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

Hydrocarbon Mineralization Potentials and Microbial Populations in Marine Sediments Following the *Exxon Valdez* Oil Spill

Subtidal Study Number 1B
Final Report

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Study History: This report summarizes the findings of part of a project led by the National Oceanic and Atmospheric Agency with cooperation from the Alaska Department of Environmental Conservation and the University of Alaska Fairbanks. The University of Alaska Fairbanks was responsible for the microbiological portion of the study. The study began as a part of NRDA Air/Water Study Number 2 Petroleum Hydrocarbon-Induced Injury to Subtidal Marine Sediment Resources in 1989. In 1991 the title of the study was changed to Subtidal Study Number 1. Previous findings on microbial numbers and activity in subtidal sediments can be found in: Braddock, J.F., M.R. Brockman, J.E. Lindstrom and E.J. Brown, 1990, Microbial hydrocarbon degradation in sediments impacted by the *Exxon Valdez* Oil Spill, NOAA Report for contract no. 50-DSNC-8-00141, Washington, DC. Some of the results from this study have been published: (1) Brown, E.J. and J.F. Braddock. 1990. Sheen Screen: a miniaturized most probable number technique for oil-degrading microorganisms. *Appl. Environ. Microbiol.* 56:3895-3896 and (2) Braddock , J.F., J.E. Lindstrom and E.J. Brown. 1995. Distribution of hydrocarbon-degrading microorganisms in sediments from Prince William Sound, Alaska following the *Exxon Valdez* oil spill, *Mar. Pollut. Bull.* 30:125-132. A second manuscript (Braddock, J.F., J.E. Lindstrom, T.R. Yeager, B.T. Rasley and E.J. Brown, Patterns of microbial activity in oiled and unoiled sediments in Prince William Sound) has been accepted for publication in the *Exxon Valdez* Oil Spill Symposium Proceedings.

Abstract: An increase in the biodegradation activity of naturally occurring populations of microorganisms can lead to substantial removal of petroleum from the environment. Therefore, measurements of microbial populations are an important component of contaminated site assessment studies. Following the *Exxon Valdez* oil spill in 1989, we measured numbers of hydrocarbon-degrading microorganisms and hydrocarbon mineralization potentials of microorganisms in oiled and unoiled surface sediments from the shore through 100 m depth offshore. We found both temporal and spatial variations in numbers and activity of hydrocarbon-degrading microorganisms with statistically significant higher values at the oiled sites than at reference sites. The microbial data indicate mobilization between 1989 and 1990 of oil from the intertidal to surface sediments at 20, 40 and 100 m depths offshore. Microbial assays were relatively inexpensive and sensitive measures of the distribution of oil following the spill.

Key Words: Biodegradation, *Exxon Valdez*, microbiology, Prince William Sound, subtidal sediments.

Citation:

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Executive Summary

Shortly after the grounding of the T/V *Exxon Valdez* on 24 March 1989, the National Oceanic and Atmospheric Administration (NOAA) organized a multi-investigator cruise to document the extent of oil contamination of coastal habitats in Alaska. This first survey cruise was followed by five seasonal cruises over the next two years organized as a joint effort of NOAA and the Alaska Department of Environmental Conservation. The purpose of these survey cruises was to document oil concentration distributions and assess the relative ecological impacts of the spill to intertidal and subtidal areas.

Assessment of microbial populations was an important component of the surveys since a major fate of petroleum contaminants in marine environments depends on the ability of microorganisms to use hydrocarbons as a source of carbon and energy (Leahy and Colwell 1990). Additionally, patterns of hydrocarbon mineralization activity and distribution of hydrocarbon-degrading microorganisms can be used as an indication of *in situ* biodegradation of petroleum (Madsen et al. 1991).

We sampled sites throughout a three year period following the oil spill. In these samples we measured numbers of hydrocarbon-degrading microorganisms and mineralization potentials in surface sediments collected from the shoreline to depths of 100 m offshore. The number of hydrocarbon-degraders in each sample was estimated by using the Sheen Screen most probable number technique which uses disruption of an oil film to indicate the presence of hydrocarbon-metabolizing microorganisms (Brown and Braddock 1990). Radiorespirometry was used to assay the hydrocarbon-oxidation potential of microorganisms in sediment slurries (Brown et al. 1991).

The numbers of hydrocarbon-degrading bacteria varied by several orders of magnitude among sites and dates sampled after the *Exxon Valdez* oil spill. Ranges for numbers of hydrocarbon-utilizing bacteria during 1989 in this study were similar to those found for the *Amoco Cadiz* oil spill (Ward et al. 1980). Statistically significantly higher numbers of hydrocarbon-degraders were observed at oiled sites than at the reference sites. Median numbers of hydrocarbon-degrading microorganisms on the shorelines in PWS decreased from 1989 through 1991. However, there were still several shorelines in the summer of 1991 that had high numbers of hydrocarbon-degraders. In the summer of 1989, numbers of hydrocarbon-degraders in subtidal surface sediments at depths greater than 6 m were below the detection limits of the assay. However, at some sites by the summer of 1990, there were measurable numbers of hydrocarbon-degraders at all depths (beach through 100 m). By 1991 the total numbers of hydrocarbon-degraders were lower for all sites and depths, implying that conditions were no longer favorable for biodegradation or that biodegradable hydrocarbons was no longer present. Microbial mineralization potentials from sediments showed many of the same trends seen in the population data.

The objectives of our study were to document the impact of the *Exxon Valdez* oil spill on the population and activity of hydrocarbon-degrading microorganisms in sediments. The numbers and activity of these microorganisms are good indicators of exposure of sediments to hydrocarbons and may be useful indicators of the mobilization of hydrocarbons with time. The increase of numbers of hydrocarbon-degraders compared to likely pre-spill values, coupled with high mineralization potentials for hexadecane and phenanthrene, also provide evidence of rapid acclimation of naturally occurring microbial populations for biodegradation of these compounds in most sediments.

Introduction

Following the grounding of the T/V *Exxon Valdez* on March 24, 1989, the National Oceanic and Atmospheric Administration (NOAA) organized a multi-investigator cruise to document the extent of oil contamination of coastal habitats in Prince William Sound and the Gulf of Alaska. This first survey cruise was followed by five cruises over the next two years organized as a joint effort by NOAA and the Alaska State Department of Environmental Conservation (ADEC). The purpose of these survey cruises was to document oil concentration distributions and assess the relative ecological impacts of the spill to intertidal and subtidal areas. Our portion of the project was to measure the effect of the spill on microbial numbers and activities in intertidal and subtidal sediments.

Assessment of microbial populations was an important component of the surveys since a major fate of spilled petroleum depends on the ability of microorganisms to use hydrocarbons as a source of carbon and energy (Leahy and Colwell, 1990). Additionally, patterns of hydrocarbon mineralization activity and distribution of hydrocarbon-degrading microorganisms can be used as an indication of in situ biodegradation of petroleum (Madsen et al., 1991). Measurements of total numbers of hydrocarbon-degrading microorganisms and assays for the mineralization potential of hydrocarbon fractions by these populations provide evidence of the presence of hydrocarbons that can be utilized by microorganisms. When sediments from a pristine environment are perturbed with oil, this distribution reflects the extent, movement and persistence of the contamination. We report here the results of microbial analyses of sediments for five seasonal cruises over approximately a two year period following the *Exxon Valdez* oil spill.

Objectives

1. To measure the numbers of hydrocarbon-degrading microorganisms in surface sediments collected from geographical areas thought to be oiled during the *Exxon Valdez* oil spill.

2. To measure the hydrocarbon degradation potentials of microbial populations in sediments in geographical areas thought to be oiled during the *Exxon Valdez* oil spill.

Methods and Materials

Site Locations and Sampling Protocol: Approximately 70 sampling visits to 40 sites located from Prince William Sound to the Alaska peninsula in southcentral coastal Alaska were made either from the R/V Fairweather between June 30 and August 21, 1989 or the R/V Davidson between June 24 and August 5, 1990. Several of these and other sites in Prince William Sound were visited during the early winter of 1989 by the F/V Nautilus, in the spring (Cobb I) and autumn (Cobb II) of 1990 by the R/V Cobb and in the summer of 1991 by the F/V Big Valley (see Fig. 1-6). At every site and depth station the samples (sediment or "porewater") collected were analyzed for the most probable numbers of hydrocarbon oxidizing bacteria and for mineralization potentials using radiolabelled hydrocarbon substrates. Other analyses were performed on other cruises: total microscopic counts in sediments (Fairweather) and nearshore water nutrients (Nautilus and Cobb I). During the three summer cruises (Fairweather, Davidson and Big Valley),

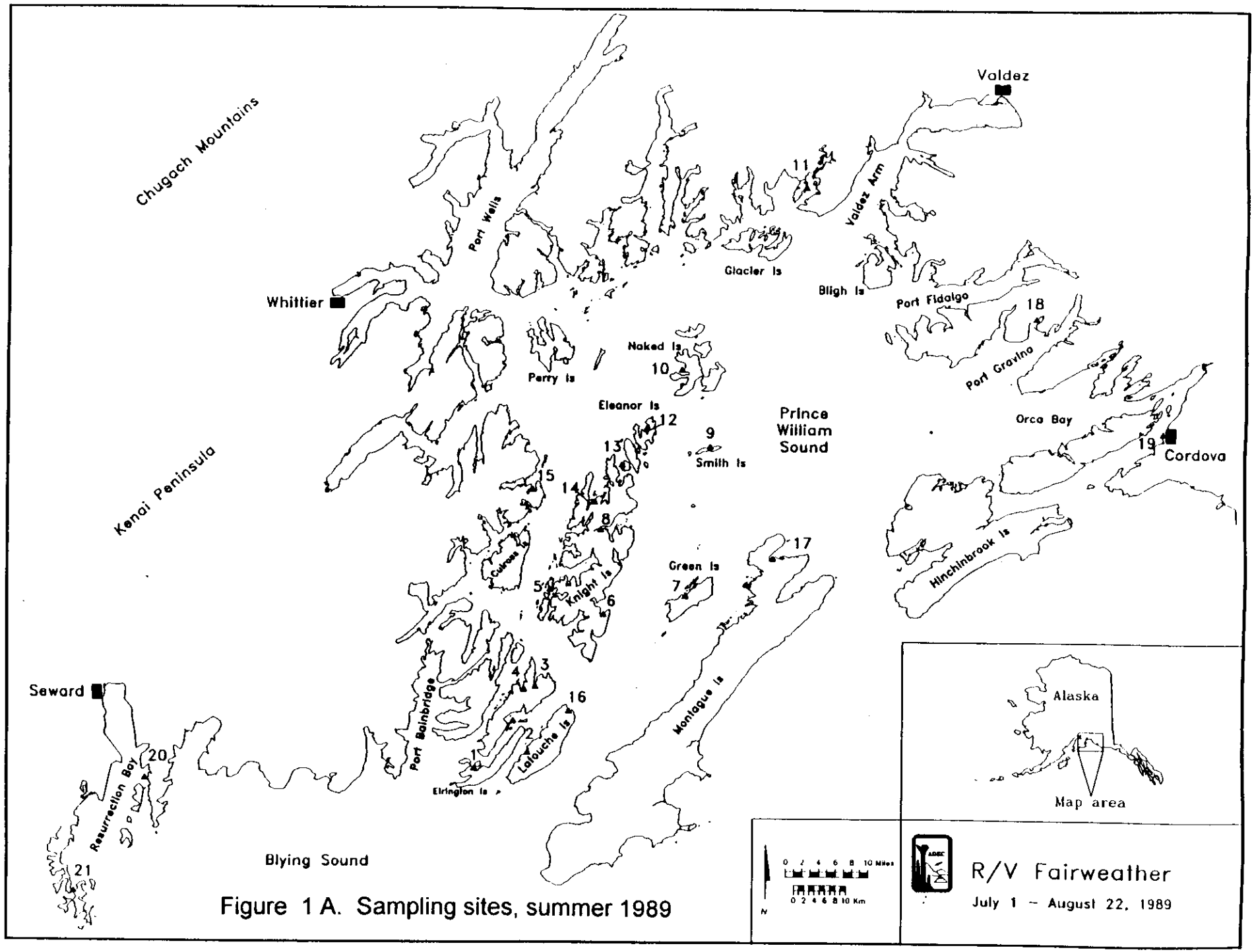

Figure 1 A. Sampling sites, summer 1989

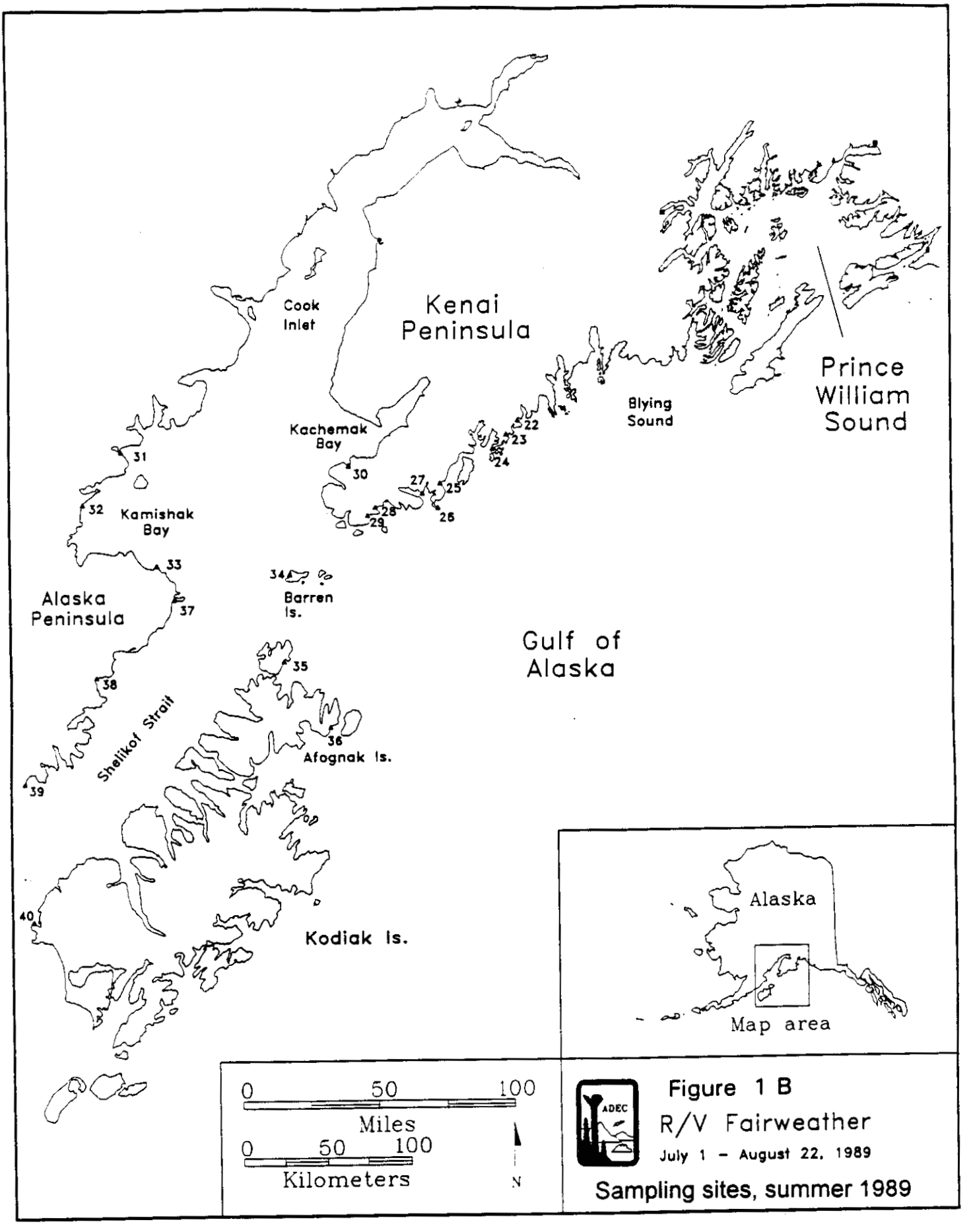

Figure 1 B

R/V Fairweather

July 1 – August 22, 1989

Sampling sites, summer 1989

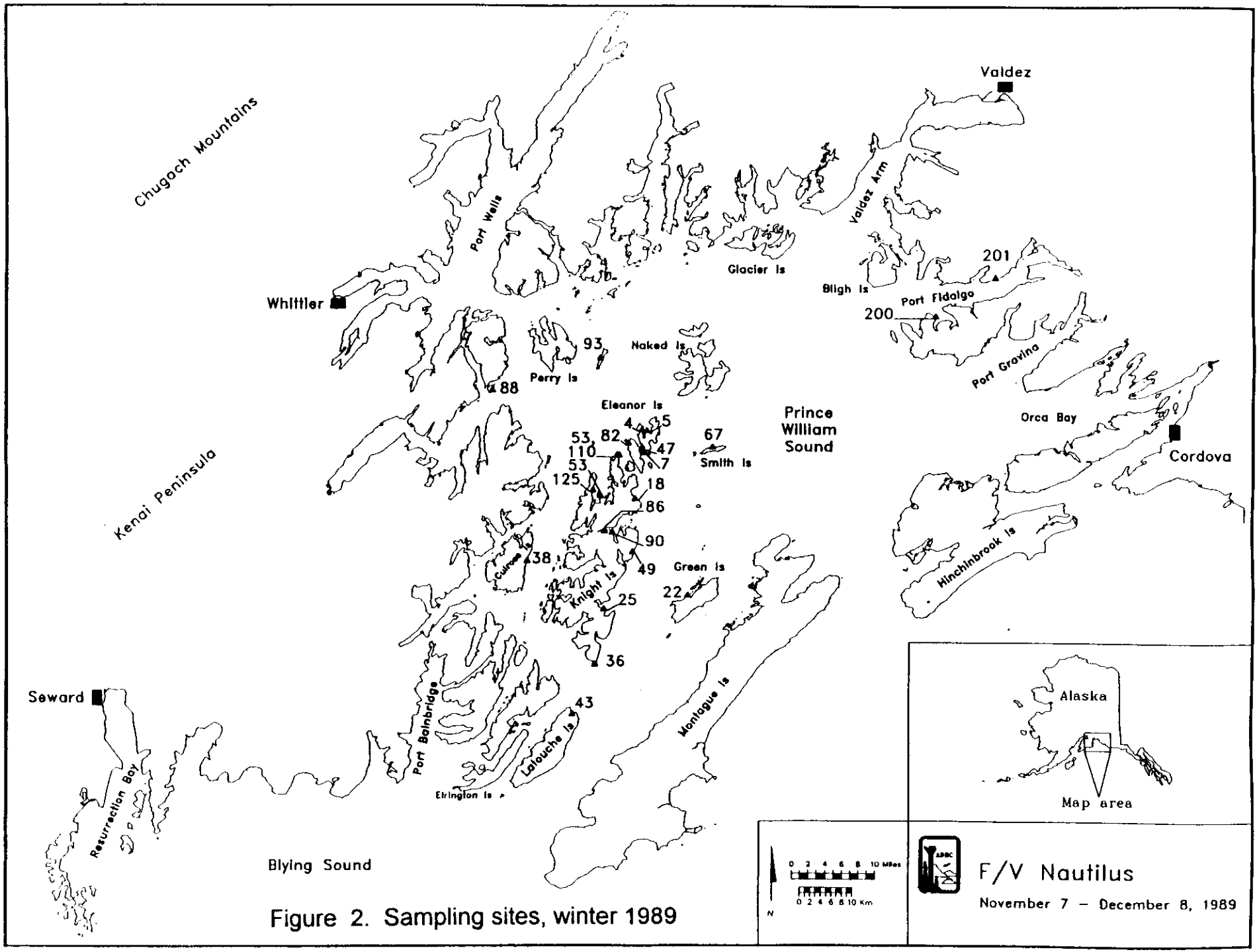

Figure 2. Sampling sites, winter 1989

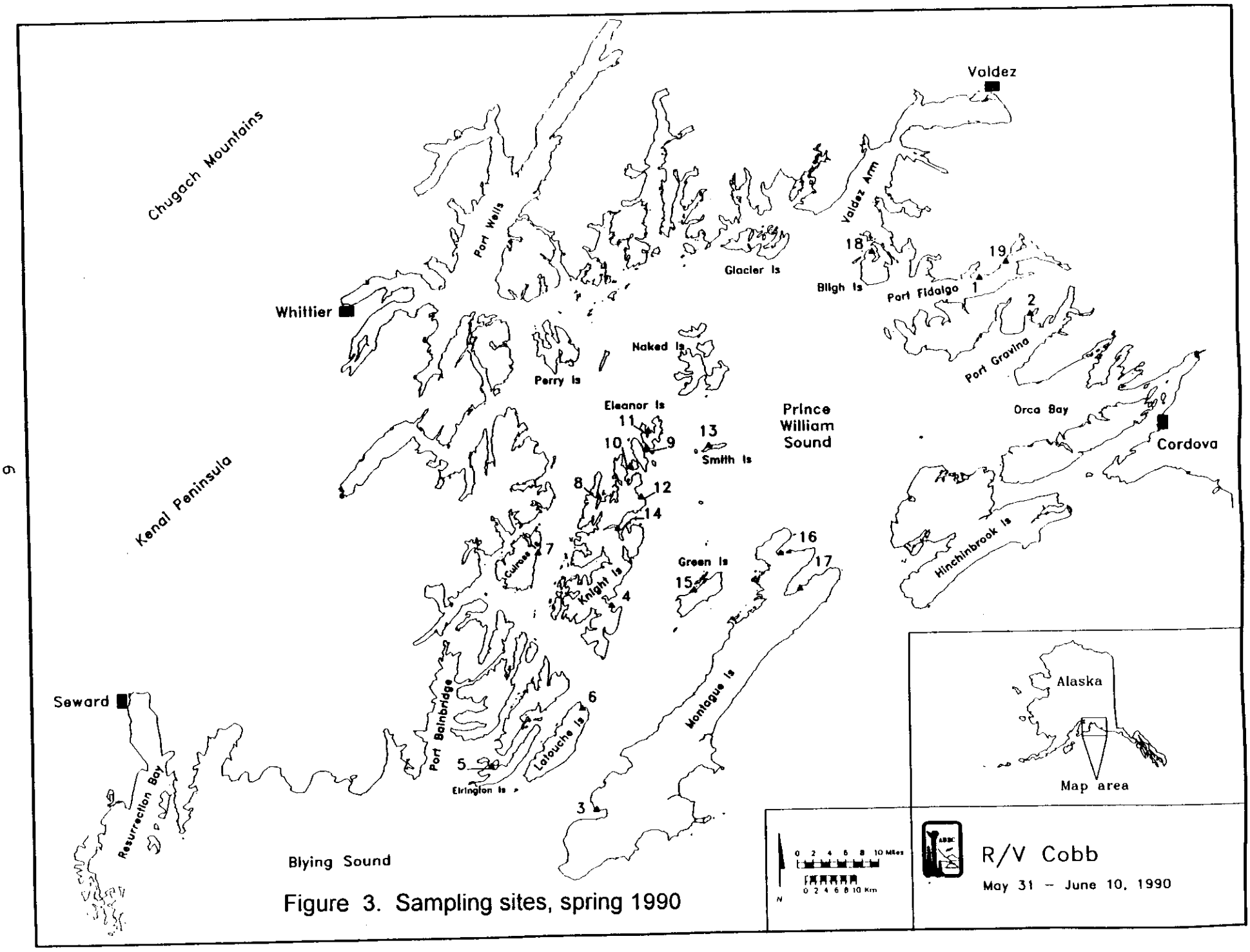

Figure 3. Sampling sites, spring 1990

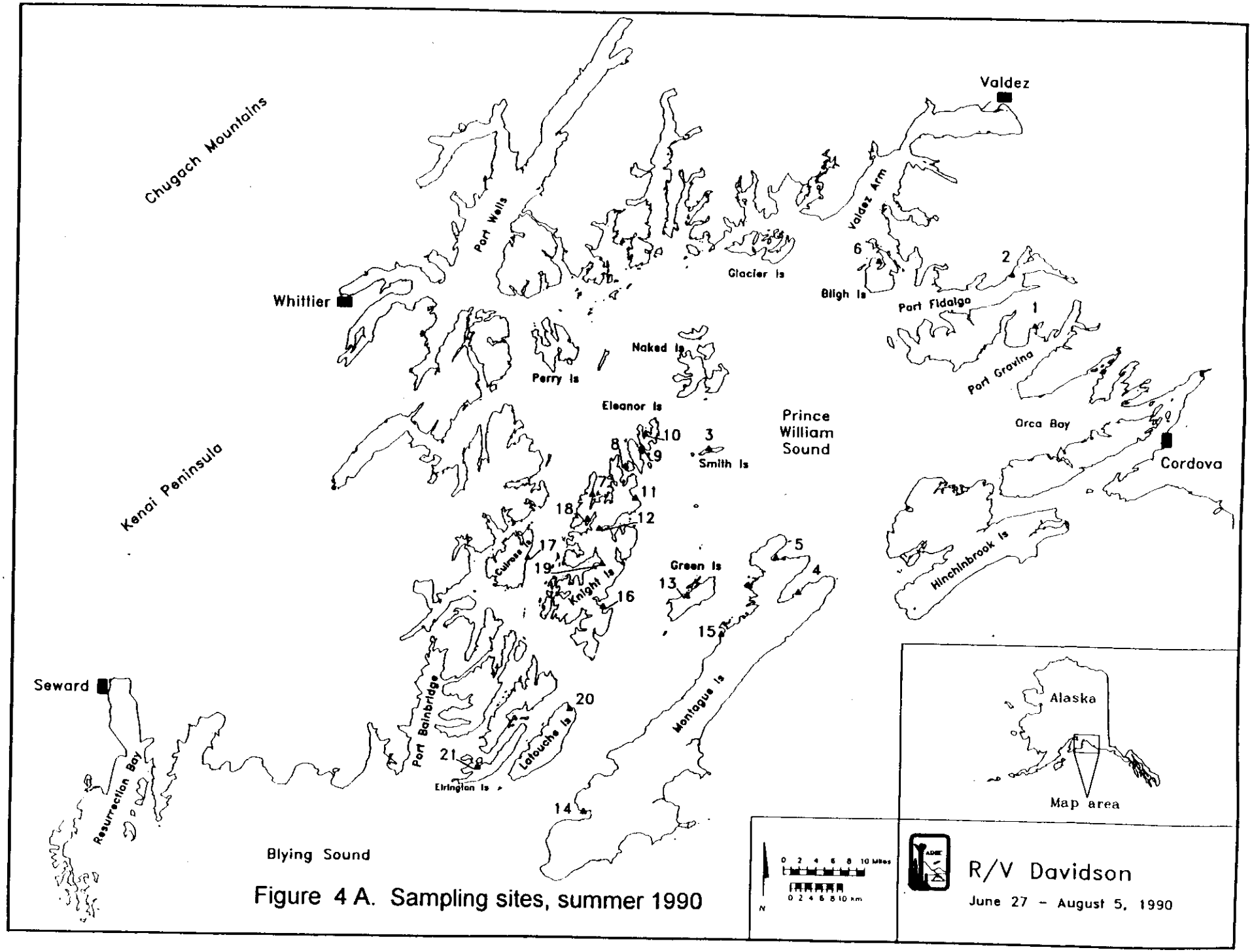

Figure 4 A. Sampling sites, summer 1990

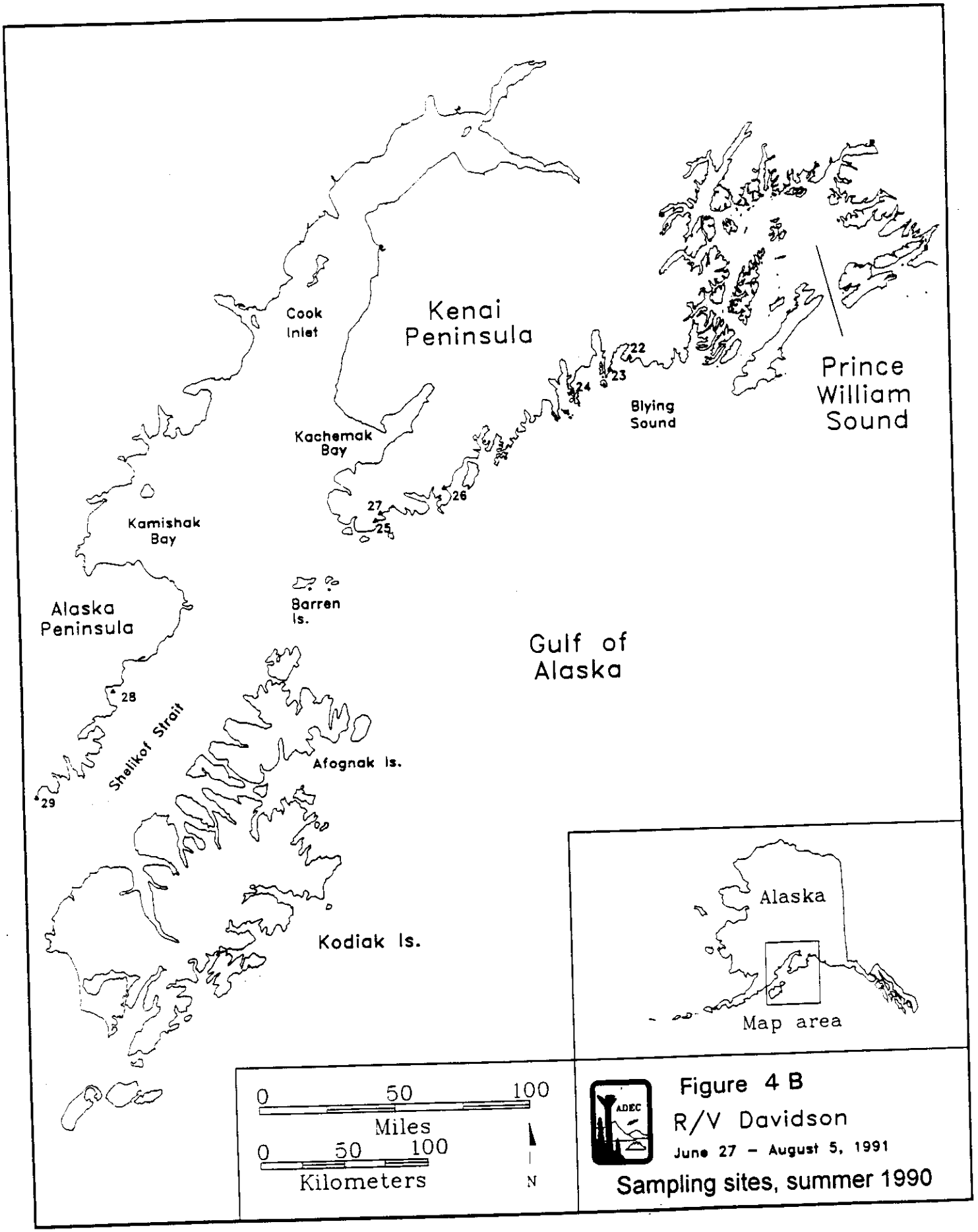

Figure 4 B

R/V Davidson

June 27 – August 5, 1991

Sampling sites, summer 1990

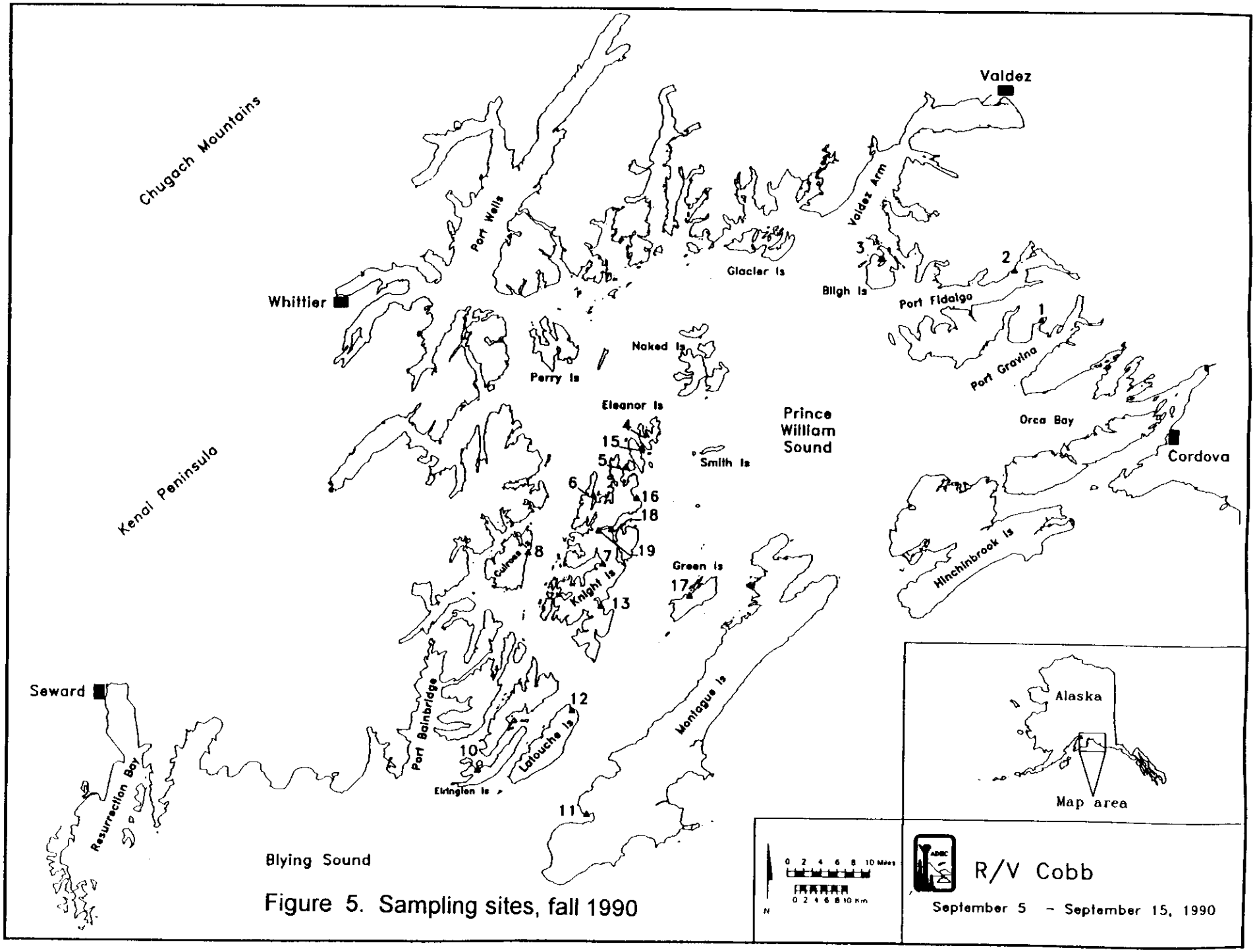

Figure 5. Sampling sites, fall 1990

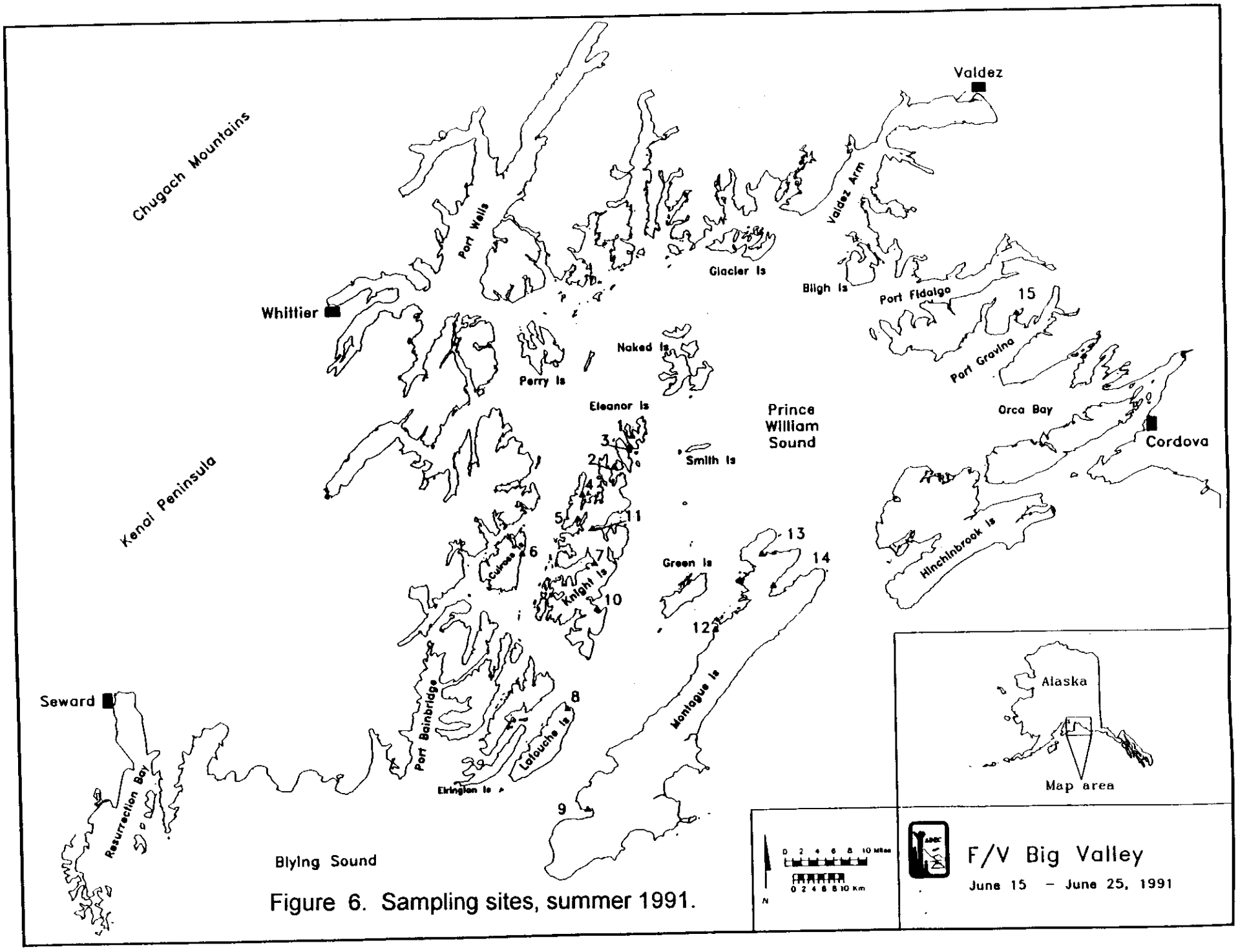

Figure 6. Sampling sites, summer 1991.

samples were collected at depth stations from 0 (referred to as beach or shoreline) through 100 m. On the other cruises samples were collected only at the shallower depth stations (Nautilus, 0 and 3 m; and Cobb I/II, 0, 3, 6, and 20 m). At each site, small boats were launched from the larger vessel to obtain sediment and/or water samples from shoreline (beach) stations and at 3, 6, 20, 40, and 100 m depths offshore from each shoreline station. Intertidal collections were made at a single tidal height in the range of +1 to -1 m relative to mean lower low water (MLLW) depending on the distribution of fine sediments. A list of sampling sites and locations is found in Tables 1-6. Several sites on each cruise were designated as reference sites. These reference sites indicated by an asterisk in Tables 1-6 were known to be unoiled by the *Exxon Valdez*.

Sediment samples at the 40 or 100 m depths were collected using either a Van Veen grab or Smith-MacIntyre corer. SCUBA divers collected samples at the 3, 6 and 20 m depth stations by placing approximately 1 kg of surface (approximately 0-3 cm) sediment into sterile Whirlpac bags which were sealed at the sampling depth. The 40 and 100 m samples (collected only during the Fairweather, Davidson and Big Valley cruises) were obtained by composite subsampling into a sterile Whirlpac bag of the surface sediment (top 0-3 cm) contained in the sampling device. The intertidal (shoreline) and 3, 6 and 20 m samples were composites of eight subsamples collected at random intervals along a 30 m transect parallel to the shoreline. The shoreline sample was generally collected by a shore party in the low intertidal zone at as close to low tide as was feasible. When the intertidal zone sample was under water (when it could not be reached by launch at low tide), the samples were collected by divers. Only one bag was collected for each site and at each depth station on the Fairweather cruise (which limited statistical analysis of the data) while three replicate bags were collected at each site and depth station for all subsequent cruises. During the Fairweather and Nautilus cruises, "porewater" samples were obtained for microbial analyses by collecting interstitial water from sediment sampling holes dug at the intertidal stations. For every microbiology sample collected, there were associated samples collected for chemical analysis of hydrocarbons (collected and analyzed by National Marine Fisheries Laboratory, Auke Bay, AK). The results of the chemical analysis are still being compiled at this time and will not be included in this report. On the Nautilus and Davidson cruises water samples were collected nearshore for nutrient analyses. All sediment and water samples were placed into coolers at the time of collection for transport to the support vessel. Processing for microbiological analyses was performed on the support vessel within three hours of collection of the samples.

Most Probable Number of Hydrocarbon-Degrading Microorganisms: The number of hydrocarbon-oxidizing microorganisms in each sample was determined using the Sheen Screen most probable number technique (Brown and Braddock, 1990). On the Fairweather cruise, duplicate sets of plates were prepared for each depth at each site. For all other cruises one set of plates was prepared from each replicate sediment sample at a given site and depth to yield triplicate values. The Sheen Screen plates were incubated at approximately 15 ^{o}C for three weeks before being scored for disruption of the oil sheen. All sediment values reported from the Sheen Screen technique have been corrected to dry weight sediment.

Hydrocarbon Mineralization Potential: Radiorespirometry was used to assay the hydrocarbon-oxidation potentials of microorganisms in sediment slurries (Brown et al. 1991). [1-^{14}C]-hexadecane, [U-^{14}C]-benzene, [1,(4,5,8)-^{14}C]-naphthalene, [9-^{14}C]-phenanthrene and [7-

Table 1. Site names, numbers and locations for the R/V Fairweather cruise (July 1 - August 22, 1989)

Date	Site #	Name	Lat	Long
7-01-89	1	**Fox Farm**	59°58.43'N	148°10.5'W
7-02-89	2	**Sawmill Bay**	60°0.17'N	147°58.9'W
7-03-89	3	**Shelter Bay**	60°6.52'N	147°57.7'W
7-04-89	4	**Iktua Bay**	60°6'N	147°59.84'W
7-05-89	5	**Mummy Bay**	60°17.26'N	147°54.28'W
7-06-89	6	**Snug Harbor**	60°14.38'N	147°43.11'W
7-17-89	6b	**Snug Harbor**	Sampled again	
7-07-89	7	**Green Island**	60°16.3'N	147°26.3'W
7-08-89	8	**Bay of Isles**	60°23.03'N	147°44.9'W
7-09-89	9	**Smith Island**	60°31.79'N	147°20.8'W
7-10-89	10	**Cabin Bay**	60°39.35'N	147°26.2'W
7-11-89	11	***Columbia Bay**	60°59'N	147°1.4'W
7-12-89	12	**Northwest Bay**	60°33.05'N	147°34.62'W
7-13-89	13	**Disk Island**	60°29.9'N	147°39.5'W
7-14-89	14	**Herring Bay**	60°25.9'N	147°47.15'W
7-15-89	15	**Eshamy Bay**	60°26.82'N	147°58.5'W
7-16-89	16	**Sleepy Bay**	60°4.14'N	147°50.58'W
7-17-89	17	**Rocky Bay**	60°20.28'N	147°8.15'W
7-18-89	18	***Olsen Bay**	60°45.13'N	146°11.5'W
7-24-89	19	**Cordova Hbr**		
7-25-89	20	Fox Island	59°56.2'N	149°19'W
7-26-89	21	Agnes Cove	59°46'N	149°34.4'W
7-27-89	22	Taroka Arm	59°37.54'N	150°8.3'W
7-28-89	23	Black Bay	59°32.12'N	150°12.28'W
7-29-89	24	McArthur Cove	59°26.6'N	150°20.5'W
7-30-89	25	Tonsina Bay	59°18.7'N	150°54.87'W
7-31-89	26	Gore Point	59°14.23'N	150°58.79'W
8-01-89	27	Port Dick	59°17.25'N	151°8.75'W
8-02-89	28	Windy Bay	59°13.84'N	151°31'W
8-03-89	29	Chugach Bay	59°11.2'N	151°37.8'W
8-04-89	30	Seldovia Bay	59°25.85'N	151°44.3'W
8-05-89	31	Ursus Cove	59°30.8'N	153°45.4'W
8-06-89	32	Amakdedori Beach	59°16.5'N	153°7.8'W
8-07-89	33	Douglas Beach	59°0'N	153°29.5'W
8-08-89	34	Ushagat Island	58°56.97'N	152°17.61'W

Date	Site #	Name	Lat	Long
8-09-89	35	Andreon Bay	58°30.2'N	152°25.1'W
8-14-89	36	King Cove	58°11.03'N	152°3.3'W
8-15-89	37	Douglas Pt.	58°50.54'N	153°21'W
8-16-89	38	Hallo Bay	58°27.48'N	154°0.23'W
8-17-89	39	Katmai Bay	57°55'N	155°5'W
8-18-89	40	Halibut Bay	57°21.47'N	154°45.1'W
8-19-89	41	Wide Bay	57°26.36'N	156°13.82'W
8-20-89	42	Chignik Bay	56°19.68'N	158°25.4'W
8-21-89	43	Ivanof Bay	55°50.26'N	159°28.28'W
8-22-89	44	Zachary Bay	55°19.55'N	160°36.5'W

* Indicates reference site
Bold face type indicates site within Prince William Sound

Table 2. Site names, numbers and locations for the F/V Nautilus cruise (November 7 - December 8, 1989).

Date	Site #	Name	Lat	Long
11-07-89	5	**Northwest Bay**	60°32'37"N	147°36'09"W
11-09-89	7	**Block Island**	60°31'49"N	147°36'10"W
11-09-89	47	**Block Island**	60°31'49"N	147°36'26"W
11-11-89	18	**N.E. Knight Is**	60°26'21"N	147°37'44"W
11-12-89	86	**Bay of Isles**	60°22'37"N	147°42'27"W
11-13-89	90	**Bay of Isles**	60°22'53"N	147°42'45"W
11-14-89	49	**Rua Cove**	60°20'55"N	147°38'27"W
11-15-89	25	**Snug Harbor**	60°14'13"N	147°43'58"W
11-16-89	22	**Green Island**	60°17'57"N	147°25'06"W
11-17-89	43	**Sleepy Bay**	60°04'01"N	147°50'19"W
11-18-89	36	**Point Helen Beach**	60°09'48"N	147°45'21"W
11-19-89	38	**Mid East Chenega Is.**	60°19'49"N	148°00'24"W
11-20-89	53	**W. Herring Bay**	60°26'33"N	147°44'W
11-23-89	125	**Herring Bay**	60°29'20"N	147°43'07"W
11-24-89	110	**W. Herring Bay**	60°26'34"N	147°44'W
11-25-89	82	**Ingot Island**	60°31'41"N	147°40'W
11-26-89	4	**Northwest Bay**	60°33'03"N	147°34'42"W
11-29-89	88	**Applegate Island**	60°37'40"N	148°08"19"W
11-30-89	47	**Block Island**	60°31'49"N	147°36'26"W
12-02-89	200	***Two Moon Bay**	60°44'00"N	146°34'24"W
12-03-89	201	***N.E. Port Fidalgo**	60°50'17"N	146°16'30"W
12-04-89	67	**Smith Island**	60°31'48"N	147°20'49"W
12-07-89	5	**N.W. Bay**	60°32'37"N	147°36'09"W
12-08-89	93	**Lone Island**	60°41'48"N	147°44'48"W

*Indicates reference site

Bold face type indicates site within Prince William Sound

Table 3. Site names, numbers and locations for the R/V Cobb cruise (May 31 - June 10, 1990).

Date	Site #	Name	Lat	Long
5-31-90	1	***N.E. Port Fidalgo**	see below	
5-31-90	2	***Port Olsen**	60°45'05"N	146°11'13"W
6-01-90	3	**Macleod Harbor**	59°52'48"N	147°45'42"W
6-01-90	4	**Snug Harbor**	60°15'46"N	147°45'55"W
6-02-90	5	**Fox Farm**	59°58'26"N	148°10'30"W
6-02-90	6	**Sleepy Bay**	60°04'01"N	147°50'11"W
6-03-90	7	**Chenega Island**	60°19'49"N	148°00'24"W
6-04-90	8	**Herring Bay**	60°25'51"N	147°47'06"W
6-05-90	9	**Block Island**	60°31'49"N	147°36'10"W
6-05-90	10	**Disk Island**	60°29'55"N	147°39'40"W
6-05-90	11	**N.W. Bay**	60°33'07"N	147°34'36"W
6-06-90	12	**N.E. Knight Island**	60°26'21"N	147°37'44"W
6-06-90	13	**Smith Island**	60°31'47"N	147°20'45"W
6-07-90	14	**Bay of Isles**	60°23'00"N	147°44'54"W
6-07-90	15	**Green Island**	60°16'18"N	147°26'18"W
6-08-90	16	**Rocky Bay**	60°20'19"N	147°07'59"W
6-08-90	17	***Zaikof Bay**	60°16'06"N	147°05'54"W
6-09-90	18	**West Bay**	60°50'42"N	146°46'00"W
6-09-90	19	***N.E. Port Fidalgo**	60°50'17"N	146°16'30"W

*Indicates reference site
Bold face type indicates site within Prince William Sound

Table 4. Site names, numbers and locations for the R/V Davidson cruise (June 27 - August 5, 1990).

Date	Site #	Name	Lat	Long
6-27-90	1	***Olsen Bay**	60°44.8'	146°13.1'
6-28-90	2	***Port Fidalgo**	60°50.2'	146°12.58'
7-02-90	3	**Smith Island**	60°31.8'	147°20.8'
7-03-90	4	***Zaikof Bay**	60°16.58'	147°02.1'
7-04-90	5	**Rocky Bay**	60°20.3'	147°08.2'
7-05-90	6	**West Bay**	60°51.8'	146°46.5'
7-06-90	7	**Herring Bay**	60°26.54'	147°47.13'
7-07-90	8	**Disk Island**	60°29.8'	147°39.7'
7-08-90	9	**Block Island**	60°31.73'	147°36.40'
7-09-90	10	**N.W. Bay**	60°33.1'	147°34.6'
7-10-90	11	**N.E. Knight Island**	60°26.35'	147°37.65'
7-11-90	12	**Bay of Isles**	60°22.9'	147°42.75'
7-12-90	13	**Green Island**	60°16.2'	147°26.2'
7-16-90	14	**Macleod Harbor**	59°53.21'	147°45.8'
7-17-90	15	**Mooselips Bay**	60°12.50'	147°18'
7-18-90	16	**Snug Harbor**	60°14.25'	147°44.1'
7-19-90	17	**Chenega Island**	60°19.85'	148°0.45'
7-20-90	18	**L. Herring Bay**	60°24.4'	147°47.8'
7-21-90	19	**Drier Bay**	60°19.2'	147°44'
7-22-90	20	**Sleepy Bay**	60°03.95'	147°50.35'
7-23-90	21	**Fox Farm**	59°58.4'	148°10.65'
7-24-90	22	Sunny Cove	59°56.2'	149°19.1'
7-25-90	23	Agnes Cove	59°46.05'	149°34.55'
7-26-90	24	Black Bay	59°32.5'	150°12.6'
7-30-90	25	Chugach Bay	59°11.16'	151°37.9'
7-31-90	26	Tonsina Bay	59°19.75'	150°54.9'
8-03-90	29	Katmai Bay	57°54.5'	155°4.5'
8-05-90	28	Hallo Bay	58°27.45'	154°00.3'
8-05-90	27	Windy Bay	59°13.85'	151°31.0'

*Indicates reference site
Bold face type indicates site within Prince William Sound

Table 5. Site names, numbers and locations for the R/V Cobb Cruise (September 5 - September 15, 1990).

Date	Site #	Name	Lat	Long
9-05-90	1	***Olsen Bay**	60°45'05"	146°11'13"
9-05-90	2	***Port Fidalgo**	60°50'17"	146°16'30"
9-05-90	3	**West Bay**	60°50'42"	146°46'
9-06-90	4	**N.W. Bay**	60°33'07"	147°34'36"
9-06-90	5	**Disk Island**	60°29'55"	147°39'40"
9-07-90	6	**Herring Bay**	60°25'51"	147°47'06"
9-09-90	7	**Drier Bay**	60°19'12"	147°44'
9-09-90	8	**Chenega Island**	60°19'49"	148°00'24"
9-10-90	9	**Iktua Bay**		
9-10-90	10	**Fox Farm**	59°58'26"	148°10'30"
9-11-90	11	**Macleod Harbor**	59°52'48"	147°45'42"
9-11-90	12	**Sleepy Bay**	60°04'01"	147°50'11"
9-12-90	13	**Snug Harbor(ADEC)**	60°15'46"	147°45'55"
9-13-90	15	**Block Island**	60°31'49"	147°36'10"
9-13-90	16	**N.E. Knight Island**	60°26'21"	147°37'44"
9-14-90	17	**Green Island**	60°16'18"	147°26'18"
9-15-90	18	**Bay of Isles(ADEC)**	60°22.9'	147°42.75'
9-15-90	19	**Bay of Isles(NOAA)**	60°22.8'	147°45.4'

*Indicates reference site

Bold face type indicates site within Prince William Sound

Table 6. Site names, numbers and locations for the F/V Big Valley cruise (June 15 -June 25, 1991).

Date	Site #	Name	Lat	Long
6-15-91	1	**N.W. Bay**	60°33.3'	147°34.6'
6-16-91	2	**Disk Island**	60°29.8'	147°39.7'
6-17-91	3	**Block Island**	60°31.7'	147°36.3'
6-17-91	4	**Herring Bay**	60°26.5'	147°47.1'
6-18-91	5	**L. Herring Bay**	60°24.4'	147°47.8'
6-19-91	6	**Chenega Island**	60°19.9'	148°00.5'
6-20-91	7	**Drier Bay**	60°19.4'	147°45.3'
6-20-91	8	**Sleepy Bay**	60°04.0'	147°50.1'
6-21-91	9	**MacLeod Harbor**	59°45.8'	147°45.8'
6-22-91	10	**Snug Harbor**	60°14.4'	147°43.1'
6-22-91	11	**Bay of Isles**	60°22.9'	147°42.8'
6-23-91	12	**Mooselips Bay**	60°12.5'	147°18.0'
6-24-91	13	**Rocky Bay**	60°20.3'	147°08.5'
6-25-91	14	***Zaikof Bay**	60°16.1'	147°05.5'
6-25-91	15	***Olsen Bay**	60°45.1'	146°11.5'

*Indicates reference site
Bold face type indicates site within Prince William Sound

^{14}C]-benzo[a]pyrene were used as representatives of aliphatic, low molecular weight aromatic and polycyclic aromatic hydrocarbons. The assay was designed to be independent of all of the complex factors regulating microbial hydrocarbon metabolism (including hydrocarbon availability) except microbial biomass and its potential to degrade hydrocarbons in each sample. Sediment was diluted (1:10) in sterile mineral salts medium (Bushnell-Haas Medium; Difco, Detroit MI) amended with 2.5% NaCl. After shaking vigorously by hand for one minute, the samples (10 ml) were pipetted into 40-ml pre-cleaned glass incubation vials fitted with Teflon-lined septa (I-Chem Research, Hayward, CA).

Replicate vials of the 10-ml slurries from each of the sediments samples were injected with 50 µl of a 2-g/l solution (in acetone) of radiolabelled hydrocarbon. The resulting initial concentration of added hydrocarbon was then 100 µg per vial (100 µg/g wet weight sediment; 10 µg/ml slurry; approximately 50,000 dpm/vial). By adding 100 µg of hydrocarbon substrate to each vial, the hydrocarbon mineralization potential of the microorganisms was independent of the degree of oil contamination the sediment tested (see Brown et al. 1991).

For the Fairweather cruise, duplicate vials were prepared from each sediment (one bag per depth per site) for three incubation times and either two or three radiolabelled hydrocarbon substrates. In addition, "time zero" killed controls were prepared at each site for each isotope. For all other cruises, three bags of sediment were collected for each depth at each site. From each bag, seven replicate vials of each concentration of each substrate were prepared: one "time zero" killed control, and three vials each at two incubation times. All vials were placed on a rotary shaker for the first 24 hours and then stored off the shaker at approximately 15 ^{o}C for the duration of the incubation period (48 hours for hexadecane and either 8 or 10 days for naphthalene or phenanthrene). These incubation times were selected because over a wide range of concentrations of substrate significant levels of CO_2 were produced. Shorter incubation increases the likelihood of lag phase interference, and longer incubation will increase the likelihood of increased CO_2 production through "acclimation" of the natural population (Brown et al., 1991). At the end of the designated incubation period, samples were "killed" and the CO_2 fixed by adding 1 ml 10 N NaOH per vial. At the end of each cruise the vials were returned to the lab where they were acidified and the radiolabelled CO_2 stripped and counted on a liquid scintillation counter by the procedure described in Brown et al. (1991).

The "zero time" values for each isotope for each cruise served as negative controls and were averaged and subtracted from each mineralization potential sample to yield a corrected dpm value. In addition to the NaOH "killed zero time" controls, a series of sediment samples were inoculated, spiked with radioisotopes and killed (autoclaved) at the beginning of Fairweather cruise. These samples were run approximately four months later to check for abiotic evolution of CO_2. The values from all these samples fell within the range for a scintillation cocktail blank.

Positive controls showed that the purging system could recover greater than 99% of radiolabelled CO_2 from radiolabelled bicarbonate processed as if it were a sediment sample. The potential for carryover between samples was monitored by running blank controls through the purging line periodically. Blank controls run in this manner always fell within the range for "time-zero" control samples. In addition, the collection of ^{14}C-labeled products in the Harvey traps was monitored on a daily basis. All reported values have been corrected to dry weight sediment.

Nutrient Analysis: Concentrations of macronutrients essential to microbial growth (i.e. nitrogen and phosphorus) were measured in nearshore waters on the Nautilus and Cobb I cruises at sites

where hydrocarbon degrader enumeration and mineralization potential samples were taken. Samples were collected in acid-rinsed polypropylene bottles, filtered aboard the research vessel and frozen for later nutrient analysis. Three nutrients were measured by standard automated procedures (Technicon Industrial Systems, NJ) in the seawater samples: nitrate/nitrite, ammonium and orthophosphate.

Sediment Dry Weight: Dry weight determinations were obtained for each sediment sample by removing approximately 50 g of sediment and weighing it in a tared container. The samples were dried at 90 ^{o}C for 24 hours, cooled and re-weighed. Sediment dry weights were used to standardize all of the data.

Results

Overview: The sites sampled on the six cruises are identified by site number and latitude and longitude (of shoreline site) in Tables 1-6. The approximate locations of all sites are plotted in Fig. 1-6 . Appendix A contains the nearshore water nutrient data from the Nautilus and Cobb I cruises. Appendix B contains replicate most probable numbers of hydrocarbon-oxidizing bacteria data with calculated means and standard deviations, and dry weight data for each cruise. Appendix C contains hydrocarbon mineralization potentials and raw dpm data for the mineralization potentials for each cruise. Appendix D summarizes all microbiology data from each cruise.

The microbial populations measured in this study were probably influenced by a number of complex factors. From a large-scale perspective, the following information on the initial distribution and movement of the surface slick should be useful for evaluation of the microbial data. Information on the movement of the surface slick has been recently summarized by Wolfe (pers. commun.):

> For approximately six weeks after the spill, the distribution of floating oil was recorded almost daily by trained observers participating in surveillance overflights. When the spill occurred, and for most of the next three days, winds were mostly still (generally 5-10 knots) and the sea was calm in PWS. During this period the oil slick floated in open water to the southwest of the grounded ship, spreading over an area of approximately 300 km^2. In the midafternoon of the third day (March 26), however, winds rose to 20-25 knots (with gusts of 50 to 70 knots), and these winds were sustained over the next 3 days, moving the oil rapidly to the southwest, and driving it ashore on the beaches of Naked, Eleanor, Smith, Ingot and Knight Islands. By March 30, the leading edge of the floating oil had passed through Montague Strait into the Gulf of Alaska. For the next three weeks, oil was repeatedly deposited, refloated, and redeposited on the affected shorelines in PWS as the local winds and tides shifted.

