5	0.00	9.8	3	0.00	0.0	0	0.00	*0.0*	*0*
453c	0.00	19.4	6	0.00	24.0	6	0.00	22.8	6	0.07	9.4	3	0.00	*0.0*	*0*
453	0.00	22.0	6	0.00	21.0	6	0.00	24.6	6	0.00	0.0	0	0.00	*0.0*	*0*
601C	0.00	19.5	6	0.13	13.8	6	0.23	13.2	4	0.00	2.3	1	0.00	*0.0*	*0*
601	0.00	20.8	6	0.00	32.9	6	0.18	24.1	5	0.00	0.0	0	0.00	*0.0*	*0*
598C	0.00	18.5	6	0.00	21.3	6	0.29	18.2	5	0.29	3.4	1	0.00	*0.0*	*0*
598	0.00	21.8	6	0.00	21.8	6	0.11	19.9	6	0.22	4.2	3	0.00	*0.0*	0
1522C	0.00	16.4	5	0.00	24.4	5	0.05	21.7	5	0.00	0.0	0	*0.00*	0.0	0
1522	0.00	32.6	6	0.00	36.2	6	0.00	18.1	6	0.00	10.9	4	0.00	1.5	1
Coarse Textured Habitat															
1383	0.00	48.5	6	0.00	59.2	6	0.00	42.4	5	0.00	54.4	5	0.00	25.5	3
1580	0.00	52.0	6	0.00	68.5	6	0.00	66.1	6	0.00	34.9	4	0.00	0.0	0
506C	0.00	24.0	6	0.00	25.7	6	0.00	16.9	6	0.77	2.6	1	0.00	0.0	*0*
506	0.00	18.5	3	0.00	17.8	3	0.00	26.1	2	0.00	5.9	1	0.00	*0.0*	*0*
1598C	0.00	33.0	5	0.03	46.9	5	0.03	49.2	5	0.23	47.7	5	0.00	0.0	0
1598	0.00	37.2	5	0.00	71.6	5	0.03	54.3	5	0.10	30.5	4	1.79	13.9	3
846C	0.00	238.6	6	0.00	223.6	6	0.20	137.5	6	0.00	10.6	3	0.00	*0.0*	*0*
846	0.00	81.3	6	0.00	121.7	6	0.11	171.7	6	0.66	72.6	4	0.00	*0.0*	0
1650C	0.00	0.0	0	*0.00*	*0.0*	*0*	*0.00*	0.0	0	0.00	0.0	0	0.00	0.0	0
1650	0.00	50.7	6	0.00	55.2	6	0.05	58.5	6	0.05	46.5	6	0.32	8.7	2
1171C	0.00	45.9	6	0.00	57.6	6	0.00	50.5	6	0.00	47.0	5	0.00	1.8	1
1171	0.00	39.3	6	0.00	84.8	6	0.00	59.2	6	0.00	19.2	3	0.00	5.8	1
1627C	0.00	46.5	6	0.00	71.5	6	0.00	44.5	5	0.00	21.7	3	0.00	0.0	0
1627	0.00	33.8	6	0.00	87.2	6	0.01	66.3	6	0.10	15.3	3	0.00	0.0	*0*
Exposed Rocky Habitat															
19C	0.00	31.5	5	0.00	35.6	5	0.00	20.9	3	0.00	8.9	2	0.00	*0.0*	*0*
19	0.00	25.8	5	0.00	20.3	5	0.00	26.1	3	0.00	5.5	1	0.00	*0.0*	0
4537C	0.00	117.9	6	0.00	71.3	5	0.00	28.3	2	0.10	50.4	1	0.00	0.0	0
979	0.00	59.3	6	0.00	66.8	6	0.00	31.2	4	0.05	19.1	2	0.11	9.4	1
1642C	0.00	23.8	6	0.00	30.0	6	0.00	22.0	5	0.11	20.0	3	0.00	2.3	1
833	0.00	14.4	3	0.00	10.7	3	0.00	7.0	2	0.00	0.0	0	0.00	0.0	0
1642C	0.00	23.8	6	0.00	30.0	6	0.00	22.0	5	0.11	20.0	3	0.00	2.3	1
232	0.00	8.5	2	0.00	5.8	2	0.00	22.1	2	0.00	7.4	2	0.00	*0.0*	*0*
2937C	0.00	8.8	2	0.00	8.4	2	0.00	7.5	1	0.00	4.9	1	0.00	*0.0*	*0*
305	0.00	26.2	6	0.00	20.9	6	0.00	22.3	5	0.24	15.5	3	0.00	*0.0*	*0*
sheltered Estuary Habitat															
2397C	0.00	131.4	6	0.04	267.8	6	0.00	77.3	3	0.00	0.0	0	*0.00*	*0.0*	*0*
208/209	0.00	56.1	4	0.00	112.4	4	0.00	148.3	4	0.00	38.5	1	0.00	*0.0*	*0*

Table E-118. 1991 visit 1 Pholis laeta abundance (number/m²) for each MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site Pair	1			2			3			4			5		
	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n
Sheltered Rocky Habitat															
4825C	0.00	0.0	0	0.00	11.5	4	0.00	10.7	4	0.00	2.5	2	0.00	0.0	0
1424	*0.00*	*0.0*	*0*	*0.00*	8.1	4	0.18	14.7	4	0.52	14.9	4	0.00	0.0	0
453c	*0.00*	0.0	0	0.00	7.9	4	0.06	10.7	4	0.11	22.5	4	0.93	8.8	2
453	0.00	0.0	0	0.00	12.8	4	0.05	21.1	4	0.40	31.6	4	1.40	2.8	1
601C	0.00	0.0	0	0.00	6.6	4	0.00	10.4	4	0.12	8.4	4	0.00	0.0	0
601	0.00	0.0	0	0.00	24.9	4	0.50	16.5	4	0.00	0.0	0	0.00	0.0	0
598C	0.00	0.0	0	0.00	16.8	5	0.00	20.6	5	0.11	20.5	5	0.00	0.0	0
598	0.00	0.0	0	0.00	12.5	4	0.00	13.1	4	0.17	12.4	3	0.52	1.9	1
1522C	0.00	0.0	0	0.00	6.0	3	0.02	23.5	4	0.00	9.4	3	0.00	0.0	0
1522	0.00	0.0	0	*0.00*	12.5	3	0.00	14.3	3	0.90	13.9	4	0.00	0.0	0
Coarse Textured Habitat															
506C	0.00	0.0	0	0.00	16.5	4	0.28	12.2	3	0.00	1.8	2	0.00	*0.0*	*0*
506	*0.00*	0.0	0	0.00	13.2	3	0.00	17.2	3	0.18	10.7	3	0.00	*0.0*	*0*
1598C	0.00	0.0	0	0.00	31.4	4	0.03	25.5	4	0.00	0.0	0	*0.00*	*0.0*	*0*
1598	0.00	0.0	0	0.00	42.0	4	0.00	45.7	4	0.00	40.8	4	0.00	*0.0*	*0*
846C	0.00	0.0	0	0.00	129.3	4	0.05	109.8	4	0.00	9.1	2	0.00	*0.0*	*0*
846	0.00	0.0	0	0.00	60.7	4	0.00	88.3	4	0.00	82.3	3	0.00	*0.0*	*0*
1650C	0.00	0.0	0	0.03	34.0	4	0.03	36.5	4	0.27	22.5	4	0.00	0.0	0
1650	0.00	0.0	0	0.00	36.5	4	0.00	45.9	4	0.00	40.3	4	0.00	23.9	3
Exposed Rocky Habitat															
19C	0.00	0.0	0	0.00	31.0	4	0.00	31.4	4	0.06	29.1	4	0.34	15.5	3
19	*0.00*	0.0	0	0.00	30.0	3	0.08	13.5	3	0.57	24.0	3	1.82	7.2	1
4537C	0.00	0.0	0	0.00	120.9	4	0.00	82.5	4	0.02	130.2	4	0.00	0.0	0
979	*0.00*	0.0	0	0.00	49.6	4	0.03	54.9	4	0.08	56.0	4	0.00	10.6	1
1642C	0.00	0.0	0	0.00	16.8	4	0.05	23.2	4	0.00	15.1	4	0.00	0.0	0
833	0.00	0.0	0	0.00	21.9	3	0.00	20.5	3	0.07	26.1	3	0.00	5.9	1
sheltered Estuary Habitat															
2397C	0.00	0.0	0	0.02	114.3	4	0.08	92.4	4	0.00	0.0	0	0.00	0.0	0
208/209	0.00	0.0	0	0.00	33.3	2	0.00	33.0	2	0.19	47.2	2	0.00	0.0	0

Table E-119. 1991 visit 2 Pholis laeta abundance (number/m²) for *each* MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of *each* site pair is the control site.

Site Fair	1			2			3			4			5		
	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n
Sheltered Rocky Habitat															
4825C	0.00	0.0	0	0.00	12.4	4	0.34	11.2	4	0.00	0.0	0	*0.00*	*0.0*	0
1424	0.00	0.0	0	0.00	14.9	4	0.00	12.3	4	0.59	11.0	4	0.00	0.0	0
453c	*0.00*	*0.0*	*0*	*0.00*	11.7	4	0.00	14.5	4	0.32	20.1	4	0.00	3.0	1
453	*0.00*	0.0	0	0.00	16.7	4	0.00	17.0	4	0.15	16.5	4	0.00	0.0	0
601C	0.00	0.0	0	0.00	13.2	4	0.06	9.3	3	0.00	0.0	0	*0.00*	0.0	*0*
601	0.00	0.0	0	0.10	16.7	4	0.39	17.5	4	0.00	0.0	0	*0.00*	*0.0*	*0*
598C	0.00	0.0	0	0.00	15.1	4	0.04	18.1	4	0.11	8.0	2	0.00	*0.0*	*0*
598	0.00	0.0	0	0.00	12.9	4	0.11	16.0	4	1.30	6.2	3	0.00	*0.0*	*0*
1522C	0.00	0.0	0	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	0.0	0	*0.00*	*0.0*	*0*
1522	0.00	0.0	0	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*
Coarse Textured Habitat															
506C	0.00	0.0	0	0.00	12.6	3	0.47	14.2	3	0.00	2.0	1	0.00	*0.0*	0
506	*0.00*	0.0	0	0.04	17.9	3	0.06	14.5	3	0.00	11.7	2	0.00	0.0	0
1598C	0.00	0.0	0	*0.00*	31.4	4	0.00	21.8	3	0.37	32.3	4	0.00	0.0	0
1598	0.00	0.0	0	*0.00*	45.1	4	0.00	57.9	4	0.00	42.7	4	0.47	15.4	3
846C	*0.00*	0.0	0	0.00	119.8	4	0.06	119.2	4	0.00	12.0	1	0.00	0.0	0
846	*0.00*	0.0	0	0.00	66.5	4	0.00	114.3	4	0.06	103.8	4	0.29	35.4	2
1650C	0.00	0.0	0	*0.00*	17.2	2	0.00	28.3	2	0.00	9.6	2	0.00	0.0	0
1650	0.00	0.0	0	*0.00*	32.7	4	0.00	44.7	4	0.00	39.5	4	0.30	23.3	4
Exposed Rocky Habitat															
19C	0.00	0.0	0	0.04	30.4	3	0.00	22.2	3	0.59	12.0	2	0.00	*0.0*	*0*
19	0.00	0.0	0	0.00	10.3	2	0.30	13.4	2	0.66	14.3	2	0.00	*0.0*	*0*
4537C	0.00	0.0	0	0.00	134.4	4	0.01	166.8	4	0.03	80.1	4	0.00	*0.0*	*0*
979	*0.00*	0.0	0	0.00	44.7	4	0.05	51.6	4	0.11	52.8	4	0.00	*0.0*	*0*
1642C	0.00	0.0	0	0.00	16.2	4	0.09	22.3	4	0.00	1.5	1	0.00	*0.0*	*0*
833	0.00	0.0	0	0.02	21.6	3	0.03	22.4	3	0.00	15.0	2	0.00	*0.0*	*0*
sheltered Estuary Habitat															
2397C	0.00	0.0	0	0.04	49.0	2	0.08	54.5	2	0.00	0.0	0	0.00	*0.0*	*0*
208/209	0.00	0.0	0	0.00	33.7	2	0.00	32.5	2	0.10	35.7	2	0.00	*0.0*	*0*

Table E-120. Abundance (number/m²) for Pholis la — at *each* of 3 habitats, and habitats combined for *each* MVD during 2 visits *each* in 1990 and 1991.

		1990						1991					
		Visit 1			Visit 2			Visit 1			Visit 2		
MVD		Sqm	#/m²	N	Sqm	#/m²	N	Sqm	#/m²	N	Sqm	#/m²	N
		All Habitats											
1	Ctl	805.3	0.00	91	701.9	0.00	83	———	———	——	———	———	——
1	Oil	573.7	0.00	89	570.3	0.00	90	———	———	——	———	———	——
2	Ctl	804.3	0.01	90	729.8	0.01	82	428.7	0.01	48	414.4	0.01	40
2	Oil	712.7	0.01	89	756.9	0.01	89	324.7	0.00	44	300.1	0.01	40
3	Ctl	645.6	0.07	86	508.5	0.08	69	397.3	0.03	48	447.9	0.09	38
3	Oil	581.1	0.05	81	707.3	0.03	79	365.6	0.07	44	381.7	0.07	40
4	Ctl	253.9	0.25	43	283.2	0.08	34	271.0	0.07	38	177.8	0.20	21
4	Oil	332.4	0.14	45	287.4	0.12	40	353.0	0.27	39	313.6	0.26	33
5	Ctl	63.7	0.00	14	29.6	0.00	5	24.2	0.57	5	3.0	0.00	1
5	Oil	82.8	0.07	13	39.3	0.76	8	52.3	0.46	8	74.1	0.35	9
		sheltered **Rocky Habitats**											
1	Ctl	84.1	0.00	28	83.7	0.00	29	———	———	——	———	———	——
1	Oil	112.3	0.00	29	123.4	0.00	30	———	———	——			
2	Ctl	89.8	0.00	27	99.9	0.02	29	48.9	0.00	20	52.5	0.00	16
2	Oil	131.5	0.01	29	125.8	0.01	29	70.8	0.00	19	61.3	0.02	16
3	Ctl	87.2	0.17	27	88.7	0.18	25	76.0	0.01	21	53.0	0.11	15
3	Oil	109.9	0.12	28	96.6	0.05	26	79.6	0.15	19	62.8	0.12	16
4	Ctl	27.6	0.51	10	15.1	0.10	5	63.3	0.08	18	28.2	0.24	6
4	Oil	16.2	0.48	7	15.0	0.09	7	72.8	0.51	15	33.7	0.62	11
5	Ctl	6.4	0.00	2	———	———	——	8.7	0.92	2	3.0	0.00	1
5	Oil	———	———	——	1.5	0.00	1	4.8	0.96	2	———	———	——
		Coarse Textured Habitats											
1	Ctl	522.3	0.00	41	436.4	0.00	35	———	———	——	———	———	——
1	Oil	331.6	0.00	37	312.7	0.00	38	———	———	——	———	———	——
2	Ctl	481.2	0.01	41	484.4	0.01	35	211.1	0.01	16	180.9	0.00	13
2	Oil	432.9	0.00	37	506.8	0.00	38	152.4	0.00	15	162.2	0.01	15
3	Ctl	328.2	0.03	38	341.0	0.04	33	184.1	0.08	15	183.6	0.13	12
3	Oil	348.2	0.01	35	502.1	0.03	37	197.1	0.00	15	231.4	0.01	15
4	Ctl	141.4	0.22	21	184.0	0.08	22	33.4	0.13	8	56.0	0.18	8
4	Oil	234.6	0.04	27	224.8	0.14	25	174.1	0.03	14	197.7	0.01	14
5	Ctl	43.8	0.00	8	27.3	0.00	4						
5	Oil	75.3	0.05	12	28.4	1.00	6	23.9	0.00	3	74.1	0.35	9
		Exposed Rocky Habitats											
1	Ctl	198.9	0.00	22	181.9	0.00	19	———	———	——	———	———	——
1	Oil	129.7	0.00	23	134.1	0.00	22	———	———	——	———	———	——
2	Ctl	233.3	0.00	22	145.4	0.00	18	168.7	0.00	12	181.0	0.01	11
2	oil	148.4	0.01	23	124.5	0.00	22	101.4	0.00	10	76.6	0.01	9
3	Ctl	230.1	0.01	21	78.8	0.00	11	137.1	0.01	12	211.3	0.03	11
3	Oil	123.0	0.02	18	108.6	0.00	16	88.9	0.03	10	87.5	0.09	9
4	Ctl	84.9	0.09	12	84.1	0.06	7	174.4	0.02	12	93.7	0.18	7
4	oil	81.6	0.15	11	47.5	0.10	8	106.2	0.22	10	82.2	0.21	8
5	Ctl	13.5	0.00	4	2.3	0.00	1	15.5	0.34	3			
5	Oil	7.5	0.26	1	9.4	0.10	1	23.6	0.60	3	———	———	——

Table **E-121.** Abundance (number/m²) **of** the crescent gunnel Pholis **laeta** found within each of the three habitats, and habitats combined at control and oiled **site** pairs sampled in Prince William Sound, Alaska during each **of** two visits in **1990** and **1991.** Each mean is for MVD **2, 3** and **4** combined and n = sample size.

		1990				1991			
Habitat	Type	n	Visit 1	n	Visit 2	n	Visit 1	n	Visit 2
Habitats Combined	Ctl	96	0.058	88	0.048	49	0.036	40	0.097
	Oil	89	0.044	89	0.034	45	0.116	40	0.102
Sheltered Rocky	Ctl	27	0.129	29	0.107	21	0.035	16	0.104
	Oil	29	0.101	29	0.045	20	0.215	16	0.180
coarse Textured	Ctl	41	0.036	35	0.019	16	0.052	13	0.112
	Oil	37	0.006	38	0.037	15	*0.005*	15'	0.016
Exposed Rocky	Ctl	28	0.023	24	0.019	12	0.018	11	0.068
	Oil	23	0.033	22	0.014	10	0.085	9	0.105

Table E-122. Mean biomass (g/m^2) of the crescent gunnel Pholis laeta collected in Prince William Sound, Alaska at each site in 1990 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

Site Pair	Type	Visit 1 Mean	Visit 1 Change	Visit 1 SE	Visit 2 Mean	Visit 2 Change	Visit 2 SE
	Sheltered Rocky Sites						
4825C	Control	0.014	-0.043	0.008	0.013	0.005	0.013
1424	Oil	0.056		0.053	0.008		0.008
453c	Control	0.049	0.041	0.038	0.008	0.008	0.008
453	Oil	0.008		0.008	0.000		0.000
601C	Control	0.000	-0.340	0.000	0.033	-0.020	0.021
601	Oil	0.340		0.125	0.053		0.050
598C	Control	0.032	0.031	0.032	0.027	0.020	0.025
598	Oil	0.001		0.001	0.007		0.004
1522C	Control	0.000	0.000	0.000	0.005	0.005	0.005
1522	Oil	0.000		0.000	0.000		0.000
	Coarse Textured Sites						
1383C	Control	0.000	0.000	0.000	*0.000*	0.000	0.000
1580	Oil	0.000		0.000	0.000		0.000
506C	Control	0.047	0.047	0.022	0.005	0.005	0.005
506	Oil	0.000		0.000	0.000		0.000
1598C	Control	0.022	0.020	0.022	0.008	0.005	0.005
1598	Oil	0.001		0.001	0.003		0.002
846C	Control	0.002	0.002	0.002	0.010	-0.023	0.006
846	Oil	0.000		0.000	0.033		0.022
1650C	Control	0.000	-0.002	0.000	0.000	-0.021	0.000
1650	Oil	0.002		0.002	0.021		0.020
1171C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1171	Oil	0.000		0.000	0.000		0.000
1627C	Control	0.034	0.034	0.021	0.000	-0.023	0.000
1627	Oil	0.000		0.000	0.023		0.022
	Exposed Rocky Sites						
19C	Control	0.008	0.008	0.008	0.000	0.000	0.000
19	Oil	0.000		0.000	0.000		0.000
4537C	Control	0.017	0.006	0.017	0.024	0.020	0.024
979	Oil	0.011		0.010	0.004		0.004
1642C	Control	0.039	0.037	0.014	0.009	0.009	0.006
833	Oil	0.002		0.001	0.000		0.000
1642C	Control	0.039	0.039	0.014	0.009	0.009	0.006
232	Oil	0.000		0.000	0.000		0.000
2937C	Control	0.000	-0.021	0.000	0.000	-0.044	0.000
305	Oil	0.021		0.013	0.044		0.029
	Sheltered Estuary Sites						
2397C	Control	0.000	0.000	0.000	0.024	0.024	0.024
208/209	Oil	0.000		0.000	0.000		0.000

Table E-123. Mean biomass (g/m²) of the crescent gunnel Pholis laeta collected in Prince William Sound, Alaska at each site in 1991 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

		1991 Visit 1			1991 Visit 2		
Site	Type	Mean	Change	SE	Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.000	-0.220	0.000	0.069	-0.043	0.042
1424	Oil	0.220		0.075	0.112		0.112
453c	Control	0.068	-0.052	0.068	0.074	0.016	0.072
453	Oil	0.120		0.074	0.057		0.057
601C	Control	0.059	-0.220	0.059	0.001	-0.201	0.001
601	Oil	0.279		0.145	0.202		0.202
598C	Control	0.084	0.036	0.069	0.026	-0.377	0.016
598	Oil	0.048		0.048	0.403		0.403
1522C	Control	0.010	-0.203	0.010	-----		
1522	Oil	0.213		0.131	-----		
	Coarse Textured Sites						
506C	Control	0.048	0.033	0.031	0.199	0.159	0.170
506	Oil	0.015		0.015	0.040		0.022
1598C	Control	0.004	0.004	0.004	0.027	0.027	0.015
1598	oil	0.000		0.000	0.000		0.000
846C	Control	0.084	0.084	0.047	0.072	0.064	0.070
846	Oil	0.000		0.000	0.008		0.005
1650C	Control	0.090	0.090	0.053	0.000	0.000	0.000
1650	Oil	0.000		0.000	0.000		0.000
	Exposed Rocky Sites						
19C	Control	0.022	-0.162	0.021	0.289	-0.164	0.177
19	Oil	0.183		0.129	0.454		0.071
4537C	Control	0.006	-0.095	0.004	0.014	-0.137	0.006
979	Oil	0.101		0.069	0.151		0.032
1642C	Control	0.014	0.007	0.014	0.244	0.242	0.244
833	Oil	0.007		0.007	0.002		0.002
	Sheltered Estuary Sites						
2397C	Control	0.072	-0.486	0.039	0.039	-0.060	0.005
208/209	Oil	0.558		0.558	0.099		0.095

Table E-124. 1990 visit 1 *Pholis laeta* biomass (g/m²) for each MVD sampled. Average weight (G.) of fish per square meter, number of square meters (K) and sample size (n). The first of each site pair is the control site.

	1			2			3			4			5	
site	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n
Sheltered Rocky Habitat															
4825C	0.00	21.0	6	0.00	17.9	5	0.04	*12.0*	5	0.00	0.3	1	0.00	*0.0*	0
1424	0.00	14.6	6	0.01	20.8	6	0.01	21.1	6	0.24	10.7	4	0.00	0.0	0
453c	0.00	20.4	6	0.00	16.6	6	0.01	23.5	6	*0.12*	20.0	5	0.00	4.7	1
453	0.00	22.6	6	0.00	27.8	6	0.08	23.5	6	0.00	0.9	1	0.00	0.0	0
601C	0.00	16.5	6	0.00	16.9	6	0.00	13.9	6	0.00	0.0	0	*0.00*	0.0	0
601	0.00	14.3	6	0.07	33.8	6	0.24	38.2	6	2.92	3.2	1	0.00	0.0	0
598C	0.00	16.2	6	0.00	15.6	6	0.00	21.3	6	0.32	7.2	4	0.00	1.7	1
598	0.00	27.1	6	0.00	18.1	6	0.01	21.7	6	0.00	1.5	1	0.00	0.0	0
1522C	0.00	10.1	4	0.00	22.8	4	0.00	16.6	4	0.00	0.0	0	0.00	0.0	*0*
1522	0.00	33.7	5	0.00	31.1	5	0.00	5.4	4	0.00	0.0	0	*0.00*	*0.0*	*0*
Coarse Textured Habitat															
1383C	0.00	51.4	6	0.00	61.6	6	0.00	49.4	6	0.00	47.6	5	0.00	25.9	3
1580	0.00	39.1	6	0.00	54.3	6	0.00	61.7	6	0.00	50.8	5	0.00	15.3	2
506C	0.00	27.0	6	0.00	32.6	6	0.09	17.4	5	0.23	6.8	3	0.00	0.0	0
506	0.00	8.1	2	0.00	11.0	2	0.00	10.7	2	0.00	12.3	2	0.00	0.0	0
1598C	0.00	34.7	5	0.02	48.0	5	0.00	7.2	3	0.00	0.0	0	*0.00*	0.0	0
1598	0.00	40.0	5	0.00	80.3	5	0.01	52.0	5	0.01	25.2	5	0.00	2.2	1
846C	0.00	270.7	6	0.00	189.1	6	0.01	129.8	6	0.00	3.5	1	0.00	0.0	0
846	0.00	104.8	6	0.00	117.1	6	0.00	52.6	4	0.00	42.3	2	0.00	12.8	2
1650C	0.00	56.8	6	0.00	51.3	6	0.00	44.7	6	0.01	7.6	3	0.00	0.0	0
1650	0.00	50.0	6	0.00	60.0	6	0.00	56.4	6	0.01	38.8	4	0.07	27.4	4
1171C	0.00	45.5	6	0.00	58.3	6	0.00	36.8	6	0.00	25.9	3	0.00	11.5	2
1171	0.00	46.0	6	0.00	57.2	6	0.00	51.4	6	0.00	45.5	5	0.00	10.8	1
1627C	0.00	36.2	6	0.00	40.4	6	0.00	42.9	6	0.09	50.1	6	0.00	6.4	3
1627	0.00	43.7	6	0.00	52.9	6	0.00	63.5	6	0.00	19.8	4	0.00	6.9	2
Exposed Rocky Habitat															
19C	0.00	21.1	6	0.00	30.2	6	0.00	47.9	6	0.12	15.0	3	0.00	*0.0*	*0*
19	0.00	32.1	6	0.00	36.9	6	0.00	12.0	2	0.00	0.0	0	0.00	*0.0*	0
4537C	0.00	152.0	6	0.00	157.2	6	0.02	132.4	5	0.21	33.7	1	0.00	0.0	0
979	0.00	64.5	6	0.01	66.6	6	0.02	66.6	6	0.02	47.0	5	0.08	7.5	1
1642C	0.00	15.0	6	0.00	25.7	6	0.02	32.1	6	0.09	29.2	5	0.00	10.6	3
833	0.00	6.1	3	0.00	8.6	3	0.00	12.1	3	0.01	16.9	2	0.00	0.0	0
1642C	0.00	15.0	6	0.00	25.7	6	0.02	32.1	6	0.09	29.2	5	0.00	10.6	3
232	0.00	6.8	2	0.00	13.8	2	0.00	2.5	1	0.00	0.0	0	0.00	0.0	0
2937	0.00	10.8	4	0.00	20.2	4	0.00	17.7	4	0.00	7.1	3	0.00	2.9	1
305	0.00	20.2	6	0.00	22.4	6	0.01	29.8	6	0.10	17.7	4	0.00	0.0	*0*
sheltered Estuary Habitat															
2397	0.00	121.6	6	0.00	154.0	6	0.00	64.1	3	0.00	12.3	1	0.00	*0.0*	*0*
208/209	0.00	40.2	4	0.00	58.9	4	0.00	4.3	1	0.00	0.0	0	0.00	*0.0*	*0*

Table E-125. 1990 visit 2 Pholis laeta biomass (g/m²) for *each* MVD visited. Average weight *(G.)* of fish per square meter, number Of square meters (M²) and sample size(n). The first of *each* site *pair* is the control site.

