



MALAHAT DISTRICT

June 16, 1993

B.C. Parks Personnel
Malahat District
2930 TransCanada Highway
Victoria, B.C. V9B 5T9

To Whom it May Concern,

Enclosed is a summary of our 1993 field trip to Botany Beach by our marine biology class from the University of Washington's Friday Harbor Labs. We were at Botany Beach on the mornings of June 2 and 3; the weather was wonderful! We had hoped to see one of your rangers and discuss the current state of visitation and regulation, but saw no park personnel (nor many other people). So we didn't get a chance to show off our orange vests (we really did look like a road construction crew) or our informative sign -- both conditions of the Labs' permit.

Our methods of sampling followed those described for last year in most details. We readily relocated all of the permanent quadrats; both the bolts and the putty dots were intact. We resampled the transects at both "Palm Point" and "Trailhead Point" using the same methods as last year, and resampled the same tidepools as well. Our Postelsia-counting method was somewhat different, as described below. Data for this year are included on the attached spreadsheets. We have not attempted any trend analyses or graphs; 2 years is premature for this. But I am convinced that the overall sampling design is good, and that valuable data will be collected over the years.

My inspection of the data revealed few surprises. At Palm Point most of the numbers were either quite consistent with last year's, or within the range of variation that I would expect (e.g., barnacle numbers vary highly from year to year depending on settlement success, and these do show much variation in the data). At Trailhead Point there were more algae than last year, but again well within the range of the natural variation that I would expect. There were also both more barnacles and more littorine snails than in 1992. In the mid zone here, mussel abundances were quite consistent over the two samplings; since these are long-lived organisms, I would not expect their numbers to fluctuate to any great degree in the absence of major disturbance. Here, too, there were more barnacles, and accompanying them were more whelks that consume them.

The Postelsia count this year attempted to count all of the individual plants on the point, rather than just a subset as was done last year. To keep track of what had been counted, we ran a long tape measure in a zigzag pattern over the point, from north to south. Two students then counted all of the plants on one side of the tape (e.g., one starting at 0 m and the other at 10 m), calling out to a data recorder every time they had counted 10 plants -- so the recorder noted numbers of tens of plants. When the students finished that side, they counted all the ones on the other side of the tape. Their overall count was 3680 plants -- a

large number! -- compared with a very approximate 2588 from 1992 (when the students counted 1035 along a transect, and then estimated that this was 40% of the total local population). These numbers are in the same ballpark, anyway. We will count using the second method in future years to keep a running tally of this population.

I think that over successive years we should be able to ascertain how much variance in the quadrat data is due to student-to-student variation in counting, and how much is real change (e.g., by comparing abundances of things that generally don't change with time). At the very least, we will get a measure of the range of "normal" numbers so that we can document any radical changes, if any. At this point there is no reason to think that visitors have had any impact on the particular areas we are studying; no numbers are drastically different. Next year we will try to work up some graphs so that you can visualize both the quadrat-to-quadrat and year-to-year differences that we are seeing. We took photographs of the quadrats again this year, but to reduce costs we will not send you copies unless these become important for some reason -- they are not terribly informative all by themselves!

Thank you again for allowing us to come study at Botany Beach; I continue to believe that this project will benefit both BC Parks and the students.

Sincerely,

Megan Dethier

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93 Trailhead High

	A	B	C	D	E	F	G
1	Species		Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5
2	Distance from bolt C (m)		2.05	3.5	5.6	n.d.	13.2
3							
4	Porphyra sp. %		0.5	0.5	0	0	0
5	Mastocarpus papillatus %		0.5	6	2	1	0
6	Petrocelis %		0	0	0.5	0	0
7	Fucus sp. %		0.5	0.5	0	0	0
8	Endocladia muricata %		0	0	0	0	0.5
9	Halosaccion glandiforme %		0	1	3	1	0
10	Ulva fenestrata %		0.5	12	0.5	0.5	0.5
11							
12	Chthamalus dalli %		0	1	0.5	1	1
13	Semibalanus cariosus %		2	0	0	6	0
14	Balanus glandula %		30	24	5	16	20
15	tiny barnacles %		12	6	4	8	1
16	amphipods #		0	0	0	0	0
17	Mytilus californianus %		0	0.5	0	0	3
18	Littorina sitkana #		150	74	50	100	68
19	Littorina scutulata #		25	13	25	80	17
20	Lottia digitalis #		75	13	25	15	38
21	Lottia pelta #		25	6	4	9	2
22	Lottia strigatella #		0	4	0	0	4
23	Tectura scutum #		50	0	0	12	1
24	Nucella #		0	5	2	0	4
25							
26	neriid polychaetes #		0	0	0	0	0
27	Anthopleura elegantissima		0	0	0.5	0	0
28							
29	Bare rock %						
30							
31	All putty dots upper left and upper right						