Enumeration of Hydrocarbon-Oxidizers: Mean numbers of hydrocarbon-oxidizing bacteria estimated by the most probable number technique for each shoreline site on each cruise are found in Fig. 7-12. In general, total numbers of hydrocarbon-oxidizing bacteria in shoreline sediments have decreased with time since 1989; however, there were still several shorelines in the summer and fall of 1990 that had >10^3 hydrocarbon degraders/g dry weight sediment. By summer 1991

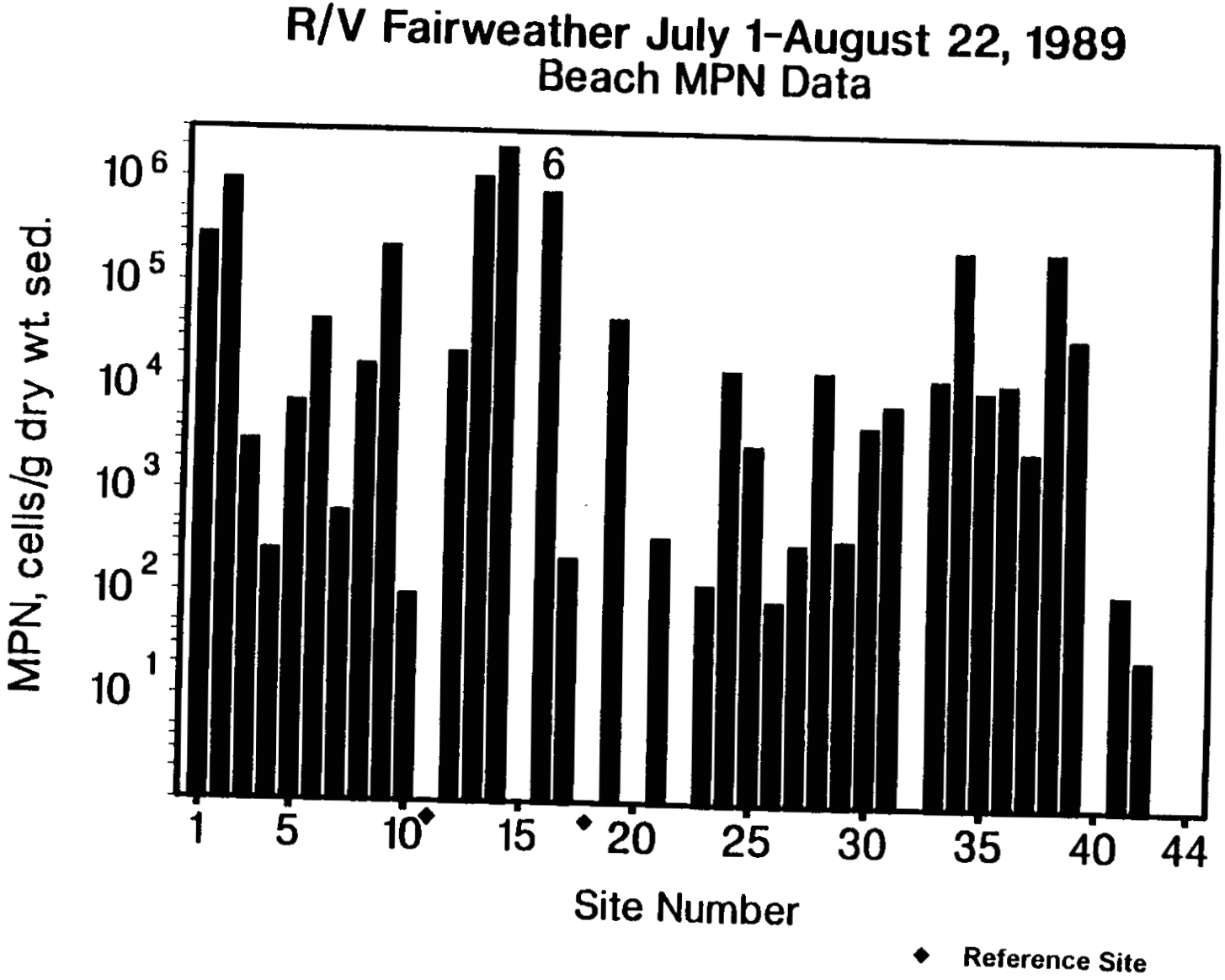
R/V Fairweather July 1-August 22, 1989
Beach MPN Data
MPN, cells/g dry wt. sed.
10 6
10 5
10 4
10 3
10 2
10 1
6
1
5
10
15
20
25
30
35
40
44
Site Number
Reference Site

Figure 7

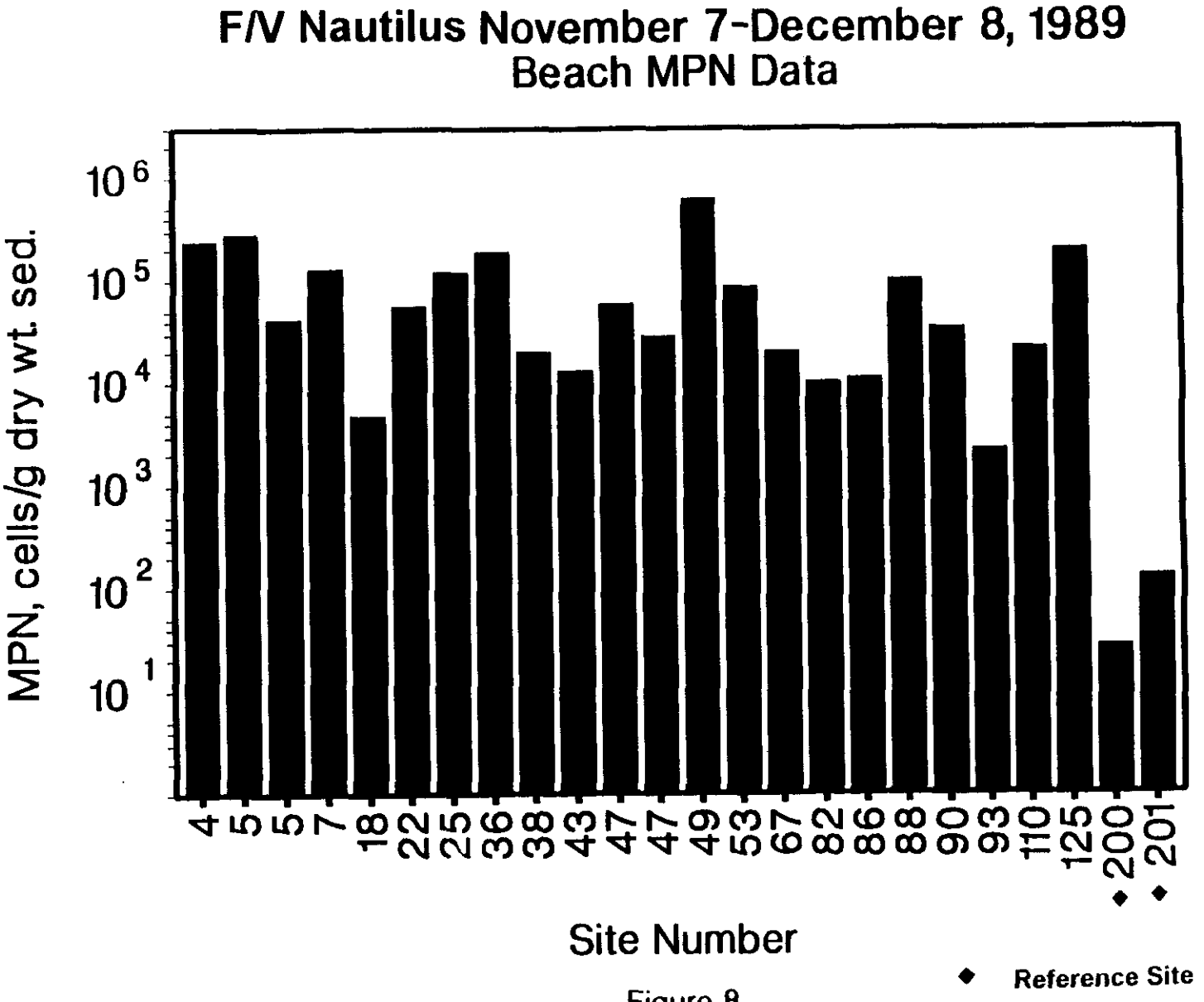
F/V Nautilus November 7-December 8, 1989
Beach MPN Data
MPN, cells/g dry wt. sed.
10 6
10 5
10 4
10 3
10 2
10 1
4 5 5 7 18 22 25 36 38 43 47 47 49 53 67 82 86 88 90 93 110 125 200 201
Site Number
◆ Reference Site

Figure 8

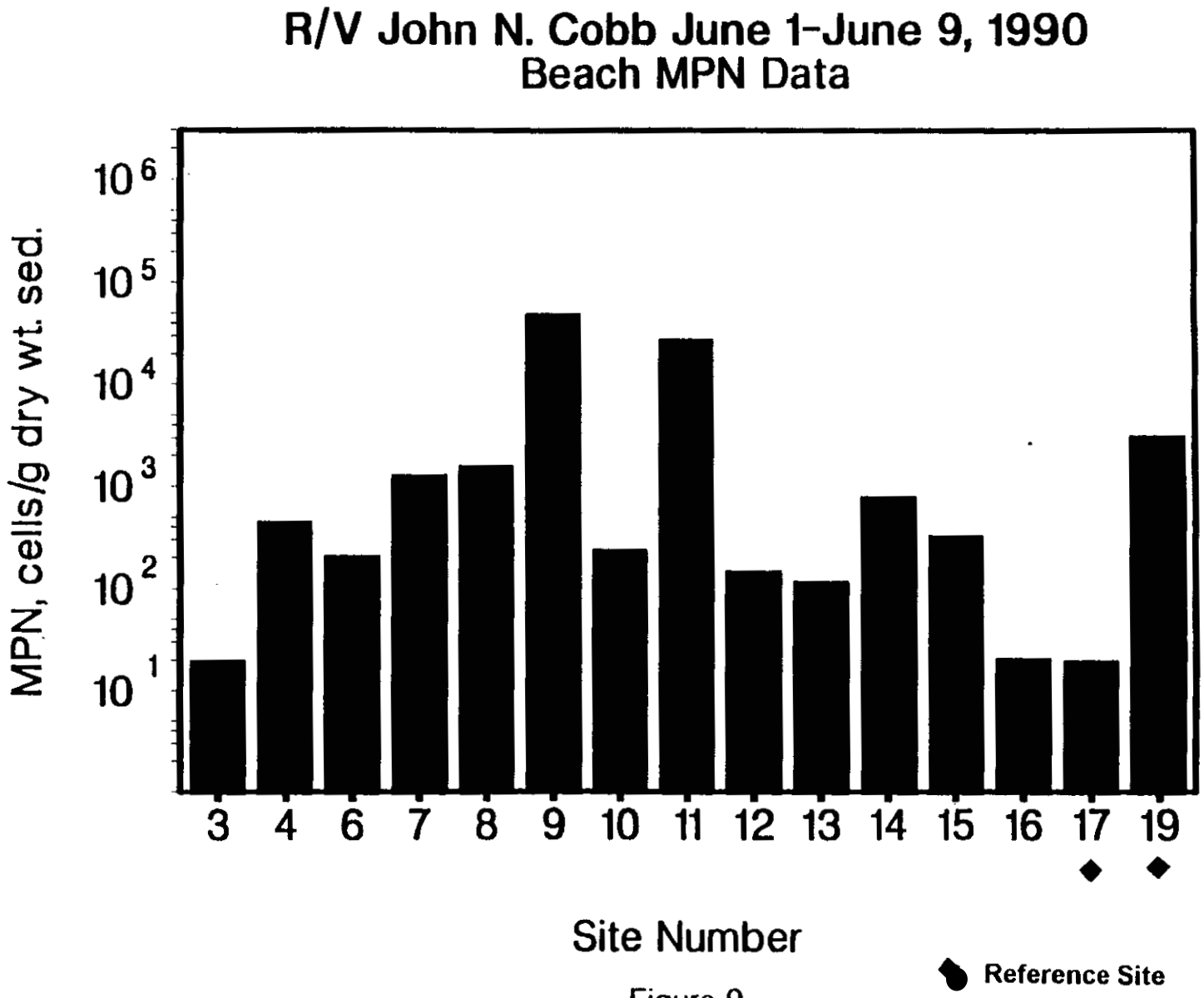
R/V John N. Cobb June 1-June 9, 1990
Beach MPN Data
MPN, cells/g dry wt. sed.
10 6
10 5
10 4
10 3
10 2
10 1
3 4 6 7 8 9 10 11 12 13 14 15 16 17 19
Site Number
Reference Site

Figure 9

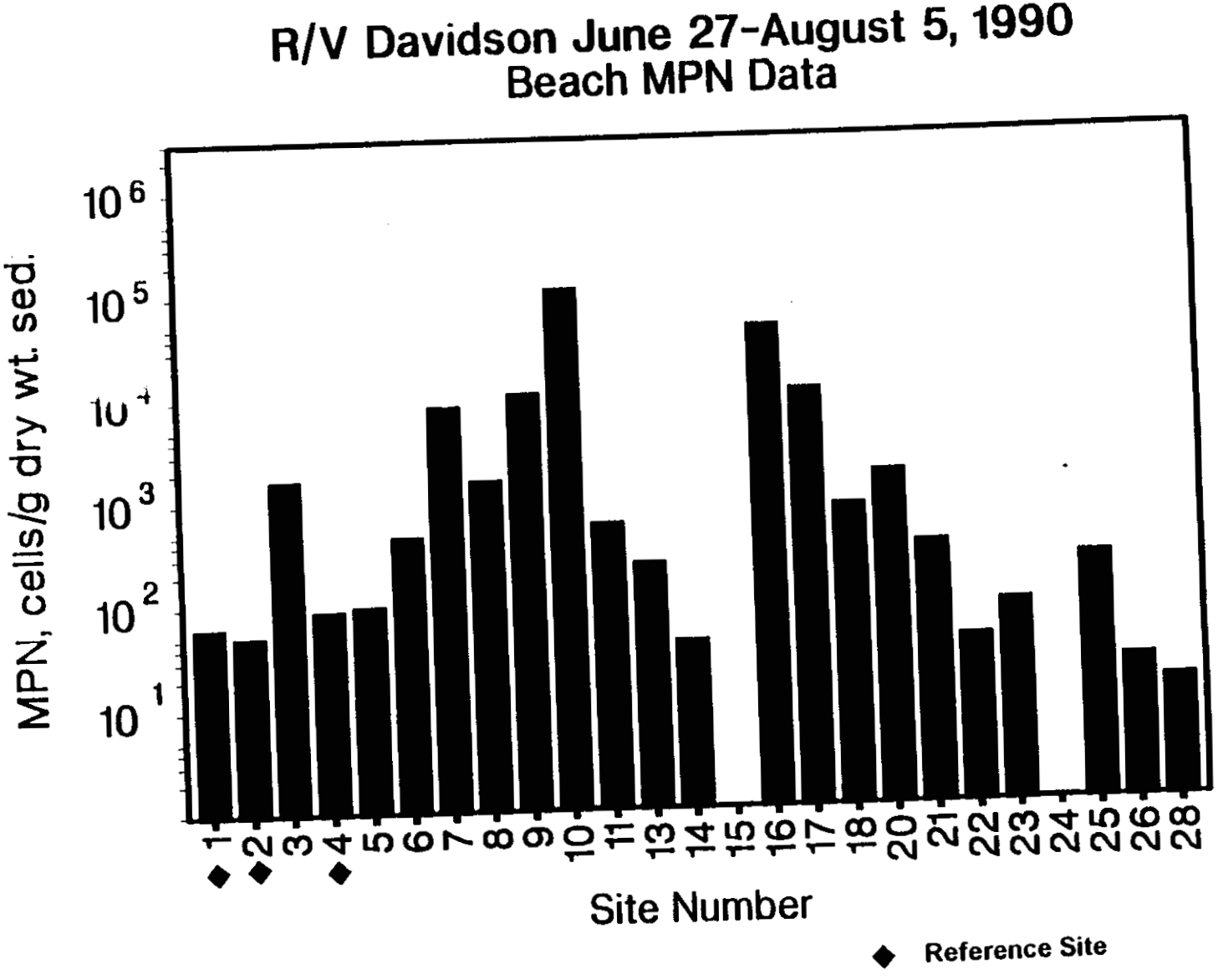
R/V Davidson June 27-August 5, 1990
Beach MPN Data
MPN, cells/g dry wt. sed.
10 6
10 5
10 4
10 3
10 2
10 1
1 2 3 4 5 6 7 8 9 10 11 13 14 15 16 17 18 20 21 22 23 24 25 26 28
Site Number
Reference Site

Figure 10

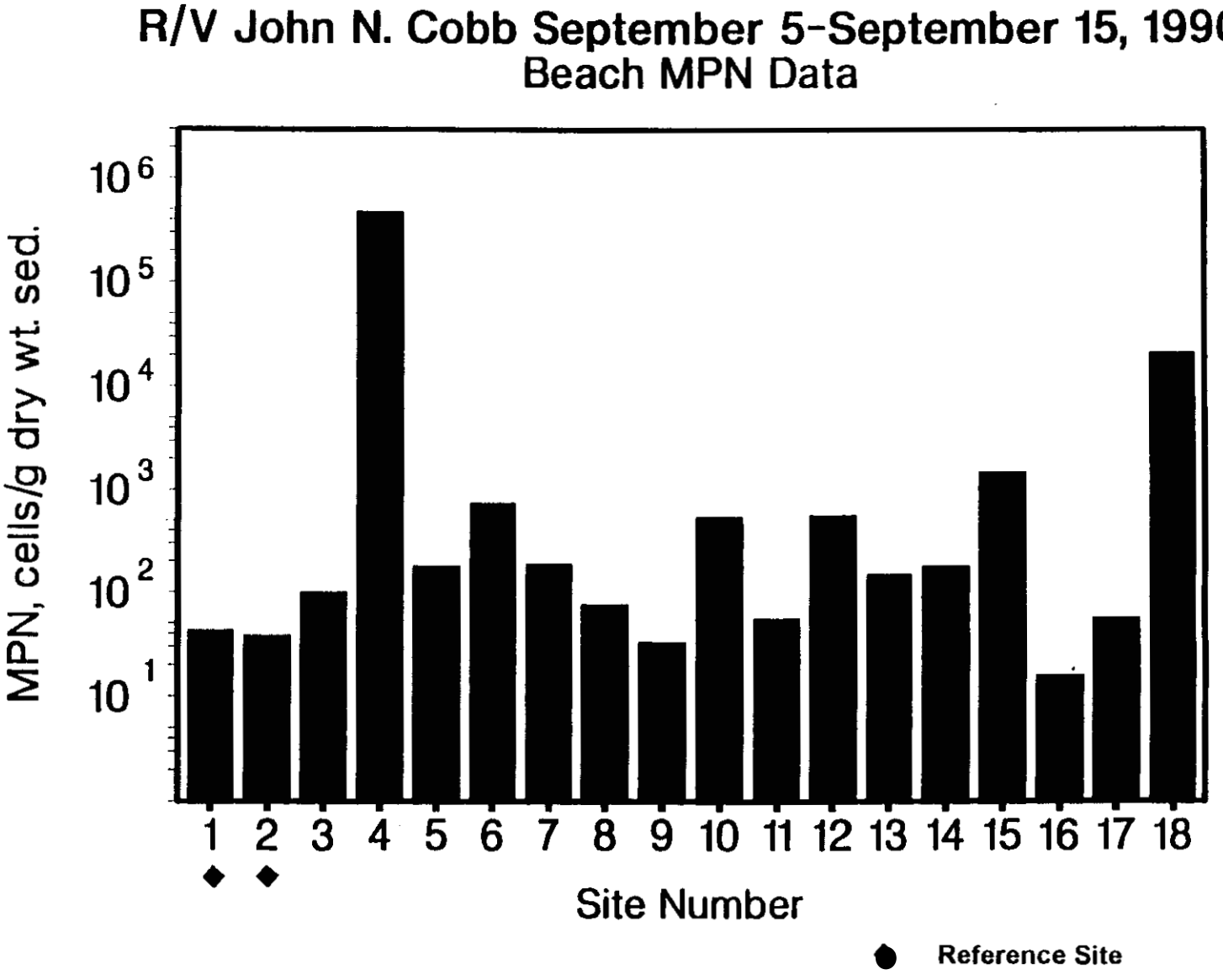
R/V John N. Cobb September 5-September 15, 1990
Beach MPN Data
MPN, cells/g dry wt. sed.
10 6
10 5
10 4
10 3
10 2
10 1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Site Number
Reference Site

Figure 11

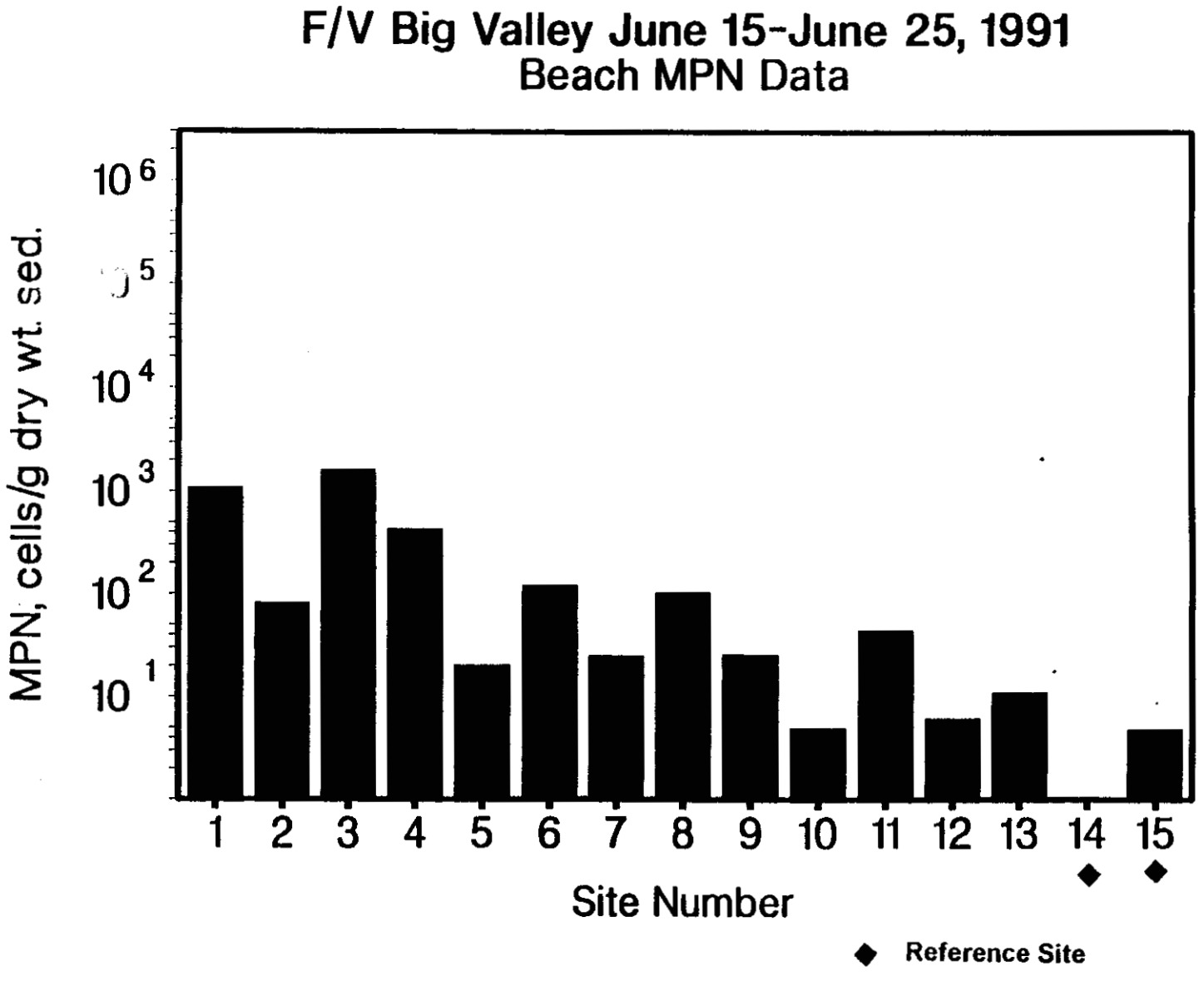
F/V Big Valley June 15-June 25, 1991
Beach MPN Data
MPN, cells/g dry wt. sed.
10 6
10 5
10 4
10 3
10 2
10 1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Site Number
Reference Site

Figure 12

only two shorelines sampled had $>10^3$ hydrocarbon-oxidizing bacteria/g dry weight sediment. In comparison numbers as high as 10^3 hydrocarbon degraders/g dry weight sediment were only measured once at a reference site (NE Fidalgo, shoreline sediment, spring 1990). It was uncommon to see numbers even as high as 10^2 hydrocarbon degraders/g dry weight sediment at reference sites (see Appendix B). For historical reference, in the 1975-1977 survey of Cook Inlet, northeast Gulf of Alaska, and northwest Gulf of Alaska, the highest mean numbers of hydrocarbon-oxidizing bacteria in marine sediments determined by a plate count method were 8.4 X 10^3 cells/g dry weight sediment (Roubal and Atlas, 1978). Some of the samples collected in the Roubal and Atlas study were near offshore drilling rigs in Cook Inlet and may have been affected by those activities.

Tables 7-12 summarize the mean most probable numbers of hydrocarbon-oxidizing cells for all sediments sampled for cruises in chronological order beginning with the Fairweather cruise in summer 1989 and ending with the Big Valley cruise in summer 1991. The values are means of duplicate samples (Fairweather cruise) or of triplicate samples (all other cruises). Individual replicate values, means and standard deviations are found in Appendix B. Generally the value for one standard deviation around the mean was approximately equal to the mean. In 1989 the shoreline sediments had the highest numbers of hydrocarbon-oxidizing bacteria and numbers decreased with depth stations offshore. The total population of hydrocarbon degraders decreased in the shoreline sediments with time since 1989 but the numbers at depth stations (6, 20, 40 and 100 m) increased from the numbers measured in the summer of 1989 (e.g. see Tables 7 and 10). While the numbers of hydrocarbon oxidizers were not very high in summer of 1990, there were more sites with measurable numbers of hydrocarbon degraders in the sediments from deeper stations than seen in the data from 1989. By the summer of 1991 (Table 10) numbers of hydrocarbon degraders at all stations and depths had decreased. This indicates that if any oil remained in these samples, biodegradation was unlikely to be very significant due to such factors as the quality of the oil or oxygen availability.

Seasonal geographical distributions of the mean numbers of hydrocarbon degraders in shoreline, 6 m and 40 m depth stations for sites within Prince William Sound are found in Fig. 13-21. The general distribution of hydrocarbon degraders in 1989 appears to follow the initial movement of the surface slick (e.g. sites on Knight Island had high numbers of hydrocarbon degraders in summer 1989; Fig. 13). Temporally, the numbers of hydrocarbon degraders in shoreline sediments at sites within the path of the original surface oil slick within Prince William Sound decreased from 1989 to 1991. At the 6 m depth stations the number of sites within the path of the oil slick that had medium or high populations of hydrocarbon degraders increased from summer 1989 to summer 1990 (Fig. 16-17). By 1991 only three sites sampled had numbers exceeding 10^2 hydrocarbon degraders/g sediment (Fig. 18). A similar trend was observed at the 40 m depth stations; the highest numbers were also seen in the summer of 1990 (Fig. 20-23).

Table 13 summarizes the medians of most probable number of hydrocarbon-oxidizing bacteria for all sites (except reference sites) within Prince William Sound for each cruise. The number of sites (n) included in the calculation for each cruise is also shown. The data from Table 13 are presented in a bar graph in Figure 22 as logs of the median cell number. Total numbers of hydrocarbon-degrading microorganisms in shoreline sediments declined at all sampled sites and depths in Prince William Sound. The numbers of organisms at depth (see especially 20, 40, and 100 m), while not exceedingly high, appear to have increased with time reaching a maximum in the summer of 1990 (also observed in Fig. 19-21) and then decreased to values indistinguishable

Table 7. Summary of Most Probable Numbers (MPN) of Hydrocarbon-Oxidizing Bacteria. R/V Fairweather, July 1 - August 22, 1989

	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED					
Cell Numbers (cells/g dry wt.)	Beach	3m	6m	20m	40m	100m
$<10^1$	[b]**11,15**,20,22, 32,40,43,44	3,4,6,7, **10**,[b]**11,15**, 40,43	**1,3,4,5,7, 15**,[b]**18**,43	**2,3,4,5,6, 7,8,9,10,** [b]**11,13,17**,21, 27,32,36,43, 44	**1,2,3,4,5, 6,7,9,10,** [b]**11,15,16,17,** 20,22,24,27, 30,35,36,40, 43,44	3,4,5,6,7, **9,10,**[b]**11,12, 13,14,15,16** 20,21,26,27 40,44
10^1-10^2	26,42	**13,**[b]**18**,20,21, 26,27,35	**8,9,10,**[b]**11, 16**,20,21,31, 32,44	**14,15,16**,20, 40,41,42	**14**	**17,**[b]**18**,39
10^2-10^3	**4,7,10,17,** 23,27,29,41	**1,2,5,8,9, 16,17**,22,23, 24,29,37,39, 41,42	**2,6,13,17,** 22,23,26,28, 30,36,40,41	**1,**[b]**18**,23,26, 28,35,37,38	**8,12,13,**[b]**18**,21 25,26,28,35, 37,41	8,23,28
10^3-10^4	**3,5**,25,30, 31,37	25,28,30,32, 33,34,44	**12,14**,25,29, 37,42	**12**,25,30	29,38	**2**,22,30
10^4-10^5	**6**[a]**,8,12,19,** 24,28,33,35, 36,39	**12**,36,38	38,39	29,31		24,37
10^5-10^6	**1,2,9**		33	33	39	38
10^6-10^7	**13,14,6**[a]					

[a] Duplicate samplings
[b] Reference sites
Bold face type indicates site within Prince William Sound

Table 8. Summary of Most Probable Numbers (MPN) of Hydrocarbon-Oxidizing Bacteria. F/V Nautilus, November 7 - December 8, 1989.

Cell Numbers (cells/g dry wt.)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED	
	Beach	3m
$<10^1$		**[b]200**
10^1-10^2	**[b]200**	**[b]201**
10^2-10^3	**[b]201**	**5,18,36,38,90,93**
10^3-10^4	**18,93**	**22,25,43,[a]47,[a]47 53,67,82,86,88,125**
10^4-10^5	**[a]5,22 38,43,[a]47,[a]47,53 67,82,86,90,110**	**4,7,49**
10^5-10^6	**4,[a]5,7,25,36, 49,88,125**	
10^6-10^7		

[a] Duplicate sampling
[b] Reference site
Bold face type indicates site within Prince William Sound

Table 9. Summary of Most Probable Numbers (MPN) of Hydrocarbon-Oxidizing Bacteria. R/V Cobb, May 31 - June 10, 1990.

Cell Numbers (cells/g dry wt.)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED			
	Beach	3m	6m	20m
$<10^1$	**3,[b]17**			**7,13**
10^1-10^2	**16**	**10,14,[b]19**	**7,13**	**14,[b]19**
10^2-10^3	**4,6,10,12,13,15**	**4,6,8,13**	**8,10,[b]19**	**6,8,10**
10^3-10^4	**7,8,14,[b]19**	**7,9,11**		**4,9,11**
10^4-10^5	**9,11**			
10^5-10^6				
10^6-10^7				

[a] Duplicate sampling
[b] Reference site
Bold face type indicates site within Prince William Sound

Table 10. Summary of Most Probable Numbers (MPN) of Hydrocarbon-Oxidizing Bacteria. R/V Davidson, June 27 - August 5, 1990.

Cell Numbers (cells/ g dry wt.)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED					
	Beach	3m	6m	20m	40m	100m
$<10^1$	**15**,24	**b_1,b_2,b_4**,22,28	**b_2,5,18**,22	**b_2,5,8**	**b_1,b_2**	**b_1,b_4**,6,11,14
10^1-10^2	**b_1,b_2,b_4**,14,22, 23,26,28	5,6,13,15,18,19	**b_1**,3,**b_4**,6,11,15, 19,23,24,26	**b_1**,3,**b_4**,11,15, 19,22,24	**b_4**,5,6,11,23, 24,25	**b_2**,3,5,7,8,9, 10,22,23,24,25
10^2-10^3	5,6,11,13,18,21, 25	3,7,9,11,14,16, 17,21,25,26	7,8,9,14,16,17, 21,25	6,7,9,14,17 18,23,26	3,7,8,9,14,15, 17,18,20,21,22	13,17,18,19,20,21
10^3-10^4	3,7,8,20	8,10,20.23	10	10,13,20,21.25	10,13,16,19	16
10^4-10^5	9,16,17		20	16		
10^5-10^6	10					
10^6-10^7						

[a] Duplicate sampling
[b] Reference sites
Bold face type indicates site within Prince William Sound

Table 11. Summary of Most Probable Numbers (MPN) of Hydrocarbon-Oxidizing Bacteria. R/V Cobb, September 5 - September 15, 1990.

Cell Numbers (cells/ g dry wt.)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED			
	Beach	3m	6m	20m
$< 10^1$		[b]2,3	3	[b]2,3
10^1-10^2	[b]1,[b]2,8,9,11,16,17	10,11,13,16,17	[b]2,9,11,13,17	8,10,11
10^2-10^3	3,5,6,10,12,13,14,15	[b]1,5,8,18	[b]1,5,6,7,8,10,14, 16,19	[b]1,6,12,13,15, 16,17
10^3-10^4		4,6,12,15	12,15,18	4,5,18
10^4-10^5	18		4	
10^5-10^6	4			
10^6-10^7				

[a] Duplicate sampling
[b] Reference site
Bold face type indicates site within Prince William Sound

Table 12. Summary of Most Probable Numbers (MPN) of Hydrocarbon-Oxidizing Bacteria. F/V Big Valley, June 15 - June 30, 1991.

Cell Numbers (cells/ g dry wt.)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED						
	Beach	3m	6m	20m	40m	100m	140m
$<10^1$	**10,12 ^{b}14,^{b}15**	**5,9,10 ^{b}14,^{b}15**	**10,12 ^{b}14,^{b}15**	**6,9,11 12,^{b}15**	**5,6,7 8,10 12,^{b}14 ^{b}15**	**1,3,6 7,8,9 10,11 12,13 ^{b}14,^{b}15**	**6,11**
10^1-10^2	**2,5,7 9,11 13**	**2,6,7 11,12 13**	**4,5,6 7,8,9 11,13**	**3,4,5 7,8,10 13,^{b}14**	**1,2,3 9,11 13**	**2,4,5**	**4**
10^2-10^3	**4,6,8**	**3,4,8**	**1,2,3**	**1,2**	**4**		
10^3-10^4	**1,3**	**1**					
10^4-10^5							
10^5-10^6	**C**						

[a] Duplicate sampling
[b] Reference site
C Positive control (Port Valdez)
Bold face type indicates site within Prince William Sound

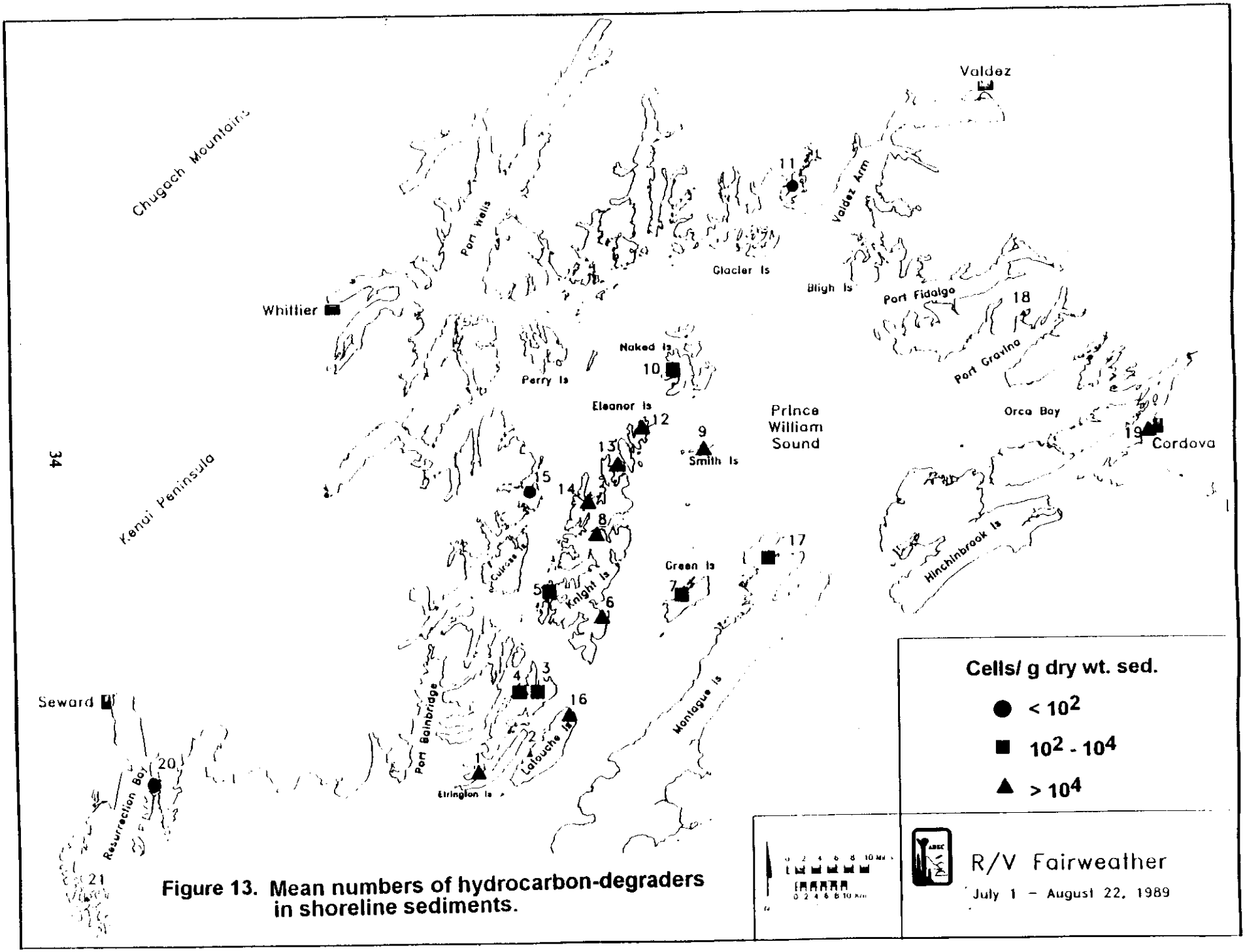

Figure 13. Mean numbers of hydrocarbon-degraders in shoreline sediments.

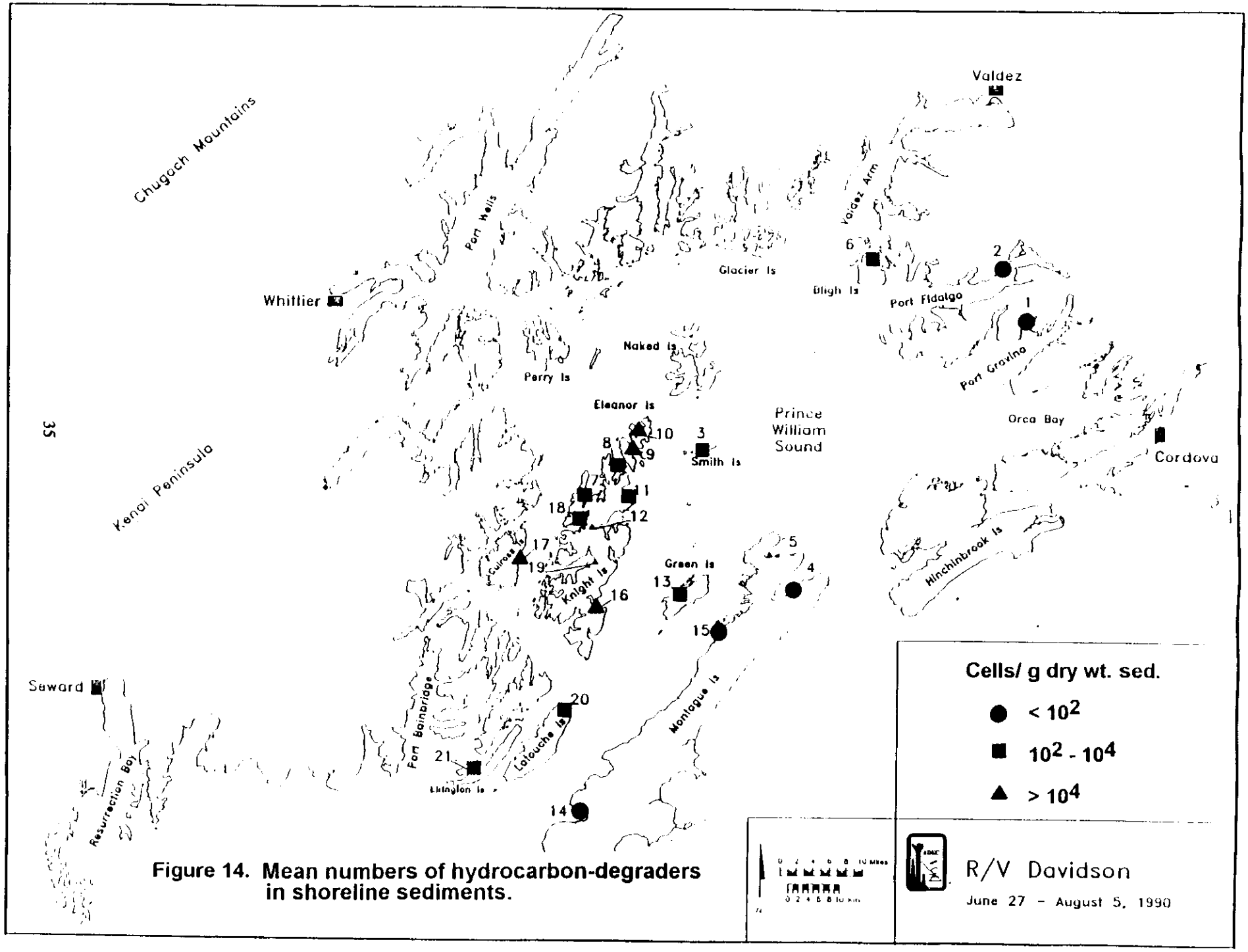

Figure 14. Mean numbers of hydrocarbon-degraders in shoreline sediments.

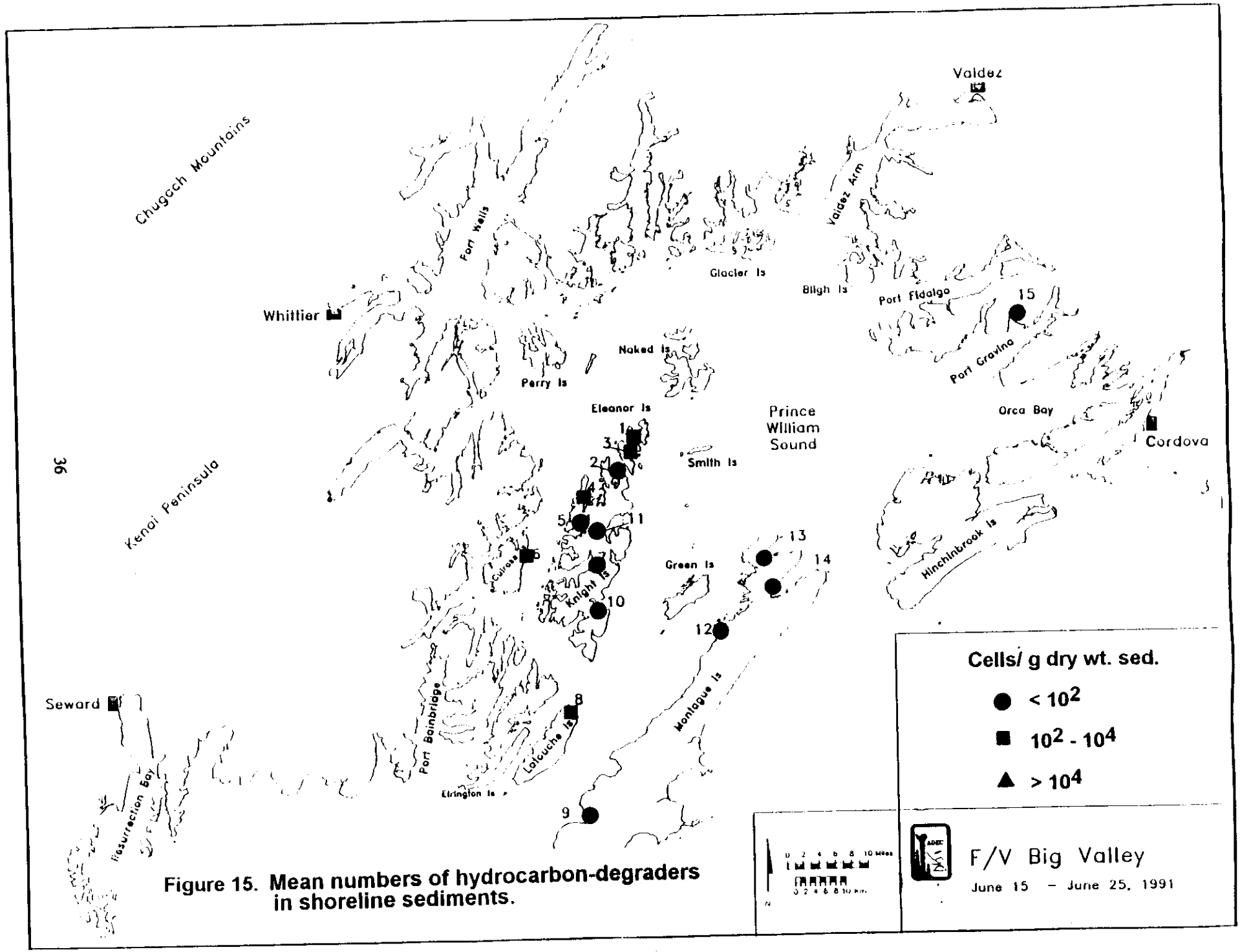

Figure 15. Mean numbers of hydrocarbon-degraders in shoreline sediments.

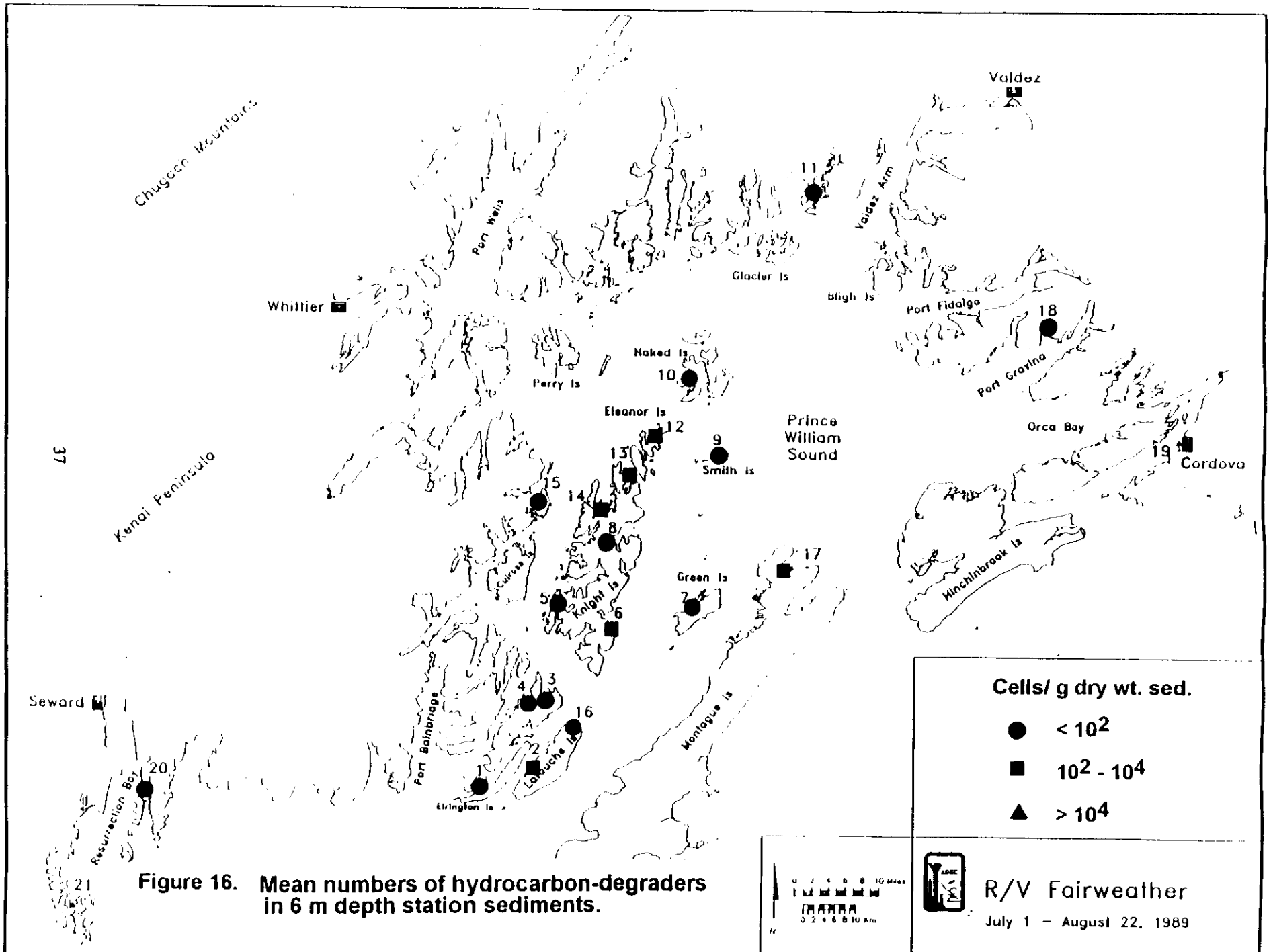

Figure 16. **Mean numbers of hydrocarbon-degraders in 6 m depth station sediments.**

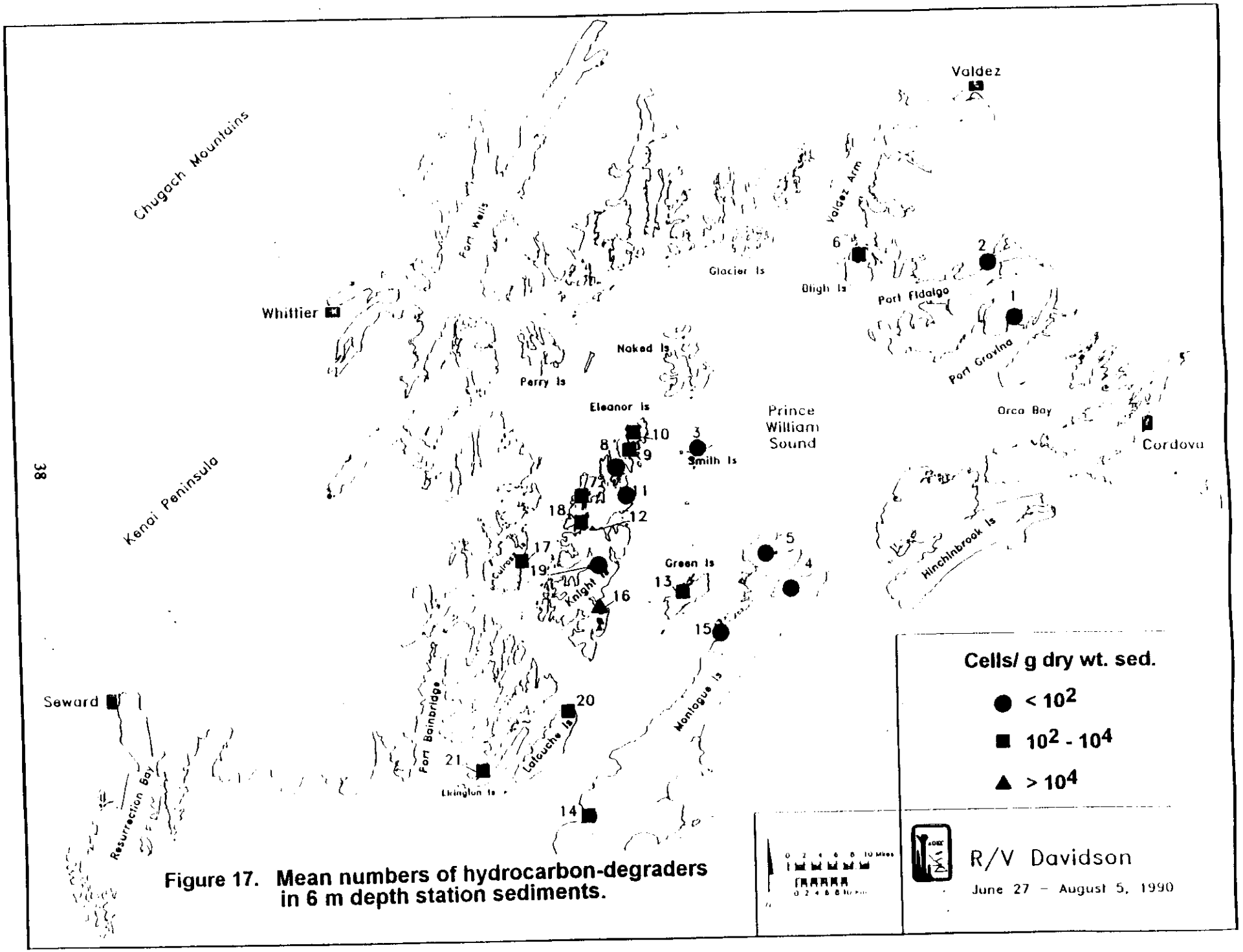

Figure 17. Mean numbers of hydrocarbon-degraders in 6 m depth station sediments.

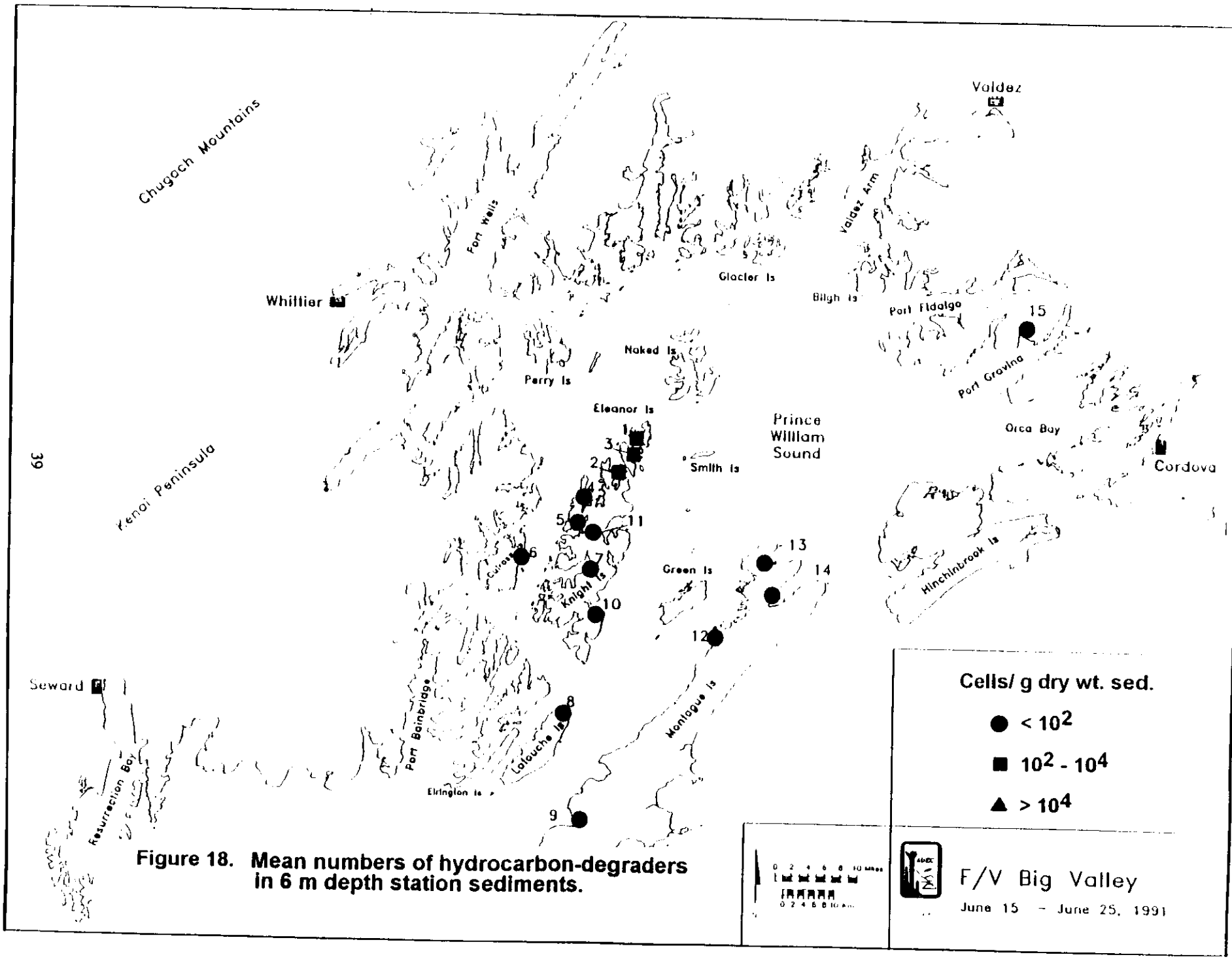

Figure 18. Mean numbers of hydrocarbon-degraders in 6 m depth station sediments.

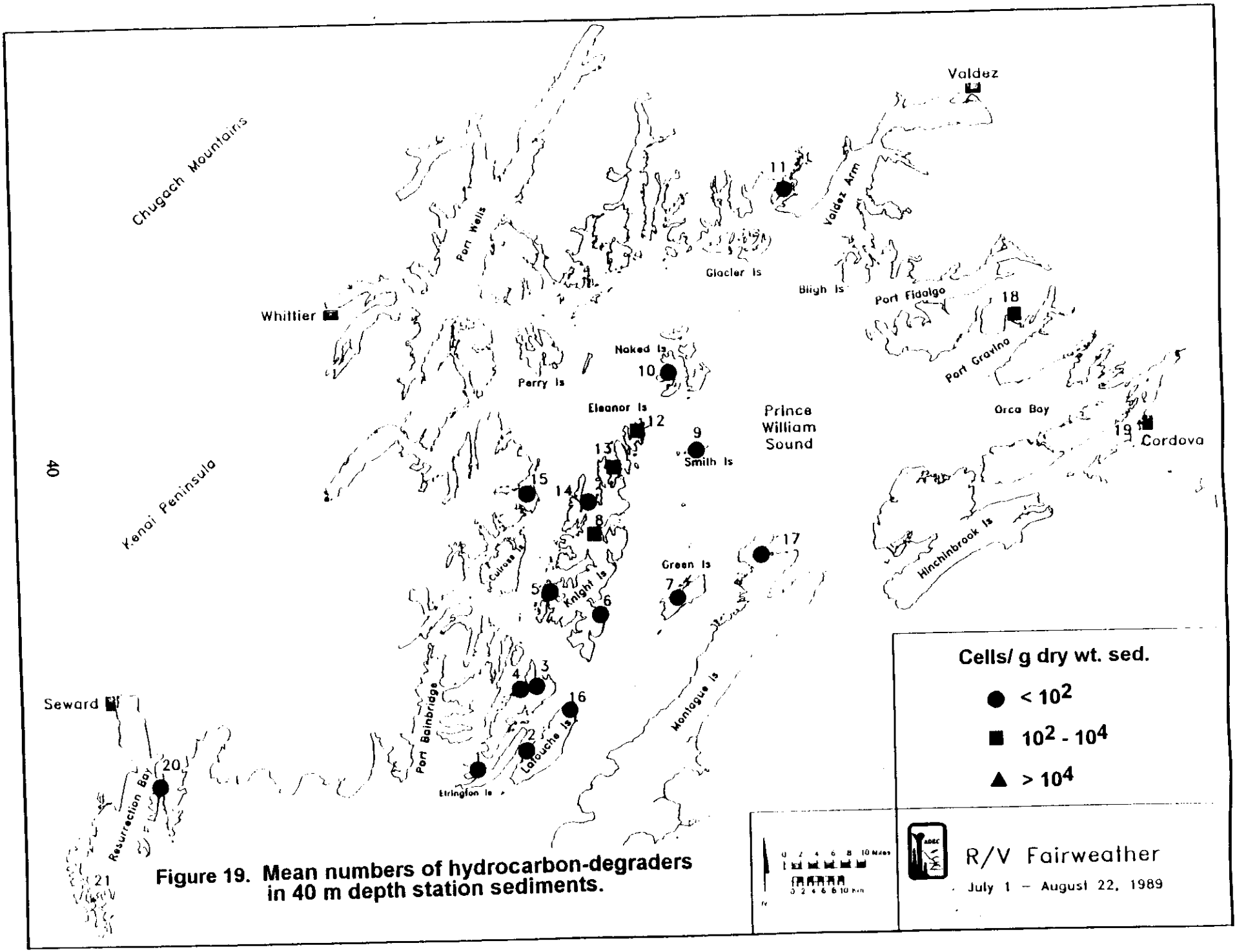

Figure 19. Mean numbers of hydrocarbon-degraders in 40 m depth station sediments.

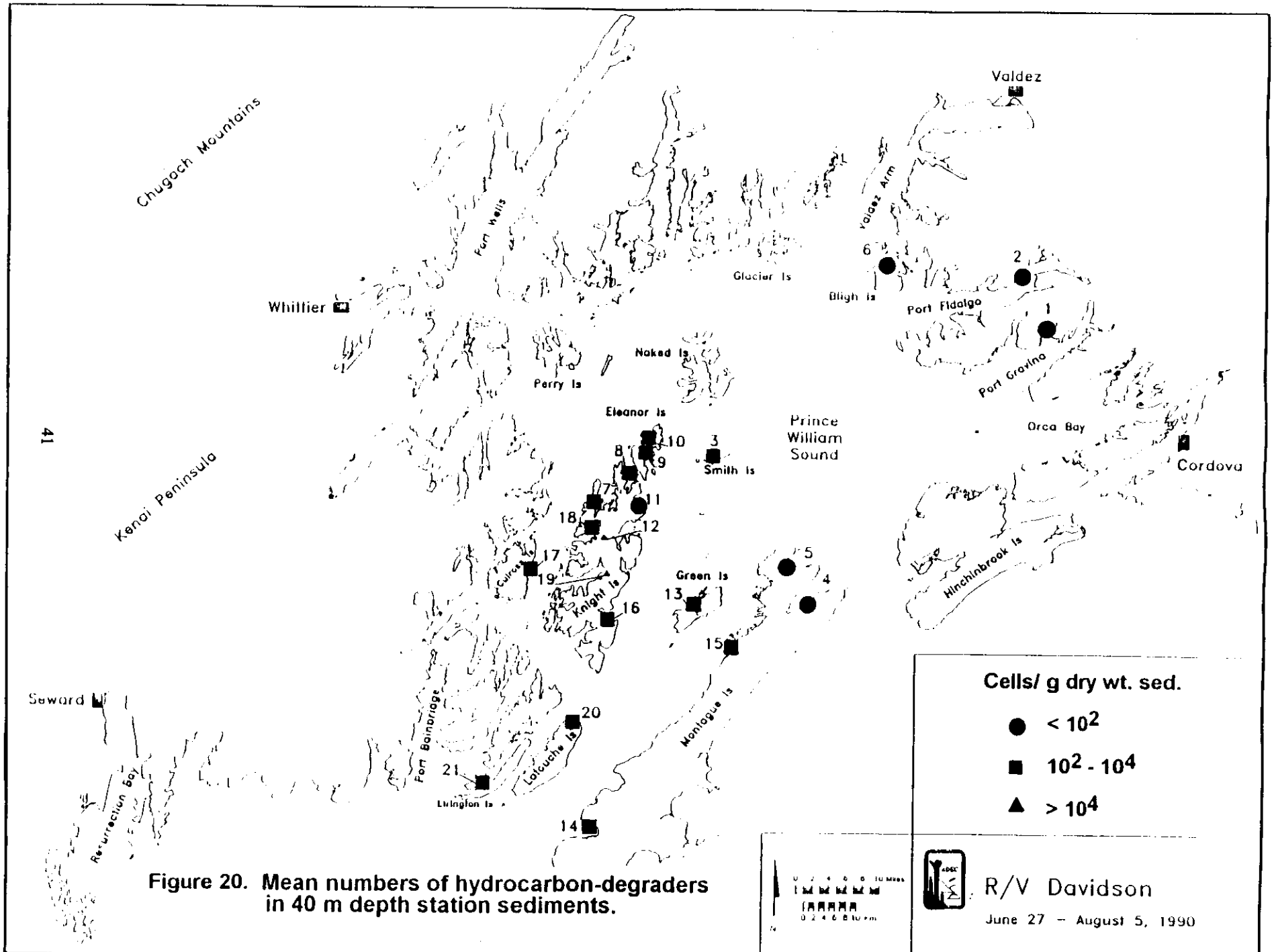

Figure 20. Mean numbers of hydrocarbon-degraders in 40 m depth station sediments.

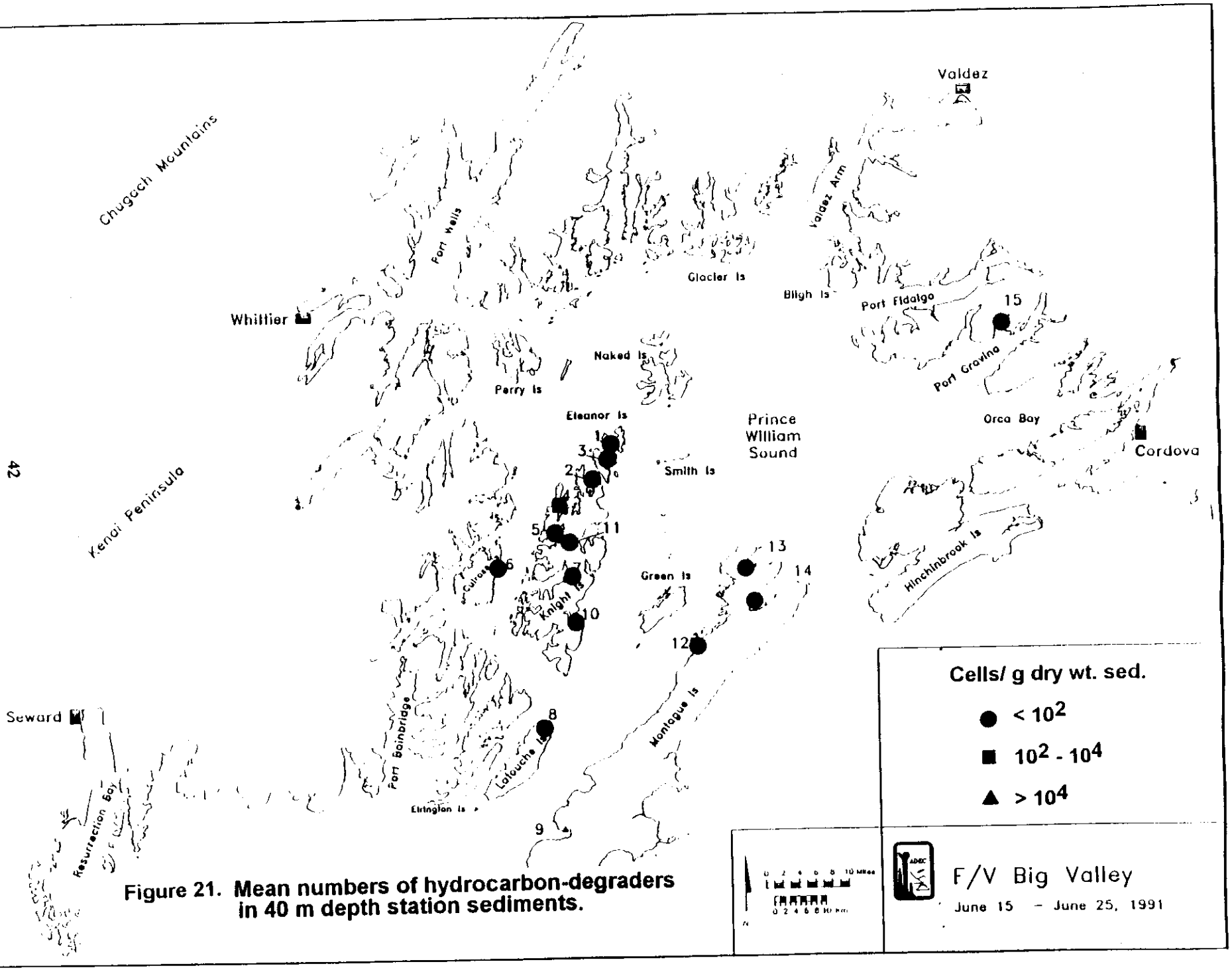

Figure 21. Mean numbers of hydrocarbon-degraders in 40 m depth station sediments.

Table 13. Summary of median most probable numbers of hydrocarbon-oxidizing bacteria (# cells/g dry-weight sediment) for all non-reference sites within Prince William Sound.

	Depth[a]					
Cruise	Beach	3m	6m	20m	40m	100m
Fairweather (Summer 1989)	1.7×10^4 (17)	1.5×10^2 (17)	8.9×10^1 (17)	0 (17)	0 (17)	0 (17)
Nautilus (Fall 1989)	4.9×10^4 (22)	2.8×10^3 (21)	---	---	---	---
Cobb (Spring 1990)	3.3×10^2 (13)	2.7×10^2 (9)	6.7×10^1 (4)	1.9×10^2 (7)	---	---
Davidson (Summer 1990)	1.2×10^3 (16)	1.6×10^2 (17)	1.3×10^2 (16)	1.4×10^2 (16)	3.1×10^2 (17)	6.0×10^1 (16)
Cobb (Fall 1990)	1.8×10^2 (15)	2.5×10^2 (13)	2.5×10^2 (17)	3.3×10^2 (13)	---	---
Big Valley (Summer 1991)	6.3×10^1 (12)	6.3×10^1 (12)	5.2×10^1 (12)	1.3×10^1 (12)	1.0×10^1 (12)	4.4×10^0 (12)

[a] Number of sites used in calculating median is shown in parentheses.

Seasonal Medians of Most Probable Numbers of Hydrocarbon Degraders with Depth for Sites in Prince William Sound

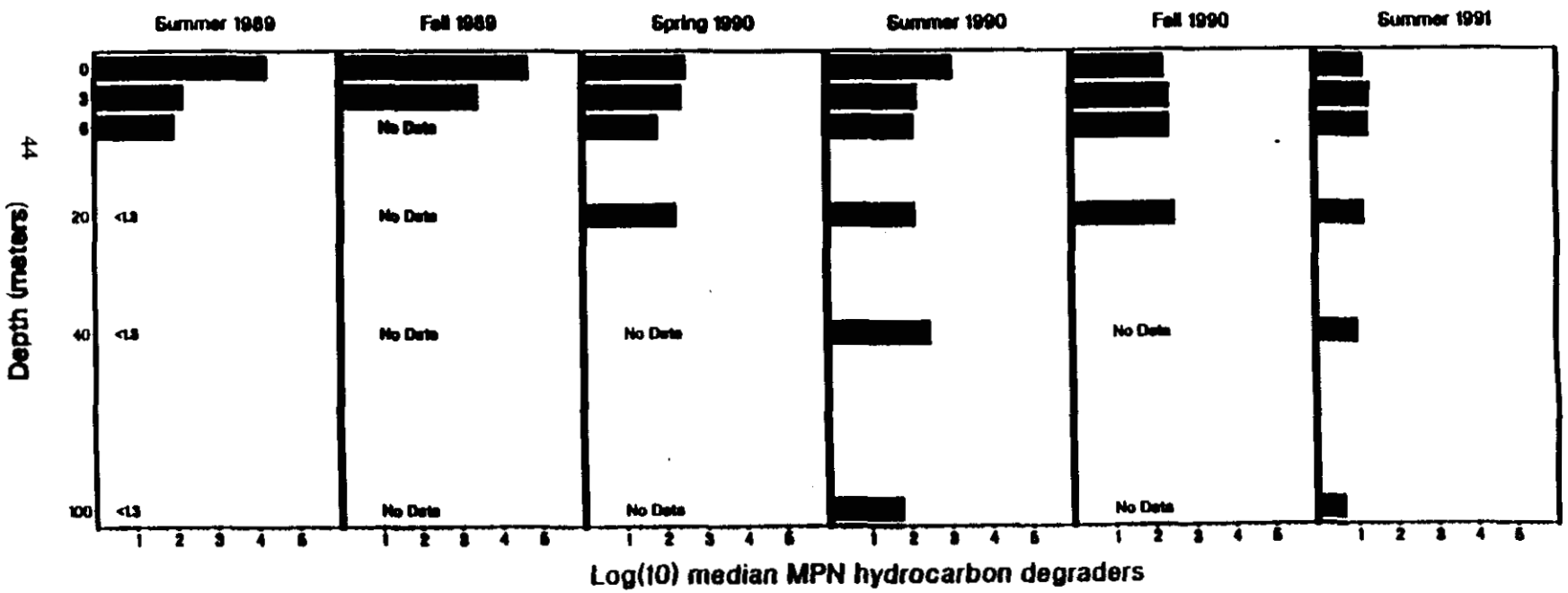

Figure 22

from the reference sites by the summer of 1991. Very few sites at 40 and 100 m depth stations in Prince William Sound had detectable numbers of hydrocarbon degraders in the summer of 1989 while there were clearly a greater number of sites with detectable numbers of hydrocarbon degraders by summer of 1990 (see also Tables 6 and 10, noting sites located within Prince William Sound). Data from the summer of 1991 (Table 11) indicate that numbers of hydrocarbon degraders at many of the sampled sites have returned to levels that are indistinguishable from reference sites. Although some of the sites still show hydrocarbon degrader populations higher than the reference sites at the shoreline, 3 m and 6 m depths, the numbers are generally quite low compared to previous cruise data.

Sites and depths where the most probable number of hydrocarbon-oxidizing bacteria were statistically significantly higher from the reference sites for a specific cruise are shown in Tables 14-18. Significant differences as calculated at the 95% confidence level using the Mann-Whitney U Test (Zar 1984) are indicated in each table by an asterisk. Table 19 gives a summary of data presented in Tables 14-18. Data from the Fairweather cruise could not be analyzed by the Mann-Whitney U Test because there were not enough replicates.

Using the Mann-Whitney U Test, nearly all sites visited on the Nautilus cruise (winter 1989) had populations of hydrocarbon-degrading bacteria that were significantly higher than the reference sites at the shoreline and all but two were significantly higher at the 3 m depth. The sites on this cruise were selected as they were visually seen as being very oily shorelines. The presence of visible oiling at these shorelines seems to have selected for relatively high numbers of hydrocarbon-oxidizing bacteria (see also Figure 14). Successive cruises (Cobb I, Davidson, Cobb II and Big Valley) included more sites which were not visually assessed to have as heavy oiling. Few sites had numbers of hydrocarbon degraders greater than the reference sites on the first Cobb cruise (spring 1990; see Table 15). However hydrocarbon degraders were not measured at every site or depth station because of lack of personnel for the microbial study on this cruise. Many of the sites visited on the Davidson cruise (summer 1990; Table 16) had numbers of hydrocarbon degraders that were significantly higher than the reference sites. The greatest number of sites with values significantly higher than the reference sites were found at the 3 and 6 m depths and many sites were significantly higher through the 100 m depth station. It should be noted that several of the sites not used as reference sites for this analysis (e.g. Rocky Bay, West Bay, Mooselips Bay and Black Bay) were originally thought to be unoiled sites. However, some of these sites may have been affected over time by re-oiling events. In fall 1991 (Cobb II) several sites had hydrocarbon degrader populations that were significantly different from the reference sites from the shoreline through the 20 m depth station (Table 17). The summer of 1991 (Table 18) data show many sites with significantly higher hydrocarbon-oxidizing populations (vs. reference sites) from the shoreline through the 6 m depth stations. The 20 m to 100 m depth station samples, however, yield only two samples (both at 20 m) that are significantly higher than the reference sites. While trends from year to year are apparent in the data, it is not known what seasonal fluctuations in numbers of hydrocarbon degraders might be expected in natural populations.

Table 14. Sites and depths where Most Probable Number of hydrocarbon-oxidizing bacteria was significantly higher (*) than the [1]reference sites at the [2]95% confidence level. Data for F/V Nautilus cruise, November 7 - December 8, 1989.

Site	Depth	
	Beach	3 m
NW Bay (site 4)	*	*
NW Bay (site 5)	*	-
12-7-89		
NW Bay (site 5)	*	m
11-7-89		
Block Is. (site 7)	*	*
NE Knight (site 18)	*	*
Green Is. (site 22)	*	*
Snug Harbor (site 25)	m	*•
Pt. Helen (site 36)	*	*
Chenega Is. (site 38)	m	-
Sleepy Bay (site 43)	*	*
Block Is. (site 47)	*	*
11-30-89		
Block Is. (site 47)	*	m
11-9-89		
Rua Cove (site 49)	m	*
Herring Bay (site 53)	m	*
Smith Is. (site 67)	*	*
Ingot Is. (site 82)	m	*
Bay of Isles (site 86)	*	*
Applegate Is. (site 88)	*	*
Bay of Isles (site 90)	m	*•
Lone Is. (site 93)	*	*
Herring Bay (site 110)	m	*
Herring Bay (site 125)	m	*

[1] Reference sites: Port Fidalgo (site 201), Two Moon Bay (site 200).
[2] Mann - Whitney U Test.
m indicates missing data.
Bold face type indicates site within Prince William Sound

Table 15. Sites and depths where Most Probable Number of hydrocarbon-oxidizing bacteria was significantly higher (*) than the [1]reference sites at the [2]95% confidence level. Data for R/V Cobb cruise, May 31 - June 10, 1990.

Site	Depth			
	Beach	3 m	6 m	20 m
Macleod Harbor	-	m	m	m
Snug Harbor	-	*	m	*
Fox Farm	m	m	m	m
Sleepy Bay	-	*	m	*
Chenega Is.	-	-	-	-
Herring Bay	-	*	-	-
Block Is.	*	*	m	-
Disk Is.	-	-	*	*
NW Bay	*	*	m	*
NE Knight Is.	-	m	m	m
Smith Is.	-	-	-	-
Bay of Isles	-	-	m	-
Green Is.	-	m	m	m
Rocky Bay	-	m	m	m
West Bay	m	m	m	m

[1] Control sites: Port Olsen, Port Fidalgo, and Zaikof Bay.
[2] Mann - Whitney U Test.
m indicates missing data.
Bold face type indicates site within Prince William Sound

Table 16. Sites and depths where Most Probable Numbers of hydrocarbon-oxidizing bacteria was significantly higher(*) than the [1]reference sites at the [2]95% confidence level. Data for the R/V Davidson cruise, June 27 - August 5, 1990.

	Depth					
Site	Beach	3m	6m	20m	40m	100m
Smith Is.	*	*	*	*	*	*
Rocky Bay	-	-	-	-	-	-
West Bay	-	-	*	*	-	-
Herring Bay	*	m	*	*	m	-
Disk Is.	*	*	*	-	*	*
Block Is.	*	*	*	*	*	-
NW Bay	*	*	*	*	*	-
NE Knight Is.	*	*	*	-	-	-
Bay of Isles	m	m	m	m	m	m
Green Is.	*	*	m	m	*	*
Macleod Harbor	-	*	*	*	-	m
Mooselips Bay	-	m	-	-	*	m
Snug Harbor	*	*	*	*	*	*
Chenega Is.	*	*	*	*	-	*
L. Herring Bay	*	*	-	*	*	*
Drier Bay	m	m	-	-	-	-
Sleepy Bay	*	*	*	*	*	*
Fox Farm	-	*	*	*	*	-
Sunny Cove	-	-	-	-	-	-
Agnes Cove	-	-	*	-	-	-
Black Bay	-	m	-	-	-	-
Chugach	-	*	*	*	-	-
Tonsina Bay	-	*	-	-	m	m
Katmai Bay	m	m	m	m	m	m
Hallo Bay	-	m	m	m	m	m
Windy Bay	m	m	m	m	m	m

[1] Reference sites: Port Olsen, Port Fidalgo, and Zaikof Bay.
[2] Mann - Whitney U Test.
m indicates missing data.
Bold face type indicates site within Prince William Sound

Table 17. Sites and depths where Most Probable Number of hydrocarbon-oxidizing bacteria was significantly higher (*) than the [1]reference sites at the [2]95% confidence level. Data for R/V Cobb cruise, September 5-September 15, 1991.