Site Pair	1			2			3			4			5		
	G.	M²	n	*G.*	M²	n	*G.*	M²	n	*G.*	M²	n	*G.*	M²	n
sheltered *Rocky* Habitat															
4825C	0.00	10.0	6	0.00	16.5	6	0.03	12.8	5	0.00	0.0	0	0.00	*0.0*	*0*
1424	0.00	26.2	6	0.01	13.8	5	0.00	9.8	3	0.00	0.0	0	0.00	*0.0*	*0*
453c	0.00	19.4	6	*0.00*	24.0	6	0.00	22.8	6	0.05	9.4	3	0.00	*0.0*	*0*
453	0.00	22.0	6	0.00	21.0	6	0.00	24.6	6	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*
601C	0.00	19.5	6	0.04	13.8	6	0.02	13.2	4	0.00	2.3	1	0.00	*0.0*	*0*
601	0.00	20.8	6	*0.00*	32.9	6	0.10	24.1	5	0.00	0.0	0	0.00	*0.0*	*0*
598C	*0.00*	18.5	6	0.00	21.3	6	0.06	18.2	5	0.04	3.4	1	0.00	*0.0*	*0*
598	0.00	21.8	6	*0.00*	21.8	6	0.01	19.9	6	0.02	4.2	3	0.00	*0.0*	0
1522C	0.00	16.4	5	0.00	24.4	5	0.01	21.7	5	*0.00*	0.0	0	*0.00*	0.0	0
1522	0.00	32.6	6	0.00	36.2	6	0.00	18.1	6	*0.00*	10.9	4	0.00	1.5	1
1383C	*0.00*	48.5	6	0.00	59.2	6	*0.00*	42.4	5	*0.00*	54.4	5	0.00	25.5	3
1580	0.00	52.0	6	0.00	68.5	6	*0.00*	66.1	6	0.00	34.9	4	*0.00*	0.0	0
Coarse Textured Habitat															
506C	0.00	24.0	6	0.00	25.7	6	0.00	16.9	6	0.10	2.6	1	0.00	*0.0*	0
506	0.00	18.5	3	0.00	17.8	3	0.00	26.1	2	0.00	5.9	1	0.00	0.0	0
1598C	0.00	33.0	5	0.01	46.9	5	0.01	49.2	5	0.03	47.7	5	0.00	0.0	0
1598	0.00	37.2	5	0.00	71.6	5	0.01	54.3	5	0.01	30.5	4	0.21	13.9	3
846C	0.00	238.6	6	0.00	223.6	6	0.05	137.5	6	0.00	10.6	3	0.00	*0.0*	*0*
846	0.00	81.3	6	*0.00*	121.7	6	0.02	171.7	6	0.16	72.6	4	0.00	*0.0*	0
1650C	0.00	0.0	0	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	0.0	0	0.00	0.0	0
1650	0.00	50.7	6	*0.00*	55.2	6	0.01	58.5	6	0.06	46.5	6	1.25	8.7	2
1171C	0.00	45.9	6	0.00	57.6	6	0.00	50.5	6	0.00	47.0	5	0.00	1.8	1
1171	0.00	39.3	6	*0.00*	84.8	6	0.00	59.2	6	0.00	19.2	3	0.00	5.8	1
1627C	0.00	46.5	6	0.00	71.5	6	*0.00*	44.5	5	0.00	21.7	3	0.00	0.0	0
1627	0.00	33.8	6	0.00	87.2	6	0.01	66.3	6	0.15	15.3	3	*0.00*	0.0	*0*
Exposed *Rocky* Habitat															
19C	0.00	31.5	5	0.00	35.6	5	*0.00*	20.9	3	0.00	8.9	2	0.00	*0.0*	*0*
19	0.00	25.8	5	0.00	20.3	5	0.00	26.1	3	*0.00*	5.5	1	0.00	*0.0*	0
4537C	0.00	117.9	6	0.00	71.3	5	0.00	28.3	2	0.20	50.4	1	0.00	0.0	0
979	0.00	59.3	6	0.00	66.8	6	0.00	31.2	4	0.04	19.1	2	0.03	9.4	1
1642C	0.00	23.8	6	*0.00*	30.0	6	0.00	22.0	5	0.03	20.0	3	*0.00*	2.3	1
833	0.00	14.4	3	0.00	10.7	3	0.00	7.0	2	0.00	0.0	0	*0.00*	0.0	0
1642C	0.00	23.8	6	*0.00*	30.0	6	0.00	22.0	5	0.03	20.0	3	0.00	2.3	1
232	0.00	8.5	2	0.00	5.8	2	*0.00*	22.1	2	0.00	7.4	2	0.00	*0.0*	*0*
2937C	0.00	8.8	2	0.00	8.4	2	0.00	7.5	1	0.00	4.9	1	0.00	*0.0*	*0*
305	0.00	26.2	6	0.00	20.9	6	0.00	22.3	5	0.22	15.5	3	0.00	*0.0*	*0*
sheltered Estuary Habitat															
2397C	0.00	131.4	6	0.02	267.8	6	*0.00*	77.3	3	0.00	*0.0*	0	*0.00*	*0.0*	*0*
208/209	*0.00*	56.1	4	0.00	112.4	4	*0.00*	148.3	4	*0.00*	38.5	1	0.00	*0.0*	*0*

Table E-126. 1991 visit 1 Pholis laeta biomass (g/m²) for each MVD visited. Average weight (G.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site pair	1			2			3			4			5		
	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n
sheltered Rocky Habitat															
4825C	0.00	0.0	0	0.00	11.5	4	0.00	10.7	4	0.00	2.5	2	0.00	0.0	0
1424	*0.00*	*0.0*	*0*	*0.00*	8.1	4	0.11	14.7	4	0.46	14.9	4	0.00	0.0	0
453c	*0.00*	0.0	0	0.00	7.9	4	0.07	10.7	4	0.08	22.5	4	1.85	8.8	2
453	0.00	0.0	0	0.00	12.8	4	0.02	21.1	4	0.25	31.6	4	0.84	2.8	1
601C	0.00	0.0	0	0.00	6.6	4	0.00	10.4	4	0.21	8.4	4	0.00	0.0	0
601	0.00	0.0	0	0.00	24.9	4	0.57	16.5	4	0.00	*0.0*	*0*	0.00	0.0	0
598C	0.00	0.0	0	0.00	16.8	5	0.00	20.6	5	0.19	20.5	5	0.00	0.0	0
598	0.00	0.0	0	0.00	12.5	4	0.00	13.1	4	0.17	12.4	3	0.99	1.9	1
1522C	0.00	0.0	0	0.00	6.0	3	0.01	23.5	4	0.00	9.4	3	0.00	0.0	0
1522	0.00	0.0	0	*0.00*	12.5	3	0.00	14.3	3	0.67	13.9	4	0.00	0.0	0
Coarse Textured Habitat															
506C	0.00	0.0	0	0.00	16.5	4	0.14	12.2	3	0.00	1.8	2	0.00	0.0	0
506	0.00	0.0	0	0.00	13.2	3	0.00	17.2	3	0.10	10.7	3	0.00	0.0	0
1598C	0.00	0.0	0	0.00	31.4	4	0.01	25.5	4	0.00	*0.0*	*0*	0.00	0.0	0
1598	0.00	0.0	0	0.00	42.0	4	0.00	45.7	4	0.00	40.8	4	0.00	0.0	0
846C	0.00	0.0	0	0.00	129.3	4	0.20	109.8	4	0.00	9.1	2	0.00	0.0	0
846	0.00	0.0	0	0.00	60.7	4	0.00	88.3	4	0.00	82.3	3	0.00	0.0	0
1650C	0.00	0.0	0	0.01	34.0	4	0.01	36.5	4	0.59	22.5	4	0.00	0.0	0
1650	0.00	0.0	0	0.00	36.5	4	0.00	45.9	4	0.00	40.3	4	0.00	23.9	3
Exposed Rocky Habitat															
19C	0.00	0.0	0	0.00	31.0	4	0.00	31.4	4	0.06	29.1	4	0.93	15.5	3
19	*0.00*	0.0	0	0.00	30.0	3	0.03	13.5	3	0.55	24.0	3	0.89	7.2	1
4537C	0.00	0.0	0	0.00	120.9	4	0.00	82.5	4	0.02	130.2	4	0.00	0.0	0
979	*0.00*	0.0	0	0.00	49.6	4	0.02	54.9	4	0.23	56.0	4	0.00	10.6	1
1642C	0.00	0.0	0	0.00	16.8	4	0.03	23.2	4	0.00	15.1	4	0.00	0.0	0
833	0.00	0.0	0	0.00	21.9	3	0.00	20.5	3	0.03	26.1	3	0.00	5.9	1
sheltered Estuary Habitat															
2397C	0.00	0.0	0	0.04	114.3	4	0.10	92.4	4	0.00	0.0	0	0.00	0.0	0
208/209	0.00	0.0	0	0.00	33.3	2	0.00	33.0	2	1.18	47.2	2	0.00	0.0	0

Table E-127. 1991 visit 2 Pholis laeta biomass (g/m²) for each MVD visited. Average weight (G.) of fish per square meter, number of square meters (W) and sample size (n). The first of each site pair is the control site.

Site	1			2			3			4			5		
Fair	G.	M²	n	G.	IT	n	G.	M²	n	G.	M²	n	G.	IT	n
sheltered Rocky Habitat															
4825C	0.00	0.0	0	0.00	12.4	4	0.14	11.2	4	0.00	0.0	0	0.00	0.0	0
1424	*0.00*	*0.0*	*0*	*0.00*	14.9	4	0.00	12.3	4	0.39	11.0	4	0.00	0.0	0
453c	*0.00*	0.0	0	0.00	11.7	4	0.00	14.5	4	0.13	20.1	4	0.00	3.0	1
453	0.00	0.0	0	0.00	16.7	4	0.00	17.0	4	0.17	16.5	4	0.00	0.0	0
601C	0.00	0.0	0	0.00	13.2	4	0.01	9.3	3	0.00	0.0	0	0.00	0.0	0
601	0.00	0.0	0	0.06	16.7	4	0.30	17.5	4	0.00	0.0	0	0.00	0.0	0
598C	0.00	0.0	0	0.00	15.1	4	0.03	18.1	4	0.05	8.0	2	0.00	0.0	0
598	0.00	0.0	0	0.00	12.9	4	0.25	16.0	4	2.07	6.2	3	0.00	0.0	0
1522C	0.00	0.0	0	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*
1522	0.00	0.0	0	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*
Coarse Textured Habitat															
506C	0.00	0.0	0	0.00	12.6	3	0.32	14.2	3	0.00	2.0	1	0.00	*0.0*	0
506	0.00	0.0	0	0.02	17.9	3	0.07	14.5	3	0.00	11.7	2	0.00	0.0	0
1598C	0.00	0.0	0	0.00	31.4	4	0.00	21.8	3	0.10	32.3	4	0.00	0.0	0
1598	0.00	0.0	0	0.00	45.1	4	0.00	57.9	4	0.00	42.7	4	0.07	15.4	3
846C	0.00	0.0	0	0.00	119.8	4	0.14	119.2	4	0.00	12.0	1	0.00	0.0	0
846	0.00	0.0	0	0.00	66.5	4	0.00	114.3	4	0.02	103.8	4	0.22	35.4	2
1650C	0.00	0.0	0	0.00	17.2	2	0.00	28.3	2	0.00	9.6	2	0.00	0.0	0
1650	0.00	0.0	0	0.00	32.7	4	0.00	44.7	4	0.00	39.5	4	0.37	23.3	4
Exposed Rocky Habitat															
19C	0.00	0.0	0	0.17	30.4	3	0.00	22.2	3	1.02	12.0	2	0.00	0.0	0
19	*0.00*	0.0	0	0.00	10.3	2	0.33	13.4	2	0.90	14.3	2	0.00	0.0	0
4537C	0.00	0.0	0	0.00	134.4	4	0.01	166.8	4	0.03	80.1	4	0.00	0.0	0
979	0.00	0.0	0	0.00	44.7	4	0.09	51.6	4	0.54	52.8	4	0.00	0.0	0
1642C	0.00	0.0	0	0.00	16.2	4	0.34	22.3	4	0.00	1.5	1	0.00	0.0	0
833	0.00	0.0	0	0.01	21.6	3	0.01	22.4	3	0.00	15.0	2	0.00	0.0	0
Sheltered Estuary Habitat															
2397C	0.00	0.0	0	0.04	49.0	2	0.03	54.5	2	0.00	0.0	0	0.00	0.0	0
208/209	0.00	0.0	0	0.00	33.7	2	0.00	32.5	2	0.28	35.7	2	0.00	0.0	0

Table E-128. Biomass (g/m²) for Pholis laeta at each of 3 habitats, and habitats combined for each MVD during 2 visits in 1990 and 1991.

		1990						1991					
		Visit 1			Visit 2			Visit 1			Visit 2		
MVD		Sqm	g/m²	N	Sqm	g/m²	N	Sqm	g/m²	N	Sqm	g/m²	N
		All Habitats											
1	Ctl	805.3	0.00	91	701.9	0.00	83	—	—	—	—	—	—
1	Oil	573.7	0.00	89	570.3	0.00	90	—	—	—	—	—	—
2	ctl	—	—	—	729.8	0.01	82	—	—	—	414.4	0.01	40
2	Oil	712.7	0.01	89	—	—	—	324.7	0.00	44	300.1	0.01	40
3	Ctl	645.6	0.01	86	508.5	0.01	69	397.3	0.03	48	447.9	0.09	38
3	Oil	581.1	0.02	81	707.3	0.01	79	365.6	0.06	44	381.7	0.08	40
4	Ctl	253.9	0.09	43	283.2	0.02	34	271.0	0.12	38	177.8	0.15	21
4	Oil	332.4	0.09	45	287.4	0.05	40	353.0	0.23	39	313.6	0.37	33
5	Ctl	63.7	0.00	14	29.6	0.00	5	24.2	1.30	5	3.0	0.00	1
5	Oil	82.8	0.02	13	39.3	0.39	8	52.3	0.34	8	74.1	0.23	9
		Sheltered Rocky Habitats											
1	Ctl	84.1	0.00	28	83.7	0.00	29	—	—	—	—	—	—
1	Oil	112.3	0.00	29	123.4	0.00	30	—	—	—	—	—	—
2	Ctl	89.8	0.00	27	99.9	0.01	29	48.9	0.00	20	52.5	0.00	16
2	Oil	131.5	0.01	29	125.8	0.01	29	70.8	0.00	19	61.3	0.01	16
3	Ctl	87.2	0.01	27	88.7	0.02	25	76.0	0.01	21	53.0	0.04	15
3	Oil	109.9	0.06	28	96.6	0.02	26	79.6	0.14	19	62.8	0.13	16
4	Ctl	27.6	0.18	10	15.1	0.04	5	63.3	0.11	18	28.2	0.10	6
4	Oil	16.2	0.55	7	15.0	0.01	7	72.8	0.04	15	33.7	0.76	11
5	Ctl	6.4	0.00	2	—	—	—	8.7	1.85	2	3.0	0.00	1
5	Oil	—	—	—	1.5	0.00	1	4.8	0.91	2	—	—	—
		Coarse Textured Habitats											
1	Ctl	522.3	0.00	41	436.4	0.00	35	—	—	—	—	—	—
1	Oil	331.6	0.00	37	312.7	0.00	38	—	—	—	—	—	—
2	Ctl	481.2	0.01	41	—	—	—	—	—	—	180.9	0.00	13
2	Oil	432.9	0.00	37	506.8	0.00	38	152.4	0.00	15	162.2	0.01	15
3	Ctl	328.2	0.01	38	341.0	0.01	33	184.1	0.08	15	183.6	0.12	12
3	Oil	—	—	—	502.1	0.01	37	197.1	0.00	15	231.4	0.01	15
4	Ctl	141.4	0.05	21	184.0	0.01	22	33.4	0.29	8	56.0	0.05	8
4	Oil	234.6	0.01	27	224.8	0.05	25	174.1	0.02	14	197.7	0.01	14
5	Ctl	43.8	0.00	8	27.3	0.00	4	—	—	—	—	—	—
5	Oil	75.3	0.02	12	28.4	0.52	6	23.9	0.00	3	74.1	0.23	9
		Exposed Rocky Habitats											
1	Ctl	198.9	0.00	22	181.9	0.00	19	—	—	—	—	—	—
1	Oil	129.7	0.00	23	134.1	0.00	22	—	—	—	—	—	—
2	ctl	233.3	0.00	22	145.4	0.00	18	168.7	0.00	12	181.0	0.04	11
2	Oil	—	—	—	124.5	0.00	22	101.4	0.00	10	—	—	—
3	Ctl	230.1	0.01	21	78.7	0.00	11	137.1	0.01	12	211.3	0.12	11
3	Oil	123.0	0.01	18	108.6	0.00	16	88.9	0.01	10	87.5	0.11	9
4	ctl	84.9	0.08	12	84.1	0.04	7	174.4	0.02	12	93.7	0.30	7
4	Oil	81.6	0.04	11	47.5	0.09	8	106.2	0.26	10	82.2	0.49	8
5	Ctl	13.5	0.00	4	2.3	0.00	1	15.5	0.93	3	—	—	—
5	Oil	7.5	0.07	1	9.4	0.03	1	23.6	0.29	3	—	—	—

Table E-129. Biomass (g/m^2) of the cresent gunnel pholis laeta found within each of the three habitats, and habitats combined at control and oiled site pairs sampled in Prince William Sound, Alaska during each of two visits in 1990 and 1991. Each mean is for MVD 2, 3 and 4 combined and n = sample size.

		1990				1991			
Habitat	Type	n	Visit 1	n	'Visit 2	n	visit 1	n	visit 2
Habitats Combined	Ctl	96	0.019	88	0.010	49	0.042	40	0.089
	Oil	89	0.030	89	0.013	45	0.101	40	0.119
Sheltered Rocky	Ctl	27	0.020	29	0.018	21	0.046	16	0.043
	Oil	29	0.084	29	0.014	20	0.176	16	0.194
Coarse Textured	Ctl	41	0.015	35	0.004	16	0.057	13	0.077
	Oil	37	0.001	38	0.013	15	0.003	15	0.010
Exposed Rocky	Ctl	28	0.022	24	0.009	12	0.014	11	0.173
	Oil	23	0.009	22	0.013	10	0.098	9	0.169

Table E-130. The number of MVD's at each of three MVD's in which Pholis laeta was found during two visits each in 1990 and 1991. The probability value (p) is from the Wilcoxon test.

Year	Visit	MVD	Control Total	Control %	Oiled Total	Oiled %	Wilcoxon P
90	1	2	90	1.1	89	3.4	0.352
90	1	3	86	11.6	81	13.6	0.479
90	1	4	43	27.9	46	30.4	0.317
90	2	2	82	3.7	89	1.1	0.212
90	2	3	69	10.1	79	11.4	0.342
90	2	4	34	20.6	41	34.1	0.367
91	1	2	49	2.0	45	0.0	0.158
91	1	3	48	20.8	45	17.8	0.418
91	1	4	38	31.6	39	43.6	0.079
91	2	2	40	2.5	40	7.5	0.225
91	2	3	38	26.3	40	20.0	0.336
91	2	4	21	47.6	33	33.3	0.375

Table E-131. The number of MVD's that Pholis laeta was found (Fnd) in out of the total possible number of MVD's(Ttl), and the percent(%) of MVD's that contained Pholis laeta for the 3 habitat types, and all 3 habitats combined. Both visits within *each* year were combined.

		Overall			Exp Rcky			Crse Txt			Shlt Rcky		
Year	MVD	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990	2	8	350	2.3	1	85	1.2	2	151	1.3	5	114	4.4
1990	3	37	315	11.7	6	66	9.1	13	143	9.1	18	106	17.0
1990	4	47	164	28.7	15	38	39.5	22	96	22.9	10	30	33.3
1991	2	5	174	2.9	2	42	4.8	2	59	3.4	1	73	1.4
1991	3	36	171	21.1	11	42	26.2	12	57	21.1	13	72	18.1
1991	4	50	131	38.2	19	37	51.4	10	44	22.7	21	50	42.0

Table E-132. The number of MVD's that Pholis laeta was found (Fnd) in out of the total possible number of MVD's (Ttl), and the percent (%) of MVD's that contained Pholis laeta for the 3 habitats and all 3 habitats combined. Both visits within year were combined.

	Overall						Exposed Rocky					
	Oil			Control			Oil			Control		
Year MVD	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990 2	4	178	2.3	4	172	2.3	1	45	2.2	0	40	0.
1990 3	20	160	U.5	17	155	11.0	4	34	11.8	2	32	6.3
1990 4	28	87	32.2	19	77	24.7	9	19	47.4	6	19	31.6
1991 2	3	85	3.5	2	89	2.3	1	19	5.3	1	23	4.4
1991 3	16	85	18.8	20	86	23.3	8	19	42.1	3	23	13.0
1991 4	28	72	38.9	22	59	37.3	12	18	66.7	7	19	36.8
	Coarse Textured											
1990 2	0	75	0.	2	76	2.6	3	58	5.2	2	56	3.6
1990 3	6	72	8.3	7	71	9.9	10	54	18.5	8	52	15.4
1990 4	14	53	26.4	8	43	18.6	5	15	33.3	5	15	33.3
1991 2	1	30	3.3	1	29	3.5	1	36	2.8	0	37	0.0
1991 3	1	30	3.3	11	27	40.7	7	36	19.4	6	36	16.7
1991 4	3	28	10.7	7	16	43.8	13	26	50.0	8	24	33.3

Table E-133. The number of MVD's that pholis laeta was found (Fnd) in out of the total possible number of MVD's (Ttl), and the percent of MVD's that contained Pholis laeta for the 3 habitat types, and all 3 habitats cleed Vis = Visit.

		Overall			Exp Rcky			Crse Txt			Shlt Rcky		
Year	MVD	Vis	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990	2	1	4	179	2.2	1	45	2.2	1	78	1.3	2	56	3.6
1990	3	1	21	167	12.6	6	39	15.4	5	73	6.9	10	55	18.2
1990	4	1	26	89	29.2	10	23	43.5	9	48	18.8	7	18	38.9
1990	2	2	4	171	2.3	0	40	0.0	1	73	1.4	3	58	5.2
1990	3	2	16	148	10.8	0	27	0.0	8	70	11.4	8	51	15.7
1990	4	2	21	75	28.0	5	15	33.3	13	48	27.1	3	12	25.0
1991	2	1	1	94	1.1	0	22	0.0	1	31	3.2	0	41	0.0
1991	3	1	18	93	19.4	4	22	18.2	7	30	23.3	7	41	17.1
1991	4	1	29	77	37.7	10	22	45.5	4	22	18.2	15	33	45.5
1991	2	2	4	80	5.0	2	20	10.0	1	28	3.6	1	32	3.1
1991	3	2	18	78	23.1	7	20	35.0	5	27	18.5	6	31	19.4
1991	4	2	21	54	38.9	9	15	60.0	6	22	27.3	6	17	35.3

Table E-134. The number of MVD's that Pholis laeta was found (Fnd) in *cut* of the total possible number of MVD's (Ttl), and the percent (%) of MVD's that contained Pholis laeta for the 3 habitat types, and all 3 habitats combined. Vis = visit.

			Coarse Textured											
			Oil			Control			Oil			Control		
Year	MVD	Vis	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990	2	1	0	37	0.0	1	41	2.4	2	29	6.9	0	27	0.0
1990	3	1	1	35	2.9	4	38	10.5	6	28	21.4	4	27	14.8
1990	4	1	4	27	14.8	5	21	23.8	4	8	50.0	3	10	30.0
1990	2	2	0	38	0.0	1	35	2.9	1	29	3.5	2	29	6.9
1990	3	2	5	37	13.5	3	33	9.1	4	26	15.4	4	25	16.0
1990	4	2	10	26	38.5	3	22	13.6	1	7	14.3	2	5	40.0
1991	2	1	0	15	0.0	1	16	6.3	0	20	0.0	0	21	0.0
1991	3	1	0	15	0.0	7	15	46.7	5	20	25.0	2	21	9.5
1991	4	1	1	14	7.1	3	8	37.5	10	15	66.7	5	18	27.8
1991	2	2	1	15	6.7	0	13	0.	1	16	6.3	0	16	0.0
1991	3	2	1	15	6.7	4	12	33.3	2	16	12.5	4	15	26.7
1991	4	2	2	14	14.3	4	8	50.0	3	11	27.3	3	6	50.0
			Overall						Exposed Rocky					
1990	2	1	3	89	3.4	1	90	1.1	1	23	4.4	0	22	0.0
1990	3	1	11	81	13.6	10	86	11.6	4	18	22.2	2	21	9.5
1990	4	1	14	46	30.4	12	43	27.9	6	11	54.5	4	12	33.3
1990	2	2	1	89	1.1	3	82	3.7	0	22	0.0	0	18	0.0
1990	3	2	9	79	11.4	7	69	10.1	0	16	0.0	0	11	0.0
1990	4	2	14	41	34.1	7	34	20.6	3	8	37.5	2	7	28.6
1991	2	1	0	45	0.0	1	49	2.0	0	10	0.0	0	12	0.0
1991	3	1	8	45	17.8	10	48	20.8	3	10	30.0	1	12	8.3
1991	4	1	17	39	43.6	12	38	31.6	6	10	60.0	4	12	33.3
1991	2	2	3	40	7.5	1	40	2.5	1	9	11.1	1	11	9.1
1991	3	2	8	40	20.0	10	38	26.3	5	9	55.6	2	11	18.2
1991	4	2	11	33	33.3	10	21	47.6	6	8	75.0	3	7	42.9

Table E-135. Wilcoxon matched-pairs test on abundance (number/m²) for Pholis laeta. MVD 2, 3 and 4 were combined for these analyses.

Year	Visit	Habitat	Sample Size	P(Value)
1990	1	All Habitats	14	0.196
1990	2	All Habitats	14	0.110
1991	1	All Habitats	12	0.091
1991	2	All Habitats	10	0.479
1990	1	Sheltered Rocky	4	0.368
1990	2	Sheltered Rocky	5	0.022*
1991	1	Sheltered Rocky	5	0.022*
1991	2	Sheltered Rocky	4	0.137
1990	1	Coarse Textured	5	0.112
1990	2	Coarse Textured	5	0.343
1991	1	Coarse Textured	4	0.034*
1992	1	Coarse Textured	3	0.055
1990	1	Exposed Rocky	5	0.343
1990	2	Exposed Rocky	4	0.356
1991	1	Exposed Rocky	3	0.142
1991	2	Exposed Rocky	3	0.297

Table E-136. Wilcoxon matched pairs test on Pholis laeta abundance (number/m²) by MVD at 3 habitats and all habitats combined during each of 2 visits in 1990 and 1.991.

Year	Visit	Habitat	MVD	N	Wilcoxian
90	1	All	2	4	0.098
90	1	Exposed Rocky	2	1	0.158
90	1	Coarse Textured	2	1	0.158
90	1	Sheltered Rocky	2	2	0.090
90	1	All	3	11	0.328
90	1	Exposed Rocky	3	4	0.500
90	1	Coarse Textured	3	3	0.297
90	1	Sheltered Rocky	3	4	0.368
90	1	All	4	13	0.286
90	1	Exposed Rocky	4	5	0.446
90	1	Coarse Textured	4	4	0.136
90	1	Sheltered Rocky	4	4	0.500
90	2	All	2	3	0.298
90	2	Exposed Rocky	2	0	
90	2	Coarse Textured	2	1	0.158
90	2	Sheltered Rocky	2	2	0.327
90	2	All	3	8	0.046*
90	2	Exposed Rocky	3	0	
90	2	Coarse Textured	3	4	0.368
90	2	Sheltered Rocky	3	4	0.034*
90	2	All	4	11	0.237
90	2	Exposed Rocky	4	4	0.368
90	2	Coarse Textured	4	5	0.446
90	2	Sheltered Rocky	4	2	0.090

Table E-136. (continued) Wilcoxon matched pairs test on Pholis laeta abundance (number/m²).