	Depth			
Site	Beach	3m	6m	20m
West Bay	*	-	-	-
NW Bay	*	-	*	*
Disk Is.	*	-	*	*
Herring Bay	*	*	-	*
Drier Bay	m	m	-	m
Chenega Is.	*	-	*	-
Iktua Bay	-	m	-	m
Fox Farm	*	-	*	-
Macleod Harbor	-	-	-	-
Sleepy Bay	*	*	*	*
Snug Harbor (ADEC)	*	-	-	-
Snug Harbor (NOAA)	*	m	-	m
Block Is.	*	*	*	*
NE Knight	-	-	-	-
Green Is.	-	-	-	-
Bay of Isles (ADEC)	*	*	*	*
Bay of Isles (NOAA)	m	m	-	m

[1] Reference sites: Port Olsen, Port Fidalgo.
[2] Mann - Whitney U Test.
m indicates missing data.
Bold face type indicates site within Prince William Sound

Table 18. Sites and depths where most probable number of hydrocarbon-oxidizing bacteria was significantly higher (*) than the [1]reference sites at the [2]95% confidence level. Data for F/V Big Valley, June 15 - June 25, 1991.

	Depth					
Site	Beach	3m	6m	20m	40m	100m
Northwest Bay	*	*	*	*	-	-
Disk Island	*	-	*	*	-	-
Block Island	*	*	*	-	-	-
Herring Bay	*	*	*	-	-	-
L. Herring Bay	-	-	-	-	-	-
Chenega Island	*	-	-	-	-	-
Drier Bay	-	-	-	-	-	-
Sleepy Bay	*	*	*	-	-	-
Macleod Harbor	-	-	-	-	-	-
Snug Harbor	-	-	-	-	-	-
Bay of Isles	*	-	-	-	-	-
Mooselips Bay	-	-	-	-	-	-

[1] Control sites: Zaikof Bay and Olsen Bay
[2] Mann-Whitney U Test
m indicates missing data
Bold face type indicates site within Prince William Sound

Table 19. Cruise summary data of sites and depths in Prince William Sound where Most Probable Numbers (MPN) of hydrocarbon-oxidizing bacteria were significantly higher than reference sites at the 95% confidence level as determined by the Mann-Whitney U Test. (# of significantly higher sites/total # of sites)

	Beach	3m	6m	20m	40m	100m
Fall 1989	14/14	18/20	-	-	-	-
Spring 1990	2/13	5/9	1/4	4/9	-	-
Summer 1990	11/16	12/16	12/16	11/16	10/16	7/15
Fall 1990	11/15	4/13	7/17	6/13	-	-
Summer 1991	7/12	4/12	5/12	2/12	0/12	0/12

Hexadecane Mineralization Potentials: Mean hexadecane mineralization potentials for shoreline sites sampled in summer 1989 (Fairweather) are shown in Fig. 23. There is a high degree of variability in mineralization potentials calculated from these sediments including a relatively high potential measured in shoreline sediment from one of the reference sites (Olsen Bay). Mean mineralization potentials for all depth stations on each cruise are summarized (Tables 20-24). The values are means of duplicate measurements (Fairweather) or six replicate measurements (all other cruises). Individual values, means and standard deviations are found in Appendix c. Table 20 also shows the number of shoreline sediment samples with an initial population greater than 1×10^4 hydrocarbon-oxidizers/g dry weight sediment. For example, only 1 of 13 shoreline sediments with low hexadecane mineralization potentials (between 0 and 1 μg/g sediment-day) had high concentrations of hydrocarbon-oxidizers, while all 8 shoreline sediments with high hexadecane mineralization potentials (> 10 μg/g sediment-day) had high numbers of hydrocarbon-oxidizers. A number of sites had hexadecane mineralization potentials of greater than 10 μg/g sed-day from 1989 through September 1990. By summer 1991 none of the sites visited had mineralization potentials greater than 1 μg/g sed-day at any depth station.

Geographical distributions of the mean mineralization potential data for summer 1989 and 1990 from the Prince William Sound sites are found in Fig. 24-25 (shoreline sediments), Fig. 26-27 (6 m depth station sediments), and Fig. 28-29 (40 m depth station sediments). Data from summer 1991 were not plotted as all mineralization potentials at all sites and depths were below 1 μg/g sed-day. As with the values for hydrocarbon degraders, the values for hexadecane mineralization potential broadly followed the path of the slick, particularly for the shoreline and 6 m depth station sediments. At the 40 m depth stations hexadecane mineralization potentials were universally low except at Bay of Isles (site 8) in summer 1989.

A summary of median hexadecane mineralization potentials for Prince William Sound sites are found in Table 25. The data are presented as the median 2-day hexadecane mineralization potentials (μg/g dry sediment-day) for each cruise and at each depth. The data from Table 25 are graphically represented in Figure 30. The median hexadecane mineralization potentials appear to have maintained a fairly consistent level through the fall of 1990 and then dropped to a much lower level by the summer of 1991. Median mineralization potentials greater than 5 μg/g sed-day were only seen in shoreline sediments. Median mineralization values greater than 2 μg/g sed-day were not observed in any sediments from depth stations greater than 3 m and values at 20, 40 and 100 m were very low for every cruise.

Values for hexadecane mineralization potentials for individual sites can be compared to values observed at reference sites. Sites and depths that had significantly higher 2-day hexadecane mineralization potentials at the 95% confidence level as determined by the Mann-Whitney U Test (Zar 1984) are shown in Tables 26-29. Data from the Fairweather cruise could not be analyzed in this manner as only duplicate values were measured at each site and depth station. While overall mineralization potential values were generally low by the summer of 1990 (see above), many sites from shoreline through 100 m depth stations had values that were significantly higher than the reference sites (Table 27). By September 1990 and in summer 1991 few sites had values significantly higher than the reference sites. Data from Tables 26-29 are summarized in Table 30. There was significant 2-day hexadecane mineralization potential at all sites and depths through the summer of 1990. After the summer of 1990, however, there was virtually no significant 2-day hexadecane mineralization at any of the sites.

Figure 23

Hexadecane Oxidation Potentials, 2-day Incubation

1989 R/V Fairweather Cruise

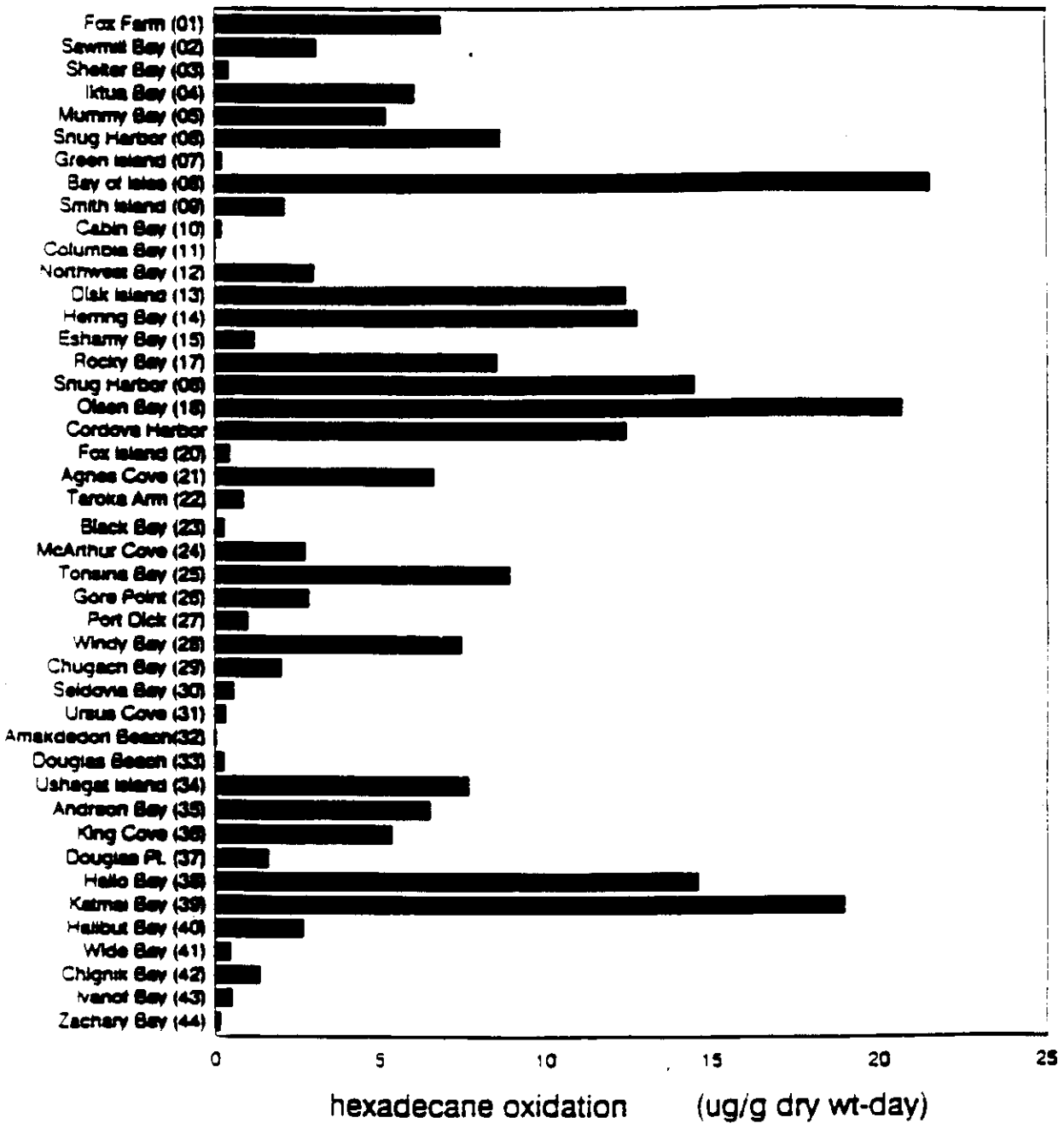

Table 20. Hexadecane Mineralization Potentials for All Sediment Samples after a Two-day Incubation.[b] R/V Fairweather, July 1 - August 22, 1989.

Hexadecane Transformation (μg/g sed-day)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED						
	Beach	MPN[c]	3 m	6 m	20 m	40 m	100 m
0	[a]11,32	0/2	**5,7,**20,24,30, 31,32	10,44	**3,4,5,7,**[a]**11, 15,**[a]**18,**20,21, 27,30,31,32, 33,44	**1,2,3,4,5, 6,7,9,14,15, 16,17,**[a]**18,**22, 24,27,36,37,44	3,4,5,6,7, 9,[a]11,12,15, 16,[a]18,20,21,22 24,26,35,37,40
0-1	**3,7,10,**20,22, 23,27,30,31, 33,41,43,44	1/13	**3,10,**[a]**11,13, 15,**26,27,38, 39,40,41,43	**1,3,5,7,**[a]**11,** 17,20,23,27, 31,32,33,38	**2,9,10,12,17** 22,23,24,28,36, 37,38,39,41	**10,**[a]**11,12,13,** 20,23,25,29,30,35, 40,41,43	10,13,17,23,25, 27,28,29,30,38
1-5	**2,9,12,15,** 24,26,29,37, 40,42	4/10	**1,6,9,12,**[a]**18,** 21,23,29,33, 35,36,37	**2,4,9,13,15,** [a]18,21,24,26,29, 30,34,35,36,37,39, 40,41,42,43	6,25,26,34, 35,40,42,43	26,28,38,39	2
5-10	**1,4,5,17,**[d]**6,** 21,25,28,34, 35,36	8/11	**2,17,**22,25,28,34	**6,12,16,**25,28	**8,13,16,**29	21	8,14,44
> 10	**8,13,14,**[d]**6,** [a]**18,**19,38,39	8/8	**8,14,16,**42,44	**8,14,**22,34	**14**	**8**	

a Reference sites

b Rates are means of duplicate samples (see Appendix C)

c Fraction of beach sites having most probable number of hydrocarbon-oxidizers greater than 1×10^4/gram sediment dry weight

d Duplicate samplings

Bold face type indicates sites within Prince William Sound

Table 21. Hexadecane Mineralization Potentials for All Sediment Samples After a Two-day Incubation.[b] R/V Cobb, May 31 - June 10, 1990.

Hexadecane Transformation (μg/g sed-day)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED			
	Beach	3 m	6 m	20 m
0	[a]2,3,7,15,18	3,7,15,17,18	[a]1,3,7,17,18	[a]1,[a]2,3,5,7,15, 16,17,18
0-1	13,16,17	[a]1,[a]2,4,5,16	5,12,13,15,16	9,10,12,13
1-5	[a]1,10	6,10,13	[a]2	8
5-10	4,5,6,8,12,14	8	8	6,14
> 10	9,11	9,11,12,14	4,6,10,11,14	4,11

[a] Reference site
[b] Rates are means of replicate samples (see Appendix C)
Bold face type indicates sites within Prince William Sound

Table 22 Hexadecane Mineralization Potentials for All Sediment Samples After a Two-day Incubation.[b] R/V Davidson, June 27 - August 5, 1990.

Hexadecane Transformation (μg/g sed-day)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED					
	Beach	3 m	6 m	20 m	40 m	100 m
0	[a]1,26	[a]2	3,26	**8**	[a]2,[a]4,8	[a]1,[a]2,8,10,17
0-1	[a]2,3,[a]4,5,6,14 15,22,23,24	[a]1,[a]4,5,6,8,13,14, 15,21,22,25,26,29	[a]1,[a]2,[a]4,5,6,7,8, 11,14,15,19,21, 22,23,24,29	[a]1,[a]2,[a]4,5,7,10, 11,14,17,19,21,22, 23,24,26,29,28	[a]1,3,5,6,7,9,10,11, 12,14,15,17,18, 19,20,21,22,24,25, 26,29	3,[a]4,5,6,7,11 13,14,16,19, 20,21,22,23, 25,26,29,28, 27
1-5	8,11,12,13,17, 18,19,21,25,29, 28,27	3,7,9,12,16,17,18, 19,23,28,27	9,12,13,16,17,18, 25,28,27	3,6,9,13,15,18,20, 25,27	13,16,23,28	9,12,18,24
5-10	9,20	11	10	12,16		
> 10	7,10,16	10,20	20			

[a] Reference site
[b] Rates are means of replicate samples (see Appendix C)
Bold face type indicates site within Prince William Sound

Table 23. Hexadecane Mineralization Potentials for All Sediment Samples After a Two-day Incubation.[b] R/V Cobb, September 5 - September 15, 1990.

Hexadecane Transformation (μg/g sed-day)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED			
	Beach	3 m	6 m	20 m
0		**10**		
0-1	[a]**2,8,13,17**	**3,8**	**3,7,8,10,11,16,17**	[a]**2,3,10,11,16,17**
1-5	**10,11,14,15,16**	[a]**1,5,11,13,15,16,17**	**5,6,14**	**4,5,6,8,15**
5-10	**3,5,6,12**	[a]**2,6**	[a]**1,**[a]**2,12,13,15,19**	[a]**1,13**
> 10	[a]**1,4,18**	**4,12,18**	**4,18**	**12,18**

[a] Reference site
[b] Rates are means of replicate samples (see Appendix C)
Bold face type indicates site within Prince William Sound

Table 24. Hexadecane Mineralization Potentials for All Sediment Samples After a Two-Day Incubation.[b] F/V Big Valley, June 15 - June 25, 1991.

Hexadecane Transformation (μg/g sed-day)	DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED						
	Beach	3 m	6 m	20 m	40 m	100 m	140 m
0							
0-1	**1,2,3,4 5,6,7,8 9,10,11 12,13 [a]14,[a]15**	**1,2,3,4 5,6,7,8 9,10,11 12,13 [a]14,[a]15**	**1,2,3,4 5,6,7,8 9,10,11 12,13 [a]14,[a]15**	**1,2,3,4 5,6,7,8 9,10,11 12,13 [a]14,[a]15**	**1,2,3,4 5,6,7,8 9,10,11 12,13 [a]14,[a]15**	**1,2,3,4 5,6,7,8 9,10,11 12,13 [a]14,[a]15**	**4,6,11**
1-5							
5-10							
> 10							

[a] Reference site
[b] Rates are means of replicate samples (see Appendix C)
Bold face type indicates site within Prince William Sound

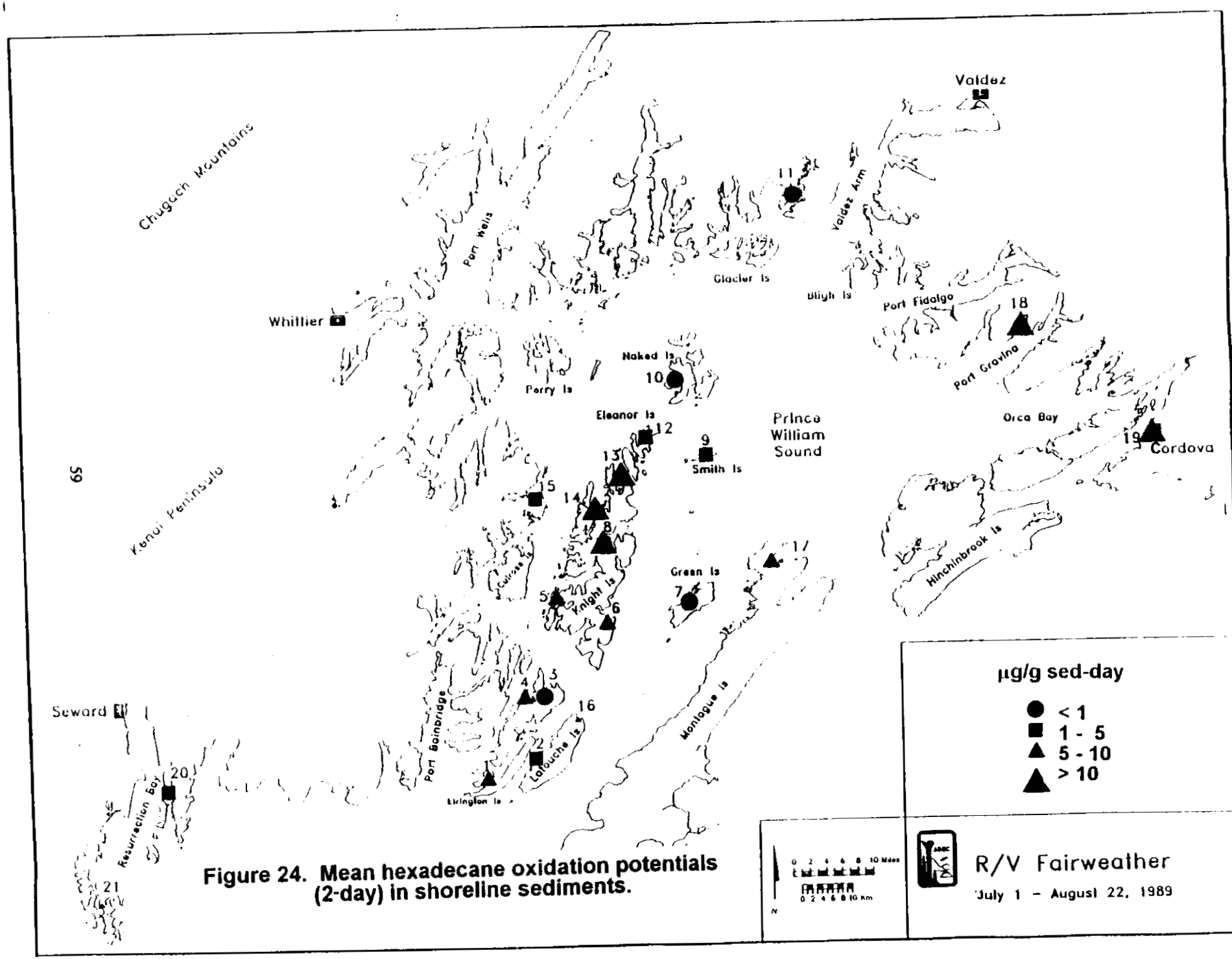

Figure 24. Mean hexadecane oxidation potentials (2-day) in shoreline sediments.

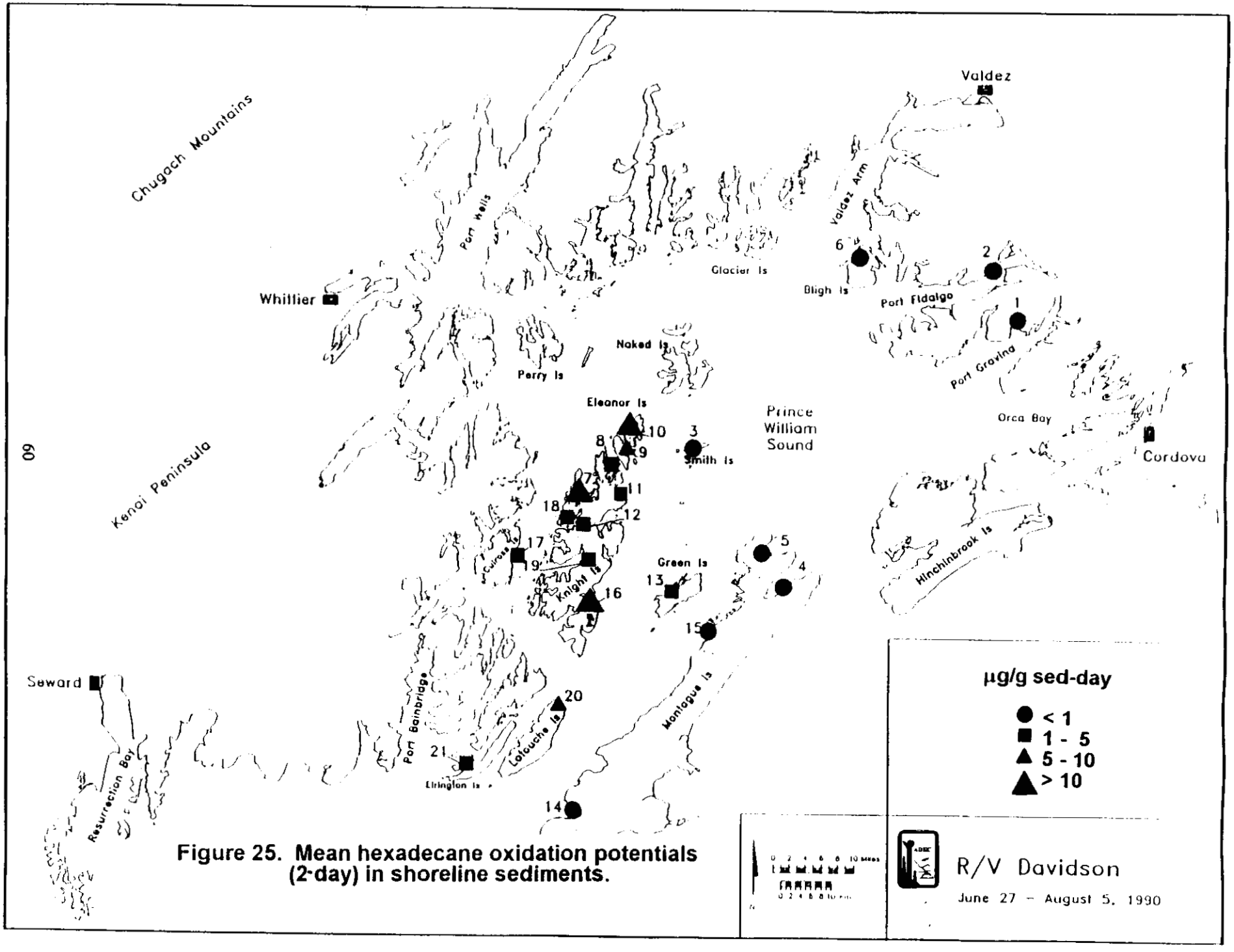

Figure 25. Mean hexadecane oxidation potentials (2-day) in shoreline sediments.

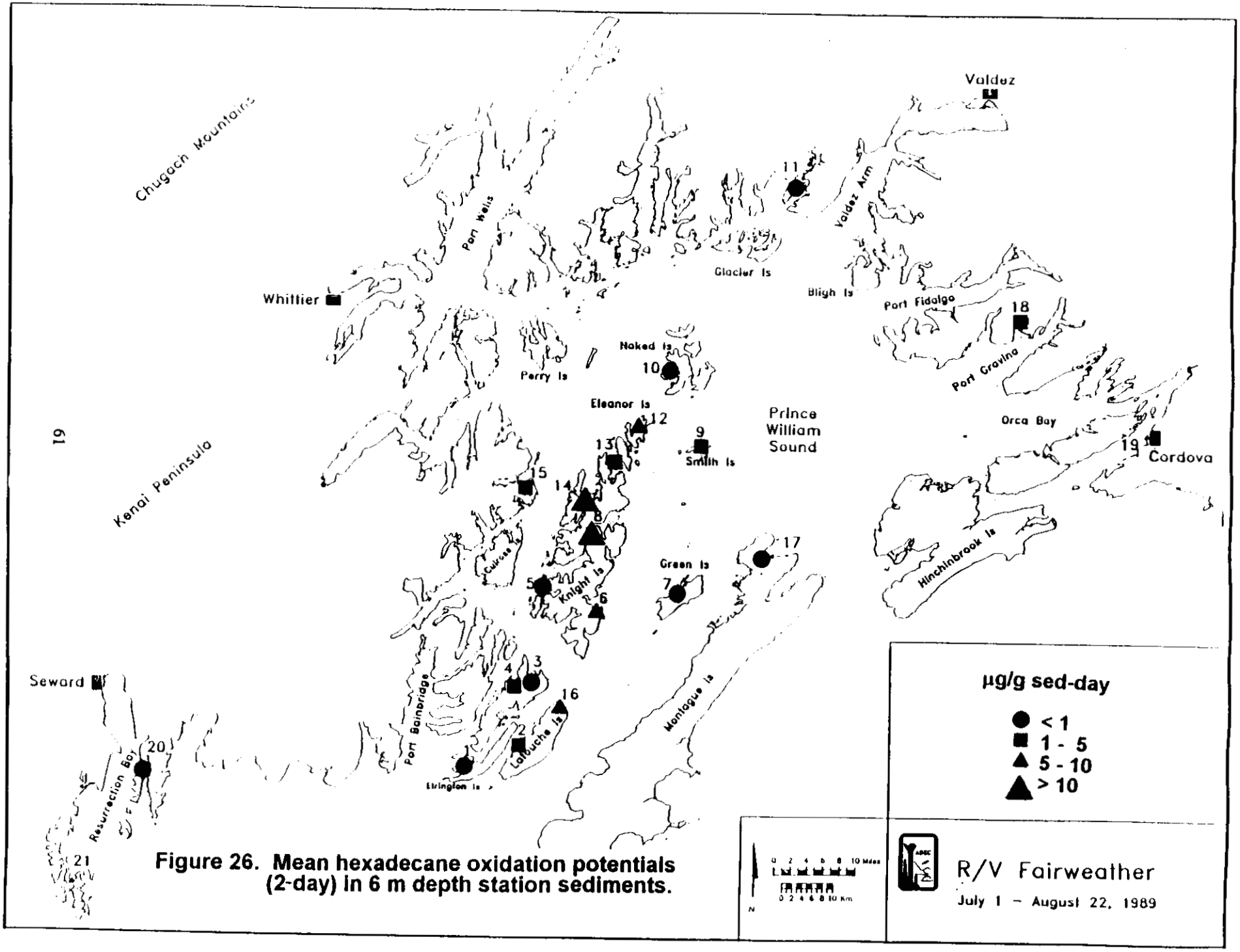

Figure 26. Mean hexadecane oxidation potentials (2-day) in 6 m depth station sediments.

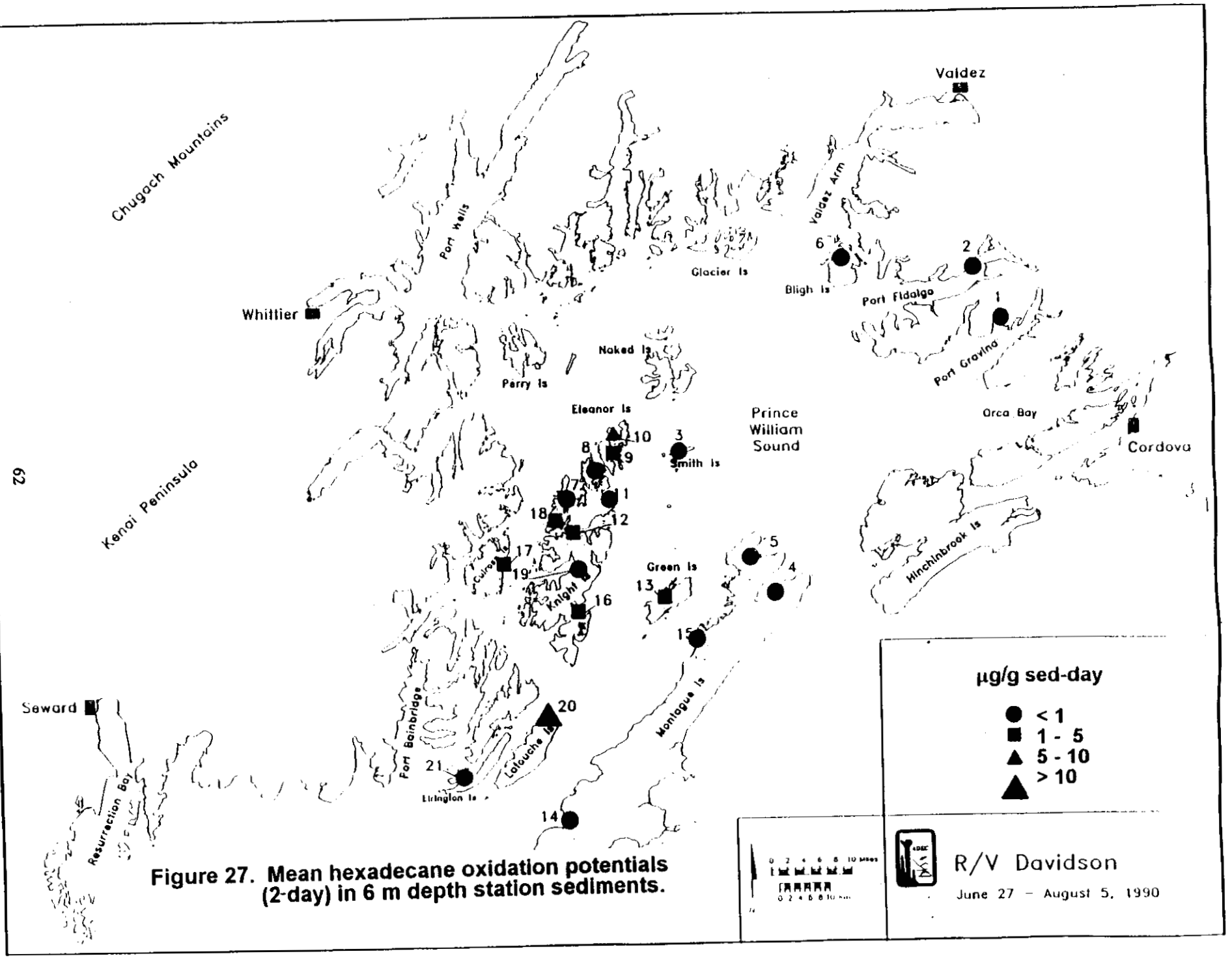

Figure 27. Mean hexadecane oxidation potentials (2-day) in 6 m depth station sediments.

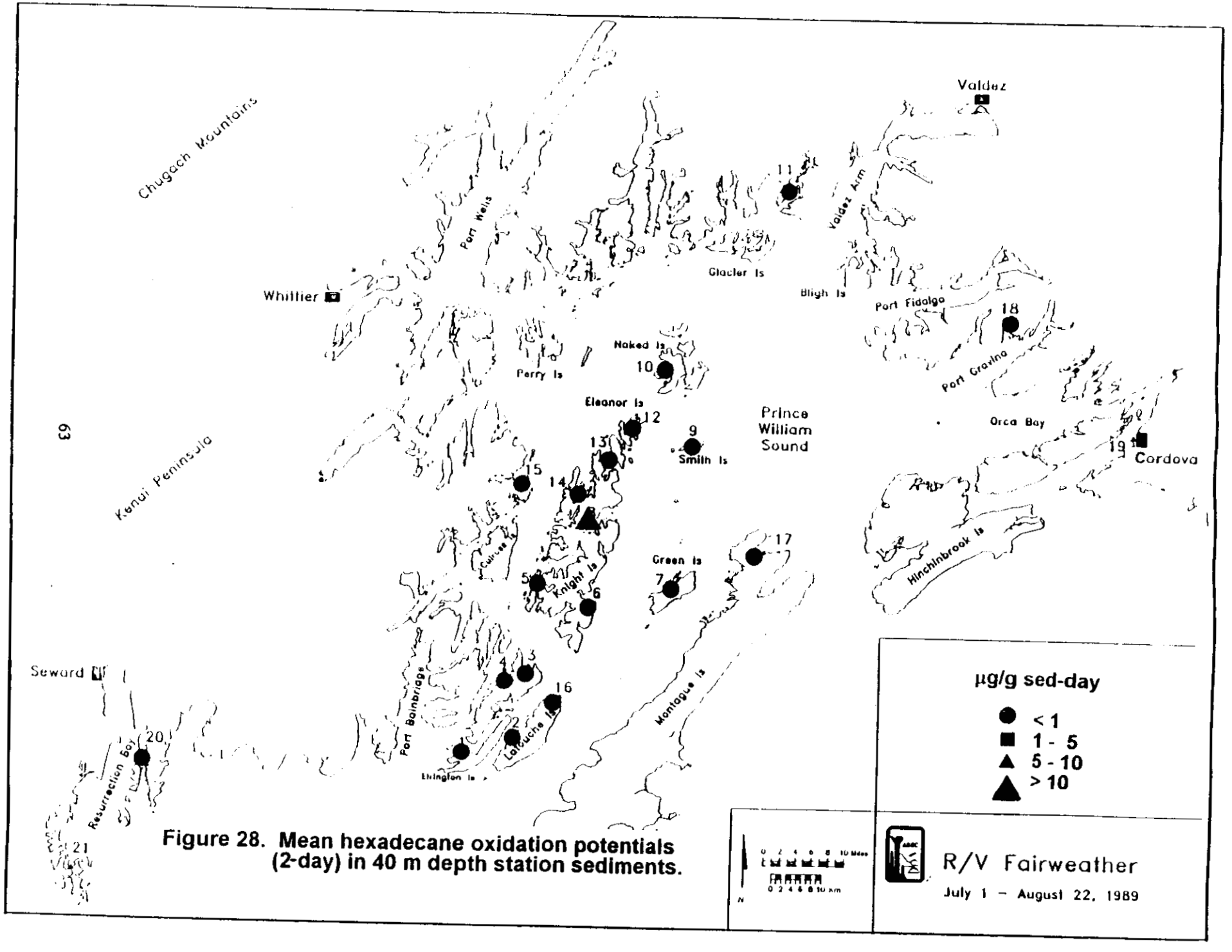

Figure 28. Mean hexadecane oxidation potentials (2-day) in 40 m depth station sediments.

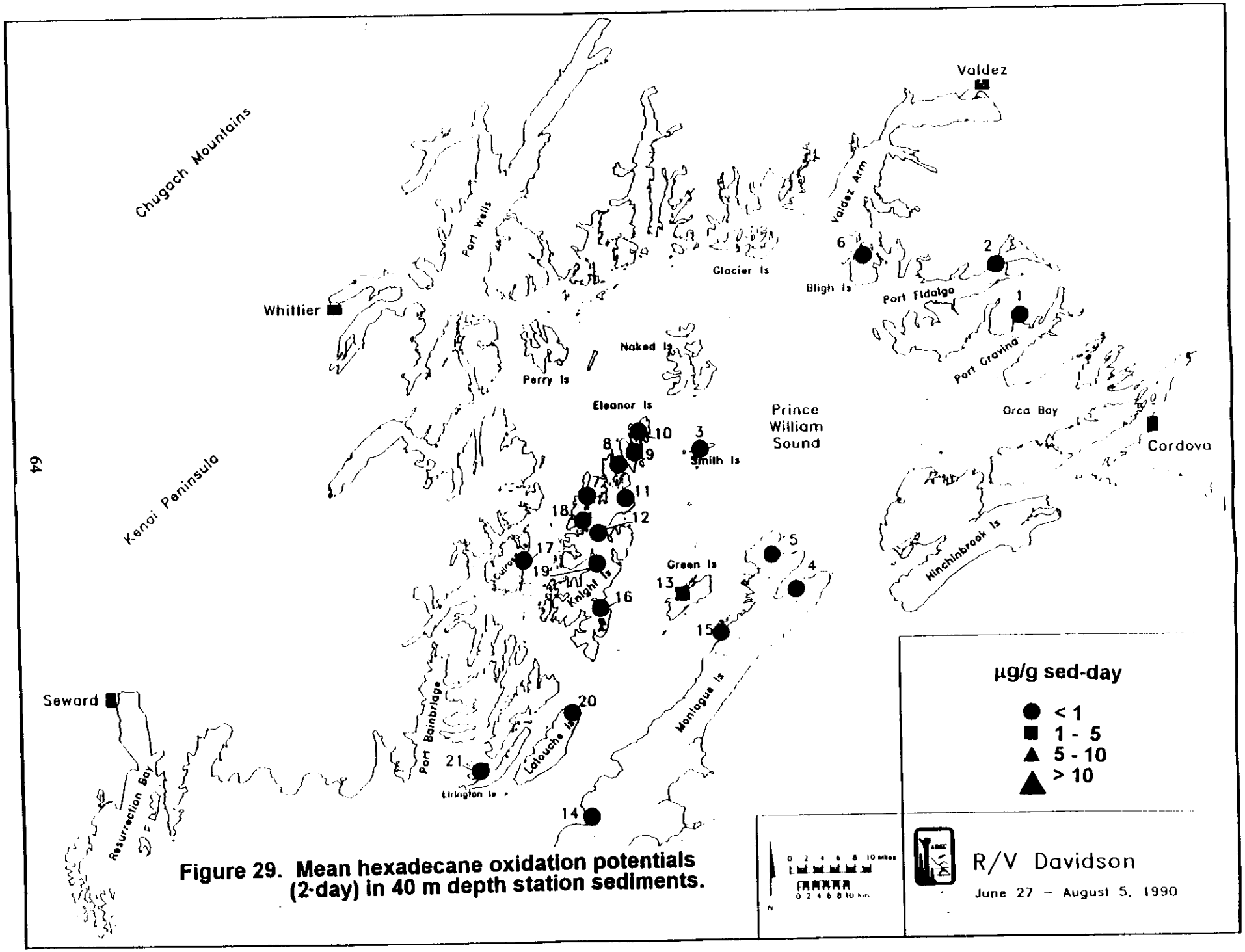

Figure 29. Mean hexadecane oxidation potentials (2-day) in 40 m depth station sediments.

Table 25. Median 2-Day Hexadecane Mineralization Potentials (μg/g sed-day) for All Sites Within Prince William Sound for All Cruises.

	Depth					
Cruise	Beach	3 m	6 m	20 m	40 m	100 m
Fairweather (Summer 1989)	5.61	3.02	1.32	0.83	0.30	0
Nautilus (Fall 1989)	---	---	---	---	---	---
Cobb (Spring 1990)	5.13	1.95	0.22	0.17	---	---
Davidson (Summer 1990)	2.73	1.12	0.73	0.94	0.33	0.25
Cobb (Fall 1990)	4.08	2.30	1.96	1.78	---	---
Big Valley (Summer 1991)	0.20	0.17	0.24	0.23	0.18	0.20

Reference sites are not included in the above data.

Seasonal Distribution of Median Two-Day Hexadecane Transformation Rates with Depth for Sites in Prince William Sound

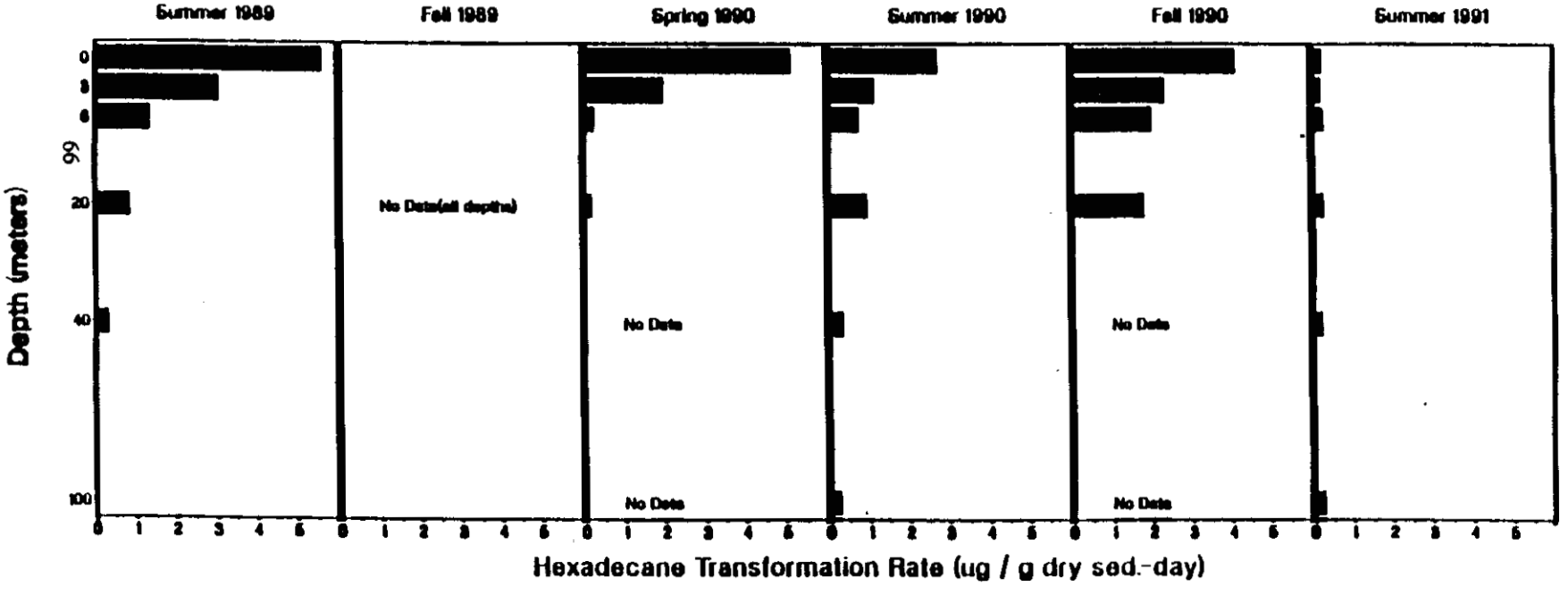

Figure 30

Table 26. Sites and depths where 2-day hexadecane mineralization potentials were significantly higher (*) than the [1]reference sites at the [2]95% confidence level. Data for R/V Cobb cruise, May 31 - June 10, 1990.

Site	Depth			
	Beach	3 m	6 m	20 m
Macleod Harbor	-	-	-	-
Snug Harbor	*	-	*	*
Fox Farm	*	-	-	-
Sleepy Bay	*	*	*	*
Chenega Is.	-	-	-	-
Herring Bay	*	*	*	-
Block Is.	*	-	m	*
Disk Is.	*	-	*	*
NW Bay	*	*	*	*
NE Knight Is.	*	*	-	-
Smith Is.	-	-	-	*
Bay of Isles	*	*	*	*
Green Is.	-	-	-	-
Rocky Bay	-	-	-	-
West Bay	-	-	-	-

1 Reference sites: Port Olsen, Port Fidalgo, and Zaikof Bay.
2 Mann - Whitney U Test.
m indicates missing data.

Table 27. Sites and depths where 2-day hexadecane mineralization potentials were significantly higher(*) than the [1]reference sites at the [2]95% confidence level. Data for the R/V Davidson cruise, June 27 - August 5, 1990.

	Depth					
Site	Beach	3m	6m	20m	40m	100m
Smith Is.	-	*	-	*	*	*
Rocky Bay	-	-	-	*	*	*
West Bay	-	-	*	*	*	*
Herring Bay	*	*	*	*	*	*
Disk Is.	*	-	-	-	-	-
Block Is.	*	*	*	*	*	*
NW Bay	*	*	*	*	*	-
NE Knight Is.	*	*	*	*	*	-
Bay of Isles	*	*	*	*	*	*
Green Is.	*	*	*	*	*	*
Macleod Harbor	-	*	*	*	*	-
Mooselips Bay	-	*	*	-	*	m
Snug Harbor	*	*	*	*	-	*
Chenega Is.	*	*	*	*	*	-
L. Herring Bay	*	*	*	*	*	*
Drier Bay	*	*	*	*	*	*
Sleepy Bay	*	*	*	-	*	*
Fox Farm	*	*	*	*	*	*
Sunny Cove	*	*	*	*	*	*
Agnes Cove	*	*	-	*	*	-
Black Bay	-	m	*	*	*	*
Chugach	*	*	*	*	*	*
Tonsina Bay	-	-	-	*	*	*
Katmai Bay	*	*	*	*	*	*
Hallo Bay	*	*	*	*	*	*
Windy Bay	*	*	*	*	m	*

[1] Reference sites: Port Olsen, Port Fidalgo, and Zaikof Bay.
[2] Mann - Whitney U Test.
m indicates missing data.

Table 28. Sites and depths where 2-day hexadecane mineralization potentials were significantly higher (*) than the [1]reference sites at the [2]95% confidence level. Data for R/V Cobb cruise, September 5-September 15, 1990.

	Depth			
Site	Beach	3m	6m	20m
West Bay	-	-	-	-
NW Bay	*	*	-	-
Disk Is.	-	-	-	-
Herring Bay	-	-	-	-
Drier Bay	m	m	-	m
Chenega Is.	-	-	-	-
Iktua Bay	m	m	m	m
Fox Farm	-	-	-	-
Macleod Harbor	-	-	-	-
Sleepy Bay	-	*	-	*
Snug Harbor (ADEC)	-	-	-	-
Snug Harbor (NOAA)	-	m	-	m
Block Is.	-	-	-	-
NE Knight	-	-	-	-
Green Is.	-	-	-	-
Bay of Isles (ADEC)	*	-	*	*
Bay of Isles (NOAA)	m	m	-	m

1 Reference sites: Port Olsen, Port Fidalgo.
2 Mann - Whitney U Test.
m indicates missing data.

Table 29. Sites and depths where 2-day hexadecane mineralization potentials were significantly higher (*) than the [1]reference sites at the [2]95% confidence level. Data for F/V Big Valley, June 15 - June 25, 1991.

	Depth					
Site	Beach	3m	6m	20m	40m	100m
Northwest Bay	-	*	-	-	-	-
Disk Island	-	-	-	-	-	-
Block Island	-	*	-	-	-	-
Herring Bay	-	-	-	-	-	-
L. Herring Bay	-	-	-	-	-	-
Chenega Island	-	-	-	-	-	-
Drier Bay	-	-	-	-	-	-
Sleepy Bay	-	-	-	-	-	-
Macleod Harbor	-	-	-	-	-	-
Snug Harbor	-	-	-	-	-	-
Bay of Isles	-	-	-	-	-	*
Mooselips Bay	-	-	-	-	-	-

[1] Reference sites: Zaikof Bay and Olsen Bay
[2] Mann-Whitney U Test
m indicates missing data

Table 30. Cruise summary data of sites and depths in Prince William Sound where 2-day hexadecane potentials were significantly higher than reference sites at the 95% confidence level as determined by the Mann-Whitney U Test. (# of significantly higher sites/total # of sites)

	Beach	3m	6m	20m	40m	100m
Spring 1990	9/15	5/15	6/14	7/15	-	-
Summer 1990	13/18	15/18	15/18	15/18	16/18	12/17
Fall 1990	2/14	2/13	1/16	2/13	-	-
Summer 1991	0/12	2/12	0/12	0/12	0/12	1/12

Naphthalene/Phenanthrene Mineralization Potentials: Tables 31-36 include a summary of all sites and depth stations analyzed for naphthalene and/or phenanthrene mineralization potentials on each cruise. The values are means of duplicate (Fairweather) or of six replicates (all other cruises). Two-day naphthalene and phenanthrene potentials were universally very low (see Appendix C) and reference sites were generally 0 or near 0 after 10 days for all cruises. For these reasons, 8- or 10-day incubation data were selected for all summary tables in this report. Relatively high (greater than 5 μg/g sed-day) mineralization potentials for naphthalene were more likely to be observed at depth stations of 20 m or greater in summer 1989 (Table 31). In the fall of 1989 (Table 32) both phenanthrene and naphthalene mineralization potentials were measured. In general, slightly higher potentials were seen for phenanthrene than for naphthalene both in shoreline sediments and at the 3 m depth station. By summer of 1991 while many sites had relatively low mineralization potentials for phenanthrene (less than 1 μg/g sed-day), a number of sites had relatively high phenanthrene mineralization potentials (> 5 μg/g sed-day). This is quite different than the universally low mineralization potentials measured for hexadecane for this same cruise (see also Table 24).

Naphthalene and phenanthrene mineralization potentials are shown geographically for shoreline sediments (Fig. 31-33), 6 m depth stations (Fig. 34-36), and 20 m depth stations (Fig. 37-39). For shoreline sediments, it would appear that mineralization potentials at sites within the path of the initial oil slick increased between summer 1989 and summer 1990. However, these data have to be approached with some caution since naphthalene was used in 1989 and phenanthrene in 1990. Phenanthrene potentials, however, did seem to decline in sediments at sites within the path of the slick between summer 1990 and 1991 (Fig. 32-33). This was also observed at 40 m depth stations (Fig. 38-39).

Table 37 summarizes 8- or 10-day naphthalene and/or phenanthrene degradation data for Prince William Sound sites. The data are presented as the median 8- or 10-day naphthalene or phenanthrene mineralization potentials for each cruise at each depth. The data from Table 37 are graphically presented in Figure 40. There is an indication that median potentials of naphthalene and/or phenanthrene oxidation increased with time since the summer of 1989 reaching a maximum in 1990 and then dropping to much lower levels in 1991. Fairly high potentials were measured in sediments even at the 100 m depth stations in the summer of 1990. Potentials for the 20 m depth stations for phenanthrene for the three cruises in 1990 were fairly consistent, with the highest mineralization potential at any depth and sampling time being from the fall 1990 cruise at 20 m.

Naphthalene/phenanthrene mineralization potentials at individual sites are compared to the values from the reference sites in Tables 38-42. Mineralization potentials significantly higher than the reference sites at the 95% confidence level as determined by the Mann-Whitney U Test (Zar 1984) are indicated by an asterisk. A majority of sites and depth stations had mineralization potentials greater than the reference sites on all cruises until the summer of 1991 when less than half the sites and stations sampled had potentials higher than the reference sediments. Table 43 summarizes the data from Tables 38-42. Data from these tables show that there was statistically higher activity at almost all sites and depths through the fall of 1990. Although the data for the summer of 1991 cruise show that there were still many sites with significant 10-day phenanthrene oxidation, it can be seen from Tables 31-36 that the absolute mineralization potentials for the summer of 1991 are much lower than for previous cruises.

Table 31. Naphthalene Mineralization Potentials for All Sediment Samples After a 10-day Incubation.[b] R/V Fairweather, July 1 - August 22, 1989.

Naphthalene Transformation	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED					
(μg/g sed-day)	Beach	3 m	6 m	20 m	40 m	100 m
0	**10,**[a]**11,**[a]**18**,20, 22,42	**4,**[a]**11,**[a]**18**,20,31, 36	[a]**11,**[a]**18**,31,41,44	**4**,23,31,32,41,44	[a]**11**,36,41	**17,**[a]**18**,20,29,30,44
0-1	**2,3,4,12,14,17,** 23,27,31,32,35, 36,37,41,43,44	**2,3,10,12,17**,29, 32,33,35,37,38, 39,41,43	**1,2,3,4,8,10,17,** 23,27,32,35,36,37, 39,43	**9,10,**[a]**11,**[a]**18**,22, 33,34,36	**4,10,**[a]**18**,22,23, 35,39,40,44	**3,4,10,**[a]**11**,23,38,40
1-2	**1,7,8,9,15**,29, 30,33,34,38,40	**1,5,9,13,15**,22, 23,26,30,34,40	5,**9,12**,20,22,26, 33,34,38,40	**2,3,5,13**,20,26,38, 39,40,43	1,**2,3,8,9**,29,30	**1,2,9**,21,24,28,37
2-3	**13**,21,24,25,26, 28,39	**6,7,8,16**,21,27, 42,44	**6,7,13,16**,21,24, 25,29,30	**6,8**,24,29,35	**12,13,16,17**,25, 26,35,37,38,43	**8,16**,27,35
3-4	**5,6,19**	**14**,24,25,28	**14,15**,28,42	**1,12,14,15**,21,25, 26,30	5,7,**14**,20,24,27	**6,13,14**,22,36
4-5				**17**,27,28,42	**6**,28	**12,15**
5-10				**7,16,37**	**15**,21	5,7,25
> 10		22				

[a] Reference sites
[b] Rates are means of replicate samples (see Appendix C)
Bold face type indicates site within Prince William Sound

Table 32. Naphthalene and Phenanthrene Mineralization Potentials for All Sediment Samples After an 8 to 10-day Incubation.[b]
F/V Nautilus, November 7 - December 8, 1989.

Phenanthrene or Naphthalene Transformation (µg/g sed-day)	Phenanthrene		Naphthalene	
	Beach	3m	Beach	3m
0	[a]200,[a]201	[a]200	5,7,[a]200	[a]200,[a]201
0-1		[a]201	[a]200	93
1-2	47		38,93	38,67
2-3	4,7,36,38,53,67, 90,110	5,38,67	4,82,86,110	4,5,36,47,53, 82,88,110
3-4	5,22,25,49,82,93, 125	4,36,93,125	5,36,47,53,67,88	125
4-5	18,43,47,86	18,25,43,86,90,110	47,125	86,90
5-10	88	7,22,47,49,53,82,88	90	7
>10				

[a] Reference sites
[b] Rates are means of replicate samples (see Appendix C)
Bold face type indicates site within Prince William Sound

Table 33. Phenanthrene Mineralization Potentials for All Sediment Samples After a 10-day Incubation[b].
R/V Cobb, May 31 - June 10, 1990.

Phenanthrene Transformation (μg/g sed-day)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED			
	Beach	3m	6m	20m
0	**[a]1,18**	**[a]1,[a]2,18**	**7,16,[a]17**	**[a]1,7**
0-1	**[a]2,3,7,16**	**3,4,7,16**	**[a]1,[a]2**	**[a]2,3**
1-2	**[a]17**		**3**	**[a]17**
2-3				**16**
3-4	**8**	**8,10**	**4**	
4-5	**10**		**13**	
5-10	**4,5,6,9,11,12, 13,14,15**	**5,6,9,11,12,13, 14,15,[a]17**	**5,6,8,10,11,12, 14,15**	**4,5,6,8,9,10,11,12, 13,14,15,18**
> 10				

[a] Reference sites
[b] Rates are means of replicate samples (see Appendix C)
Bold face type indicates site within Prince William Sound

Table 34. Phenanthrene Mineralization Potentials for All Sediment Samples After an 8-day Incubation.[b] R/V Davidson, June 27 - August 5, 1990.

Phenanthrene Transformation (µg/g sed-day)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED					
	Beach	3m	6m	20m	40m	100m
0	**[a]1,[a]2,[a]4,5,6, 14,15**	**[a]1,[a]2,5,6,14, 18,19**,29	**[a]1,[a]2,5,6,17**	**[a]1,[a]2,[a]4,17,18 19**	**[a]1,[a]2**	**[a]1,[a]2**
0-1	**3,19**,22,24,26, 27	**16,17**,22	**3,15,18,19**,22, 24	**6**,24	**5,6,16,19**,23, 24	**17**
1-2	**18**	**15**	**8,14**	**14**,22	**[a]4**,22	**19**
2-3	**8**,25	**8,13**	**[a]4**,29	**5**	**8,17**	**[a]4,5,6,8**,20,27
3-4	**9**	**[a]4,21**,27	26	**8**		**14**
4-5	**16,21**,23,28	25,26	**20**	**15**,28	**15,10**	29,**10**
5-10	**7,10,11,13,17, 20**,29	**3,7,9,11,12,20,** 23,28	**9,11,12,13,16, 21**,23,25,28,27	**3,10,16,20,21,** 27	**3,7,9,11,12, 14,18,20,21,** 25,26,29,28	**3,7,13,18,21,** 22,23,24,26,28
> 10	**12**	**10**	**7**	**7,9,11,12,13,** 23,25,26,29	**13**	**9,11,12,16**,25

[a] Reference sites

[b] Rates are means of replicate samples (see Appendix C)

Bold face type indicates sites within Prince William Sound

Table 35. Phenanthrene Mineralization Potentials for All Sediment Samples After an 8-day Incubation.[b]
R/V Cobb, September 5 - September 15, 1990.

Phenanthrene Transformation (μg/g sed-day)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED			
	Beach	3m	6m	20m
0		**a_1,a_2**	**a_1**	**a_2**
0-1	**a_1,a_2,3,8,11**	**3,8,10,11**	**3,8,11**	
1-2		**13**	**a_2**	
2-3				**a_1**
3-4			**16**	**3**
4-5	**15**			**8,11**
5-10	**4,5,6,10,12,13,14, 16,17,18**	**4,5,6,12,15,16, 17,18**	**4,5,6,10,12,13, 14,15,17,18,19**	**4,5,6,10,12,13,16, 17,18**
> 10			**7**	**15**

[a] Reference sites
[b] Rates are means of replicate samples (see Appendix C)
Bold face type indicates sites within Prince William Sound

Table 36. Phenanthrene Mineralization Potentials for All Sediment Samples After an 8-Day Incubation [b]. F/V Big Valley, June 15 - June 25, 1990.

Phenanthrene Transformation (μg/g sed-day)	STATION DEPTH WITH SITE NUMBER OF SEDIMENT ASSAYED						
	Beach	3m	6m	20m	40m	100m	140m
0	**5,[a]15**	5	7	7			
0-1	**3,6,7 8,9,10 12,[a]13 [a]14 [a]15**	**2,4,6 7,9,10 12,[a]13 [a]15**	**5,6,9 10,12 [a]13 [a]14 [a]15**	**5,6,9 10,12 [a]13 [a]14 [a]15**	**4,5,6 7,9,12 [a]13 [a]14 [a]15**	**1,2,5 6,7,8 9,12 [a]13,[a]14 [a]15**	**4,6**
1-2	**2**	**8**	**8**		**8**		**11**
2-3						**4**	
3-4	**4**				**2,3**	**10**	
4-5	**11**		**11**		**10**	**3**	
5-10	**1**	**1,3,11 [a]14**	**1,2,3 4**	**1,2,4 8**	**1**	**11**	
> 10				**3,11**	**11**		

[a] Reference sites
[b] Rates are means of replicate samples (see Appendix C)
Bold face type indicates sites within Prince William Sound

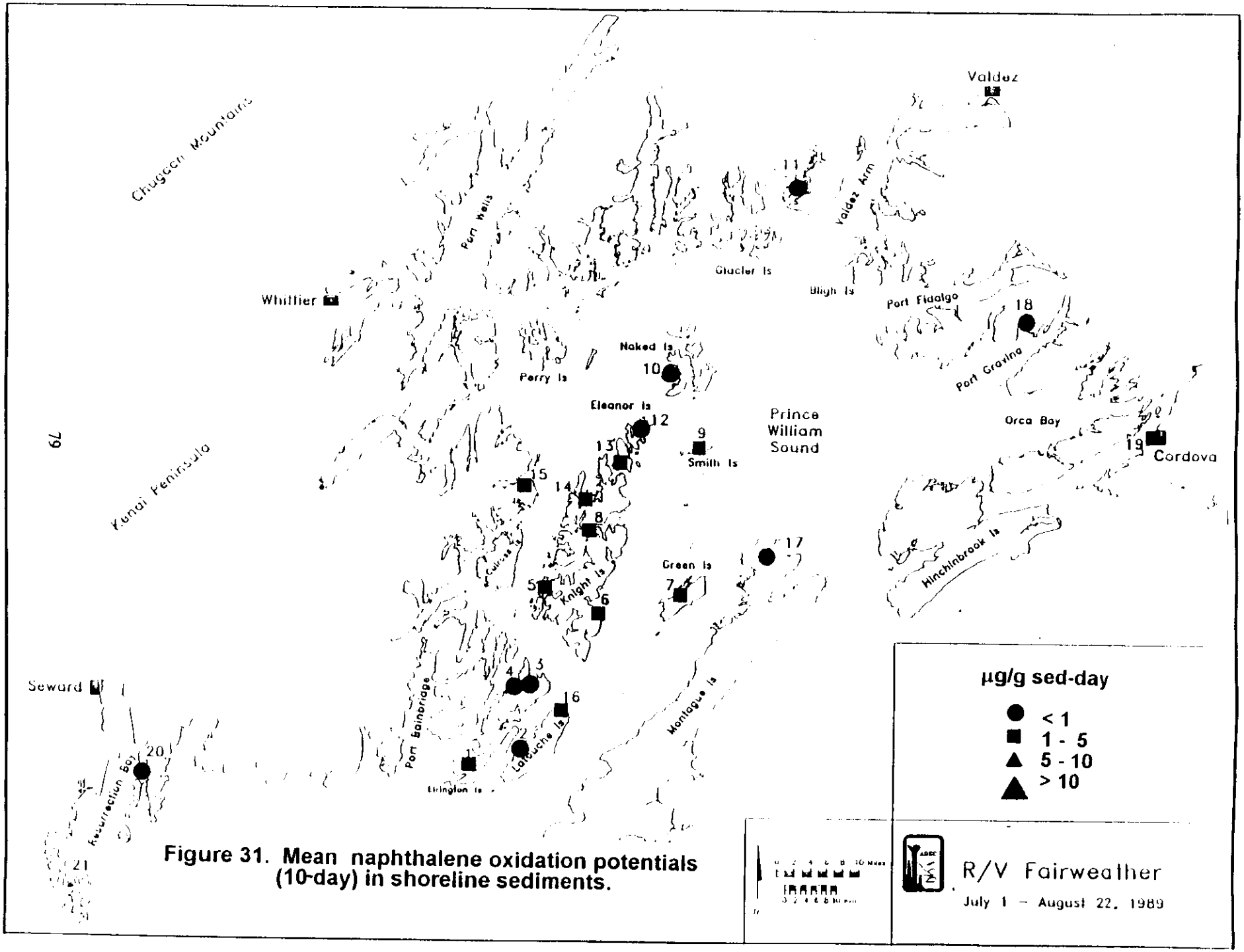

Figure 31. Mean naphthalene oxidation potentials (10-day) in shoreline sediments.

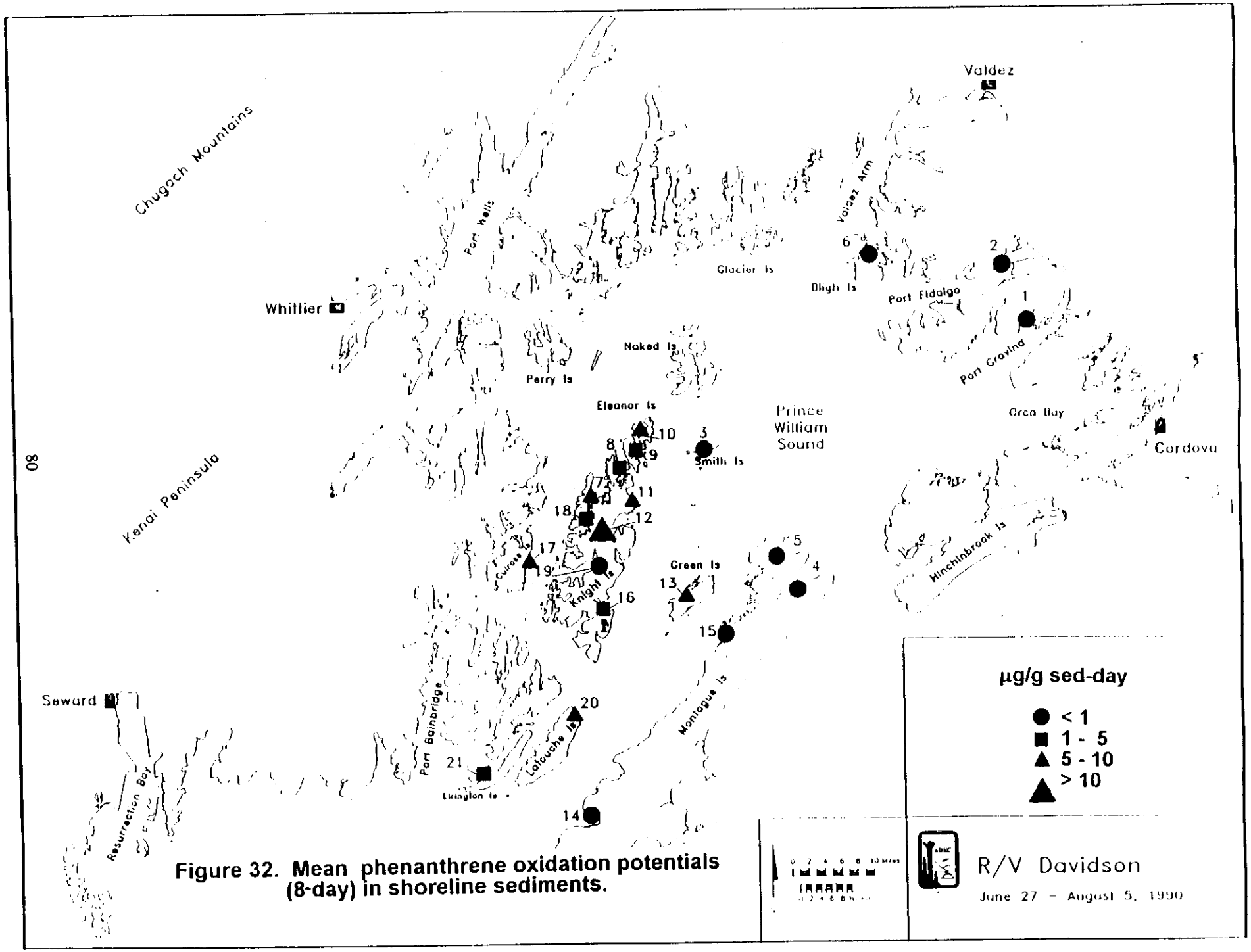

Figure 32. Mean phenanthrene oxidation potentials (8-day) in shoreline sediments.

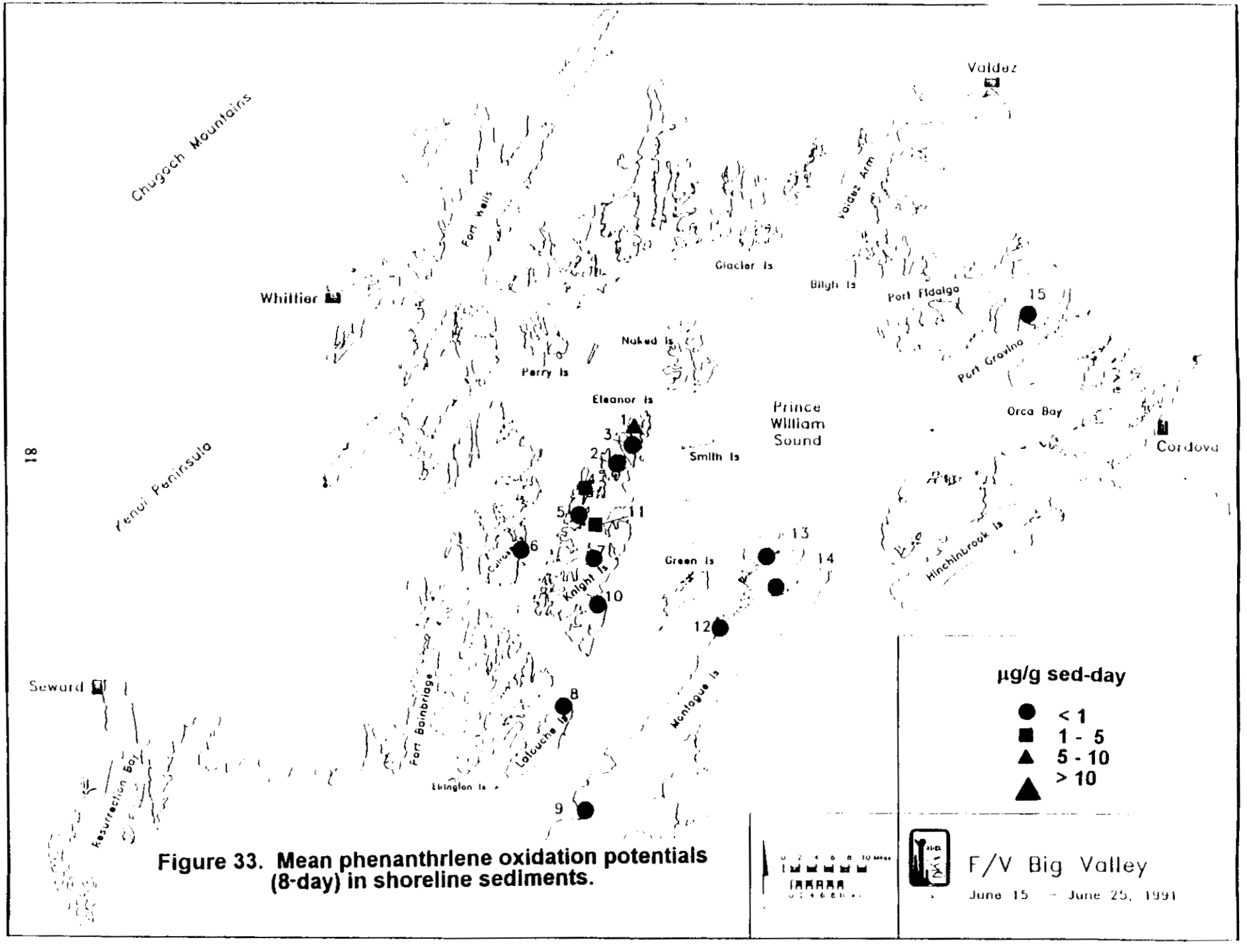

Figure 33. Mean phenanthrlene oxidation potentials (8-day) in shoreline sediments.

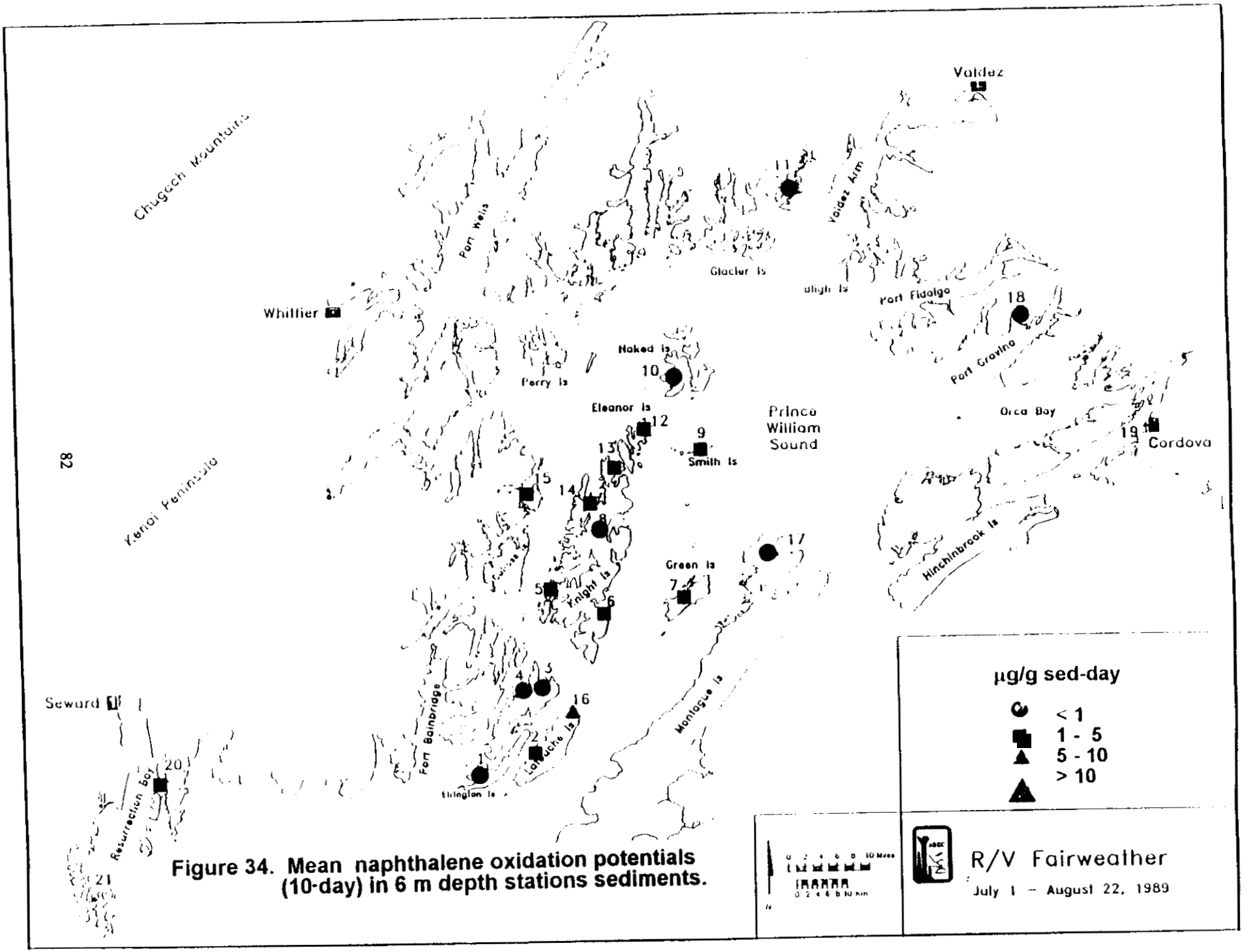

Figure 34. Mean naphthalene oxidation potentials (10-day) in 6 m depth stations sediments.

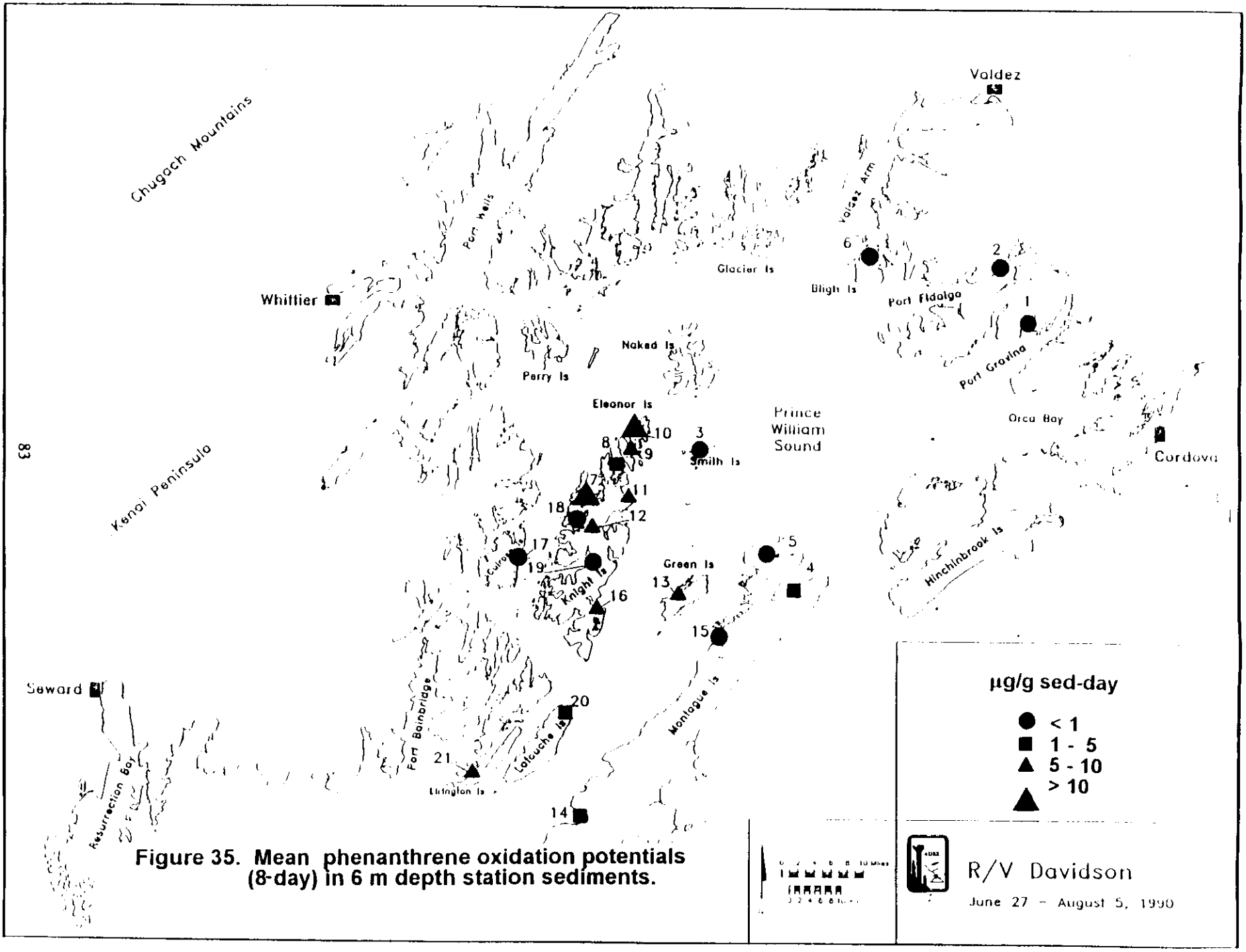

Figure 35. Mean phenanthrene oxidation potentials (8-day) in 6 m depth station sediments.

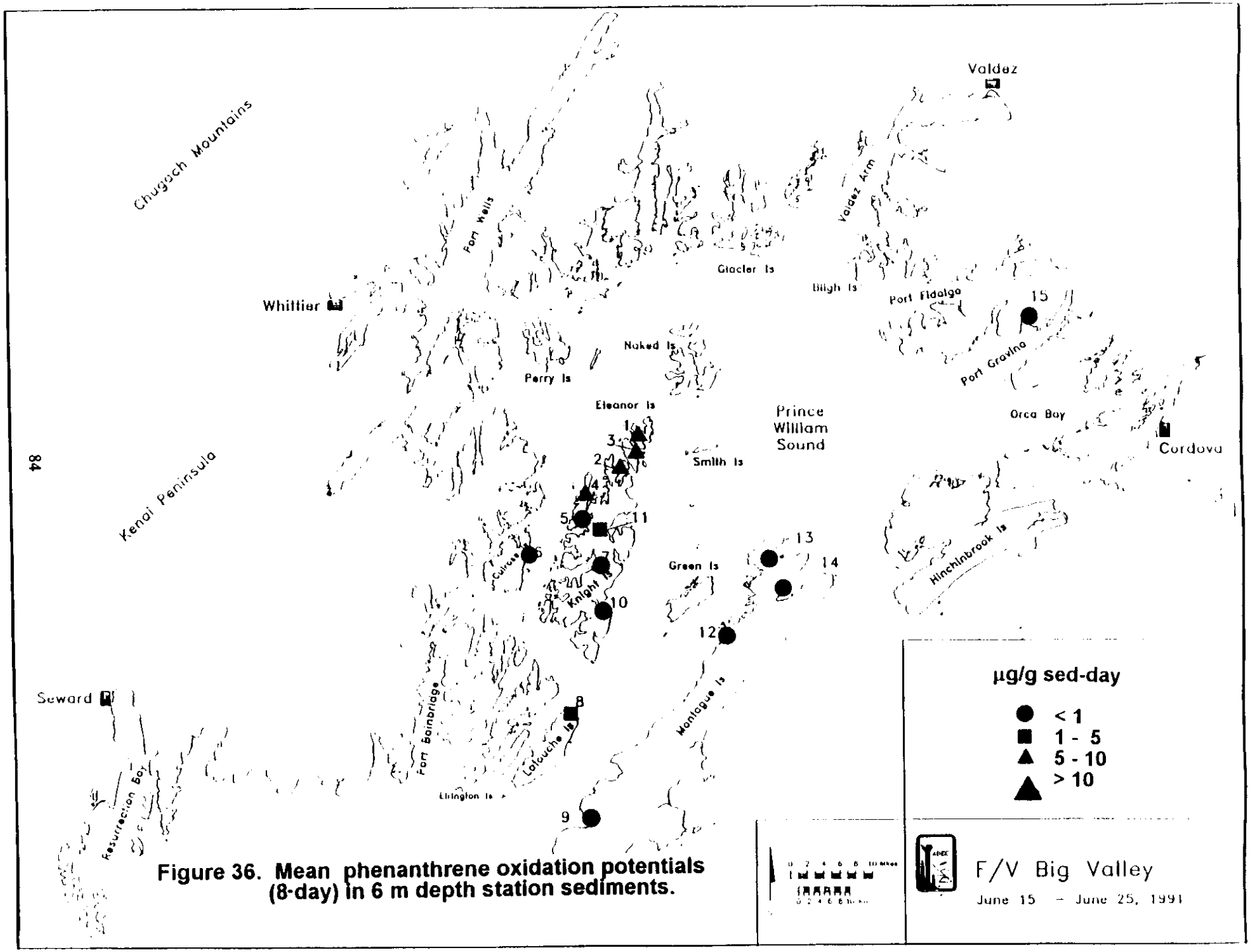

Figure 36. Mean phenanthrene oxidation potentials (8-day) in 6 m depth station sediments.

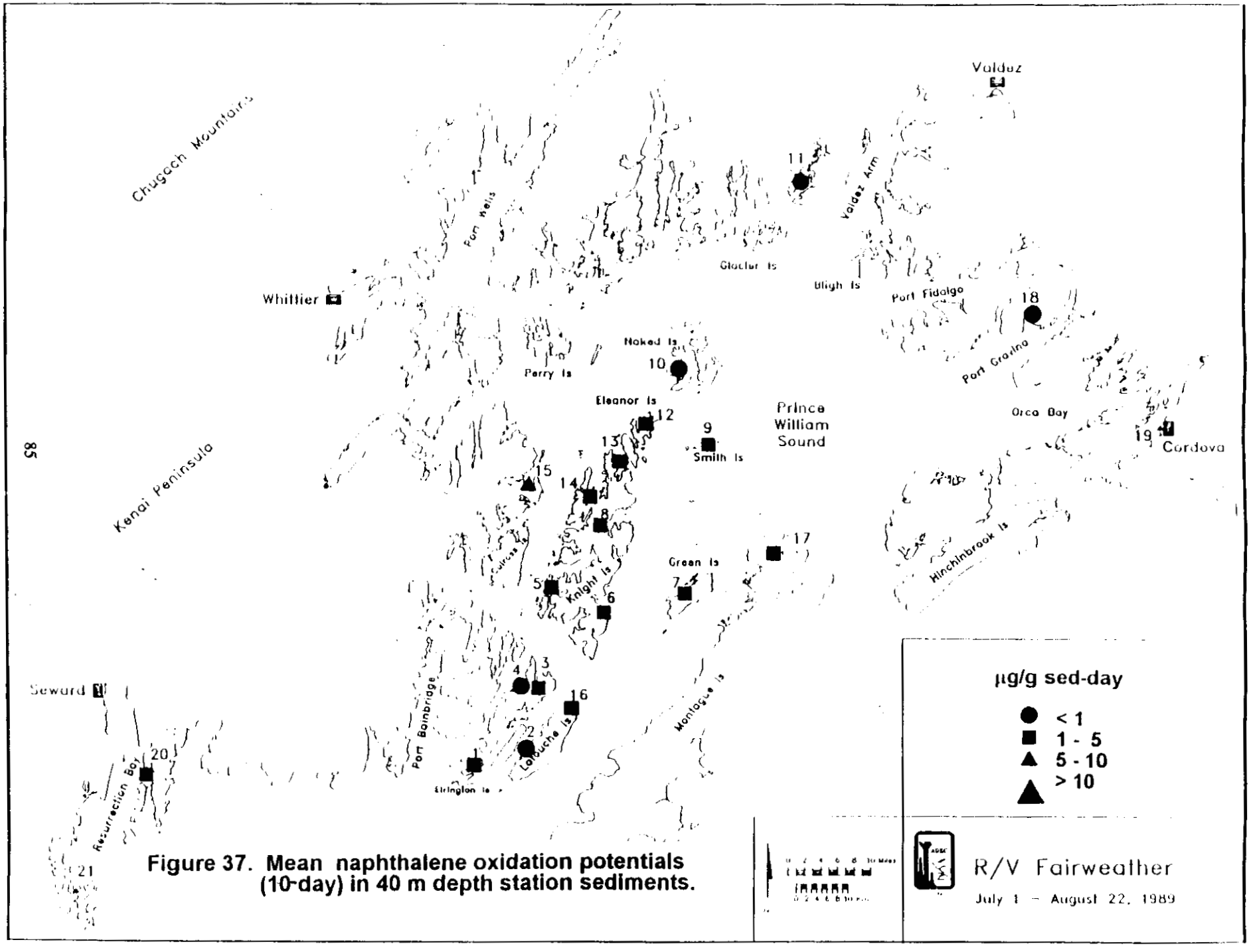

Figure 37. Mean naphthalene oxidation potentials (10-day) in 40 m depth station sediments.

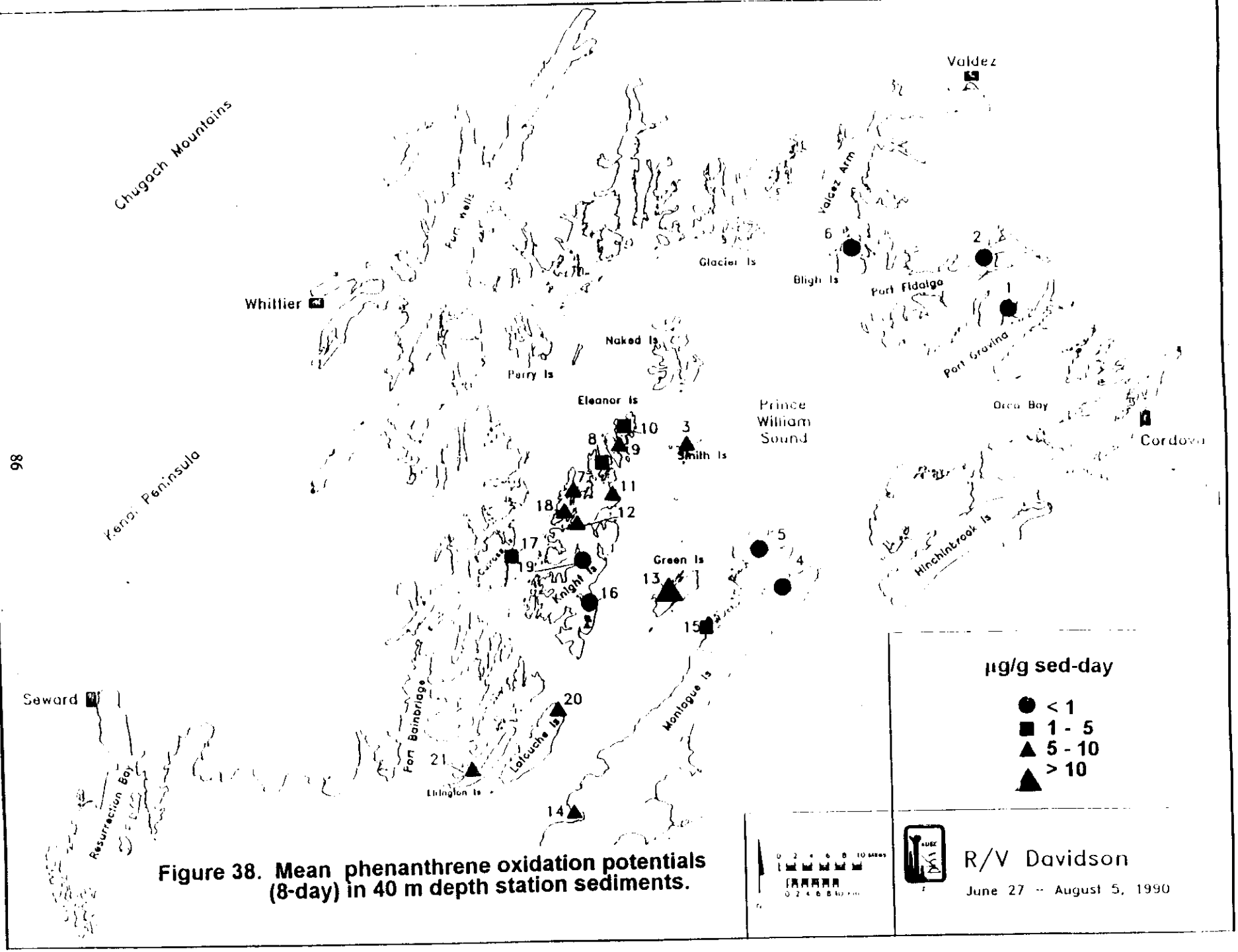

Figure 38. Mean phenanthrene oxidation potentials (8-day) in 40 m depth station sediments.

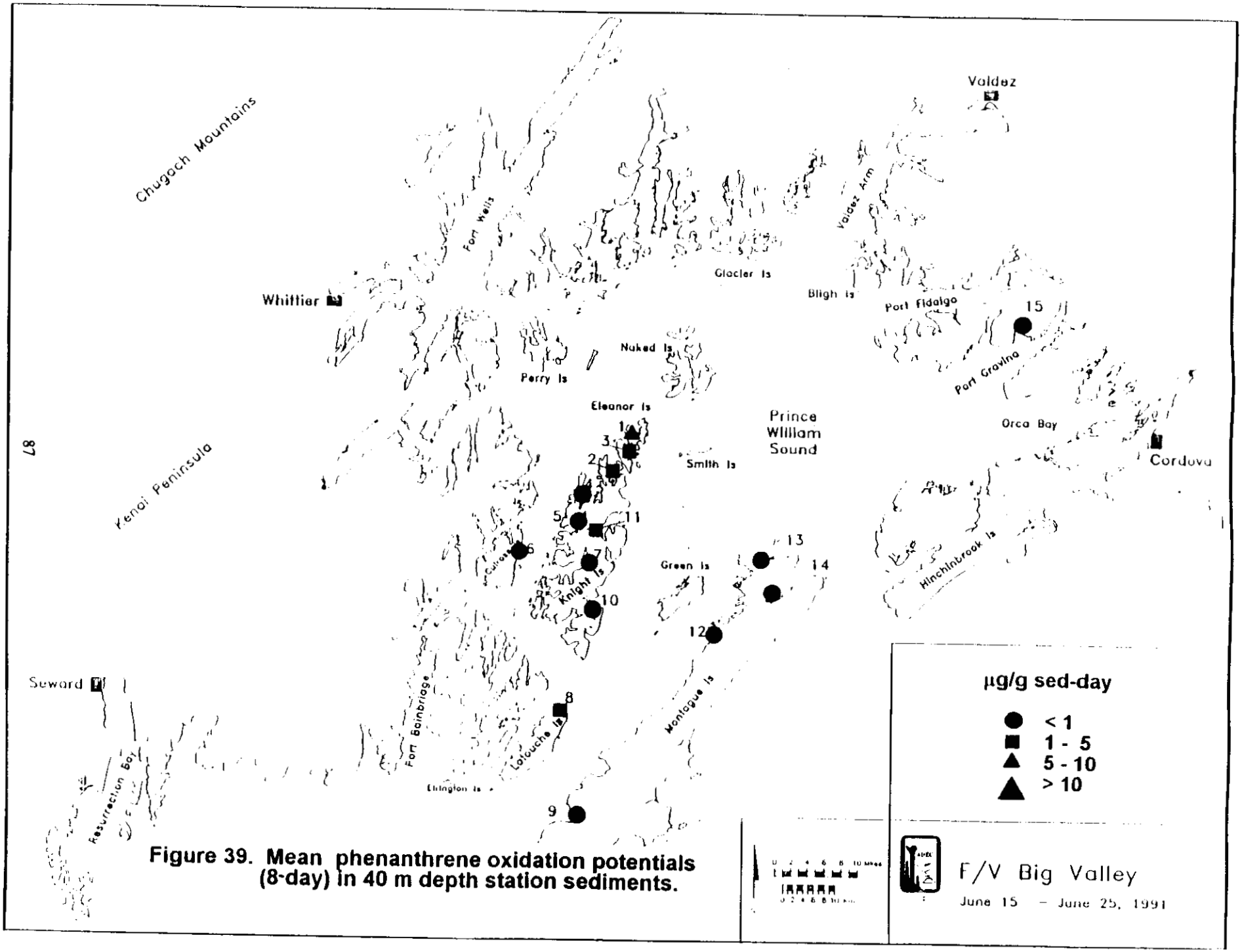

Figure 39. Mean phenanthrene oxidation potentials (8-day) in 40 m depth station sediments.

Table 37. Median 8-or 10-day Naphthalene and/or Phenanthrene Mineralization Potentials (μg / g sed-day) for All Sites Within Prince William Sound for All Cruises.

	Depth					
Cruise	Beach	3m	6m	20m	40m	100m
Fairweather (Summer 1989)	1.11 (N)	1.54 (N)	1.55 (N)	2.65 (N)	2.20 (N)	3.15 (N)
Nautilus (Fall 1989)	3.17 (N) 3.44 (P)	2.74 (N) 4.27 (P)	---- ----	---- ----	---- ----	---- ----
Cobb (Spring 1990)	5.23 (P)	5.61 (P)	5.34 (P)	6.50 (P)	----	----
Davidson (Summer 1990)	3.85 (P)	2.18 (P)	3.21 (P)	7.82 (P)	5.97 (P)	5.86 (P)
Cobb (Fall 1990)	5.82 (P)	6.50 (P)	7.12 (P)	8.18 (P)	----	----
Big Valley (Summer 1991)	0.45 (P)	0.06 (P)	0.75 (P)	3.15 (P)	0.98 (P)	0.13 (P)

N = Naphthalene
P = Phenanthrene

Reference sites are not included in the above data.

Seasonal Distribution of Median 8 or 10 Day Naphthalene or Phenanthrene Transformation Rates with Depth for Sites in Prince William Sound

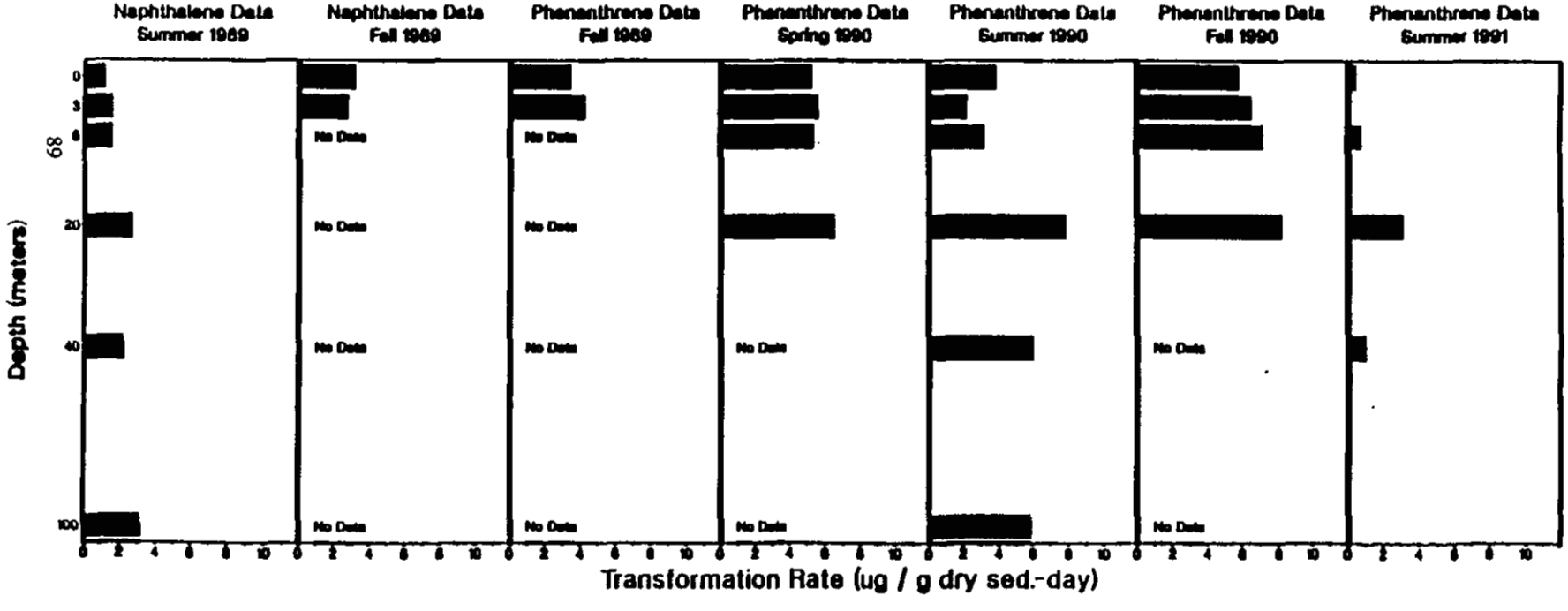

Figure 40

Table 38. Sites and depths where 8-or 10-day phenanthrene mineralization potentials were significantly higher (*) than the [1]reference sites at the [2]95% confidence level. Data for F/V Nautilus cruise, November 7 - December 8, 1989.

Site	Depth	
	Beach	3 m
NW Bay (site 4)	*	*
NW Bay (site 5)	*	*
12-7		
NW Bay (site 5)	*	m
11-7		
Block Is. (site 7)	-	*
NE Knight (site 18)	*	*
Green Is. (site 22)	*	*
Snug Harbor (site 25)	*	*
Pt. Helen (site 36)	*	*
Chenega Is. (site 38)	*	*
Sleepy Bay (site 43)	*	*
Block Is. (site 47)	*	*
11-30		
Block Is. (site 47)	-	m
11-9		
Rua Cove (site 49)	*	*
Herring Bay (site 53)	*	*
Smith Island (site 67)	*	*
Ingot Is. (site 82)	*	*
Bay of Isles (site 86)	*	*
Applegate Is. (site 88)	*	*
Bay of Isles (site 90)	*	*
Lone Is. (site 93)	*	*
Herring Bay (site 110)	*	*
Herring Bay (site 125)	*	*

[1] Reference sites: Port Fidalgo (site 201), Two Moon Bay (site 200).
[2] Mann - Whitney U Test.
m indicates missing data.

Table 39. Sites and depths where 8-or 10-day phenanthrene mineralization potentials were significantly higher (*) than the [1]reference sites at the [2]95% confidence level. Data for R/V Cobb cruise, May 31 - June 10, 1990.

Site	Depth			
	Beach	3 m	6 m	20 m
Macleod Harbor	-	-	-	-
Snug Harbor	*	-	*	*
Fox Farm	*	*	*	*
Sleepy Bay	*	-	*	*
Chenega Is.	*	-	-	-
Herring Bay	*	*	*	*
Block Is.	*	*	m	*
Disk Is.	*	-	*	*
NW Bay	*	*	*	*
NE Knight Is.	*	*	*	*
Smith Is.	*	*	*	*
Bay of Isles	*	*	*	*
Green Is.	*	*	*	*
Rocky Bay	-	-	-	*
West Bay	-	-	m	*

1 Reference sites: Port Olsen, Port Fidalgo, and Zaikof Bay.
2 Mann - Whitney U Test.
m indicates missing data.

Table 40. Sites and depths where 8-or 10-day phenanthrene mineralization potentials were significantly higher(*) than the [1]reference sites at the [2]95% confidence level. Data for the R/V Davidson cruise, June 27 - August 5, 1990.

	Depth					
Site	Beach	3m	6m	20m	40m	100m
Smith Is.	*	*	*	*	*	*
Rocky Bay	*	*	-	*	-	*
West Bay	-	-	-	*	*	*
Herring Bay	*	*	*	*	*	*
Disk Is.	*	*	*	*	*	*
Block Is.	*	*	*	*	*	*
NW Bay	*	*	*	*	*	*
NE Knight Is.	*	*	*	*	*	*
Bay of Isles	*	*	*	*	*	*
Green Is.	*	*	*	*	*	*
Macleod Harbor	*	-	-	*	*	-
Mooselips Bay	*	-	*	*	*	m
Snug Harbor	*	-	*	*	-	*
Chenega Is.	*	-	-	-	-	-
L. Herring Bay	*	-	-	*	*	*
Drier Bay	*	-	-	*	-	*
Sleepy Bay	*	*	*	*	*	-
Fox Farm	*	*	*	*	*	*
Sunny Cove	*	-	-	*	*	*
Agnes Cove	*	*	*	*	-	*
Black Bay	*	m	-	*	-	*
Chugach	*	*	*	*	*	*
Tonsina Bay	*	*	*	*	*	*
Katmai Bay	*	-	-	*	*	-
Hallo Bay	*	*	*	*	*	*
Windy Bay	*	*	*	*	m	*

[1] Reference sites: Port Olsen, Port Fidalgo, and Zaikof Bay.
[2] Mann - Whitney U Test.
m indicates missing data.

Table 41. Sites and depths where 8-or 10-day phenanthrene mineralization potentials were significantly higher (*) than the [1]reference sites at the [2]95% confidence level. Data for R/V Cobb cruise, September 5-September 15, 1990.

	Depth			
Site	Beach	3m	6m	20m
West Bay	-	*	-	-
NW Bay	*	*	*	*
Disk Is.	*	*	*	*
Herring Bay	*	*	*	*
Drier Bay	m	m	*	m
Chenega Is.	-	-	-	*
Iktua Bay	m	m	m	m
Fox Farm	*	-	*	*
Macleod Harbor	-	*	-	-
Sleepy Bay	*	*	*	*
Snug Harbor (ADEC)	*	-	*	*
Snug Harbor (NOAA)	*	m	*	m
Block Is.	*	*	*	*
NE Knight	*	*	*	*
Green Is.	*	*	*	*
Bay of Isles (ADEC)	*	*	*	*
Bay of Isles (NOAA)	m	m	*	m

1 Reference sites: Port Olsen, Port Fidalgo.
2 Mann - Whitney U Test.
m indicates missing data.

Table 42. Sites and depths where 8-or 10-day phenanthrene mineralization potentials were significantly higher (*) than the [1]reference sites at the ~95% confidence level. Data for F/V Big Valley, June 15 - June 25, 1991.

	Depth					
Site	Beach	3m	6m	20m	40m	100m
Northwest Bay	*	*	*	*	*	-
Disk Island	-	-	*	*	*	-
Block Island	-	*	*	*	*	-
Herring Bay	*	-	*	*	*	-
L. Herring Bay	-	-	-	-	-	-
Chenega Island	-	-	-	-	-	-
Drier Bay	*	-	-	-	-	-
Sleepy Bay	*	-	-	*	*	-
Macleod Harbor	-	-	-	-	-	-
Snug Harbor	*	-	*	-	*	*
Bay of Isles	*	*	*	*	*	*
Mooselips Bay	-	-	-	-	-	-

[1] Reference sites: Zaikof Bay and Olsen Bay
[2] Mann-Whitney U Test
m indicates missing data

Table 43. Cruise summary data of sites in Prince William Sound with depth where 8-or 10-day phenanthrene mineralization potentials were significantly higher than reference sites at the 95% confidence level as determined by the Mann-Whitney U Test. (# of significantly higher sites/total # of sites)

	Beach	3m	6m	20m	40m	100m
Fall 1989	20/22	20/20	-	-	-	-
Spring 1990	12/15	9/15	10/13	13/15	-	-
Summer 1990	17/18	11/18	12/18	17/18	14/18	14/17
Fall 1990	11/14	11/13	13/16	11/13	-	-
Summer 1991	6/12	3/12	6/12	6/12	7/12	2/12

Discussion

Populations of Hydrocarbon Degraders in Sediment: Microorganisms capable of degrading a variety of petroleum hydrocarbons are widespread in marine environments (Atlas et al., 1981; Leahy and Colwell, 1990). Our results show that the numbers of hydrocarbon-degrading bacteria vary by several orders of magnitude among sites sampled after the *Exxon Valdez* oil spill. A number of studies have shown a positive correlation between the numbers of hydrocarbon-degrading microorganisms and oil pollution patterns in marine systems polluted by hydrocarbons (Colwell et al., 1978; Roubal and Atlas, 1978; Ward et al., 1980; Lizarraga-Partida et al., 1991). For example, in response to the *Amoco Cadiz* oil spill off the coast of France, microbial populations in sediments became enriched in hydrocarbon-utilizing bacteria (Ward et al., 1980).

The only baseline data available for a geographical area near that affected by the *Exxon Valdez* are from studies performed more than ten years ago. Roubal and Atlas (1978) studied natural populations of hydrocarbon-degrading microorganisms in sediments along the coast of south-central Alaska and reported finding only 0.6-12 colony-forming units per gram of sediment. Cook Inlet populations were two or three orders of magnitude higher. The authors concluded that the relatively large number of hydrocarbon utilizers in some of the Cook Inlet sediments reflected a previous history of exposure to hydrocarbons. At the time of this 1978 study there were already several oil platforms producing oil in upper Cook Inlet where the high numbers of hydrocarbon-oxidizers were found.

Enrichment of hydrocarbon-utilizing bacteria in the microbial community was also apparent after the *Amoco Cadiz* oil spill. Ward et al. (1980) found that, of a total of 10^7-10^8 bacteria per gram of sediment, there were 10^4-10^7 hydrocarbon-utilizing bacteria per gram of sediment in oiled areas versus less than 5×10^2 cells per gram of sediment in unoiled areas. Similar numbers were found for the relative proportion of hydrocarbon degraders to total numbers of bacteria in this study. Total bacterial populations in sediments in this study measured by a direct microscopic count procedure during the Fairweather cruise for all sediments indicated that the total numbers of bacteria in all sediment were approximately 10^7-10^8 bacteria per gram sediment (Braddock et al., 1990). Ranges for population numbers of hydrocarbon-utilizing bacteria in this study (i.e. MPN procedure, see appendix B) were also similar to Ward et al. (1980).

Many of the shoreline stations and several of the stations at depth from the sites sampled in this study (see Tables 7-12 and Figure 22) had bacterial numbers exceeding 10^5 hydrocarbon degraders per gram dry weight of sediment. For example, in the summer of 1989 (Fairweather cruise) eleven shoreline sites exceeded the maximum value found by Roubal and Atlas (1978) in their survey of the Gulf of Alaska and Cook Inlet. Nine shoreline sites had fewer than 20 hydrocarbon degraders per gram dry weight of sediment. In the winter of 1989 (Nautilus cruise) all but two of the non-reference shoreline sites visited had populations of hydrocarbon-degrading microorganisms greater than 10^4 per gram dry weight of sediment. The numbers of sites with high numbers of hydrocarbon degraders associated with shoreline sediments decreased by the summer of 1990 (see Table 10) where only 4 of 22 non-reference sites had populations of hydrocarbon degraders higher than 10^4 organisms per gram dry weight of sediment. By summer

of 1991 only 2 of 12 non-reference sites had populations of hydrocarbon degraders higher than 10^3 cells per gram dry weight of sediment.

While overall numbers of hydrocarbon degraders generally decreased with time since the *Exxon Valdez* spill, higher numbers were observed at depth through the fall of 1990. Table 13 and Figure 22 show a summary of the median numbers of hydrocarbon degraders for sites from each cruise within Prince William Sound. In the summer of 1989 the numbers of hydrocarbon degraders in sediments below 6 m were below the detection limits of the assay (fewer than 20 per gram dry weight of sediment). However, by the summer of 1990, there were measurable numbers of hydrocarbon-degrading bacteria at all depths (shoreline through 100 m). The summer of 1991 data (Big Valley cruise; Tables 12 and 18) reflect a trend toward much lower total numbers of hydrocarbon-oxidizing bacteria for all sites and depths when compared to previous cruises.

Tables 14-18 give information about specific sites for all cruises except the Fairweather where statistical analyses could not be performed because the samples were only run in duplicate. In these tables, sites and depths are indicated where the numbers of hydrocarbon degraders were significantly higher at the 95% confidence level from the reference sites analyzed on the same cruise. For the winter of 1989 (Nautilus cruise; Table 13) all but 2 of the sediments from the shoreline and 3 m depths that were analyzed were found to be significantly higher in numbers of hydrocarbon degraders than the reference sites. Only about half the sediments on the spring 1990 Cobb cruise (Table 15) were analyzed for numbers of hydrocarbon-oxidizing bacteria. Of these sediments, about 1/3 were significantly higher than the references. In the summer of 1990 (Davidson; Table 16) approximately 1/2 the sites at a given depth had numbers of hydrocarbon degraders significantly higher than the reference. In the Fall of 1990 (Table 17) again approximately 1/2 the sediments sampled had numbers of hydrocarbon-degrading microorganisms greater than the reference sites. Several sites had numbers significantly higher than the references at all depth stations in the summer of 1990. These include: Smith Island, Green Island (6 and 20 m data missing), Snug Harbor, and Sleepy Bay. In addition, several sites were significantly higher at all but one depth (Disk Island, Block Island, Northwest Bay and Chenega Island). Data from the Big Valley cruise (Summer 1991; Table 18) show significant differences only in the shoreline through 20 m isobaths and even then the total numbers of hydrocarbon-oxidizers is much lower than for previous cruises.

Population numbers for hydrocarbon degraders rarely exceeded 1% of the total population of bacteria in 1989 when acridine orange direct counts for total numbers of bacteria were also performed on sediment samples. Thus, as in hydrocarbon-contaminated sediments following the *Amoco Cadiz* spill, the results in this study indicate that total numbers of bacteria in sediments were relatively constant at all sites for at least several months after contamination by oil from the *Exxon Valdez* spill, even though the capacity to transform hydrocarbons in many of the sediment samples increased following exposure to oil (based on data from summer 1989; Braddock et al., 1990). These results might be caused by shifts in the microbial population toward utilization of hydrocarbons following exposure to oil or may be a result of other factors such as increased grazing of the bacterial population by protozoans.

Hydrocarbon Mineralization Potentials by Microbial Populations in Marine Sediments:

There was no statistically significant correlation between the total numbers of hydrocarbon-oxidizing bacteria and mineralization potentials for hexadecane. However, when high hexadecane mineralization potentials were measured the numbers of hydrocarbon oxidizers

were generally also high. For example, in 1989 all eight beach sites with mineralization potentials > 10 μg/g sed-day had hydrocarbon degrader populations of > 10^4/g sed. In the 16 beach sites with hexadecane mineralization potentials < 1 μg/g sed-day, only one had hydrocarbon degrader populations > 10^4/g sed (see Table 20). Increased populations of hydrocarbon degrading bacteria represent an increased potential for biodegradation of hydrocarbon contaminants (Bartha and Atlas, 1978). However, the mineralization potential of a hydrocarbon fraction such as hexadecane is dependent on factors other than the total numbers of hydrocarbon degraders. These factors include salinity, temperature, mineral nutrient availability, oxygen availability, hydrocarbon concentration, biomass and acclimation of the microbial population to a particular hydrocarbon (Bartha and Atlas, 1987; Leahy and Colwell, 1990).

Experiments in this study were designed to minimize as many of these factors as possible (including hydrocarbon availability) except the in situ microbial biomass and its potential to degrade the hydrocarbon fraction added so that rates of hexadecane, naphthalene, phenanthrene, etc. transformation among sites and sampling stations could be compared. For example, mineralization potential samples were run in a mineral salts medium to provide nutrients such as nitrogen and phosphorus, were well oxygenated and were incubated at a constant temperature (15 ^{o}C). In addition, a relatively large amount of hydrocarbon substrate was added to each sample to be assayed so that the final rate was primarily dependent on added substrate rather than the concentration in the original sample. The concentrations added greatly exceeded ambient levels in heavily oiled samples collected in 1989 (see Brown et al., 1991). However, we cannot be sure that these levels were appropriate for all samples until hydrocarbon concentration data are made available for these sediment samples. Further details on the rationale for our selected protocol are published elsewhere (Brown et al., 1991).

The reported potentials (Tables 20-25 for hexadecane, Tables 31-37 for naphthalene/phenanthrene and Appendix C for all data including benzene and benzo[a]pyrene) thus reflect the potential of the microbial populations (Bartha and Atlas, 1987; Aelion and Bradley, 1991) to transform hydrocarbons when conditions are standardized. Bartha and Atlas (1987) summarized the results of a number of published studies on biodegradation rates of samples from marine systems. They found a range of 5-2,500 μg/g-day for seawater communities under partially optimized conditions. These rates for nutrient enriched samples were found to be as much as 300-fold higher than for non-nutrient enriched samples. Values from our study range from 0 to approximately 40 μg/g sed-day. Therefore, our values fall at the low end of those reported by Bartha and Atlas. A more recent study (Karl, 1992) conducted about six weeks after the grounding of the *Bahia Paraiso* in Antarctica in 1989 found extremely low rates for hexadecane oxidation potential (0.13-1.21 pmol/g sed-day). This study differed from ours in that the samples were run in seawater and incubated at 1 ^{o}C reflecting the objective of their study to provide estimates of n-alkane biodegradation rates at low in situ temperatures. Karl concluded that low rates for hexadecane oxidation potential imply that n-alkanes are probably a negligible carbon and energy source for the Antarctic coastal microbial populations studied.

From the summary of median hexadecane transformation potentials from Prince William Sounds sites for all cruises (Table 25 and Figure 30) it appears that the most substantial differences in mineralization potentials at all depth stations occurred between the fall of 1990 and the summer of 1991. For example, the shoreline sites had mineralization potentials that ranged from 2.73 to 5.61 μg/g sed-day for all the cruises in 1989 or 1990 which dropped to a potential of 0.20 μg/g sed-day in the summer of 1991. A similar trend was seen in the 3 m depth station data

but was not as pronounced in the data at 6 or 20 m. The hexadecane potentials were very low at the 40 and 100 m depth stations for all three summers. These data imply that hexadecane biodegradation in surficial sediments at depth is probably negligible.

Seasonal effects on biodegradation potentials were not observed in the any of our mineralization potential data. Seasonal effects have been previously observed in samples from Cook Inlet and the Beaufort Sea (Roubal and Atlas 1978). However, these differences were seen in samples which were not amended with nutrients and may have been a function of commonly observed seasonal fluctuations in nutrient availability.

In unamended samples Roubal and Atlas (1978) found that natural biodegradation potentials followed the order naphthalene > hexadecane > pristane > benzanthracene and noted that the potentials for pristane and benzanthracene were often zero. In nutrient amended samples the order changed to hexadecane > naphthalene >> pristane > benzanthracene. We found varying differences in preference for hexadecane, naphthalene or phenanthrene in Prince William Sound sediments depending on the season and on depth. We also measured potentials for benzo[a]pyrene in the spring of 1990 but found very low potentials at all sites and depth stations (Appendix C). In the summer of 1989 the median mineralization potentials were substantially greater for hexadecane than for naphthalene for shoreline and 3 m depth station sediments. This trend changed at depth where the median mineralization potentials for naphthalene exceeded those for hexadecane at 20, 40 and 100 m. After 1989 median naphthalene or phenanthrene degradation potentials exceeded those for hexadecane for all cruises and all depth stations (see Tables 25 and 37). Both phenanthrene and naphthalene mineralization potentials were measured in shoreline and 3 m sediments in the fall of 1989. In these sediments the median degradation potentials for phenanthrene slightly exceeded those measured for naphthalene. Hydrocarbon polluted surficial sediments in Boston Harbor also showed a similar relationship between phenanthrene and naphthalene utilization where turnover times measured for these hydrocarbons were similar at all sites (Shiaris 1989).

These hexadecane and naphthalene and/or phenanthrene degradation potentials are useful as indicators of previous exposure to hydrocarbons. However, they do not indicate in situ oxidation rates nor can they be used directly to predict how long these hydrocarbons will persist in sediments. However, in concert with hydrocarbon concentration data they can be used to estimate biodegradation rates in situ under optimal conditions. Biodegradation potentials were used to estimate a biodegradation rate of 0.5 μg/g sed-day for sediments polluted by the *Amoco Cadiz* oil spill (Ward et al., 1980). Mineralization potential data using non-nutrient amended samples along with hydrocarbon chemistry data were also used in a bioremediation monitoring study in Prince William Sound to estimate in situ biodegradation rates for fertilized and unfertilized shoreline sediments. These rates were estimated to range from 1.9-10 μg/g sed-day on unfertilized beaches (Prince et al., 1990). We should be able to use similar techniques to estimate biodegradation rates from our data when chemistry data become available. These rates will be likely to overestimate true in situ rates since in situ rates will be dependent on the other factors controlling the microbial population at a given site. These include nutrients, oxygen availability, pH, temperature, and the composition and concentration of hydrocarbons.

We believe that this study is unique in the extent of information collected following a major oil spill. Sediments were sampled to measure microbial numbers and activity within a few months following the *Exxon Valdez* spill and sampling continued for two years after the spill. The boundaries of the study were set by the purpose of accumulating evidence for litigation.

Nevertheless, the results of this study provide valuable information on marine sediment microbial responses to hydrocarbon pollutants. An enormous amount of data was collected. We have had the opportunity to evaluate most of the data and have found some major trends, particularly in sediments collected in Prince William Sound. We hope to be able to continue to evaluate this data set as sediment chemistry data become available.

Conclusions:

1. Numbers of hydrocarbon oxidizers appear to be a good indicator of exposure of sediment or water to hydrocarbons. Most Probable Number assays of hydrocarbon degraders are a relatively rapid indicator of shifting microbial populations in response to exposure to hydrocarbons.

2. Hydrocarbon oxidation rate potentials are useful indicators of previous exposure of microbial populations to hydrocarbons. However, they do not directly yield information on in situ biodegradation rates.

3. Microbial data indicate mobilization of oil from the shoreline stations to sediments collected from 6, 20, 40 and 100 m depth stations. Sediments from shallower depth stations had high numbers of hydrocarbon degraders in 1989 that increased with time. Sediments from depth stations of 20, 40 and 100 m initially had low numbers of hydrocarbon degraders but increased to a peak in 1990, then declined.

4. Populations of hydrocarbon-degrading microorganisms remain high in pockets even in 1991 although overall numbers are low.

5. Hexadecane and phenanthrene oxidation rate potentials follow trends seen in bacterial numbers. However, degradation potentials indicate there may be a shift from hexadecane to naphthalene/phenanthrene utilization with time.

6. Trends in other microbial populations may be useful to determine potential long-term effects such as eutrophication or as early indicators of recovery.

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Appendix A

Nearshore Water Nutrients

Nautilus and Davidson Cruises

F/V Nautilis November 7–December 8, 1989

Seawater Nutrient Analysis

Site	Depth (m)	Sample #	NH4–N (ppb)	NH4–N (μM)	NO3–N (ppb)	NO3–N (μM)	PO4–P (ppb)	PO4–P (μM)
N.W. Bay	Beach	2114	6.6	0.5	8	0.6	17.5	0.56
Site #4	3	2217	<6.6	0.5	139	9.9	32.3	1.04
11–26–89								
N.W. Bay	Beach	2131	15.2	1.1	85	6.1	29.6	0.96
Site #5	3	2224	7.4	0.5	100	7.1	36.0	1.16
12–7–89								
N.E. Knight Island	Beach	2101	9.6	0.7	8	0.6	16.3	0.52
Site #16	3	2201	<6.6	<0.5	46	3.3	34.6	1.12
11–11–89								
Green Island	Beach	2106	7.6	0.5	250	17.8	92.0	2.97
Site #22	3	2206	<6.6	<0.5	125	8.9	41.0	1.32
11–16–89								
Snug Harbor	Beach	2105	<6.6	<0.5	110	7.8	0.00	0.00
Site #25	3	2205	<6.6	<0.5	99	7.1	39.6	1.28
11–15–89								
Point Helen	Beach	2108	512	36.6	764	56.6	135.6	4.38
Site #36	3	2211	<6.6	<0.5	119	8.5	39.6	1.28
11–18–89								
Mid. E. Chenega Is.	Beach	2109	14.5	1.0	28	2.0	5.00	0.16
Site #38	3	2208	<6.6	<0.5	100	7.1	29.6	0.96
11–19–89								
Sleepy Bay	Beach	2107	<6.6	<0.5	156	11.1	28.5	0.92
Site #43	3	2207	<6.6	<0.5	116	8.4	37.5	1.20
11–17–89								
Block Island	Beach	2116	<6.6	<0.5	217	15.5	22.5	0.73
Site #47	3	2219	<6.6	<0.5	143	10.2	43.5	1.40
11–30–89								
Rua Cove	Beach	2104	342	24.4	31	2.2	37.3	1.20
Site #49	3	2204	<6.6	<0.5	116	8.3	37.3	1.20
11–14–89								
W. Herring Bay	Beach	2110	23.8	1.8	110	7.8	51.0	1.65
Site #53	3	2209	<6.6	<0.5	95	6.8	34.8	1.12
11–20–89								
Smith Island	Beach	2119	<6.6	<0.5	146	10.4	53.5	1.73
Site #67	3	2222	<6.6	<0.5	152	10.8	42.3	1.36
12–4–89								
Ingot Island	Beach	2113	<9.0	<0.6	386	27.6	26.3	0.85
Site #62	3	2216	<9.0	<0.6	327	23.4	31.0	1.00
11–25–89								
Bay of Isles	Beach	2102	7.3	0.5	62	4.4	41.0	1.32
Site #66	3	2202	<7.1	<0.5	107	7.6	31.0	1.00
11–12–89								
Applegate Island	Beach	2115	103	7.3	24	1.7	22.5	0.73
Site #68	3	2218	<6.6	<0.5	114	8.1	38.5	1.24
11–29–89								

F/V Nautilis November 7–December 8, 1989

Seawater Nutrient Analysis

Site	Depth (m)	Sample #	NH4–N (ppb)	NH4–N (µM)	NO3–N (ppb)	NO3–N (µM)	PO4–P (ppb)	PO4–P (µM)
Bay of Isles	Beach	2103	129	9.2	23	1.6	18.6	0.60
Site #90	3	2203	<6.8	<0.5	118	8.4	36.0	1.16
11–13–89								
Lone Island	Beach	2132	36.5	2.6	61	4.3	85.8	2.77
Site #93	3	2225	<6.8	<0.5	199	14.2	29.8	0.96
12–8–89								
W. Herring Bay	Beach	2111	<9.0	<0.6	103	7.2	8.75	0.28
Site #110	3	2210	<9.0	<0.6	270	19.2	27.5	0.89
11–24–89								
Herring Bay	Beach	2112	<9.0	<0.6	237	16.8	11.3	0.36
Site #125	3	2212	<9.0	<0.6	221	15.6	28.5	0.92
11–23–89								
Two Moon Bay	Beach	2117	<6.8	<0.5	34	2.4	36.0	1.16
Site #200	3	2220	<6.8	<0.5	157	11.2	37.3	1.20
12–2–89								
N.E. Port Fidalgo	Beach	2116	52.7	3.8	135	9.6	135.5	4.37
Site #201	3	2221	<7.1	<0.5	169	12.1	33.5	1.08
12–3–89								

R/V Davidson June 27–August 5, 1990

Seawater Nutrient Analysis

Site	Depth (m)	NH4–N (ppb)	NH4–N (µM)	NO3–N (ppb)	NO3–N (µM)	PO4–P (ppb)	PO4–P (µM)
Olsen Bay	0	<2	<0.14	<5	<0.36	8.6	0.28
06–27–90	3	<2	<0.14	<5	<0.36	9.9	0.32
Site #1							
Port Fildago	3	• 3.1	0.22	<5	<0.36	12.8	0.41
06–28–90							
Site #2							
Smith Island	0		<0.14	<5	<0.36	8.4	0.27
07–02–90	3		<0.14	<5	<0.36	7.3	0.24
Site #3							
Zaikof Bay	0	3.9	0.28	17.4	1.24	20.6	0.67
07–03–90	3	<2	<0.14	<5	<0.36	12.3	0.40
Site #4							
Rocky Bay	0	12.9	0.92	<5	<0.36	33.2	1.07
07–04–90	3	<2	<0.14	<5	<0.36	7.8	0.25
Site #5							
West Bay	0	<2	<0.14	<5	<0.36	8.9	0.29
07–05–90	3	2.1	0.15	<5	<0.36	10.8	0.35
Site #6							
Herring Bay	0	<2	<0.14	<5	<0.36	11.6	0.38
07–06–90	3	20.9	1.49	<5	<0.36	8.4	0.27
Site #7							
Disk Island	0	5.7	0.41	<5	<0.36	14.1	0.46
07–07–90	3	8.7	0.62	<5	<0.36	31.9	1.03
Site #8							
Block Island	0	4.9	0.35	<5	<0.36	10.2	0.33
07–08–90	3	9.3	0.66	<5	<0.36	7.8	0.25
Site #9							
N.W. Bay	0	<2	<0.14	<5	<0.36	<4.5	<.145
07–09–90	3	<2	<0.14	<5	<0.36	5.7	0.18
Site #10							
N.E. Knight Island	0	<2	<0.14	5.4	0.39	9.0	0.29
07–10–90	3	<2	<0.14	<5	<0.36	7.3	0.24
Site #11							
Bay of Isles	0	4.5	0.32	<5	<0.36	12.2	0.39
07–11–90	3	6.9	0.49	<5	<0.36	5.1	0.16
Site #12	0	6.8	0.48	<5	<0.36	9.0	0.29
Green Island	0	<2	<0.14	<5	<0.36	9.9	0.32
07–12–90	3	8.7	0.62	<5	<0.36	25.2	0.81
Site #13							
MacLeod Harbor	0	7.2	0.51	<5	<0.36	20.4	0.66
07–16–90	3	<2	<0.14	7.4	0.53	17.7	0.57
Site #14							
Mooselpe Bay	0	<2	<0.14	<5	<0.36	10.6	0.34
07–17–90	3	<2	<0.14	<5	<0.36	7.7	0.25
Site #15							

R/V Davidson June 27–August 5, 1990

Seawater Nutrient Analysis

Site	Depth (m)	NH_4–N (ppb)	NH_4–N (µM)	NO_3–N (ppb)	NO_3–N (µM)	PO_4–P (ppb)	PO_4–P (µM)
Snug Harbor	0	7.4	0.53	33.1	2.36	16.7	0.54
07–18–90	3	<2	<0.14	<5	<0.36	8.4	0.27
Site #16							
Chenega Island	0	4.3	0.31	<5	<0.36	6.2	0.20
07–19–90	3	6.2	0.44	<5	<0.36	9.0	0.29
Site #17							
L. Herring Bay	0	<2	<0.14	<5	<0.36	8.4	0.27
07–20–90	3	7.7	0.55	<5	<0.36	20.1	0.65
Site #18							
Drier Bay	0	<2	<0.14	36.3	2.59	8.1	0.26
07–21–90	3	<2	<0.14	<5	<0.36	47.2	1.52
Site #19							
Sleepy Bay	0	<2	<0.14	26.5	1.89	13.3	0.43
07–22–90	3	<2	<0.14	<5	<0.36	7.8	0.25
Site #20							
Fox Farm	0	4.7	0.34	77.5	5.54	21.7	0.70
07–23–90	3	13.1	0.94	26.7	1.91	13.9	0.45
Site #21							
Sunny Cove	0	12.8	0.91	<5	<0.36	8.9	0.29
07–24–90	3	<2	<0.14	<5	<0.36	9.9	0.32
Site #22							

Appendix B

Most Probable Numbers of Hydrocarbon-Oxidizing Bacteria Data for All Cruises (1989-1991)

R/V Fairweather July 1–August 22, 1989
MPN Data

	Sample	% Dry Weight (*.01)	MPN (cells/g dry sediment) Rep 1	Rep2	Mean
Fox Farm	Beach Comp.	0.900	1.9E+05	3.0E+05	2.4E+05
7–1–89	3 m	0.831	6.0E+02	2.4E+02	4.2E+02
Site 01	6 m	0.784	<2.0E+01	<2.0E+01	<2.0E+01
	20 m	0.691	7.2E+02	2.9E+02	5.1E+02
	40 m	0.513	<2.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	9.0E+03	4.6E+04	2.8E+04
Sawmill Bay	Beach Comp.	0.919	5.3E+06	1.4E+06	9.7E+06
7–2–89	3 m	0.805	2.5E+02	1.4E+03	8.1E+02
Site 02	6 m	0.744	6.7E+02	1.1E+03	8.7E+02
	20 m	0.583	<2.0E+01	7.3E+02	<2.0E+01
	40 m	0.711	<2.0E+01	<2.0E+01	<2.0E+01
	100m	0.719	1.1E+03	1.1E+03	1.1E+03
	Porewater	1.000	3.3E+03	3.3E+03	3.3E+03
Shelter Bay	Beach Comp.	0.737	3.1E+03	3.1E+03	3.1E+03
7–3–89	3 m	0.856	<2.0E+01	<2.0E+01	<2.0E+01
Site 03	6 m	0.819	<2.0E+01	<2.0E+01	<2.0E+01
	20 m	0.711	<2.0E+01	<2.0E+01	<2.0E+01
	40 m	0.610	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.690	<2.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	8.0E+01	8.0E+01	8.0E+01
Iktua Bay	Beach comp.	0.774		2.6E+02	2.6E+02
7–4–89	3 m	0.821	<2.0E+01	2.4E+02	<2.0E+01
Site 04	6 m	0.744	<2.0E+01	<2.0E+01	<2.0E+01
	20 m	0.349	<2.0E+01	<2.0E+01	<2.0E+01
	40 m	0.639	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.553	<2.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	<2.0E+01	<2.0E+01	<2.0E+01
Mummy Bay	Beach Comp.	0.666	7.4E+03	7.4E+03	7.4E+03
7–5–89	3 m	0.838	3.1E+02	6.3E+02	4.7E+02
Site 05	6 m	0.666	<2.0E+01	<2.0E+01	<2.0E+01
	20 m	0.580	<2.0E+01	<2.0E+01	<2.0E+01
	40 m	0.554	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.768	<2.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	5.0E+01	5.0E+01	5.0E+01
Snug Harbor	Beach Comp.	0.727	4.5E+04	4.5E+04	4.5E+04
7–6–89	3 m	0.757	<2.0E+01	2.8E+02	<2.0E+01
Site 06	6 m	0.785	2.5E+02	2.5E+02	2.5E+02
	20 m	0.441	<2.0E+01	<2.0E+01	<2.0E+01
	40 m	0.372	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.320	<2.0E+01	1.3E+03	<2.0E+01
	Porewater	1.000	2.3E+02	5.0E+01	1.4E+02
Green Island	Beach Comp.	0.715	5.6E+02	7.0E+02	6.3E+02
7–7–89	3 m	0.757	<2.0E+01	2.8E+02	<2.0E+01
Site 07	6 m	0.738	<2.0E+01	<2.0E+01	<2.0E+01
	20 m	0.548	<2.0E+01	<2.0E+01	<2.0E+01
	40 m	0.607	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.300	<2.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	<2.0E+01	<2.0E+01	<2.0E+01
Bay of Isles	Beach Comp.	0.710	1.8E+04	1.6E+04	1.7E+04
7–8–89	3 m	0.241	3.3E+02	2.1E+02	2.7E+02
Site 08	6 m	0.733	6.8E+01	1.1E+02	8.9E+01
	20 m	0.270	2.6E+02	<2.0E+01	<2.0E+01
	40 m	0.488	1.6E+02	1.6E+02	1.6E+02
	100 m	0.302	3.0E+02	5.6E+02	4.3E+02
	Porewater	1.000	3.3E+02	2.3E+02	2.8E+02

R/V Fairweather July 1–August 22, 1989
MPN Data

	Sample	% Dry Weight (*.01)	MPN (cells/g dry sediment) Rep 1	Rep2	Mean
Smith Island	Beach Comp.	0.952	>2.4E+06	2.4E+05	2.4E+05
7-9-89	3 m	0.789	5.2E+02	2.8E+02	4.5E+02
Site 09	6 m	0.816	2.5E+01	1.6E+02	9.2E+01
	20 m	0.761	0.0E+00	0.0E+00	0.0E+00
	40 m	0.566	0.0E+00	0.0E+00	0.0E+00
	100 m	0.450	0.0E+00	0.0E+00	0.0E+00
	Porewater	1.000	>2.4E+06	1.7E+05	1.7E+06
Cabin Bay	Beach Comp.	0.797	1.0E+02	1.0E+02	1.0E+02
7-10-89	3 m	1.000	<2.0E+01	7.0E+01	<2.0E+01
Site 10	6 m	1.000	5.0E+01	5.0E+01	5.0E+01
	20 m	0.712	2.8E+01	<2.0E+01	<2.0E+01
	40 m	0.576	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.492	4.1E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	8.0E+01	8.0E+01	8.0E+01
Columbia Bay	Beach Comp.	0.765	<2.0E+01	<2.0E+01	<2.0E+01
7-11-89	3 m	1.000	4.0E+01	0.0E+00	2.0E+01
Site 11	6 m	1.000	5.0E+01	1.3E+02	9.0E+01
	20 m	0.479	<2.0E+01	<2.0E+01	<2.0E+01
	40 m	0.629	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.501	<2.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000			
Northwest Bay	Beach Comp.	0.983	2.3E+04	2.3E+04	2.3E+04
7-12-89	3 m	0.648	1.7E+04	2.2E+04	1.9E+04
Site 12	6 m	0.532	4.1E+03	3.2E+03	3.7E+03
	20 m	0.483	7.1E+02	1.5E+03	1.1E+03
	40 m	0.587	5.8E+02	3.9E+02	4.8E+02
	100 m	0.403	<2.0E+01	5.0E+01	<2.0E+01
	Porewater	1.000	1.6E+04	1.3E+04	1.5E+04
Disk Island	Beach Comp.	0.895	>2.4E+06	1.2E+06	1.2E+06
7-13-89	3 m	0.838	2.4E+01	9.6E+01	6.0E+01
Site 13	6 m	0.783	4.3E+02	3.5E+02	3.9E+02
	20 m	0.707	<2.0E+01	2.8E+01	<2.0E+01
	40 m	0.493	3.4E+02	1.0E+02	2.2E+02
	100 m	0.425	<2.0E+01	4.7E+01	<2.0E+01
	Porewater	1.000	>2.4E+05	2.2E+05	2.2E+05
Herring Bay	Beach Comp.	0.882	2.7E+06	1.5E+06	2.1E+06
7-14-89	3 m	0.705	6.5E+02	7.0E+02	6.7E+02
Site 14	6 m	0.783	1.4E+03	1.4E+03	1.4E+03
	20 m	0.454	4.4E+01	1.1E+02	7.7E+01
	40 m	0.540	9.3E+01	9.3E+01	9.3E+01
	100 m	0.445	<2.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	>2.4E+05	7.9E+04	7.9E+04
Eshamy Bay	Beach Comp.	0.766	6.5E+01	<2.0E+01	<2.0E+01
7-15-89	3 m	0.714	7.0E+01	<2.0E+01	<2.0E+01
Site 15	6 m	0.348	<2.0E+01	<2.0E+01	<2.0E+01
	20 m	0.543	3.7E+01	7.4E+01	5.5E+01
	40 m	0.263	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.312	<2.0E+01	6.4E+01	<2.0E+01
	Porewater	1.000	4.9E+01	1.7E+01	3.3E+01
Sleepy Bay	3 m	0.769	1.0E+03	9.1E+02	9.7E+02
7-16-89	6 m	0.784	1.0E+02	7.8E+01	8.9E+01
Site 16	20 m	0.631	3.6E+01	1.3E+02	8.2E+01
	40 m	0.687	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.520	<2.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	>2.4E+05	4.9E+04	4.9E+04

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MPN Data

	Sample	% Dry Weight (*.01)	MPN (cells/g dry sediment) Rep 1	Rep2	Mean
Rocky Bay	Beach Comp.	0.877	8.0E+01	3.8E+02	2.3E+02
7-17-89	3 m	0.605	6.6E+01	2.3E+02	1.5E+02
Site 17	6 m	0.578	8.7E+01	1.4E+02	1.1E+02
	20 m	0.718	<2.0E+01	2.8E+01	<2.0E+01
	40 m	0.657	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.485	1.0E+02	4.1E+01	7.2E+01
	Porewater	1.000	1.4E+01	1.1E+01	1.3E+01
Snug Harbor	Beach High Tide	0.927	>2.4E+06	8.5E+05	8.5E+05
7-17-89	Beach Mid Tide	0.912	1.5E+03	3.6E+03	2.6E+03
Site 06	Beach Lo Tide	0.744	>2.4E+06	2.3E+06	2.3E+06
	Porewater Mid	1.000	9.2E+03	7.9E+03	8.6E+03
	Porewater Low	1.000	3.3E+02	4.9E+02	4.1E+02
Olsen Bay	Beach Comp.	0.418			
7-18-89	3 m	0.281	7.1E+01	7.1E+01	7.1E+01
Site 18	6 m	0.554	<2.0E+01	3.6E+01	<2.0E+01
	20 m	0.512	6.6E+02	2.5E+02	4.6E+02
	40 m	0.648	2.0E+02	3.4E+02	2.7E+02
	100 m	0.450	4.4E+01	4.4E+01	4.4E+01
	Porewater	1.000	4.0E+01	7.0E+01	5.5E+01
Cordova Harbor	Beach	0.863	4.1E+04	5.7E+04	4.9E+04
7-24-89	Porewater	1.000	>2.4E+04	>2.4E+08	>2.4E+08
Fox Island	Beach Comp.	0.819	2.4E+01	<2.0E+01	<2.0E+01
7-25-89	3 m	0.849	2.4E+01	2.4E+01	2.4E+01
Site 20	6 m	0.855	2.3E+01	5.8E+01	4.1E+01
	20 m	0.884	7.3E+01	1.2E+02	9.5E+01
	40 m	0.658		<2.0E+01	<2.0E+01
	100 m	0.721	<2.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	9.4E+01	7.9E+01	8.7E+01
Agnew Cove	Beach Comp.	0.903	3.7E+02	3.7E+02	3.7E+02
7-26-89	3 m	0.788	2.6E+01	2.6E+01	2.6E+01
Site 21	6 m	0.768	2.6E+01	5.3E+01	4.0E+01
	20 m	0.508	<2.0E+01	<2.0E+01	<2.0E+01
	40 m	0.295	6.8E+01	1.4E+02	1.0E+02
	100 m	0.496	<2.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	>2.4E+04	>2.4E+08	>2.4E+08
Taroka Arm	Beach Comp.	0.793	<2.0E+01	2.5E+01	<2.0E+01
7-27-89	3 m	0.520	5.2E+02	5.2E+02	5.2E+02
Site 22	6 m	0.586	2.9E+02	2.4E+02	2.6E+02
	20 m	0.625	>2.4E+05	>2.4E+05	>2.4E+05
	40 m	0.596	<2.0E+01	>2.4E+05	<2.0E+01
	100 m	0.620	2.7E+03		2.7E+03
	Porewater	1.000	5.4E+02	3.5E+02	4.5E+02
Black Bay	Beach Comp.	0.850	5.9E+01	2.0E+02	1.3E+02
7-28-89	3 m	0.670	1.6E+03	1.6E+02	9.0E+02
Site 23	6 m	0.704	2.4E+02	1.1E+02	1.8E+02
	20 m	0.674	1.6E+02	>2.4E+05	1.6E+02
	40 m	0.701	>2.4E+05		>2.4E+05
	100 m	0.515	3.9E+02		3.9E+02
	Porewater	1.000	2.6E+01	1.7E+01	2.2E+01
McArthur Cove	Beach Comp.	0.882	7.9E+03	2.5E+04	1.6E+04
7-29-89	3 m	0.763		1.4E+02	1.4E+02
Site 24	6 m	0.630	>2.4E+05		>2.4E+05
	20 m	0.519		>2.4E+05	>2.4E+05
	40 m	0.604	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.485	2.9E+04	3.5E+02	1.5E+04
	Porewater	1.000	>2.4E+04	2.4E+02	2.4E+02