Year	Visit	Habitat	MVD	N	Wilcoxian
91	1	All	2	1	0.158
91	1	Exposed Rocky	2	0	
91	1	Coarse Textured	2	1	0.158
91	1	Sheltered Rocky	2	0	
91	1	All	3	11	0.464
91	1	Exposed Rocky	3	3	0.296
91	1	Coarse Textured	3	4	0.034*
91	1	Sheltered Rocky	3	4	0.116
91	1	All	4	10	0.037*
91	1	Exposed Rocky	4	3	0.055
91	1	Coarse Textured	4	2	0.327
91	1	Sheltered Rocky	4	5	0.069
91	2	All	2	4	0.137
91	2	Exposed Rocky	2	2	0.327
91	2	Coarse Textured	2	1	0.158
91	2	Sheltered Rocky	2	1	0.158
91	2	All	3	8	0.390
91	2	Exposed Rocky	3	3	0.297
91	2	Coarse Textured	3	2	0.090
91	2	Sheltered Rocky	3	3	0.500
91	2	All	4	7	0.199
91	2	Exposed Rocky	4	2	0.090
91	2	Coarse Textured	4	2	0.327
91	2	Sheltered Rocky	4	3	0.142

Table E-137. Wilcoxon matched-pairs test on biomass (g/m^2) for Pholis laeta. MVD 2, 3 and 4 were combined for these analyses.

Year	Visit	Habitat	Sample size	p(Value)
1990	1	All Habitats	14	0.104
1990	2	All Habitats	14	0.365
1991	1	All Habitats	12	0.104
1991	2	All Habitats	10	0.287
1990	1	Sheltered Rocky	4	0.232
1990	2	Sheltered Rocky	5	0.208
1991	1	Sheltered Rocky	5	0.039*
1991	2	Sheltered Rocky	4	0.077
1990	1	Coarse Textured	5	0.040*
1990	2	Coarse Textured	5	0.112
1991	1	Coarse Textured	4	0.034*
1992	1	Coarse Textured	3	0.055
1990	1	Exposed Rocky	5	0.112
1990	2	Exposed Rocky	4	0.356
1991	1	Exposed Rocky	3	0.142
1991	2	Exposed Rocky	3	0.500

Table E-138. Wilcoxon matched pairs test for Pholis laeta biomass (g/m^2) by MVD for all 3 habitats and all habitats combined during each of 2 visits in 1990 and 1991.

Year	Visit	Habitat	MVD	N	Wilcoxian
90	1	All	2	4	0.232
90	1	Exposed Rocky	2	1	0.158
90	1	Coarse Textured	2	1	0.158
90	1	Sheltered Rocky	2	2	0.090
90	1	All	3	11	0.399
90	1	Exposed Rocky	3	4	0.138
90	1	Coarse Textured	3	3	0.142
90	1	Sheltered Rocky	3	4	0.136
90	1	All	4	13	0.191
90	1	Exposed Rocky	4	5	0.112
90	1	Coarse Textured	4	4	0.232
90	1	Sheltered Rocky	4	4	0.358
90	2	All	2	3	0.297
90	2	Exposed Rocky	2	0	
90	2	Coarse Textured	2	1	0.158
90	2	Sheltered Rocky	2	2	0.327
90	2	All	3	8	0.241
90	2	Exposed Rocky	3	0	
90	2	Coarse Textured	3	4	0.427
90	2	Sheltered Rocky	3	4	0.357
90	2	All	4	11	0.430
90	2	Exposed Rocky	4	4	0.357
90	2	Coarse Textured	4	5	0.172
90	2	Sheltered Rocky	4	2	0.090

Table E-138. (continued) Wilcoxon on Pholis laeta biomass (g/m²).

Year	Visit	Habitat	MVD	N	Wilcoxian
91	1	All	2	1	0.158
91	1	Exposed Rocky	2	0	
91	1	Coarse Textured	2	1	0.158
91	1	Sheltered Rocky	2	0	
91	1	All	3	11	0.366
91	1	Exposed Rocky	3	3	0.297
91	1	Coarse Textured	3	4	0.034*
91	1	Sheltered Rocky	3	4	0.232
91	1	All	4	10	0.101
91	1	Exposed Rocky	4	3	0.054
91	1	Coarse Textured	4	2	0.327
91	1	Sheltered Rocky	4	5	0.172
91	2	All	2	4	0.358
91	2	Exposed Rocky	2	2	0.327
91	2	Coarse Textured	2	1	0.158
91	2	Sheltered Rocky	2	1	0.158
91	2	All	3	8	0.500
91	2	Exposed Rocky	3	3	0.500
91	2	Coarse Textured	3	2	0.090
91	2	Sheltered Rocky	3	3	0.142
91	2	All	4	7	0.118
91	2	Exposed Rocky	4	2	0.327
91	2	Coarse Textured	4	2	0.327
91	2	Sheltered Rocky	4	3	0.055

Table E-139. Coefficients resulting from the forward stepwise regression analyses of Pholis laeta abundance (number/m²) at control and oiled sites sampled in Prince William Sound, Alaska during 1990 and 1991. Where no value is given that variable was not selected in the analyses.

			Substrate Type								Algae Cover								Habitat				
Year	MVD	C	M	S	FG	CB	LB	CG	SB	BR	K	MA	S	MO	BL	Slope	Oil	Visit	ER	CT	SR	N	R^2
1990	2	0.000										0.001									0.010	343	0.044
1990	3	0.032										0.004				-.003					0.086	305	0.076
1990	4	-.070						0.005		0.012		0.006						0.141				156	0.169
1991	2	0.005										0.001						-.008				171	0.049
1991	3	0.020										0.002			0.001	-.003						156	0.084
1991	4	-.222										0.010		0.010			0.246					100	0.213

Table E-140. Coefficients resulting from the forward stepwise regression analyses of Pholis laeta abundance (number/m²) at control and oiled sites sampled in Prince William Sound, Alaska during 1990 and 1991. Where no value is given that variable was not selected in the analyses. MVD 2, 3 and 4 were used for these analysis.

		Substrate Type								Algae Cover								Habitat				
Year	C	M	S	FG	CB	LB	CG	SB	BR	K	MA	S	MO	BL	Slope	Oil	Visit	ER	CT	SR	N	R^2
1990	0.038										0.004				-.002	-.031	0.029			0.035	804	0.077
1991	-.023										0.005		0.006		-.003	0.069					427	0.141

Substrate Type
- M = Mud
- S = Sand
- FG = Fine Gravel
- CB = Cobble
- LB = Large boulder
- CG = Coarse gravel
- SB = Small boulder
- BR = Bedrock

Algae Cover
- K = Kelp
- MA = Mat
- S = String
- MO = Mossy
- S = Sand
- BL = Bulky leaf

Habitat
- ER = Exposed Rocky
- SR = Sheltered Rocky
- CT = Coarse Textured

C = Regression constant

Table E-141. Logistic Regression analysis on Pholis laeta during 1991 for various levels of abundance (number/m^2).

MVD	2	3	3	4	4	4
Definition	0: 0 1: >0	0: 0 1: >0	0: 0–0.2 1: >0.2	0: 0 1: >0	0: 0-0.2 1: >0.2	0: 0–0.6 1: >0.6
Constant	−21.759	−1.605	−2.973	−1.014	-6.894	−4.643
Organic	0.225				0.070	
Oil					1.470	
Visit	2.529					
M*		0.278				
CB*	0.250					
LB*	0.220					
SB*					0.053	
Slope	−0.191			−0.166		
Kelp					−0.090	
Mat			0.028	0.077		0.058
Moss				0.072		0.067
String		0.090				
Exposed Rocky				−0.001		
Coarse Textured				−1.235		
N	181	166	166	104	104	104

* M = Mud; CB = Cobble; LB = Large Boulder; SB = Small Boulder

Table E-142. Logistic regression analysis *on* Pholis laeta for 1990 based *on* various levels of abundance (number/m^2).

MVD	2	3	3	4	4	4
Definition	0: 0 1: >0	0: 0 1: >0	0: 0–0.2 1: >0.2	0: 0 1: >0	0: 0–0.2 1: >0.2	0: 0–0.6 1: >0.6
Constant	-4.589	-2.465	-4.282	-0.948	-1.038	-3.018
Organic		0.026	0.029			
visit						-1.532
La*					-0.055	
CG*	0.030					0.054
Slope		-0.142				
Mat	0.064	0.033				0.044
N	346	302	302	154	154	154

* LB = Large Boulder; CG = Coarse Gravel

Table E-143. Mean abundance (number/m²) of the black prickleback Xiuhister atropurpureus collected in Prince William Sound, Alaska at each site in 1990 during visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

Site Pair	Type	Visit 1 Mean	Visit 1 Change	Visit 1 SE	Visit 2 Mean	Visit 2 Change	Visit 2 SE
Sheltered Rocky Sites							
4825C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1424	Oil	0.000		0.000	0.000		0.000
453c	Control	0.000	0.000	0.000	0.044	0.024	0.033
453	Oil	0.000		0.000	0.020		0.020
601C	Control	0.000	0.000	0.000	0.000	0.000	0.000
601	Oil	0.000		0.000	0.000		0.000
598C	Control	0.000	0.000	0.000	0.000	*0.000*	*0.000*
598	Oil	0.000		0.000	*0.000*		*0.000*
1522C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
1522	Oil	0.000		0.000	*0.000*		*0.000*
Coarse Textured Sites							
1383C	Control	0.000	-0.031	0.000	0.000	-0.004	0.000
1580	Oil	0.031		0.031	0.004		0.004
506C	Control	0.000	-0.061	0.000	0.000	-0.020	0.000
506	Oil	0.061		ID. 061	0.020		0.020
1598C	Control	0.000	0.000	0.000	0.005	0.005	0.005
1598	Oil	0.000		*0.000*	0.000		0.000
846C	Control	0.000	0.000	0.000	0.000	0.000	0.000
846	Oil	0.000		0.000	0.000		0.000
1650C	Control	0.000	-0.005	0.000	0.000	-0.016	
1650	Oil	0.005		80.005	0.016		0.011
1171C	Control	0.000	-0.018	0.000	0.000	-0.015	0.000
1171	Oil	0.018		0.013	0.015		0.010
1627C	Control	0.007	-0.029	'0.007	0.012	0.007	0.008
1627	Oil	0.036		0.024	0.005		0.005
Exposed Rocky Sites							
19C	Control	0.065	0.065	0.057	0.177	0.162	0.103
19	oil	0.000		0.000	0.014		0.014
4537C	Control	0.000	-0.035	0.000	0.000	-0.044	0.000
979	Oil	0.035		0.019	0.044		0.014
1642C	Control	0.035	-0.004	0.012	0.000	0.000	0.000
833	Oil	0.038		0.038	0.000		0.000
1642C	Control	0.035	0.035	0.012	0.000	-0.140	0.000
232	Oil	0.000		0.000	0.140		0.013
2937C	Control	0.000	-0.163	0.000	0.000	-0.024	0.000
305	Oil	0.163		0.080	0.024		0.024
Sheltered Estuary Sites							
2397C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
208/209	Oil	0.000		0.000	*0.000*		*0.000*

Table E-144. Mean abundance (number/m²) of the black prickleback Xivhister atropurpureus collected in Prince William Sound, Alaska at each site in 1991 during visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

Site		Visit 1			Visit 2		
Pair	Type	Mean	Change	SE	Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.000	0.000	0.000	0.000	*0.000*	0.000
1424	Oil	0.000		0.000	0.000		0.000
453c	Control	0.187	0.131	0.161	0.014	-0.011	0.014
453	Oil	0.056		0.022	0.025		0.025
601C	Control	0.000	0.000	0.000	0.000	0.000	0.000
601	Oil	0.000		'0.000	0.000		0.000
598C	Control	0.000	*0.000*	0.000	0.000	*0.000*	*0.000*
598	Oil	0.000		'0.000	*0.000*		*0.000*
1522C	Control	0.000	0.000	0.000	-----		
1522	oil	0.000		'0.000	-----		
	Coarse Textured Sites						
506C	Control	0.000	-0.047	0.000	0.000	-0.100	0.000
506	Oil	0.047		0.047	0.100		0.053
1598C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1598	Oil	*0.000*		0.000	0.000		0.000
846C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
846	Oil	0.000		0.000	*0.000*		*0.000*
1650C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
1650	Oil	0.000		0.000	*0.000*		*0.000*
	Exposed Rocky Sites						
19C	Control	0.096	0.096	0.037	0.430	0.237	0.293
19	Oil	0.000		0.000	0.193		0.097
4537C	Control	0.027	-0.086	0.018	0.013	-0.078	0.006
979	Oil	0.114		0.079	0.091		0.014
1642C	Control	0.011	0.011	0.011	0.152	0.138	0.127
833	Oil	0.000		0.000	0.014		0.014
	Sheltered Estuary Sites						
2397C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
208/209	Oil	0.000		0.000	*0.000*		*0.000*

Table E-145. 1990 visit 1 Xiphister atropurpureus abundance (number/m²) for each MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site	1			2			3			4			5		
	No.	M²	n	No.	M²	n	No.	IT	n	No.	IT	n	No.	IT	n
altered Rocky Habitat															
4825C	0.00	21.0	6	0.00	17.9	5	0.00	12.0	5	*0.00*	0.3	1	0.00	0.0	0
1424	0.00	14.6	6	0.00	20.8	6	0.00	21.1	6	*0.00*	10.7	4	0.00	0.0	0
453c	0.00	20.4	6	0.00	16.6	6	0.00	23.5	6	*0.00*	20.0	5	0.21	4.7	1
453	0.00	22.6	6	0.00	27.8	6	0.00	23.5	6	*0.00*	0.9	1	0.00	0.0	0
601C	0.00	16.5	6	0.00	16.9	6	0.00	13.9	6	0.00	*0.0*	*0*	0.00	0.0	0
601	0.00	14.3	6	0.00	33.8	6	0.00	38.2	6	*0.00*	3.2	1	0.00	0.0	0
598C	0.00	16.2	6	0.00	15.6	6	0.00	21.3	6	*0.00*	7.2	4	0.00	1.7	1
598	0.00	27.1	6	0.00	18.1	6	0.00	21.7	6	*0.00*	1.5	1	0.00	0.0	0
1522C	0.00	10.1	4	0.00	22.8	4	0.00	16.6	4	*0.00*	*0.0*	*0*	0.00	0.0	0
1522	0.00	33.7	5	0.00	31.1	5	0.00	5.4	4	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*
Coarse Textured Sites															
1383C	0.00	51.4	6	0.00	61.6	6	0.00	49.4	6	0.00	47.6	5	0.00	25.9	3
1580	0.00	39.1	6	0.00	54.3	6	0.00	61.7	6	0.18	50.8	5	0.00	15.3	2
506C	0.00	27.0	6	0.00	32.6	6	0.00	17.4	5	0.00	6.8	3	0.00	0.0	0
506	0.00	8.1	2	0.00	11.0	2	0.00	10.7	2	0.14	12.3	2	0.00	0.0	0
1598C	0.00	34.7	5	0.00	48.0	5	0.00	7.2	3	0.00	0.0	0	0.00	0.0	0
1598	0.00	40.0	5	0.00	80.3	5	0.00	52.0	5	0.00	25.2	5	0.00	2.2	1
846C	0.00	270.7	6	0.00	189.1	6	*0.00*	129.8	6	0.00	3.5	1	0.00	0.0	*0*
846	0.00	104.8	6	0.00	117.1	6	0.00	52.6	4	0.00	42.3	2	0.00	12.8	2
1650C	0.00	56.8	6	0.00	51.3	6	0.00	44.7	6	0.00	7.6	3	0.00	0.0	*0*
1650	0.00	50.0	6	0.00	60.0	6	0.00	56.4	6	0.02	38.8	4	0.15	27.4	4
1171C	0.00	45.5	6	0.00	58.3	6	0.00	36.8	6	0.00	25.9	3	0.07	11.5	2
1171	0.00	46.0	6	0.00	57.2	6	0.00	51.4	6	0.06	45.5	5	0.00	10.8	1
1627C	0.00	36.2	6	0.00	40.4	6	0.00	42.9	6	0.02	50.1	6	0.00	6.4	3
1627	0.00	43.7	6	0.02	52.9	6	0.02	63.5	6	0.07	19.8	4	0.00	6.9	2
Exposed Rocky Sites															
19C	0.00	21.1	6	0.00	30.2	6	0.08	47.9	6	0.24	15.0	3	0.00	0.0	0
19	0.00	32.1	6	0.00	36.9	6	0.00	12.0	2	0.00	*0.0*	*0*	0.00	0.0	0
4537C	0.00	152.0	6	0.00	157.2	6	0.00	132.4	5	0.00	33.7	1	0.00	0.0	0
979	0.00	64.5	6	0.00	66.6	6	0.07	66.6	6	0.03	47.0	5	0.00	7.5	1
1642C	0.00	15.0	6	0.00	25.7	6	0.00	32.1	6	0.16	29.2	5	0.20	10.6	3
833	0.00	6.1	3	0.00	8.6	3	0.00	12.1	3	0.10	16.9	2	0.00	0.0	0
1642C	0.00	15.0	6	*0.00*	25.7	6	0.00	32.1	6	0.16	29.2	5	0.20	10.6	3
232	0.00	6.8	2	0.00	13.8	2	0.00	2.5	1	0.00	*0.0*	*0*	0.00	0.0	0
2937C	0.00	10.8	4	0.00	20.2	4	0.00	17.7	4	0.00	7.1	3	0.00	2.9	1
305	0.00	20.2	6	0.00	22.4	6	0.19	29.8	6	0.40	17.7	4	0.00	0.0	0
Sheltered Estuary Sites															
2397C	0.00	121.6	6	0.00	154.0	6	0.00	64.1	3	*0.00*	12.3	1	0.00	0.0	0
208/209	0.00	40.2	4	0.00	58.9	4	0.00	4.3	1	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*

Table E-146. 1990 visit 2 Xiphister atropurpureus abundance (number/m²) for each MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

	1			2			3			4			5		
Site	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n
sheltered Rocky Sites															
4825C	0.00	10.0	6	0.00	16.5	6	0.00	12.8	5	*0.00*	*0.0*	0	*0.00*	*0.0*	*0*
1424	0.00	26.2	6	0.00	13.8	5	0.00	9.8	3	0.00	0.0	0	*0.00*	*0.0*	*0*
453c	*0.00*	19.4	6	0.00	24.0	6	0.05	22.8	6	0.07	9.4	3	*0.00*	*0.0*	*0*
453	0.00	22.0	6	0.00	21.0	6	0.03	24.6	6	0.00	0.0	0	*0.00*	*0.0*	*0*
601C	0.00	19.5	6	0.00	13.8	6	0.00	13.2	4	0.00	2.3	1	*0.00*	*0.0*	*0*
601	0.00	20.8	6	0.00	32.9	6	0.00	24.1	5	0.00	0.0	0	*0.00*	*0.0*	*0*
598C	*0.00*	18.5	6	0.00	21.3	6	0.00	18.2	5	*0.00*	3.4	1	*0.00*	*0.0*	*0*
598	0.00	21.8	6	*0.00*	21.8	6	0.00	19.9	6	0.00	4.2	3	*0.00*	*0.0*	*0*
1522C	0.00	16.4	5	0.00	24.4	5	0.00	21.7	5	0.00	0.0	*0*	*0.00*	0.0	0
1522	*0.00*	32.6	6	0.00	36.2	6	0.00	18.1	6	*0.00*	10.9	4	*0.00*	1.5	1
Coarse Textured Sites															
1383C	0.00	48.5	6	0.00	59.2	6	0.00	42.4	5	0.00	54.4	5	0.00	25.5	3
1580	0.00	52.0	6	0.00	68.5	6	0.00	66.1	6	0.02	34.9	4	0.00	0.0	*0*
506C	0.00	24.0	6	0.00	25.7	6	0.00	16.9	6	*0.00*	2.6	1	0.00	0.0	*0*
506	0.00	18.5	3	0.00	17.8	3	0.00	26.1	2	0.17	5.9	1	0.00	*0.0*	*0*
1598C	0.00	33.0	5	0.00	46.9	5	0.00	49.2	5	0.01	47.7	5	0.00	0.0	0
1598	0.00	37.2	5	0.00	71.6	5	0.00	54.3	5	0.00	30.5	4	0.00	13.9	3
846C	0.00	238.6	6	0.00	223.6	6	0.00	137.5	6	0.00	10.6	3	0.00	*0.0*	*0*
846	0.00	81.3	6	0.00	121.7	6	*0.00*	171.7	6	0.00	72.6	4	*0.00*	*0.0*	*0*
1650C	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	0	*0.00*	0.0	0
1650	0.00	50.7	6	0.00	55.2	6	0.02	58.5	6	0.03	46.5	6	0.00	8.7	2
1171C	0.00	45.9	6	0.00	57.6	6	*0.00*	50.5	6	0.00	47.0	5	0.00	1.8	1
1171	*0.00*	39.3	6	0.00	84.8	6	0.04	59.2	6	0.00	19.2	3	0.34	5.8	1
1627C	0.00	46.5	6	0.00	71.5	6	0.03	44.5	5	0.03	21.7	3	0.00	*0.0*	*0*
1627	0.00	33.8	6	0.00	87.2	6	0.00	66.3	6	0.03	15.3	3	0.00	0.0	*0*
Exposed Rocky Sites															
19C	0.03	31.5	5	0.16	35.6	5	0.15	20.9	3	0.00	8.9	2	0.00	*0.0*	*0*
19	0.00	25.8	5	0.00	20.3	5	0.04	26.1	3	0.00	5.5	1	0.00	*0.0*	*0*
4537C	0.00	117.9	6	0.00	71.3	5	0.00	28.3	2	0.00	50.4	1	0.00	0.0	0
979	*0.00*	59.3	6	0.04	66.8	6	0.04	31.2	4	0.00	19.1	2	*0.00*	9.4	1
1642C	0.00	23.8	6	0.00	30.0	6	0.00	22.0	5	0.00	20.0	3	0.00	2.3	1
833	0.00	14.4	3	*0.00*	10.7	3	0.00	7.0	2	0.00	0.0	0	0.00	0.0	0
1642C	0.00	23.8	6	0.00	30.0	6	0.00	22.0	5	0.00	20.0	3	0.00	2.3	1
232	0.00	8.5	2	0.16	5.8	2	0.18	22.1	2	0.00	7.4	2	*0.00*	*0.0*	0
2937C	*0.00*	8.8	2	0.00	8.4	2	*0.00*	7.5	1	0.00	4.9	1	0.00	0.0	*0*
305	0.00	26.2	6	0.00	20.9	6	0.00	22.3	5	0.15	15.5	3	0.00	*0.0*	*0*
sheltered Estuary Sites															
2397C	0.00	131.4	6	*0.00*	267.8	6	0.00	77.3	3	0.00	*0.0*	0	*0.00*	*0.0*	*0*
208/209	0.00	56.1	4	0.00	112.4	4	0.00	148.3	4	0.00	38.5	1	0.00	*0.0*	*0*

Table E-147. 1991 visit 1 Xiphister atropurpureus abundance (number/m²) at each MVD sampled. Average number (NO.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

	1			2			3			4			5		
Site	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n
Sheltered Rocky Habitat															
4825C	*0.00*	0.0	*0*	*0.00*	11.5	4	0.00	10.7	4	0.00	2.5	2	0.00	0.0	0
1424	*0.00*	*0.0*	*0*	*0.00*	8.1	4	0.00	14.7	4	0.00	14.9	4	0.00	0.0	0
453c	*0.00*	*0.0*	*0*	*0.00*	7.9	4	0.00	10.7	4	0.33	22.5	4	1.30	8.8	2
453	*0.00*	*0.0*	*0*	*0.00*	12.8	4	0.00	21.1	4	0.12	31.6	4	1.05	2.8	1
601C	*0.00*	*0.0*	*0*	*0.00*	6.6	4	0.00	10.4	4	0.00	8.4	4	0.00	0.0	0
601	*0.00*	*0.0*	*0*	*0.00*	24.9	4	0.00	16.5	4	0.00	0.0	0	0.00	0.0	0
598C	*0.00*	*0.0*	*0*	*0.00*	16.8	5	0.00	20.6	5	0.00	20.5	5	0.00	0.0	0
598	*0.00*	*0.0*	*0*	*0.00*	12.5	4	0.00	13.1	4	0.00	12.4	3	0.00	1.9	1
1522C	*0.00*	*0.0*	*0*	*0.00*	6.0	3	0.00	23.5	4	0.00	9.4	3	0.00	0.0	0
1522	*0.00*	*0.0*	*0*	*0.00*	12.5	3	0.00	14.3	3	0.00	13.9	4	0.00	0.0	0
***coarse* Textured Habitat**															
506C	0.00	0.0	0	0.00	16.5	4	0.00	12.2	3	0.00	1.8	2	0.00	*0.0*	*0*
506	*0.00*	0.0	0	0.00	13.2	3	0.00	17.2	3	0.14	10.7	3	0.00	*0.0*	*0*
1598C	*0.00*	0.0	0	0.00	31.4	4	0.00	25.5	4	0.00	0.0	0	*0.00*	*0.0*	*0*
1598	*0.00*	0.0	0	0.00	42.0	4	0.00	45.7	4	0.00	40.8	4	0.00	*0.0*	*0*
846C	0.00	0.0	0	0.00	129.3	4	0.00	109.8	4	0.00	9.1	2	0.00	*0.0*	*0*
846	0.00	0.0	0	0.00	60.7	4	0.00	88.3	4	0.00	82.3	3	0.00	*0.0*	*0*
1650C	0.00	0.0	0	0.00	34.0	4	0.00	36.5	4	0.00	22.5	4	0.00	0.0	0
1650	*0.00*	0.0	0	0.00	36.5	4	0.00	45.9	4	0.00	40.3	4	0.00	23.9	3
Exposed Rocky Habitat															
19C	0.00	0.0	0	0.00	31.0	4	0.12	31.4	4	0.25	29.1	4	0.47	15.5	3
19	*0.00*	0.0	0	0.00	30.0	3	0.00	13.5	3	0.00	24.0	3	0.00	7.2	1
4537C	0.00	0.0	0	0.00	120.9	4	0.07	82.5	4	0.02	130.2	4	0.00	0.0	0
979	0.00	0.0	0	0.04	49.6	4	0.24	54.9	4	0.04	56.0	4	0.00	10.6	1
1642C	0.00	0.0	0	0.00	16.8	4	0.00	23.2	4	0.04	15.1	4	0.00	0.0	0
833	0.00	0.0	0	0.00	21.9	3	0.00	20.5	3	0.00	26.1	3	0.00	5.9	1
sheltered *Estuary* Habitat															
2397C	0.00	0.0	0	0.00	114.3	4	0.00	92.4	4	0.00	0.0	0	0.00	0.0	0
208/209	0.00	0.0	0	0.00	33.3	2	0.00	33.0	2	0.00	47.2	2	0.00	0.0	*0*

Table E-148. 1991 Visit 2 Xiphister atropurpureus abundance (number/m²) for each MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site	1			2			3			4			5		
	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n
Sheltered Rocky Habitat															
4825C	0.00	0.0	0	0.00	12.4	4	0.00	11.2	4	0.00	0.0	0	0.00	*0.0*	*0*
1424	*0.00*	*0.0*	*0*	*0.00*	14.9	4	0.00	12.3	4	0.00	11.0	4	0.00	*0.0*	*0*
453c	0.00	0.0	0	*0.00*	11.7	4	0.00	14.5	4	0.04	20.1	4	0.00	3.0	1
453	0.00	0.0	0	0.00	16.7	4	0.00	17.0	4	0.07	16.5	4	0.00	*0.0*	*0*
601C	0.00	0.0	0	0.00	13.2	4	0.00	9.3	3	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*
601	0.00	0.0	0	*0.00*	16.7	4	0.00	17.5	4	0.00	0.0	0	0.00	*0.0*	*0*
598C	0.00	0.0	0	*0.00*	15.1	4	0.00	18.1	4	0.00	8.0	2	0.00	*0.0*	*0*
598	*0.00*	0.0	0	0.00	12.9	4	0.00	16.0	4	0.00	6.2	3	0.00	*0.0*	*0*
1522C	0.00	0.0	0	0.00	*0.0*	*0*	*0.00*	0.0	0	*0.00*	0.0	0	*0.00*	*0.0*	*0*
1522	0.00	0.0	0	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*
Coarse Textured Habitat															
506C	0.00	0.0	0	0.00	12.6	3	0.00	14.2	3	0.00	2.0	1	0.00	*0.0*	0
506	0.00	0.0	0	0.09	17.9	3	0.00	14.5	3	0.16	11.7	2	0.00	0.0	0
1598C	0.00	0.0	0	0.00	31.4	4	0.00	21.8	3	0.00	32.3	4	0.00	0.0	0
1598	*0.00*	0.0	0	0.00	45.1	4	0.00	57.9	4	0.00	42.7	4	0.00	15.4	3
846C	0.00	0.0	0	0.00	119.8	4	0.00	119.2	4	0.00	12.0	*1*	0.00	0.0	0
846	0.00	0.0	0	0.00	66.5	4	0.00	114.3	4	0.00	103.8	4	0.00	35.4	2
1650C	0.00	0.0	0	0.00	17.2	2	0.00	28.3	2	0.00	9.6	2	0.00	0.0	0
1650	0.00	0.0	0	0.00	32.7	4	0.00	44.7	4	0.00	39.5	4	0.04	23.3	4
Exposed Rocky Habitat															
19C	0.00	0.0	0	0.29	30.4	3	0.37	22.2	3	0.79	*12.0*	2	0.00	*0.0*	*0*
19	0.00	0.0	0	0.00	10.3	2	0.15	13.4	2	0.36	14.3	2	0.00	*0.0*	*0*
4537C	0.00	0.0	0	0.00	134.4	4	0.01	166.8	4	0.02	80.1	4	0.00	*0.0*	*0*
979	0.00	0.0	0	0.14	44.7	4	0.12	51.6	4	0.03	52.8	4	0.00	*0.0*	*0*
1642C	0.00	0.0	0	0.00	16.2	4	0.18	22.3	4	0.65	1.5	1	0.00	*0.0*	*0*
833	0.00	0.0	0	0.00	21.6	3	0.03	22.4	3	0.00	15.0	2	0.00	*0.0*	*0*
Sheltered *Estuary* Habitat															
2397C	0.00	0.0	0	0.00	49.0	2	0.00	54.5	2	0.00	0.0	0	0.00	*0.0*	*0*
208/209	0.00	0.0	0	0.00	33.7	2	0.00	32.5	2	0.00	35.7	2	0.00	*0.0*	*0*