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	Sample	% Dry Weight (*.01)	MPN (cells/g dry sediment) Rep 1	Rep2	Mean
Tonsina Bay	Beach Comp.	0.942	3.7E+03	2.5E+03	3.1E+03
7–30–89	3 m	0.846	3.1E+03	1.7E+03	2.4E+03
Site 25	6 m	0.853	8.2E+03	8.2E+03	8.2E+03
	20 m	0.676	2.5E+03	2.5E+03	2.5E+03
	40 m	0.588	1.2E+03	3.9E+02	7.9E+02
	100 m	0.574	>2.4E+05	>2.4E+05	>2.4E+05
	Porewater	1.000	>2.4E+04	1.7E+03	1.7E+03
Gore Point	Beach Comp.	0.789	1.6E+02	2.2E+01	9.3E+01
7–31–89	3 m	0.778	2.6E+01	2.6E+01	2.6E+01
Site 26	6 m	0.755	6.6E+01	6.5E+02	3.6E+02
	20 m	0.744	1.2E+02	1.5E+02	1.3E+02
	40 m	0.714	1.1E+02	3.1E+02	2.1E+02
	100 m	0.622	5.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	2.4E+02	3.5E+02	3.0E+02
Port Dick	Beach Comp.	0.807	3.3E+02	3.2E+02	3.3E+02
8–1–89	3 m	0.814	2.5E+01	2.5E+01	2.5E+01
Site 27	6 m	0.844	>2.4E+05	>2.4E+05	>2.4E+05
	20 m	0.653	<2.0E+01		<2.0E+01
	40 m	0.614	<2.0E+01	3.6E+02	<2.0E+01
	100 m	0.561	<2.0E+01	8.9E+02	<2.0E+01
	Porewater	1.000	3.3E+01	2.0E+00	1.8E+01
Windy Bay	Beach Comp.	0.787	2.2E+04	1.0E+04	1.6E+04
8–2–89	3 m	0.715	6.9E+03	1.1E+04	9.0E+03
Site 28	6 m	0.673	1.0E+03	5.1E+02	7.7E+02
	20 m	0.433	4.6E+01	1.1E+03	5.9E+02
	40 m	0.479	1.7E+02	1.0E+02	1.4E+02
	100 m	0.655	7.5E+02	7.5E+02	7.5E+02
	Porewater	1.000	4.9E+03	3.3E+03	4.1E+03
Chugach Bay	Beach Comp.	0.884	3.7E+02	3.7E+02	3.7E+02
8–3–89	3 m	0.899	3.0E+02	3.7E+02	3.3E+02
Site 29	6 m	0.860	>2.4E+05	2.0E+03	2.0E+03
	20 m	0.656	2.1E+04	1.4E+04	1.8E+04
	40 m	0.710	3.1E+02	6.5E+03	3.4E+03
	100 m	0.574	>2.4E+05	>2.4E+05	>2.4E+05
	Porewater	1.000	4.9E-01	7.9E+02	4.0E+02
Seldovia Bay	Beach Comp.	0.840	3.9E+03	5.8E+03	4.9E+03
8–4–89	3 m	0.815	2.1E+03	6.0E+03	4.0E+03
Site 30	6 m	0.884	7.4E+02	1.2E+03	9.6E+02
	20 m	0.486	3.5E+03	6.8E+03	5.1E+03
	40 m	0.736	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.741	1.8E+03	2.3E+03	2.0E+03
	Porewater	1.000	7.0E+01	1.7E+02	1.2E+02
Ursus Cove	Beach Comp.	0.783	1.0E+04	>2.4E+05	1.0E+04
8–5–89	3 m	0.764			
Site 31	6 m	0.882	2.3E+01	2.3E+01	2.3E+01
	20 m	0.730	4.8E+04	4.8E+04	4.8E+04
	30 m	0.736			
	Porewater	1.000	4.9E+01	2.3E+01	3.6E+01
Amaxidedon Beach	Beach Comp.	0.717	<2.0E+01	2.4E+04	<2.0E+01
8–6–89	3 m	0.755	9.3E+02	1.5E+03	1.2E+03
Site 32	6 m	0.728	1.9E+02	2.7E+01	1.1E+02
	10 m	0.737	<2.0E+01	9.5E+01	<2.0E+01
	20 m	0.692	<2.0E+01	<2.0E+01	<2.0E+01
	30 m	0.730			
	Porewater	1.000	1.3E+03	3.3E+02	8.2E+02
Douglas Beach	Beach Comp.	0.606	1.4E+04	1.4E+04	1.4E+04
8–7–89	3 m	0.630	2.7E+03	2.2E+03	2.4E+03
Site 33	6 m	0.626	1.5E+05	1.5E+05	1.5E+05
	10 m	0.709	>2.4E+05	>2.4E+05	>2.4E+05
	20 m	0.755	2.1E+05	2.3E+03	1.1E+05
	Porewater	1.000	1.8E+01	9.4E+02	4.8E+02

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MPN Data

	Sample	% Dry Weight (*.01)	MPN (cells/g dry sediment) Rep 1	Rep2	Mean
Ushagat Island	Beach Comp.	0.943	>2.4E+05	>2.4E+05	>2.4E+05
8–8–89	3 m	0.884	>2.4E+05	1.6E+03	1.6E+03
Site 34	6 m	0.843	>2.4E+05	>2.4E+05	>2.4E+05
	10 m	0.827	>2.4E+05	>2.4E+05	>2.4E+05
	20 m	0.854	>2.4E+05	>2.4E+05	>2.4E+05
	Porewater	1.000	1.1E+04	>2.4E+05	1.1E+04
	Beach–Oiled	0.958	>2.4E+05	4.8E+06	>2.4E+05
Andreon Bay	Beach Comp.	0.811	2.7E+02	2.2E+04	1.1E+04
8–9–89	3 m	0.738	1.1E+02	6.8E+01	6.8E+01
Site 35	6 m	0.841	>2.4E+05	>2.4E+05	>2.4E+05
	20 m	0.475	2.7E+02	2.7E+02	2.7E+02
	40 m	0.636	3.1E+01	<2.0E+01	<2.0E+01
	100 m	0.482	>2.4E+05	>2.4E+05	>2.4E+05
	Porewater	1.000	1.3E+02	7.9E+01	1.0E+02
King Cove	Beach Comp.	0.785	>2.4E+05	1.7E+04	1.7E+04
8–14–89	Beach–Tar Ball	0.980	>2.4E+05		>2.4E+05
Site 36	3 m	0.743	4.7E+04	1.1E+03	2.4E+04
	6 m	0.754	4.4E+02	6.5E+02	5.4E+02
	20 m	0.755	<2.0E+01	<2.0E+01	<2.0E+01
	40 m	0.958	5.2E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	>2.4E+04	7.9E+05	>2.4E+04
Douglas Pt.	Beach Comp.	0.868	3.2E+03	2.5E+03	2.9E+03
8–15–89	Beach–Tar Ball	0.981	1.1E+04	1.7E+04	1.4E+04
Site 37	3 m	0.808		4.1E+02	4.1E+02
	6 m	0.758	3.7E+03	2.2E+03	3.0E+03
	20 m	0.832		1.3E+02	1.3E+02
	40 m	0.567	3.7E+02	0.0E+00	1.9E+02
	100 m	0.598	2.3E+04	3.7E+04	3.0E+04
	Porewater	1.000	1.7E+01	3.3E+01	2.5E+01
Hallo Bay	Beach Comp.	0.858	>2.4E+04	>2.4E+04	>2.4E+04
8–16–89	Beach–Tar Ball	0.863	>2.4E+04	>2.4E+04	>2.4E+04
Site 38	3 m	0.797	>2.4E+04	2.8E+04	>2.4E+04
	6 m	0.690	3.2E+04	1.1E+03	1.7E+04
	20 m	0.755	>2.4E+04	3.4E+02	3.4E+02
	40 m	0.574	1.9E+03	1.4E+03	1.6E+03
	100 m	0.550	2.9E+05	9.8E+04	1.9E+05
	Porewater	1.000	1.7E+03	4.6E+03	3.2E+03
Katmai Bay	Beach Comp.	0.738	2.4E+04	4.7E+04	3.6E+04
8–17–89	3 m	0.735	1.2E+02	2.3E+02	1.8E+02
Site 39	6 m	0.721	1.1E+03	3.9E+04	2.0E+04
	20 m	0.750	>2.4E+04	3.2E+03	3.2E+03
	40 m	0.562	2.8E+05	3.9E+04	1.6E+05
	75 m	0.585	1.4E+02	3.4E+01	8.5E+01
	Porewater	1.000	1.7E+03	1.7E+03	1.7E+03
Halibut Bay	Beach Comp.	0.820	<2.0E+01	<2.0E+01	<2.0E+01
8–18–89	3 m	0.789	<2.0E+01	6.3E+01	<2.0E+01
Site 40	6 m	0.791	6.2E+02	6.2E+02	6.2E+02
	20 m	0.768	2.6E+01	2.6E+01	2.6E+01
	40 m	0.734	<2.0E+01	<2.0E+01	<2.0E+01
	100 m	0.720	<2.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	4.9E+01	4.9E+01	4.9E+01
Wide Bay	Beach comp.	0.768	1.8E+02	6.5E+01	1.2E+02
8–19–89	3 m	0.764	2.3E+02	2.3E+02	2.3E+02
Site 41	6 m	0.744	4.4E+02	6.6E+02	5.5E+02
	20 m	0.665	3.0E+01	3.0E+01	3.0E+01
	40 m	0.631	4.1E+02	2.7E+02	3.4E+02
	Porewater	1.000	1.1E+02	1.1E+02	1.1E+02

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MPN Data

	Sample	% Dry Weight (*.01)	MPN (cells/g dry sediment) Rep 1	Rep2	Mean
Chignik Bay	Beach Comp.	0.723	2.8E+01	2.8E+01	2.8E+01
8–20–89	3 m	0.792	2.5E+01	2.8E+02	1.5E+02
Site 42	6 m	0.701	3.3E+03	3.3E+03	3.3E+03
	20 m	0.541	3.7E+01	1.3E+02	8.3E+01
	30 m	1.000	1.7E+02	1.1E+02	1.4E+02
	Porewater	1.000	2.0E+01	<2.0E+01	<2.0E+01
Ivanof Bay	Beach Comp.	0.812	<2.0E+01	<2.0E+01	<2.0E+01
8–21–89	3 m	0.651	3.1E+01	<2.0E+01	<2.0E+01
Site 43	6 m	0.663	<2.0E+01	7.5E+01	<2.0E+01
	20 m	0.588	3.4E+01	<2.0E+01	<2.0E+01
	40 m	0.654	<2.0E+01	<2.0E+01	<2.0E+01
	85 m	0.525	7.8E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	8.0E+01	1.4E+02	1.1E+02
Zachary Bay	Beach Comp.	0.879	<2.0E+01	<2.0E+01	<2.0E+01
8–22–89	3 m	0.680	2.1E+03	3.4E+03	2.7E+03
Site 44	6 m	0.512	3.9E+01	3.9E+01	3.9E+01
	20 m	0.661	3.0E+01	<2.0E+01	<2.0E+01
	40 m	0.626	<2.0E+01	3.2E+01	<2.0E+01
	100 m	0.664	3.0E+01	<2.0E+01	<2.0E+01
	Porewater	1.000	<2.0E+01	4.0E+01	<2.0E+01

F/V Nautilis Nov. 7 - Dec. 8, 1989

MPN Data

	Depth (m)	%Dry Weight (*.01)	MPN (cells/g dry sediment) rep 1	rep 2	rep 3	Mean	Std. dev.
North West Bay	Beach	0.945	2.3E+05	2.3E+05	2.4E+05	2.4E+05	6.1E+03
Site 4	3	0.754	9.3E+04	1.5E+04	1.7E+04	4.2E+04	4.4E+04
11-26-89	20	0.736	1.5E+03	2.3E+03	6.7E+03	3.5E+03	2.8E+03
	P.W.	1.000	5.4E+05	1.1E+05	4.6E+05	3.7E+05	2.3E+05
North West Bay	Beach	0.898	1.4E+05	1.4E+05	5.5E+05	2.8E+05	2.3E+05
Site 5							
11-7-89	P.W.	1.000	2.4E+04	4.9E+03	3.3E+04	2.1E+04	1.4E+04
North West Bay	Beach	0.906	3.6E+04	3.9E+04	5.1E+04	4.2E+04	7.7E+03
Site 5	3	0.915	8.7E+01	1.4E+03	2.5E+02	5.9E+02	7.3E+02
12-7-89	P.W.	1.000	1.1E+04	3.3E+03	3.3E+03	5.9E+03	4.4E+03
Block Island	Beach	0.917	1.4E+05	5.6E+04	1.5E+05	1.3E+05	3.6E+04
Site 7	3	0.821	9.6E+03	1.3E+04	1.6E+04	1.3E+04	3.1E+03
11-9-89	P.W.	1.000	4.9E+03	9.4E+02	1.7E+03	2.5E+03	2.1E+03
N.E. Knight Island	Beach	0.853	1.3E+03	2.0E+03	1.1E+04	4.6E+03	5.4E+03
Site 16	3	0.781	1.7E+02	1.4E+03	6.3E+02	7.3E+02	6.3E+02
11-11-89	P.W.	1.000	1.7E+02	2.8E+02		2.3E+02	
Green Island	Beach	0.891	5.5E+04	2.5E+04	8.9E+04	5.6E+04	3.2E+04
Site 22	3	0.793	8.8E+02	1.4E+03	2.3E+03	1.5E+03	7.0E+02
11-16-89	P.W.	1.000	3.3E+03	7.9E+03	1.7E+03	4.3E+03	3.2E+03
Snug Harbor	Beach	0.898	8.8E+04	1.2E+05	1.4E+05	1.2E+05	2.9E+04
Site 25	3	0.773	1.8E+03	1.7E+03	1.0E+03	1.5E+03	4.2E+02
11-15-89	P.W.	1.000	1.3E+04	4.9E+04	1.3E+04	2.5E+04	2.1E+04
Point Helen	Beach	0.945	2.4E+05	1.6E+05	1.4E+05	1.9E+05	5.3E+04
Site 36	3	0.876	3.8E+02	8.0E+02	1.5E+03	8.9E+02	5.6E+02
11-18-89	P.W.	1.000	7.0E+03	3.3E+04	4.9E+03	1.5E+04	1.6E+04
Chenega Island	Beach	0.847	3.9E+04	9.3E+03	1.3E+04	2.0E+04	1.6E+04
Site 38	3	0.844	2.7E+02	4.7E+01		1.6E+02	
11-19-89	P.W.	1.000	3.3E+02		4.9E+02	4.1E+02	
Sleepy Bay	Beach	0.880	9.2E+03	8.1E+03	2.1E+04	1.3E+04	7.1E+03
Site 43	3	0.880	8.1E+02	5.7E+02	5.7E+03	2.4E+03	2.9E+03
11-17-89	P.W.	1.000	2.8E+03	7.9E+03	4.9E+03	5.2E+03	2.6E+03
Block Island	Beach	0.831	5.9E+04	2.0E+04	9.5E+04	5.8E+04	3.7E+04
Site 47							
11-9-89	P.W.	1.000	1.3E+04	7.9E+03	4.9E+03	8.6E+03	4.1E+03
Block Island	Beach	0.773	4.3E+04	1.8E+04	2.3E+04	2.8E+04	1.3E+04
Site 47	3	0.567	2.8E+03	2.8E+03	2.8E+03	2.8E+03	0.0E+00
11-30-89	P.W.	1.000	1.3E+04	4.9E+03	4.9E+03	7.6E+03	4.7E+03
Rua Cove	Beach	0.891	8.9E+05	3.7E+05		6.3E+05	
Site 48	3	0.842		1.7E+04	9.4E+03	1.3E+04	
11-14-89	P.W.	1.000	1.7E+04	2.6E+03	7.9E+03	9.2E+03	7.3E+03
Herring Bay	Beach	0.838		1.1E+05	5.8E+04	8.5E+04	
Site 53	3	0.653	1.4E+04	2.1E+03	1.2E+03	5.9E+03	7.4E+03
11-20-89	P.W.	1.000	4.9E+02	4.9E+02	2.3E+03	1.1E+03	1.0E+03
Smith Island	Beach	0.958	1.4E+04	3.4E+04	1.4E+04	2.1E+04	1.2E+04
Site 67	3	0.624	9.6E+03	4.0E+03	2.7E+03	5.4E+03	3.7E+03
12-4-89	P.W.	1.000	3.5E+02	4.6E+02	3.3E+02	3.8E+02	7.0E+01
Ingot Island	Beach	0.846	5.4E+03	9.3E+03	1.5E+04	1.0E+04	5.0E+03
Site 82	3	0.802	1.8E+03	2.3E+02	2.8E+03	1.6E+03	1.3E+03
11-25-89	20	0.529	9.3E+02	8.1E+02	2.5E+02	6.6E+02	3.8E+02
	P.W.	1.000	9.4E+02	1.7E+03	1.7E+03	1.4E+03	4.4E+02
Bay of Isles	Beach	0.841	1.5E+04	1.3E+04	3.9E+03	1.1E+04	6.1E+03
Site 86	3	0.658	7.4E+03	5.3E+03	3.5E+03	5.4E+03	2.0E+03
11-12-89	P.W.	1.000	2.2E+02	1.7E+03	7.9E+02	9.0E+02	7.5E+02
Applegate Island	Beach	0.863	1.6E+05	1.3E+05	2.5E+04	1.1E+05	7.1E+04
Site 88	3	0.769	2.9E+02	2.9E+02	2.9E+03	1.1E+03	1.5E+03
11-29-89	P.W.	1.000	2.8E+04	7.9E+03	1.7E+04	1.8E+04	1.0E+04

P.W. = Beach Porewater

F/V Nautilis Nov. 7 – Dec. 8, 1989

MPN Data

	Depth (m)	%Dry Weight (*.01)	MPN (cells/g dry sediment) rep 1	rep 2	rep 3	Mean	Std. dev.
Bay of Isles	Beach	0.780	4.6E+04	3.7E+04	1.8E+04	3.4E+04	1.4E+04
Site 90	3	0.759	1.7E+03	3.4E+02	9.2E+02	9.9E+02	6.9E+02
11-13-89	P.W.	1.000	2.2E+03	2.2E+03	2.8E+03	2.4E+03	3.3E+02
Lone Island	Beach	0.914	2.5E+02	2.4E+03	3.6E+03	2.1E+03	1.7E+03
Site 93	3	0.824	1.3E+02	3.8E+02	1.3E+03	6.1E+02	6.4E+02
12-6-89	P.W.	1.000	2.3E+01	3.3E+01	7.9E+01	4.5E+01	3.0E+01
Herring Bay	Beach	0.649	6.2E+03	3.9E+04	2.0E+04	2.2E+04	1.5E+04
Site 110	3	0.807	8.7E+02	8.7E+03		4.8E+03	
11-24-89	P.W.	1.000	4.9E+02	1.4E+03	7.0E+02	8.8E+02	4.8E+02
Herring Bay	Beach	0.864	2.5E+05	9.1E+04	2.7E+05	2.0E+05	9.8E+04
Site 125	3	0.851	9.3E+03	9.3E+03	3.9E+03	7.5E+03	3.1E+03
11-23-89	P.W.	1.000	3.3E+01	4.9E+02	7.9E+01	2.0E+02	2.5E+02
Two Moon	Beach	0.869	5.8E+01	0.0E+00	2.3E+01	2.7E+01	2.9E+01
Site 200	3	0.547	3.7E+01	0.0E+00	1.5E+02	6.1E+01	7.6E+01
12-2-89	P.W.	1.000	3.3E+01	7.0E+00	1.7E+02	7.0E+01	8.8E+01
Port Fidalgo	Beach	0.868	9.2E+01	2.6E+02	4.6E+01	1.3E+02	1.2E+02
Site 201	3	0.676	1.0E+02	0.0E+00	1.2E+02	7.4E+01	6.4E+01
12-3-89	P.W.	1.000	4.9E+01	1.4E+01	1.7E+01	2.7E+01	1.9E+01

P.W. = Beach Porewater

R/V John N. Cobb, May 31–June 10, 1990

MPN Data

	Sample#	Depth (m)	% Dry Weight (*.01)	MPN (cells/g dry sediment) Rep 1	Rep 2	Rep 3	Mean	Std. Dev.
Snug Harbor	1454	Beach	0.815	4.0E+02	8.6E+02	1.1E+02	4.6E+02	3.8E+02
6–1–90	1455	3	0.732	1.9E+02	1.8E+02	5.5E+01	1.4E+02	7.5E+01
Site #4	1457	20	0.617	4.4E+02	1.8E+03	2.8E+03	1.7E+03	1.2E+03
MacLeod Harbor	1448	Beach	0.892	0.0E+00	2.2E+01	0.0E+00	<2.0E+01	
6–1–90								
Site #3								
Sleepy Bay	1442	Beach	0.778	3.5E+02	1.0E+02	1.7E+02	2.1E+02	1.3E+02
6–2–90	1443	3	0.731	6.9E+02	2.3E+02	1.1E+03	6.7E+02	4.3E+02
Site #6	1445	20	0.587	1.8E+02	3.9E+02	3.9E+02	3.2E+02	1.3E+02
Chenega Island	1430	Beach	0.835	2.6E+02	2.8E+03	9.6E+02	1.3E+03	1.3E+03
6–3–90	1431	3	0.901	1.0E+02	2.2E+01	2.2E+01	4.8E+01	4.5E+01
Site #7	1432	6	0.885	0.0E+00	2.3E+01	4.5E+01	2.3E+01	2.3E+01
	1433	20	0.838	0.0E+00	2.4E+01	0.0E+00	<2.0E+01	
Herring Bay	1424	Beach	0.919	2.4E+03	1.4E+03	5.7E+02	1.6E+03	7.7E+02
6–4–90	1425	3	0.873	9.2E+02	2.5E+02	1.3E+03	8.1E+02	5.1E+02
Site #8	1426	6	0.848	1.3E+02	4.7E+01	1.3E+02	1.0E+02	4.8E+01
	1427	20	0.859	3.0E+01	3.5E+02	2.0E+02	1.9E+02	1.6E+02
Disk Island	1418	Beach	0.823	2.1E+02	2.7E+02	2.6E+02	2.4E+02	3.2E+01
6–5–90	1419	3	0.892	4.5E+01	7.9E+01	4.5E+01	5.6E+01	1.9E+01
Site #10	1420	6	0.791	2.2E+02	1.0E+03	8.3E+02	6.2E+02	4.0E+02
	1421	20	0.832	2.1E+02	3.6E+02	5.2E+02	3.6E+02	1.6E+02
Northwest Bay	1502	Beach	0.854	2.0E+04	2.7E+04	3.9E+04	2.8E+04	9.4E+03
6–6–90	1503	3	0.853	4.3E+03	1.2E+04	2.1E+03	6.2E+03	5.4E+03
Site #11	1505	20	0.506	4.6E+02	1.6E+03	9.9E+02	1.0E+03	5.6E+02
Block Island	1490	Beach	0.882	7.9E+04	1.5E+04	5.7E+04	5.0E+04	3.3E+04
6–5–90	1491	3	0.786	6.3E+02	2.2E+03	2.7E+03	1.8E+03	1.1E+03
Site #9	1493	20	0.832	0.0E+00	6.3E+01	1.4E+02	6.8E+01	7.1E+01
Smith Island	1496	Beach	0.921	1.2E+02	1.2E+02	1.2E+02	1.2E+02	0.0E+00
6–6–90	1497	3	0.791	1.4E+02	2.7E+02	4.2E+02	2.7E+02	1.4E+02
Site #13	1498	6	0.784	0.0E+00	2.6E+01	5.1E+01	2.6E+01	2.6E+01
	1499	20	0.726	0.0E+00	0.0E+00	0.0E+00	<2.0E+01	
N.E. Knight	1484	Beach	0.826	1.3E+02	1.7E+02	1.3E+02	1.5E+02	2.1E+01
6–6–90								
Site #12								
Bay of Isles	1478	Beach	0.725	1.9E+03	0.0E+00	4.6E+02	8.0E+02	1.0E+03
6–7–90	1479	3	0.801	1.3E+02	1.3E+02	1.2E+02	1.3E+02	9.2E+00
Site #14	1481	20	0.806	3.3E+01	6.6E+01	6.6E+01	5.5E+01	1.9E+01
Green Island	1480	Beach	0.848	2.6E+02	5.9E+02	1.3E+02	3.3E+02	2.4E+02
6–7–90								
Site #15								
Rocky Bay	1488	Beach	0.943	0.0E+00	2.1E+01	4.2E+01	2.1E+01	2.1E+01
6–8–90								
Site #16								
Zaikof Bay	1472	Beach	0.915	0.0E+00	2.2E+01	0.0E+00	<2.0E+01	
6–8–90								
Site #17								
N.E. Fidalgo	1406	Beach	0.894	1.5E+03	2.5E+03	5.6E+03	3.2E+03	2.2E+03
6–9–90	1407	3	0.567	1.4E+02	7.0E+01	7.0E+01	9.4E+01	4.1E+01
Site #19	1408	6	0.884	1.9E+02	1.9E+02	1.2E+02	1.7E+02	4.2E+01
	1409	20	0.795	5.0E+01	0.0E+00	1.4E+02	6.3E+01	7.0E+01

R/V Davidson June 27–August 5, 1990
MPN Data

	Depth (m)	Sample I.D. #	% Dry Weight (*.01)	MPN (cells/g dry sediment) rep 1	rep 2	rep 3	Mean	Std. dev.
Olsen Bay	Beach	9000–9002	0.667	6.00E+01	7.50E+01	6.00E+01	6.50E+01	8.66E+00
06–27–90	3	9003–9005	0.532	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Site #1	6	9006–9008	0.713	0.00E+00	2.81E+00	2.81E+01	1.03E+01	1.54E+01
	20	9009–9011	0.805	2.48E+01	2.48E+01	2.48E+01	2.48E+01	2.63E–07
	40	9012–9014	0.593	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	100	9015–9017	0.448	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Port Fildago	Beach	9018–9021	0.944	2.12E+01	1.17E+02	2.12E+01	5.30E+01	5.50E+01
06–28–90	3	9022–9024	0.616	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Site #2	6	9025–9027	0.811	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	20	9028–9030	0.787	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	40	9031–9033	0.633	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	100	9034–9036	0.633	3.16E+01	0.00E+00	0.00E+00	1.05E+01	1.82E+01
Smith Island	Beach	9036–9040	0.900	1.22E+03	1.89E+03	1.89E+03	1.67E+03	3.85E+02
07–02–90	3	9041–9043	0.793	6.18E+02	1.64E+03	2.52E+01	7.61E+02	5.16E+02
Site #3	6	9044–9046	0.807	1.36E+02	9.91E+01	2.48E+01	8.67E+01	5.68E+01
	20	9047–9049	0.714	7.00E+01	7.00E+01	9.80E+01	7.94E+01	1.62E+01
	40	9050–9052	0.718	6.82E+02	1.11E+02	1.95E+02	3.30E+02	3.08E+02
	100	9053–9055	0.532	3.76E+01	3.76E+01	9.40E+01	5.64E+01	3.26E+01
Zaikof Bay	Beach	9209&9211	0.823	1.34E+02		4.66E+01	9.11E+01	
07–03–90	3	9212–9214	0.720	0.00E+00	0.00E+00	2.78E+01	9.26E+00	1.60E+01
Site #4	6	9215–9217	0.663	0.00E+00	0.00E+00	3.02E+01	1.01E+01	1.74E+01
	20	9218–9220	0.705	5.67E+01	0.00E+00	7.09E+01	4.26E+01	3.75E+01
	40	9221–9223	0.373	5.36E+01	5.36E+01	5.36E+01	5.36E+01	0.00E+00
	100	9224–9226	0.623	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rocky Bay	Beach	9190–9192	0.825	4.86E+01	1.70E+02	8.48E+01	1.01E+02	6.22E+01
07–04–90	3	9193–9195	0.724	2.78E+01	0.00E+00	2.78E+01	1.84E+01	1.59E+01
Site #5	6	9196–9198	0.748	2.67E+01	0.00E+00	0.00E+00	8.91E+00	1.54E+01
	20	9199–9201	0.689	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	40	9202–9204	0.677	0.00E+00	2.96E+01	2.96E+01	1.97E+01	1.71E+01
	100	9205–9207	0.510	3.92E+01	0.00E+00	9.80E+01	4.58E+01	4.93E+01
West Bay	Beach	9096–9097	0.879	4.55E+01	0.00E+00	1.37E+03	4.70E+02	7.75E+02
07–05–90	3	9098–9100	0.207	9.68E+01	0.00E+00	0.00E+00	3.22E+01	5.58E+01
Site #6	6	9101–9103	0.606	1.32E+02	6.25E+01	6.25E+01	9.90E+01	2.86E+01
	20	9104–9106	0.180	1.11E+02	1.11E+02	3.69E+02	2.04E+02	1.60E+02
	40	9107–9109	0.408	0.00E+00	1.23E+02	0.00E+00	4.08E+01	7.06E+01
	100	9110–9112	0.497	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Herring Bay	Beach	9171–9173	0.606	1.61E+04	8.68E+03	3.23E+02	8.38E+03	7.91E+03
07–06–90	3	9174	0.667	2.55E+02			2.55E+02	
Site #7	6	9177–9179	0.630	1.75E+02	2.70E+02	2.70E+02	2.38E+02	5.50E+01
	20	9180–9181	0.674	3.86E+02	1.34E+02		2.60E+02	
	40	9185	0.780			1.79E+02	1.79E+02	
	100	9186&9188	0.580	3.45E+00		3.79E+01	2.07E+01	
Disk Island	Beach	9152&9154	0.836	2.63E+03		5.86E+02	1.61E+03	
07–07–90	3	9155–9157	0.855	3.96E+02	4.09E+03	2.57E+02	1.58E+03	2.18E+03
Site #8	6	9158–9160	0.833	1.68E+02	4.80E+01	2.04E+02	1.40E+02	8.17E+01
	20	9161–9163	0.536	0.00E+00		0.00E+00	0.00E+00	
	40	9164–9166	0.569	8.77E+02	2.50E+02	1.43E+02	4.23E+02	3.96E+02
	100	9167–9169	0.472	4.24E+01	1.06E+02	4.24E+01	6.36E+01	3.67E+01
Block Island	Beach	9057–9059	0.971	5.05E+03	1.75E+04	1.13E+04	1.13E+04	6.23E+03
07–08–90	3	9060–9062	0.713	6.87E+01	3.09E+02	2.38E+01	1.34E+02	1.53E+02
Site #9	6	9063–9065	0.770	2.86E+01	3.12E+02	1.82E+01	1.19E+02	1.67E+02
	20	9066–9068	0.524	2.67E+02	3.24E+02	2.67E+02	2.86E+02	3.31E+01
	40	9069–9071	0.641	5.30E+01	2.65E+02	7.94E+01	1.32E+02	1.16E+02
	100	9072–9074	0.514	1.56E+01	1.75E+01	0.00E+00	1.10E+01	9.80E+00
N.W. Bay	Beach	9133–9135	0.934	3.00E+04	3.00E+05	1.39E+04	1.15E+05	1.61E+05
07–09–90	3	9136–9138	0.630	5.24E+02	2.06E+03	1.25E+04	5.04E+03	6.54E+03
Site #10	6	9139–9141	0.489	4.91E+03	6.75E+03	2.25E+03	4.64E+03	2.26E+03
	20	9142–9144	0.634	1.74E+03	4.42E+03	2.21E+03	2.79E+03	1.43E+03
	40	9145–9147	0.700	1.57E+03	1.13E+03	1.00E+03	1.23E+03	3.00E+02
	100	9148–9150	0.488	0.00E+00	4.50E+01	0.00E+00	1.50E+01	2.60E+01

R/V Davidson June 27–August 5, 1990
MPN Data

	Depth (m)	Sample I.D. #	% Dry Weight (*.01)	MPN (cells/g dry sediment) rep 1	rep 2	rep 3	Mean	Std. dev.
N.E. Knight Is.	Beach	9076–9078	0.781	1.01E+03	5.89E+02	1.79E+02	5.93E+02	4.16E+02
07–10–90	3	9079–9081	0.782	3.96E+02	6.39E+01	2.56E+01	1.62E+02	2.04E+02
Site #11	6	9082–9084	0.964	2.07E+01	8.30E+01	2.07E+01	4.15E+01	3.59E+01
	20	9085–9087	0.557	7.18E+01	1.97E+02	0.00E+00	8.98E+01	1.00E+02
	40	9088–9090	0.675	1.19E+02	1.04E+02	0.00E+00	7.41E+01	6.46E+01
	100	9091&9092	0.440	0.00E+00	0.00E+00		0.00E+00	
Bay of Isles	Beach		0.639					
07–11–90	3		0.784					
Site #12	6		0.823					
	20		0.221					
	40		0.726					
	100		0.292					
Green Island	Beach	9114–9116	0.729	1.78E+02	2.33E+02	3.16E+02	2.42E+02	6.90E+01
07–12–90	3	9117–9119	0.781	6.40E+01	1.02E+02	2.56E+01	6.40E+01	3.84E+01
Site #13	6	9120–9122	0.758					
	20	9123–9125	0.640	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	40	9126–9128	0.615	2.11E+03	2.76E+03	2.76E+03	2.55E+03	3.76E+02
	100	9129–9131	0.453	3.75E+02	5.08E+02	1.08E+03	6.55E+02	3.75E+02
MacLeod Hbr.	Beach	9286–9287	0.868	8.06E+01	2.30E+01	2.30E+01	4.22E+01	3.32E+01
07–16–90	3	9288&9289	0.798	6.27E+01	2.13E+02	0.00E+00	9.19E+01	1.09E+02
Site #14	6	9291–9293	0.704	2.98E+02	1.85E+02	3.27E+02	2.70E+02	7.52E+01
	20	9294–9296	0.725	1.52E+02	1.52E+02	2.76E+01	1.10E+02	7.17E+01
	40	9296&9299	0.672		2.98E+01	2.53E+02	1.41E+02	
	100	9300–9302	0.753		0.00E+00		0.00E+00	
Mosselipe	Beach	9343&9344	0.774	0.00E+00	0.00E+00		0.00E+00	
Bay	3	9346	0.730		6.85E+01		6.85E+01	
07–17–90	6	9346&9350	0.733	0.00E+00		2.73E+01	1.36E+01	
Site #15	20	9351&9352	0.722	2.77E+01	2.77E+01		2.77E+01	
	40	9355&9358	0.674		1.93E+02	1.04E+02	1.48E+02	
	100	9357–9359						
Snug Harbor	Beach	9247–9249	0.847	1.53E+04	8.26E+04	3.80E+04	4.57E+04	3.41E+04
07–18–90	3	9250–9252	0.772	1.02E+03	2.85E+02	2.20E+02	5.09E+02	4.46E+02
Site #16	6	9253–9255	0.761	1.71E+02	1.71E+03	3.02E+02	7.27E+02	8.52E+02
	20	9256–9258	0.710	4.65E+03	4.65E+03	2.39E+04	1.11E+04	1.11E+04
	40	9259–9261	0.430	7.67E+03	1.14E+04	5.35E+03	8.14E+03	3.05E+03
	100	9262–9264	0.424	4.01E+03	7.78E+03	7.31E+03	6.37E+03	2.06E+03
Chanega	Beach	9361–9363	0.913	8.65E+03	1.56E+04	5.37E+03	1.09E+04	6.90E+03
07–19–90	3	9364–9366	0.848	5.79E+02	5.79E+02	5.79E+02	5.79E+02	0.00E+00
Site #17	6	9367–9369	0.829	3.98E+02	3.98E+02	3.98E+02	3.98E+02	0.00E+00
	20	9370–9372	0.849	9.42E+01	9.42E+01	2.00E+02	1.30E+02	6.12E+01
	40	9373–9375	0.783	0.00E+00	1.48E+02	1.73E+02	1.06E+02	9.30E+01
	100	9376–9378	0.767	6.52E+01	2.61E+01	4.30E+02	1.74E+02	2.23E+02
L. Herring	Beach	9304–9306	0.788	1.66E+02	6.22E+02	1.66E+03	8.12E+02	7.60E+02
Bay	3	9307–9309	0.772	6.48E+01	6.48E+01	2.59E+01	5.18E+01	2.24E+01
07–20–90	6	9310–9312	0.851	2.35E+01	0.00E+00	0.00E+00	7.83E+00	1.36E+01
Site #18	20	9313–9315	0.766	6.51E+01	1.04E+02	2.99E+02	1.56E+02	1.26E+02
	40	9316–9318	0.609	8.21E+01	3.28E+01	8.05E+02	3.07E+02	4.32E+02
	100	9319–9321	0.391	1.18E+03	4.35E+02	1.25E+03	9.56E+02	4.52E+02
Drier Bay	Beach	9323–9325	0.496					
07–21–90	3	9326–9328	0.320	6.25E+01	0.00E+00	6.25E+01	4.17E+01	3.61E+01
Site #19	6	9329–9331	0.386	5.18E+01	0.00E+00	2.07E+02	8.64E+01	1.08E+02
	20	9332–9334	0.784	0.00E+00	2.56E+01	1.15E+02	4.68E+01	6.03E+01
	40	9335–9337	0.500	4.00E+01	4.00E+01	4.60E+03	1.56E+03	2.63E+03
	100	9338–9340	0.403	0.00E+00	1.74E+02	1.74E+02	1.16E+02	1.00E+02
Sleepy Bay	Beach	9266–9268	0.969		1.34E+04	1.44E+03	7.43E+03	
07–22–90	3	9269–9271	0.789	6.21E+02	1.55E+03	2.92E+03	1.73E+03	1.15E+03
Site #20	6	9273&9274	0.763		4.33E+03	1.63E+05	9.38E+04	
	20	9275&9277	0.711	3.23E+03		1.11E+04	7.17E+03	
	40	9278–9280	0.740	2.30E+02	4.46E+02	4.46E+02	3.74E+02	1.25E+02
	100	9281–9283	0.605	8.26E+01	3.64E+02	5.46E+02	3.31E+02	2.33E+02

R/V Davidson June 27–August 5, 1990
MPN Data

	Depth (m)	Sample I.D. #	% Dry Weight (*.01)	MPN (cells/g dry sediment) rep 1	rep 2	rep 3	Mean	Std. dev.
Fox Farm	Beach	9380&9381	0.840	9.52E+01	5.83E+02		3.39E+02	
07-23-90	3	9383-9385	0.839	2.62E+02	3.93E+02	9.42E+02	5.32E+02	3.60E+02
Site #21	6	9386-9388	0.793	8.83E+01	5.18E+02	3.40E+02	3.49E+02	2.65E+02
	20	9389&9390	0.770	4.29E+03	2.21E+02		2.25E+03	
	40	9392&9394	0.732	2.32E+02		5.48E+02	3.89E+02	
	100	9395-9397	0.785	5.23E+01	4.31E+02	0.00E+00	1.61E+02	2.35E+02
Sunny Cove	Beach	9399-9401	0.879	0.00E+00	0.00E+00	1.25E+02	4.17E+01	7.23E+01
07-24-90	3	9402-9404	0.842	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Site #22	6	9405-9407	0.858	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	20	9409&9410	0.779		0.00E+00	2.57E+01	1.28E+01	
	40	9411-9413	0.766	6.40E+02	0.00E+00	0.00E+00	2.13E+02	3.69E+02
	100	9414-9416	0.710	0.00E+00	2.82E+01	2.82E+01	1.88E+01	1.63E+01
Agnes Cove	Beach	9418-9420	0.910	8.79E+01	7.69E+01	9.89E+01	8.79E+01	1.10E+01
07-25-90	3	9421-9423	0.801	0.00E+00	2.75E+02	2.87E+03	1.05E+03	1.58E+03
Site #23	6	9424-9426	0.796	5.03E+01	2.51E+01	2.51E+01	3.35E+01	1.45E+01
	20	9428&9429	0.215		1.02E+03	9.30E+01	5.58E+02	
	40	9430-9432	0.572	3.50E+01	3.50E+01	3.50E+01	3.50E+01	0.00E+00
	100	9433-9435	0.554	0.00E+00	0.00E+00	3.61E+01	1.20E+01	2.08E+01
Black Bay	Beach	9437-9439	0.968	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
07-26-90	3	9440-9442						
Site #24	6	9443-9445	0.758	5.28E+01	0.00E+00	2.64E+01	2.64E+01	2.64E+01
	20	9446-9448	0.746	2.68E+01	2.68E+01	5.36E+01	3.57E+01	1.55E+01
	40	9449-9451	0.650	3.08E+01	7.69E+01	3.08E+01	4.62E+01	2.66E+01
	100	9452-9454	0.586	6.71E+01	0.00E+00	8.39E+01	5.03E+01	4.44E+01
Chugach	Beach	9495&9496	0.926		6.48E+02	5.40E+01	3.51E+02	
07-30-90	3	9497-9499	0.864	5.79E+01	5.67E+02	9.26E+01	2.39E+02	2.85E+02
Site #25	6	9501&9502	0.785		1.44E+02	1.05E+02	1.24E+02	
	20	9503&9505	0.671	1.84E+03		3.43E+03	2.53E+03	
	40	9506-9508	0.726	0.00E+00	0.00E+00	6.89E+01	2.30E+01	3.98E+01
	100	9509-9511	0.681	0.00E+00	8.91E+01	0.00E+00	2.97E+01	5.15E+01
Tonsina Bay	Beach	9456-9458	0.953	0.00E+00	2.10E+01	5.25E+01	2.45E+01	2.64E+01
07-31-90	3	9459-9461	0.932	3.54E+02	1.18E+02	2.36E+02	2.36E+02	1.18E+02
Site #26	6	9462-9464	0.888	0.00E+00	0.00E+00	5.63E+01	1.88E+01	3.25E+01
	20	9465-9467	0.800	2.87E+02	5.00E+01	6.25E+01	1.33E+02	1.34E+02
	40	9468-9470	0.585					
	100	9471-9473	0.566					
Katmai Bay	Beach	9551-9553	0.736					
08-03-90	3	9554-9556	0.780					
Site #29	6	9557-9559	0.774					
	20	9560-9562	0.631					
	40	9563-9565	0.529					
	100	9566-9568	0.533					
Hallo Bay	Beach	9513-9515	0.873	0.00E+00	2.29E+01	2.29E+01	1.53E+01	1.32E+01
08-05-90	3	9516-9518	0.797	0.00E+00	2.51E+01	0.00E+00	8.36E+00	1.45E+01
Site #28	6	9519-9521	0.771					
	20	9522-9524	0.770					
	40	9525-9527	0.583					
	100	9528-9530	0.567					
Windy Bay	Beach	9475-9477	0.881					
08-05-90	3	9478-9480	0.804					
Site #27	6	9481-9483	0.862					
	20	9484-9486	0.431					
	40	9487-9489						
	100	9490-9492	0.676					
			0.692					

R/V John N. Cobb September 5–September 15, 1990
MPN Data

	Depth (m)	% Dry Weight (*.01)	MPN (cells/g dry sediment) rep 1	rep 2	rep 3	Mean	Std. dev.
Olsen Bay	Beach	0.514	3.26E+01	3.26E+01	6.51E+01	4.34E+01	1.88E+01
9–5–90	3	0.660	3.03E+01	7.58E+02	0.00E+00	2.63E+02	4.29E+02
Site #1	6	0.451	0.00E+00	0.00E+00	4.88E+02	1.63E+02	2.82E+02
	20	0.585	2.39E+02	0.00E+00	3.59E+02	1.99E+02	1.83E+02
Port Fidalgo	Beach	0.868	4.62E+01	4.62E+01	2.31E+01	3.85E+01	1.33E+01
9–5–90	3	0.672	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Site #2	6	0.739	0.00E+00	2.71E+01	2.71E+01	1.80E+01	1.56E+01
	20	0.740	0.00E+00	0.00E+00	2.70E+01	9.01E+00	1.56E+01
West Bay	Beach	0.875	1.60E+02	4.57E+01	1.03E+02	1.03E+02	5.71E+01
9–5–90	3	0.804	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Site #3	6	0.805	0.00E+00	0.00E+00	2.48E+01	8.28E+00	1.43E+01
	20	0.510	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
N.W. Bay	Beach	0.914	8.75E+05	1.53E+04	5.47E+05	4.79E+05	4.34E+05
9–6–90	3	0.744		2.82E+02	2.96E+03	1.62E+03	
Site #4	6	0.565	9.85E+03	3.01E+04	1.42E+04	1.77E+04	1.11E+04
	20	0.629	1.91E+03	1.75E+03	3.50E+03	2.38E+03	9.67E+02
Disk Island	Beach	0.800	2.75E+02	2.13E+02	5.00E+01	1.79E+02	1.16E+02
9–6–90	3	0.845	5.92E+02	2.72E+02	1.54E+02	3.39E+02	2.27E+02
Site #5	6	0.822	9.73E+02	1.58E+02	6.08E+02	5.80E+02	4.08E+02
	20	0.756	1.72E+03	1.19E+03	3.97E+03	2.29E+03	1.47E+03
Herring Bay	Beach	0.788	6.51E+02	1.82E+02	1.43E+03	7.55E+02	6.31E+02
9–7–90	3	0.596	2.18E+03	5.70E+02	1.85E+03	1.53E+03	8.50E+02
Site #6	6	0.641	2.65E+02	2.65E+02	3.43E+02	2.91E+02	4.50E+01
	20	0.652	4.60E+02	2.61E+02	1.07E+03	5.98E+02	4.24E+02
Otter Bay	6	0.405	4.20E+02	9.88E+01	4.94E+01	1.89E+02	2.01E+02
9–9–90							
Site #7							
Chenega Island	Beach	0.920	0.00E+00	1.41E+02	8.70E+01	7.61E+01	7.13E+01
9–9–90	3	0.919	1.85E+02	3.26E+02	2.39E+02	2.50E+02	7.14E+01
Site #8	6	0.892	5.61E+02	1.48E+02	1.91E+02	2.99E+02	2.28E+02
	20	0.847	8.26E+01	9.46E+01	0.00E+00	5.90E+01	5.15E+01
Iktua Bay	Beach	0.600	5.00E+01	2.50E+01	2.50E+01	3.33E+01	1.44E+01
9–10–90	6	0.789	2.53E+01	2.53E+01	5.07E+01	3.38E+01	1.46E+01
Site #9							
Fox Farm	Beach	0.794	1.39E+03	0.00E+00	2.64E+02	5.50E+02	7.35E+02
9–10–90	3	0.990	4.04E+01	1.11E+02	1.31E+02	9.43E+01	4.77E+01
Site #10	6	0.837	5.97E+02	3.58E+02	3.58E+02	4.38E+02	1.38E+02
	20	0.852	1.29E+02	4.69E+01	9.39E+01	9.00E+01	4.12E+01
MacLeod Harbor	Beach	0.893	2.24E+01	1.23E+02	2.24E+01	5.80E+01	5.82E+01
9–11–90	3	0.732	1.09E+02	5.46E+01	1.09E+02	9.11E+01	3.15E+01
Site #11	6	0.722	2.77E+01	5.54E+01	0.00E+00	2.77E+01	2.77E+01
	20	0.689	0.00E+00	2.03E+02	2.90E+01	7.74E+01	1.10E+02
Sleepy Bay	Beach	0.789	1.01E+03	3.80E+02	3.30E+02	5.75E+02	3.81E+02
9–11–90	3	0.784	2.81E+03	2.17E+03	1.40E+03	2.13E+03	7.02E+02
Site #12	6	0.791	2.15E+03	2.15E+02	1.14E+03	1.17E+03	9.67E+02
	20	0.684	7.31E+02	4.97E+02	3.22E+02	5.17E+02	2.05E+02
Snug Harbor	Beach	0.841	3.57E+02	8.32E+01	0.00E+00	1.47E+02	1.87E+02
9–12–90	3	0.788	2.54E+01	2.54E+01	0.00E+00	1.69E+01	1.47E+01
Site #13	6	0.781	5.12E+01	2.56E+01	1.02E+02	5.98E+01	3.91E+01
	20	0.717	2.37E+02	5.58E+01	6.97E+02	3.30E+02	3.31E+02
Snug Harbor	0	0.795	0.00E+00	1.13E+02	4.15E+02	1.76E+02	2.15E+02
9–12–90	6	0.727	9.63E+01	2.34E+02	4.13E+02	2.48E+02	1.59E+02
Site #14							
Block Island	Beach	0.968	1.34E+03	2.89E+03	3.10E+02	1.52E+03	1.30E+03
9–13–90	3	0.711	7.03E+03	1.13E+04	3.09E+03	7.13E+03	4.08E+03
Site #15	6	0.686	1.60E+03	4.37E+03	7.29E+03	4.42E+03	2.84E+03
	20	0.525	1.52E+03	1.52E+02	9.52E+02	8.76E+02	6.89E+02
N.E. Knight	Beach	0.819	2.44E+01	0.00E+00	2.44E+01	1.63E+01	1.41E+01
Island	3	0.797	2.51E+01	5.02E+01	2.51E+01	3.35E+01	1.45E+01
9–13–90	6	0.868	0.00E+00	4.61E+02	2.30E+01	1.61E+02	2.60E+02
Site #16	20	0.834	4.60E+01	9.59E+01	2.04E+02	1.16E+02	7.98E+01

R/V John N. Cobb September 5–September 15, 1990
MPN Data

	Depth (m)	% Dry Weight (*.01)	MPN (cells/g dry sediment) rep 1	rep 2	rep 3	Mean	Std. dev.
Green Island	Beach	0.755	9.27E+01	5.30E+01	2.65E+01	5.74E+01	3.33E+01
9–14–90	3	0.789	0.00E+00	1.14E+02	1.39E+02	8.45E+01	7.43E+01
Site #17	6	0.784	5.10E+01	1.02E+02	5.10E+01	6.80E+01	2.95E+01
	20	0.702	5.70E+01	1.99E+02	5.70E+01	1.04E+02	8.22E+01
Bay of Isles	Beach	0.794	2.14E+04	2.14E+04	2.14E+04	2.14E+04	0.00E+00
9–15–90	3	0.728	3.71E+02	1.24E+03	6.87E+02	7.65E+02	4.38E+02
Site #18	6	0.634	5.36E+02	2.21E+02	2.68E+03	1.15E+03	1.34E+03
	20	0.607	1.81E+03	3.62E+03	1.15E+03	2.20E+03	1.28E+03
Bay of Isles	6	0.836	9.57E+01	2.03E+02	3.59E+02	2.19E+02	1.32E+02
9–15–90							
Site #19							

F/V Big Valley June 15–June 25, 1991

MPN Data

	Depth (m)	% Dry Weight (*.01)	MPN (cells/g dry sediment) rep 1	rep 2	rep 3	Mean	Std. Dev.
Northwest Bay	Beach	0.810	5.67E+02	2.67E+02	2.43E+03	1.09E+03	1.17E+03
6-15-91	3	0.663	1.50E+03	1.64E+03	1.64E+03	1.59E+03	7.89E+01
Site #1	6	0.660	3.30E+02	5.28E+02	5.28E+01	3.04E+02	2.39E+02
	20	0.567	2.94E+02	4.11E+02	1.76E+02	2.94E+02	1.17E+02
	40	0.587	4.70E+01	2.35E+01	2.35E+01	3.13E+01	1.36E+01
	100	0.563	1.17E+01	<2.00E+01	<2.00E+01	3.89E+00	6.73E+00
Dist Island	Beach	0.850	1.96E+02	3.40E+01	1.70E+01	8.22E+01	9.85E+01
6-16-91	3	0.790	<2.00E+01		1.03E+02	5.14E+01	
Site #2	6	0.737	2.95E+01	2.21E+02	1.70E+02	1.40E+02	9.92E+01
	20	0.733	3.67E+02	3.67E+02	1.25E+02	2.86E+02	1.40E+02
	40	0.507	<2.00E+01	2.03E+01	1.01E+01	1.01E+01	1.01E+01
	100	0.537	3.22E+01	2.15E+01	<2.00E+01	1.79E+01	1.64E+01
Block Island	Beach	0.940	2.07E+03	4.70E+02	2.35E+03	1.63E+03	1.01E+03
6-17-91	3	0.690	1.86E+02	5.52E+02	1.45E+02	2.94E+02	2.24E+02
Site #3	6	0.670	9.38E+01	2.28E+02	5.36E+02	2.86E+02	2.27E+02
	20	0.477	6.20E+01	6.20E+01	1.10E+02	7.79E+01	2.75E+01
	40	0.573	1.15E+01	4.58E+01	1.72E+02	7.64E+01	8.45E+01
	100	0.417	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
Herring Bay	Beach	0.740	9.62E+02	1.70E+02	1.63E+02	4.32E+02	4.59E+02
6-17-91	3	0.760	1.67E+03	1.75E+02	5.36E+01	6.43E+02	5.92E+02
Site #4	6	0.577	2.31E+01	4.62E+01	7.50E+01	4.81E+01	2.60E+01
	20	0.733	5.86E+01	5.86E+01	5.86E+01	5.86E+01	5.86E+01
	40	0.740	1.70E+02	5.92E+01	9.62E+01	1.09E+02	5.65E+01
	100	0.513	<2.00E+01	6.67E+01	2.05E+01	2.91E+01	3.42E+01
	140	0.417	3.34E+01	<2.00E+01	<2.00E+01	1.11E+01	1.93E+01
Lower Herring Bay	Beach	0.763	<2.00E+01	3.05E+01	3.05E+01	2.03E+01	1.76E+01
6-18-91	3	0.747	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
Site #5	6	0.753	1.51E+01	1.51E+01	3.01E+01	2.01E+01	8.69E+00
	20	0.623	2.49E+01	1.25E+01	<2.00E+01	1.25E+01	1.25E+01
	40	0.580	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
	100	0.350	3.85E+01	<2.00E+01	<2.00E+01	1.28E+01	2.22E+01
Chenega Island	Beach	0.830	1.08E+02	5.64E+01	1.91E+02	1.22E+02	6.34E+01
6-19-91	3	0.797	3.19E+01	1.59E+01	1.59E+01	2.13E+01	9.20E+00
Site #6	6	0.800	1.60E+01	1.60E+01	<2.00E+01	1.07E+01	9.24E+00
	20	0.770	<2.00E+01	1.54E+01	<2.00E+01	5.13E+00	8.89E+00
	40	0.540	1.08E+01	<2.00E+01	1.08E+01	7.20E+00	6.24E+00
	100	0.580	1.16E+01	<2.00E+01	<2.00E+01	3.87E+00	6.70E+00
	140	0.660	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
Drier Bay	Beach	0.827	1.65E+01		3.31E+01	2.48E+01	
6-20-91	3	0.817	1.63E+01	<2.00E+01	1.63E+01	1.09E+01	9.43E+00
Site #7	6	0.750		1.50E+01	1.65E+02	9.00E+01	
	20	0.740	1.48E+01	1.48E+01	1.48E+01	1.48E+01	1.48E+01
	40	0.570	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
	100	0.250	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
Sleepy Bay	Beach	0.887	6.94E+01	9.54E+01	1.47E+02	1.04E+02	3.97E+01
6-20-91	3	0.830	7.47E+01	1.41E+02	1.91E+02	1.36E+02	5.83E+01
Site #8	6	0.783	8.39E+01	8.10E+01	1.30E+02	9.16E+01	3.50E+01
	20	0.670	1.14E+02	5.71E+01	<2.00E+01	6.70E+01	5.96E+01
	40	0.747	1.49E+01	<2.00E+01	1.49E+01	9.96E+00	8.63E+00
	100	0.567	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
MacLeod Harbor	Beach	0.863	1.73E+01	<2.00E+01	5.04E+01	2.59E+01	3.11E+01
6-21-91	3	0.730	1.46E+01	<2.00E+01	<2.00E+01	4.87E+00	8.43E+00
Site #9	6	0.663		<2.00E+01	2.65E+01	1.33E+01	
	20	0.580		<2.00E+01	1.16E+01	5.80E+00	
	40	0.637	1.27E+01	5.10E+01	4.46E+01	3.61E+01	2.05E+01
	100	0.737	<2.00E+01	<2.00E+01	1.47E+01	4.91E+00	8.51E+00

F/V Big Valley June 15–June 25, 1991

MPN Data

	Depth (m)	% Dry Weight (*.01)	MPN (cells/g dry sediment) rep 1	rep 2	rep 3	Mean	Std. Dev.
Snug Harbor	Beach	0.743	<2.00E+01	1.49E+01	<2.00E+01	4.95E+00	8.58E+00
6-22-91	3	0.736	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
Site #10	6	0.740	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
	20	0.690	4.83E+01	1.38E+01	7.59E+01	4.60E+01	3.11E+01
	40	0.727	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
	100	0.403	8.06E+00	<2.00E+01	<2.00E+01	2.69E+00	4.65E+00
Bay of Isles	Beach	0.837	3.35E+01	1.67E+01	9.21E+01	4.74E+01	3.96E+01
6-22-91	3	0.780	1.79E+02	1.56E+01	3.12E+01	7.54E+01	9.04E+01
Site #11	6	0.803	<2.00E+01	3.21E+01	1.37E+02	5.62E+01	7.14E+01
	20	0.120	<2.00E+01	2.40E+00	2.40E+00	1.60E+00	1.39E+00
	40	0.270	1.08E+01	<2.00E+01	2.16E+01	1.08E+01	1.08E+01
	100	0.283	1.58E+01	<2.00E+01	<2.00E+01	5.26E+00	9.11E+00
	140	0.413	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
Mooselips Bay	Beach	0.927	<2.00E+01	<2.00E+01	1.85E+01	6.18E+00	1.07E+01
6-23-91	3	0.887	<2.00E+01	1.24E+02	1.51E+02	9.17E+01	9.05E+01
Site #12	6	0.823	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
	20	0.643	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
	40	0.630	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
	100	0.663	<2.00E+01	<2.00E+01	1.33E+01	4.42E+00	7.66E+00
Rocky Bay	Beach	0.830	1.66E+01	<2.00E+01	1.66E+01	1.11E+01	9.58E+00
6-24-91	3	0.773	1.55E+01	<2.00E+01	3.09E+01	1.55E+01	1.55E+01
Site #13	6	0.753	4.52E+01	1.51E+01	<2.00E+01	2.01E+01	2.30E+01
	20	0.577	5.19E+01	5.19E+01	2.31E+01	4.23E+01	1.67E+01
	40	0.520	3.64E+01	2.08E+01	7.28E+01	4.33E+01	2.67E+01
	100	0.430	<2.00E+01	8.60E+00	8.60E+00	5.73E+00	4.97E+00
Zaikof Bay	Beach	0.847	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
6-25-91	3	0.537	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
Site #14	6	0.703	<2.00E+01	1.41E+01	1.41E+01	9.37E+00	8.12E+00
	20	0.710	9.23E+01	<2.00E+01	<2.00E+01	3.08E+01	5.33E+01
	40	0.293	1.17E+01	1.17E+01	<2.00E+01	7.81E+00	6.77E+00
	100	0.580	4.64E+01	<2.00E+01	3.48E+01	2.71E+01	2.41E+01
Olsen Bay	Beach	0.727	<2.00E+01	1.45E+01	<2.00E+01	4.85E+00	8.39E+00
6-25-91	3	0.730	<2.00E+01	<2.00E+01	1.46E+01	4.87E+00	8.43E+00
Site #15	6	0.530	<2.00E+01	1.06E+01	<2.00E+01	3.53E+00	6.12E+00
	20	0.417	<2.00E+01	8.34E+00	8.34E+00	5.56E+00	4.82E+00
	40	0.500	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
	100	0.350	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01	<2.00E+01
Valdez Pos. Control	Beach	0.910	1.00E+05	1.27E+05		1.14E+05	

Appendix C

Oxidation Rate Potential Data for All Isotopes for All Cruises (1989-1991)

R/V Fairweather July 1–August 22,1989

Hexadecane ORP Data

				2 Day Data			10 Day Data			21 Day Data		
	Sample	% Dry Weight *(.01)	Day 0 (DPM)	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day
Fox Farm	Beach Comp.	0.900	252	7247	6073	6.83		14576	2.65	9926	10335	0.87
7-1-89	3 m	0.631	97	6399	3665	4.76	7065	12695	1.93	19814	12834	1.53
Site 01	6 m	0.784	186		313	0.03	6332	7234	1.38	11185	12601	1.18
	20 m	0.691	186				11247	12038	2.74		11565	1.30
	40 m	0.513	153	285	181	0.00	7941		2.49	11208	11619	1.72
	Porewater	1.000	444	5980		4.75		10955	1.78	11580		0.90
	1:10 PW	1.000		2989	1767	1.75	8109	14042	1.80	16873	7586	0.96
Sawmill Bay	Beach Comp.	0.919	247	2960	4394	3.08	8028		1.41	13824	9341	0.98
7-2-89	3 m	0.805	98	8140	7134	6.56	10559	10438	2.12	14106	10756	1.20
Site 02	6 m	0.744	252	3560		3.67	6742	10976	1.92	11680	10224	1.14
	20 m	0.683	141	865	1267	0.96	11220	9640	2.46	8709	4478	0.73
	40 m	0.711	87	157	90	0.00	7535	8591	1.84	11355	8448	1.07
	100m	0.719	106	629	3987	2.36	7669	9396	1.91	13813	9719	1.27
	Porewater	1.000	155	9108		7.36				15300		1.19
	1:10 PW	1.000	511	439	3473	1.40	9722	4443	1.13	1302	3643	0.17
Shelter Bay	Beach Comp.	0.737	124	522	776	0.42	10609	7577	1.99	29013	7492	1.93
7-3-89	3 m	0.856	1	471	376	0.14	6130	133	0.55	22162	7203	1.34
Site 03	6 m	0.819	110	365	506	0.17	20471	90	2.03	8229	14864	1.06
	20 m	0.711	156	64	322	0.00	133	11324	1.26	19460	17036	2.01
	40 m	0.610	156	181	76	0.00	4962	4974	1.26	16677	16342	2.11
	100 m	0.690	136	295	106	0.00	6131	112	0.69	13105	7972	1.16
	Porewater	1.000	108	2752	2769	2.07	10859	8116	1.53	24194	1894	1.01
	1:10 PW	1.000	301		1805	1.27	5791	5971	0.93	14415	5600	0.77
Iktua Bay	Beach comp.	0.774	57	5511	6255	8.04	6944	6883	1.41	22911	21553	2.25
7-4-89	3 m	0.821	93	365	1057	0.45	7088	4578	1.13	22677	9952	1.55
Site 04	6 m	0.744	142	702	1844	1.11	2883	3183	0.69	12785	13461	1.37
	20 m	0.349	358	266	112	0.00	3057	2609	1.22	8955	10337	2.13
	40 m	0.639		199	73	0.00	4863	5971	1.47	8674	16912	1.57
	100 m	0.553	234	64	170	0.00	5416	4035	1.34	12257	13692	1.82
	Porewater	1.000		3366	3387	2.68	7031	4560	0.92	27495	22993	1.98
	1:10 PW	1.000	644	3842	3665	2.89	2088		0.30	19013	27025	1.80
Mummy Bay	Beach Comp.	0.666	172	3747	5083	5.17	25333	25696	6.32	14484	18868	1.95
7-5-89	3 m	0.838	65	200	342	0.00	31791	28998	7.87	21512	19450	2.51
Site 05	6 m	0.656	113	1185	815	0.91	24474	24234	6.12	26061	29162	3.31
	20 m	0.580	82	126	100	0.00	23504	8241	4.48	20176	18898	2.83
	40 m	0.554	65	206	73	0.00	16202	5149	3.43	16130	15686	2.24
	100 m	0.768	90	65	122	0.00	18366	19147	4.01	9790	9741	0.98
	Porewater	1.000	65	6397	4663	3.96	31011	31939	5.20	27512	9936	1.46
	1:10 PW	1.000	66	1699	1435	1.07	17175	13840	2.54	10153	13722	0.93

*–possible vial leakage

R/V Fairweather July 1–August 22,1989

Hexadecane ORP Data

				2 Day Data			10 Day Data			21 Day Data		
	Sample	% Dry Weight *(.01)	Day 0 (DPM)	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day
Snug Harbor	Beach Comp.	0.727	92		7810	6.63	15234	17803	3.72	23493 *	18373	2.25
7-6-89	3 m	0.767		1993	5232	3.67	17404	17764	3.81	19742 *	21516	2.13
Site 06	6 m	0.785		4270	7648	6.03	20856	24931	4.80	10256	6839	0.84
	20 m	0.441	137	1178	847	1.36	16112	6107 *	4.10	9616	7034	1.45
	40 m	0.372	220	162		0.00	17677	12769	6.69	1550	6539	1.02
	100 m	0.320	137	121		0.00	12464	10664 *	6.35	11366	7454	2.26
	Porewater	1.000	122	5319	4293	3.77	29175	28619	4.77	25812	34263	2.35
	1:10 PW	1.000	183	8865	8487	8.99	21310	20978	3.48	7339	21693	1.13
Green Island	Beach Comp.	0.715	85	461	470	0.21	26661	32011	7.01	22573	15996	2.11
7-7-89	3 m	0.757	75	269	261	0.00	20968	21117	4.67	16539	7324	1.17
Site 07	6 m	0.738	126	1970	206	0.91	23126	22361	5.07	11634	22867	1.82
	20 m	0.649	87	217	251	0.00	13397	22965	5.44	17740	14853	2.32
	40 m	0.607	73	62	91	0.00	20484	16207	4.96	17296	11589	1.85
	100 m	0.300	251	143	181	0.00	14703	14732	8.02	14780	10868	3.32
	Porewater	1.000	105		3807	2.94	28073	31286	4.73	31578	22376	2.12
	1:10 PW	1.000	87	1631	887	0.82	2828	19761	1.82	6993	29922	1.52
Bay of Isles	Beach Comp.	0.710	112	18988	18244	21.53		9686	2.21	22257	27573	2.75
7-8-89	3 m	0.241	57	4800	7808	20.86	5333	6528	3.81	14957	22441	6.07
Site 08	6 m	0.733	71	9800	12653	12.34	8237	8524	1.84	16146	26859	2.30
	20 m	0.270	128	1027	3612	6.60	7427	5752	3.89	14414	5485	2.84
	40 m	0.488	68	6735	17657	20.33	6869	6093	1.77	16821	6779	2.03
	100 m	0.302	72	1204	6000	7.78	4667	5466	2.84	13908	14113	3.61
	Porewater	1.000	135	11411	7810	7.77	11064	9964	1.71	16466	34739	2.01
	1:10 PW	1.000	85	12397	11026	8.63	16430	7785	1.97	20494	21541	1.65
Smith Island	Beach Comp.	0.952	154	2172	3207	2.11	6945	6778	1.16	18319	16106	1.49
7-9-89	3 m	0.789	219	3928	1116	2.37	7161		1.46	18169	19146	1.86
Site 09	6 m	0.616	412	1566	1219	1.13	7565	6545	1.38	15703	15080	1.47
	20 m	0.761	265	298	428	0.09	5379	4456	1.02	19846	19289	2.01
	40 m	0.566	179	270	183	0.00	3642	4790	1.16	13275	17259	2.09
	100 m	0.450	326	165	138	0.00	2607	4960	1.30	19190	9972	2.52
	Porewater	1.000	493	1666	2366	1.45	2794	3214	0.45	24201	13762 *	1.46
	1:10 PW	1.000	429	4664	4380	3.53	5077	7869	1.03	27034	22746	1.95
Cabin Bay	Beach Comp.	0.797	129	495	439	0.19	4621	7121	1.17	15079	19510	1.89
7-10-89	3 m	1.000	106	351	526	0.13	4119	3687	0.60	6215	10793	0.65
Site 10	6 m	1.000	131	255		0.00	3705	3370	0 54	13957	7864	0 84
	20 m	0.712	44	695	671	0.47	4423	5081	1.05	16904	12111	1.59
	40 m	0.576	284	796		0.74	4100	2422	0.66	15484	18099	2.27
	100 m	0.492	283	385	630	0.38	4474	3315	1.22	11196	7921	1.50
	Porewater	1.000	123	490		0.17	2940	4198	0.65	18800	22941	1.63
	1:10 PW	1.000	347	716		0.36	2620	2056	0 34	3080	6531	0.36

* = possible vial leakage

R/V Fairweather July 1–August 22,1989

Hexadecane ORP Data

				2 Day Data			10 Day Data			21 Day Data		
	Sample	% Dry Weight *(.01)	Day 0 (DPM)	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day
Columbia Bay	Beach Comp.	0.765	63	172	208	0.00	7271	7378	1.53	11105	17790	1.47
7–11–89	3 m	1.000	70	277	300	0.01	1357	2497	0.27	13183	19113	1.26
Site 11	6 m	1.000	83	198	381	0.01	4497	2657	0.57	6859	11383	0.78
	20 m	0.479	96	138	284	0.00	1757	5558	1.17	8531	3366	0.94
	40 m	0.629	92	376	336	0.10	4486	3102	0.91	11366	7799	1.17
	100 m	0.501	112	123	208	0.00	2423	602	0.44	15409	14259	2.31
	Porewater	1.000	69	1900	2116	1.44	4916	4150	0.71	13456	19942	1.30
	1:10 PW	1.000	79	567	464	0.20	5950	3896	0.77	13005	18222	1.22
Northwest Bay	Beach Comp.	0.963	78	3921	3570	3.00		14769	2.51	26116	25000	2.08
7–12–89	3 m	0.648	66	3156	4249	4.40	12246	7250	2.43	24824	16686	2.61
Site 12	6 m	0.532	540	6194	5695	6.66	12715	16243	4.44	25932	13253	2.68
	20 m	0.483	871	670	624	0.84	12269	11949	4.26	13322	13624	2.26
	40 m	0.587	873	545	674	0.47	7355	9109	2.26	11894	20400	2.13
	100 m	0.403	542	206	238	0.00	9333	9117	3.70	14242	20201	3.34
	Porewater	1.000	69	501	459	0.17	8077 *	12660	1.53	15005	9502	0.96
	1:10 PW	1.000	136	3636	3190	2.69	14044	13638	2.26	26630	25191	2.03
Disk Island	Beach Comp.	0.895	215	11059	16100	12.38	11772	12276	2.19	26741	21591	2.07
7–13–89	3 m	0.838	204	746	1186	0.66	10543	13875	2.37	27892	26395	2.55
Site 13	6 m	0.763	304	3021	634	1.69	11657	27619	4.25	34019	20786	2.82
	20 m	0.707	426	6606 *	4335	5.53	6840	12257	2.42	7901	20922	1.59
	40 m	0.493	358	221	1607	0.99	11810	6709	3.00	24308	17613	3.33
	100 m	0.425	79	496	267	0.22	11442	12390	4.58	16566	19724	3.34
	Porewater	1.000	508	10945	9618	8.33	10715	12116	1.86	27210	182	1.06
	1:10 PW	1.000	851	15536	12834	11.59	10867	7612	1.49	22602	23112	1.79
Herring Bay	Beach Comp.	0.892	197	15264	12184	12.71	30251	21386	4.83	18435	19599	1.69
7–14–89	3 m	0.705	147	14267	5837	11.56	30173	15386	6.32	3790	5077	0.47
Site 14	6 m	0.763	300	14846	12253	14.49	19855	21233	4.43	19654	22401	2.16
	20 m	0.454	88	11478	1117 *	11.05	18198	23074	7.48	18594	20970	3.41
	40 m	0.540	74	196	284	0.00	20731	14460	5.34	15674	16572	2.33
	100 m	0.445	151	5837	899	5.59	17699	14552	5.93	11252	3978	1.31
	Porewater	1.000	984	8589	11979	8.34	22463	25459	3.96	23392	20905	1.74
	1:10 PW	1.000	649	14547	15602	12.33	28571	22670	4.22	20798	23148	1.72
Eshamy Bay	Beach Comp.	0.768	79	2178	545	1.17	12437	9313	2.30	9766	23972	1.71
7–15–89	3 m	0.714	143	188	451	0.04	19637	10219	3.44	5774	28456	1.87
Site 15	6 m	0.348	128	143	1673	1.51	16517	13652	7.13	17273	9685	3.03
	20 m	0.543	400	123	184	0.00	17855	12687	4.60	19064	21208	2.90
	40 m	0.263	69	174	158	0.00	18385	15751	9.99	10860	11271	3.25
	100 m	0.312	107	279	267	0.00	17079	20827	9.97	11183	9848	2.60
	Porewater	1.000	70	237	996	0.28	5343	5019	0.82	3740	4116	0.29
	1:10 PW	1.000	114	627	186	0.10	10662	31061	3.43	24652	25056	1.95

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Hexadecane ORP Data

				2 Day Data			10 Day Data			21 Day Data		
	Sample	% Dry Weight *(.01)	Day 0 (DPM)	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day
Sleepy Bay	3 m	0.769	109	7016	16987	12.71	24580	15176	4.25	16023	24870	2.08
7-16-89	6 m	0.788	75	4137	6710	5.44	26981	8727	3.71	21077	16133	1.86
Site 16	20 m	0.631	166	3615	11256	8.45	16327	22977	5.12	26809	25906	3.28
	40 m	0.667	365	188	229	0.00	2632	7312	1.14	19146 *	23157	2.41
	100 m	0.620	176	151	176	0.00	15325	21234	5.77	12425	14253	1.99
	Porewater	1.000	121	10143	12155	9.06	16134	25456	3.42	26945	18702	1.87
	1:10 PW	1.000	79	11905	17926	12.20	20522	27338	3.94	24788	15263	1.67
Rocky Bay	Beach Comp.	0.677	335	9234	9231	8.51	30355	22467	4.97	18870	17505	1.62
7-17-89	3 m	0.606	114	6468	3226	6.29	25028	16598	5.86	14047	15429	1.90
Site 17	6 m	0.576		384	1201	0.74	10728	22900	4.79	6864	12713	1.31
	20 m	0.718	83	1785	188	0.82	8936	16720	2.91	12727	11380	1.30
	40 m	0.657	89	246	159	0.00	10593	17994	3.55	8755	12824	1.27
	100 m	0.485	445	307	317	0.05	11078	13477	4.12	4012	11413	1.21
	Porewater	1.000	101	15465	16319	12.59	27871	26693	4.52	31547	30691	2.45
	1:10 PW	1.000	92	3698	4544	3.20	2021	19108	1.71	24367	22317	1.83
Snug Harbor	Beach High Tide	0.927	147	17347	15367	14.45	19375	27647	4.18	21303	16922	1.61
7-17-89	Beach Mid Tide	0.912	166	8288	15026	9.48	19577	20028	3.57	10061	19785	1.27
Site 06	Beach Lo Tide	0.744	89	12333	14986	14.06	17541	26296	4.86	22155	17531	2.09
	Porewater Mid	1.000	70	12934	12287	10.27	32942	29774	5.18	13669	29348	1.66
	Porewater Low	1.000	177	7894	12520	8.18	32514	33164	5.43	20217	34534	2.15
	1:10 PW Mid	1.000	135	14912	13642	11.66	26733	29856	4.84	16641	15544	1.26
	1:10 PW Hi	1.000	2747	11415	11221	9.20	12725	16231	2.37	12655	18499	1.21
Olsen Bay	Beach Comp.	0.418	1326	13554	7765	20.87	28679	27999	11.18	5170	14777	1.84
7-18-89	3 m	0.261	1208	1022	232	1.03	10957	17124	8.15	13269	18464	4.40
Site 18	6 m	0.554	884	741	3043	2.42	17246	13594	4.55	6921	13396	1.34
	20 m	0.512	1487	281	150	0.00	13228	18114	4.68	10539	9970	1.55
	40 m	0.648		84	90	0.00	22185	11477	4.26	17292	13363	1.84
	100 m	0.450	709	208	116	0.00	14691	10280	4.52	15236	13911	2.52
	Porewater	1.000	916	2680	2808	2.05	33440	27179	6.00	18797	22266	1.61
	1:10 PW	1.000	2647	11930	4923	8.79	22993	21909	3.70	9548	7126	0.84
Cordova Harbor	Beach	0.883	370	11705	14521	12.30	15988	13605	2.80	12310	16762	1.31
7-24-89	Porewater	1.000										
	1:10 PW	1.000	241	6768	5715	4.97	26680	27471	4.47	18354	25395	1.71
Fox Island	Beach Comp.	0.819	112	606	764	0.41	16537	13521	3.20	20566	21221	2.00
7-25-89	3 m	0.849	75	226	271	0.00	24673	27220	6.04	25374	22823	2.23
Site 20	6 m	0.855	95	146	590	0.08	21721	31721	5.15	22943	25903	2.24
	20 m	0.684	263	249	101	0.00	19123	19342	4.62	12980	16774	1.69
	40 m	0.658	171	448	415	0.19	20616	22500	6.39	16189	21807	2.26
	100 m	0.721	91	91	103	0.00	9489	72	1.04	15844	21177	2.01
	Porewater	1.000	99	12190	6306	7.47	35301	30114	5.40	28002	35696	2.51
	1:10 PW	1.000	150	166	913	0.22	11346	17392	2.35	15943	20661	1.43

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R/V Fairweather July 1–August 22,1989

Hexadecane ORP Data

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Agnes Cove	Beach Comp.	0.903	133	7776	7052	6.60	31646	24428	5.12	14887	18483	1.44
7-26-89	3 m	0.798	175	1728	1250	1.31	20716	13574	3.67	26331	22062	2.48
Site 21	6 m	0.758	302	2726	1812	2.19	7104	5127	1.29	10769	13950	1.27
	20 m	0.606	494	138	152	0.00	22470	23535	7.49	14266	15455	2.29
	40 m	0.296	125	124	4709	8.04	5007	23814	7.99	11564	12770	3.20
	100 m	0.496	191	108	205	0.00	14649	18766	6.52	12766	7778	1.60
	Porewater	1.000	94	3108	3299	2.44	413	24488	2.03	18050	18056	1.33
	1:10 PW	1.000	99	3126	666	1.36	26142	21962	3.96	9941	19130	1.13
Taroka Arm	Beach Comp.	0.793	361	1139	975	0.82	20477	21342	4.34	18265	18004	1.69
7-27-89	3 m	0.520	89	7633	558	6.11	22563	20775	6.85	7482	12225	1.46
Site 22	6 m	0.586	66	9919	7119	11.72	18666	18706	6.24	18490	15344	2.26
	20 m	0.625	111	1180	131	0.50	18949	12933	3.91	12417	10212	1.40
	40 m	0.598	79	86	103	0.00	19083	18018	5.09	17600	11871	1.91
	100 m	0.620	220	76	286	0.00	547	17566	2.36	9004	11094	1.25
	Porewater	1.000	348	10850	11674	9.11	13463	34903	3.98	26862	25815	2.07
	1:10 PW	1.000	72	787	1202	0.59	14434	15730	2.47	18256	19842	1.49
Black Bay	Beach Comp.	0.850	66	800	246	0.24	19413	18780	3.69	21084	19257	1.86
7-28-89	3 m	0.670	755	776	2223	1.52	25212	26042	6.30	22214	33019	3.24
Site 23	6 m	0.704	63	665	407	0.49	25448	28201	8.29	25623	29230	3.06
	20 m	0.674	57	240	358	0.02	23355	29143	6.42	16522	20265	2.13
	40 m	0.701	526	396	1169	0.60	18610	13856	3.79	14206	12389	1.47
	100 m	0.515	350	264	550	0.22	15862	17260	5.27	11458	21812	2.50
	Porewater	1.000	1340	2115	2999	1.90	19306	21605	3.36	20940	25518	1.82
	1:10 PW	1.000	224	103	114	0.00	10541	21622	2.83	7733	13602	0.82
McArthur Cove	Beach Comp.	0.882	136	3777	2541	2.72	25230	29842	5.15	26769	23874	2.25
7-29-89	3 m	0.763	142	276	181	0.00	26686	24546	5.76	13566	29657	2.22
Site 24	6 m	0.630	99	1556	1327	1.54	26449	18921	6.93	32126	27698	3.79
	20 m	0.519	87	638	85	0.13	25384	27005	8.32	30134	24733	4.15
	40 m	0.604	59	73	99	0.00	841	21992	3.07	25140	24072	3.20
	100 m	0.485	109	103		0.00	19265	24650	7.45	21285	19453	3.29
	Porewater	1.000	144	6475	busy	4.96	26161	23414	4.08	34628	27250	2.43
	1:10 PW	1.000	422	1454	897	0.86	7222	21984	2.39	30347	29664	2.36
Tonsina Bay	Beach Comp.	0.942	99	13349	7358	8.91	10001	20600	2.66	13164	19185	1.34
7-30-89	3 m	0.846	73	5934	8414	8.79	23379	22486	4.46	21266	29763	2.37
Site 25	6 m	0.853	72	4027	7070	5.15	28644	20155	4.71	12582	14164	1.22
	20 m	0.676	93	2060	5233	4.15	24401	24273	5.93	17546	143	1.01
	40 m	0.588	101	205	622	0.19	24332	23227	6.66	26476	24684	3.42
	100 m	0.574	836	196	1432	0.78	19180	20960	5.75	13681	8984	1.53
	Porewater	1.000	94	4797	4984	3.84	18788	17599	2.99	27294	22690	1.96
	1:10 PW	1.000	90	1660	697	0.84	21486	16141	3.09	2224	14033	0.82

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Hexadecane ORP Data

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Gore Point	Beach Comp.	0.789	16	1527	4416	2.84	24416	18346	4.46	19119	16766	1.66
7–31–89	3 m	0.778	112	344	864	0.36	22213	16473	3.96	29003	16955	2.42
Site 26	6 m	0.765	151	2271	361	1.14	12652	22812	3.85	14346	2369	0.65
	20 m	0.744	175	7003	739	4.02	23119	17504	4.49	21210	16305	2.08
	40 m	0.714	129	769	1697	1.11	11321	19521	3.53	20672	21151	2.29
	100 m	0.622		129	395	0.00	20273	26450	6.45	19194	16375	2.23
	Porewater	1.000	161	7542	13948	8.72	26818	10977	3.10	17296	17326	1.35
	1:10 PW	1.000	71	1053	186	0.28	21409	32057	4.41	26848	26090	2.08
Port Dick	Beach Comp.	0.807	129	162	2276	0.87	17510	16771	3.48	12109	12667	1.20
8–1–89	3 m	0.814	75	485	188	0.06	18865	26387	4.68	20816	20811	2.00
Site 27	6 m	0.844	121	343	394	0.09	12184	20977	3.22	19628	18492	1.77
	20 m	0.853	140	307	202	0.06	21781	17381	4.92	28981	28057	3.31
	40 m	0.814	123	78	227	0.00	16643	16796	4.33	21112	12973	2.17
	100 m	0.851	111	429	334	0.15	15536	16821	4.65	18460	10566	2.05
	Porewater	1.000	116	3144	2789	2.24	28509	28753	4.73	23878	34561	2.30
	1:10 PW	1.000	87	286	683	0.17	29882	24683	4.50	16407	16276	1.27
Windy Bay	Beach Comp.	0.787	294	4496	10119	7.44	31867	25455	6.01	21027	19167	2.00
8–2–89	3 m	0.715	104	6477	5841	5.02	27131	25702	6.10	13614	21314	1.91
Site 28	6 m	0.673	725	8567	7146	9.39	29010 *	28732	7.08	17953	25130	2.51
	20 m	0.433	282	599	868	0.88	25832	23512	9.38	8500	17446	2.32
	40 m	0.479	343	372	2260 *	1.62	19959	17926	6.49	11513	11826	1.67
	100 m	0.655	1561	272	486	0.12	24026	22522	5.65	9691	10082	1.16
	Porewater	1.000	270	14267	13479	11.34	34013	35396	5.74	19157	24879	1.73
	1:10 PW	1.000	96	387 *	1907	0.72	20805	16490	3.04	2030	12263	0.54
Chugach Bay	Beach Comp.	0.884	1445	894	3934	2.01	20201	21733	3.90	14921	14273	1.29
8–3–89	3 m	0.699	125	2044	4857	2.94	23287	28888	4.78	23430	17323	1.77
Site 29	6 m	0.860	161	6026	3122	4.16	17069	19838	3.50	10617	17582 *	1.27
	20 m	0.656	313	5301	6038	6.85	17226	14897	4.01	16239	16663	1.96
	40 m	0.710	392	604	266	0.18	16407	9154	2.93	14931	22646	2.07
	100 m	0.574	157	296	581	0.23	13116	5767	2.66	21255	11266	2.21
	Porewater	1.000	201	12132	8647	8.42	34038	32015	5.46	25729	26538	2.13
	1:10 PW	1.000	102	2968	2294	1.96	14860	21420	2.96	15325	21342	1.43
Seldovia Bay	Beach Comp.	0.840	941	777	871	0.54	17368	26425	4.49	20353	28107	2.26
8–4–89	3 m	0.815	189	152	193	0.00	31883	31420	6.41	28561	28652	2.76
Site 30	6 m	0.664	363	229	3103	1.74	28291	29367	7.17	25482	24910	2.98
	20 m	0.486	758	99	121	0.00	19421	16233	6.02	7781	14872	1.60
	40 m	0.736	68	718	106	0.16	17233	22446	4.43	20573	22287	2.28
	100 m	0.741	82	96	1114	0.36	16692	15494	3.56	22018	17032	2.06
	Porewater	1.000										
	1:10 PW	1.000	131	145	294	0.00	22381	15306	3.09	26432	2265 *	1.12

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R/V Fairweather July 1–August 22,1989

Hexadecane ORP Data

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Ursus Cove	Beach Comp.	0.763	984	629	307	0.31	17491	12773	3.16	9143	10989	0.99
8-5-89	3 m	0.764	876	160 *	81	0.00	19168	20095	4.22	11371	13308	1.26
Site 31	6 m	0.662	345	774	229	0.21	22462	15912	3.57	19000	11646	1.35
	20 m	0.730	2656	258 *	133	0.00	14463	16211	3.66	16300	14320	1.58
	30 m	0.735	814	192	107 *	0.00	16685	14798	3.50	13987	12388	1.39
	Porewater	1.000	155	451	3189	1.28	26426	33905	4.96	29433	24277	2.11
	1:10 PW	1.000	462	113	345	0.00	11961	11267	1.89	13133	17440	1.19
Amakdedori Beach	Beach Comp.	0.717	387	165	168	0.00	19098	24088	4.96	21286	24487	2.50
8-6-89	3 m	0.755	198	108	188	0.00	7552	10064	1.58	22050	20675	2.22
Site 32	6 m	0.728	82	680	148	0.16	15857	13369	3.26	18143	11859	1.60
	10 m	0.737	64	1160	119	0.41	1160	4636	0.59	12080	21662	1.79
	20 m	0.692	350	88	95	0.00	15962	17624	3.96	14258	16920	1.76
	30 m	0.730	1115	159	76	0.00	19694	18461	4.29	21596	17480	2.09
	Porewater	1.000	108	2663	13617	6.56	27389	31916	4.90	27653	19655	1.86
	1:10 PW	1.000	1776	3600	1095	1.66	31117	31122	5.14	23966	21780	1.79
Douglas Beach	Beach Comp.	0.808	75	203	617	0.24	15580	30651	4.71	13249	12304	1.23
8-7-89	3 m	0.830	57	2258	1656	1.68	18706	12249	2.85	11813	204	0.55
Site 33	6 m	0.626	63	472	372	0.19	15623	11188	3.49	8729	15330	1.36
	10 m	0.709	67	1458	188	0.64	11119	19276	3.50	9939	15010	1.36
	20 m	0.755	72	86	428	0.00	11201	7583	2.01	12436	17453	1.54
	Porewater	1.000	69	6990	6725	5.48	15452	9884	2.05	20138	5883	1.01
	1:10 PW	1.000	55	817	2946	1.33	16022	17927	2.78	9263	17873	1.06
Ushagat Island	Beach Comp.	0.943	62	10585	7292	7.65	18105	19065	3.24	15838	17227	1.37
8-8-89	3 m	0.884	180	12894	6493	8.67	23133	19694	3.96	20930	21143	1.86
Site 34	6 m	0.843	68	14599	14547	14.12	15311	13776	2.82	18979	21188	1.84
	10 m	0.827	84	1460	1882	1.40	12700	20416	3.26	14596	18433	1.66
	20 m	0.854	80	2279	7546	4.62	16442	10036	2.53	18168	15941	1.56
	Porewater	1.000	77	17616	8571	10.68	32178	28742	5.03	34009	33051	2.64
	1:10 PW	1.000	64	12044	4790	8.78	13544	16497	2.46	16483	25229	1.63
	Beach-Oiled	0.956	82	17193	20693	16.24	10908	22970	2.90	12562	20187	1.33
Andreon Bay	Beach Comp.	0.811	64	8512	4684	6.49	23419	20902	4.50	23053	12389	1.71
8-9-89	3 m	0.736	227	1092	2192	1.54	29404	13146	4.74	21796	16942	2.05
Site 35	6 m	0.641	79	1236	1717	1.56	10366 *	18867	3.73	15056	18294	2.03
	20 m	0.475	464	1124	2597	2.77	13162 *	10170	4.00	10186	11434	1.78
	40 m	0.636	154	501	767	0.48	14644	16405	4.02	12626	8323	1.34
	100 m	0.482	1093	183	256	0.00	16260	13989	5.13	18212	31190	4.02
	Porewater	1.000	129	6860	12907	6.84	21674	30791	4.34	31547	22834	2.14
	1:10 PW	1.000	129	1116	868	0.59	2230	17503	1.60	16863	2683	0.75

*=possible vial leakage

R/V Fairweather July 1–August 22, 1989

Hexadecane ORP Data

	Sample	% Dry Weight *(.01)	Day 0 (DPM)	2 Day Data			10 Day Data			21 Day Data		
				Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day
King Cove	Beach Comp.	0.785	65	6363	4273	5.35	11319	10486	2.26	12485	14580	1.34
8-14-89	Beach-Tar Ball	0.980	94	8027	5545	4.66	24856	16437	3.38	14208	11944	1.04
Site 36	3 m	0.743	85	647	2119	1.24	25485	27883	5.92	24277	27608	2.75
	6 m	0.754	199	1547	1487	1.37	24201	22115	5.06	18428	20390	2.01
	20 m	0.755	389	644	170	0.14	17697	20340	4.16	17954	13141	1.60
	40 m	0.958	224	257	218	0.00	24189	21885	3.96	25078	22145	1.93
	Porewater	1.000	797	21390	24858	19.04	38244	34980	6.06	31258	33142	2.53
	1:10 PW	1.000	430	14266	10200	9.96	27618	17139	3.68	21468	17843	1.54
Douglas Pt	Beach Comp.	0.868	83	2763	1114	1.59	3323	16163	1.82	16513	14650	1.40
8-15-89	Beach-Tar Ball	0.981	209	10371	6911	7.10	18925	17950	3.08	19040	271	0.76
Site 37	3 m	0.806	78	5565	3262	4.26	7539	17343	2.51	20046	10991	1.50
	6 m	0.758	144	2270	827	1.39	12257	16858	3.12	5113	9847	0.75
	20 m	0.632	78	355	215	0.01	12187	15953	3.63	13367	10966	1.49
	40 m	0.567	118	323	214	0.00	12917	12948	3.72	16720	12627	2.01
	100 m	0.598	96	140	164	0.00	18871	18892	4.91	8710	8145	0.95
	Porewater	1.000	80	7778	12127	8.08	12517	13537	2.12	18314	17886	1.41
	1:10 PW	1.000	69	2262	1872	1.49	21990	15364	3.07	14095	7674	0.84
Hallo Bay	Beach Comp.	0.858	609	13521	17075	14.58	32443	16725	4.72	25514	25709	2.34
8-16-89	Beach-Tar Ball	0.883	546	14351	19478	16.07	33962	22902	5.44	2418	26760	1.32
Site 38	3 m	0.797	946	126	687	0.08	23707	27530	5.30	16228	20889	1.81
	6 m	0.690	269	1021	315	0.47	16170	29733	5.35	22299	19681	2.39
	20 m	0.756	381	163	708	0.17	15435	9966	2.74	21924	14835	1.90
	40 m	0.574	803	841	1296	1.14	21296	17293	5.52	19132	25854	3.06
	100 m	0.550	1227	1259	317	0.77	11043	19426	4.53	11619	2854	1.00
	Porewater	1.000	288	19435	21868	16.80	36183	39469	6.26	35587	38098	2.90
	1:10 PW	1.000	426	2133	1928	1.48	27032	10511	3.08	18776	18138	1.44
Katmai Bay	Beach Comp.	0.738	65	18188	15988	18.97	19286	26704	6.13	25008	22544	2.53
8-17-89	3 m	0.735		929	572	0.53	23288	25740	6.49	19648	17785	2.00
Site 39	6 m	0.721	72	1623	522	1.03	24390	19671	5.02	21684	6725	1.53
	20 m	0.760	262	219	2048	0.95	18315	18649	3.82	5381	11121	0.84
	40 m	0.562	67	1078	1284	1.33	15117	19336	5.02	20721	19177	2.78
	75 m	0.586	82	390	175	0.00	14712	18257	4.61	66	20818	1.38
	Porewater	1.000	91	23664	278	9.74	37065	37064	6.13	27205	22748	1.96
	1:10 PW	1.000	80	170	99	0.00	24015	23308	3.90	4104	18462	0.87
Halibut Bay	Beach Comp.	0.820	84	2260	3582	2.68	12598	20587	3.31	15670	8682	1.15
8-18-89	3 m	0.769	71	1705	314 *	0.77	11304	9816	2.17	11127	9379	1.00
Site 40	6 m	0.791	79	4851	4578	4.67	11249	17928	3.01	19120 *	11000 *	1.48
	20 m	0.768	72	917	4731	2.76	17545	16592	3.86	17087	9577	1.35
	40 m	0.734	147	126	618	0.19	23305	23880	5.30	12717	12624	1.34
	100 m	0.720	163	215	104	0.00	14831	16293	3.54	12577	22296	1.69
	Porewater	1.000	134	1844	4754	3.73	15095	15498	2.50	27803 *	32947	2.39
	1:10 PW	1.000	84	924	1877	0.93	15404	26090	3.41	17414 *	24626 *	1.66

* – possible vial leakage

R/V Fairweather July 1–August 22,1989

Hexadecane ORP Data

				2 Day Data			10 Day Data			21 Day Data		
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Wide Bay	Beach comp.	0.766	666	889	494	0.45	21874	22449	4.76	20448	24743	2.31
8-19-89	3 m	0.754	135	390	799	0.36	18152	17929	3.93	15820	14223	1.55
Site 41	6 m	0.744	565	3228	493	1.77	18271	19873	4.21	4385	5191	0.48
	20 m	0.665	108	1251	641	0.77	11964	12838	3.04	14781	24999	2.34
	40 m	0.631	72	432	360	0.15	14590	18113	4.25	14557 *	25029	2.45
	Porewater	1.000	107	16135	19804	14.74	31212	32315	5.25	34064	39304 *	2.89
	1:10 PW	1.000	66	213	128	0.00	13979	14105	2.29	10069	17762 *	1.08
Chignik Bay	Beach Comp.	0.723	266	2048	862	1.35	14481	15440	3.38	4267	19877	1.28
8-20-89	3 m	0.792	65	12675	11387	12.48	20902	17729	4.00	25602	21240	2.32
Site 42	6 m	0.701	90	1260	1213	1.15	23360	24716	5.64	6801	19656	1.47
	20 m	0.541	88	2128	3137	3.62	16148	17653	5.42	16199	25165	2.99
	30 m	1.000	104	266	1642	0.56	11295	16420	2.26	6201	17051	0.90
	Porewater	1.000	145	8129	3837	4.76	31985	32489	5.33	31413	17476	1.92
	1:10 PW	1.000	185	1020	1964	1.01	17914	12850	2.52	26510	18758	1.77
Ivanof Bay	Beach Comp.	0.812	412	238	1276	0.49	1116	10139	1.10	14641	14114	1.38
8-21-89	3 m	0.651	164	205	965	0.39	20731	14569	4.45	12403	10494	1.36
Site 43	6 m	0.663	636	3065	319	1.77	6390	22975	3.62	21499	20002	2.45
	20 m	0.588	95	1743	3200	3.11	25145	17535	5.97	17292	18649	2.25
	40 m	0.654	231	796	186	0.27	12937	12969	3.23	13385	16533	1.78
	85 m	0.626	256	321	113	0.00	14943	8731	3.35	13089	13034	1.93
	Porewater	1.000	477	14310	19077	18.68	12086	5447	1.41	17496	14809	1.26
	1:10 PW	1.000	2348	16205	16065	12.80	18356	7483	2.19	12749	12589	0.98
Zachary Bay	Beach Comp.	0.679		341	485	0.15	22669	16647	4.76	4167	18488	1.17
8-22-89	3 m	0.680	612	16402	14110	18.35	26997	15564	6.15	22114	22163	2.55
Site 44	6 m	0.612	2796	129	244	0.00	11637	21758	5.34	18445	12846	2.38
	20 m	0.661	2651	116	301	0.00	26340	20280	5.80	19401	22519	2.48
	40 m	0.626	387	133	144	0.00	16196	9400	3.20	20288	14878	2.19
	100 m	0.684	851	7186	7395	8.78	21033	24111	5.59	10431	24093	2.03
	Porewater	1.000	119	458	236	0.06	8179	11766	1.62	22114	22279	1.74
	1:10 PW	1.000	93	66	58	0.00	7702	5328	1.04	11806	11288	0.89

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R/V Fairweather July 1– August 22, 1989

Naphthalene ORP Data

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Fox Farm	Beach Comp.	0.900	62	6372	849	6.72	3420	4374	1.48	2214	2174	0.36
7-1-89	3 m	0.831	79	122	27	0.00	2835	3022	1.15	2465	9127	1.16
Site 01	6 m	0.784	91	231	87	0.00		1946	0.76	1985	1679	0.33
	20 m	0.691	151	310		0.00	6718		3.42	1909	5555	0.87
	40 m	0.513	90	285	102	0.00	3160	2118	1.66	1991	3016	0.74
	Porewater	1.000	74				3231	3186	1.06	3191	4450	0.61
	1:10 PW	1.000	85		0	0.00	2049		0.83	2206	2313	0.34
Sawmill Bay	Beach Comp.	0.919	90	14	0	0.00	2851	1840	0.81	1112	3529	0.38
7-2-89	3 m	0.805	106	141	27	0.00	1896	2479	0.85	4009	2587	0.85
Site 02	6 m	0.744	83	36	7	0.00	3281	3770	1.58	5220	2245	0.80
	20 m	0.683	191		153	0.00	4395	2909	1.79	4241	2565	0.79
	40 m	0.711	74	35	46	0.00	1737	987	0.53	1078	314	0.09
	100m	0.719	76	23	0	0.00	3027	3281	1.46	2071	1210	0.32
	Porewater	1.000	85	0		0.00	3540	3450	1.17	2875	2696	0.43
	1:10 PW	1.000	88	26	279	0.00	1226	3245	0.70	1677	4795	0.61
Shelter Bay	Beach Comp.	0.737	100	41	24	0.00	1451	1451	0.56	4373	3080	0.81
7-3-89	3 m	0.856	86	34	71	0.00	623	1417	0.28	1926	2090	0.34
Site 03	6 m	0.819	70	14		0.00	2320	886	0.57	5107	4482	0.96
	20 m	0.711	93	63		0.00	1535	3090	1.03	9675	7109	2.00
	40 m	0.610	184	73	49	0.00	3807	2780	1.79	3880	6976	1.47
	100 m	0.690	102	200	87	0.00	3837	112	0.88	618	4775	0.60
	Porewater	1.000	127	59	63	0.00	963	133	0.08	8823	1967	0.89
	1:10 PW	1.000	78	53	32	0.00	95	840	0.06	2111 *	3493	0.43
Iktua Bay	Beach comp.	0.774	60	164	7	0.00	1394	2795	0.84	1394	3509	0.48
7-4-89	3 m	0.621	0	94	12	0.00	194	210	0.00	1683	903	0.20
Site 04	6 m	0.744	0	112	33	0.00	2247	934	0.62	3003	2224	0.64
	20 m	0.349	0	373	172	0.00	72	510	0.00	1181	1756	0.57
	40 m	0.639	108				841	244	0.12	983	2755	0.42
	100 m	0.553		506	259	0.13	2313	1029	0.89	4701	2442	1.03
	Porewater	1.000	0	26	0	0.00	1064	813	0.22	4811	5508	0.85
	1:10 PW	1.000	88	119	38	0.00	921	135	0.07	2387	2288	0.35
Mummy Bay	Beach Comp.	0.666	77	0	76	0.00	6384	7705	3.73	4712	5050	1.20
7-5-89	3 m	0.838	76	80	58	0.00	76	6451	1.70	7040	5320	1.61
Site 05	6 m	0.656	65	28	29	0.00	2665	1742	1.05	1520	4904	0.77
	20 m	0.580	79	71	34	0.00	1023	3524	1.29	3288	2545	0.78
	40 m	0.554	110	62	177	0.00	6956	3756	3.35	29322	4692	5.31
	100 m	0.768	70	99	17	0.00	11859	14816	8.27	3370	2562	0.60
	Porewater	1.000	89	33	29	0.00	6632	8059	2.59	8365	7845	1.37
	1:10 PW	1.000	98	22	7	0.00	1741	2337	0.63	2463	705	0.22

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R/V Fairweather July 1- August 22, 1989

Naphthalene ORP Data

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Snug Harbor	Beach Comp.	0.727	584	3935	365	4.80	4509	8443	3.12	5959	6724	1.45
7-6-89	3 m	0.767	457	24	267	0.00	6313	5057	2.61	2749	6869	1.04
Site 06	6 m	0.785		23	8	0.00	5505		2.43	3552	3264	0.69
	20 m	0.441	93	0		0.00	3426	3876	2.78	3727	3191	1.25
	40 m	0.372		60	48	0.00	5675	3864	4.40	4452	1978	1.36
	100 m	0.320	162		120	0.00	4628	2391	3.66	9440	7274	4.42
	Porewater	1.000	158	2689	130	2.14	9244	9841	3.41	10558	3378	1.17
	1:10 PW	1.000	76	8	13	0.00	6536	6419	2.27	3894	3922	0.63
Green Island	Beach Comp.	0.715	126	308	0	0.00	4574	3221	1.84	2583	2104	0.49
7-7-89	3 m	0.757	64	0	19	0.00	6851	3468	2.36	2814	2910	0.59
Site 07	6 m	0.738	69	0	32	0.00	7680	1739	2.19	4224		0.93
	20 m	0.549	86	100	106	0.00	7800	13599	6.99	4159	3856	1.18
	40 m	0.607	71	151	29	0.00	5818	5454	3.17	4382	4252	1.15
	100 m	0.300	70		92	0.00	4913	5391	5.94	18511	5162	6.76
	Porewater	1.000	818		15	0.00	2730	2329	0.81	8226	4557	1.07
	1:10 PW	1.000	120	27		0.00	126	158	0.00	197	843	0.03
Bay of Isles	Beach Comp.	0.710	59	435	1527	1.88	1982	2977	1.11	5961	5296	1.32
7-8-89	3 m	0.241	96	436	1350	4.22	2155	1521	2.30	3068	1973	1.60
Site 08	6 m	0.733	97	119	8632	10.19	1456	1212	0.50	3573	2394	0.84
	20 m	0.270	65	2030	606	6.68	2195	2384	2.87	4507	5324	2.98
	40 m	0.486	70	1179	177	1.27	1844	2003	1.20	3584	4503	1.34
	100 m	0.302	173	518	463	0.90	2391	2627	2.66	3275	5288	2.30
	Porewater	1.000	69	9581	9637	17.16	4650	3824	1.44	7350	9041	1.38
	1:10 PW	1.000	87		1252	1.88	2004	85	0.26	6059	4409	0.86
Smith Island	Beach Comp.	0.952	120	4123	3960	7.18	4026	3242	1.28	14111	11088	2.27
7-9-89	3 m	0.789	114	90	154	0.00	2337	4755	1.50	12571	11939	2.66
Site 09	6 m	0.818	107	100	97	0.00	4600	4610	1.93	13516	7328	2.18
	20 m	0.761	160	117	81	0.00	1844	2440	0.87	4040	5491	1.02
	40 m	0.566	276	133	74	0.00	2059	3250	1.51	12588	8706	2.89
	100 m	0.450	161	126	149	0.00	2712	2413	1.83	4349	4525	1.60
	Porewater	1.000	123	1736	2366	3.16	2580	3565	1.01	14281	15256	2.64
	1:10 PW	1.000	106	1943	1679	2.72	2495	2792	0.85	7543	7114	1.23
Cabin Bay	Beach Comp.	0.797	111	0	376	0.00	121	108	0.00	1105	1516	0.21
7-10-89	3 m	1.000	247	104	35	0.00	906	1201	0.26	2972	2937	0.46
Site 10	6 m	1.000	137	95	63	0.00	1067	1061	0.27	6375	4747	0.92
	20 m	0.712	280	198	76	0.00	2299	1874	0.91	5866	2980	1.01
	40 m	0.576	155	56	119	0.00	1207	1293	0.58	5993	5142	1.60
	100 m	0.492	172	38		0.00	1294	1408	0.76	22638	4366	4.72
	Porewater	1.000	101	117	0	0.00	169	102	0.00	1460	1101	0.17
	1:10 PW	1.000	106	0	103	0.00	80	105	0.00	479	241	0.00

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Columbia Bay	Beach Comp.	0.786	101	109	166	0.00	137	133	0.00	165	127	0.00
7-11-89	3 m	1.000	65	281	274	0.00	184	211	0.00	293	546	0.01
Site 11	6 m	1.000	114	172	166	0.00	165	546	0.00	210	842	0.01
	20 m	0.479	96	185	266	0.00	794	2024	0.82	417	59 *	0.00
	40 m	0.629	337	272	222	0.00	500	78	0.00	4774	1577	0.79
	100 m	0.501	84	244	243	0.00	306	1955	0.58	1196	3418	0.69
	Porewater	1.000	116	169		0.00	219	195	0.00	316	966	0.05
	1:10 PW	1.000	134	130	115	0.00	108	177	0.00	425	375	0.01
Northwest Bay	Beach Comp.	0.983	121	1940	4231	5.27	106	5058	0.86	4846	4239	0.77
7-12-89	3 m	0.846	161	3341	3693	9.06	1840	2235	0.97	6474	5822	1.58
Site 12	6 m	0.532	647	1142	1958	4.10	5029	0	1.51	8877	7551	2.61
	20 m	0.463	89	620	92	0.05	4216	4053	3.03	7119	8185	2.78
	40 m	0.587	118	1036	1655	3.16	3776	3696	2.14	6254	7916	2.03
	100 m	0.403	68	114	230	0.00	5794	4153	4.25	5692	6045	2.42
	Porewater	1.000	72	826	494	0.58	5236	6037	1.96	9296	11644	1.80
	1:10 PW	1.000	182	1485	2783	3.30	4312	3839	1.38	7561	11480	1.62
Diak Island	Beach Comp.	0.895	783	8526	16439	22.00	6173	6156	2.41	12795	10573	2.23
7-13-89	3 m	0.838	143	291	475	0.00	4376	3406	1.67	7233	15957	2.37
Site 13	6 m	0.763	137	106	626	0.00	4313	7762	2.76	6466	6613	1.43
	20 m	0.707	71	346	110	0.00	3208	3251	1.51	4053	4223	0.95
	40 m	0.493	64	85	537	0.00	3192	3506	2.26	5335	6547	2.00
	100 m	0.425	128	102	180	0.00	5129	3910	3.84	8991	4023	2.14
	Porewater	1.000	163	5778	11428	15.28	6020	6510	2.19	11936	13178	2.15
	1:10 PW	1.000	100	522	430	0.24	3257		1.08	4764	8986	1.15
Herring Bay	Beach Comp.	0.882	94	8381	6051	14.43	3204	2665	1.09	4173	15953	1.94
7-14-89	3 m	0.705	445	4191	8927	16.34	5405	7172	3.12	4187	5856	1.17
Site 14	6 m	0.763	158	9038	8769	20.80	10345	6292	3.87	9991	8091	2.01
	20 m	0.454	182	645	97	0.00	4516	3807	3.12	10728	6482	3.02
	40 m	0.540	1736	254	156	0.00	4094	6298	3.33	3470	3694	1.06
	100 m	0.445	2526	174	69	0.00	3712	6349	3.90	5485	4867	1.91
	Porewater	1.000	78	7469	186	8.45	6094	4868	1.90	5177	6252	0.95
	1:10 PW	1.000	151	8555	8638	15.28	14251	11413	4.63	10531	15115	2.20
Eshamy Bay	Beach Comp.	0.768	612	166	155	0.00	355	4730	1.06	5662	2975	0.91
7-15-89	3 m	0.714	157	153	99	0.00	2629	4658	1.71	775	987	0.13
Site 15	6 m	0.346	88	466	460	0.69	7435	628	3.95	2061	6690	2.06
	20 m	0.543	246	1001	162	0.79	7315	4957	3.95	2922	3831	0.99
	40 m	0.263	176	989	98	1.40	7292	5036	6.18	5534	4673	3.19
	100 m	0.312	616	441	326	0.23	966	8889	5.44	9483	3372	3.44
	Porewater	1.000	125	331	199	0.00	573	1663	0.29	3169	1277	0.33
	1:10 PW	1.000	106	71	208	0.00	265	862	0.09	1460	1402	0.19

*=possible vial leakage

R/V Fairweather July 1– August 22, 1989

Naphthalene ORP Data

				2 Day Data			10 Day Data			21 Day Data		
	Sample	% Dry Weight (*.01)	Day 0 (DPM)	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-da
Sleepy Bay	3 m	0.769	258	331		0.00	4157	6372	2.85	7169	5384	1.36
7-16-89	6 m	0.788	218	195	175	0.00	3858	6774	2.81	6350	8891	1.40
Site 16	20 m	0.631	72	92	146	0.00	5712	20010	7.36	4747	8456	1.47
	40 m	0.887	122	10	0	0.00	4298	6203	2.84	4813	3672	1.00
	100 m	0.620	105	134		0.00	731 *	6383	2.29	1724	2199	0.56
	Porewater	1.000	1688	6266	15778	19.70	19907	11893	6.76	17651	7772	2.18
	1:10 PW	1.000	83		3736	9.26	10731	9261	3.67	8015	3659	0.97
Rocky Bay	Beach Comp.	0.877	934	83	99	0.00	931	235	0.10	6264	998	0.66
7-17-89	3 m	0.805	199	900	356	0.87	493	665	0.14	5096	1140	0.81
Site 17	6 m	0.576	119	86	96	0.00	958	646	0.29	739	4507	0.70
	20 m	0.718	156	16078	11527	34.69	6736	9607	4.03	6843	2354	1.04
	40 m	0.857	90	219	145	0.00	4637	4116	2.27	2556	2177	0.54
	100 m	0.485	930	312	222	0.00	243	397	0.00	665	170	0.03
	Porewater	1.000	710	133	2631	1.83	6076	4944	1.91	4837	7394	1.02
	1:10 PW	1.000	78	1182	148	0.58	3506	311	0.56	2673	8583	0.96
Snug Harbor	Beach High Tide	0.927	96	7909	3788	11.00	144	5864	1.06	6658	7557	1.48
7-17-89	Beach Mid Tide	0.912	143	242	156	0.00	7713	10803	3.82	5701	7296	1.19
Site 06	Beach Lo Tide	0.744	108	460	783	0.69	4820	4577	2.17	5603	2952	0.93
	Porewater Mid	1.000	87	10084		18.04	11135	11325	4.03	10190	11821	1.88
	Porewater Low	1.000	86	2961 *	9687	11.07	8448	9760	3.25	11318	11050	1.91
	1:10 PW Mid	1.000	144	236	3866	2.96	5427	6772	2.13	6112	5975	1.01
	1:10 PW Hi	1.000	530	1444	74	0.77	5842	9128	2.64	7834	5220	1.09
Olsen Bay	Beach Comp.	0.418	727	422	109	0.00	238	167	0.00	816	171	0.06
7-18-89	3 m	0.261		160	103	0.00	297	203	0.00	474	145	0.00
Site 18	6 m	0.554		167	104	0.00	269	239	0.00	2048	617	0.31
	20 m	0.512	183	110	132	0.00	343	741	0.14	418	247	0.00
	40 m	0.648	374	91	188	0.00	903	231	0.13	629	206	0.02
	100 m	0.450	204	201	84	0.00	240	95	0.00	287	167	0.00
	Porewater	1.000	849	1138	97	0.61	111	201	0.00	550	126	0.00
	1:10 PW	1.000	311	108	88	0.00	282	140	0.00	295	108	0.00
Cordova Harbor	Beach	0.883	1005	3661 *	1061	4.33	9438	9229	3.86	7122	6218	1.29
7-24-89	Porewater	1.000	260	2025	1403	2.64	18382	13536	5.41	11734	12117	2.04
	1:10 PW	1.000	688	236	1376	0.85	5807	7855	2.40	7749	7631	1.31
Fox Island	Beach Comp.	0.819	124	103	407	0.00	348	104	0.00	1646	5063	0.65
7-25-89	3 m	0.849	294	1583	99	1.08	461	188	0.00	6893	655	0.71
Site 20	6 m	0.855	171	414	237	0.00	424	5755	1.19	2606	1905	0.39
	20 m	0.684	92	742	110	0.22	7293	354	1.66	3336	5597	1.06
	40 m	0.658	109	160	79	0.00	5598	9037	3.93	4190	7341	1.45
	100 m	0.721	354	131	264	0.00	354	330	0.00	2298	1244	0.36
	Porewater	1.000	95	86	496	0.00	5445	7096	2.20	9440	7186	1.41
	1:10 PW	1.000	119	328	97	0.00	1519	419	0.23	2487	1618	0.30

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R/V Fairweather July 1– August 22, 1989

Naphthalene ORP Data

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Agnes Cove	Beach Comp.	0.903	973	154	168	0.00	5178	8466	2.86	17161	7603	2.35
7-26-89	3 m	0.766		136	82	0.00	7456	4569	2.74	5740	6294	1.64
Site 21	6 m	0.756	387	176	162	0.00	5631	5411	2.54	17863	6474	2.78
	20 m	0.506	292	81	125	0.00	6522	4524	3.78	4151	6047	2.01
	40 m	0.295	1443	168	158	0.00	4377	6562	6.46	3388	5734	2.52
	100 m	0.495	3282	130	94	0.00	551	4141	1.50	4638	5138	1.62
	Porewater	1.000	144	128	166	0.00	10378	8364	3.34	10085	8061	1.64
	1:10 PW	1.000	823	91	99	0.00	3464	1697	0.83	1237	7085	0.67
Taroka Arm	Beach Comp.	0.793	205	64	182	0.00	275	171	0.00	7183	987	0.83
7-27-89	3 m	0.520	91	101	888	0.54	14070	14760	10.02	2479	2226	0.68
Site 22	6 m	0.586	89	327	165	0.00	2910	1917	1.31	1561	2562	0.52
	20 m	0.625	72	407	173	0.00	1294	2952	1.05	6783	201	0.89
	40 m	0.596	78	326	110	0.00	1716	1102	0.66	* 2153	1932	0.80
	100 m	0.620	218	89	68	0.00	2203	623	0.64	1732	6629	1.12
	Porewater	1.000	163	126	81	0.00	7952	9271	3.06	3077	7088	0.84
	1:10 PW	1.000	84	85	95	0.00	101	146	0.00	2168	691	0.19
Black Bay	Beach Comp.	0.850	81	178	73	0.00	125	1209	0.14	1667	1785	0.29
7-28-89	3 m	0.870	2755	136	333	0.00	3206	2652	1.43	4491	3741	0.99
Site 23	6 m	0.704	543	70	136	0.00	479	1926	0.45	3662	1222	0.53
	20 m	0.674	73	67	141	0.00	173	213	0.00	1726	8470	1.24
	40 m	0.701	151	83	133	0.00	1449	137	0.24	2182	931	0.30
	100 m	0.515	86	112	86	0.00	169	2915	0.86	2440	2283	0.69
	Porewater	1.000		149	83	0.00	437	8025	1.44	6188	5086	0.93
	1:10 PW	1.000	96	77	82	0.00	1252	131	0.13	1961	1690	0.26
McArthur Cove	Beach Comp.	0.882	116	170	145	0.00	9776	3786	2.70	6969	6947	1.32
7-29-89	3 m	0.763	90	114	177	0.00	8647	7874	3.84	3928	4826	0.93
Site 24	6 m	0.630	124	154	94	0.00	3266	4221	2.00	3675	4975	1.11
	20 m	0.519	1527	410	111	0.00	5042	3678	2.87	4696	3405	1.26
	40 m	0.604	337	350	279	0.00	5700	6120	3.41	7810	5478	1.81
	100 m	0.485	111	120	1128	1.07	1476	2135	1.12	3599	5571	1.54
	Porewater	1.000	97	518	910	0.68	9391	12489	3.92	10762	12552	2.00
	1:10 PW	1.000	83	124	377	0.00	7956	1140	1.56	7441	2030	0.77
Tonsina Bay	Beach Comp.	0.942	85	245	164	0.00	6333	5870	2.26	6670	6352	1.15
7-30-89	3 m	0.846	88	111	225	0.00	10130	7504	3.71	3961	5867	0.95
Site 25	6 m	0.853	109	326	510	0.16	7965	3452	2.33	5550	4812	1.00
	20 m	0.676	191	416	600	0.45	6557	4430	3.37	3986	1844	0.67
	40 m	0.586	88	244	203	0.00	4566	5356	2.91	4165	625	0.62
	100 m	0.574	106	290	316	0.00	16353	6470	7.14	5809	4801	1.52
	Porewater	1.000	74	1625	224	1.26	8750	8865	2.76	6758	5224	1.00
	1:10 PW	1.000	81	237	296	0.00	7114	6722	2.43	9426	8248	1.50

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Naphthalene ORP Data

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Gore Point	Beach Comp.	0.789	98	604	93	0.01	6697	5930	2.80	2389	6389	0.90
7-31-89	3 m	0.778	320	124	411	0.00	4278	4074	1.82	2709	4841	0.76
Site 26	6 m	0.756	86	88	246	0.00	2702	2832	1.19	2172	5242	0.79
	20 m	0.744	92	3004	1273	4.47	1997	2628	1.03	2047	4074	0.64
	40 m	0.714	278	523	97	0.00	10746	3275	3.46	5481	2799	0.94
	100 m	0.622	120	3436	94	4.23	3301	5510	2.42	5833	3467	1.22
	Porewater	1.000	68	1262	134	0.66	12149	13082	4.55	11213	8960	1.72
	1:10 PW	1.000	381	116	157	0.00	8167	11767	3.19	5047	11012	1.36
Port Dick	Beach Comp.	0.807	440	106	96	0.00	763	1729	0.41	5248	5006	1.05
8-1-89	3 m	0.814	1055	3328	94	3.11	1471	9066	2.24	2035	7989	1.01
Site 27	6 m	0.844	681	97	135	0.00	1723	2280	0.73	1102	1343	0.18
	20 m	0.853	94	109	108	0.00	6481	9080	4.22	3216	9170	1.58
	40 m	0.814	288	107	118	0.00	7053	5366	3.54	6672	9027	2.16
	100 m	0.551	64	112	447 *	0.00	2946	5620	2.85	6346	7825	2.16
	Porewater	1.000	336	108	124	0.00	7818	6563	2.64	5779	4530	0.86
	1:10 PW	1.000	214	2610	100	1.67	8233	304	1.45	185	2685	0.19
Windy Bay	Beach Comp.	0.787	72	308	127	0.00	4861	4723	2.09	1257	2506	0.34
8-2-89	3 m	0.715	73	104	8266	8.96	5844	7316	3.23	5126	917	0.66
Site 28	6 m	0.673	750	239	508	0.00	6510	6232	3.87	2020	3824	0.88
	20 m	0.433	1218	1745	268	2.83	6398	5753	4.90	2303	1616	0.66
	40 m	0.479	579	274	124	0.00	5490	6256	4.27	4640	4299	1.52
	100 m	0.655	2192	78	815	0.29	4134	196	1.03	2967	4155	0.87
	Porewater	1.000	92	215	529	0.05	10075	9959	3.68	5876	12598	1.67
	1:10 PW	1.000	74	67	133	0.00	4906	3218	1.36	2066	2622	0.35
Chugach Bay	Beach Comp.	0.884	1196	499	245	0.06	6195	2835	1.75	1750	1494	0.25
8-3-89	3 m	0.899	1004	208	194	0.00	2124	3019	0.92	3683	1163	0.41
Site 29	6 m	0.860	392	244	440	0.00	6586	5574	2.47	3272	1801	0.45
	20 m	0.656	590	235	171	0.00	5779	4891	2.82	4393	1626	0.74
	40 m	0.710	2196	4503	176	5.21	3417	4596	1.91	2862	4271	0.80
	100 m	0.574	1492	507	91	0.00	611	91	0.00	136	93	0.00
	Porewater	1.000	273	187	220	0.00	7886	6995	2.63	6368	11942	1.66
	1:10 PW	1.000	284	132	280	0.00	2093	939	0.43	2268	1870	0.30
Seldovia Bay	Beach Comp.	0.840	293	80	78	0.00	5551	1706	1.45	7025	4867	1.18
8-4-89	3 m	0.816	135	134	103	0.00	1160	3979	1.01	2835	1339	0.38
Site 30	6 m	0.864	243	73	172	0.00	2473	6604	2.34	3335	4054 *	0.89
	20 m	0.486	393	217	128	0.00	5638	3852	3.35	6408	3845	1.74
	40 m	0.736	92	112	147	0.00	2136	2690	1.04	2501	2040	0.46
	100 m	0.741	1415	233	65	0.00	136 *	265	0.00	5247	858	0.64
	Porewater	1.000										
	1:10 PW	1.000	81	67	84	0.00	204	453	0.00	83	165	0.00

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Naphthalene ORP Data

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Ursus Cove	Beach Comp.	0.783	647	96	65 *	0.00	866	150	0.08	823	2048	0.25
8–5–89	3 m	0.764	226	152	65 *	0.00	96	78	0.00	1247	1033	0.18
Site 31	6 m	0.882	259	63	313	0.00	112	178	0.00	4400	1617	0.52
	20 m	0.730	120	86	65	0.00	118	451	0.00	615	5136	0.81
	30 m	0.736	58	162	74	0.00	120	7072	1.64	967	6491	0.81
	Porewater	1.000	2239	7044	234	6.10	656	116	0.02	455	6523	0.55
	1:10 PW	1.000	574	543	100	0.00	176	87	0.00	4625	2936	0.61
Amakdedori Beach	Beach Comp.	0.717	861	1219	174	0.91	385	476	0.04	1335	103	0.09
8–6–89	3 m	0.755	1831	2453	292	2.52	430	2425	0.53	1809	1379	0.29
Site 32	6 m	0.728	115	3241	2467	6.38	3210	284	0.71	989	950	0.16
	10 m	0.737	662	2382	557	2.83	275	1291	0.22	2305	70	0.20
	20 m	0.692	124	784	374	0.83	260	115	0.00	997	1173	0.19
	30 m	0.730	128	1276	92	0.86	181	3414	0.74	946	1431	0.20
	Porewater	1.000	68	1110	70	0.48	636	596	0.10	1765	1750	0.26
	1:10 PW	1.000	1237	1110	257	0.83	150	335	0.00	1742	1802	0.26
Douglas Beach	Beach Comp.	0.808	76	196	232	0.00	3335	3463	1.40	649	516	0.06
8–7–89	3 m	0.830	61	364	362	0.04	1560	2183	0.68	1016	650	0.10
Site 33	6 m	0.826	136	1092	584	1.46	1854	3833	1.48	2803	2996	0.72
	10 m	0.709	63	72	254	0.00	2584	1244	0.82	1967	2156	0.43
	20 m	0.755	72	126	1112	0.87	1284	3033	0.89	1653	9201	1.19
	Porewater	1.000	75	844	780	0.87	10150	14721	4.48	1762	7659	0.77
	1:10 PW	1.000	88	116	301	0.00	15648	2606	3.25	1583	11903	1.13
Ushagat Island	Beach Comp.	0.943	88 *	218	269	0.00	3552	5047	1.55	3509	711	0.33
8–8–89	3 m	0.884	264	113	73	0.00	3974	2364	1.19	1661	3227	0.42
Site 34	6 m	0.843	74	831	2744	3.17	3997	2460	1.27	1817	15974	1.79
	10 m	0.827	60 *	279	152	0.00	1701	4707	1.26	1968	1539	0.30
	20 m	0.854	114	1304	143	0.82	1007	2432	0.60	1024	9221	0.99
	Porewater	1.000	69	2183	3149	4.30	2602	6221	1.51	7089	9742	1.42
	1:10 PW	1.000	85 *	116	122	0.00	4922	9480	2.54	3347	2840	0.48
	Beach–Oiled	0.958	63	8432	7829	16.06	10630	6054	3.09	5543	7010	1.09
Andreon Bay	Beach Comp.	0.811	487	407	192	0.00	1787	2396	0.80	1706	2169	0.36
8–9–89	3 m	0.738	102	354	109	0.00	2575	899	0.70	1518	1515	0.28
Site 35	6 m	0.641	236	269	214	0.00	2962	507	0.80	2094	2339	0.52
	20 m	0.475	M.D. *	114	216	0.00	3227	4012	2.66	3513	1416	0.79
	40 m	0.636	737	1153	93	0.81	676	119	0.03	259	2905	0.34
	100 m	0.462	M.D. *	268	116	0.00	3777	3613	2.65	2752	3230	0.97
	Porewater	1.000	1503	724	123	0.16	8447	8249	2.96	7221	6900	1.16
	1:10 PW	1.000	61	456	74	0.00	3410	2641	1.03	2683	2756	0.42

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R/V Fairweather July 1– August 22, 1989

Naphthalene ORP Data

				2 Day Data			10 Day Data			21 Day Data		
	Sample	% Dry Weight (*.01)	Day 0 (DPM)	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-da
King Cove	Beach Comp.	0.785	740	163	112	0.00	285	823	0.10	1119	1227	0.19
8-14-89	Beach-Tar Ball	0.960	223	116	323	0.00	8762	3300	2.15	5768	4479	0.86
Site 36	3 m	0.743	76	66	499	0.00	539	95	0.00	661	3158	0.37
	6 m	0.754	190	141	369 *	0.00	1163	3025 *	0.86	1365	1632	0.27
	20 m	0.755	104	192	403	0.00	181	726	0.05	2192	654	0.26
	40 m	0.958	3416	397	163	0.00	107	183	0.00	3325	1625	0.39
	Porewater	1.000	164	79	201	0.00	9194	10062	3.44	8615	8679	1.46
	1:10 PW	1.000	89	69	932 *	0.28	4948	2820	1.31	3608	1710	0.41
Douglas Pt.	Beach Comp.	0.868	90	144	333	0.00	147	1115	0.12	1359	2410	0.31
8-15-89	Beach-Tar Ball	0.961	1131	342	97	0.00	7433	8856	2.94	4931	1349	0.60
Site 37	3 m	0.808	76	114	182	0.00	1549	449 *	0.30	5791	1213	0.89
	6 m	0.758	227	104	89	0.00	3483	918	0.91	2825	1430	0.41
	20 m	0.632	397	192	106	0.00	1802	18315	5.69	1368	1933	0.37
	40 m	0.567	104	152	1439	1.47	4226	4983	2.78	2922	1319	0.55
	100 m	0.596	152	199	1499	1.56	186	5898	1.67	2257	6148	1.14
	Porewater	1.000	167	3750	216	3.04	6378	2979	1.61	8378	6062	1.21
	1:10 PW	1.000	263	3566	131	2.79	636	6042	1.09	818	10218	0.91
Halio Bay	Beach Comp.	0.858	339	136	156	0.00	5336	4460	1.97	6756	2677	0.89
8-16-89	Beach-Tar Ball	0.863	393	6491	13113	19.29	7895 *	16394	5.07	1470	10141	1.12
Site 38	3 m	0.797	406	90	113	0.00	1665	739	0.40	4005	1581	0.54
	6 m	0.890	263	93	89	0.00	2233	2888	1.19	4058	7304	1.36
	20 m	0.755	2370	80	1113	0.82	3635	3688	1.63	2875	7669	1.15
	40 m	0.574	177	74	61	0.00	4521	3901	2.50	3387	3516	0.96
	100 m	0.550	993	83	5718	8.61	247	641	0.03	658	679	0.10
	Porewater	1.000	105	429	857	0.37	6633	6492	2.30	10427	10274	1.76
	1:10 PW	1.000	115	99	71	0.00	4098	5645	1.68	4219	3921	0.66
Katmai Bay	Beach Comp.	0.738	126	415	171	0.00	7204	5120	2.92	5209	5190	1.16
8-17-89	3 m	0.735	130	137	317	0.00	1994	1100	0.61	1526	3186	0.48
Site 39	6 m	0.721	109	182	83	0.00	1542	332	0.30	1847	1271	0.30
	20 m	0.750	641	234	122	0.00	2640	3769	1.48	1907	3102	0.51
	40 m	0.562	120	362	2394	3.41	924	189	0.14	3548	2412	0.83
	75 m	0.585	76	276	2699	3.82	215	311	0.00	2198	1332	0.43
	Porewater	1.000	72	712	148	0.16	7985	9323	3.08	9774	7888	1.50
	1:10 PW	1.000	64	170	414	0.00	6782	2778	1.46	3950	4722	0.70
Halibut Bay	Beach Comp.	0.820	69	298	282	0.00	5816	89	1.13	1001	5226	0.60
8-18-89	3 m	0.789	81	80	2031	1.67	3668	3038	1.41	2797	161 *	0.25
Site 40	6 m	0.791	87	66	57	0.00	336	4939	1.07	7503	1312	0.91
	20 m	0.768	97	87	63	0.00	2845	3084	1.26	2259	805	0.27
	40 m	0.734	103	62	447	0.00	2389	161	0.47	3324	368 *	0.36
	100 m	0.720	137	61	2000	1.77	968	631	0.23	1842	1159	0.28
	Porewater	1.000	76	65 *	126	0.00	2105	107	0.26	4241	5710	0.82
	1:10 PW	1.000	73	72	62	0.00	6381	4583	1.90	3759	3853	0.61

*=possible vial leakage

R/V Fairweather July 1– August 22, 1989

Naphthalene ORP Data

				2 Day Data			10 Day Data			21 Day Data		
	Sample	% Dry Weight (*.01)	Day 0 (DPM)	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-day	Rep 1 (DPM)	Rep 2 (DPM)	ORP ug/g dry wt-da
Wide Bay	Beach comp.	0.766	87	138	1613	1.29	1405	176	0.22	366	368	0.01
8-19-89	3 m	0.764	410	138	597	0.06	1019	221	0.14	1124 *	1005	0.17
Site 41	6 m	0.744	787	190	226	0.00	137	463	0.00	170	1110	0.07
	20 m	0.865	203	1979	146	2.00	216	192	0.00	9142	1178 *	1.26
	40 m	0.831	704	736	171	0.32	332	161	0.00	729	1836	0.26
	Porewater	1.000	180	514	712	0.50	5744	7309	2.29	9144	6865	1.35
	1:10 PW	1.000	96	269	133	0.06	158	117	0.00	2745	6156	0.72
Chignik Bay	Beach Comp.	0.723	784	755	6931	7.69	154	279	0.00	573	1458	0.16
8-20-89	3 m	0.792	383	101	2806	2.58	6515	7903	2.97	3065	4506	0.77
Site 42	6 m	0.701	72	464	7632	9.65	6554	6115	3.16	4540	1530	0.66
	20 m	0.541	79	3220	2310	5.28	6811	6285	4.24	5038	4808	1.49
	30 m	1.000	66	1485	335	1.05	7792	4642	2.16	3522	4642	0.66
	Porewater	1.000	102	82	987	0.35	3959	105	0.63	661	1729	0.15
	1:10 PW	1.000	207	1489	872	1.36	110	118	0.00	1692	193	0.11
Ivanof Bay	Beach Comp.	0.812	2466	1764	147	1.42	2067	117	0.34	987	497	0.08
8-21-89	3 m	0.851	1618	310	100	0.09	1588	303	0.34	846	1454	0.22
Site 43	6 m	0.883	1367	156	215	0.00	158	1271	0.21	646	709	0.09
	20 m	0.588	906	2948	66	3.00	3826	1169	1.36	3848	2381	0.83
	40 m	0.864	486	1008	89	0.55	7558	605	2.17	2440	730	0.33
	85 m	0.626	2737	789	665	1.32	269	125	0.00	2436	1380	0.53
	Porewater	1.000	1762	438	404	0.14	8333	3445	2.05	2892	4196	0.56
	1:10 PW	1.000	83	99	84	0.00	106	264	0.00	1559	632	0.13
Zachary Bay	Beach Comp.	0.879	1433	90	165	0.00	120	723	0.04	651	157	0.02
8-22-89	3 m	0.660	219	91	126	0.00	4117	4314	2.11	1059	2856	0.42
Site 44	6 m	0.512	812	109	122	0.00	555	143	0.00	1124	1809	0.39
	20 m	0.661	1279	80	92	0.00	190	290	0.00	2643	454	0.32
	40 m	0.626	1726	144	96	0.00	460	1152	0.27	476	476	0.04
	100 m	0.664	502	74	71	0.00	79	139	0.00	944	935	0.16
	Porewater	1.000	635	84	77	0.00	99	536	0.00	116	949	0.03
	1:10 PW	1.000	1149	72	69	0.00	151	308	0.00	1384	1605	0.20

*=possible vial leakage

R/V Fairweather July 1–August 22, 1989

Raw Benzene ORP Data

	Sample	% Dry Weight (*.01)	Day 0 (DPM)	2 Day Data Rep 1 (DPM)	2 Day Data Rep 2 (DPM)	10 Day Data Rep 1 (DPM)	10 Day Data Rep 2 (DPM)	21 Day Data Rep 1 (DPM)	21 Day Data Rep 2 (DPM)
Fox Farm	Beach Comp.	0.900		213	222	6301		1691	2898
7-1-89	Porewater	1.000	74	95	172	2335	2348	2044	2634
Site 01	1:10 PW	1.000	154		1052	536		1591	3463
Sawmill Bay	Beach Comp.	0.919	87	101		291	715	246	244
7-2-89	Porewater	1.000	80	0	65	188	352	132	1150
Site 02	1:10 PW	1.000	102	16	84	1191	2262	2288	2430
Shelter Bay	Beach Comp.	0.737	123	93	319	3466	2469	8866	7359
7-3-89	Porewater	1.000	104	70	349	413	443	4323	1847
Site 03	1:10 PW	1.000	121		110	857	914	2384	6339
Smith Island	Beach Comp.	0.952	119	186	170	1783	3533	9684	15389
7-9-89	Porewater	1.000	86	337	328	2439	5007	12185	12630
Site 09	1:10 PW	1.000	72	185	137	3771	2261	6943	4300
Disk Island	Beach Comp.	0.895	211	14394	15660	6312		14978	15748
7-13-89	Porewater	1.000	451	2174	2203	8286	7273	14993	20990
Site 13	1:10 PW	1.000	899	2379	336	1924	1180	5364	7855
Sleepy Bay	Porewater	1.000	150	1425		11580	19790	10345	13249
7-16-89	1:10 PW	1.000	78	330	470	8457	8600	8403	7335
Site 16									
Snug Harbor	Beach High Tide	0.927	580	383	178	5707	3216	4794	4522
7-17-89	Beach Mid Tide	0.912	101	268	277	2842	2830	3027	5344
Site 06	Beach Lo Tide	0.744	242	520	474	12196	9826	8993	4114
	Porewater Mid	1.000	121	1283	1368	9268	14071	14918	12358
	Porewater Low	1.000	99	252	300	3084	4289	14997	6139
	1:10 PW Mid	1.000	90	224	371	21787	9040	13428	12567
	1:10 PW Hi	1.000	177	293	486	456	380	2801	5875
Olsen Bay	Beach Comp.	0.418	272	696	545	4019	966	846	1194
7-18-89	Porewater	1.000	135	240	904	705	425	579	345
Site 18	1:10 PW	1.000	411	555	265	308	983	612	320
Cordova Harbor	Beach	0.863	519	332	451	6974	5656	2686	5261
7-24-89	Porewater	1.000	1321	409	728	10255	14221	11633	10029
	1:10 PW	1.000	1063	812	847	5958	5227	8083	5063

F/V Nautilis November 7–December 8, 1989

Raw Radioisotope Data

Naphthalene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
N.W. Bay	Day 0	1	2538	4444	1	80	5816	1	158	5846
Station #4		2	3312	4445	2	353	5826	2	109	5856
11/26/89		3	7894	4446	3	149	5836	3	81	5866
	Day 2	1	316	4451	A1	1457	5818	D1 *	643	5848
		2	548	4453	A2	1500	5819	D2	572	5849
		3	1566	4455	B1	927	5826	E1	276	5858
		4	591	4452	B2	4034	5829	E2 *	539	5859
		5	402	4454	C1	2953	5838	F1	265	5868
		6	1576	4456	C2	4417	5839	F2	479	5869
		AVG	834		AVG	2548		AVG	449	
		STD	530		STD	1340		STD	122	
	Day 10	1	2881	4463	A1	5196	5822	D1	75	5852
		2	1566	4465	A2	8950	5823	D2	11429	5853
		3	6129	4467	B1	13827	5832	E1	3756	5862
		4	1797	4464	B2	14468	5833	E2	21478	5863
		5	974	4466	C1	18455	5842	F1	81	5872
		6	6433	4468	C2	110	5843	F2 *	13360	5873
		AVG	3130		AVG	9605		AVG	8363	
		STD	1966		STD	6255		STD	7796	
N.W. Bay	Day 0	1	83	4041	1	319	5001	1		
Station #5		2	76	4051	2	170	5021	2		
11/7/89		3	154	4012	3	58	5012	3		
	Day 8	1	67	4016	A1	453	5003	D1		
		2	249	4042	A2	100	5002	D2		
		3	603	4015	B1	506	5025	E1		
		4	126	4043	B2 *	74	5024	E2		
		5	159	4052	C1	69	5015	F1		
		6	204	4055	C2	107	5016	F2		
		AVG	216		AVG	218		AVG		
		STD	142		STD	188		STD		
	Day 16	1	67	4019	A1	322	5004	D1		
		2	213	4020	A2	109	5005	D2		
		3 *	64	4044	B1	147	5022	E1		
		4	71	4053	B2	325	5023	E2		
		5	102	4054	C1	67	5019	F1		
		6	507	4045	C2	516	5020	F2		
		AVG	171		AVG	248		AVG		
		STD	159		STD	156		STD		

Phenanthrene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
N.W. Bay	Day 0	1	24448	4447	1	166	5817	1	175	5847
Station #4		2	10896	4448	2	148	5827	2	238	5857
11/26/89		3	17206	4449	3	569	5837	3	477	5867
	Day 2	1	587	4457	A1	1032	5820	D1	1295	5850
		2	946	4459	A2 *	523	5821	D2	1250	5851
		3 *	663	4461	B1	91	5830	E1	827	5860
		4	962	4458	B2	1276	5831	E2	561	5861
		5	547	4460	C1	1311	5840	F1 *	709	5870
		6	771	4462	C2	952	5841	F2	965	5871
		AVG	746		AVG	864		AVG	935	
		STD	163		STD	432		STD	268	
	Day 10	1	4452	4469	A1	30328	5824	D1	5742	5854
		2	3680	4471	A2	11234	5825	D2	30834	5855
		3	2356	4473	B1	14911	5834	E1 *	1269	5864
		4	2331	4470	B2	16863	5835	E2 *	28650	5865
		5	3539	4472	C1 *	14022	5844	F1 *	98	5874
		6	3863	4474	C2	14878	5845	F2	27064	5875
		AVG	3370		AVG	17039		AVG	15843	
		STD	780		STD	6173		STD	13426	
N.W. Bay	Day 0	1	62	4046	1 *	68	5006	1		
Station #5		2	80	4056	2	1927	5026	2		
11/7/89		3	121	4011	3	61	5011	3		
	Day 8	1	2653	4057	A1 *	14099	5008	D1		
		2 *	114	4060	A2	23639	5007	D2		
		3	2767	4013	B1	15341	5030	E1		
		4	3117	4014	B2	22887	5029	E2		
		5	3016	4047	C1	16792	5014	F1		
		6	2593	4048	C2	13885	5013	F2		
		AVG	2377		AVG	17774		AVG		
		STD	1029		STD	4001		STD		
	Day 16	1	5971	4050	A1	14602	5010	D1		
		2	5997	4017	A2	13639	5009	D2		
		3 *	6979	4018	B1	17105	5027	E1		
		4	5662	4049	B2	12445	5028	E2		
		5	6118	4046	C1	17528	5016	F1		
		6	5815	4059	C2	17472	5017	F2		
		AVG	6090		AVG	15465		AVG		
		STD	423		STD	2007		STD		