Table E-149. Abundance (number/m²) for Xiphister atropurpureus at each of 3 habitats, and habitats combined for each m.

m		1990 Visit 1 Sqm	1990 Visit 1 #/m²	1990 Visit 1 N	1990 Visit 2 Sqm	1990 Visit 2 #/m²	1990 Visit 2 N	1991 Visit 1 Sqm	1991 Visit 1 #/m²	1991 Visit 1 N	1991 Visit 2 Sqm	1991 Visit 2 #/m²	1991 Visit 2 N
		All Habitats											
1	Ctl	805.3	0.00	91	701.9	0.01	83						
1	Oil	573.7	0.00	89	570.3	0.00	90						
2	cu	804.3	0.00	90	729.8	0.01	82	428.8	0.00	48	414.4	0.02	40
2	oil	712.7	0.01	89	757.0	0.01	83	324.7	0.01	44	300.1	0.02	40
3	cu	645.6	0.01	86	508.5	0.01	63	397.3	0.01	48	447.9	0.04	38
3	Oil	581.1	0.02	81	707.3	0.01	73	365.6	0.02	44	381.7	0.02	40
4	cu	253.9	0.03	43	283.2	0.01	34	271.0	0.06	38	177.8	0.11	21
4	oil	332.4	0.08	45	287.4	0.02	40	353.0	0.02	39	313.6	0.04	33
5	cu	63.7	0.06	14	29.6	0.00	5	24.2	0.80	5	3.0	0.00	1
5	Oil	82.8	0.04	13	39.3	0.04	13	52.3	0.13	8	74.1	0.01	9
		sheltered Rocky Habitats											
1	Ctl	84.1	0.00	28	83.7	0.00	23						
1	Oil	112.3	0.00	29	123.4	0.00	30						
2	cu	89.8	0.00	27	99.9	0.00	23	48.9	0.00	20	52.5	0.00	16
2	Oil	131.5	0.00	29	125.8	0.00	23	70.8	0.00	19	61.3	0.00	16
3	cu	87.2	0.00	27	88.7	0.01	25	76.0	0.00	21	53.0	0.00	15
3	Oil	109.9	0.00	28	96.6	0.01	26	79.6	0.00	19	62.8	0.00	16
4	Ctl	27.6	0.00	10	15.1	0.04	5	63.3	0.07	18	28.2	0.02	6
4	oil	16.2	0.00	7	15.0	0.00	7	72.8	0.03	15	33.7	0.02	11
5	Ctl	6.4	0.10	2				8.7	1.3	2	3.0	0.00	1
5	Oil				1.5	0.00	1	4.8	0.52	2			
		Coarse Textured Habitats											
1	Ctl	522.3	0.00	41	436.4	0.00	35						
1	Oil	331.6	0.00	37	312.7	0.00	38						
2	Ctl	481.2	0.00	41	484.4	0.00	35	211.2	0.00	16	180.9	0.00	13
2	Oil	432.9	0.01	37	506.8	0.00	38	152.4	0.00	15	162.2	0.01	15
3	cu	328.2	0.00	38	341.0	0.01	33	184.1	0.00	15	183.6	0.00	12
3	Oil	348.2	0.01	35	502.1	0.01	37	197.1	0.00	15	231.4	0.00	15
4	Ctl	141.4	0.01	21	184.0	0.01	22	33.3	0.00	8	56.0	0.00	8
4	Oil	234.6	0.06	27	224.8	0.02	25	174.1	0.03	14	197.7	0.02	14
5	cu	43.8	0.01	8	27.3	0.00	4						
5	Oil	75.3	0.04	12	28.4	0.05	6	23.9	0.00	3	74.1	0.01	9
		Exposed Rocky Habitats											
1	Ctl	198.9	0.00	22	181.9	0.01	19						
1	Oil	129.7	0.00	23	134.1	0.00	22						
2	cu	233.3	0.00	22	145.4	0.04	18	168.7	0.00	12	181.0	0.07	11
2	Oil	148.4	0.00	23	124.5	0.02	22	101.4	0.01	10	76.6	0.06	9
3	cu	230.1	0.02	21	78.7	0.04	11	137.1	0.06	12	211.3	0.17	11
3	Oil	123.0	0.08	18	108.6	0.03	16	88.9	0.09	10	87.5	0.09	9
4	cu	84.9	0.12	12	84.1	0.00	7	174.4	0.10	12	93.7	0.32	7
4	oil	81.6	0.17	11	47.5	0.05	8	106.2	0.01	10	82.2	0.10	8
5	Ctl	13.5	0.14	4	2.3	0.00	1	15.5	0.47	3			
5	Oil	7.5	0.00	1	9.4	0.00	1	23.6	0.00	3			

Table **E-150.** Abundance (number/m²) **of** the black prickleback Xiphister atropurpureus found within each **of** the three habitats, and habitats combined at control and oiled site pairs sampled in Prince William Sound, Alaska during each **of** two visits in **1990** and **1991.** Each mean is for MVD **2, 3** and **4** combined and n = sample size.

		1990				**1991**			
Habitat	Type	n	Visit **1**	n	Visit **2**	n	Visit **1**	n	Visit **2**
Habitats	Ctl	**96**	**0.009**	***88***	**0.014**	**49**	**0.026**	**40**	**0.050**
Combined	Oil	**89**	**0.022**	**89**	**0.013**	**45**	**0.018**	**40**	**0.030**
Sheltered	Ctl	**27**	***0.000***	**29**	**0.009**	**21**	**0.036**	**16**	**0.003**
Rocky	Oil	**29**	***0.000***	**29**	**0.004**	**20**	**0.011**	**16**	**0.006**
Coarse	Ctl	**41**	**0.001**	**35**	**0.003**	**16**	***0.000***	**13**	***0.000***
Textured	Oil	**37**	**0.018**	**38**	**0.008**	**15**	**0.009**	**15**	**0.020**
Exposed	Ctl	**28**	**0.029**	**24**	**0.037**	**12**	**0.045**	**11**	**0.177**
Rocky	Oil	**23**	**0.057**	**22**	**0.035**	**10**	**0.045**	**9**	**0.088**

Table E-151. Mean biomass (g/m²) of the black prickleback Xiphister atrovurvureus collected in Prince William Sound, Alaska at each site in 1990 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

		1990 visit 1			1990 Visit 2		
Site	Type	Mean	Change	SE	Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1424	Oil	0.000		0.000	0.000		0.000
453c	Control	0.000	0.000	0.000	0.022	-0.020	0.014
453	Oil	0.000		0.000	0.041		0.041
601C	Control	0.000	0.000	0.000	0.000	0.000	0.000
601	Oil	0.000		*0.000*	0.000		0.000
598C	Control	0.000	0.000	0.000	0.000	*0.000*	*0.000*
598	Oil	0.000		0.000	*0.000*		*0.000*
1522C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
1522	Oil	0.000		0.000	*0.000*		*0.000*
	Coarse Textured Sites						
1383C	Control	0.000	-0.060	0.000	0.000	-0.006	0.000
1580	Oil	0.060		0.060	0.006		0.006
506C	Control	0.000	-0.420	0.000	0.000	-0.170	0.000
506	Oil	0.420		0.420	0.170		0.170
1598C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1598	Oil	0.000		0.000	*0.000*		*0.000*
846C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
846	oil	0.000		0.000	0.000		0.000
1650C	Control	0.000	0.000	0.000	0.000	-0.052	0.000
1650	Oil	0.000		0.000	0.052		0.044
1171C	Control	0.000	-0.050	0.000	0.000	-0.028	0.000
1171	Oil	0.050		0.034	0.028		0.018
1627C	Control	0.021	-0.134	0.021	0.065	0.063	0.041
1627	Oil	0.155		0.098	0.002		0.002
	Exposed Rocky Sites						
19C	Control	0.189	0.189	0.188	0.550	0.487	0.312
19	Oil	*0.000*		0.000	0.063		0.063
4537C	Control	0.000	-0.112	0.000	0.000	-0.101	0.000
979	Oil	0.112		0.098	0.101		0.046
1642C	Control	0.359	0.358	0.153	0.000	0.000	0.000
833	Oil	0.001		0.001	0.000		0.000
1642C	Control	0.359	0.359	0.153	0.000	-0.086	0.000
232	Oil	0.000		0.000	0.086		0.081
2937C	Control	0.000	-0.434	10.000	0.000	-0.103	0.000
305	Oil	0.434		0.350	0.103		0.103
	Sheltered Estuary Sites						
2397C	Control	0.000	0.000	10.000	*0.000*	*0.000*	*0.000*
208/209	Oil	*0.000*		*0.000*	*0.000*		*0.000*

Table E-152. Mean biomass (g/m^2) of the black prickleback Xivhister atropurpureus collected in Prince William Sound, Alaska at each site in 1991 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

		Visit 1			Visit 2		
Site	Type	Mean	Change	SE	Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.000	0.000	'0.000	0.000	0.000	0.000
1424	oil	0.000		0.000	0.000		0.000
453c	Control	1.663	1.065	1.641	0.002	-0.231	0.002
453	Oil	0.598		0.472	0.233		0.233
601C	Control	0.000	0.000	0.000	0.000	0.000	0.000
601	Oil	0.000		0.000	0.000		0.000
598C	Control	0.000	0.000	0.000	0.000	*0.000*	*0.000*
598	Oil	0.000		*0.000*	*0.000*		*0.000*
1522C	Control	0.000	0.000	*0.000*	-----		
1522	Oil	0.000		*0.000*	-----		
	Coarse Textured Sites						
506C	Control	0.000	-0.169	0.000	0.000	-0.924	0.000
506	Oil	0.169		0.169	0.924		0.473
1598C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1598	Oil	0.000		0.000	0.000		0.000
846C	Control	0.000	0.000	0.000	0.000	*0.000*	*0.000*
846	Oil	0.000		*0.000*	*0.000*		*0.000*
1650C	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
1650	Oil	0.000		*0.000*	*0.000*		*0.000*
	Exposed Rocky Sites						
19C	Control	0.782	0.782	0.298	1.874	-0.108	1.144
19	oil	0.000		0.000	1.982		1.098
4537C	Control	0.292	-0.628	0.172	0.027	-0.347	0.025
979	Oil	0.920		0.706	0.374		0.136
1642C	Control	0.041	0.041	0.041	1.556	1.552	1.453
833	oil	0.000		0.000	0.004		0.004
	Sheltered Estuary Sites						
2397C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
208/209	Oil	0.000		0.000	*0.000*		*0.000*

Table E-153. 1990 visit 1 Xiphister atropurpureus biomass (g/m²) for each MVD sampled. Average weight (G.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site pair	1			2			3			4			5		
	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n
Sheltered Rocky Habitat															
4825C	0.00	21.0	6	0.00	17.9	5	0.00	12.0	5	0.00	0.3	1	0.00	*0.0*	0
1424	0.00	14.6	6	0.00	20.8	6	0.00	21.1	6	0.00	10.7	4	0.00	0.0	0
453c	0.00	20.4	6	0.00	16.6	6	0.00	23.5	6	0.00	20.0	5	0.37	4.7	1
453	0.00	22.6	6	0.00	27.8	6	0.00	23.5	6	0.00	0.9	1	0.00	0.0	0
601C	0.00	16.5	6	0.00	16.9	6	0.00	13.9	6	0.00	0.0	0	0.00	0.0	0
601	0.00	14.3	6	0.00	33.8	6	0.00	38.2	6	0.00	3.2	1	0.00	0.0	0
598C	0.00	16.2	6	0.00	15.6	6	0.00	21.3	6	0.00	7.2	4	0.00	1.7	1
598	0.00	27.1	6	0.00	18.1	6	0.00	21.7	6	0.00	1.5	1	0.00	0.0	0
1522C	0.00	10.1	4	0.00	22.8	4	0.00	16.6	4	0.00	0.0	0	0.00	0.0	*0*
1522	0.00	33.7	5	0.00	31.1	5	0.00	5.4	4	0.00	0.0	0	*0.00*	*0.0*	*0*
Coarse Textured Habitat															
1383C	0.00	51.4	6	0.00	61.6	6	0.00	49.4	6	0.00	47.6	5	0.00	25.9	3
1580	0.00	39.1	6	0.00	54.3	6	0.00	61.7	6	0.34	50.8	5	0.00	15.3	2
506C	0.00	27.0	6	0.00	32.6	6	0.00	17.4	5	0.00	6.8	3	0.00	0.0	0
506	0.00	8.1	2	0.00	11.0	2	0.00	10.7	2	0.98	12.3	2	0.00	0.0	0
1598C	0.00	34.7	5	0.00	48.0	5	0.00	7.2	3	0.00	0.0	0	*0.00*	0.0	0
1598	0.00	40.0	5	0.00	80.3	5	0.00	52.0	5	0.00	25.2	5	0.00	2.2	1
846C	0.00	270.7	6	0.00	189.1	6	0.00	129.8	6	0.00	3.5	1	0.00	0.0	0
846	0.00	104.8	6	0.00	117.1	6	0.00	52.6	4	0.00	42.3	2	0.00	12.8	2
1650C	0.00	56.8	6	0.00	51.3	6	0.00	44.7	6	0.00	7.6	3	0.00	0.0	0
1650	0.00	50.0	6	0.00	60.0	6	0.00	56.4	6	0.01	38.8	4	0.41	27.4	4
1171C	0.00	45.5	6	0.00	58.3	6	0.00	36.8	6	0.00	25.9	3	0.52	11.5	2
1171	0.00	46.0	6	0.00	57.2	6	0.00	51.4	6	0.17	45.5	5	0.00	10.8	1
1627C	0.00	36.2	6	0.00	40.4	6	0.00	42.9	6	0.05	50.1	6	0.00	6.4	3
1627	0.00	43.7	6	0.12	52.9	6	0.13	63.5	6	0.16	19.8	4	0.00	6.9	2
Exposed Rocky Habitat															
19C	0.00	21.1	6	0.00	30.2	6	0.33	47.9	6	0.30	15.0	3	0.00	*0.0*	*0*
19	0.00	32.1	6	0.00	36.9	6	0.00	12.0	2	0.00	0.0	0	0.00	*0.0*	0
4537C	0.00	152.0	6	0.00	157.2	6	0.00	132.4	5	0.00	33.7	1	0.00	0.0	0
979	0.00	64.5	6	0.00	66.6	6	0.17	66.6	6	0.15	47.0	5	0.00	7.5	1
1642C	0.00	15.0	6	0.00	25.7	6	0.00	32.1	6	1.72	29.2	5	0.39	10.6	3
833	0.00	6.1	3	0.00	8.6	3	0.00	12.1	3	0.01	16.9	2	0.00	0.0	0
1642C	0.00	15.0	6	0.00	25.7	6	0.00	32.1	6	1.72	29.2	5	0.39	10.6	3
232	0.00	6.8	2	0.00	13.8	2	0.00	2.5	1	0.00	0.0	0	0.00	0.0	0
2937C	0.00	10.8	4	0.00	20.2	4	0.00	17.7	4	0.00	7.1	3	0.00	2.9	1
305	0.00	20.2	6	0.00	22.4	6	0.38	29.8	6	1.53	17.7	4	0.00	0.0	0
sheltered Estuary Habitat															
2397C	0.00	121.6	6	0.00	154.0	6	0.00	64.1	3	0.00	12.3	1	0.00	*0.0*	*0*
208/209	0.00	40.2	4	0.00	58.9	4	0.00	4.3	1	0.00	0.0	*0*	*0.00*	*0.0*	*0*

Table E-154. 1990 visit 2 Xiphister atropurpureus biomass (g/m²) for each MVD sampled. Average weight (G.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site	1			2			3			4			5		
Fair	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n
sheltered Rocky Habitat															
4825C	0.00	10.0	6	0.00	16.5	6	0.00	12.8	5	0.00	0.0	0	0.00	0.0	0
1424	0.00	26.2	6	0.00	13.8	5	0.00	9.8	3	0.00	0.0	0	0.00	0.0	0
453c	0.00	19.4	6	0.00	24.0	6	0.01	22.8	6	0.08	9.4	3	0.00	0.0	0
453	0.00	22.0	6	0.00	21.0	6	0.07	24.6	6	0.00	0.0	0	0.00	0.0	0
601C	0.00	19.5	6	0.00	13.8	6	0.00	13.2	4	0.00	2.3	1	0.00	0.0	0
601	0.00	20.8	6	0.00	32.9	6	0.00	24.1	5	0.00	0.0	0	0.00	0.0	0
598C	0.00	18.5	6	0.00	21.3	6	0.00	18.2	5	0.00	3.4	1	0.00	0.0	0
598	0.00	21.8	6	0.00	21.8	6	0.00	19.9	6	0.00	4.2	3	0.00	0.0	0
1522C	0.00	16.4	5	0.00	24.4	5	0.00	21.7	5	0.00	0.0	0	0.00	0.0	0
1522	0.00	32.6	6	0.00	36.2	6	0.00	18.1	6	0.00	10.9	4	0.00	1.5	1
Coarse Textured Habitat															
1383C	0.00	48.5	6	0.00	59.2	6	0.00	42.4	5	0.00	54.4	5	0.00	25.5	3
1580	0.00	52.0	6	0.00	68.5	6	0.00	66.1	6	0.03	34.9	4	0.00	0.0	0
506C	0.00	24.0	6	0.00	25.7	6	0.00	16.9	6	0.00	2.6	1	0.00	0.0	0
506	0.00	18.5	3	0.00	17.8	3	0.00	26.1	2	1.40	5.9	1	0.00	0.0	0
1598C	0.00	33.0	5	0.00	46.9	5	0.00	49.2	5	0.01	47.7	5	0.00	0.0	0
1598	0.00	37.2	5	0.00	71.6	5	0.00	54.3	5	0.00	30.5	4	0.00	13.9	3
846C	0.00	238.6	6	0.00	223.6	6	0.00	137.5	6	0.00	10.6	3	0.00	0.0	0
846	0.00	81.3	6	0.00	121.7	6	0.00	171.7	6	0.00	72.6	4	0.00	0.0	0
1650C	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0
1650	0.00	50.7	6	0.00	55.2	6	0.07	58.5	6	0.08	46.5	6	0.00	8.7	2
1171C	0.00	45.9	6	0.00	57.6	6	0.00	50.5	6	0.00	47.0	5	0.00	1.8	1
1171	0.00	39.3	6	0.00	84.8	6	0.07	59.2	6	0.00	19.2	3	1.07	5.8	1
1627C	0.00	46.5	6	0.00	71.5	6	0.17	44.5	5	0.15	21.7	3	0.00	0.0	0
1627	0.00	33.8	6	0.00	87.2	6	0.00	66.3	6	0.02	15.3	3	0.00	0.0	0
Exposed Rocky Sites															
19C	0.11	31.5	5	0.50	35.6	5	0.48	20.9	3	0.00	8.9	2	0.00	0.0	0
19	0.00	25.8	5	0.00	20.3	5	0.16	26.1	3	0.00	5.5	1	0.00	0.0	0
4537C	0.00	117.9	6	0.00	71.3	5	0.00	28.3	2	0.00	50.4	1	0.00	0.0	0
979	0.00	59.3	6	0.12	66.8	6	0.05	31.2	4	0.00	19.1	2	0.00	9.4	1
1642C	0.00	23.8	6	0.00	30.0	6	0.00	22.0	5	0.00	20.0	3	0.00	2.3	1
833	0.00	14.4	3	0.00	10.7	3	0.00	7.0	2	0.00	0.0	0	0.00	0.0	0
1642C	0.00	23.8	6	0.00	30.0	6	0.00	22.0	5	0.00	20.0	3	0.00	2.3	1
232	0.00	8.5	2	0.14	5.8	2	0.12	22.1	2	0.00	7.4	2	0.00	0.0	0
2937C	0.00	8.8	2	0.00	8.4	2	0.00	7.5	1	0.00	4.9	1	0.00	0.0	0
305	0.00	26.2	6	0.00	20.9	6	0.00	22.3	5	0.63	15.5	3	0.00	0.0	0
sheltered Estuary Sites															
2397	0.00	131.4	6	0.00	267.8	6	0.00	77.3	3	0.00	0.0	0	0.00	0.0	0
208/209	0.00	56.1	4	0.00	112.4	4	0.00	148.3	4	0.00	38.5	1	0.00	0.0	0

Table E-155. 1991 visit 1 Xiphister atropurpureus biomass (g/m²) for each MVD sampled. Average weight (G.) of fish per square meter, number of square meters (M²) and sanple size (n). The first of each site pair is the control site.

	1			2			3			4			5		
Site	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n
sheltered Rocky Habitat															
4825C	0.00	0.0	0	0.00	11.5	4	0.00	10.7	4	0.00	2.5	2	0.00	*0.0*	0
1424	*0.00*	*0.0*	*0*	0.00	8.1	4	0.00	14.7	4	0.00	14.9	4	0.00	0.0	0
453c	*0.00*	0.0	0	0.00	7.9	4	0.00	10.7	4	2.92	22.5	4	0.01	8.8	2
453	0.00	0.0	0	0.00	12.8	4	0.00	21.1	4	1.44	31.6	4	0.01	2.8	1
601C	0.00	0.0	0	0.00	6.6	4	0.00	10.4	4	0.00	8.4	4	0.00	0.0	0
601	0.00	0.0	0	0.00	24.9	4	0.00	16.5	4	0.00	0.0	0	0.00	0.0	0
598C	0.00	0.0	0	0.00	16.8	5	0.00	20.6	5	0.00	20.5	5	0.00	0.0	0
598	0.00	0.0	0	0.00	12.5	4	0.00	13.1	4	0.00	12.4	3	0.00	1.9	1
1522C	0.00	0.0	0	0.00	6.0	3	0.00	23.5	4	0.00	9.4	3	0.00	0.0	0
1522	0.00	0.0	0	*0.00*	12.5	3	0.00	14.3	3	0.00	13.9	4	0.00	0.0	*0*
Coarse Textured Habitat															
506C	0.00	0.0	0	0.00	16.5	4	0.00	12.2	3	0.00	1.8	2	0.00	*0.0*	*0*
506	0.00	0.0	0	0.00	13.2	3	0.00	17.2	3	0.50	10.7	3	0.00	*0.0*	*0*
1598C	0.00	0.0	0	0.00	31.4	4	0.00	25.5	4	0.00	0.0	0	0.00	*0.0*	*0*
1598	0.00	0.0	0	0.00	42.0	4	0.00	45.7	4	0.00	40.8	4	0.00	*0.0*	*0*
846C	0.00	0.0	0	0.00	129.3	4	0.00	109.8	4	0.00	9.1	2	0.00	*0.0*	*0*
846	0.00	0.0	0	0.00	60.7	4	0.00	88.3	4	0.00	82.3	3	0.00	*0.0*	*0*
1650C	0.00	0.0	0	0.00	34.0	4	0.00	36.5	4	0.00	22.5	4	0.00	0.0	0
1650	0.00	0.0	0	0.00	36.5	4	0.00	45.9	4	0.00	40.3	4	0.00	23.9	3
Exposed Rocky Habitat															
19C	0.00	0.0	0	0.00	31.0	4	1.00	31.4	4	1.82	29.1	4	2.83	15.5	3
19	0.00	0.0	0	0.00	30.0	3	0.00	13.5	3	0.00	24.0	3	0.00	7.2	1
4537C	0.00	0.0	0	0.00	120.9	4	0.89	82.5	4	0.15	130.2	4	0.00	0.0	0
979	0.00	0.0	0	0.05	49.6	4	1.69	54.9	4	0.77	56.0	4	0.00	10.6	1
1642C	0.00	0.0	0	0.00	16.8	4	0.00	23.2	4	0.14	15.1	4	0.00	0.0	0
833	0.00	0.0	0	0.00	21.9	3	0.00	20.5	3	0.00	26.1	3	0.00	5.9	1
Sheltered Estuary Habitat															
2397C	0.00	0.0	0	0.00	114.3	4	0.00	92.4	4	0.00	0.0	0	0.00	*0.0*	*0*
208/209	0.00	0.0	0	0.00	33.3	2	0.00	33.0	2	0.00	47.2	2	0.00	*0.0*	*0*

Table E-156. 1991 visit 2 Xiphister atropurpureus biomass (g/m²) at each MVD visited. Average weight (G.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site Pair	1			2			3			4			5		
	G.	M²	n	G.	M²	n	G.	R	n	G.	M²	n	G.	M²	n
Sheltered Rocky Habitat															
4825C	0.00	0.0	0	0.00	12.4	4	0.00	11.2	4	0.00	0.0	0	0.00	0.0	0
1424	0.00	0.0	0	0.00	14.9	4	0.00	12.3	4	0.00	11.0	4	0.00	0.0	0
453c	0.00	0.0	0	0.00	11.7	4	0.00	14.5	4	0.01	20.1	4	0.00	3.0	1
453	0.00	0.0	0	0.00	16.7	4	0.00	17.0	4	0.71	16.5	4	0.00	0.0	0
601C	0.00	0.0	0	0.00	13.2	4	0.00	9.3	3	0.00	0.0	0	0.00	0.0	0
601	0.00	0.0	0	0.00	16.7	4	0.00	17.5	4	0.00	0.0	0	0.00	0.0	0
598C	0.00	0.0	0	0.00	15.1	4	0.00	18.1	4	0.00	8.0	2	0.00	0.0	0
598	0.00	0.0	0	0.00	12.9	4	0.00	16.0	4	0.00	6.2	3	0.00	0.0	0
1522C	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0
1522	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0
coarse Textured Habitat															
506C	0.00	0.0	0	0.00	12.6	3	0.00	14.2	3	0.00	2.0	1	0.00	0.0	0
506	0.00	0.0	0	0.76	17.9	3	0.00	14.5	3	1.59	11.7	2	0.00	0.0	0
1598C	0.00	0.0	0	0.00	31.4	4	0.00	21.8	3	0.00	32.3	4	0.00	0.0	0
1598	0.00	0.0	0	0.00	45.1	4	0.00	57.9	4	0.00	42.7	4	0.00	15.4	3
846C	0.00	0.0	0	0.00	119.8	4	0.00	119.2	4	0.00	12.0	1	0.00	0.0	0
846	0.00	0.0	0	0.00	66.5	4	0.00	114.3	4	0.00	103.8	4	0.00	35.4	2
1650C	0.00	0.0	0	0.00	17.2	2	0.00	28.3	2	0.00	9.6	2	0.00	0.0	0
1650	0.00	0.0	0	0.00	32.7	4	0.00	44.7	4	0.00	39.5	4	0.02	23.3	4
Exposed Rocky Habitat															
19C	0.00	0.0	0	1.02	30.4	3	1.61	22.2	3	4.38	12.0	2	0.00	0.0	0
19	0.00	0.0	0	0.00	10.3	2	1.17	13.4	2	4.01	14.3	2	0.00	0.0	0
4537C	0.00	0.0	0	0.00	134.4	4	0.01	166.8	4	0.06	80.1	4	0.00	0.0	0
979	0.00	0.0	0	0.79	44.7	4	0.17	51.6	4	0.21	52.8	4	0.00	0.0	0
1642C	0.00	0.0	0	0.00	16.2	4	2.04	22.3	4	2.57	1.5	1	0.00	0.0	0
833	0.00	0.0	0	0.00	21.6	3	0.01	22.4	3	0.00	15.0	2	0.00	0.0	0
sheltered Estuary Habitat															
2397C	0.00	0.0	0	0.00	49.0	2	0.00	54.5	2	0.00	0.0	0	0.00	0.0	0
208/209	0.00	0.0	0	0.00	33.7	2	0.00	32.5	2	0.00	35.7	2	0.00	0.0	0

Table E-157. Biomass (g/m²) for Xiphister atropurpureus at *each* of 3 habitats, and habitats combined for *each* MVD.