* = vial leakage

F/V Nautilis November 7–December 8, 1989

Raw Radioisotope Data

Naphthalene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
N.W. Bay	Day 0	1	616	4626	1 *	67	6191	1	137	6221
Station #6		2	109	4627	2	241	6201	2	224	6231
12-07-89		3	361	4628	3	63	6211	3	98	6241
	Day 2	1	361	4633	A1	118	6193	D1 *	81	6223
		2	78	4634	A2 *	99	6194	D2	58	6224
		3	76	4636	B1	172	6203	E1	71	6234
		4	257	4637	B2	142	6204	E2	72	6233
		5	238	4632	C1	126	6213	F1	67	6243
		6	298	4635	C2	131	6214	F2	67	6244
		AVG	218		AVG	132		AVG	86	
		STD	107		STD	22		STD	5	
	Day 10	1	12733	4645	A1	9094	6197	D1	5890	6227
		2	1004	4647	A2	10904	6196	D2	5933	6226
		3	10262	4648	B1	14571	6207	E1	7831	6237
		4	12687	4644	B2	9737	6208	E2	9564	6238
		5	2151	4646	C1	8539	6217	F1	18301	6247
		6	14951	4648	C2	13602	6216	F2	10331	6246
		AVG	8965		AVG	11108		AVG	9608	
		STD	5406		STD	2303		STD	4229	
Block Island	Day 0	1	72	4003	1	75	5031	1	378	5071
Station #7		2	83	4002	2	89	5041	2	3313	5081
11/9/89		3	71	4001	3	220	5051	3	409	5061
	Day 8	1	125	4021	A1	132	5033	D1	7063	5062
		2	61	4022	A2	86	5032	D2	9600	5063
		3	60	4024	B1	71	5042	E1	9261	5072
		4	76	4004	B2	60	5043	E2	12193	5073
		5	63	4023	C1	67	5053	F1	11424	5082
		6	67	4005	C2	55	5052	F2	15833	5083
		AVG	75		AVG	75		AVG	10929	
		STD	23		STD	26		STD	2735	
	Day 18	1	414	4032	A1	129	5034	D1	8215	5065
		2	79	4033	A2	70	5035	D2	11600	5064
		3	210	4035	B1	126	5044	E1	7109	5074
		4	203	4025	B2	73	5045	E2	6537	5075
		5 *	237	4031	C1	599	5055	F1	9196	5085
		6	72	4034	C2	160	5054	F2	4180	5084
		AVG	203		AVG	193		AVG	7607	
		STD	114		STD	184		STD	2300	

Phenanthrene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
		1	155	4629	1	69	6192	1	133	6222
		2	193	4630	2	83	6202	2 *	630	6232
		3	1674	4631	3	100	6212	3	305	6242
		1	564	4639	A1	131	6195	D1	156	6225
		2	541	4640	A2	136	6196	D2	126	6226
		3	208	4642	B1	209	6205	E1	185	6236
		4	2376	4643	B2	185	6206	E2	159	6235
		5	203	4638	C1	362	6215	F1	148	6245
		6	484	4641	C2	414	6216	F2	142	6246
		AVG	726		AVG	240		AVG	153	
		STD	752		STD	109		STD	18	
		1	11454	4651	A1	6344	6199	D1	14892	6229
		2	13360	4653	A2	14057	6200	D2	11730	6230
		3	13819	4655	B1	17242	6209	E1	27661	6239
		4	8970	4650	B2	12523	6210	E2	27325	6240
		5	13058	4652	C1	25654	6219	F1	12399	6249
		6	13885	4654	C2	29376	6220	F2	23160	6250
		AVG	12424		AVG	17533		AVG	19526	
		STD	1743		STD	7839		STD	6748	
		1	101	4006	1	79	5056	1 *	842	5066
		2	84	4007	2	246	5046	2	796	5076
		3	110	4008	3	353	5036	3	183	5086
		1	9564	4010	A1	21608	5036	D1	31660	5067
		2	16146	4009	A2	27607	5037	D2	27751	5068
		3	15034	4028	B1	104	5048	E1	18344	5078
		4	3791	4027	B2	26744	5047	E2	20013	5077
		5	3195	4029	C1 *	78	5057	F1	23173	5087
		6	903	4026	C2 *	69	5058	F2	22269	5088
		AVG	8106		AVG	12702		AVG	23908	
		STD	5907		STD	12756		STD	4612	
		1	16103	4030	A1	12880	5040	D1	16171	5069
		2	18533	4036	A2	17353	5039	D2	1030	5070
		3	22887	4037	B1	15324	5049	E1	15233	5079
		4	9329	4038	B2	15219	5050	E2	15013	5080
		5	13836	4039	C1	13596	5060	F1	9653	5089
		6	19048	4040	C2	14231	5059	F2	21761	5090
		AVG	16623		AVG	14767		AVG	13147	
		STD	4282		STD	1439		STD	6462	

*= vial leakage

F/V Nautilis November 7–December 8, 1989

Raw Radioisotope Data

Naphthalene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
N.E. Knight Island Station #18 11-11-89	Day 0	1	825	4091	1	65	5121	1 *	63	5151
		2	266	4092	2	62	5131	2	106	5161
		3	1164	4093	3	82	5141	3	74	5171
	Day 8	1	7313	4098	A1 *	9328	5123	D1 *	3719	5154
		2	1703	4100	A2	7986	5124	D2	8614	5153
		3	7909	4101	B1	4033	5134	E1 *	6343	5163
		4	8778	4097	B2 *	13665	5133	E2	6697	5164
		5	515	4099	C1	16342	5143	F1	7390	5174
		6	5256	4102	C2	16431	5144	F2	7308	5173
		AVG	5246		AVG	11331		AVG	6745	
		STD	3130		STD	4583		STD	1547	
	Day 16	1 *	67	4112	A1	13601	5127	D1 *	9099	5157
		2	64	4113	A2 *	9490	5126	D2	13918	5158
		3	7845	4114	B1	8513	5185	E1	7941	5167
		4	2816	4109	B2 *	9048	5137	E2	6696	5168
		5	1217	4110	C1	5662	5147	F1	10400	5178
		6	8389	4111	C2	8518	5148	F2	8623	5177
		AVG	3400		AVG	9170		AVG	8446	
		STD	3464		STD	2296		STD	2293	
Green Island Station #22 11/16/89	Day 0	1			1			1		
		2			2			2		
		3			3			3		
	Day 8	1			A1			D1		
		2			A2			D2		
		3			B1			E1		
		4			B2			E2		
		5			C1			F1		
		6			C2			F2		
		AVG			AVG			AVG		
		STD			STD			STD		
	Day 16	1			A1			D1		
		2			A2			D2		
		3			B1			E1		
		4			B2			E2		
		5			C1			F1		
		6			C2			F2		
		AVG			AVG			AVG		
		STD			STD			STD		

Phenanthrene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
N.E. Knight Island Station #18 11-11-89	Day 0	1	78	4095	1	65	5122	1	991	5152
		2 *	2147	4094	2	87	5132	2	118	5162
		3	256	4096	3	1410	5142	3	95	5172
	Day 8	1	3046	4103	A1 *	19488	5126	D1	20819	5155
		2	2278	4108	A2	13998	5125	D2	19771	5156
		3	3899	4107	B1	20576	5135	E1	15579	5165
		4	3179	4105	B2 *	15457	5136	E2	19837	5166
		5	3008	4104	C1	22625	5145	F1 *	22012	5176
		6	1463	4106	C2	17551	5146	F2	14225	5175
		AVG	2818		AVG	18282		AVG	18707	
		STD	759		STD	2957		STD	2819	
	Day 16	1	6566	4117	A1	15206	5130	D1	22056	5159
		2	4240	4116	A2	23607	5129	D2	10938	5160
		3	3044	4118	B1	22494	5139	E1 *	1786	5169
		4	3780	4120	B2 *	11095	5140	E2	29423	5170
		5	1859	4115	C1	9579	5150	F1	13442	5179
		6	2996	4119	C2	21556	5149	F2	17050	5180
		AVG	3581		AVG	17256		AVG	15782	
		STD	1155		STD	6588		STD	8678	
Green Island Station #22 11/16/89	Day 0	1	118	4232	1	298	5396	1	979	5411
		2	102	4233	2	422	5401	2	156	5416
		3	107	4234	3	726	5406	3	309	5421
	Day 8	1	17280	4235	A1	19849	5398	D1	19580	5412
		2	10294	4236	A2	13482	5397	D2	26860	5413
		3	16186	4237	B1	21243	5403	E1	26217	5417
		4	8023	4238	B2	27311	5402	E2	25402	5418
		5	18323	4239	C1	8929	5408	F1	18106	5422
		6	16669	4240	C2	8261	5407	F2	21944	5423
		AVG	14296		AVG	16513		AVG	23352	
		STD	3806		STD	6891		STD	3740	
	Day 16	1	27472	4241	A1 *	557	5399	D1	11505	5415
		2	25013	4242	A2	10165	5400	D2	22803	5414
		3	26949	4243	B1	14423	5404	E1	24553	5420
		4	28160	4244	B2	18832	5405	E2	15374	5419
		5	20408	4245	C1	21614	5409	F1	17347	5425
		6	31717	4246	C2	10606	5410	F2	16077	5424
		AVG	26620		AVG	12700		AVG	17943	
		STD	3424		STD	6810		STD	4457	

* = vial leakage

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Raw Radioisotope Data

Naphthalene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Snug Harbor	Day 0	1			1			1		
Station #25		2			2			2		
11/15/89		3			3			3		
	Day 8	1			A1			D1		
		2			A2			D2		
		3			B1			E1		
		4			B2			E2		
		5			C1			F1		
		6			C2			F2		
		AVG			AVG			AVG		
		STD			STD			STD		
	Day 16	1			A1			D1		
		2			A2			D2		
		3			B1			E1		
		4			B2			E2		
		5			C1			F1		
		6			C2			F2		
		AVG			AVG			AVG		
		STD			STD			STD		
Point Helen	Day 0	1	94	4277	1	173	5491	1	895	5506
Station #36		2	82	4278	2	90	5496	2	1596	5511
11/16/89		3	286	4280	3	267	5501	3	891	5516
	Day 2	1	1942	4282	A1	1264	5493	D1	273	5507
		2 *	2371	4283	A2	2271	5492	D2	77	5508
		3	967	4286	B1	1919	5497	E1	95	5513
		4	1808	4281	B2	3533	5498	E2	70	5512
		5	1660	4284	C1	1003	5503	F1	941	5517
		6	1098	4285	C2	3334	5502	F2	357	5518
		AVG	1624		AVG	2221		AVG	302	
		STD	484		STD	953		STD	305	
	Day 10	1	2509	4287	A1	13373	5494	D1	13417	5510
		2	12905	4288	A2	16946	5495	D2	10299	5509
		3	13199	4289	B1	8107	5499	E1	11070	5515
		4	19017	4290	B2	19723	5500	E2	9177	5514
		5	14252	4291	C1	7525	5505	F1	4218	5520
		6	8473	4292	C2	10133	5504	F2	5227	5519
		AVG	11726		AVG	12635		AVG	8901	
		STD	5142		STD	4514		STD	3229	

Phenanthrene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Snug Harbor	Day 0	1	492	4214	1 *	110	5186	1	139	5381
Station #25		2	313	4216	2	103	5371	2	170	5386
11/15/89		3	478	4216	3	133	5376	3	2124	5391
	Day 8	1	3950	4217	A1	21269	5187	D1	14136	5383
		2	5277	4218	A2	11032	5188	D2	22036	5382
		3	4445	4222	B1	17526	5373	E1	25957	5388
		4	4043	4223	B2 *	7260	5372	E2	14521	5387
		5	5025	4224	C1	21247	5378	F1	15389	5392
		6	5671	4225	C2	10102	5377	F2	15993	5392
		AVG	4735		AVG	14739		AVG	18006	
		STD	637		STD	5537		STD	4425	
	Day 16	1	7298	4226	A1	21120	5190	D1	8471	5384
		2	12940	4227	A2	17820	5189	D2	19155	5385
		3	9798	4228	B1	11013	5375	E1	21904	5390
		4	8502	4229	B2	18486	5374	E2	11656	5389
		5	7701	4230	C1	18727	5380	F1	14046	5395
		6	1684	4231	C2	6980	5379	F2	6672	5394
		AVG	7654		AVG	15691		AVG	13851	
		STD	3407		STD	4980		STD	5448	
Point Helen	Day 0	1	116	4262	1	111	5456	1	5390	5471
Station #36		2	121	4263	2	82	5461	2	2278	5476
11/16/89		3	108	4264	3	116	5466	3	5963	5481
	Day 2	1	1954	4266	A1	7411	5458	D1	206	5472
		2	2635	4267	A2	6276	5457	D2	199	5473
		3	5660	4268	B1	5191	5462	E1	118	5477
		4	1895	4265	B2	6019	5463	E2	408	5478
		5	3267	4269	C1 *	1040	5467	F1	182	5482
		6	5131	4270	C2	5406	5468	F2	248	5483
		AVG	3464		AVG	5224		AVG	227	
		STD	1484		STD	2003		STD	90	
	Day 10	1	31397	4272	A1	15505	5460	D1	26264	5475
		2	12846	4273	A2	24309	5459	D2	20586	5474
		3	29616	4274	B1	7885	5464	E1	10704	5479
		4	30414	4271	B2	13717	5465	E2	10161	5480
		5	13181	4275	C1	26045	5470	F1	23284	5484
		6	30403	4276	C2	14291	5469	F2	22955	5485
		AVG	24643		AVG	16959		AVG	18992	
		STD	8240		STD	6307		STD	6275	

* = vial leakage

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Raw Radioisotope Data

Naphthalene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Two Moon	Day 0	1	77	4506	1	152	6002	1	72	6032
Station #200		2	80	4507	2	694	6012	2	85	6042
12/2/89		3	65	4508	3	190	6022	3	91	6052
	Day 2	1	74	4542	A1	74	6004	D1	75	6034
		2	78	4544	A2	73	6005	D2	69	6035
		3	89	4546	B1	368	6014	E1	69	6044
		4	69	4543	B2	545	6015	E2	75	6045
		5	80	4545	C1	67	6024	F1	84	6054
		6	80	4547	C2	69	6025	F2	82	6055
		AVG	78		AVG	199		AVG	76	
		STD	6		STD	189		STD	6	
	Day 10	1	934	4554	A1	476	6008	D1	69	6038
		2 *	2661	4556	A2	76	6009	D2	85	6039
		3	2031	4558	B1	7621	6018	E1	272	6048
		4	4432	4555	B2	127	6019	E2	77	6049
		5 *	855	4557	C1	2852	6028	F1	67	6058
		6	891	4559	C2	5663	6029	F2	78	6059
		AVG	1987		AVG	2786		AVG	108	
		STD	1293		STD	2900		STD	74	
N.E. Port	Day 0	1	376	4566	1	78	6062	1 *	4308	6092
Fidalgo		2	157	4567	2	69	6072	2	105	6102
Station #201		3	66	4568	3	116	6082	3	421	6112
12-3-89										
	Day 2	1	363	4572	A1	70	6085	D1	55	6094
		2	134	4574	A2	68	6084	D2	85	6095
		3	899	4576	B1	73	6074	E1	85	6104
		4	131	4573	B2	58	6075	E2	84	6105
		5	120	4575	C1	81	6085	F1	69	6114
		6	85	4577	C2	74	6084	F2	81	6115
		AVG	255		AVG	67		AVG	83	
		STD	218		STD	6		STD	4	
	Day 10	1	11406	4588	A1	62	6069	D1	81	6098
		2	6077	4584	A2	112	6068	D2	68	6099
		3	146	4586	B1	64	6079	E1	67	6108
		4	5324	4585	B2	65	6078	E2	84	6109
		5	12235	4587	C1	64	6089	F1	80	6118
		6	2216	4589	C2	64	6088	F2	89	6119
		AVG	6234		AVG	72		AVG	88	
		STD	4413		STD	18		STD	10	

Phenanthrene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Two Moon	Day 0	1	126	4541	1	129	6003	1	102	6033
Station #200		2	94	4509	2	687	6013	2	109	6043
12/2/89		3	87	4510	3	1343	6023	3	247	6053
	Day 2	1	181	4548	A1	144	6006	D1	174	6036
		2	159	4550	A2	121	6007	D2	135	6037
		3	157	4552	B1	276	6017	E1	173	6046
		4	151	4549	B2	209	6016	E2	183	6047
		5	163	4551	C1	207	6026	F1	147	6056
		6	153	4553	C2	447	6027	F2	161	6057
		AVG	159		AVG	234		AVG	159	
		STD	10		STD	108		STD	14	
	Day 10	1	276	4564	A1	216	6010	D1	186	6040
		2	175	4560	A2	216	6011	D2	211	6041
		3	229	4562	B1	222	6020	E1	229	6050
		4	239	4565	B2	222	6021	E2	213	6051
		5	148	4561	C1	437	6030	F1	215	6060
		6	206	4563	C2	311	6031	F2	148	6061
		AVG	212		AVG	271		AVG	201	
		STD	42		STD	82		STD	26	
N.E. Port	Day 0	1	213	4569	1	103	6063	1	262	6093
Fidalgo		2	110	4570	2	72	6073	2	149	6103
Station #201		3	128	4571	3	91	6083	3 *	162	6113
12-3-89										
	Day 2	1	299	4578	A1	144	6086	D1	164	6096
		2	209	4566	A2	118	6087	D2	162	6097
		3	191	4582	B1	124	6076	E1	152	6106
		4	276	4583	B2	84	6077	E2	107	6107
		5	189	4581	C1	142	6086	F1	117	6116
		6	199	4579	C2	107	6087	F2	129	6117
		AVG	227		AVG	120		AVG	142	
		STD	44		STD	21		STD	26	
	Day 10	1	237	4595	A1	197	6070	D1	114	6100
		2	267	4591	A2	142	6071	D2	[illegible]	6101
		3	180	4593	B1	120	6080	E1	188	6110
		4	88	4594	B2	187	6081	E2 *	215	6111
		5	284	4590	C1	139	6090	F1	195	6120
		6	252	4592	C2	195	6091	F2	243	6121
		AVG	218		AVG	163		AVG	2987	
		STD	67		STD	31		STD	6253	

* = vial leakage

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Raw Radioisotope Data

Naphthalene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Chenega Island	Day 0	1	71	4294	1	84	5486	1	240	5546
Station #38		2	91	4296	2	96	5527	2	89	5556
11/19/89		3	77	4298	3	102	5536	3	536	5566
	Day 2	1	145	4300	A1	188	5488	D1	514	5546
		2	137	4301	A2	102	5488	D2	57	5549
		3 *	363	4302	B1	102	5528	E1	141	5558
		4	83	4303	B2	108	5529	E2	507	5559
		5	105	4304	C1	224	5539	F1	1933	5568
		6	93	4305	C2	74	5536	F2	81	5569
		AVG	154		AVG	133		AVG	539	
		STD	98		STD	54		STD	851	
	Day 10	1	6088	4313	A1	7627	5522	D1 *	207	5552
		2	7674	4315	A2	6955	5523	D2	374	5553
		3	10337	4317	B1	3508	5532	E1	114	5563
		4	5416	4312	B2	6019	5533	E2	19727	5562
		5	3537	4314	C1	8321	5543	F1	4246	5573
		6	5481	4316	C2	5909	5542	F2 *	5996	5572
		AVG	6402		AVG	6390		AVG	5111	
		STD	2121		STD	1642		STD	6912	
Sleepy Bay	Day 0	1			1			1		
Station #43		2			2			2		
11/17/89		3			3			3		
	Day 8	1			A1			D1		
		2			A2			D2		
		3			B1			E1		
		4			B2			E2		
		5			C1			F1		
		6			C2			F2		
		AVG			AVG			AVG		
		STD			STD			STD		
	Day 16	1			A1			D1		
		2			A2			D2		
		3			B1			E1		
		4			B2			E2		
		5			C1			F1		
		6			C2			F2		
		AVG			AVG			AVG		
		STD			STD			STD		

Phenanthrene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
		1	112	4297	1	155	5487	1	137	5547
		2	105	4298	2	127	5526	2	273	5567
		3	148	4299	3	342	5537	3	111	5557
		1	164	4307	A1	424	5521	D1	505	5550
		2	193	4309	A2	309	5490	D2	145	5551
		3	173	4311	B1	279	5531	E1	607	5561
		4 *	182	4306	B2	188	5530	E2 *	150	5560
		5	181	4308	C1	1772	5541	F1	1167	5570
		6	342	4310	C2 *	524	5540	F2	263	5571
		AVG	206		AVG	583		AVG	473	
		STD	82		STD	643		STD	355	
		1	5882	4319	A1	9406	5525	D1	10731	5554
		2	1976	4322	A2	24127	5524	D2	13165	5555
		3	3666	4323	B1	22651	5534	E1	15936	5564
		4	5321	4318	B2	5507	5535	E2 *	18397	5565
		5	4477	4320	C1	12806	5546	F1 *	9186	5575
		6	3421	4321	C2 *	8529	5544	F2	8833	5574
		AVG	4124		AVG	13638		AVG	12708	
		STD	1289		STD	7092		STD	3520	
		1	154	4247	1	643	5426	1	244	5441
		2 *	124	4248	2	208	5431	2	271	5446
		3	100	4249	3	139	5436	3	1291	5451
		1	2566	4250	A1	13772	5427	D1	21999	5442
		2	5593	4251	A2	17801	5428	D2	16890	5443
		3	5309	4252	B1	18076	5432	E1	18184	5448
		4	5668	4253	B2	12409	5433	E2	16284	5447
		5	4390	4254	C1	23187	5437	F1	26073	5452
		6	6082	4255	C2	26858	5436	F2	13446	5453
		AVG	4935		AVG	18637		AVG	18813	
		STD	1179		STD	4963		STD	4126	
		1	6582	4256	A1	18633	5429	D1 *	25418	5445
		2	8177	4257	A2	7678	5430	D2	16450	5444
		3	15163	4258	B1	14705	5434	E1	11883	5449
		4	11244	4259	B2	19403	5435	E2	23949	5450
		5	11117	4260	C1	25580	5439	F1	18049	5454
		6	8802	4261	C2	12252	5440	F2	14111	5455
		AVG	10181		AVG	16375		AVG	18310	
		STD	2760		STD	5692		STD	4912	

*= vial leakage

F/V Nautilis November 7–December 8, 1989

Raw Radioisotope Data

Naphthalene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Block Island	Day 0	1	113	4063	1	89	5091	1		
Station #47		2	114	4062	2	58	5101	2		
11/09/89		3	497	4061	3	4423	5111	3		
	Day 6	1	106	4070	A1	16177	5094	D1		
		2	69	4066	A2	66	5093	D2		
		3	58	4069	B1	63	5103	E1		
		4	63	4067	B2	66	5104	E2		
		5	57	4072	C1	60	5113	F1		
		6	77	4071	C2	19692	5114	F2		
		AVG	72		AVG	6054		AVG		
		STD	17		STD	8539		STD		
	Day 16	1	259	4080	A1	79	5096	D1		
		2	113	4082	A2	15229	5097	D2		
		3	97	4084	B1	70	5107	E1		
		4	74	4079	B2	20590	5108	E2		
		5	101	4081	C1	12508	5117	F1		
		6	66	4083	C2	421	5118	F2		
		AVG	119		AVG	8150		AVG		
		STD	65		STD	8307		STD		
Block Island	Day 0	1	190	4511	1	93	5941	1	445	5971
Station 47		2	79	4512	2	87	5951	2	98	5981
11-30-89		3	84	4513	3	127	5961	3	84	5991
	Day 2	1	436	4517	A1	132	5943	D1	71	5973
		2	427	4519	A2	136	5944	D2	78	5974
		3	584	4521	B1	228	5953	E1	160	5983
		4	942	4518	B2	192	5954	E2	79	5984
		5	506	4520	C1	105	5963	F1	152	5993
		6	973	4522	C2	167	5964	F2	71	5994
		AVG	645		AVG	158		AVG	102	
		STD	227		STD	41		STD	38	
	Day 10	1	6755	4529	A1	11799	5947	D1 *	6545	5977
		2	14702	4531	A2	12967	5948	D2	10956	5978
		3	10312	4533	B1	15085	5957	E1	67	5987
		4	20668	4530	B2 *	95	5958	E2	73	5988
		5	9629	4532	C1	23367	5967	F1	14605	5998
		6	14732	4534	C2	24125	5968	F2	9996	5997
		AVG	12800		AVG	14573		AVG	7040	
		STD	4510		STD	6049		STD	5458	

Phenanthrene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
		1	983	4064	1	155	6092	1		
		2	94	4065	2	169	5102	2		
		3 *	214	4066	3	119	5112	3		
		1	5659	4076	A1	7576	5095	D1		
		2	1339	4077	A2	19031	5096	D2		
		3	4659	4078	B1	850	5105	E1		
		4	7446	4074	B2	16608	5106	E2		
		5	5757	4073	C1	95	5116	F1		
		6	7189	4075	C2	176	5115	F2		
		AVG	5342		AVG	7389		AVG		
		STD	2025		STD	7837		STD		
		1	5279	4085	A1	18316	5100	D1		
		2	9763	4089	A2	20404	5099	D2		
		3	7034	4090	B1	257	5109	E1		
		4 *	5504	4086	B2	20255	5110	E2		
		5	7628	4087	C1	761	5119	F1		
		6	486	4088	C2	232	5120	F2		
		AVG	5949		AVG	10038		AVG		
		STD	2859		STD	9646		STD		
		1	126	4514	1	119	5942	1	232	5972
		2	109	4515	2	88	5952	2	505	5982
		3	221	4516	3	287	5962	3	717	5992
		1	379	4523	A1	475	5945	D1	242	5975
		2	464	4525	A2	438	5946	D2	217 *	5976
		3	353	4527	B1	685	5955	E1	248	5985
		4	417	4524	B2	713	5956	E2	253	5986
		5	472	4526	C1	667	5965	F1	1229	5995
		6	376	4528	C2	752	5966	F2	398	5996
		AVG	410		AVG	622		AVG	431	
		STD	45		STD	120		STD	362	
		1	2976	4539	A1	19990	5949	D1	12116	5979
		2 *	4056	4536	A2	22908	5950	D2	10827	5980
		3	7024	4535	B1	25781	5959	E1	27295	5989
		4	8872	4538	B2	24718	5960	E2	26979	5990
		5	6026	4537	C1	18270	5969	F1	23992	5999
		6 *	5649	4540	C2	14089	5970	F2	26590	6001
		AVG	5767		AVG	20959		AVG	21633	
		STD	1916		STD	4011		STD	7325	

* = vial leakage

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Raw Radioisotope Data

Naphthalene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Rua Cove	Day 0	1	74	4186	1			1		
Station #49		2	90	4187	2			2		
11/14/89		3			3			3		
	Day 8	1	92	4188	A1			D1		
		2	170	4191	A2			D2		
		3	87	4189	B1			E1		
		4	141	4193	B2			E2		
		5			C1			F1		
		6			C2			F2		
		AVG	123		AVG			AVG		
		STD	36		STD			STD		
	Day 16	1	111	4203	A1			D1		
		2	87	4201	A2			D2		
		3	623	4202	B1			E1		
		4	456	4205	B2			E2		
		5			C1			F1		
		6			C2			F2		
		AVG	320		AVG			AVG		
		STD	228		STD			STD		
Herring Bay	*Day 0*	1	83	4324	1	66	5576	1	82	5606
Station #53		2	66	4325	2	64	5588	2	66	5618
11/20/89		3	66	4326	3	70	5596	3	73	5626
	Day 2	1	66	4330	A1	102	5579	D1	77	5609
		2	73	4331	A2	192	5578	D2 *	122	5608
		3	75	4332	B1	147	5589	E1	75	5619
		4	86	4333	B2	92	5586	E2	67	5618
		5	64	4334	C1	111	5599	F1	66	5629
		6	107	4335	C2	77	5598	F2	77	5628
		AVG	82		AVG	120		AVG	81	
		STD	13		STD	39		STD	19	
	Day 10	1	3707	4345	A1	10556	5583	D1	6901	5613
		2	7879	4346	A2	9060	5582	D2	7471	5612
		3	12170	4347	B1	5605	5593	E1	6285	5623
		4	7866	4342	B2	11403	5592	E2	6847	5622
		5	4473	4343	C1	7836	5603	F1	5332	5633
		6	12761	4344	C2	18894	5602	F2	5034	5632
		AVG	8143		AVG	10559		AVG	6312	
		STD	3436		STD	4171		STD	873	

Phenanthrene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Rua Cove	Day 0	1	692	4220	1	291	5311	1	531	5341
Station #49		2	591	4221	2	730	5321	2	1148	5351
11/14/89		3	331	4219	3	788	5331	3	1484	5363
	Day 8	1	11989	4196	A1	26666	5314	D1	29695	5343
		2	6573	4197	A2	8376	6313	D2	23438	5344
		3	11605	4198	B1	19893	5324	E1	23911	5353
		4	8633	4199	B2	17212	5323	E2	21773	5354
		5	8844	4194	C1	23396	5334	F1	25071	5361
		6	14302	4195	C2	8590	5333	F2	18263	5364
		AVG	10191		AVG	17522		AVG	23892	
		STD	2837		STD	6708		STD	3445	
	Day 16	1	18322	4206	A1	8917	6317	D1	10703	5347
		2	8827	4207	A2	19871	5318	D2	14139	5348
		3	26451	4209	B1	15832	5327	E1	17015	5357
		4	13238	4208	B2	13754	5328	E2	20104	5358
		5	21067	4210	C1	7292	5337	F1	14077	5367
		6	13892	4211	C2	7730	5338	F2	12348	5361
		AVG	16966		AVG	12233		AVG	14731	
		STD	5748		STD	4642		STD	3076	
Herring Bay	*Day 0*	1	92	4327	1	97	5577	1 *	87	5607
Station #53		2	91	4328	2	119	5587	2	87	5617
11/20/89		3	94	4329	3 *	128	5597	3	75	5627
	Day 2	1	141	4339	A1	146	5581	D1	163	5611
		2	129	4340	A2	155	5580	D2	144	5610
		3	145	4341	B1	703	5591	E1	175	5621
		4	118	4336	B2	290	5590	E2	174	5620
		5	112	4337	C1	298	5601	F1	179	5631
		6	119	4338	C2	205	5600	F2 *	167	5630
		AVG	127		AVG	300		AVG	167	
		STD	12		STD	190		STD	12	
	Day 10	1	4915	4351	A1	12525	5584	D1	23422	5615
		2	3358	4352	A2	12074	5585	D2	21309	5614
		3	1671	4353	B1	25865	6594	E1	19977	5625
		4	2125	4348	B2	23551	5595	E2	20376	5624
		5	3094	4349	C1	17702	5604	F1	26013	5635
		6	507	4350	C2	713	5605	F2	19133	5634
		AVG	2612		AVG	15405		AVG	21705	
		STD	1393		STD	6330		STD	2346	

* = vial leakage

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Raw Radioisotope Data

Naphthalene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Smith Island	Day 0	1	81	4596	1	77	6131	1 *	220	6161
Station #67		2	87	4597	2	87	6141	2	87	6171
12/4/89		3	195	4598	3	87	6151	3	133	6181
	Day 2	1	21669	4603	A1	177	6133	D1	253	6163
		2	10206	4605	A2	131	6134	D2	126	6164
		3	8970	4607	B1	109	6143	E1	113	6173
		4	13288	4602	B2	117	6144	E2	107	6174
		5	12623	4604	C1	86	6253	F1	80	6183
		6	8780	4606	C2	82	6154	F2	74	6184
		AVG	12256		AVG	117		AVG	126	
		STD	4726		STD	32		STD	60	
	Day 10	1	412	4615	A1	13368	6137	D1	4626	6167
		2	376	4617	A2	16126	6138	D2	8551	6168
		3	269	4619	B1	10792	6148	E1	8186	6177
		4	279	4614	B2	12208	6147	E2 *	7121	6178
		5	253	4616	C1	7018	6157	F1	5908	6187
		6	246	4618	C2	13695	6158	F2	104	6188
		AVG	309		AVG	12200		AVG	5763	
		STD	63		STD	2823		STD	2640	
Ingot Island	Day 0	1	89	4384	1	86	5756	1	125	5786
Station #82		2	92	4385	2	86	5766	2	88	5796
11/26/89		3	158	4386	3	81	5776	3	600	5806
	Day 2	1	309	4390	A1	96	5759	D1	81	5788
		2	157	4422	A2 *	128	5758	D2	84	5789
		3	1263	4424	B1	80	5769	E1	112	5798
		4	1445	4421	B2	86	5768	E2	108	5799
		5	191	4423	C1	91	5779	F1	267	5808
		6	1526	4425	C2	85	5778	F2	94	5809
		AVG	815		AVG	94		AVG	121	
		STD	603		STD	16		STD	67	
	Day 10	1	8189	4432	A1	6472	5762	D1	14380	5793
		2 *	1502	4434	A2	14462	5763	D2	16592	5792
		3	11198	4436	B1	8891	5772	E1	832	5803
		4	10285	4433	B2 *	6966	5773	E2	2543	5802
		5	1058	4435	C1	5785	5782	F1	1064	5813
		6	12297	4437	C2	14341	5783	F2	5211	5812
		AVG	7422		AVG	9490		AVG	6770	
		STD	4516		STD	3599		STD	6357	

Phenanthrene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
		1	802	4599	1	229	6152	1	121	6162
		2	106	4600	2	779	6132	2	122	6172
		3	102	4601	3	108	6142	3	174	6182
		1	1181	4608	A1	191	6136	D1	132	6165
		2	400	4610	A2	204	6135	D2	129	6166
		3	473	4612	B1	522	6146	E1	313	6175
		4	497	4611	B2	545	6145	E2	221	6176
		5	462	4609	C1	620	6156	F1	308	6185
		6 *	663	4613	C2	331	6155	F2	237	6186
		AVG	613		AVG	402		AVG	223	
		STD	267		STD	169		STD	74	
		1	17882	4625	A1	9045	6139	D1	63	6169
		2	9446	4620	A2	11131	6140	D2	420	6170
		3	11651	4622	B1	10451	6149	E1	14502	6179
		4	12429	4624	B2	23038	6150	E2	20021	6180
		5	13981	4621	C1	16144	6159	F1	24859	6189
		6	14400	4623	C2	20400	6160	F2	23290	6190
		AVG	13262		AVG	15035		AVG	13859	
		STD	2625		STD	6263		STD	10159	
		1	130	4387	1	116	6757	1	131	5787
		2	105	4388	2	214	5767	2	89	5797
		3	160	4389	3	96	5777	3	221	5807
		1	3054	4426	A1 *	496	5760	D1	161	5791
		2	3743	4428	A2	368	5761	D2	86	5790
		3	2512	4430	B1	325	5770	E1	180	5801
		4	2290	4427	B2 *	346	5771	E2	211	5800
		5	3135	4429	C1	399	5780	F1	1697	5811
		6	2830	4431	C2	380	5781	F2	271	5810
		AVG	2928		AVG	386		AVG	434	
		STD	466		STD	54		STD	568	
		1	9896	4439	A1	19178	5765	D1	19197	5794
		2	9512	4438	A2	10920	5764	D2 *	29156	5795
		3	12532	4440	B1	11127	5775	E1	21362	5804
		4	10152	4441	B2	22954	5774	E2 *	28195	5805
		5	9400	4443	C1	28107	5785	F1	12638	5814
		6	8611	4442	C2	22466	5784	F2	21794	5815
		AVG	10017		AVG	19125		AVG	22057	
		STD	1223		STD	6295		STD	5561	

* = vial leakage

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Raw Radioisotope Data

Naphthalene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Bay of Isles	Day 0	1	81	4121	1	65	5191	1	169	5221
Station #86		2	144	4122	2	767	5201	2	180	5231
11/12/89		3	367	4123	3	153	5211	3	199	5241
	Day 6	1	66	4127	A1	66	5194	D1	11439	5224
		2	10113	4129	A2	72	5193	D2	6335	5223
		3	7566	4130	B1	7200	5203	E1	5651	5233
		4	82	4128	B2	5722	5204	E2	6993	5234
		5	9733	4131	C1	213	5214	F1 *	410	5244
		6	7319	4132	C2	15728	5213	F2	6901	4243
		AVG	5814		AVG	4837		AVG	6266	
		STD	4190		STD	6652		STD	3224	
	Day 16	1	82	4140	A1	80	5196	D1	6610	5227
		2	10437	4142	A2	81	5197	D2	7859	5228
		3 *	16014	4144	B1	104	5208	E1	6159	5237
		4	87	4139	B2	9090	5207	E2	2769	5238
		5	8578	4141	C1	6648	5218	F1	7875	5248
		6 *	15897	4143	C2	129	5217	F2	6910	5247
		AVG	6479		AVG	2505		AVG	6364	
		STD	6606		STD	3554		STD	1724	
Applegate	Day 0	1	80	4476	1	78	5876	1	74	5906
Island		2	221	4478	2	71	5866	2	186	5916
Station #86		3	77	4477	3	77	5896	3	413	5926
11-29-89										
	Day 2	1	626	4481	A1	144	5878	D1	74	5908
		2 *	566	4482	A2 *	130	5879	D2	66	5909
		3	633	4483	B1	202	5888	E1	78	5918
		4	1366	4484	B2	257	5889	E2	64	5919
		5	1165	4485	C1	134	5898	F1	110	5928
		6	1172	4486	C2	165	5899	F2	101	5929
		AVG	912		AVG	172		AVG	82	
		STD	339		STD	45		STD	17	
	Day 10	1	8069	4493	A1	14968	5882	D1	11729	5913
		2	8845	4495	A2	10912	5883	D2	4421	5912
		3	15042	4497	B1	11720	5892	E1	6730	5923
		4	7872	4494	B2 *	16016	5893	E2	4805	5922
		5	12556	4496	C1	10517	5902	F1	6978	5933
		6	15998	4496	C2	12103	5903	F2	6719	5932
		AVG	11397		AVG	12706		AVG	6897	
		STD	3312		STD	2058		STD	2378	

Phenanthrene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
		1	191	4124	1	304	5192	1	233	5222
		2	170	4125	2	377	5202	2	411	5232
		3	196	4126	3	368	5212	3	460	5242
		1	5186	4135	A1	18620	5195	D1	13218	5226
		2	3658	4137	A2	21703	5196	D2	20733	5225
		3	4939	4138	B1	17468	5206	E1	19475	5235
		4	5469	4133	B2	21761	5205	E2	14472	5236
		5	5317	4134	C1	17088	5216	F1	5374	5246
		6	4566	4136	C2	10986	5215	F2	12394	5245
		AVG	4860		AVG	17971		AVG	14278	
		STD	812		STD	3625		STD	5044	
		1	1273	4146	A1	19775	5199	D1	11033	5230
		2	3576	4147	A2	18028	5200	D2	16328	5229
		3	6579	4150	B1	923	5210	E1	7634	5239
		4	7604	4145	B2	22242	5209	E2	10960	5240
		5	15691	4148	C1	9563	5220	F1	21280	5250
		6	8929	4149	C2	13463	5219	F2	15225	5249
		AVG	7276		AVG	14002		AVG	13747	
		STD	4543		STD	7166		STD	4434	
		1	214	4478	1	83	5877	1	241	5907
		2	102	4479	2	78	5887	2	161	5917
		3	1176	4480	3	350	5897	3	1158	5927
		1	454	4487	A1	231	5880	D1	231	5910
		2 *	499	4486	A2	120	5881	D2	214	5911
		3	664	4489	B1	149	5890	E1	244	5920
		4	475	4490	B2	272	5891	E2	234	5921
		5	472	4491	C1	161	5900	F1	2333	5930
		6	329	4492	C2	186	5901	F2	324	5931
		AVG	482		AVG	187		AVG	597	
		STD	98		STD	51		STD	777	
		1	2847	4500	A1	16110	5884	D1	32161	5914
		2	2891	4499	A2	35840	5885	D2	33791	5915
		3	3060	4502	B1	45949	5894	E1	23626	5924
		4	2245	4501	B2	43874	5895	E2	41283	5925
		5	1348	4504	C1	30085	5904	F1	27768	5934
		6	3391	4503	C2	39961	5905	F2	27175	5935
		AVG	2630		AVG	35303		AVG	30967	
		STD	667		STD	10036		STD	5691	

* = vial leakage

F/V Nautilis November 7–December 8, 1989

Raw Radioisotope Data

Naphthalene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Herring Bay	Day 0	1	83	4354	1 *	104	5636	1	85	5666
Station #110		2	71	4355	2	410	5646	2	82	5676
11/24/89		3	86	4356	3	110	5656	3	72	5686
	Day 2	1	78	4360	A1	67	5639	D1	92	5668
		2	76	4362	A2	84	5638	D2	72	5669
		3	104	4364	B1	233	5649	E1	107	5678
		4	74	4361	B2	126	5648	E2	92	5679
		5	76	4363	C1	73	5659	F1	125	5688
		6	76	4365	C2	80	5658	F2	79	5689
		AVG	81		AVG	111		AVG	95	
		STD	11		STD	58		STD	18	
	Day 10	1	3206	4372	A1	6265	5643	D1	4977	5672
		2	10882	4374	A2	15480	5642	D2	4239	5673
		3	6250	4376	B1 *	2891	5653	E1	7350	5682
		4	6773	4373	B2	2482	5652	E2	5024	5683
		5	8704	4375	C1	10877	5663	F1	4032	5692
		6	5631	4377	C2	10043	5662	F2	20127	5693
		AVG	6908		AVG	8003		AVG	7625	
		STD	2408		STD	4613		STD	5694	
Herring Bay	Day 0	1	124	4391	1	75	5696	1	124	5726
Station #125		2	86	4392	2	71	5706	2	682	5736
11/23/89		3	79	4393	3	100	5716	3	155	5746
	Day 2	1	8545	4398	A1	9644	5699	D1	5853	5728
		2	7228	4400	A2	7182	5698	D2 *	158	5729
		3	11201	4402	B1	15016	5709	E1	10438	5738
		4	8145	4397	B2	15748	5708	E2	10744	5739
		5	7108	4399	C1	12316	5719	F1	19153	5748
		6	5591	4401	C2	19495	5718	F2	9905	5749
		AVG	7970		AVG	13217		AVG	9375	
		STD	1720		STD	4076		STD	5719	
	Day 10	1	10589	4410	A1	8686	5702	D1	14169	5732
		2	9563	4412	A2	12777	5703	D2	5143	5733
		3	8959	4414	B1	16427	5712	E1	15722	5742
		4	9839	4409	B2	20613	5713	E2	11221	5743
		5	5206	4411	C1	8294	5722	F1	8715	5752
		6	8875	4413	C2	19210	5723	F2	14587	5753
		AVG	8839		AVG	14335		AVG	11693	
		STD	1722		STD	4803		STD	3712	

Phenanthrene

		Porewater			Beach			3m		
		Rep	DPM	Sample #	Rep	DPM	Sample #	Rep	DPM	Sample #
Herring Bay	Day 0	1	73	4357	1	138	5637	1	300	5667
Station #110		2	99	4358	2	252	5647	2	109	5677
11/24/89		3	111	4359	3 *	132	5657	3	1093	5687
	Day 2	1	107	4366	A1	146	5640	D1	227	5670
		2	161	4368	A2	166	5641	D2	186	5671
		3	86	4370	B1 *	216	5650	E1	329	5680
		4	163	4367	B2	191	5651	E2	319	5681
		5	165	4369	C1 *	126	5660	F1	1478	5690
		6	131	4371	C2	106	5661	F2	277	5691
		AVG	136		AVG	159		AVG	469	
		STD	30		STD	38		STD	454	
	Day 10	1	1816	4379	A1	10614	5645 *	D1	17958	5674
		2	1285	4381	A2	8458	5644	D2	25813	5675
		3	1664	4383	B1 *	12875	5655	E1	26647	5684
		4 *	2313	4378	B2	22854	5654	E2	25164	5685
		5	1247	4380	C1	10734	5665	F1	16830	5694
		6	1137	4382	C2	15991	5664	F2	13029	5695
		AVG	1577		AVG	13586		AVG	20907	
		STD	410		STD	4751		STD	5204	
Herring Bay	Day 0	1	93	4394	1	155	5697	1	140	5727
Station #125		2	99	4395	2	724	5707	2	163	5737
11/23/89		3	118	4396	3	387	5717	3	313	5747
	Day 2	1	1777	4404	A1	7955	5700	D1	12371	5730
		2	2364	4406	A2	6896	5701	D2	6224	5731
		3	2102	4408	B1	19978	5710	E1	12166	5740
		4	1600	4403	B2	8031	5711	E2	14064	5741
		5	649	4405	C1	16191	5720	F1	19360	5750
		6	1748	4407	C2	9196	5721	F2	15763	5751
		AVG	1707		AVG	11708		AVG	13328	
		STD	536		STD	4660		STD	3992	
	Day 10	1	2374	4416	A1	14101	5705	D1	23196	5734
		2	1925	4418	A2	7709	5704	D2	19819	5735
		3	3788	4420	B1	26078	5715	E1 *	20860	5744
		4	4282	4415	B2	30294	5714	E2	17632	5745
		5	2567	4417	C1	28077	5725	F1	20960	5754
		6	4153	4419	C2	15440	5724	F2	20591	5755
		AVG	3182		AVG	20263		AVG	20510	
		STD	925		STD	6310		STD	1649	

* = vial leakage

R/V John N. Cobb May 31–June 10, 1990

2 Day ORP Data

	Depth (m)	Isotope Conc.	% Dry Weight (*.01)	Phenanthrene Day 0 (DPM)	Phen. Rep. 1 (DPM)	Phen. Rep. 2 (DPM)	Phen. Rep. 3 (DPM)	Phen. ORP ug/g dry wt.-day (@95% conf. level)	Hexadecane Day 0 (DPM)	Hex. Rep. 1 (DPM)	Hex. Rep. 2 (DPM)	Hex. Rep. 3 (DPM)	Hex. ORP ug/g dry wt.-day (@95% conf. level)
N.E. Port Hidalgo	0	10	0.74	89	129	121	130	0.00 ± 0.00	92	3047	396	707	1.43 ± 1.03
5-31-90	3	10	0.74	94	167	88	85	0.00 ± 0.00	84	495	348	1903	0.86 ± 0.93
Site #1	6	10	0.74		115	165	450	0.00 ± 0.00	78	125	177	108	*0.00 ± 0.00*
	20	10	0.74	241	92	116	148	0.00 ± 0.00	100	72	88	86	0.00 ± 0.00
	0	1	0.74	119	97	165	109	0.00 ± 0.00	90	92	907	525	0.37 ± 0.88
	3	1	0.74	635	318	388	99	0.02 ± 0.63	80	169	118	134	0.00 ± 0.00
	20	1	0.74	114	204	948	103	0.19 ± 0.65	75	105	86	92	0.00 ± 0.00
Port Olson	0	10	0.653	99	168	143	123	0.00 ± 0.00	76	186	206	137	0.00 ± 0.00
5-31-90	3	10	0.319	631	115	112	115	0.00 ± 0.00	149	183	390	286	0.23 ± 2.01
Site #2	6	10	0.508	353	121	119	134	0.00 ± 0.00	105	554	1492	1274	1.60 ± 1.29
	20	10	0.546	176	113	155	127	0.00 ± 0.00	103	140	136	146	0.00 ± 0.00
Macleod Harbor	0	10	0.892	162	134	88	112	0.00 ± 0.00	96	105	121	109	0.00 ± 0.00
6-1-90	3	10	0.705	82	102	98	97	0.00 ± 0.00	106	89	105	104	0.00 ± 0.00
Site #3	6	10	0.626	80	59	86	113	0.00 ± 0.00	67	69	75	71	0.00 ± 0.00
	20	10	0.568	299	105	114	124	0.00 ± 0.00	87	71	85	88	0.00 ± 0.00
Snug Harbor	0	10	0.815	108	108	90	99	0.00 ± 0.00	175	7567	1060	5927	5.13 ± 1.43
6-1-90	3	10	0.732	138	81	77	84	0.00 ± 0.00	119	258	98	638	0.15 ± 0.88
Site #4	6	10	0.718	112	110	114	107	0.00 ± 0.00	85	8381	4869	14823	11.62 ± 2.21
	20	10	0.617	124	121	154	123	0.00 ± 0.00	79	11534	12029	8917	15.51 ± 1.30
Fox Farm	0	10	0.785	176	142	101	110	0.00 ± 0.00	84	6098	6094	2454	5.37 ± 1.12
6-2-90	3	10	0.836	117	108	87	92	*0.00 ± 0.00*	275	95	1207	104	0.28 ± 0.80
Site #5	6	10	0.804	83	113	86	100	0.00 ± 0.00	78	93	671	69	0.08 ± 0.81
	20	10	0.732	199	108	90	103	0.00 ± 0.00		82	76	74	0.00 ± 0.00
Sleepy Bay	0	10	0.778	73	934	604	425	0.43 ± 0.61	841	11260	2443	6246	7.46 ± 1.83
6-2-90	3	10	0.73	166	146	653	325	0.14 ± 0.65	250	1713	2045	3683	2.61 ± 0.97
Site #6	6	10	0.723	369	132	549	225	0.06 ± 0.65	152	11100	12329	11747	14.35 ± 0.92
	20	10	0.687	836	140	497	181	0.03 ± 0.68	67	6286	4076	2269	5.26 ± 1.26
Chenega	0	10	0.835		82	96	52	0.00 ± 0.00	76	83	125	183	0.00 ± 0.00
6-3-90	3	10	0.901		69	71	52	0.00 ± 0.00	70	115	70	81	0.00 ± 0.00
Site #7	6	10	0.885	83	72	88	80	0.00 ± 0.00	381	89	86	129	0.00 ± 0.00
	20	10	0.838	1197	57	56	71	0.00 ± 0.00		67	65	62	0.00 ± 0.00
	0	1	0.835	61	63	68	71	0.00 ± 0.00	55	163	132	180	0.00 ± 0.00
	20	1	0.838	58	56	82	62	0.00 ± 0.00	68	63	69	60	0.00 ± 0.00
Herring Bay	1	1	0.919	63	232	197	158	0.00 ± 0.00	61	588	758	655	0.45 ± 0.70
6-4-90	3	1	0.873	63	2900	2466	2846	2.37 ± 0.54	56	1253	1186	1135	1.02 ± 0.73
Site #8	20	1	0.659	63	177	140	186	0.00 ± 0.00	60	190	228	253	0.02 ± 0.97
	0	10	0.919		453	585	4920	1.57 ± 0.91	869	9781	7682	11856	9.38 ± 0.95
	3	10	0.873	561	457	914	191	0.26 ± 0.55		8373	7230	4389	6.66 ± 1.00
	6	10	0.848	769	403	506	341	0.16 ± 0.55	239	7624	2221	5694	5.28 ± 1.19
	20	10	0.659		677	904	389	0.51 ± 0.71	1102	2727	1084	1656	2.21 ± 1.04

R/V John N. Cobb May 31–June 10, 1990

2 Day ORP Data

	Depth (m)	Isotope Conc.	Phenanthrene % Dry Weight (*.01)	Phen. Day 0 (DPM)	Phen. Rep. 1 (DPM)	Phen. Rep. 2 (DPM)	Phen. Rep. 3 (DPM)	Phen. ORP ug/g dry wt.-day (@95% conf level)	Hexadecane Day 0 (DPM)	Hex. Rep. 1 (DPM)	Hex. Rep. 2 (DPM)	Hex. Rep. 3 (DPM)	Hex. ORP ug/g dry wt.-day (@95% conf level)
Block Island	0	10	0.882	88	33503	34453	27956	29.97 ± 1.20	79	24986	25277	19075	23.40 ± 1.35
6-5-90	3	10	0.632	89	1523	1678	73	1.11 ± 0.83	69	16851	15554	369	22.96 ± 1.06
Site #9	20	10	0.788	135	126	135	127	0.00 ± 0.00	102	257	431	369	0.17 ± 0.82
Disk Island	0	10	0.823	1090	294	386	195	0.04 ± 0.57	1953	5088	3936	977	3.42 ± 1.07
6-5-90	3	10	0.892	727	220	479	143	0.03 ± 0.53		3077	485	337	1.10 ± 0.67
Site #10	6	10	0.79		200	646	107	0.07 ± 0.60	227	18046	14436	15551	18.02 ± 1.05
	20	10	0.632		240	434	477	0.17 ± 0.74		449	503	507	0.40 ± 1.01
	0	1	0.823	70	78	86	90	0.00 ± 0.00	49	468	411	1086	0.49 ± 0.79
	20	1	0.632	98	177	184	134	0.00 ± 0.00	99	350	265	533	0.25 ± 1.02
N.W. Bay	0	10	0.854	1518	16633	8554	6048	9.91 ± 1.85		10428	4989	14462	10.29 ± 1.76
6-5-90	3	10	0.653		24307	21571	13107	24.77 ± 2.64		10068	18481	12559	18.62 ± 2.14
Site #11	6	10	0.635		12183	19716	28517	26.10 ± 3.58	714	19572	16646	12460	22.73 ± 1.90
	20	10	0.506		14405	19203	18976	28.45 ± 1.72	316	14978	16798	20621	30.73 ± 2.07
N.E. Knight Island	0	10	0.828	93	81	69	79	0.00 ± 0.00	112	6493	5322	7703	7.58 ± 0.96
6-6-90	3	10	0.761	184	84	96	96	0.00 ± 0.00	92	3794	9866	15458	11.25 ± 2.35
Site #12	6	10	0.837	285	72	82	84	0.00 ± 0.00	66	151	219	417	0.06 ± 0.77
	20	10	0.732	323	109	109	112	0.00 ± 0.00	120	199	137	643	0.15 ± 0.88
Smith Island	0	10	0.921			546	600	0.29		240		239	0.03
6-6-90	3	10	0.79			1698	804	1.06	2250	1361		2475	1.95
Site #13	6	10	0.784		2217	485	817	0.98 ± 0.87		257	652	488	0.30 ± 0.82
	20	10	0.728			2690	1162	1.92		235		896	0.44
	0	1	0.921	54	164	151	133	0.00 ± 0.00	66	63	65	74	0.00 ± 0.00
	20	1	0.728	61	73	65	76	0.00 ± 0.00	79	62	62	66	0.00 ± 0.00
Bay of Isles	0	10	0.725	442	318	266	272	0.04 ± 0.64	125	7597	12077	2021	8.73 ± 2.18
6-7-90	3	10	0.6	119	210	218	166	0.00 ± 0.00	175	9153	7295	5324	10.59 ± 1.41
Site #14	6	10	0.595	129		1676	1694	2.01	110	12767	11074	11364	17.46 ± 1.16
	20	10	0.606	267	161	136	146	0.00 ± 0.00	143	2583	7432	3433	6.36 ± 1.62
Green Island	0	1	0.848	207	96	108	130	0.00 ± 0.00	61	291	411	516	0.21 ± 0.78
6-7-90	3	1	0.742	104	86	77	76	0.00 ± 0.00	74	99	71	187	0.00 ± 0.00
Site #15	0	10	0.709	642	103	116	84	0.00 ± 0.00	78	123	75	96	0.00 ± 0.00
	3	10	0.631	68	92	115	90	0.00 ± 0.00	221	145	115	59	0.00 ± 0.00
	6	10	0.848	64	107	112	99	0.00 ± 0.00	75	320	78	608	0.14 ± 0.76
	20	10	0.742	60	84	99	86	0.00 ± 0.00	135	95	83	81	0.00 ± 0.00
Rocky Bay	0	10	0.943	132	100	75	240	0.00 ± 0.00	168	551	540	108	0.19 ± 0.68
6-8-90	3	10	0.765	589	99	320	402	0.02 ± 0.61	64	520	249	82	0.08 ± 0.84
Site #16	6	10	0.895	333	407	646	109	0.13 ± 0.53	238	224	110	544	0.09 ± 0.72
	20	10	0.6	171	320	162	125	0.00 ± 0.00	60	195	129	174	0.00 ± 0.00

R/V John N. Cobb May 31–June 10, 1990

2 Day ORP Data

			Phenanthrene						Hexadecane					
	Depth (m)	Isotope Conc.	% Dry Weight (*.01)	Day 0 (DPM)	Rep. 1 (DPM)	Rep. 2 (DPM)	Rep. 3 (DPM)	ORP ug/g dry wt.-day (@95% conf. level)	Day 0 (DPM)	Rep. 1 (DPM)	Rep. 2 (DPM)	Rep. 3 (DPM)	ORP ug/g dry wt -day (@95% conf. level)
Zaikof Bay	0	10	0.915	87	240	292	132	0.00 ± 0.00	125	579	387	727	0.35 ± 0.70
6-8-90	3	10	0.869	126	155	176	124	0.00 ± 0.00	86	90	106	159	0.00 ± 0.00
Site #17	6	10	0.598	109	121	141	116	0.00 ± 0.00	78	103	102	142	0.00 ± 0.00
	20	10	0.592	124	114	159	107	0.00 ± 0.00	76	77	79	128	0.00 ± 0.00
West Bay	0	10	0.815	170	1134	83	271	0.25 ± 0.50	114	141	173	116	0.00 ± 0.00
6-9-90	3	10	0.529	114	154	111	144	0.00 ± 0.00	104	158	151	165	0.00 ± 0.00
Site #18	6	10	0.77	298	229	119	285	0.00 ± 0.00	94	115	119	166	0.00 ± 0.00
	20	10	0.327	123	290	112	166	0.00 ± 0.00	96	98	98	115	0.00 ± 0.00

R/V John N. Cobb May 31–June 10, 1990

3 Day ORP Data

Site	Depth (m)	% Dry Weight (*.01)	Phenanthrene Rep. 1 (DPM)	Phenanthrene Rep. 2 (DPM)	Phenanthrene Rep. 3 (DPM)	Phenanthrene ORP µg/g dry wt.-day (@95% conf. level)	Hexadecane Rep. 1 (DPM)	Hexadecane Rep. 2 (DPM)	Hexadecane Rep. 3 (DPM)	Hexadecane ORP µg/g dry wt.-day (@95% conf. level)
Herring Bay	0	0.919	278	364	652	0.11 ± 0.34	14709	16137	19280	10.78 ± 0.67
6-4-90	20	0.659	9923	10555	9383	8.18 ± 0.50	13183	8526	9199	9.20 ± 0.98
Site #8										
Smith Island	0	0.921	662	948	663	0.31 ± 0.34	11022	16151	11410	8.25 ± 0.75
6-6-90	20	0.728	338	422	235	0.06 ± 0.43	4208	3833	1617	2.49 ± 0.89
Site #13										
Green Island	0	0.848	687	545	407	0.19 ± 0.37	18476	14533	17741	11.83 ± 0.69
6-7-90	3	0.742	500	721	779	0.31 ± 0.42	13621	2462	2123	4.74 ± 1.78
Site #15										

5 Day ORP Data

Site	Depth (m)	% Dry Weight (*.01)	Phenanthrene Rep. 1 (DPM)	Phenanthrene Rep. 2 (DPM)	Phenanthrene Rep. 3 (DPM)	Phenanthrene ORP µg/g dry wt.-day (@95% conf. level)	Hexadecane Rep. 1 (DPM)	Hexadecane Rep. 2 (DPM)	Hexadecane Rep. 3 (DPM)	Hexadecane ORP µg/g dry wt.-day (@95% conf. level)
Herring Bay	0	0.919	25281	25970	23960	9.00 ± 0.24	20318	21481	22304	8.30 ± 0.31
6-4-90	20	0.659	34346	34447	34532	17.29 ± 0.28	16929	16629	12281	8.24 ± 0.60
Site #8										
Smith Island	0	0.921	25511	18275	7294	6.07 ± 1.10	18916	19359	18729	7.35 ± 0.28
6-6-90	20	0.728	21237	4339	11250	5.51 ± 1.30	16160	14979	15566	7.60 ± 0.36
Site #13										
Green Island	0	0.848	19968	29233	12068	7.93 ± 1.12	22507	22086	18997	8.92 ± 0.40
6-7-90	3	0.742	27911	28621	13379	10.36 ± 1.29	20981	15299	18853	8.82 ± 0.56
Site #15										

R/V John N. Cobb May 31–June 10, 1990

10 Day ORP Data

	Depth (m)	Isotope Conc.	% Dry Weight (*.01)	Phenanthrene Day 0 (DPM)	Phen. Rep. 1 (DPM)	Phen. Rep. 2 (DPM)	Phen. Rep. 3 (DPM)	Phen. ORP ug/g dry wt.-day (@95% conf. level)	Hexadecane Day 0 (DPM)	Hex. Rep. 1 (DPM)	Hex. Rep. 2 (DPM)	Hex. Rep. 3 (DPM)	Hex. ORP ug/g dry wt.-day (@95% conf. level)
N.E. Port Fidalgo	0	10	0.74	89	147	150	168	0.00 ± 0.00	92	24110	19864	23627	5.44 ± 0.25
5-31-90	3	10	0.74	94	170	176	214	0.00 ± 0.00	84	16837	16634	17102	4.05 ± 0.18
Site #1	6	10	0.74		213	5465		0.58	78	17738	18697	17682	4.34 ± 0.18
	20	10	0.74	241	138	143	136	0.00 ± 0.00	100	9873	18678	16686	3.62 ± 0.41
Port Olson	0	10	0.653	99	87	2493	142	0.17 ± 0.19	76	20396	22163	91	3.86 ± 1.12
5-31-90	3	10	0.319	631	309	125	133	0.00 ± 0.00	149	19606	17630	12130	9.17 ± 0.82
Site #2	6	10	0.508	353	146	105	2846	0.26 ± 0.25	105	16336	15445	17730	5.78 ± 0.29
	20	10	0.546	176	2163	687	125	0.23 ± 0.20	103	15238	17024	17224	5.37 ± 0.27
Macleod Harbor	0	10	0.892	162	254	987	117	0.04 ± 0.11	96	104	11734	15655	1.81 ± 0.55
6-1-90	3	10	0.705	82	10726	805	134	0.86 ± 0.49	106	14689	11580	16133	3.56 ± 0.27
Site #3	6	10	0.626	80	183	609	20468	1.82 ± 1.04	67	16791	8902	7294	3.10 ± 0.52
	20	10	0.568	299	291	338	167	0.00 ± 0.17	87	13297	5932	70	1.97 ± 0.72
Snug Harbor	0	10	0.815	108	19891	29002	26911	5.12 ± 0.35	175	22288	18897	17135	4.25 ± 0.25
6-1-90	3	10	0.732	138	2760	3656	1963	0.56 ± 0.14	118	15383	14597	17270	3.82 ± 0.21
site #4	6	10	0.716	112	330	25657	20946	3.68 ± 1.05	85	30080	21015	24524	6.29 ± 0.42
	20	10	0.617	124	22009	24745	22222	6.14 ± 0.20	79	14324	15006	22402	4.97 ± 0.47
Fox Farm	0	10	0.785	176	37189	33624	29054	7.01 ± 0.31	84	25902	20296	28657	5.89 ± 0.36
6-2-90	3	10	0.836	117	30423	26148	28676	5.62 ± 0.18	275	18432	15050	13544	3.33 ± 0.23
Site #5	6	10	0.804	83	31649	33748	31777	6.66 ± 0.14	78	16208	13815	15873	3.38 ± 0.19
	20	10	0.732	199	33051	15483	26984	5.67 ± 0.69		15225	17284	16900	4.00 ± 0.20
Sleepy Bay	0	10	0.778	73	28761	29115	17713	5.34 ± 0.48	841	26617	21654	21120	5.31 ± 0.28
6-2-90	3	10	0.73	168	24057	31243		6.26	250	19069	16830	15648	4.19 ± 0.23
Site #6	6	10	0.723	369	22022	29595	20373	5.47 ± 0.40	152	17777	22972	17200	4.76 ± 0.31
	20	10	0.687	836	26380	24799	27815	6.33 ± 0.18	67	22054	20807	19774	5.42 ± 0.21
Chenega	0	10	0.835		491	612	10914	0.75 ± 0.41	76	17162	25845	18797	4.40 ± 0.36
6-3-90	3	10	0.901		116	105	1407	0.05 ± 0.11	70	14255	9898	14639	2.54 ± 0.22
Site #7	6	10	0.885	83	102	99	73	0.00 ± 0.00	381	15724	14580	21392	3.47 ± 0.28
	20	10	0.836	1197	86	97	80	0.00 ± 0.00		16374	16173	14756	3.34 ± 0.17
	0	1	0.835	61	1996	809	2311	0.29 ± 0.12	55	1620	1614	1254	0.28 ± 0.16
	20	1	0.838	58	71	76	97	0.00 ± 0.00	68	1136	582	1065	0.15 ± 0.16
Herring Bay	0	1	0.919	63	2361	2668	2190	0.39 ± 0.10	61	1019	1788	1144	0.22 ± 0.14
6-4-90	3	1	0.873	63	2307	2185	2258	0.38 ± 0.11	56	1449	721	1146	0.18 ± 0.15
Site #8	20	1	0.659	63	2446	2546	2904	0.60 ± 0.14	60	843	961	1151	0.21 ± 0.20
	0	10	0.919		24512	29763	676	3.28 ± 0.94	869	23463	23300	16686	4.11 ± 0.28
	3	10	0.873	561	7753	28348	23476	3.74 ± 0.69		24837	28484	18163	4.87 ± 0.38
	6	10	0.848	769	31344	36464	27400	6.19 ± 0.32	209	12214	8750	21397	2.96 ± 0.48
	20	10	0.659		30629	35914	31211	6.18 ± 0.28	1102	18442	16247	19180	4.85 ± 0.24

R/V John N. Cobb May 31–June 10, 1990

10 Day ORP Data

	Depth (m)	Isotope Conc.	% Dry Weight (*.01)	Phenanthrene Day 0 (DPM)	Phen. Rep. 1 (DPM)	Phen. Rep. 2 (DPM)	Phen. Rep. 3 (DPM)	Phen. ORP ug/g dry wt.-day (@95% conf. level)	Hexadecane Day 0 (DPM)	Hex. Rep. 1 (DPM)	Hex. Rep. 2 (DPM)	Hex. Rep. 3 (DPM)	Hex. ORP ug/g dry wt. day (@95% conf. level)
Block Island	0	10	0.882	88	31752	33736	29911	5.96 ± 0.16	79	19581	24766	14604	3.97 ± 0.37
6-5-90	3	10	0.788	135	26915	33207	36147	6.73 ± 0.35	102	29683	27969	26798	6.39 ± 0.20
Site #9	20	10	0.632	89	13233	33338	31962	6.84 ± 1.00	69	18748	18712	18469	5.25 ± 0.21
Disk Island	0	10	0.823	1090	25723	31193	12849	4.66 ± 0.65	1953	27457	25094	26486	6.72 ± 0.18
6-5-90	3	10	0.892	727		27000	13670	3.75		22041	18823	17156	3.66 ± 0.22
Site #10	6	10	0.79		27702	31445	17564	5.34 ± 0.52	227	24038	22501	16090	4.71 ± 0.35
	20	10	0.632		27669	23339		6.66		12841	22839	22719	5.49 ± 0.57
	0	1	0.823	70	2902	2671	3040	0.53 ± 0.11	49	1173	1122	1032	0.20 ± 0.16
	20	1	0.632	98	1923	1970	2171	0.47 ± 0.15	99	781	1001	1109	0.21 ± 0.21
N.W. Bay	0	10	0.854	1518	22269	29860	34833	5.61 ± 0.43		7499	20884	24860	3.70 ± 0.64
6-5-90	3	10	0.653			31567	30500	7.86		2086	19154	936	1.98 ± 0.93
Site #11	6	10	0.635		28574	31169	28234	7.63 ± 0.20	714	23840	25537	23056	6.79 ± 0.24
	20	10	0.506		26308	28267	30603	9.27 ± 0.30	316	19356	23133	22095	7.59 ± 0.34
N.E. Knight Island	0	10	0.626	93	35017	32240	32392	6.84 ± 0.15	112	19848	18235	23721	4.44 ± 0.25
6-6-90	3	10	0.761	164	29247	28726	32381	6.54 ± 0.19	92	17151	16370	14900	3.93 ± 0.22
Site #12	6	10	0.837	285	33119	35882	30656	6.57 ± 0.21	66	16051	9946	87	1.83 ± 0.58
	20	10	0.732	323	33421	32440	27426	7.02 ± 0.28	120	14960	12987	7484	2.85 ± 0.36
Smith Island	0	10	0.921		27923	30736	30235	5.32 ± 0.14		26741	25084	21462	4.74 ± 0.22
6-6-90	3	10	0.79		33328	34484	22968	6.33 ± 0.46	2250	19047	19811	23423	4.69 ± 0.24
Site #13	6	10	0.784		17604	13288	32308	4.43 ± 0.72		17462	19368	18650	4.20 ± 0.18
	20	10	0.728		25177	32582	35242	7.04 ± 0.42		20657	16569	18990	4.59 ± 0.24
	0	1	0.921	54	2512	2341	2499	0.40 ± 0.10	66	66	59	70	0.00 ± 0.00
	20	1	0.728	61	2467	2475	2581	0.52 ± 0.13	79	62	60	64	0.00 ± 0.00
Bay of Isles	0	10	0.725	442	30255	30028	20576	6.14 ± 0.44	125	26526	22052	26730	6.19 ± 0.28
6-7-90	3	10	0.6	119	31754	29289	27852	6.16 ± 0.24	175	28437	22379	28641	7.89 ± 0.41
Site #14	6	10	0.595	129	10645	27645	26179	5.95 ± 0.69	110	26974	21336	20935	6.93 ± 0.40
	20	10	0.606	267	27194	31277	22245	7.33 ± 0.44	143	18614	21848	12885	5.22 ± 0.49
Green Island	0	10	0.848	207	33040	30359	32774	6.25 ± 0.15	61	20439	11707	17946	3.50 ± 0.35
6-7-90	3	10	0.742	104	26298	29116	27775	6.17 ± 0.16	74	12320	11049	20840	3.53 ± 0.45
Site #15	6	10	0.709	642	22911	17597	24367	5.02 ± 0.31	78	13799	15794	2332	2.65 ± 0.63
	20	10	0.631	68	26620	18608	21584	5.82 ± 0.39	221	12704	14212	3487	2.83 ± 0.58
	0	1	0.848	64	2858	2527	2811	0.49 ± 0.11	75	908	930	976	0.15 ± 0.15
	3	1	0.742	60	2911	2526	2864	0.57 ± 0.13	135	683	512	1088	0.13 ± 0.18
Rocky Bay	0	10	0.943	132	9162	84	2132	0.63 ± 0.30	168	10934	10264	6149	1.70 ± 0.21
6-8-90	3	10	0.765	589	116	432	3554	0.24 ± 0.18	64	18464	8782	17908	3.50 ± 0.45
Site #16	6	10	0.895	333	131		94	0.00	238	13799	12561	11165	2.48 ± 0.17
	20	10	0.6	171	1330	3762	23260	2.56 ± 1.13	60	15025	19167	18797	5.24 ± 0.31