		1990						1991					
		Visit 1			Visit 2			Visit 1			Visit 2		
MVD		Sqm	g/m²	N	Sqm	g/m²	N	Sqm	g/m²	N	Sqm	g/m²	N
		All Habitats											
1	Ctl	805.3	0.00	91	701.9	0.01	83						
1	Oil	573.7	0.00	89	570.3	0.00	90						
2	Ctl	804.3	0.00	90	729.8	0.03	82	428.8	0.00	48	414.4	0.07	40
2	Oil	712.7	0.01	89	757.0	0.01	89	324.7	0.01	44	300.1	0.13	40
3	Ctl	645.6	0.02	86	508.5	0.03	69	397.3	0.15	48	447.9	0.34	38
3	Oil	581.1	0.05	81	707.3	0.02	79	365.6	0.15	44	381.7	0.07	40
4	Ctl	253.9	0.22	43	283.2	0.01	34	271.0	0.52	38	177.8	0.55	21
4	Oil	332.4	0.26	45	287.4	0.09	40	353.0	0.26	39	313.6	0.45	33
5	Ctl	63.7	0.18	14	29.6	0.00	5	24.2	6.46	5	3.0	0.00	1
5	Oil	82.8	0.12	13	39.3	0.13	13	52.3	1.79	8	74.1	0.01	9
		Sheltered Rocky Habitats											
1	Ctl	84.1	0.00	28	83.7	0.00	29						
1	Oil	112.3	0.00	29	123.4	0.00	30						
2	Ctl	89.8	0.00	27	99.9	0.00	29	48.9	0.00	20	52.5	0.00	16
2	Oil	131.5	0.00	29	125.8	0.00	29	70.8	0.00	19	61.3	0.00	16
3	Ctl	87.2	0.00	27	88.7	0.01	25	76.0	0.00	21	53.0	0.00	15
3	Oil	109.9	0.00	28	96.6	0.01	26	79.6	0.00	19	62.8	0.00	16
4	Ctl	27.6	0.00	10	15.1	0.04	5	63.3	0.64	18	28.2	0.01	6
4	Oil	16.2	0.00	7	15.0	0.00	7	72.8	0.38	15	33.7	0.25	11
5	Ctl	6.4	0.18	2				8.7	11.9	2	3.0	0.00	1
5	Oil				1.5	0.00	1	4.8	7.17	2			
		Coarse Textured Habitats											
1	Ctl	522.3	0.00	41	436.4	0.00	35						
1	Oil	331.6	0.00	37	312.7	0.00	38						
2	Ctl	481.2	0.00	41	484.4	0.00	35	211.2	0.00	16	180.9	0.00	13
2	Oil	432.9	0.01	37	506.8	0.00	38	152.4	0.00	15	162.2	0.15	15
3	Ctl	328.2	0.00	38	341.0	0.02	33	184.1	0.00	15	183.6	0.00	12
3	Oil	348.2	0.02	35	502.1	0.02	37	197.1	0.00	15	231.4	0.00	15
4	Ctl	141.4	0.01	21	184.0	0.02	22	33.3	0.00	8	56.0	0.00	8
4	Oil	234.6	0.19	27	224.8	0.08	25	174.1	0.10	14	197.7	0.22	14
5	Ctl	43.8	*0.12*	8	27.3	0.00	4						
5	Oil	75.3	0.13	12	28.4	0.17	6	23.9	0.00	3	74.1	0.01	9
		Exposed Rocky Habitats											
1	Ctl	198.9	0.00	22	181.9	0.02	19						
1	Oil	129.7	0.00	23	134.1	0.00	22						
2	Ctl	233.3	0.00	22	145.4	0.13	18	168.7	0.00	12	181.0	0.27	11
2	Oil	148.4	0.00	23	124.5	0.04	22	101.4	0.02	10	76.6	0.34	9
3	Ctl	230.1	0.09	21	78.7	0.13	11	137.1	0.63	*12*	211.3	1.18	11
3	Oil	123.0	0.18	18	108.6	0.05	16	88.9	0.67	10	87.5	0.33	9
4	Ctl	84.9	0.79	12	84.1	0.00	7	174.4	0.70	12	93.7	1.65	7
4	Oil	81.6	0.62	11	47.5	0.23	8	106.2	0.30	10	82.2	1.11	8
5	Ctl	13.5	0.29	4	2.3	0.00	1	15.5	2.83	3			
5	Oil	7.5	0.00	1	9.4	0.00	1	23.6	0.00	3			

Table E-158. Bianass (g/m²) of the black prickleback Xiphister atropurpureus found within *each* of the three habitats, and habitats combined at control and oiled site pairs sampled in Prince William Sound, Alaska *during each* of two visits in 1990 and 1991. Each mean is for m 2, 3 and 4 oiled and n = sample size.

		1990				1991			
Habitat	Type	n	Visit 1	n	Visit 2	n	Visit 1	n	Visit 2
Sheltered Rocky	Control	27	0.0000	29	0.0044	21	0.3167	16	0.0004
	Oil	29	0.0000	29	0.0085	20	0.1195	16	0.0582
Coarse Textured	Control	41	0.0031	35	0.0112	16	0.0000	13	0.0000
	Oil	37	0.0657	38	0.0273	15	0.0337	15	0.1848
Exposed Rocky	Control	28	0.1941	24	0.1146	12	0.3715	11	1.0867
	Oil	23	0.1425	22	0.0779	10	0.3680	9	0.6078
Habitats Combined	Control	96	0.0579	88	0.0372	49	0.2267	40	0.2990
	Oil	89	0.0641	89	0.0337	45	0.1461	40	0.2294

Table E-159. The number of total MVD's at each of three meter vertical drops and the overall percent in which Xiuhister atropurpureus was found during two visits each in 1990 and 1991. The probability value (p) is from the Wilcoxon test.

Year	Visit	MVD	Control Total	Control %	Oiled Total	Oiled %	Wilcoxon P
90	1	2	90	0.0	89	1.1	0.153
90	1	3	86	1.2	81	8.6	0.097
90	1	4	43	14.0	46	26.1	0.012*
90	2	2	82	2.4	89	4.5	0.138
90	2	3	69	7.3	79	10.1	0.250
90	2	4	34	8.8	41	14.6	0.072
91	1	2	49	0.0	45	4.4	0.158
91	1	3	48	6.3	45	4.4	0.500
91	1	4	38	18.4	39	12.8	0.340
91	2	2	40	2.5	40	12.5	0.207
91	2	3	38	10.5	40	12.5	0.055
91	2	4	21	19.0	33	15.2	0.500

Table E-160. The number of MVD's that Xiphister atropurpureus was found (Fnd) in *out* of the total possible number of MVD's (TU), and the percent (%) of m's that Xiphister atropurpureus was in for the 3 habitat types, and all 3 combined. Vis=Visit

			Overall			Exp Rcky			Crse Txt			Shlt Rcky		
Year	MVD	Vis	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990	2	1	1	179	0.6	*0*	45	0.0	1	78	1.3	0	56	0.0
1990	3	1	8	167	4.8	7	39	17.9	1	73	1.4	*0*	55	0.0
1990	4	1	18	89	20.2	11	23	47.8	7	48	14.6	*0*	18	0.0
1990	2	2	6	171	3.5	6	40	15.0	0	73	0.0	*0*	58	*0.0*
1990	3	2	13	148	8.8	7	27	25.9	4	70	5.7	2	51	3.9
1990	4	2	9	75	12.0	1	15	6.7	7	48	14.6	1	12	8.3

Table E-161. The number of MVD's that Xiphister atropurpureus was found (fnd) in cut of the total possible of MVD's that Xiphister atropurpureus was found in (Tu), and the percent (%) of MVD's that contained fish for the 3 habitat types, and all 3 combined.

	Overall						Exposed Rocky					
	Oil			Control			Oil			Control		
Year MVD	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990 2	5	178	2.8	2	172	1.2	4	45	8.9	2	40	5.0
1990 3	15	160	9.4	6	155	3.9	10	34	29.4	4	32	12.5
1990 4	18	87	20.7	9	77	11.7	7	19	36.8	5	19	26.3
1991 2	7	85	8.2	1	89	1.1	6	19	31.6	1	23	4.4
1991 3	7	85	8.2	7	86	8.1	7	19	36.8	7	23	30.4
1991 4	10	72	13.9	11	59	18.6	4	18	22.2	8	19	42.1
	Coarse Textured						Sheltered					
1990 2	1	75	1.3	0	76	0.0	0	58	0.0	0	56	0.0
1990 3	4	72	5.6	1	71	1.4	1	54	1.9	1	52	1.9
1990 4	11	53	20.8	3	43	7.0	0	15	0.0	1	15	6.7
1991 2	1	30	3.3	0	29	0.0	0	36	0.0	0	37	0.0
1991 3	0	30	0.0	0	27	0.0	0	36	0.0	0	36	0.0
1991 4	2	28	7.1	0	16	0.0	4	26	15.4	3	24	12.5

Table E-162. The number of MVD's that Xiphister atropurpureus was found (Fnd) in cut of the total possible number of MVD's (TU), and the percent (%) of MVD's that contained Xiphister atropurpureus for the 3 habitat types and habitats combined.

	Overall			Exp Rcky			Crse Txt			Shlt Rcky		
Year MVD	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990 2	7	350	2.0	6	85	7.1	1	151	0.7	0	114	0.0
1990 3	21	315	6.7	14	66	21.2	5	143	3.5	2	106	1.9
1990 4	27	164	16.5	12	38	31.6	14	96	14.6	1	30	3.3
1991 2	8	174	4.6	7	42	16.7	1	59	1.7	0	73	0.0
1991 3	14	171	8.2	14	42	33.3	0	57	0.0	0	72	0.0
1991 4	21	131	16.0	12	37	32.4	2	44	4.6	7	50	14.0

Table E-163. The number of MVD's that Xiphister atropurpureus was found (Fnd) in out of the total possible number of MVD's (Ttl), and the percent (%) of MVD's that Xiphister atropurpureus was in for the 3 habitat types, and all 3 habitats combined. Vis = visit.

			Coarse Textured						Sheltered Rocky					
			Oil			Control			Oil			Control		
Year	MVD	Vis	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990	2	1	1	37	2.7	0	41	0.0	0	29	0.0	0	27	0.0
1990	3	1	1	35	2.9	0	38	0.0	0	28	0.0	0	27	0.0
1990	4	1	6	27	22.2	1	21	4.8	0	8	0.0	0	10	0.0
1990	2	2	0	38	0.0	0	35	0.0	0	29	0.0	0	29	0.0
1990	3	2	3	37	8.1	1	33	3.0	1	26	3.9	1	25	4.0
1990	4	2	5	26	19.2	2	22	9.1	0	7	0.0	1	5	20.0
1991	2	1	0	15	0.0	0	16	0.0	0	20	0.0	0	21	0.0
1991	3	1	0	15	0.0	0	15	0.0	0	20	0.0	0	21	0.0
1991	4	1	1	14	7.1	0	8	0.0	3	15	20.0	2	18	11.1
1991	2	2	1	15	6.7	0	13	0.0	0	16	0.0	0	16	0.0
1991	3	2	0	15	0.0	0	12	0.0	0	16	0.0	0	15	0.0
1991	4	2	1	14	7.1	0	8	0.0	1	11	9.1	1	6	16.7
			Overall											
1990	2	1	1	89	1.1	0	90	0.0	0	23	0.0	0	22	0.0
1990	3	1	7	81	8.6	1	86	1.2	6	18	33.3	1	21	4.8
1990	4	1	12	46	26.1	6	43	14.0	6	11	54.5	5	12	41.7
1990	2	2	4	89	4.5	2	82	2.4	4	22	18.2	2	18	11.1
1990	3	2	8	79	10.1	5	69	7.3	4	16	25.0	3	11	27.3
1990	4	2	6	41	14.6	3	34	8.8	1	8	12.5	0	7	0.0
1991	2	1	2	45	4.4	0	49	0.	2	10	20.0	0	12	0.0
1991	3	1	2	45	4.4	3	48	6.3	2	10	20.0	3	12	25.0
1991	4	1	5	39	12.8	7	38	18.4	1	10	10.0	5	12	41.7
1991	2	2	5	40	12.5	1	40	2.5	4	9	44.4	1	11	9.1
1991	3	2	5	40	12.5	4	38	10.5	5	9	55.6	4	11	36.4
1991	4	2	5	33	15.2	4	21	19.0	3	8	37.5	3	7	42.9

Table E-164. Wilcoxon matched-pairs test on abundance (number/m²) for Xivhister atropurpureus for sites sampled both years (n=11).

Year	visit	Habitat	Sample Size	p(Value)
1990	1	Sheltered Rocky	0	0.500
1990	2	Sheltered Rocky	1	0.158
1991	1	Sheltered Rocky	1	0.158
1991	2	Sheltered Rocky	1	0.158
1990	1	Coarse Textured	1	0.158
1990	2	Coarse Textured	2	0.327
1991	1	Coarse Textured	1	0.158
1992	1	Coarse Textured	1	0.158
1990	1	Exposed Rocky	3	0.500
1990	2	Exposed Rocky	2	0.327
1991	1	Exposed Rocky	3	0.297
1991	2	Exposed Rocky	3	0.142
1990	1	Both Year Sites	4	0.357
1990	2	Both Year Sites	5	0.343
1991	1	Both Year Sites	5	0.250
1991	2	Both Year Sites	5	0.343

Table E-165. Wilcoxon matched-pairs test on biomass (g/m²) for Xivhister atrovurvureus for sites sampled both years (n=11).

Year	visit	Habitat	Sample Size	p(Value)
1990	1	Sheltered Rocky	0	
1990	2	Sheltered Rocky	1	0.158
1991	1	Sheltered Rocky	1	0.158
1991	2	Sheltered Rocky	1	0.158
1990	1	Coarse Textured	1	0.158
1990	2	Coarse Textured	2	0.327
1991	1	Coarse Textured	1	0.158
1992	1	Coarse Textured	1	0.158
1990	1	Exposed Rocky	3	0.142
1990	2	Exposed Rocky	2	0.327
1991	1	Exposed Rocky	3	0.297
1991	2	Exposed Rocky	3	0.500
1990	1	Both Year Sites	4	0.500
1990	2	Both Year Sites	5	0.343
1991	1	Both Year Sites	5	0.250
1991	2	Both Year Sites	5	0.250

Table E-166. Wilcoxon matched-,pairstest on abundance (number/m²) for Xivhister atrovurvureus for all sites sampled.

Year	Visit	Habitat	Sample Size	p(Value)
1990	1	Sheltered Rocky	0	
1990	2	Sheltered Rocky	1	0.158
1991	1	Sheltered Rocky	1	0.158
1991	2	Sheltered Rocky	1	0.158
1990	1	Coarse Textured	5	0.022*
1990	2	Coarse Textured	6	0.124
1991	1	Coarse Textured	1	0.158
1992	1	Coarse Textured	1	0.158
1990	1	Exposed Rocky	5	0.343
1990	2	Exposed Rocky	4	0.358
1991	1	Exposed Rocky	3	0.197
1991	2	Exposed Rocky	3	0.142
1990	1	All Sites	10	0.101
1990	2	All Sites	11	0.212
1991	1	All Sites	5	0.250
1991	2	All Sites	5	0.343

Table E-167. Wilcoxon matched-pairs test on biomass (g/m²) for Xiphister atropurpureus for all sites sampled.

Year	visit	Habitat	Sample Size	p(Value)
1990	1	Sheltered Rocky	0	
1990	2	Sheltered Rocky	1	0.158
1991	1	Sheltered Rocky	1	0.158
1991	2	Sheltered Rocky	1	0.158
1990	1	Coarse Textured	5	0.022*
1990	2	Coarse Textured	6	0.172
1991	1	Coarse Textured	1	0.158
1991	1	Coarse Textured	1	0.158
1990	1	Exposed Rocky	5	0.343
1990	2	Exposed Rocky	4	0.358
1991	1	Exposed Rocky	3	0.297
1991	2	Exposed Rocky	3	0.500
1990	1	All Sites	10	0.254
1990	2	All Sites	11	0.091
1991	1	All Sites	5	0.250
1991	2	All Sites	5	0.250

Table E-168. Wilcoxon matched pairs test on Xiphister atropurpureus abundance (number/m²) for each MVD at each of 3 habitats and habitats combined during 2 visits each in 1990 and 1991.

Year	visit	Habitat	MVD	N	Wilcoxian
90	1	All	2	1	0.158
90	1	Exposed Rocky	2	0	
90	1	Coarse Textured	2	1	0.158
90	1	Sheltered Rocky	2	0	
90	1	All	3	4	0.232
90	1	Exposed Rocky	3	3	0.297
90	1	Coarse Textured	3	1	0.158
90	1	Sheltered Rocky	3	0	
90	1	All	4	10	0.254
90	1	Exposed Rocky	4	5	0.343
90	1	Coarse Textured	4	5	0.021*
90	1	Sheltered Rocky	4	0	
90	2	All	2	3	0.500
90	2	Exposed Rocky	2	3	0.500
90	2	Coarse Textured	2	0	
90	2	Sheltered Rocky	2	0	
90	2	All	3	7	0.250
90	2	Exposed Rocky	3	3	0.297
90	2	Coarse Textured	3	3	0.297
90	2	Sheltered Rocky	3	1	0.158
90	2	All	4	7	0.118
90	2	Exposed Rocky	4	1	0.158
90	2	Coarse Textured	4	5	0.069
90	2	Sheltered Rocky	4	1	0.158

Table E-168. (continued) Wilcoxon on Xiphister atropurpurescens abundance (number/m²).

Year	Visit	Habitat	MVD	N	Wilcoxian
91	1	All	2	1	0.158
91	1	Exposed Rocky	2	1	0.158
91	1	Coarse Textured	2	0	
91	1	Sheltered Rocky	2	*0*	
91	1	All	3	2	0.327
91	1	Exposed Rocky	3	2	0.327
91	1	Coarse Textured	3	0	
91	1	Sheltered Rocky	3	0	
91	1	All	4	5	0.172
91	1	Exposed Rocky	4	3	0.142
91	1	Coarse Textured	4	1	0.158
91	1	Sheltered Rocky	4	1	0.158
91	2	All	2	3	0.500
91	2	Exposed Rocky	2	2	0.327
91	2	Coarse Textured	2	1	0.158
91	2	Sheltered Rocky	2	*0*	
91	2	All	3	3	0.142
91	2	Exposed Rocky	3	3	0.142
91	2	Coarse Textured	3	0	
91	2	Sheltered Rocky	3	0	
91	2	All	4	5	0.343
91	2	Exposed Rocky	4	3	0.142
91	2	Coarse Textured	4	1	0.158
91	2	Sheltered Rocky	4	1	0.158

Table E-169. Wilcoxon matched pairs test on Xiphister atropurpureus biomass (g/m^2) over each MVD at each of 3 habitats and all habitats combined during each of 2 visits in 1990 and 1991.

Year	Visit	Habitat	MVD	N	Wilcoxian
90	1	All	2	1	0.158
90	1	Exposed Rocky	2	*0*	
90	1	Coarse Textured	2	1	0.158
90	1	Sheltered Rocky	2	*0*	
90	1	All	3	4	0.232
90	1	Exposed Rocky	3	3	0.297
90	1	Coarse Textured	3	1	0.158
90	1	Sheltered Rocky	3	*0*	
90	1	All	4	10	0.361
90	1	Exposed Rocky	4	5	0.172
90	1	Coarse Textured	4	5	0.022*
90	1	Sheltered Rocky	4	0	
90	2	All	2	3	0.500
90	2	Exposed Rocky	2	3	0.500
90	2	Coarse Textured	2	0	
90	2	Sheltered Rocky	2	0	
90	2	All	3	*7*	0.433
90	2	Exposed Rocky	3	3	0.500
90	2	Coarse Textured	3	3	0.500
90	2	Sheltered Rocky	3	1	0.158
90	2	All	4	*7*	0.199
90	2	Exposed Rocky	4	1	0.158
90	2	Coarse Textured	4	5	0.250
90	2	Sheltered Rocky	4	1	0.158

Table E-169. (continued) Wilcoxon on Xiuhister atropurpureus biomass (g/m²).

Year	Visit	Habitat	MVD	N	Wilcoxian
91	1	Al1	2	1	0.158
91	1	Exposed Rocky	2	1	0.158
91	1	Coarse Textured	2	0	
91	1	Sheltered Rocky	2	0	
91	1	Al1	3	2	0.327
91	1	Exposed Rocky	3	2	0.327
91	1	Coarse Textured	3	0	
91	1	Sheltered Rocky	3	0	
91	1	Al1	4	5	0.250
91	1	Exposed Rocky	4	3	0.297
91	1	Coarse Textured	4	1	0.158
91	1	Sheltered Rocky	4	1	0.158
91	2	Al1	2	3	0.500
91	2	Exposed Rocky	2	2	0.327
91	2	Coarse Textured	2	1	0.158
91	2	Sheltered Rocky	2	*0*	
91	2	Al1	3	3	0.142
91	2	Exposed Rocky	3	3	0.142
91	2	Coarse Textured	3	0	
91	2	Sheltered Rocky	3	*0*	
91	2	Al1	4	5	0.446
91	2	Exposed Rocky	4	3	0.142
91	2	Coarse Textured	4	1	0.158
91	2	Sheltered Rocky	4	1	0.158

Table E-170. Coefficients resulting from the forward stepwise regression analyses of Xiphister atropurpureus abundance (number/m²) at control and oiled sites sampled in Prince William Sound, Alaska during 1990 and 1991. Where no value is given that variable was not selected in the analyses. MVD 2, 3, and 4 were used for these analysis.

		Substrate Type								Algae Cover								Habitat				
Year	C	M	S	FG	CB	LB	CG	SB	BR	K	MA	S	MO	BL	Slope	Oil	Visit	ER	CT	SR	N	R^2
1990	0.013											0.002						0.041			804	0.062
1991	0.011					0.001				0.008			0.003	-.001			-.024	0.041			427	0.162

Substrate Type	Algae Cover	Habitat	
M = Mud	K = Kelp	ER = Exposed Rocky	C = Regression constant
S = Sand	MA = Mat	SR = Sheltered Rocky	
FG = Fine Gravel	S = String	CT = Coarse Textured	
CB = Cobble	MO = Mossy		
LB = Large boulder	S = Sand		
CG = Coarse gravel	BL = Bulky leaf		
SB = Small boulder			
BR = Bedrock			

Table E-171. Logistic regression far 1990 Xiphister atropurpureus for various levels of abundance (number/m^2).

MVD	2	3	3	4	4	4
Definition	0: 0 1: >0	0: 0 1: >0	0: 0–0.2 1: >0.2	0: 0 1: >0	0: 0–0.2 1: >0.2	0: 0–0.6 1: >0.6
Constant	−17.612	−4.405	−3.567	−3.275	−2.904	−4.357
Oil						
Visit	2.011	1.277			−1.639	
BR*				−0.311		
String		0.117	0.120			
Exposed Rocky	13.741	2.368	0.7240	3.212	2.184	
Coarse Textured	11.206	0.296	−12.667	1.672	0.364	
N	367	319	319	158	158	158

* BR = Bedrock

Table E-172. Logistic regression for 1991 for Xiphister atropurpureus for various levels of abundance (number/m^2).

MVD	2	3	3	4	4	4
Definition	0: 0 1: >0	0: 0 1: >0	0: 0-0.2 1: >0.2	0: 0 1: >0	0: 0-0.2 1: M.2	0: 0-0.6 1: >0.6
Constant	-17.862	-2.552	-3.283	-1.580	-2.539	-5.244
Oil	2.425					
Visit						
IB*						0.050
Kelp						0.111
Exposed	14.683			1.293	1.376	
Rocky						
coarse	11.983			-1.415	-0.457	
Textured						
N	181	166	166	104	104	104

* LB = Large boulder

Table E-173. Mean abundance (number/m²) of Phytichthys chirus collected in Prince William Sound, Alaska at each site in 1990.

Site Pair	Type	Visit 1 Mean	Visit 1 Change	Visit 2 Mean	Visit 2 Change
	Sheltered Rocky Habitat				
4825C	Control	0.000	------	*0.000*	------
1424	Oil	0.000		*0.000*	
453c	Control	0.000	------	*0.000*	------
453	Oil	0.000		*0.000*	
601C	Control	0.000	------	*0.000*	------
601	Oil	0.000		*0.000*	
598C	Control	0.000	------	*0.000*	------
598	Oil	0.000		*0.000*	
1522C	Control	0.000	------	*0.000*	------
1522	oil	0.000		*0.000*	
	Coarse Textured Habitat				
1383C	Control	*0.000*	------	*0.000*	------
1580	Oil	*0.000*		*0.000*	
506C	Control	*0.000*	------	*0.000*	------
506	Oil	*0.000*		*0.000*	
1598C	Control	*0.000*	------	*0.000*	------
1598	Oil	*0.000*		*0.000*	
846C	Control	*0.000*	------	*0.000*	------
846	oil	*0.000*		*0.000*	
1650C	Control	*0.000*	------	*0.000*	------
1650	Oil	*0.000*		*0.000*	
1171C	Control	*0.000*	------	*0.000*	------
1171	Oil	*0.000*		*0.000*	
1627C	Control	*0.000*	------	*0.000*	------
1627	oil	*0.000*		*0.000*	
	Exposed Rocky Habitat				
19C	Control	0.008	-0.011	0.013	-0.027
19	Oil	0.019		0.040	
4537C	Control	0.000	-0.015	0.000	------
979	Oil	0.015		0.000	
1642C	Control	0.000	------	0.000	------
833	Oil	0.000		*0.000*	
1642C	Control	0.000	------	0.000	------
232	Oil	0.000		0.000	
2937C	Control	0.000	-0.043	0.000	-0.008
305	Oil	0.043		0.008	
	Sheltered Estuary Habitat				
2397C	Control	0.000	------	*0.000*	------
208/209	Oil	0.000		*0.000*	

Table E-174. Mean abundance (number/m²) of Phytichthys chirus collected in Prince William Sound, Alaska at each site in 1991.

Site Pair	Type	visit 1 Mean	visit 1 Change	Visit 2 Mean	Visit 2 Change
	Sheltered Rocky Habitat				
4825C	Control	0.000	-------	0.000	-------
1424	oil	0.000		0.000	
453c	control	0.000	----.---	0.038	0.026
453	Oil	0.000		0.012	
601C	Control	0.000	-------	0.000	-------
601	oil	0.000		0.000	
598C	Control	0.000	----.---	0.000	-------
598	Oil	0.000		0.000	
1522C	Control	0.000	-------	*0.000*	-------
1522	oil	0.000		*0.000*	
	Coarse Textured Habitat				
506C	Control	0.000	-------	*0.000*	-------
506	Oil	0.000		*0.000*	
1598C	Control	0.000	-------	*0.000*	-------
1598	Oil	0.000		*0.000*	
846C	Control	0.000	-------	*0.000*	-------
846	Oil	0.000		*0.000*	
1650C	Control	0.000	-------	*0.000*	-------
1650	Oil	0.000		*0.000*	
	Exposed Rocky Habitat				
19C	Control	0.022	-0.010	0.109	0.008
19	oil	0.032		0.101	
4537C	Control	0.000	-0.012	0.007	-0.054
979	Oil	0.012		0.061	
1642C	Control	0.000	-0.073	0.000	-0.014
833	Oil	0.073		0.014	
	Sheltered Estuary Habitat				
2397C	Control	0.000	-------	*0.000*	-------
208/209	oil	0.000		*0.000*	

Table E-175. 1990 visit 1 Phytichthys chirus abundance (number/m²) for each MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site / Fair	1			2			3			4			5		
	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n
Sheltered Rocky Habitat															
4825C	0.00	21.0	6	0.00	17.9	5	0.00	12.0	5	0.00	0.3	1	0.00	0.0	0
1424	0.00	14.6	6	0.00	20.8	6	0.00	21.1	6	0.00	10.7	4	0.00	0.0	0
453c	0.00	20.4	6	0.00	16.6	6	0.00	23.5	6	0.00	20.0	5	0.00	4.7	1
453	0.00	22.6	6	0.00	27.8	6	0.00	23.5	6	0.00	0.9	1	0.00	0.0	0
601C	0.00	16.5	6	0.00	16.9	6	0.00	13.9	6	0.00	*0.0*	*0*	0.00	0.0	0
601	0.00	14.3	6	0.00	33.8	6	0.00	38.2	6	0.00	3.2	1	0.00	0.0	0
598C	0.00	16.2	6	0.00	15.6	6	0.00	21.3	6	0.00	7.2	4	0.00	1.7	1
598	0.00	27.1	6	0.00	18.1	6	0.00	21.7	6	0.00	1.5	1	0.00	0.0	0
1522C	0.00	10.1	4	0.00	22.8	4	0.00	16.6	4	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*
1522	0.00	33.7	5	0.00	31.1	5	0.00	5.4	4	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*
Coarse Textured Habitat															
1383C	0.00	51.4	6	0.00	61.6	6	0.00	49.4	6	0.00	47.6	5	0.00	25.9	3
1580	0.00	39.1	6	0.00	54.3	6	0.00	61.7	6	0.00	50.8	5	0.00	15.3	2
506C	0.00	27.0	6	0.00	32.6	6	0.00	17.4	5	0.00	6.8	3	0.00	0.0	0
506	0.00	8.1	2	0.00	11.0	2	0.00	10.7	2	0.00	12.3	2	0.00	0.0	0
1598C	0.00	34.7	5	0.00	48.0	5	0.00	7.2	3	0.00	*0.0*	*0*	0.00	0.0	0
1598	0.00	40.0	5	0.00	80.3	5	0.00	52.0	5	0.00	25.2	5	0.00	2.2	1
846C	0.00	270.7	6	0.00	189.1	6	0.00	129.8	6	0.00	3.5	1	0.00	0.0	0
846	0.00	104.8	6	0.00	117.1	6	0.00	52.6	4	0.00	42.3	2	0.00	12.8	2
1650C	0.00	56.8	6	0.00	51.3	6	0.00	44.7	6	0.00	7.6	3	0.00	0.0	0
1650	0.00	50.0	6	0.00	60.0	6	0.00	56.4	6	0.00	38.8	4	0.00	27.4	4
1171C	0.00	45.5	6	0.00	58.3	6	0.00	36.8	6	0.00	25.9	3	0.00	11.5	2
1171	0.00	46.0	6	0.00	57.2	6	0.00	51.4	6	0.00	45.5	5	0.00	10.8	1
1627C	0.00	36.2	6	0.00	40.4	6	0.00	42.9	6	0.00	50.1	6	0.00	6.4	3
1627	0.00	43.7	6	0.00	52.9	6	0.00	63.5	6	0.00	19.8	4	0.00	6.9	2
Exposed Rocky Habitat															
19C	0.00	21.1	6	0.00	30.2	6	0.00	47.9	6	0.04	15.0	3	0.00	0.0	0
19	0.00	32.1	6	0.00	36.9	6	0.13	12.0	2	0.00	0.0	0	0.00	0.0	0
4537C	0.00	152.0	6	0.00	157.2	6	0.00	132.4	5	0.00	33.7	1	0.00	0.0	0
979	0.00	64.5	6	0.00	66.6	6	0.00	66.6	6	0.06	47.0	5	0.00	7.5	1
1642C	0.00	15.0	6	0.00	25.7	6	0.00	32.1	6	0.00	29.2	5	0.00	10.6	3
833	0.00	6.1	3	0.00	8.6	3	0.00	12.1	3	0.00	16.9	2	0.00	0.0	0
1642C	0.00	15.0	6	0.00	25.7	6	0.00	32.1	6	0.00	29.2	5	0.00	10.6	3
232	0.00	6.8	2	0.00	13.8	2	0.00	2.5	1	0.00	0.0	0	0.00	0.0	0
2937C	0.00	10.8	4	0.00	20.2	4	0.00	17.7	4	0.00	7.1	3	0.00	2.9	1
305	0.00	20.2	6	0.00	22.4	6	0.00	29.8	6	0.24	17.7	4	0.00	0.0	0
sheltered Estuary Habitat															
2397C	0.00	121.6	6	0.00	154.0	6	0.00	64.1	3	0.00	12.3	1	0.00	0.0	0
208/209	0.00	40.2	4	0.00	58.9	4	0.00	4.3	1	0.00	0.0	0	*0.00*	*0.0*	*0*

Table E-176. 1990 visit 2 Phytichthys chirus abundance (number/m²) for each MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site	1			2			3			4			5		
Fair	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n
Sheltered Rocky Habitat															
4825C	0.00	10.0	6	0.00	16.5	6	0.00	12.8	5	0.00	0.0	0	0.00	0.0	0
1424	0.00	26.2	6	0.00	13.8	5	0.00	9.8	3	0.00	0.0	0	0.00	0.0	0
453c	0.00	19.4	6	0.00	24.0	6	0.00	22.8	6	0.00	9.4	3	0.00	0.0	0
453	0.00	22.0	6	0.00	21.0	6	0.00	24.6	6	0.00	0.0	*0*	0.00	0.0	0
601C	0.00	19.5	6	0.00	13.8	6	0.00	13.2	4	0.00	2.3	1	0.00	0.0	0
601	0.00	20.8	6	0.00	32.9	6	0.00	24.1	5	0.00	0.0	0	0.00	0.0	0
598C	0.00	18.5	6	0.00	21.3	6	0.00	18.2	5	0.00	3.4	1	0.00	0.0	0
598	0.00	21.8	6	0.00	21.8	6	0.00	19.9	6	0.00	4.2	3	0.00	0.0	0
1522C	0.00	16.4	5	0.00	24.4	5	0.00	21.7	5	0.00	0.0	0	0.00	0.0	0
1522	0.00	32.6	6	0.00	36.2	6	0.00	18.1	6	0.00	10.9	4	0.00	1.5	1
Coarse Textured Habitat															
1383C	0.00	48.5	6	0.00	59.2	6	0.00	42.4	5	0.00	54.4	5	0.00	25.5	3
1580	0.00	52.0	6	0.00	68.5	6	0.00	66.1	6	0.00	34.9	4	0.00	0.0	0
506C	0.00	24.0	6	0.00	25.7	6	0.00	16.9	6	0.00	2.6	1	0.00	0.0	0
506	0.00	18.5	3	0.00	17.8	3	0.00	26.1	2	0.00	5.9	1	0.00	0.0	0
1598C	0.00	33.0	5	0.00	46.9	5	0.00	49.2	5	0.00	47.7	5	0.00	0.0	0
1598	0.00	37.2	5	0.00	71.6	5	0.00	54.3	5	0.00	30.5	4	0.00	13.9	3
846C	0.00	238.6	6	0.00	223.6	6	0.00	137.5	6	0.00	10.6	3	0.00	0.0	0
846	0.00	81.3	6	0.00	121.7	6	0.00	171.7	6	0.00	72.6	4	0.00	0.0	0
1650C	0.00	0.0	0	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	0.0	0
1650	0.00	50.7	6	0.00	55.2	6	0.00	58.5	6	0.00	46.5	6	0.00	8.7	2
1171C	0.00	45.9	6	0.00	57.6	6	0.00	50.5	6	0.00	47.0	5	0.00	1.8	1
1171	0.00	39.3	6	0.00	84.8	6	0.00	59.2	6	0.00	19.2	3	0.00	5.8	1
1627C	0.00	46.5	6	0.00	71.5	6	0.00	44.5	5	0.00	21.7	3	0.00	0.0	*0*
1627	0.00	33.8	6	0.00	87.2	6	0.00	66.3	6	0.00	15.3	3	0.00	0.0	0
Exposed Rocky Habitat															
19C	0.00	31.5	5	0.00	35.6	5	0.05	20.9	3	0.00	8.9	2	0.00	0.0	0
19	0.00	25.8	5	0.00	20.3	5	0.10	26.1	3	0.00	5.5	1	0.00	0.0	0
4537C	0.00	117.9	6	0.00	71.3	5	0.00	28.3	2	0.00	50.4	1	0.00	0.0	0
979	0.00	59.3	6	0.00	66.8	6	0.00	31.2	4	0.00	19.1	2	0.00	9.4	1
1642C	0.00	23.8	6	0.00	30.0	6	0.00	22.0	5	0.00	20.0	3	0.00	2.3	1
833	0.00	14.4	3	0.00	10.7	3	0.00	7.0	2	0.00	0.0	0	0.00	0.0	0
1642C	0.00	23.8	6	0.00	30.0	6	0.00	22.0	5	0.00	20.0	3	0.00	2.3	1
232	0.00	8.5	2	0.00	5.8	2	0.00	22.1	2	0.00	7.4	2	0.00	0.0	0
2937C	0.00	8.8	2	0.00	8.4	2	0.00	7.5	1	0.00	4.9	1	0.00	0.0	0
305	0.00	26.2	6	0.00	20.9	6	0.00	22.3	5	0.05	15.5	3	0.00	0.0	0
Sheltered Estuary Habitat															
2397C	0.00	131.4	6	0.00	267.8	6	0.00	77.3	3	0.00	0.0	0	0.00	0.0	0
208/209	0.00	56.1	4	0.00	112.4	4	0.00	148.3	4	0.00	38.5	1	0.00	0.0	0

Table E-177. 1991 visit 1 Phytichthys chirus abundance (number/m²) for each MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site Fair	1			2			3			4			5		
	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n
sheltered Rocky Habitat															
4825C	0.00	0.0	0	0.00	11.5	4	0.00	10.7	4	0.00	2.5	2	0.00	0.0	0
1424	*0.00*	*0.0*	*0*	*0.00*	8.1	4	0.00	14.7	4	0.00	14.9	4	0.00	0.0	0
453c	*0.00*	0.0	0	0.00	7.9	4	0.00	10.7	4	0.00	22.5	4	0.00	8.8	2
453	0.00	0.0	0	0.00	12.8	4	0.00	21.1	4	0.00	31.6	4	0.70	2.8	1
601C	0.00	0.0	0	0.00	6.6	4	0.00	10.4	4	0.00	8.4	4	0.00	0.0	0
601	0.00	0.0	0	0.00	24.9	4	0.00	16.5	4	0.00	0.0	0	0.00	0.0	0
598C	0.00	0.0	0	0.00	16.8	5	0.00	20.6	5	0.00	20.5	5	0.00	0.0	0
598	0.00	0.0	0	0.00	12.5	4	0.00	13.1	4	0.00	12.4	3	0.00	1.9	1
1522C	0.00	0.0	0	0.00	6.0	3	0.00	23.5	4	0.00	9.4	3	0.00	0.0	0
1522	0.00	0.0	0	*0.00*	12.5	3	0.00	14.3	3	0.00	13.9	4	0.00	0.0	0
coarse Textured Habitat															
506C	0.00	0.0	0	0.00	16.5	4	0.00	12.2	3	0.00	1.8	2	0.00	0.0	0
506	*0.00*	0.0	0	0.00	13.2	3	0.00	17.2	3	0.00	10.7	3	0.00	0.0	0
1598C	0.00	0.0	0	0.00	31.4	4	0.00	25.5	4	0.00	0.0	0	*0.00*	*0.0*	*0*
1598	0.00	0.0	0	0.00	42.0	4	0.00	45.7	4	0.00	40.8	4	0.00	0.0	0
846C	*0.00*	0.0	0	0.00	129.3	4	0.00	109.8	4	0.00	9.1	2	0.00	0.0	0
846	0.00	0.0	0	0.00	60.7	4	0.00	88.3	4	0.00	82.3	3	0.00	0.0	0
1650C	0.00	0.0	0	0.00	34.0	4	0.00	36.5	4	0.00	22.5	4	0.00	0.0	0
1650	0.00	0.0	0	0.00	36.5	4	0.00	45.9	4	0.00	40.3	4	0.00	23.9	3
Exposed Rocky Habitat															
19C	*0.00*	0.0	0	0.00	31.0	4	0.00	31.4	4	0.06	29.1	4	0.11	15.5	3
19	0.00	0.0	0	0.00	30.0	3	0.00	13.5	3	0.08	24.0	3	0.14	7.2	1
4537C	0.00	0.0	0	0.00	120.9	4	0.00	82.5	4	0.00	130.2	4	0.00	0.0	0
979	*0.00*	0.0	0	0.00	49.6	4	0.02	54.9	4	0.01	56.0	4	0.09	10.6	1
1642C	0.00	0.0	0	0.00	16.8	4	0.00	23.2	4	0.00	15.1	4	0.00	0.0	0
833	0.00	0.0	0	0.00	21.9	3	0.00	20.5	3	0.24	26.1	3	0.00	5.9	1
sheltered Estuary Habitat															
2397C	0.00	0.0	0	0.00	114.3	4	0.00	92.4	4	0.00	0.0	0	0.00	0.0	0
208/209	0.00	0.0	0	0.00	33.3	2	0.00	33.0	2	0.00	47.2	2	0.00	0.0	0

Table E-178. 1991 visit 2 Phytichthys chirus abundance (number/m²) for each MVD sampled. Average number (No.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site Pair	1			2			3			4			5		
	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n	No.	M²	n
sheltered Rocky Habitat															
4825C	0.00	0.0	0	0.00	12.4	4	0.00	11.2	4	0.00	0.0	0	0.00	*0.0*	0
1424	0.00	0.0	0	0.00	14.9	4	0.00	12.3	4	0.00	11.0	4	0.00	0.0	0
453c	0.00	0.0	0	0.00	11.7	4	0.00	14.5	4	0.07	20.1	4	0.00	3.0	1
453	0.00	0.0	0	0.00	16.7	4	0.00	17.0	4	0.04	16.5	4	0.00	0.0	0
601C	0.00	0.0	0	0.00	13.2	4	0.00	9.3	3	0.00	0.0	0	0.00	*0.0*	*0*
601	0.00	0.0	0	0.00	16.7	4	0.00	17.5	4	0.00	0.0	0	0.00	*0.0*	*0*
598C	0.00	0.0	0	0.00	15.1	4	0.00	18.1	4	0.00	8.0	2	0.00	*0.0*	*0*
598	0.00	0.0	0	0.00	12.9	4	0.00	16.0	4	0.00	6.2	3	0.00	*0.0*	*0*
1522C	0.00	0.0	0	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*
1522	0.00	0.0	0	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*
Coarse Textured Habitat															
506C	0.00	0.0	0	0.00	12.6	3	0.00	14.2	3	0.00	2.0	1	0.00	*0.0*	0
506	*0.00*	0.0	0	0.00	17.9	3	0.00	14.5	3	0.00	11.7	2	0.00	0.0	0
1598C	0.00	0.0	0	*0.00*	31.4	4	0.00	21.8	3	0.00	32.3	4	0.00	0.0	0
1598	0.00	0.0	0	*0.00*	45.1	4	0.00	57.9	4	0.00	42.7	4	0.00	15.4	3
846C	*0.00*	0.0	0	0.00	119.8	4	0.00	119.2	4	0.00	12.0	1	0.00	0.0	0
846	0.00	0.0	0	0.00	66.5	4	0.00	114.3	4	0.00	103.8	4	0.00	35.4	2
1650C	0.00	0.0	0	0.00	17.2	2	0.00	28.3	2	0.00	9.6	2	0.00	0.0	0
1650	0.00	0.0	0	*0.00*	32.7	4	0.00	44.7	4	0.00	39.5	4	0.00	23.3	4
Exposed Rocky Habitat															
19C	0.00	0.0	0	0.00	30.4	3	0.16	22.2	3	0.13	12.0	2	0.00	*0.0*	*0*
19	0.00	0.0	0	0.00	10.3	2	0.07	13.4	2	0.21	14.3	2	0.00	*0.0*	*0*
4537C	0.00	0.0	0	0.00	134.4	4	0.00	166.8	4	0.02	80.1	4	0.00	*0.0*	*0*
979	0.00	0.0	0	0.00	44.7	4	0.11	51.6	4	0.05	52.8	4	0.00	*0.0*	*0*
1642C	0.00	0.0	0	0.00	16.2	4	0.00	22.3	4	0.00	1.5	1	0.00	*0.0*	*0*
833	0.00	0.0	0	0.00	21.6	3	0.03	22.4	3	0.00	15.0	2	0.00	*0.0*	*0*
sheltered Estuary Habitat															
2397C	0.00	0.0	0	0.00	49.0	2	0.00	54.5	2	0.00	0.0	0	0.00	*0.0*	*0*
208/209	0.00	0.0	0	0.00	33.7	2	0.00	32.5	2	0.00	35.7	2	0.00	*0.0*	*0*

Table E-179. Abundance (number/m²) for Phytichthys chirus for every MVD over all 3 habitats and habitats combined.

MVD		1990 Visit 1 Sqm	1990 Visit 1 #/m²	1990 Visit 1 N	1990 Visit 2 Sqm	1990 Visit 2 #/m²	1990 Visit 2 N	1991 Visit 1 Sqm	1991 Visit 1 #/m²	1991 Visit 1 N	1991 Visit 2 Sqm	1991 Visit 2 #/m²	1991 Visit 2 N
All Habitats													
1	Ctl	805.3	0.00	91	701.9	0.00	83						
1	Oil	573.7	0.00	89	570.3	0.00	90						
2	Ctl	804.3	0.00	90	729.8	0.00	82	428.8	0.00	48	414.4	0.00	40
2	Oil	712.7	0.00	89	757.0	0.00	89	324.7	0.00	44	300.1	0.00	40
3	Ctl	645.6	0.00	86	508.5	0.01	69	397.3	0.00	48	447.9	0.01	38
3	Oil	581.1	0.01	81	707.3	0.01	79	365.6	0.01	44	381.7	0.01	40
4	Ctl	253.9	0.00	43	283.2	0.00	34	271.0	0.01	38	177.8	0.02	21
4	oil	332.4	0.02	45	287.4	0.01	40	353.0	0.02	39	313.6	0.02	33
5	Ctl	63.7	0.00	14	29.6	0.00	5	24.2	0.06	5	3.0	0.00	1
5	Oil	82.8	0.00	13	39.3	0.00	8	52.3	0.11	8	74.1	0.00	9
sheltered Rocky habitats													
1	Ctl	84.1	0.00	28	83.7	0.00	29						
1	Oil	112.3	0.00	29	123.4	0.00	30						
2	Ctl	89.8	0.00	27	99.9	0.00	29	48.9	0.00	20	52.5	0.00	16
2	Oil	131.5	0.00	29	125.8	0.00	29	70.8	0.00	19	61.3	0.00	16
3	Ctl	87.2	0.00	27	88.7	0.00	25	76.0	0.00	21	53.0	0.00	15
3	Oil	109.9	0.00	28	96.6	0.00	26	79.6	0.00	19	62.8	0.00	16
4	Ctl	27.6	0.00	10	15.1	0.00	5	63.3	0.00	18	28.2	0.04	6
4	Oil	16.2	0.00	7	15.0	0.00	7	72.8	0.00	15	33.7	0.01	11
5	Ctl	6.4	0.00	2				8.7	0.00	2	3.0	0.00	1
5	Oil				1.5	0.00	1	4.8	0.35	2			
coarse Textured habitats													
1	Ctl	522.3	0.00	41	436.4	0.00	35						
1	Oil	331.6	0.00	37	312.7	0.00	38						
2	Ctl	481.2	0.00	41	484.4	0.00	35	211.2	0.00	16	180.9	0.00	13
2	Oil	432.9	0.00	37	506.8	0.00	38	152.4	0.00	15	162.2	0.00	15
3	Ctl	328.2	0.00	38	341.0	0.00	33	184.1	0.00	15	183.6	0.00	12
3	Oil	348.2	0.00	35	502.1	0.00	37	197.1	0.00	15	231.4	0.00	15
4	Ctl	141.4	0.00	21	184.0	0.00	22	33.4	0.00	8	56.0	0.00	8
4	Oil	234.6	0.00	27	224.8	0.00	25	174.1	0.00	14	197.7	0.00	14
5	Ctl	43.8	0.00	8	27.3	0.00	4						
5	Oil	75.3	0.00	12	28.4	0.00	6	23.9	0.00	3	74.1	0.00	9
Exposed Rocky habitats													
1	Ctl	198.9	0.00	22	181.9	0.00	19						
1	Oil	129.7	0.00	23	134.1	0.00	22						
2	Ctl	233.3	0.00	22	145.4	0.00	18	168.7	0.00	12	181.0	0.00	11
2	Oil	148.4	0.00	23	124.5	0.00	22	101.4	0.00	10	76.6	0.00	9
3	Ctl	230.1	0.00	21	78.7	0.01	11	137.1	0.00	12	211.3	0.04	11
3	Oil	123.0	0.01	18	108.6	0.01	16	88.9	0.01	10	87.5	0.07	9
4	Ctl	85.0	0.01	12	84.1	0.00	7	174.4	0.02	12	93.7	0.04	7
4	Oil	81.6	0.11	11	47.5	0.01	13	106.2	0.01	10	82.2	0.07	8
5	Ctl	13.5	0.00	4	2.3	0.00	1	15.5	0.10	3			
5	Oil	7.5	0.00	1	9.4	0.00	1	23.6	0.07	3			

Table **E-180.** Abundance (number/m²) **of** Phytichthys chirus. Each mean is for MVD **2, 3** and **4** combined and n = sample size.

		1990				1991			
		n	Visit 1	n	Visit 2	n	Visit 1	n	Visit 2
Habitats Combined	Ctl	**96**	**0.000**	**88**	**'0.000**	**49**	**0.001**	**40**	**0.012**
	Oil	**89**	**0.005**	**89**	**'0.002**	**45**	**0.008**	**40**	**0.013**
Sheltered Rocky	Ctl	**27**	**0.000**	**29**	**'0.000**	**21**	**0.000**	**16**	**0.009**
	Oil	**29**	**0.000**	**29**	**0.000**	**20**	**0.000**	**16**	**0.003**
Coarse Textured	Ctl	**41**	**0.000**	**35**	**0.000**	**16**	**0.000**	**13**	**0.000**
	Oil	**37**	**0.000**	**38**	**0.000**	**15**	**0.000**	**15**	**0.000**
Exposed Rocky	Ctl	**28**	**0.001**	**24**	**0.002**	**12**	**0.007**	**11**	**0.032**
	Oil	**23**	**0.020**	**22**	**0.011**	**10**	**0.036**	**9**	**0.054**

Table E-181. Mean biomass (g/m²) of Phytichthys chirus collected in Prince William Sound, Alaska at each site in 1990.

Site Pair	Type	Visit 1 Mean	Visit 1 Change	Visit 2 Mean	Visit 2 Change
	Sheltered Rocky Habitat				
4825C	Control	0.000	------	0.000	------
1424	Oil	0.000		0.000	
453c	Control	0.000	------	0.000	------
453	Oil	0.000		0.000	
601C	Control	0.000	------	0.000	------
601	Oil	0.000		0.000	
598C	Control	0.000	------	0.000	------
598	Oil	0.000		0.000	
1522C	Control	0.000	------	0.000	------
1522	Oil	0.000		0.000	
	Coarse Textured Habitat				
1383C	Control	0.000	------	0.000	------
1580	Oil	0.000		0.000	
506C	Control	0.000	------	0.000	------
506	Oil	0.000		0.000	
1598C	Control	0.000	------	0.000	------
1598	Oil	0.000		0.000	
846C	Control	0.000	------	0.000	------
846	Oil	0.000		0.000	
1650C	Control	0.000	------	0.000	------
1650	Oil	0.000		0.000	
1171C	Control	0.000	------	0.000	------
1171	Oil	0.000		0.000	
1627C	Control	0.000	------	0.000	------
1627	Oil	0.000		0.000	
	Exposed Rocky Habitat				
19C	Control	0.001	-0.025	0.015	-0.124
19	oil	0.026		0.139	
4537C	Control	0.000	-0.058	0.000	------
979	Oil	0.058		0.000	
1642C	Control	0.000	------	0.000	------
833	Oil	0.000		0.000	
1642C	Control	0.000	------	0.000	------
232	Oil	0.000		0.000	
2937C	Control	0.000	-0.2 16	0.000	-0.012
305	Oil	0.216		0.012	
	Sheltered Estuary Habitat				
2397C	Control	0.000	------	0.000	------
208/209	Oil	0.000		0.000	

Table E-182. Mean biomass (g/m²) of Phytichthys chirus collected in Prince William Sound, Alaska at each site in 1991.

Site Pair	Type	Visit 1 Mean	Visit 1 Change	Visit 2 Mean	Visit 2 Change
	Sheltered Rocky Habitat				
4825C	Control	0.000	-------	0.000	-------
1424	Oil	0.000		0.000	
453c	Control	0.000	-------	0.132	0.092
453	Oil	0.000		0.040	
601C	Control	0.000	-------	0.000	-------
601	Oil	0.000		0.000	
598C	Control	0.000	-------	0.000	-------
598	oil	0.000		*0.000*	
1522C	Control	0.000	-------	*0.000*	-------
1522	Oil	0.000		*0.000*	
	Coarse Textured Habitat				
506C	Control	0.000	-------	*0.000*	-------
506	Oil	0.000		*0.000*	
1598C	Control	0.000	-------	*0.000*	-------
1598	oil	0.000		*0.000*	
846C	Control	0.000	-------	*0.000*	-------
846	Oil	0.000		*0.000*	
1650C	Control	0.000	-------	*0.000*	-------
1650	Oil	0.000		*0.000*	
	Exposed Rocky Habitat				
19C	Control	0.077	0.009	0.579	0.135
19	Oil	0.068		0.444	
4537C	Control	0.000	-0.046	0.031	-0.329
979	Oil	0.046		0.360	
1642C	Control	0.000	-0.138	0.000	-0.136
833	Oil	0.138		0.136	
	Sheltered Estuary Habitat				
2397C	Control	0.000	-------	*0.000*	-------
208/209	Oil	0.000		*0.000*	

Table E-183. 1990 visit 1 Phytichthys chirus biomass (g/m²) for each MVD sampled. Average weight (G.) of fish per square meter, number of square meters (M²) and sanple size (n). The first of each site pair is the control site.

Site Pair	1			2			3			4			5		
	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n
Sheltered Rocky Habitat															
4825C	0.00	21.0	6	0.00	17.9	5	0.00	12.0	5	0.00	0.3	1	0.00	0.0	0
1424	0.00	14.6	6	0.00	20.8	6	0.00	21.1	6	0.00	10.7	4	0.00	0.0	0
453c	0.00	20.4	6	0.00	16.6	6	0.00	23.5	6	0.00	20.0	5	0.00	4.7	1
453	0.00	22.6	6	0.00	27.8	6	0.00	23.5	6	0.00	0.9	1	0.00	0.0	0
601C	0.00	16.5	6	0.00	16.9	6	0.00	13.9	6	0.00	*0.0*	*0*	0.00	0.0	0
601	0.00	14.3	6	0.00	33.8	6	0.00	38.2	6	0.00	3.2	1	0.00	0.0	0
598C	0.00	16.2	6	0.00	15.6	6	0.00	21.3	6	0.00	7.2	4	0.00	1.7	1
598	0.00	27.1	6	0.00	18.1	6	0.00	21.7	6	0.00	1.5	1	0.00	0.0	0
1522C	0.00	10.1	4	0.00	22.8	4	0.00	16.6	4	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*
1522	0.00	33.7	5	0.00	31.1	5	0.00	5.4	4	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*
Coarse Textured Habitat															
1383C	0.00	51.4	6	0.00	61.6	6	0.00	49.4	6	0.00	47.6	5	0.00	25.9	3
1580	0.00	39.1	6	0.00	54.3	6	0.00	61.7	6	0.00	50.8	5	0.00	15.3	2
506C	0.00	27.0	6	0.00	32.6	6	0.00	17.4	5	0.00	6.8	3	0.00	0.0	0
506	0.00	8.1	2	0.00	11.0	2	0.00	10.7	2	0.00	12.3	2	0.00	0.0	0
1598C	0.00	34.7	5	0.00	48.0	5	0.00	7.2	3	0.00	0.0	0	0.00	0.0	0
1598	0.00	40.0	5	0.00	80.3	5	0.00	52.0	5	0.00	25.2	5	0.00	2.2	1
846C	0.00	270.7	6	0.00	189.1	6	0.00	129.8	6	0.00	3.5	1	0.00	0.0	0
846	0.00	104.8	6	0.00	117.1	6	0.00	52.6	4	0.00	42.3	2	0.00	12.8	2
1650C	0.00	56.8	6	0.00	51.3	6	0.00	44.7	6	0.00	7.6	3	0.00	0.0	0
1650	0.00	50.0	6	0.00	60.0	6	0.00	56.4	6	0.00	38.8	4	0.00	27.4	4
1171C	0.00	45.5	6	0.00	58.3	6	0.00	36.8	6	0.00	25.9	3	0.00	11.5	2
1171	0.00	46.0	6	0.00	57.2	6	0.00	51.4	6	0.00	45.5	5	0.00	10.8	1
1627C	0.00	36.2	6	0.00	40.4	6	0.00	42.9	6	0.00	50.1	6	0.00	6.4	3
1627	0.00	43.7	6	0.00	52.9	6	0.00	63.5	6	0.00	19.8	4	0.00	6.9	2
Exposed Rocky Habitat															
19C	0.00	21.1	6	0.00	30.2	6	0.00	47.9	6	0.01	15.0	3	0.00	0.0	0
19	0.00	32.1	6	0.00	36.9	6	0.18	12.0	2	0.00	0.0	*0*	*0.00*	*0.0*	*0*
4537C	0.00	152.0	6	0.00	157.2	6	0.00	132.4	5	0.00	33.7	1	0.00	0.0	0
979	0.00	64.5	6	0.00	66.6	6	0.00	66.6	6	0.19	47.0	5	0.00	7.5	1
1642C	0.00	15.0	6	0.00	25.7	6	0.00	32.1	6	0.00	29.2	5	0.00	10.6	3
833	0.00	6.1	3	0.00	8.6	3	0.00	12.1	3	0.00	16.9	2	0.00	0.0	0
1642C	0.00	15.0	6	0.00	25.7	6	0.00	32.1	6	0.00	29.2	5	0.00	10.6	3
232	0.00	6.8	2	0.00	13.8	2	0.00	2.5	1	0.00	0.0	*0*	0.00	0.0	0
2937C	0.00	10.8	4	0.00	20.2	4	0.00	17.7	4	0.00	7.1	3	0.00	2.9	1
305	0.00	20.2	6	0.00	22.4	6	0.00	29.8	6	1.22	17.7	4	0.00	0.0	0
sheltered *Estuary* Habitat															
2397C	0.00	121.6	6	0.00	154.0	6	0.00	64.1	3	0.00	12.3	1	0.00	0.0	0
208/209	0.00	40.2	4	0.00	58.9	4	0.00	4.3	1	0.00	0.0	0	*0.00*	*0.0*	*0*

Table E-184. 1990 visit 2 Phytichthys chirus biomass (g/m²) for each MVD sampled. Average weight (G.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site	1			2			3			4			5		
Fair	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n
sheltered Rocky Habitat															
4825C	0.00	10.0	6	0.00	16.5	6	0.00	12.8	5	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*
1424	0.00	26.2	6	0.00	13.8	5	0.00	9.8	3	0.00	*0.0*	*0*	0.00	0.0	0
453c	0.00	19.4	6	0.00	24.0	6	0.00	22.8	6	0.00	9.4	3	0.00	0.0	0
453	0.00	22.0	6	0.00	21.0	6	0.00	24.6	6	0.00	*0.0*	*0*	0.00	0.0	0
601C	0.00	19.5	6	0.00	13.8	6	0.00	13.2	4	0.00	2.3	1	0.00	0.0	0
601	0.00	20.8	6	0.00	32.9	6	0.00	24.1	5	0.00	*0.0*	*0*	*0.00*	*0.0*	*0*
598C	0.00	18.5	6	0.00	21.3	6	0.00	18.2	5	0.00	3.4	1	0.00	0.0	0
598	0.00	21.8	6	0.00	21.8	6	0.00	19.9	6	0.00	4.2	3	0.00	0.0	0
1522C	0.00	16.4	5	0.00	24.4	5	0.00	21.7	5	0.00	*0.0*	*0*	0.00	0.0	0
1522	0.00	32.6	6	0.00	36.2	6	0.00	18.1	6	0.00	10.9	4	0.00	1.5	1
1383C	0.00	48.5	6	0.00	59.2	6	0.00	42.4	5	0.00	54.4	5	0.00	25.5	3
1580	0.00	52.0	6	0.00	68.5	6	0.00	66.1	6	0.00	34.9	4	0.00	0.0	0
Coarse Textured Habitat															
506C	0.00	24.0	6	0.00	25.7	6	0.00	16.9	6	0.00	2.6	1	0.00	0.0	0
506	0.00	18.5	3	0.00	17.8	3	0.00	26.1	2	0.00	5.9	1	0.00	0.0	0
1598C	0.00	33.0	5	0.00	46.9	5	0.00	49.2	5	0.00	47.7	5	0.00	0.0	0
1598	0.00	37.2	5	0.00	71.6	5	0.00	54.3	5	0.00	30.5	4	0.00	13.9	3
846C	0.00	238.6	6	0.00	223.6	6	0.00	137.5	6	0.00	10.6	3	0.00	0.0	0
846	0.00	81.3	6	0.00	121.7	6	0.00	171.7	6	0.00	72.6	4	0.00	0.0	0
1650C	0.00	0.0	0	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*	*0.00*	*0.0*	*0*
1650	0.00	50.7	6	0.00	55.2	6	0.00	58.5	6	0.00	46.5	6	0.00	8.7	2
1171C	0.00	45.9	6	0.00	57.6	6	0.00	50.5	6	0.00	47.0	5	0.00	1.8	1
1171	0.00	39.3	6	0.00	84.8	6	0.00	59.2	6	0.00	19.2	3	0.00	5.8	1
1627C	0.00	46.5	6	0.00	71.5	6	0.00	44.5	5	0.00	21.7	3	0.00	0.0	0
1627	0.00	33.8	6	0.00	87.2	6	0.00	66.3	6	0.00	15.3	3	0.00	0.0	0
Exposed *Rocky* Habitat															
19C	0.00	31.5	5	0.00	35.6	5	0.06	20.9	3	0.00	8.9	2	0.00	*0.0*	*0*
19	0.00	25.8	5	0.00	20.3	5	0.34	26.1	3	0.00	5.5	1	0.00	*0.0*	0
4537C	0.00	117.9	6	0.00	71.3	5	0.00	28.3	2	0.00	50.4	1	0.00	0.0	0
979	0.00	59.3	6	0.00	66.8	6	0.00	31.2	4	0.00	19.1	2	0.00	9.4	1
1642C	0.00	23.8	6	0.00	30.0	6	0.00	22.0	5	0.00	20.0	3	0.00	2.3	1
833	0.00	14.4	3	0.00	10.7	3	0.00	7.0	2	0.00	0.0	0	0.00	0.0	0
1642C	0.00	23.8	6	0.00	30.0	6	0.00	22.0	5	0.00	20.0	3	0.00	2.3	1
232	0.00	8.5	2	0.00	5.8	2	0.00	22.1	2	0.00	7.4	2	0.00	0.0	0
2937C	0.00	8.8	2	0.00	8.4	2	0.00	7.5	1	0.00	4.9	1	0.00	0.0	*0*
305	0.00	26.2	6	0.00	20.9	6	0.00	22.3	5	0.08	15.5	3	0.00	*0.0*	*0*
Sheltered Estuary Habitat															
2397	0.00	131.4	6	0.00	267.8	6	0.00	77.3	3	0.00	0.0	0	*0.00*	*0.0*	*0*
208/209	0.00	56.1	4	0.00	112.4	4	0.00	148.3	4	0.00	38.5	1	0.00	0.0	0

Table E-185. 1991 visit 1 Phytichthys chirus biomass (g/m²) for each MVD sampled. Average weight(G.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site pair	1			2			3			4			5		
	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n
sheltered Rocky Habitat															
4825C	0.00	0.0	0	0.00	11.5	4	0.00	10.7	4	0.00	2.5	2	0.00	0.0	0
1424	0.00	0.0	0	0.00	8.1	4	0.00	14.7	4	0.00	14.9	4	0.00	0.0	0
453c	0.00	0.0	0	0.00	7.9	4	0.00	10.7	4	0.00	22.5	4	0.00	8.8	2
453	0.00	0.0	0	0.00	*12.8*	4	0.00	21.1	4	0.00	31.6	4	1.92	2.8	1
601C	0.00	0.0	0	0.00	6.6	4	0.00	10.4	4	0.00	8.4	4	0.00	0.0	0
601	0.00	0.0	0	0.00	24.9	4	0.00	16.5	4	0.00	0.0	0	*0.00*	*0.0*	*0*
598C	*0.00*	0.0	0	0.00	16.8	5	0.00	20.6	5	0.00	20.5	5	0.00	0.0	0
598	0.00	0.0	0	0.00	12.5	4	0.00	13.1	4	0.00	12.4	3	0.00	1.9	1
1522C	0.00	0.0	0	0.00	6.0	3	0.00	23.5	4	0.00	9.4	3	0.00	0.0	0
1522	0.00	0.0	0	0.00	12.5	3	0.00	14.3	3	0.00	13.9	4	0.00	0.0	0
coarse Textured Habitat															
506C	0.00	0.0	0	0.00	16.5	4	0.00	12.2	3	0.00	1.8	2	0.00	0.0	0
506	*0.00*	0.0	0	0.00	13.2	3	0.00	17.2	3	0.00	10.7	3	0.00	0.0	0
1598C	0.00	0.0	0	0.00	31.4	4	0.00	25.5	4	0.00	*0.0*	*0*	0.00	0.0	0
1598	0.00	0.0	0	0.00	42.0	4	0.00	45.7	4	0.00	40.8	4	0.00	0.0	0
846C	0.00	0.0	0	0.00	129.3	4	0.00	109.8	4	0.00	9.1	2	0.00	0.0	0
846	0.00	0.0	0	0.00	60.7	4	0.00	88.3	4	0.00	82.3	3	0.00	0.0	0
1650C	0.00	0.0	0	0.00	34.0	4	0.00	36.5	4	0.00	22.5	4	0.00	0.0	0
1650	0.00	0.0	0	0.00	36.5	4	0.00	45.9	4	0.00	40.3	4	0.00	23.9	3
Exposed Rocky Habitat															
19C	0.00	0.0	0	0.00	31.0	4	0.00	31.4	4	0.22	29.1	4	0.39	15.5	3
19	0.00	0.0	0	0.00	30.0	3	0.00	13.5	3	0.17	24.0	3	0.36	7.2	1
4537C	0.00	0.0	0	0.00	120.9	4	0.00	82.5	4	0.00	130.2	4	0.00	0.0	0
979	*0.00*	0.0	0	0.00	49.6	4	0.12	54.9	4	0.01	56.0	4	0.18	10.6	1
1642C	0.00	0.0	0	0.00	16.8	4	0.00	23.2	4	0.00	15.1	4	0.00	0.0	0
833	0.00	0.0	0	0.00	21.9	3	0.00	20.5	3	0.44	26.1	3	0.00	5.9	1
sheltered Estuary Habitat															
2397C	0.00	0.0	0	0.00	114.3	4	0.00	92.4	4	0.00	0.0	0	0.00	0.0	0
208/209	0.00	0.0	0	0.00	33.3	2	0.00	33.0	2	0.00	47.2	2	0.00	0.0	0

Table E-186. 1991 visit 2 Phytichthys chirus biomass (g/m²) for each MVD sampled. Average weight (G.) of fish per square meter, number of square meters (M²) and sample size (n). The first of each site pair is the control site.

Site Fair	1			2			3			4			5		
	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n	G.	M²	n
sheltered Rocky Habitat															
4825C	0.00	0.0	0	0.00	12.4	4	0.00	11.2	4	0.00	0.0	0	0.00	0.0	0
1424	0.00	0.0	0	0.00	14.9	4	0.00	12.3	4	0.00	11.0	4	0.00	0.0	0
453c	0.00	0.0	0	0.00	11.7	4	0.00	14.5	4	0.23	20.1	4	0.00	3.0	1
453	0.00	0.0	0	0.00	16.7	4	0.00	17.0	4	0.12	16.5	4	0.00	0.0	0
601C	0.00	0.0	0	0.00	13.2	4	0.00	9.3	3	0.00	0.0	0	0.00	0.0	0
601	0.00	0.0	0	0.00	16.7	4	0.00	17.5	4	0.00	0.0	0	0.00	0.0	0
598C	0.00	0.0	0	0.00	15.1	4	0.00	18.1	4	0.00	8.0	2	0.00	0.0	0
598	0.00	0.0	0	0.00	12.9	4	0.00	16.0	4	0.00	6.2	3	0.00	0.0	0
1522C	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0
1522	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0	0.00	0.0	0
Coarse Textured Habitat															
506C	0.00	0.0	0	0.00	12.6	3	0.00	14.2	3	0.00	2.0	1	0.00	0.0	0
506	0.00	0.0	0	0.00	17.9	3	0.00	14.5	3	0.00	11.7	2	0.00	0.0	0
1598C	0.00	0.0	0	0.00	31.4	4	0.00	21.8	3	0.00	32.3	4	0.00	0.0	0
1598	0.00	0.0	0	0.00	45.1	4	0.00	57.9	4	0.00	42.7	4	0.00	15.4	3
846C	0.00	0.0	0	0.00	119.8	4	0.00	119.2	4	0.00	12.0	1	0.00	0.0	0
846	0.00	0.0	0	0.00	66.5	4	0.00	114.3	4	0.00	103.8	4	0.00	35.4	2
1650C	0.00	0.0	0	0.00	17.2	2	0.00	28.3	2	0.00	9.6	2	0.00	0.0	0
1650	0.00	0.0	0	0.00	32.7	4	0.00	44.7	4	0.00	39.5	4	0.00	23.3	4
Exposed Rocky Habitat															
19C	0.00	0.0	0	0.00	30.4	3	0.64	22.2	3	1.28	12.0	2	0.00	0.0	0
19	0.00	0.0	0	0.00	10.3	2	0.10	13.4	2	1.09	14.3	2	0.00	0.0	0
4537C	0.00	0.0	0	0.00	134.4	4	0.00	166.8	4	0.08	80.1	4	0.00	0.0	0
979	0.00	0.0	0	0.00	44.7	4	0.58	51.6	4	0.34	52.8	4	0.00	0.0	0
1642C	0.00	0.0	0	0.00	16.2	4	0.00	22.3	4	0.00	1.5	1	0.00	0.0	0
833	0.00	0.0	0	0.00	21.6	3	0.33	22.4	3	0.00	15.0	2	0.00	0.0	0
Sheltered Estuary Habitat															
2397C	0.00	0.0	0	0.00	49.0	2	0.00	54.5	2	0.00	0.0	0	0.00	0.0	0
208/209	0.00	0.0	0	0.00	33.7	2	0.00	32.5	2	0.00	35.7	2	0.00	0.0	0

Table E-187. Biomass (g/m²) for *Phytichthys chirus* for every MVD over 3 habitats and all habitats combined.

		1990						1991					
		Visit 1			Visit 2			Visit 1			Visit 2		
MVD		Sqm	g/m²	N	Sqm	g/m²	N	Sqm	g/m²	N	Sqm	g/m²	N
		All Habitats											
1	Ctl	805.3	0.00	91	701.9	0.00	83	-----	----	--	-----	----	--
1	oil	573.7	0.00	89	570.3	0.00	90	-----	----	--	-----	----	--
2	Ctl	804.3	0.00	90	729.8	0.00	82	428.8	0.00	48	414.4	0.00	40
2	Oil	712.7	0.00	89	757.0	0.00	89	324.7	0.00	44	300.1	0.00	40
3	Ctl	645.6	0.00	86	508.5	0.01	69	397.3	0.00	48	447.9	0.05	38
3	Oil	581.1	0.01	81	707.3	0.01	79	365.6	0.01	44	381.7	0.08	40
4	Ctl	253.9	0.00	43	283.2	0.00	34	271.0	0.02	38	177.8	0.18	21
4	Oil	332.4	*0.12*	45	287.4	0.01	40	353.0	0.04	39	313.6	0.12	33
5	Ctl	63.7	0.00	14	29.6	0.00	5	24.2	0.23	5	3.0	0.00	1
5	Oil	82.8	0.00	13	39.3	0.00	8	52.3	0.30	8	74.1	0.00	9
		sheltered Rocky Habitats											
1	Ctl	84.1	0.00	28	83.7	0.00	29	-----	----	--	-----	----	--
1	Oil	112.3	*0.00*	29	123.4	0.00	30	-----	----	--	-----	----	--
2	Ctl	89.8	0.00	27	99.9	0.00	29	48.9	0.00	20	52.5	0.00	16
2	Oil	131.5	0.00	29	125.8	0.00	29	70.8	0.00	19	61.3	0.00	16
3	Ctl	87.2	0.00	27	88.7	0.00	25	76.0	0.00	21	53.0	0.00	15
3	Oil	109.9	0.00	28	96.6	0.00	26	79.6	0.00	19	62.8	0.00	16
4	Ctl	27.6	0.00	10	15.1	0.00	5	63.3	0.00	18	28.2	0.15	6
4	Oil	16.2	0.00	7	15.0	0.00	7	72.8	0.00	15	33.7	0.04	11
5	Ctl	6.4	0.00	2	-----	----	--	8.7	0.00	2	3.0	0.00	1
5	Oil	-----	----	--	1.5	0.00	1	4.8	0.96	2	-----	----	--
		Coarse Textured Habitats											
1	Ctl	522.3	*0.00*	41	436.4	0.00	35	-----	----	--	-----	----	--
1	Oil	331.6	0.00	37	312.7	0.00	33	-----	----	--	-----	----	--
2	Ctl	481.2	0.00	41	484.4	0.00	35	211.2	0.00	16	180.9	0.00	13
2	Oil	432.9	0.00	37	506.8	0.00	33	152.4	0.00	15	162.2	0.00	15
3	Ctl	328.2	0.00	38	341.0	0.00	33	184.1	0.00	15	183.6	0.00	12
3	Oil	348.2	0.00	35	502.1	0.00	37	197.1	0.00	15	231.4	0.00	15
4	Ctl	141.4	0.00	21	184.0	0.00	22	33.4	0.00	8	56.0	0.00	8
4	Oil	234.6	0.00	27	224.8	0.00	25	174.1	0.00	14	197.7	0.00	14
5	Ctl	43.8	0.00	8	27.3	0.00	4	-----	-----	--	-----	----	--
5	Oil	75.3	0.00	12	28.4	0.00	6	23.9	0.00	3	74.0	0.00	9
		Exposed Rocky habitats											
1	Ctl	198.9	0.00	22	181.9	0.00	19	-----	----	--	-----	----	--
1	Oil	129.7	0.00	23	134.1	0.00	22	-----	----	--	-----	----	--
2	Ctl	233.3	0.00	22	145.4	0.00	13	168.7	0.00	12	181.0	0.00	11
2	Oil	148.4	0.00	23	124.5	0.00	22	101.4	0.00	10	76.6	0.00	9
3	Ctl	230.1	0.00	21	78.8	0.01	11	137.1	0.00	12	211.3	0.17	11
3	Oil	123.0	0.01	18	108.6	0.06	16	88.9	0.04	10	87.5	0.38	9
4	Ctl	84.9	0.01	12	84.1	0.00	7	174.4	0.07	12	93.7	0.40	7
4	Oil	81.6	0.52	11	47.5	0.02	3	106.2	0.18	10	82.2	0.44	8
5	Ctl	13.5	0.00	4	2.3	0.00	1	15.5	0.38	3	-----	----	--
5	Oil	7.5	0.00	1	9.4	0.00	1	23.6	0.18	3	-----	----	--

Table E-188. Biomass (g/m²) of Phytichthys chirus. Each mean is for MVD 2, 3 and 4 combined and n = sample size.

		1990				1991			
		n	Visit 1	n	Visit 2	n	Visit 1	n	Visit 2
Habitats Combined	Ctl	96	0.000	88	0.000	49	0.006	40	0.059
	Oil	89	0.020	89	0.008	45	0.017	40	0.072
Sheltered Rocky	Ctl	27	0.000	29	0.000	21	0.000	16	0.033
	Oil	29	0.000	29	0.000	20	0.000	16	0.010
Coarse Textured	Ctl	41	0.000	35	0.000	16	0.000	13	0.000
	Oil	37	0.000	38	0.000	15	0.000	15	0.000
Exposed Rocky	Ctl	28	0.001	24	0.003	12	0.025	11	0.169
	Oil	23	0.078	22	0.034	10	0.080	9	0.304

Table E-189. The percent (%) of Phytichthys chirus out of the total (Ttl) number of MVD's with Phytichthys chirus present at *each* MVD for oil and control sites for all 3 habitats and habitats combined.

	Overall						Exposed Rocky					
	oil			Control			oil			control		
Year MVD	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990 2	0	178	0.0	0	172	0.0	0	45	0.0	0	40	0.0
1990 3	3	160	1.9	1	155	0.6	3	34	8.8	1	32	3.1
1990 4	6	87	6.9	1	77	1.3	6	19	31.6	1	19	5.3
1991 2	0	85	0.0	0	89	0.0	0	19	0.0	0	23	0.0
1991 3	4	85	4.7	1	86	1.2	4	19	21.1	1	23	4.4
1991 4	9	72	12.5	5	59	8.5	8	18	44.4	4	19	21.1
	Coarse Textured						Sheltered Rocky					
1990 2	0	75	0.0	0	76	0.0	0	58	0.0	0	56	0.0
1990 3	0	72	0.0	0	71	0.0	0	54	0.0	0	52	0.0
1990 4	0	53	0.0	0	43	0.0	0	15	0.0	0	15	0.0
1991 2	0	30	0.0	0	29	0.0	0	36	0.0	0	37	0.0
1991 3	0	30	0.0	0	27	0.0	0	36	0.0	0	36	0.0
1991 4	0	28	0.0	0	16	0.0	1	26	3.9	1	24	4.2

Table E-190. The percent (%) of Phytichthys chirus found out of the total (ttl) number of MVD's with Phytichthys chirus present at *each* MVD for all 3 habitats and all habitats combined.

	Overall			Exp Rcky			Crse Txt			Shlt Rcky		
Year MVD	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990 2	0	350	0.0	0	85	0.0	0	151	0.0	0	114	0.0
1990 3	4	315	1.3	4	66	6.1	0	143	0.0	0	106	0.0
1990 4	7	164	4.3	7	38	18.4	0	96	0.0	0	30	*0.0*
1991 2	0	174	0.0	0	42	0.0	0	59	0.0	0	73	0.0
1991 3	5	171	2.9	5	42	11.9	0	57	0.0	0	72	0.0
1991 4	14	131	10.7	12	37	32.4	0	44	0.0	2	50	4.0

Table E-191. **The percent** (%) **of** Phytichthys chirus **found out of the total (ttl) number** of MVD's with Phytichths **chirus present** at each **MVD for** oil and **control** sites **for** all 3 **habitats** and habitats combined.

			Overall			Exp Rcky			Crse Txt			Shlt Rcky		
Year	MVD	Rnd	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990	2	1	0	179	0.0	0	45	0.0	0	78	0.0	0	56	0.0
1990	3	1	1	167	0.6	1	39	2.6	0	73	0.0	0	55	0.0
1990	4	1	6	89	6.7	6	23	26.1	0	48	0.0	0	18	0.0
1990	2	2	0	171	0.0	0	40	0.0	0	73	0.0	0	58	0.0
1990	3	2	3	148	2.0	3	27	11.1	0	70	0.0	0	51	0.0
1990	4	2	1	75	1.3	1	15	6.7	0	48	0.0	0	12	0.0
1991	2	1	0	94	0.0	0	22	0.0	0	31	0.0	0	41	0.0
1991	3	1	1	93	1.1	1	22	4.6	0	30	0.0	0	41	0.0
1991	4	1	6	77	7.8	6	22	27.3	0	22	0.0	0	33	0.0
1991	2	2	0	80	0.0	0	20	0.0	0	28	0.0	0	32	0.0
1991	3	2	4	78	5.1	4	20	20.0	0	27	0.0	0	31	0.0
1991	4	2	8	54	14.8	6	15	40.0	0	22	0.0	2	17	11.8

Table E-192. The percent (%) of Phytichthys chirus found (Fnd) out of the total (TU) number of MVD's with Phytichthys chirus present at *each* MVD for oil and control sites for all 3 habitats and habitats combined.

			Overall						Exposed Rocky					
			Oil			Control			Oil			Control		
Year	MVD	Rnd	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%	Fnd	Ttl	%
1990	2	1	0	89	0.0	0	!30	0.0	0	23	0.0	0	22	0.0
1990	3	1	1	81	1.2	0	!36	0.0	1	18	5.6	0	21	0.0
1990	4	1	5	46	10.9	1	43	2.3	5	11	45.5	1	12	8.3
1990	2	2	0	89	0.0	0	!32	0.0	0	22	0.0	0	18	0.0
1990	3	2	2	79	2.5	1	69	1.5	2	16	12.5	1	11	9.1
1990	4	2	1	41	2.4	0	:34	0.0	1	8	12.5	0	7	0.0
1991	2	1	0	45	0.0	0	49	0.0	0	10	0.0	0	12	0.0
1991	3	1	1	45	2.2	0	48	0.0	1	10	10.0	0	12	0.0
1991	4	1	5	39	12.8	1	38	2.6	5	10	50.0	1	12	8.3
1991	2	2	0	40	0.0	0	40	0.0	0	9	0.0	0	11	0.0
1991	3	2	3	40	7.5	1	38	2.6	3	9	33.3	1	11	9.1
1991	4	2	4	33	12.1	4	:21	19.0	3	8	37.5	3	7	42.9
			Coarse Textured						Sheltered Rocky					
1990	2	1	0	37	0.0	0	41	0.0	0	29	0.0	0	27	0.0
1990	3	1	0	35	0.0	0	:38	0.0	0	28	0.0	0	27	0.0
1990	4	1	0	27	0.0	0	:21	0.0	0	8	0.0	0	10	0.0
1990	2	2	0	38	0.0	0	:35	0.0	0	29	0.0	0	29	0.0
1990	3	2	0	37	0.0	0	:33	0.0	0	26	0.0	0	25	0.0
1990	4	2	0	26	0.0	0	:22	0.0	0	7	0.0	0	5	0.0
1991	2	1	0	15	0.0	0	16	0.0	0	20	0.0	0	21	0.0
1991	3	1	0	15	0.0	0	15	0.0	0	20	0.0	0	21	0.0
1991	4	1	0	14	0.0	0	8	0.0	0	15	0.0	0	18	0.0
1991	2	2	0	15	0.0	0	13	0.0	0	16	0.0	0	16	0.0
1991	3	2	0	15	0.0	0	12	0.0	0	16	0.0	0	15	0.0
1991	4	2	0	14	0.0	0	8	0.0	1	11	9.1	1	6	16.7

Table E-193. Wilcoxon matched-pairs test on abundance (number/m²) for Phytichthys chirus. MVD 2, 3 and 4 were used for these analyses.

Year	Visit	Habitat	Sample size	p(Value)
1990	1	All Habitats	3	0.055
1990	2	All Habitats	2	0.090
1991	1	All Habitats	3	0.055
1991	2	All Habitats	4	0.365
1990	1	Sheltered Rocky	0	-----
1990	2	Sheltered Rocky	0	-----
1991	1	Sheltered Rocky	0	-----
1991	2	Sheltered Rocky	1	0.158
1990	1	Coarse Textured	0	-----
1990	2	Coarse Textured	0	-----
1991	1	Coarse Textured	0	-----
1992	1	Coarse Textured	0	-----
1990	1	Exposed Rocky	3	0.055
1990	2	Exposed Rocky	2	0.090
1991	1	Exposed Rocky	3	0.055
1991	2	Exposed Rocky	3	0.142

Table E-194. Wilcoxon matched-pairs test on biomass(g/m²) for Phytichthys chirus. MVD 2, 3 and 4 were used for these analysis.

Year	Visit	Habitat	Samp1e Size	P(Value)
1990	1	All Habitats	3	0.054
1990	2	All Habitats	2	0.090
1991	1	All Habitats	3	0.142
1991	2	All Habitats	4	0.368
1990	1	Sheltered Rocky	0	-----
1990	2	Sheltered Rocky	0	-----
1991	1	Sheltered Rocky	0	-----
1991	2	Sheltered Rocky	1	0.158
1990	1	Coarse Textured	*0*	-----
1990	2	Coarse Textured	*0*	-----
1991	1	Coarse Textured	*0*	-----
1992	1	Coarse Textured	*0*	-----
1990	1	Exposed Rocky	3	0.055
1990	2	Exposed Rocky	2	0.090
1991	1	Exposed Rocky	3	0.142
1991	2	Exposed Rocky	3	0.194

Table E-195. Wilcoxon matched pairs test for Phytichthys chirus abundance (number/m²) at each MVD during 2 visits in 1990 and 1991 for all 3 habitats and all habitats combined.

Year	Visit	Habitat	MVD	N	Wilcoxian
90	1	All	2	0	
90	1	Exposed Rocky	2	0	
90	1	Coarse Textured	2	0	
90	1	Sheltered Rocky	2	0	
90	1	All	3	1	0.158
90	1	Exposed Rocky	3	1	0.158
90	1	Coarse Textured	3	0	
90	1	Sheltered Rocky	3	0	
90	1	All	4	3	0.142
90	1	Exposed Rocky	4	3	0.142
90	1	Coarse Textured	4	0	
90	1	Sheltered Rocky	4	0	
90	2	All	2	0	
90	2	Exposed Rocky	2	0	
90	2	Coarse Textured	2	0	
90	2	Sheltered Rocky	2	0	
90	2	All	3	1	0.158
90	2	Exposed Rocky	3	1	0.158
90	2	Coarse Textured	3	0	
90	2	Sheltered Rocky	3	0	
90	2	All	4	1	0.158
90	2	Exposed Rocky	4	1	0.158
90	2	Coarse Textured	4	0	
90	2	Sheltered Rocky	4	0	

Table E-195. (continued) Wilcoxon for Phytichthys *chirus* abundance (number/m²).

Year	Visit	Habitat	MVD	N	Wilcoxian
91	1	All	2	*0*	
91	1	Exposed Rocky	2	*0*	
91	1	Coarse Textured	2	*0*	
91	1	Sheltered Rocky	2	0	
91	1	All	3	1	0.158
91	1	Exposed Rocky	3	1	0.158
91	1	Coarse Textured	3	0	
91	1	Sheltered Rocky	3	0	
91	1	All	4	3	0.055
91	1	Exposed Rocky	4	3	0.055
91	1	Coarse Textured	4	0	
91	1	Sheltered Rocky	4	0	
91	2	All	2	*0*	
91	2	Exposed Rocky	2	*0*	
91	2	Coarse Textured	2	*0*	
91	2	Sheltered Rocky	2	*0*	
91	2	All	3	3	0.297
91	2	Exposed Rocky	3	3	0.297
91	2	Coarse Textured	3	0	
91	2	Sheltered Rocky	3	0	
91	2	All	4	3	0.297
91	2	Exposed Rocky	4	2	0.090
91	2	Coarse Textured	4	0	
91	2	Sheltered Rocky	4	1	0.153

Table E-196. Wilcoxon matched pairs test for Phytichthys chirus biomass (g/m^2) over each MVD at each of 3 habitats and all habitats combined during 2 visits each in 1990 and 1991.

Year	Visit	Habitat	MVD	N	Wilcoxian
90	1	All	2	0	
90	1	Exposed Rocky	2	0	
90	1	Coarse Textured	2	0	
90	1	Sheltered Rocky	2	0	
90	1	All	3	1	0.158
90	1	Exposed Rocky	3	1	0.158
90	1	Coarse Textured	3	0	
90	1	Sheltered Rocky	3	0	
90	1	All	4	3	0.142
90	1	Exposed Rocky	4	3	0.142
90	1	Coarse Textured	4	0	
90	1	Sheltered Rocky	4	0	
90	2	All	2	0	
90	2	Exposed Rocky	2	0	
90	2	Coarse Textured	2	0	
90	2	Sheltered Rocky	2	0	
90	2	All	3	1	0.158
90	2	Exposed Rocky	3	1	0.158
90	2	Coarse Textured	3	0	
90	2	Sheltered Rocky	3	0	
90	2	All	4	1	0.158
90	2	Exposed Rocky	4	1	0.158
90	2	Coarse Textured	4	0	
90	2	Sheltered Rocky	4	0	

Table E-196. (continued) Wilcoxon matched pairs on Phytichthys chirus biomass (g/m²).

Year	Visit	Habitat	MVD	N	Wilcoxian
91	1	All	2	*0*	
91	1	Exposed Rocky	2	*0*	
91	1	Coarse Textured	2	*0*	
91	1	Sheltered Rocky	2	*0*	
91	1	All	3	1	0.158
91	1	Exposed Rocky	3	1	0.158
91	1	Coarse Textured	3	0	
91	1	Sheltered Rocky	3	0	
91	1	All	4	3	0.297
91	1	Exposed Rocky	4	3	0.297
91	1	Coarse Textured	4	0	
91	1	Sheltered Rocky	4	0	
91	2	All	2	*0*	
91	2	Exposed Rocky	2	*0*	
91	2	Coarse Textured	2	*0*	
91	2	Sheltered Rocky	2	*0*	
91	2	All	3	3	0.297
91	2	Exposed Rocky	3	3	0.297
91	2	Coarse Textured	3	0	
91	2	Sheltered Rocky	3	0	
91	2	All	4	3	0.500
91	2	Exposed Rocky	4	2	0.327
91	2	Coarse Textured	4	0	
91	2	Sheltered Rocky	4	1	0.153

Table E-197. Mean abundance (number/m²) of the snailfish Liparis sp. collected in Prince William Sound, Alaska at each site in 1990 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

Site Pair	Type	Visit 1 Mean	Visit 1 Change	Visit 1 SE	Visit 2 Mean	Visit 2 Change	Visit 2 SE
	Sheltered Rocky Sites						
4825C	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
1424	Oil	0.000		*0.000*	*0.000*		*0.000*
453c	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
453	Oil	0.000		*0.000*	*0.000*		*0.000*
601C	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
601	Oil	0.000		*0.000*	*0.000*		*0.000*
598C	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
598	oil	0.000		*0.000*	*0.000*		*0.000*
1522C	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
1522	Oil	0.000		*0.000*	*0.000*		*0.000*
	Coarse Textured Sites						
1383C	Control	0.621	0.621	0.541	0.248	0.248	0.159
1580	Oil	*0.000*		0.000	0.000		0.000
506C	Control	0.000	0.000	0.000	0.000	0.000	0.000
506	Oil	0.000		0.000	0.000		*0.000*
1598C	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
1598	Oil	*0.000*		0.000	*0.000*		*0.000*
846C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
846	Oil	0.000		0.000	0.000		*0.000*
1650C	Control	0.076	0.076	0.063	0.000	*0.000*	*0.000*
1650	Oil	0.000		0.000	0.000		0.000
1171C	Control	0.057	0.057	0.043	0.006	0.006	0.006
1171	Oil	0.000		0.000	0.000		0.000
1627C	Control	0.000	0.000	0.000	0.000	-0.005	0.000
1627	Oil	0.000		0.000	0.005		0.005
	Exposed Rocky Sites						
19C	Control	0.139	0.099	0.072	0.040	0.040	0.027
19	oil	0.040		0.025	0.000		0.000
4537C	Control	0.003	-0.002	0.003	0.005	0.005	0.005
979	Oil	0.005		0.005	0.000		0.000
1642C	Control	0.000	-0.343	0.000	0.000	0.000	0.000
833	oil	0.343		0.290	0.000		*0.000*
1642C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
232	Oil	0.000		0.000	*0.000*		*0.000*
2937C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
305	Oil	0.000		*0.000*	*0.000*		*0.000*
	Sheltered Estuary Sites						
2397C	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
208/209	Oil	0.000		*0.000*	*0.000*		*0.000*

Table E-198. Mean abundance (number/m²) of the snailfish Liparis sp. collected in Prince William sound, Alaska at each site in 1991 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

Site Pair	Type	Visit 1 Mean	Visit 1 Change	Visit 1 SE	Visit 2 Mean	Visit 2 Change	Visit 2 SE
	Sheltered Rocky Sites						
4825C	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
1424	Oil	*0.000*		*0.000*	*0.000*		*0.000*
453c	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
453	Oil	0.000		*0.000*	*0.000*		*0.000*
601C	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
601	Oil	0.000		*0.000*	*0.000*		*0.000*
598C	Control	0.000	0.000	*0.000*	*0.000*	*0.000*	*0.000*
598	Oil	0.000		*0.000*	*0.000*		*0.000*
1522C	Control	0.000	0.000	*0.000*	-----		
1522	Oil	0.000		*0.000*	-----		
	Coarse Textured Sites						
506C	Control	0.000	0.000	*0.000*	*0.000*	-0.020	0.000
506	Oil	0.000		*0.000*	*0.020*		0.020
1598C	Control	0.000	0.000	*0.000*	*0.000*	0.000	0.000
1598	Oil	0.000		0.000	*0.000*		0.000
846C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
846	Oil	0.000		0.000	*0.000*		*0.000*
1650C	Control	0.048	0.048	0.019	*0.000*	*0.000*	*0.000*
1650	oil	0.000		0.000	*0.000*		*0.000*
	Exposed Rocky Sites						
19C	Control	0.030	-0.012	0.030	0.278	0.278	0.181
19	Oil	0.042		0.024	0.000		*0.000*
4537C	Control	0.007	-0.009	0.007	0.080	0.052	0.032
979	Oil	0.016		0.016	0.028		0.020
1642C	Control	0.000	-0.047	0.000	0.000	-0.070	0.000
833	Oil	0.047		0.047	0.070		0.070
	Sheltered Estuary Sites						
2397C	Control	0.008	0.008	0.008	0.014	0.014	0.014
208/209	Oil	0.000		0.000	0.000		0.000

Table E-199. Mean biomass (g/m²) of the snailfish Liparis sp. collected in Prince William Sound, Alaska at each site in 1990 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

site Pair	Type	Visit 1 Mean	Change	SE	visit 2 Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
1424	Oil	0.000		0.000	*0.000*		*0.000*
453c	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
453	Oil	0.000		0.000	*0.000*		*0.000*
601C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
601	Oil	0.000		0.000	*0.000*		*0.000*
598C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
598	Oil	0.000		0.000	*0.000*		*0.000*
1522C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
1522	Oil	0.000		0.000	*0.000*		*0.000*
	Coarse Textured Sites						
1383C	Control	0.464	0.464	0.416	0.287	0.287	0.181
1580	Oil	*0.000*		*0.000*	0.000		0.000
506C	Control	0.000	0.000	0.000	0.000	0.000	0.000
506	Oil	0.000		0.000	0.000		*0.000*
1598C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
1598	Oil	0.000		0.000	*0.000*		*0.000*
846C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
846	Oil	0.000		0.000	*0.000*		*0.000*
1650C	Control	0.015	0.015	0.014	*0.000*	*0.000*	
1650	Oil	0.000		0.000	*0.000*		0.000
1171C	Control	0.059	0.059	0.051	0.007	0.007	0.007
1171	oil	0.000		0.000	0.000		0.000
1627C	Control	0.000	0.000	0.000	0.000	-0.007	0.000
1627	Oil	0.000		0.000	0.007		0.007
	Exposed Rocky Sites						
19C	Control	0.024	0.022	0.010	0.009	0.009	0.005
19	oil	0.002		0.002	0.000		0.000
4537C	Control	0.001	0.000	0.001	0.002	0.002	0.002
979	Oil	0.001		0.001	0.000		0.000
1642C	Control	0.000	-0.021	0.000	0.000	0.000	0.000
833	oil	0.021		0.018	0.000		*0.000*
1642C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
232	Oil	0.000		*0.000*	*0.000*		*0.000*
2937C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
305	Oil	0.000		0.000	*0.000*		*0.000*
	Sheltered Estuary Sites						
2397C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
208/209	Oil	0.000		0.000	*0.000*		*0.000*

Table E-200. Mean biomass (g/m^2) of the snailfish Liparis sp collected in Prince William Sound, Alaska at each site in 1991 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

		Visit 1			Visit 2		
Site	Type	Mean	Change	SE	Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
1424	Oil	0.000		0.000	*0.000*		*0.000*
453c	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
453	Oil	0.000		0.000	*0.000*		*0.000*
601C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
601	Oil	0.000		0.000	*0.000*		*0.000*
598C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
598	Oil	0.000		0.000	*0.000*		*0.000*
1522C	Control	0.000	0.000	0.000	-----		
1522	Oil	0.000		0.000	-----		
	Coarse Textured Sites						
506C	Control	0.000	0.000	0.000	0.000	-0.006	0.000
506	Oil	0.000		0.000	0.006		0.006
1598C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1598	Oil	0.000		*0.000*	0.000		0.000
846C	Control	0.000	0.000	0.000	0.000	*0.000*	*0.000*
846	oil	0.000		0.000	*0.000*		*0.000*
1650C	Control	0.006	0.006	0.002	*0.000*	*0.000*	*0.000*
1650	Oil	0.000		0.000	*0.000*		*0.000*
	Exposed Rocky Sites						
19C	Control	0.009	0.006	0.009	0.056	0.056	0.043
19	Oil	0.003		0.002	0.000		*0.000*
4537C	Control	0.002	-0.001	0.002	0.017	0.012	0.004
979	Oil	0.003		0.003	0.005		0.003
1642C	Control	0.000	-0.003	0.000	0.000	-0.010	0.000
833	Oil	0.003		0.003	0.010		0.010
	Sheltered Estuary Sites						
2397C	Control	0.002	0.002	0.002	0.013	0.013	0.013
208/209	Oil	0.000		0.000	0.000		0.000

Table **E-201.** Abundance (number/m³) of the snailfish Liparis sp. within each of the three habitats, and habitats combined at control and oiled site pairs sampled in Prince William Sound, Alaska during each of two visits in **1990** and **1991.** Each mean is for MVD **2, 3** and **4** combined and n = sample size.

		1990				1991			
Habitat	Type	n	Visit 1	n	Visit 2	n	Visit 1	n	Visit 2
Sheltered Rocky	Control	**27**	**0.000**	**29**	**0.000**	**21**	**0.000**	**16**	**0.000**
	Oil	**29**	**0.000**	**29**	**0.000**	**20**	**0.000**	**16**	**0.000**
coarse Textured	Control	**41**	**0.110**	**35**	**0.044**	**16**	**0.012**	**13**	**0.000**
	Oil	**37**	**0.000**	**38**	0.001	**15**	**0.000**	**15**	**0.004**
Exposed Rocky	Control	**28**	**0.030**	**24**	**0.009**	**12**	**0.013**	**11**	**0.105**
	Oil	**23**	**0.056**	**22**	**0.000**	10	**0.033**	**9**	**0.036**
Habitats Combined	Control	**96**	**0.056**	**88**	**0.019**	**49**	***0.007***	**40**	**0.029**
	Oil	**89**	**0.014**	**89**	0.001	**45**	**0.007**	**40**	**0.009**

Table **E-202.** Biomass (g/m³) of the snailfish Liparis sv. found within the three habitats, and habitats combined at control and oiled site pairs sampled in Prince William Sound, Alaska during each **of** two visits in **1990** and **1991.** Each mean is for **MVD 2, 3** and **4** combined and n = sample size.

		1990				1991			
Habitat	Type	n	Visit 1	n	Visit 2	n	Visit 1	n	Visit 2
Sheltered Rocky	Control	**27**	**0.000**	**29**	***0.000***	**21**	**0.000**	**16**	**0.000**
	oil	**29**	**0.000**	**29**	***0.000***	**20**	**0.000**	**16**	**0.000**
Coarse Textured	Control	41	**0.079**	**35**	**0.050**	**16**	**0.001**	**13**	**0.000**
	Oil	**37**	**0.000**	**38**	0.001	**15**	**0.000**	**15**	**0.001**
Exposed Rocky	Control	**28**	**0.005**	**24**	**0.002**	**12**	**0.004**	**11**	**0.021**
	Oil	**23**	**0.003**	**22**	***0.000***	10	**0.003**	**9**	**0.005**
Habitats Combined	Control	**96**	**0.035**	**88**	**0.021**	**49**	**0.001**	**40**	**0.006**
	Oil	**89**	**0.001**	**89**	0.001	**45**	0.001	**40**	**0.002**

Table E-203. Mean abundance (number/m²) of the tidepool sculpin Olisocottus maculosus collected in Prince William Sound, Alaska at each site in 1990 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

Site Pair	Type	visit 1 Mean	visit 1 Change	visit 1 SE	Visit 2 Mean	Visit 2 Change	Visit 2 SE
	Sheltered Rocky Sites						
4825C	Control	0.000	*0.000*	0.000	*0.000*	*0.000*	*0.000*
1424	Oil	*0.000*		*0.000*	*0.000*		*0.000*
453c	Control	0.000	0.000	*0.000*	0.054	-0.042	0.054
453	oil	*0.000*		0.000	0.097		0.097
601C	Control	0.000	-0.013	0.000	0.000	-0.023	0.000
601	Oil	0.013		0.013	0.023		0.023
598C	Control	0.015	0.015	0.015	0.014	0.014	0.014
598	Oil	0.000		0.000	0.000		0.000
1522C	Control	0.000	*0.000*	0.000	0.000	0.000	0.000
1522	Oil	0.000		*0.000*	0.000		*0.000*
	Coarse Textured Sites						
1383C	Control	0.007	0.007	0.007	0.006	4E-4	0.006
1580	Oil	*0.000*		*0.000*	0.006		0.006
506C	Control	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
506	Oil	0.000		0.000	0.000		*0.000*
1598C	Control	0.000	0.000	0.000	0.000	*0.000*	*0.000*
1598	Oil	0.000		*0.000*	*0.000*		*0.000*
846C	Control	0.000	*0.000*	0.000	*0.000*	*0.000*	*0.000*
846	oil	0.000		*0.000*	*0.000*		*0.000*
1650C	Control	0.026	0.010	0.018	0.000	*0.000*	
1650	Oil	0.016		0.016	*0.000*		*0.000*
1171C	Control	0.092	0.092	0.043	*0.000*	-0.015	*0.000*
1171	Oil	0.000		0.000	0.015		0.015
1627C	Control	0.008	0.008	0.008	0.000	*0.000*	*0.000*
1627	Oil	0.000		*0.000*	*0.000*		*0.000*
	Exposed Rocky Sites						
19C	Control	0.123	0.092	0.059	0.136	0.136	0.106
19	Oil	0.031		0.022	*0.000*		0.000
4537C	Control	0.059	0.059	0.027	0.119	0.038	0.050
979	Oil	*0.000*		*0.000*	0.081		0.037
1642C	Control	0.000	0.000	0.000	0.000	-0.118	0.000
833	Oil	*0.000*		0.000	0.118		0.118
1642C	Control	0.000	0.000	0.000	0.000	-0.127	0.000
232	Oil	0.000		*0.000*	0.127		0.127
2937C	Control	*0.000*	-0.041	*0.000*	0.058	0.035	0.058
305	Oil	0.041		0.041	0.023		0.015
	Sheltered Estuary Sites						
2397C	Control	0.003	0.003	0.003	*0.000*	-0.004	*0.000*
208/209	Oil	0.000		*0.000*	0.004		0.004

Table E-204. Mean abundance (number/m²) of the tidepool sculpin Olisocottus maculosus collected in Prince William Sound, Alaska at each site in 1991 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

Site Pair	Type	visit 1			Visit 2		
		Mean	Change	SE	Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.000	0.000	0.000	*0.000*	0.000	0.000
1424	Oil	0.000		0.000	0.000		*0.000*
453c	Control	0.060	0.046	0.060	0.024	0.024	0.024
453	oil	0.014		0.014	0.000		0.000
601C	Control	0.000	-0.038	0.000	0.000	-0.039	0.000
601	Oil	0.038		0.038	0.039		0.039
598C	Control	0.016	0.016	0.016	0.000	-0.051	0.000
598	Oil	0.000		0.000	0.051		0.051
1522C	Control	0.000	-0.103	0.000	-----		
1522	Oil	0.103		0.103	-----		
	Coarse Textured Sites						
506C	Control	0.000	-0.026	0.000	*0.000*	*0.000*	*0.000*
506	Oil	0.026		0.026	*0.000*		*0.000*
1598C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
1598	Oil	0.000		0.000	0.000		*0.000*
846C	Control	0.000	0.000	0.000	0.000	0.000	0.000
846	Oil	0.000		0.000	0.000		0.000
1650C	Control	0.059	0.059	0.050	0.026	0.026	0.026
1650	Oil	0.000		0.000	0.000		0.000
	Exposed Rocky Sites						
19C	Control	0.065	0.037	0.027	0.041	0.041	0.041
19	Oil	0.028		0.028	0.000		*0.000*
4537C	Control	0.099	-0.066	0.032	0.000	-0.013	0.000
979	Oil	0.164		0.164	0.013		0.008
1642C	Control	0.000	0.000	0.000	0.039	0.025	0.039
833	Oil	0.000		0.000	0.014		0.014
	Sheltered Estuary Sites						
2397C	Control	0.008	0.008	0.008	*0.000*	*0.000*	*0.000*
208/209	Oil	0.000		0.000	*0.000*		*0.000*

Table E-205. Mean biomass (g/m^2) of the tidepool sculpin Olisocottus maculosus collected in Prince William Sound, Alaska at each site in 1990 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

Site Pair	Type	Visit 1			Visit 2		
		Mean	Change	SE	Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1424	Oil	0.000		0.000	0.000		0.000
453c	Control	0.000	0.000	0.000	0.036	-0.057	0.036
453	Oil	0.000		0.000	0.092		0.092
601C	Control	0.000	-0.025	0.000	0.000	-0.027	0.000
601	Oil	0.025		0.025	0.027		0.027
598C	Control	0.003	0.003	0.003	0.001	0.001	0.001
598	Oil	0.000		0.000	0.000		0.000
1522C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1522	Oil	0.000		0.000	0.000		*0.000*
	Coarse Textured Sites						
1383C	Control	0.025	0.025	0.025	0.020	0.019	0.020
1580	Oil	0.000		0.000	0.001		0.001
506C	Control	0.000	0.000	0.000	0.000	0.000	0.000
506	Oil	0.000		*0.000*	0.000		0.000
1598C	Control	0.000	0.000	0.000	*0.000*	0.000	0.000
1598	Oil	0.000		0.000	*0.000*		*0.000*
846C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
846	Oil	0.000		0.000	*0.000*		*0.000*
1650C	Control	0.042	0.030	0.028	0.000	*0.000*	
1650	oil	0.012		0.012	0.000		0.000
1171C	Control	0.165	0.165	0.093	0.000	-0.022	0.000
1171	Oil	0.000		0.000	0.022		0.022
1627C	Control	0.004	0.004	0.004	0.000	0.000	0.000
1627	Oil	0.000		0.000	0.000		0.000
	Exposed Rocky Sites						
19C	Control	0.123	0.114	0.056	0.087	0.087	0.081
19	oil	0.009		0.007	0.000		0.000
4537C	Control	0.009	0.009	0.008	0.081	0.051	0.037
979	oil	0.000		0.000	0.030		0.018
1642C	Control	0.000	0.000	0.000	0.000	-0.011	0.000
833	Oil	0.000		0.000	0.011		0.011
1642C	Control	0.000	0.000	0.000	0.000	-0.011	0.000
232	Oil	0.000		0.000	0.011		0.011
2937C	Control	0.000	-0.001	0.000	0.092	0.026	0.092
305	Oil	0.001		0.001	0.067		0.050
	Sheltered Estuary Sites						
2397C	Control	0.007	0.007	0.007	0.000	-0.001	0.000
208/209	Oil	0.000		0.000	0.001		0.001

Table E-206. Mean biomass (g/m^2) of the tidepool sculpin Oliaocottus maculosus collected in Prince William Sound, Alaska at each site in 1991 for visits 1 and 2. The difference between the oil and control matched site is also given. SE = standard error of the mean. MVD 2, 3 and 4 were combined for these analysis.

		Visit 1			Visit 2		
Site	Type	Mean	Change	SE	Mean	Change	SE
	Sheltered Rocky Sites						
4825C	Control	0.000	0.000	0.000	0.000	0.000	0.000
1424	Oil	*0.000*		0.000	0.000		0.000
453c	Control	0.017	-0.010	0.017	0.007	0.007	0.007
453	Oil	0.028		0.028	0.000		0.000
601C	Control	0.000	-0.012	0.000	0.000	-0.016	0.000
601	Oil	0.012		0.012	0.016		0.016
598C	Control	0.019	0.019	0.019	0.000	-0.028	0.000
598	Oil	0.000		0.000	0.028		0.028
1522C	Control	0.000	-0.244	0.000	-----		
1522	Oil	0.244		0.244	-----		
	Coarse Textured Sites						
506C	Control	0.000	-0.026	0.000	*0.000*	*0.000*	*0.000*
506	Oil	0.026		0.026	*0.000*		*0.000*
1598C	Control	0.000	0.000	0.000	*0.000*	*0.000*	*0.000*
1598	Oil	0.000		0.000	0.000		*0.000*
846C	Control	0.000	0.000	0.000	0.000	0.000	0.000
846	Oil	0.000		0.000	0.000		0.000
1650C	Control	0.034	0.034	0.029	0.075	0.075	0.075
1650	Oil	0.000		0.000	0.000		0.000
	Exposed Rocky Sites						
19C	Control	0.108	0.092	0.078	0.150	0.150	0.150
19	Oil	0.016		0.016	0.000		0.000
4537C	Control	0.094	-0.207	0.037	0.000	-0.012	0.000
979	Oil	0.302		0.302	0.012		0.007
1642C	Control	0.000	0.000	0.000	0.060	0.051	0.060
833	Oil	0.000		0.000	0.009		0.009
	Sheltered Estuary Sites						
2397C	Control	0.017	0.017	0.017	0.000	0.000	0.000
208/209	Oil	*0.000*		*0.000*	*0.000*		*0.000*

Table E-207. Abundance (number/m²) of the tidepool sculpin Oliaocottus maculosus found within each of the three habitats, and habitats combined at control and oiled site pairs sampled in Prince William Sound, Alaska during each of two visits in 1990 and 1991. Each mean is for MVD 2, 3 and 4 combined and n = sample size.

		1990				1991			
Habitat	Type	n	Visit 1	n	Visit 2	n	visit 1	n	Visit 2
Sheltered Rocky	Control	27	0.003	29	0.014	21	0.015	16	0.006
	Oil	29	0.003	29	0.025	20	0.031	16	0.022
Coarse Textured	Control	41	0.019	35	0.001	16	0.015	13	0.004
	Oil	37	0.003	38	0.003	15	0.005	15	0.000
Exposed Rocky	Control	28	0.039	24	0.058	12	0.054	11	0.026
	Oil	23	0.019	22	0.056	10	0.074	9	0.011
Habitats Combined	Control	96	0.020	88	0.021	49	0.025	40	0.011
	Oil	89	0.007	89	0.023	45	0.032	40	0.011

Table E-208. Biomass (g/m²) of the tidepool sculpin Oliaocottus maculosus found within each of the three habitats, and habitats combined at control and oiled site pairs sampled in Prince William Sound, Alaska during each of two visits in 1990 and 1991. Each mean is for MVD 2, 3 and 4 combined and n = sample size.

		1990				1991			
Habitat	Type	n	Visit 1	n	Visit 2	n	Visit 1	n	Visit 2
Sheltered Rocky	Control	27	0.001	29	0.008	21	0.008	16	0.002
	Oil	29	0.005	29	0.025	20	0.057	16	0.011
Coarse Textured	Control	41	0.035	35	0.003	16	0.006	13	0.012
	Oil	37	0.002	38	0.004	15	0.005	15	*0.000*
Exposed Rocky	Control	28	0.026	24	0.043	12	0.067	11	0.063
	Oil	23	0.003	22	0.029	10	0.125	9	0.008
Habitats Combined	Control	96	0.023	88	0.015	49	0.023	40	0.022
	Oil	89	0.003	89	0.017	45	0.055	40	0.006