R/V John N. Cobb May 31–June 10, 1990

10 Day ORP Data

				Phenanthrene					Hexadecane				
	Depth (m)	Isotope Conc.	% Dry Weight (*.01)	Day 0 (DPM)	Rep. 1 (DPM)	Rep. 2 (DPM)	Rep. 3 (DPM)	ORP ug/g dry wt.-day (@95% conf. level)	Day 0 (DPM)	Rep. 1 (DPM)	Rep. 2 (DPM)	Rep. 3 (DPM)	ORP ug/g dry wt.-day (@95% conf. level)
Zaikof Bay	0	10	0.915	87	156	173	23037	1.37 ± 0.81	125	63	12038	22620	2.24 ± 0.73
6-8-90	3	10	0.669	126	28826	24901	26336	6.75 ± 0.23	86	16612	10688	18341	4.04 ± 0.40
Site #17	6	10	0.598	109	241	205	309	0.00 ± 0.16	78	15778	12233	15226	4.28 ± 0.29
	20	10	0.592	124	7923	8364	146	1.47 ± 0.46	76	20696	20336	16433	5.77 ± 0.32
West Bay	0	10	0.815	170	169	137	145	0.00 ± 0.00	114	19365	17773	20521	4.20 ± 0.19
6-9-90	3	10	0.529	114	177	144	149	0.00 ± 0.00	104	16039	17390	17615	5.72 ± 0.26
Site #18	*6*	*10*	*0.77*	*298*					94				
	20	10	0.327	123	16745	20730	159	6.27 ± 1.88	96	16576	15413	17614	8.99 ± 0.45
N.E. Port Fidalgo	0	1	0.894		74	64	69	0.00 ± 0.00		828	984	1094	0.15 ± 0.15
6-9-90	3	1	0.567		65	61	69	0.00 ± 0.00			762	868	0.19 ± 0.23
Site #19	20	1	0.795		55	59	58	0.00 ± 0.00		420	845 *	742	0.10 ± 0.17

R/V John N. Cobb May 31–June 10, 1990

Benzo[a]pyrene ORP Data

Beach	Depth (m)	% Dry Weight (*.01)	Inc. Time	10,20 or 30 Day Data Rep. 1 (DPM)	Rep. 2 (DPM)	Rep. 3 (DPM)	ORP µg/g dry wt.-day (@95% conf. level)	40 Day Data Rep. 1 (DPM)	Rep. 2 (DPM)	Rep. 3 (DPM)	ORP µg/g dry wt.-day (@95% conf. level)
Snug Harbor	0	0.815	10	79	60	71	0.00 ± 0.00	26418	182	148	0.46 ± 0.42
6-1-90	20	0.817	10	74	66	80	0.00 ± 0.00	154	227	71	0.00 ± 0.00
Site #4											
Sleepy Bay	0	0.778	10	56	60	65	0.00 ± 0.00	250	673	1619	0.04 ± 0.03
6-2-90	20	0.887	10	61	66	66	0.00 ± 0.00	703	2986	397	0.07 ± 0.05
Site #6											
Chenega	0	0.835	10	96	66	73	0.00 ± 0.00	469	96	66	0.00 ± 0.02
6-3-90											
Site #7											
Herring Bay	0	0.919	10	58	93	59	0.00 ± 0.00	710	561	603	0.02 ± 0.01
6-4-90	0	0.919	20	1673	862	283	0.08 ± 0.05				
Site #8	0	0.919	30	481	181	342	0.01 ± 0.02				
Disk Island	0	0.823	10	100	629	220	0.02 ± 0.07	770	843	930	0.03 ± 0.02
6-5-90											
Site #10											
N W Bay	0	0.854	10	139	107	63	0.00 ± 0.00	447	1272	1485	0.04 ± 0.02
6-5-90	0	0.854	20	1736	523	775	0.18 ± 0.11				
Site #11	0	0.854	30	241	498	1505	0.04 ± 0.02				
Smith Island	0	0.921	10	72	56	55	0.00 ± 0.00	439	1023	2205	0.05 ± 0.03
6-6-90	0	0.921	20	1460	710	3110	0.28 ± 0.09				
Site #13	0	0.921	30	324	597	767	0.02 ± 0.02				
	20	0.726	10	77	60	63	0.00 ± 0.00	61	64	79	0.00 ± 0.00
	20	0.726	20	58	66	54	0.00 ± 0.00				
	20	0.726	30	61	62	61	0.00 ± 0.00				
Bay of Isles	0	0.725	10	135	117	95	0.00 ± 0.00	296	297	155	0.00 ± 0.02
6-7-90	20	0.606	10	101	131	106	0.00 ± 0.00	448	208	130	0.00 ± 0.02
Site #14											
Rocky Bay	0	0.943	10	52		53	0.00 ± 0.00	443	328	624	0.01 ± 0.01
6-8-90											
Site #16											

R/V Davidson June 27–August 5, 1990

Hexadecane ORP Data

				2 Day Data							4 Day Data						
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)
Olsen Bay	Beach	0.667	58	190	154	245	67	404	63	0.00 ± 0.00	2048	3717	2308	8431	5947	2066	2.38 ± 0.59
06-27-90	3	0.532	102	151	254	193	317	173	249	0.02 ± 0.66	309	452	3572	421	7206	3089	1.77 ± 0.77
Site #1	6	0.713	73	300	183	591	201	213	219	0.06 ± 0.42	210	350	298	10153	442	1948	1.16 ± 0.81
	20	0.805	79	231	246	246	213	192	260	0.02 ± 0.36	5834	5357	2643	1505	5702	767	1.74 ± 0.44
	40	0.593	72	962	188	152	151	172	194	0.13 ± 0.52	333	230	207	224	255	234	0.03 ± 0.26
	100	0.449	67	117	104	182	167	164	133	0.00 ± 0.00	219	175	241	258	474	224	0.05 ± 0.33
Port Hidago	Beach	0.944	71	267	338	56	592	558	335	0.13 ± 0.32	271	281	16474	15924	12021	8478	3.76 ± 1.10
06-28-90	3	0.616	65	240	216	153	152	186	226	0.00 ± 0.00	157	233	294	4227	5243	1794	1.18 ± 0.67
Site #2	6	0.611	63	239	202	252	231	181	204	0.01 ± 0.36	290	325	369	12134	882	2680	1.30 ± 0.84
	20	0.787	83	203	216	220	210	236	314	0.02 ± 0.37	190	1040	783	1040	2620	5197	0.83 ± 0.38
	40	0.633	82	143	158	144	127	156	159	0.00 ± 0.00	138	141	225	169	309	186	0.00 ± 0.00
	100	0.633	66	133	150	138	166	134	114	0.00 ± 0.00	143	137	191	214	216	212	0.00 ± 0.00
Smith Island	Beach	0.900	82	446	627	441	430	355	443	0.21 ± 0.33	8372	12015	14123	15606	12961	11253	5.55 ± 0.43
07-02-90	3	0.793	123	1634	800	10641	10340	443	329	3.90 ± 1.83	15062	6833	20542	23247	15209	18087	8.42 ± 1.03
Site #3	6	0.807	89	250	216	230	70	266	202	0.00 ± 0.00	10309	8832	16556	6116	1149	8058	4.19 ± 0.91
	20	0.714	165	1801	1036	1003	1203	4556	1661	1.91 ± 0.68	11169	1183	12661	13834	19063	14469	6.82 ± 1.20
	40	0.716	666	687	1304	239	184	1156	326	0.48 ± 0.45	3571	2785	3233	3424	5358	5968	2.20 ± 0.33
	100	0.632	175	209	614	629	586	481	177	0.32 ± 0.58	8651	1746	1403	1584	1118	2803	2.06 ± 0.82
Zaikol Bay	Beach	0.823	87	584	476	401	401	457	441	0.25 ± 0.36	696	11128	8669	10279	2004	9112	3.37 ± 0.79
07-03-90	3	0.720	97	510	443	331	295	328	337	0.19 ± 0.41	405	544	1837	848	606	690	0.34 ± 0.22
Site #4	6	0.663	407	980	277	250	386	232	323	0.24 ± 0.46	849	5987	9345	9274	8867	786	3.47 ± 0.90
	20	0.705	80	349	245	209	244	341	287	0.08 ± 0.42	10211	12431	4614	4885	9205	11052	4.95 ± 0.69
	40	0.373	79	233	186	187	63	250	192	0.00 ± 0.00	824	483	408	488	6415	1184	1.56 ± 0.98
	100	0.823		241	345	335	229	270	283	0.10 ± 0.47	732	1451	7383	9087	14077	864	3.54 ± 1.27
Rocky Bay	Beach	0.825	74	523	451	578	852	82	644	0.29 ± 0.37	10641	2348	15723	174	13235	14084	4.65 ± 1.13
07-04-90	3	0.724	168	467	375	356	351	123	1137	0.28 ± 0.43	942	2509	3141	834	20187	17356	4.12 ± 1.74
Site #5	6	0.748	82	260	294	269	369	313	313	0.10 ± 0.39	3082	6459	2667	110	10946	15350	3.41 ± 1.11
	20	0.669	74	243	645	399	255	276	316	0.15 ± 0.43	3879	7600	696	60	666	3669	1.52 ± 0.63
	40	0.677	71	226	225	344	309	306	254	0.08 ± 0.43	9932	2930	6596	80	530	442	1.94 ± 0.87
	100	0.510	79	699	537	257	371	369	106	0.29 ± 0.59	2545	937	9689	66	995	684	1.83 ± 1.05
West Bay	Beach	0.879		283	184	182	179	58	1707	0.21 ± 0.39	16351	64	59	392	19535	14425	3.85 ± 1.50
07-05-90	3	0.207	81	84	274	309	378	209	181	0.10 ± 1.42	1617	447	423	514	398	6744	2.93 ± 1.66
Site #6	6	0.606	102	372	503	594	656	403	675	0.44 ± 0.49	3629	890	2828	3846	3119	6926	2.25 ± 0.52
	20	0.180	145	428	603	641	1035	516	414	1.80 ± 1.67	2889	2081	7770	1281	1201	3604	6.66 ± 2.09
	40	0.408	195	408	319	330	512	346	266	0.31 ± 0.72	1409	1059	1850	702	526	6034	1.73 ± 0.80
	100	0.497	120	1044	325	388	318	345	289	0.40 ± 0.61	1211	476	438	395	633	1679	0.49 ± 0.33

R/V Davidson June 27–August 5, 1990

Hexadecane ORP Data

				2 Day Data							4 Day Data						
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)
Herring Bay	Beach	0.606		21258	19870	19253	916	16072	15008	16.41 ± 2.64	21636	18487	24053	19419	23424	20133	10.67 ± 0.43
07-06-90	3	0.667	234	878	1963	2541	107	1358	869	1.33 ± 0.57	18377	18872	18713	21247	17291	19512	11.55 ± 0.36
Site #7	6	0.630	149	1596	736	1637	166	554	591	0.87 ± 0.54	13714	13718	12455	10152	12379	17390	8.52 ± 0.59
	20	0.674	202	1590	1073	591	920	1099	845	0.94 ± 0.46	19738	18338	9787	13575	14992	18139	9.25 ± 0.78
	40	0.780	519	259	429	264	873	289	489	0.19 ± 0.36	6864	3851	6132	3902	1184	749	1.88 ± 0.49
	100	0.680		567	136	188	315	636	313	0.21 ± 0.51	5192	8752	730	778	706	669	1.83 ± 0.87
Disk Island	Beach	0.636	238	3315	7409	2877	3071	652	856	2.73 ± 0.91	5658	5341	6732	8523	6101	4581	2.75 ± 0.22
07-07-90	3	0.855	85	230	202	289	274	605	308	0.10 ± 0.36	3678	3426	2497	2240			1.32 ± 0.19
Site #8	6	0.833	69	417	181	352	316	235	121	0.08 ± 0.35	3850	3004	3935	3462	3304	3124	1.69 ± 0.18
	20	0.636	98	387	128	142	234	125	135	0.00 ± 0.00	2813	3434	1666	1209	3091	2617	1.73 ± 0.36
	40	0.559	58	156	312	64	229	195	57	0.00 ± 0.00	577	932	883	1024	1659	937	0.57 ± 0.27
	100	0.472	41	78	101	90	75	96	58	0.00 ± 0.00	127	105	1204	1009	50	1136	0.34 ± 0.35
Block Island	Beach	0.971	117	8983	5178	23651	1354	343	1023	5.62 ± 2.61	11183	9057	17116	27730	17548	15357	6.80 ± 0.96
07-08-90	3	0.713		956	3199	2050	1022	394	2222	1.64 ± 0.58	18652	19799	16189	17866	21816	20523	10.88 ± 0.45
Site #9	6	0.770		1370	1890	2354	308	642	648	1.04 ± 0.48	17989	20207	16899	30993	13982	15025	10.10 ± 1.15
	20	0.524	460	644	2269	898	869	430	814	1.08 ± 0.67	11961	13196	16773	15625	8482	15095	10.41 ± 0.86
	40	0.641	468	520	707	646	822	1206	523	0.65 ± 0.47	3126	12240	6991	7816	12437	13473	5.82 ± 0.92
	100	0.614	392	1193	836	3471	540	297	245	1.41 ± 0.88	321	13936	11152	12621	7614	12650	7.61 ± 1.43
N.W. Bay	Beach	0.934	169	14554	986	17033	19191	15354	7928	10.79 ± 2.09	19284	20103	20067	27192	21256	18337	9.14 ± 0.50
07-09-90	3	0.630		3576	3099	2689	4676	17963	18034	10.62 ± 3.40	18611	20029	20569	25501	21442		13.70 ± 0.56
Site #10	6	0.469	642	2819	4060	4166	3572	3837	2923	5.62 ± 0.89	13425	16261	13319	17265	16490	15173	12.53 ± 0.54
	20	0.634	172	881	573	1342	737	575	447	0.71 ± 0.48	7023	7739	8517	8317	9196	8828	5.21 ± 0.29
	40	0.700	100	708	448	268	260	918	1406	0.54 ± 0.46	7982	7638	4868	6002	7624	8081	4.21 ± 0.33
	100	0.489	373	149	462	157	157	162	160	0.00 ± 0.00	3332	1946	4998	4971	2765	3505	2.63 ± 0.46
N.E. Knight Is.	Beach	0.781	328	5525	5047	6923	863	2395	2646	3.87 ± 0.91	23626	10041	18758	20663	19685	18445	9.62 ± 0.85
07-10-90	3	0.782	231	11548	13877	2918	4272	2951	4930	6.85 ± 1.76	20883	24286	18445	19834	15908	21066	10.41 ± 0.54
Site #11	6	0.964	162	372	917	317	349	540	287	0.22 ± 0.31	7584	3081	5061	4831	13836	10055	3.06 ± 0.60
	20	0.557	376	752	1041	638	475	294	355	0.56 ± 0.54	9855	15119	16199	12183	7764	12238	6.72 ± 0.79
	40	0.675	282	307	335	619	3161	1093	278	0.96 ± 0.64	8959	9534	10599	15186	6131	4090	5.39 ± 0.83
	100	0.440	123	257	197	450	233	223	197	0.09 ± 0.67	10282	3094	4607	4736	7830	10282	6.14 ± 1.05
Bay of Isles	Beach	0.639		1307	1157	3437	6799	1475	1289	2.82 ± 0.95	23505	22101	21210	18648	20648	21156	13.49 ± 0.42
07-11-90	3	0.784	280	2187	2972	1637	2909	6212	3140	3.10 ± 0.89	16253	18166	20694	22647	21153	23934	10.59 ± 0.55
Site #12	6	0.823	262	1271	1567	678	1681	1726	588	1.04 ± 0.40	19878	21818	22093	18717	19365	18635	9.91 ± 0.31
	20	0.221		4874	728	2798	718	923	831	5.82 ± 2.58	14409	17767	16083	13006	17136	19347	29.81 ± 1.62
	40	0.726	945	2257	558	473	1699	801	358	0.92 ± 0.50	6973	7907	15492	12225	11046	16393	6.47 ± 0.78
	100	0.292	544	691	1963	737	1221	2992	308	3.08 ± 1.40	17101	3712	578	545	1101	913	6.31 ± 3.21

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Hexadecane ORP Data

				2 Day Data							4 Day Data						
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)
Green Island	Beach	0.729	543	688	815	1509	1665	1485	1335	1.17 ± 0.43	22125	19810	16837	16352	10154	17761	8.54 ± 0.81
07-12-90	3	0.781	280	584	2244	1030	436	359	456	0.67 ± 0.46	131	183	9321	10234	10765	2959	2.83 ± 0.94
Site #13	6	0.756		2016	1933	577	658	589	1306	1.05 ± 0.46	22435	15909	14138	16558	11524	15115	8.51 ± 0.71
	20	0.640	239	663	623	1995	840	1852	432	1.10 ± 0.55	16090	15951	14880	13749	10419	10622	8.59 ± 0.61
	40	0.615	263	1233	803	3629	793	713	431	1.41 ± 0.72	12929	10563	6224	7466	7691	12072	8.18 ± 0.68
	100	0.453		1087	170	429	924	1415	334	0.93 ± 0.72	2033	3299	699	1129	1222	2386	1.43 ± 0.44
MacLeod Hbr.	Beach	0.869	78	315	435	454	491	1539	1721	0.58 ± 0.39	4259	6401	8397	13817	14253	15461	4.82 ± 0.78
07-16-90	3	0.798	129	542	315	576	437	397	387	0.24 ± 0.37	12039	8985	13574	12759	12699	11235	6.01 ± 0.34
Site #14	6	0.704	83	471	291	346	320	298	855	0.26 ± 0.43	11586	13225	13723	13278	14538	13560	7.63 ± 0.29
	20	0.725	75	387	301	317	303	231	354	0.12 ± 0.40	7794	6943	9898	5660	10152	9670	4.60 ± 0.41
	40	0.672	107	456	435	497	487	487	515	0.33 ± 0.44	10253	14446	12810	17319	13414	11904	8.02 ± 0.55
	100	0.753	72	184	435	643	266	145	219	0.11 ± 0.40	1016	2747	11761	13414	8540	1345	3.41 ± 1.05
Mooselipe	Beach	0.774	77	439	1012	768	239	414	745	0.42 ± 0.39	22363	20591	19298	12661	8403	16042	8.76 ± 0.93
Bay	3	0.730		2150	1200	613	340	1452	874	0.95 ± 0.48	11018	5521	3385	1997	16895	21834	5.56 ± 1.58
07-17-90	6	0.733	215	560	827	369	315	311	514	0.30 ± 0.41	16776	15124	2963	1226	10526	10598	5.21 ± 1.23
Site #15	20	0.722	541	3569	181	193	10916	417	442	2.73 ± 1.72	6828	7705	305	7093	9828	11673	3.99 ± 0.79
	40	0.674	89	349	356	637	2708	225	224	0.64 ± 0.60	1270	454	1661	1283	2805	7574	1.40 ± 0.59
	100																
Snug Harbor	Beach	0.847	188	10570	10720	12274	13011	11797	8259	10.54 ± 0.66	18503	18447	19024	13850	11092	18878	7.95 ± 0.59
07-18-90	3	0.772	70	1748	1074	1217	923	2289	1594	1.34 ± 0.42	17871	17990	15484	18221	16711	10028	8.41 ± 0.60
Site #16	6	0.761		990	1789	1761	702	6609	1709	2.21 ± 0.90	19922	22577	16742	22290	8029	17417	9.49 ± 1.02
	20	0.710	150	1789	3321	3101	1666	14307	8296	6.01 ± 2.03	14596	19228	23503	21886	18858	17912	11.04 ± 0.65
	40	0.430	226	312	230	123	94		64	0.00 ± 0.00	349	66	99	89	62	111	0.00 ± 0.00
	100	0.424	99	246	267	269	226	315	279	0.11 ± 0.69	11957	10584	1056	7456	13002	18639	9.90 ± 1.99
Chenega	Beach	0.913	554	9183	683	1802	3510	3412	791	2.71 ± 1.03	14788	14441	15011	14883	7843	13767	6.95 ± 0.46
07-19-90	3	0.846	72	4491	4772	884	2635	4631	1779	2.90 ± 0.66	12762	20355	18607	21081	16451	12802	8.14 ± 0.63
Site #17	6	0.829	879	994	751	1712	2353	2346	4297	1.84 ± 0.56	17016	19534	16847	16930	22154		9.04 ± 0.40
	20	0.849	78	2106	371	1005	674	315	341	0.57 ± 0.42	15707	17056	20266	18441	13899	14295	7.92 ± 0.45
	40	0.753	87	207	268	424	604	522	186	0.17 ± 0.39	7448	5170	14740	15222	8140	1569	4.63 ± 1.03
	100	0.767	75	75	159	243	246	205	172	0.00 ± 0.00	3716	1880	7440	2205	4302	1601	1.77 ± 0.45
L. Herring	Beach	0.788	94	2305	2160	3933	8065	3369	2498	3.65 ± 0.88	19443	14875	21976	17036	17106	17446	9.24 ± 0.48
Bay	3	0.772	231	3045	647	1155	746	612	1150	1.08 ± 0.51	7191	19428	6915	12079	13482	12025	6.16 ± 0.87
07-20-90	6	0.851	236	1010	924	592	703	2523	6754	1.80 ± 0.87	16964	13374	10496	9116	20691	19366	7.12 ± 0.81
Site #18	20	0.768	77	349	245	359	302		6607	1.45 ± 1.01	1651	6861	10183	10902	20604	17309	5.89 ± 1.28
	40	0.609	94	243	315	422	473	355	319	0.19 ± 0.48	8347	6998	11104	11287	11522	6874	6.15 ± 0.57
	100	0.391	105	407	318	437	336		871	0.55 ± 0.77	6804	6966	1165	4467	10565	8019	6.42 ± 1.22

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Hexadecane ORP Data

	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	2 Day Data							4 Day Data						
				Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP	Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP
				rep 1	rep 2	rep 1	rep 2	rep 1	rep 2	ug/g dry wt.-day (@95% conf. level)	rep 1	rep 2	rep 1	rep 2	rep 1	rep 2	ug/g dry wt.-day (@95% conf. level)
Drier Bay	Beach	0.495	135	370	365	1133		2632	2456	1.95 ± 0.82	12230	15090	10538	772	17503	12276	9.27 ± 1.67
07-21-90	3	0.320	161	1208	435	837	419	668	333	1.12 ± 0.96	15094	4594	14736	15313	13295	2818	13.79 ± 2.56
Site #19	6	0.386	76	475	1162	417	748	242	287	0.73 ± 0.80	1059	14750	23010	19535	8098	19485	14.98 ± 3.07
	20	0.784	198	585	350	244	250	625	1030	0.32 ± 0.39	15793	20686	708	15496	838	14118	6.78 ± 1.53
	40	0.500	146	608	422	1179	1758	345	454	0.96 ± 0.67	11659	8454	21414	22431	10135	9666	11.27 ± 1.80
	100	0.403	160	396	377	324	236	226	308	0.20 ± 0.73	12344	12881	7659	1621	6302	8517	8.15 ± 1.50
Sleepy Bay	Beach	0.969	118	7895	6921	6893	6864	5432	6385	5.66 ± 0.45	17774	15571	13399	14015	16860	21845	7.06 ± 0.49
07-22-90	3	0.789		13204	12555	9570	11131	13451	8789	11.68 ± 0.79	18055	15668	17598	15146	16741	18195	8.84 ± 0.32
Site #20	6	0.763	75	4366	9880	8859	14755	11956	11458	10.74 ± 1.36	18565	19272	19794	23562	20195	22278	10.98 ± 0.40
	20	0.711	110	919	573	329	733	5757	1632	1.67 ± 0.92	19558	20506	20067	18171	20521	22494	11.53 ± 0.35
	40	0.740	93	177	165	195	175	313	345	0.02 ± 0.40	1225	439	16050	22369	21336	18871	7.29 ± 1.92
	100	0.605	96	160	472	288	185	181	537	0.13 ± 0.49	9993	284	303	346	606	275	1.19 ± 0.95
Fox Farm	Beach	0.840	121	1394	1138	1075	1015	2648	2673	1.44 ± 0.46	13997	12348	10597	9242	17634	14041	8.23 ± 0.53
07-23-90	3	0.839	132	696	420	840	430	400	468	0.32 ± 0.35	9262	5692	8476	6781	8041	6374	3.53 ± 0.29
Site #21	6	0.793	109	278	291	855	645	1312	386	0.40 ± 0.39	3531	11528	9912	11441	9539	8176	4.55 ± 0.56
	20	0.770	314	490	576	377	501	417	398	0.26 ± 0.38	2423	5188	3123	6426	2212	2777	1.85 ± 0.37
	40	0.732	373	324	252	224	318	384	904	0.21 ± 0.41	6950	14838	1044	10207	12073	1836	4.26 ± 1.10
	100	0.765	314	519	607	299	487	250	560	0.26 ± 0.39	6420	5163	2112	6141	769	1958	1.90 ± 0.49
Sunny Cove	Beach	0.879	280	834	629	1043	2246	1456	1044	0.90 ± 0.39	15766	19745	21955	23409	18778	11827	8.56 ± 0.70
07-24-90	3	0.842	523	734	633	1790	306	283	249	0.42 ± 0.40	1618	9553	10443	9903	1427	810	2.62 ± 0.83
Site #22	6	0.858	312	662	575	333	337	287	643	0.24 ± 0.35	1567	885	1043	1367	619	1270	0.44 ± 0.18
	20	0.779	252	460	492	356	516	488	500	0.27 ± 0.38	2029	4007	3649	6674	5228	11562	2.80 ± 0.64
	40	0.766	256	244	333	350	331	328	267	0.11 ± 0.38	1836	2893	1236	2236	724	2366	0.89 ± 0.24
	100	0.710	264	269	257	323	265	244	288	0.07 ± 0.41	10576	1239	3398	347	523	408	1.46 ± 0.82
Agnes Cove	Beach	0.910	183	907	823	1441	900	463	414	0.58 ± 0.34	14506	12325	4991	6830	11047	9402	4.34 ± 0.57
07-25-90	3	0.801	122	655	520	1809	719	15150	10918	4.86 ± 2.30	17909	15064	15893	21404	18164	21044	9.23 ± 0.49
Site #23	6	0.796	92	341	278	315	373	454	198	0.12 ± 0.37	17916	2183	11203	1525	10621	13862	4.81 ± 1.17
	20	0.215	529	377	401	467	525	381	177	0.68 ± 1.37	2695	14901	15129	4425	18329	12525	21.20 ± 4.22
	40	0.572	124	227	233	202	185	311		0.03 ± 0.61	1668	2091	737	1832	6014	451	1.38 ± 0.56
	100	0.554	403	228	269	275	208	225	236	0.04 ± 0.53	801	673	1048	1075	395	3581	0.78 ± 0.40
Black Bay	Beach	0.968	182	278	348	307	400	232	357	0.09 ± 0.30	1946	2869	1344	379	413	10379	1.13 ± 0.57
07-26-90	3																
Site #24	6	0.758	161	642	714	649	449	723	613	0.46 ± 0.39	3155	10156	4800	5101	5309	4559	2.87 ± 0.49
	20	0.746	254	492	419	442	310	383	304	0.20 ± 0.39	7563	8145	1621	2834	2061	8387	2.69 ± 0.65
	40	0.650	103	282	236	222	327	361	471	0.13 ± 0.45	523	1211	13263	12820	771	577	2.93 ± 1.40
	100	0.596	126	438	361	218	263	298		0.14 ± 0.49	559	9467	757	3214	727	67	1.55 ± 0.89

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Hexadecane ORP Data

	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	2 Day Data							4 Day Data							
				Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP	Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP	
				rep 1	rep 2	rep 1	rep 2	rep 1	rep 2	ug/g dry wt.-day (@95% conf. level)	rep 1	rep 2	rep 1	rep 2	rep 1	rep 2	ug/g dry wt.-day (@95% conf. level)	
Chugach	Beach	0.926	138	2369	2804	3322	2105	6009	4723	2.96 ± 0.58	14803	7100	9460	12998	16587	14524	6.47	± 0.67
07-30-90	3	0.864	818	743	419	787	1258	533	1440	0.82 ± 0.36	10840	12341	14385	19611	11766		6.44	± 0.64
Site #25	6	0.765	93	540	632	2197	1189	1676	1010	1.07 ± 0.45	20588	13473	3476	20133	15193	14833	7.72	± 1.16
	20	0.671	126	668	477	630	731	2573	2196	1.22 ± 0.58	16405	17910	15679	14460	21033	15780	10.18	± 0.54
	40	0.726	76	270	269	75	244	280	609	0.09 ± 0.41	800	731	8228	13065	2969	4638	2.74	± 0.96
	100	0.561	301	614	206	331	469	328	764	0.33 ± 0.53	3127	5995	6756	3675	1880	5493	3.12	± 0.54
Tonsina Bay	Beach	0.953	77	164	176	233	168	230	221	0.00 ± 0.00	807	348	780	4745	5436	5621	1.18	± 0.41
07-31-90	3	0.932	101	374	278	257	339	275	435	0.10 ± 0.32	7686	3776	13835	9418	9179	6616	3.61	± 0.53
Site #26	6	0.888	67	215	192	210	190	212	223	0.00 ± 0.00	9867	3206	2462	2963	10199	9719	2.66	± 0.64
	20	0.800	403	741	915	368	310	276	520	0.32 ± 0.38	8779	987	6231	16758	6210	8959	3.98	± 0.93
	40	0.585	253	296	430	315	499	461	334	0.25 ± 0.50	7187	3580	7547	1853	3595	2864	2.96	± 0.62
	100	0.566	129	573	339	248	187	196	710	0.24 ± 0.53	390	4172	1909	3730	7601	959	2.11	± 0.71
Kalmai Bay	Beach	0.738	192	6728	6954	749	955	2882	6368	4.32 ± 1.19	20511	25669	21408	18548	21303	23202	11.97	± 0.61
08-03-90	3	0.780	170	500	370	667	847	501	394	0.36 ± 0.36	14779	11758	15649	19108	16304	18345	8.29	± 0.51
Site #29	6	0.774	108	349	259	938	1099	663	824	0.47 ± 0.40	10047	8425	19403	15193	14528	15640	7.23	± 0.76
	20	0.631	163	381	366	696	421	509	635	0.36 ± 0.47	21045	13270	5874	6607	13173	7669	7.19	± 1.32
	40	0.529	94	363	471	258	262	585	378	0.27 ± 0.56	20289	7987	539	800	1704	3366	4.32	± 2.06
	100	0.533	108	299	216	282	236	257	329	0.09 ± 0.55	618	2188	1317	1149	451	91	0.58	± 0.34
Hallo Bay	Beach	0.873	794	1929	2586	11099	5633	2025	2365	3.81 ± 1.22	16816	15749	18771	19283	12086	12926	7.38	± 0.51
08-05-90	3	0.797	117	1127	716	10342	9342	1259	5666	4.68 ± 1.59	14958	13159	19364	1748	16712	16738	8.98	± 1.12
Site #28	6	0.771	89	1003	563	1291	1126	4289	5481	2.21 ± 0.85	12601	15467	7479	20642	18276	15910	7.89	± 0.87
	20	0.770	257	358	488	655	643	634	1597	0.55 ± 0.41	1790	4098	12243	.1144	18623	15977	4.67	± 1.41
	40	0.583	209	671	4443	1444	3704	5409	1458	3.72 ± 1.06	15263	12042	17630	21598	15382	8689	10.47	± 1.11
	100	0.557	418	746	647	871	389	482	647	0.62 ± 0.63	3610	3512	3134	2339	12274	4838	3.49	± 0.97
Windy Bay	Beach	0.881	672	783	947	947	678	2951	3386	1.31 ± 0.51	9182	9061	1469	5264	10925	14521	3.81	± 0.75
08-05-90	3	0.804	260	493	2463	219	1838	1399	6132	1.92 ± 0.84	16054	11625	16283	14213	13809	17556	7.52	± 0.41
Site #27	6	0.662	674	1834	4891	1916	3424	1994	3814	3.43 ± 0.70	12826	14665	16618	17021	16187	18182	9.72	± 0.48
	20	0.431	841	574	697	603	807	1380	866	1.16 ± 0.71	7057	5453	10367	9901	7348	14928	8.52	± 1.16
	40																	
	100	0.676	170	434	407	535	645	429	414	0.32 ± 0.44	770	1086	1980	4766	561	76	0.61	± 0.42

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				2 Day Data							8 Day Data						
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP µg/g dry wt.-day (@95% conf. level)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP µg/g dry wt.-day (@95% conf. level)
Olsen Bay	Beach	0.667	59	60	66	56	58	49	65	0.00 ± 0.00	89	75		64		73	0.00 ± 0.00
06-27-90	3	0.532	59	114	49	101	119	83	63	0.00 ± 0.00	67	80	53	141	131	160	0.00 ± 0.00
Site #1	6	0.713	52	105	106	114		123	53	0.00 ± 0.00				117	107	137	0.00 ± 0.00
	20	0.805	61	123	111	102	131	111	113	0.00 ± 0.00	154	131	119	118	122	134	0.00 ± 0.00
	40	0.593	64	115	810	459	205	103	107	0.13 ± 0.52	126	450	284	129	117	111	0.00 ± 0.00
	100	0.449	57	97	64	129	110	81	106	0.00 ± 0.00	133	106	115	113	162	107	0.00 ± 0.00
Port Hidago	Beach	0.944	59	74	71	93	66	80	76	0.00 ± 0.00	74	100	106	76	87	85	0.00 ± 0.00
06-28-90	3	0.616	67	120	107	116	106	111	101	0.00 ± 0.00	106	99	112	127	99	115	0.00 ± 0.00
Site #2	6	0.811	91	113	141	229	201	170	121	0.00 ± 0.00	121	94	139	121	114	123	0.00 ± 0.00
	20	0.787	99	99	105	87	104	98	103	0.00 ± 0.00	120	120	110	122	160	139	0.00 ± 0.00
	40	0.633	65	182	105	110	130	105	98	0.00 ± 0.00	135	136	108	140	132	121	0.00 ± 0.00
	100	0.633	84	102	81	109	78	78	82	0.00 ± 0.00	128	118	114	91	110	133	0.00 ± 0.00
Smith Island	Beach	0.900	57	77	66	82	71	87	79	0.00 ± 0.00	1868	955	478	321	2141	1590	0.24 ± 0.10
07-02-90	3	0.793	69	126	121	744	401	95	108	0.06 ± 0.39	27156	29016	28519	30389	26311	30562	7.47 ± 0.18
Site #3	6	0.807	497	189	116	156	198	154	167	0.00 ± 0.00	1320	1103	451	739	491	310	0.14 ± 0.10
	20	0.714	65	93	95	88	98	113	97	0.00 ± 0.00	34902		30375	30328	24632	28257	8.60 ± 0.35
	40	0.718		290	436	1046	236	348	592	0.33 ± 0.43	23872	22599	27158	28011	30937	25890	7.60 ± 0.32
	100	0.532	154	111	123	313	124	99	134	0.00 ± 0.00	23841	22979	23981	22783	18695	23149	8.77 ± 0.29
Zalkof Bay	Beach	0.823	126	155	132	80	137	108	104	0.00 ± 0.00	105	102	89	86	112	148	0.00 ± 0.00
07-03-90	3	0.720	95	137	199	126	110	144	142	0.00 ± 0.00	5690	33583	28827	4389	120	297	3.46 ± 1.50
Site #4	6	0.663	101	129	132	120	130	96	115	0.00 ± 0.00	14186	26108	1368	110	16473	136	2.99 ± 1.18
	20	0.705	64	115	104	148	121	129	100	0.00 ± 0.00	129	109	115	99	113	135	0.00 ± 0.00
	40	0.373	123	227	175	167	116	165	127	0.00 ± 0.00	322	1749	116	109	296		0.17 ± 0.23
	100	0.823	71	109	116	155	104	130	124	0.00 ± 0.00	9108	7325	28698	3520	157	198	2.67 ± 1.25
Rocky Bay	Beach	0.825	169	207	152	173	215	155	140	0.00 ± 0.00	117	120	162	157	142	134	0.00 ± 0.00
07-04-90	3	0.724	324	238	228	141	120	157	155	0.00 ± 0.00	287	176	129	140	167	189	0.00 ± 0.00
Site #5	6	0.748	146	145	93	114	140	838	140	0.04 ± 0.41	125	109	155	192	309	160	0.00 ± 0.00
	20	0.669	110	137	124	131	167	141	132	0.00 ± 0.00	120	201	15289	27233	415	156	2.12 ± 1.21
	40	0.677	144	286	103		127	117	134	0.00 ± 0.00	130	1676	97	123	110	118	0.05 ± 0.13
	100	0.510	89	185	165	147	121	148	123	0.00 ± 0.00	382	855	334	3056	18108	10795	2.20 ± 1.04
West Bay	Beach	0.879	65	107			134		76	0.00 ± 0.00	90					59	0.00 ± 0.00
07-05-90	3	0.207	109	201	331	132	135	154	126	0.00 ± 0.00	137	203	125	127	147	157	0.00 ± 0.00
Site #6	6	0.606	85	195	249	163	804	272	136	0.13 ± 0.51	176	169	255	185	179	273	0.00 ± 0.00
	20	0.180	74	135	146	164	209	275	275	0.00 ± 0.00	153	373	659	436	216	166	0.14 ± 0.42
	40	0.408	225	418	219	238	292	1161		0.52 ± 0.77	247	1857	318	369	735	274	0.32 ± 0.21
	100	0.497	171	134	242	140	179	190	122	0.00 ± 0.00	6820	23851	1382	1854	2170	2442	2.60 ± 1.28

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				2 Day Data							8 Day Data						
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP µg/g dry wt.-day (@95% conf. level)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP µg/g dry wt.-day (@95% conf. level)
Herring Bay	Beach	0.806	61	389	292	182	154	686	554	0.17 ± 0.38	26558	26664	31990	25506	32441	35644	7.65 ± 0.38
07-06-90	3	0.887	111	194	285	185	537	158	142	0.05 ± 0.45	36223	25862	34150	26724	23063	32456	9.23 ± 0.58
Site #7	6	0.630		211	547	224	293	220	201	0.10 ± 0.48	31514	26046	33493	32622	30535	34756	10.35 ± 0.37
	20	0.674	204	203	239	220	220	485	136	0.05 ± 0.44	34192	30918	33743	31668	33439	31751	10.02 ± 0.18
	40	0.780	198	267	346	359	431	240	463	0.15 ± 0.38	29751	31635	33386	30522	30882	32653	8.35 ± 0.18
	100	0.580	89	150	121	114	101	126	110	0.00 ± 0.00	25816	32154	259	4452	26915	12174	6.02 ± 1.64
Disk Island	Beach	0.836	63	189	123	164	111	139	83	0.00 ± 0.00	10091	9743	10689	12543	12007	11467	2.71 ± 0.13
07-07-90	3	0.855	80	52	49	48	53	46	74	0.00 ± 0.00	10243	8342	9300	6427	8033	8519	2.01 ± 0.14
Site #8	6	0.833	30	141	272	68	100	40	37	0.00 ± 0.00	8156	8262	6208	8105	8563	8302	1.93 ± 0.12
	20	0.536	37	62	43	49	45	76	52	0.00 ± 0.00	9189	8702	8659	7912	8127	7244	3.15 ± 0.17
	40	0.559	82	63	65	94	47	100	47	0.00 ± 0.00	8324	8129	7397	8408	7626	9269	2.98 ± 0.16
	100	0.472	43	46	48	47	41	36	49	0.00 ± 0.00	4284	3904	6359	7637	6849	6464	2.52 ± 0.28
Block Island	Beach	0.971	60	86	87	87	408	79	64	0.00 ± 0.00	18060	6127	20857	7631	22104	17547	3.26 ± 0.51
07-08-90	3	0.713	80	420	153	144	610	296	162	0.10 ± 0.42	28222	33636	33231	27670	29193	27582	8.68 ± 0.30
Site #9	6	0.770	65	201	214	268	254	98	208	0.00 ± 0.00	29289	31703	22299	33625	13847	28221	7.11 ± 0.69
	20	0.524	65	122	493	175	189	228	129	0.02 ± 0.57	32286	30233	21107	29628	31847	30778	11.57 ± 0.59
	40	0.641	261	479	435	597	4082	371	219	1.07 ± 0.82		27201	752	28538	32254	22952	7.19 ± 1.27
	100	0.514	149	380	292	437	288	376	175	0.19 ± 0.58	29452	28575	26569	14928	28162	28949	10.50 ± 0.79
N.W. Bay	Beach	0.934	224	200	203	683	867	597	182	0.22 ± 0.33	35302	28668	33718	30226	24272	20549	6.37 ± 0.44
07-09-90	3	0.630	134	787	1203	1269	1186	1552	1210	1.31 ± 0.49	31346	26989	31705	34253	33986	32451	10.44 ± 0.32
Site #10	6	0.489	73	698	561	910	652	1255	1199	1.14 ± 0.63	25105	19508	28650	25972	30407	24021	10.84 ± 0.58
	20	0.634	82	699	615	716	944	443	443	0.61 ± 0.48	17162	24947	24513	24382	24184	21200	7.40 ± 0.36
	40	0.700	249	246	503	203	147	449	325	0.12 ± 0.43	13796	13992	15407	14224	15302	12365	4.16 ± 0.16
	100	0.489	45	135	88	178	67	68	64	0.00 ± 0.00	12102	11091	11015	10878	11649	12373	4.82 ± 0.18
N.E. Knight Is.	Beach	0.781	169	488	220	102	384	272	108	0.06 ± 0.39	29531	36854	29007	32472	33460	29193	8.41 ± 0.30
07-10-90	3	0.782	96	196	200	132	135	123	111	0.00 ± 0.00	12203	23297	22793	27681	24815	17627	5.65 ± 0.52
Site #11	6	0.964		260	160	369	106	173	381	0.03 ± 0.31	27498	28295	27403	24063		21604	6.52 ± 0.21
	20	0.557	162	536	166	325	152	117	105	0.04 ± 0.54	28861	25857	27032	27184	21420	31665	10.02 ± 0.46
	40	0.675	137	208	225	206	186	256	172	0.00 ± 0.00	32627	31992	33500	29587	27805	25202	9.24 ± 0.36
	100	0.440	89	179	301	145	172	113	157	0.00 ± 0.00	27414	27194	25261	22732	27005	31379	12.60 ± 0.50
Bay of Isles	Beach	0.639	171	287	169	186	230	193	152	0.00 ± 0.00	31452	33618	34220	35436	30332	35541	10.83 ± 0.27
07-11-90	3	0.784	169	156	219	253	189	1032	167	0.13 ± 0.40	31957	35415	32789	36339	36060	30017	8.92 ± 0.25
Site #12	6	0.823	170	393	242	769	231	739	490	0.27 ± 0.37	34180	35722	32611	27763	33703	29570	8.11 ± 0.28
	20	0.221	154	881	250		2600	611	227	2.66 ± 1.77	33902	8059	24488	29064	27880	29236	23.78 ± 2.96
	40	0.726	398	277	1450	667	547	1008	489	0.61 ± 0.44	26509	33262	20888	27815	30347	28614	7.95 ± 0.42
	100	0.292	795	305	199	671	856	359	309	0.69 ± 1.05	22096	28298	23448	29499	28841	26229	18.69 ± 0.79

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Green Island	Beach	0.729	393	238	227	202	196	203	348	0.03 ± 0.41	41068	197	37775	17490	28656	265	5.92 ± 1.78
07-12-90	3	0.781	298	258	238	278	172	257	238	0.03 ± 0.38	30844	191	22444	212	169	260	2.35 ± 1.28
Site #13	6	0.758	127	488	386	786	240	182	123	0.17 ± 0.40	26001	37135	32133	38878	34591	31794	9.13 ± 0.44
	20	0.640	241	263	137	212	551	150	297	0.08 ± 0.47	34449	34744	35163	27455	37874	37064	11.14 ± 0.43
	40	0.615	106	146	325	331	762	464	134	0.20 ± 0.50	32082	32583	33831	30853	33318	31789	10.91 ± 0.17
	100	0.453	92	141	92	126	111	101	176	0.00 ± 0.00	21727	23050	378	31675	26270	23954	9.64 ± 1.72
MacLeod Hbr.	Beach	0.869	88	106	123	128	122	96	119	0.00 ± 0.00	128	123	123	173	155	96	0.00 ± 0.00
07-16-90	3	0.798	126	820	1255	215	363	125	137	0.29 ± 0.41	110	141	124	118	132	114	0.00 ± 0.00
Site #14	6	0.704	285	133	117	150	111	136	137	0.00 ± 0.00	32206	573	176	353	866	249	1.64 ± 1.33
	20	0.725	93	144	893	1279	171	129	109	0.26 ± 0.46	194	914	291	33219	396	518	1.64 ± 1.33
	40	0.672	133	158	156	99	164	115	142	0.00 ± 0.00	149	29505	25958	27478	30124	27480	7.20 ± 1.24
	100	0.753	352	114	160	1325	436	92	98	0.18 ± 0.44	114	111	118	37580	32244	267	3.19 ± 1.73
Mosselips	Beach	0.774	75	102	96	99	151	182	294	0.00 ± 0.00	851	403	174	372	159	93	0.04 ± 0.10
Bay	3	0.730	392	1757	3012	1011	1941	102	125	1.27 ± 0.61	134	24842	129	546	132	172	1.17 ± 1.00
07-17-90	6	0.733	335	255	157	95	171	117	164	0.00 ± 0.00	793	234	370	2068	1210	232	0.17 ± 0.12
Site #15	20	0.722		654	560	756	433	152	105	0.27 ± 0.43	24559	27245	212	174	7954	33725	4.45 ± 1.47
	40	0.674	205	315	914	262	278	443	196	0.24 ± 0.46	225	293	30373	30025	28697	286	4.58 ± 1.73
	100																
Snug Harbor	Beach	0.847	138	155	247	279	251	205	130	0.00 ± 0.35	17723	21843	23123	18129	13665	21129	4.69 ± 0.31
07-18-90	3	0.772	111	95	95	83		107	103	0.00 ± 0.00	474	211	3718	85	2249		0.31 ± 0.16
Site #16	6	0.761	108	189		128	368	153	120	0.00 ± 0.00	14879	12986	22856	29934	29016	29639	6.30 ± 0.73
	20	0.710	92	309	61	729	710	520	428	0.29 ± 0.43	33237	31110	35773	31199	29194	22144	8.87 ± 0.48
	40	0.430	259	497	485	238	226	674	5381	2.02 ± 1.63	171	1104	129	241	291	179	0.07 ± 0.18
	100	0.424	76	286	342	226	282	181	182	0.08 ± 0.70	28647	26193	55	30158	28838	27751	11.50 ± 1.98
Chenega	Beach	0.913	123	100	462	187	85	94	128	0.00 ± 0.00	24741	20599	13328	23487	11697	16920	5.43 ± 0.56
07-19-90	3	0.846	325	169	429	1887	69	582	339	0.48 ± 0.56	161	545	208	169	645	215	0.04 ± 0.12
Site #17	6	0.829		1003	2994	2204	1359	1049	213	1.65 ± 0.65	202	214	130	185	167	333	0.00 ± 0.00
	20	0.849	146	137	258	184	150	130	115	0.00 ± 0.00	223	254	114	300	135	126	0.00 ± 0.00
	40	0.753	828	158	194	158	413	172	412	0.06 ± 0.52	102	151	3393	203	19018	17893	2.38 ± 1.14
	100	0.767	69	226	121	88	120	150	95	0.00 ± 0.00	130	115	478	2978	234	90	0.16 ± 0.19
L. Herring	Beach	0.788	105	134	157	161	147	249	472	0.01 ± 0.60	202	123	24653	2420	151	141	1.52 ± 1.18
Bay	3	0.772	134	490	373	242	563	260	148	0.19 ± 0.51	241	207	206	138	211	226	0.00 ± 0.00
07-20-90	6	0.851	300	176	194	198	138	184	206	0.00 ± 0.00	881	326	434	222	677	140	0.08 ± 0.12
Site #18	20	0.768	742	168	400	800	243	119	216	0.16 ± 0.52	183	3269	111	420	216	160	0.18 ± 0.20
	40	0.609	94	127	120	106	633	116	108	0.00 ± 0.00	132	476	19019	20643	23557	22401	6.32 ± 1.70
	100	0.391	279	545	479	336		115	118	0.30 ± 1.01	9306	164	14273	13118	1962	7648	5.24 ± 1.40

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Drier Bay	Beach	0.495	83	644	237	148	226	181	619	0.29 ± 0.80	862	1108	160	162	157	108	0.12 ± 0.21
07-21-90	3	0.320	505	594	150	267	556	148	105	0.33 ± 1.24	111	114	169	180	131	201	0.00 ± 0.00
Site #19	6	0.386	174	100	177	147	92	108	186	0.00 ± 0.00	378	1418	953	276	181	120	0.24 ± 0.28
	20	0.784	380	451	607	639	228	299	297	0.29 ± 0.60	253	109	128	207	232	269	0.00 ± 0.00
	40	0.500	208	192	120	172	193	174	154	0.00 ± 0.00	1210	216	752	135	2737	128	0.36 ± 0.27
	100	0.403	328	260	202	985	434	188	181	0.44 ± 1.01	601	159	327	190	1244	9348	1.19 ± 0.88
Sleepy Bay	Beach	0.969	94	319	150	226	131	125	108	0.00 ± 0.00	17865	19635	17794	14733	21667	20128	5.17 ± 0.26
07-22-90	3	0.789	165	1921	1931	135	521	78	104	0.79 ± 0.85	15527	23777	10860	19666	13111		5.64 ± 0.57
Site #20	6	0.763	912		272	261	103	608	211	0.12 ± 0.52	18581	16745	18295	20263	2752	298	4.49 ± 1.10
	20	0.711	396	177	1719	1572	222	124	84	0.67 ± 0.68	18784	22891	24761	27456	24401	24095	8.99 ± 0.40
	40	0.740	584	198	116	96	227	96	265	0.00 ± 0.00	23375	19844	1820	1614	23947	25045	5.78 ± 1.42
	100	0.605	107	136	163	1389	1243	115	103	0.57 ± 0.76	21135	16476	141	457	217	126	2.79 ± 1.51
Fox Farm	Beach	0.840	250	354	431	95	180	253	406	0.10 ± 0.47	18622	13146	7663	3411	20561	20321	4.45 ± 0.81
07-23-90	3	0.839	679	232	484	798	1503	76	95	0.42 ± 0.52	2145	4418	6447	7292	22534	20465	3.35 ± 0.98
Site #21	6	0.793	224	167	735	129	103	139	842	0.20 ± 0.62	157	15775	26199	27029	24454	20550	6.46 ± 1.21
	20	0.770		855	458	1789	223	373	316	0.65 ± 0.58	21533	21987	26791	21062	24363	25385	8.23 ± 0.31
	40	0.732	141	273	263	248	231	257	407	0.10 ± 0.53	18304	4319	18305	18252	23147	18447	6.16 ± 0.83
	100	0.765	900	328	566	149	294	230	254	0.13 ± 0.51	22742	19321	22131	26384	20729	403	6.54 ± 1.14
Sunny Cove	Beach	0.879	130	2300	1442	544	1476	2603	278	1.52 ± 0.59	547	381	291	853	627	145	0.08 ± 0.11
07-24-90	3	0.842		1693	1234	328	1472	325	351	0.89 ± 0.64	199	342	154	359	864	425	0.06 ± 0.12
Site #22	6	0.858	306	265	602	268	281	333	257	0.16 ± 0.46	919	1335	623	434	333	459	0.15 ± 0.12
	20	0.779	618	408	267	433	299	353	278	0.19 ± 0.50	3772	415	529	750	4189	23810	1.87 ± 1.10
	40	0.768	225	285	155	449	150	216	189	0.04 ± 0.61	2289	204	22872	907	5018	155	1.78 ± 1.09
	100	0.710	558	388	1158	199	369	115	198	0.30 ± 0.58	24010	26149	23691	18783	165	347	5.86 ± 1.60
Agnes Cove	Beach	0.910	558	216	143	201	238	9693	101	1.86 ± 1.86	20988	16360	1830	823	21232	21056	4.03 ± 1.01
07-25-90	3	0.801		442	595	186	512	129	159	0.17 ± 0.49	23990	21511	22930	22901	29206	23619	6.08 ± 0.34
Site #23	6	0.796	239	99	223	99	437	379	370	0.08 ± 0.49	27105	22723	738	5514	24289	27262	6.05 ± 1.38
	20	0.215	252	1304	251	684	248	220	148	1.35 ± 1.97	27065	25657	24071	23465	27317	18949	30.60 ± 1.42
	40	0.572	129	172	93	159	124	139	328	0.00 ± 0.00	83	867	397	531	3954	172	0.38 ± 0.30
	100	0.554	210	481	194	294	189	95	130	0.04 ± 0.71	17055	24091	22434	19140	147	716	6.73 ± 1.83
Black Bay	Beach	0.968	248	353	271	221	276	268	335	0.09 ± 0.40	310	415	242	216	281	288	0.02 ± 0.10
07-26-90	3																
Site #24	6	0.758	355	494	337	191	316	167	116	0.09 ± 0.52	452	153	255	141	293	300	0.02 ± 0.13
	20	0.746	419	633	450	917	1047	336	335	0.60 ± 0.54	242	229	157	206	188	293	0.00 ± 0.13
	40	0.650	100	180	257	169	102	123	337	0.00 ± 0.00	237	154	111	157	904	481	0.05 ± 0.16
	100	0.596	305	973	1226	307	428	328	229	0.68 ± 0.70	15714	140	159	26137	23043	23817	6.67 ± 1.88

R/V Davidson June 27–August 5, 1990

Phenanthrene ORP Data

				2 Day Data									8 Day Data							
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP µg/g dry wt.–day (@95% conf. level)			Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP µg/g dry wt.–day (@95% conf. level)		
				rep 1	rep 2	rep 1	rep 2	rep 1	rep 2				rep 1	rep 2	rep 1	rep 2	rep 1	rep 2			
Chugach	Beach	0.928	74	260	232	113	437	161	532	0.05	±	0.42	24708	14115	3910	180	1610	201	2.13	±	1.01
07-30-90	3	0.864		3813	1562	202	1084	110	93	1.18	±	0.77	16497	7627	718	25575	17344		4.20	±	0.94
Site #25	6	0.765	157	302	557	475	119	548	141	0.21	±	0.52	20780	19966	22238	7324	28557	12104	6.50	±	0.94
	20	0.671	222	415	603	146	1210	185	173	0.40	±	0.62	27504	27116	26627	27976	28168	27383	11.04	±	0.17
	40	0.726	121	109	180	117	151	163	218	0.00	±	0.00	25650	22096	22298	25174	21840	21687	8.58	±	0.27
	100	0.561	259	517	632	371	270	179	182	0.29	±	0.70	25366	24195	25162	24484	26985	18889	11.61	±	0.49
Tonsina Bay	Beach	0.953	204	171	436	130	454	160	512	0.12	±	0.41	375	201	256	120	164		0.00	±	0.00
07-31-90	3	0.932	108	140	323	190	325	93	115	0.00	±	0.00	171	22272	25111	22248	24707	9245	4.98	±	1.04
Site #26	6	0.888	143	84	115	123	113	117	114	0.00	±	0.00	165	1251	251	17320	23069	20665	3.13	±	1.17
	20	0.800	214	906	867	1459	282	227	258	0.62	±	0.54	26865	24859	52977	26896	24768	24618	10.17	±	1.32
	40	0.585	421	650	359	264	407	325	1388	0.68	±	0.72	23858	23834	20267	20761	19837	20569	9.90	±	0.34
	100	0.566	708	365	627	459	497	102	131	0.30	±	0.70	18050	19736	21005	25572	22080	10010	9.22	±	0.69
Kalmai Bay	Beach	0.738	191	256	115	213	166	170	264	0.00	±	0.00	26499	30243	10684	27581	20172	25246	8.54	±	0.91
08-03-90	3	0.780	205	738	505	341	339	265	278	0.28	±	0.51	145	242	160	129	253	288	0.00	±	0.00
Site #29	6	0.774	111	131	140	107	116	108	106	0.00	±	0.00	129	133	662	24293	24405	133	2.84	±	1.51
	20	0.631	303	579	141	199	840	122	89	0.21	±	0.64	27204	25458	26026	23845	26174	25881	11.01	±	0.23
	40	0.529	98	117	252	131	117	167	1974	0.51	±	0.90	11992	21060	11078	1186	18024	20858	7.10	±	1.36
	100	0.533	240	195	350	202	157	127	117	0.00	±	0.00	123	161	23031	25072	512	143	4.08	±	2.18
Hallo Bay	Beach	0.873	105	226	94	85	209	111	387	0.00	±	0.00	26396	23634	14858	26757	269	122	4.71	±	1.35
08-05-90	3	0.797	654	266	666	294	335	89	108	0.11	±	0.50	23353		25172	26455	25024	26187	8.53	±	0.18
Site #28	6	0.771	138	189	911	174	98	579	122	0.19	±	0.53	25515	24901	22638	8813	25116	24919	7.67	±	0.81
	20	0.770	309	511	677	567	339	169	116	0.26	±	0.52	1148	2610	11871	11528	26340	24246	4.50	±	1.29
	40	0.583	501	368	167	179	126	101	189	0.00	±	0.00	22743	18921	20150	20904	21165	20879	9.59	±	0.28
	100	0.557	228	672	973	1109	439	184	300	0.79	±	0.74	11038	24275	1949	855	22771	23867	6.77	±	1.87
Windy Bay	Beach	0.881		83	81	1387	2879	692	7550	2.35	±	1.30	101	219	899	215	15483	1077	0.86	±	0.66
08-06-90	3	0.804		60	70	116	554	290	257	0.02	±	0.49	6300	9221	6039	16327	29731	146	3.75	±	1.23
Site #27	6	0.662		97	90	2665	106	2423	128	1.16	±	0.93	23584	8461	8044	17189	2411	26611	6.82	±	1.37
	20	0.431		80	114	8113	788	5239	1233	6.02	±	3.03	6535	12535	73	12852	10789	20023	6.47	±	1.48
	40																				
	100	0.676		72	74	8681	882	12020	759	5.69	±	2.96	5308	11494	2527	741	4403	20519	2.93	±	1.03

R/V Davidson June 27–August 5, 1990

Benzo[a]pyrene ORP Data

	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	21 Day Data Sediment A (DPM) rep1	rep2	Sediment B (DPM) rep1	rep2	Sediment C (DPM) rep1	rep2	ORP µg/g dry wt.–day (@95% conf. level)
Olsen Bay	Beach	0.667		3327	2482	5317	8509	1194	1590	0.42 ± 0.16
06–27–90	6	0.713	85	70	81	169	67	162	69	0.00 ± 0.00
Site #1	40	0.583	100	99	68	80	71	78	125	0.00 ± 0.00
Port Fildago	Beach	0.944	82	95	116	233	246	415	76	0.00 ± 0.02
06–28–90	6	0.611	64	92	84	467	488	104	66	0.00 ± 0.03
Site #2	40	0.633	63	84	79	46	61	90	58	0.00 ± 0.00
Smith Island	Beach	0.900	161	116	113	507	148	157	76	0.00 ± 0.03
07–02–90	6	0.807	64	76	126	90	206	909	73	0.01 ± 0.03
Site #3	40	0.718	250	1035	97	164	509	199	94	0.02 ± 0.04
Zaikof Bay	Beach	0.823	53	156	113	1140	104	162	85	0.01 ± 0.03
07–03–90	6	0.663	202	126	105	157	183	142	128	0.00 ± 0.00
Site #4	40	0.373	104	91	78	98	412	96	87	0.00 ± 0.00
Rocky Bay	Beach	0.825	374	5199	1078	1683	174	80	114	0.12 ± 0.10
07–04–90	6	0.748	56	144	111	93	255	121	83	0.00 ± 0.00
Site #5	40	0.577	92	91	109	89	86	73	67	0.00 ± 0.00
West Bay	Beach	0.879	361	905	1659	9487	236	122	98	0.17 ± 0.16
07–05–90	6	0.606	190	155	203	440	315	265	108	0.01 ± 0.04
Site #6	40	0.408	123	155	194	306	214	290	117	0.01 ± 0.05
Herring Bay	Beach	0.806	108	428	409	449	165	885	188	0.02 ± 0.03
07–06–90	6	0.630	620	386	167	202	168	115	338	0.01 ± 0.04
Site #7	40	0.780	299	354	389	299	142	81	228	0.01 ± 0.03
Disk Island	Beach	0.836	39	371	105	79	78	106	56	0.00 ± 0.00
07–07–90	6	0.833	109	65	120	90	55	49	86	0.00 ± 0.00
Site #8	40	0.559	31	68	33	67	39	44	34	0.00 ± 0.00
Block Island	Beach	0.971		3086	159	357	127	204	116	0.04 ± 0.05
07–08–90	6	0.770	107	250	736	673	187	312	150	0.02 ± 0.03
Site #9	40	0.641		416	1621	378	766	916	677	0.08 ± 0.05
N.W. Bay	Beach	0.934	278	1046	1854	4422	3537	1140	175	0.16 ± 0.07
07–09–90	6	0.489	175	461	983	173	151	562	136	0.04 ± 0.05
Site #10	40	0.700	147	83	1940	140	232	58	69	0.03 ± 0.05
N.E. Knight Is.	Beach	0.781	124	191	390	754	188	174	142	0.01 ± 0.03
07–10–90	6	0.964	501	421	194	141	110	142	137	0.00 ± 0.02
Site #11	40	0.675	102	134	295	756	680	439	108	0.03 ± 0.04
Bay of Isles	Beach	0.639								
07–11–90	6	0.823								
Site #12	40	0.726								
Green Island	Beach	0.729		919	578	288	1962	339	296	0.06 ± 0.05
07–12–90	6	0.785	379	842	223	205	165	2489	218	0.05 ± 0.05
Site #13	40	0.615	658	380	583	205	892	151	154	0.03 ± 0.04
MacLeod Hbr.	Beach	0.869	73	91	98	88	96	229	130	0.00 ± 0.00
07–16–90	6	0.704	83	95	141	78	110	109	2101	0.03 ± 0.05
Site #14	40	0.672	68	87	100	94	110	85	398	0.00 ± 0.00
Mooselips Bay	Beach	0.774	112	186	98	101	102	414	84	0.00 ± 0.00
07–17–90	6	0.733	90	113	132	87	127	133	918	0.01 ± 0.03
Site #15	40	0.674	179	177	187	238	123	639	179	0.01 ± 0.03
Snug Harbor	Beach	0.847	164	153	175	138	149	186	140	0.00 ± 0.00
07–18–90	6	0.761	101	573	152	143	155	1925	136	0.04 ± 0.05
Site #16	40	0.430	175	123	78	97	197	216		0.00 ± 0.00
Chenega	Beach	0.913		2974	2042	914	4456	1335	904	0.17 ± 0.06
07–19–90	6	0.829	72	160	312	163	453	250	120	0.01 ± 0.03
Site #17	40	0.753	96	131	282	109	209	298	494	0.01 ± 0.03
L. Herring Bay	Beach	0.788	231	187	164	175	250	256	802	0.01 ± 0.03
07–20–90	6	0.851	233	212	187	163	104	540	319	0.01 ± 0.03
Site #18	40	0.609	90	78	123	96	94	101	668	0.00 ± 0.04
Drier Bay	Beach	0.496	93	96	81	95	235	274	428	0.00 ± 0.05
07–21–90	6	0.366	88	108	113	78	87	113	645	0.00 ± 0.06
Site #19	40	0.500	126	180	342	156	109	177	3101	0.08 ± 0.10

R/V Davidson June 27–August 5, 1990

Benzo[a]pyrene ORP Data

	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	21 Day Data						ORP
				Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		
				rep1	rep2	rep1	rep2	rep1	rep2	µg/g dry wt.–day (@95% cont. level)
Sleepy Bay	Beach	0.969	309	136	110	154	380	1884	526	0.03 ± 0.03
07–22–90	6	0.763	609	532	111	380	140	662	1137	0.03 ± 0.03
Site #20	40	0.740	85	99	61	92	159	107	231	0.00 ± 0.00
Fox Farm	Beach	0.840	64	115	166	219	140	586	1464	0.03 ± 0.04
07–23–90	6	0.793	114	187	135	100	106	217	136	0.00 ± 0.00
Site #21	40	0.732	136	178	207	252	270	256	136	0.00 ± 0.03
Sunny Cove	Beach	0.879	267	384	338	337	197	327	1036	0.02 ± 0.03
07–24–90	6	0.856	471	263	301	189	315	329	327	0.01 ± 0.03
Site #22	40	0.766	63	184	104	112	116	111	127	0.00 ± 0.00
Agnes Cove	Beach	0.910	143	168	185	296	74	201	763	0.01 ± 0.03
07–25–90	6	0.796	147	107	110	188	174	168	959	0.01 ± 0.03
Site #23	40	0.572	79	170	97	147	213	246	155	0.00 ± 0.00
Black Bay	Beach	0.968	166	154	171	243	169	246	311	0.00 ± 0.02
07–26–90	6	0.758	210	284	114	249	191	275	256	0.01 ± 0.03
Site #24	40	0.650	185	196	324	370	257	219	308	0.01 ± 0.03
Chugach	Beach	0.926	206	99	464	91	195	511	216	0.01 ± 0.02
07–30–90	6	0.765	230	104	116	346	144	162	2657	0.04 ± 0.06
Site #25	40	0.726	126	106	181	106	131	134	177	0.00 ± 0.00
Toneina Bay	Beach	0.953	71	71	160	83	94	133	102	0.00 ± 0.00
07–31–90	6	0.888	95	95	100	156	127	139	870	0.01 ± 0.03
Site #26	40	0.686	177	259	314	231	360	276	596	0.02 ± 0.04
Katmai Bay	Beach	0.738	398	366	159	126	183	238	648	0.01 ± 0.03
08–03–90	6	0.774	80	72	79	86	87	112	86	0.00 ± 0.00
Site #29	40	0.628	103	85	75	112	252	97	1501	0.03 ± 0.06
Hallo Bay	Beach	0.873	67	176	456	100	99	144	434	0.01 ± 0.03
08–05–90	6	0.771	184	78	98	230	81	183	310	0.00 ± 0.00
Site #28	40	0.583	78	176	98	136	178	131	576	0.01 ± 0.04
Windy Bay	Beach	0.881	345	313	264	430	299	317	255	0.01 ± 0.02
08–06–90	6	0.662	229	566	194	643	337	129	2583	0.07 ± 0.06
Site #27	40									

R/V John N. Cobb September 5–September 15, 1990

Hexadecane ORP Data

	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	2 Day Data							4 Day Data						
				Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP ug/g dry wt.-day (@95% conf. level)	Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP ug/g dry wt.-day (@95% conf. level)
				rep 1	rep 2	rep 1	rep 2	rep 1	rep 2		rep 1	rep 2	rep 1	rep 2	rep 1	rep 2	
Olsen Bay	Beach	0.614	134	12319	12026	8140	5335	13729	11851	13.85 ± 2.30	20643	17091	24247	21046	12359	20157	12.72 ± 1.47
9-5-90	3	0.660	269	2201	1273	4422	7522	1074	1334	3.45 ± 1.75	13997	18626	14752	13416	15403	9248	8.72 ± 1.03
Site #1	6	0.451	98		4938	7637	3377	6004	4629	9.31 ± 1.65	20583	17945	20257	16573	16689	16391	16.56 ± 0.91
	20	0.585	74	8129	10293	5776	3656	7159	10540	9.90 ± 2.08	20248	21256	18330	22061	21175	18599	14.07 ± 0.82
Port Hidalgo	Beach	0.866	84	881	1115	631	879	701	1005	0.63 ± 0.37	14623	13589	16497	15045	16440	16258	7.20 ± 0.35
9-5-90	3	0.672	89	7483	9489	6354	3805	6209	5604	7.68 ± 1.32	15027	20329	16035	19322	14375	14665	10.02 ± 0.86
Site #2	6	0.739	186	2192	1902	13123	7522	7492	3408	6.37 ± 2.58	17729	17531	18995	15003	16690	16559	9.55 ± 0.47
	20	0.740	87	301	383	392	219	910	782	0.34 ± 0.45	11633	3819	11113	3658	17765	18919	6.07 ± 1.94
West Bay	Beach	0.875	68	7032	4676	5810	8010	4935	4688	5.31 ± 0.78	21021	17831	14649	16813	15933	16844	7.96 ± 0.57
9-5-90	3	0.804	170	1210	1651	522	512	319	689	0.63 ± 0.47	9711	13444	5518	6188	9613	9460	4.48 ± 0.80
Site #3	6	0.805	111	468	1329	512	828	1003	1792	0.81 ± 0.47	8113	10827	15368	11012	3192	10594	4.92 ± 1.10
	20	0.510	197	662	1065	316	296	265	414	0.50 ± 0.66	10073	12983	7624	7959	9319	10099	7.62 ± 0.88
N W Bay	Beach	0.914	97	18570	19170	16207	17450	17974	16553	15.66 ± 0.64	25702	22164		19145	15778	23446	9.44 ± 0.85
9-6-90	3	0.744	738	13166	13971	14365	16170	5867	8556	13.03 ± 2.34	18342	23829	19400	23319	21918	20467	11.56 ± 0.67
Site #4	6	0.565	248	11046	11775	165	5754	367	14199	10.19 ± 4.70	13505	22766	21018	19932	21379	22394	14.49 ± 1.35
	20	0.629	207	1802	1522	2021	2480	8121	6870	4.70 ± 2.07	17274	18040	20023	15821	20244	19103	11.87 ± 0.64
Disk Island	Beach	0.600	70	5991	7077	7320	9078	7793	5828	7.18 ± 0.76	17902	19341	19836	17157	21250	20000	9.76 ± 0.45
9-6-90	3	0.845	117	1436	3195	2602	2006	2529	1973	2.03 ± 0.48	12816	18699	15132	12930	16325	16815	7.40 ± 0.62
Site #5	6	0.822	76	4742	3876	3409	1623	1165	2950	2.76 ± 0.81	17427	21415	23591	22483	15993	18905	9.86 ± 0.82
	20	0.756	124	1281	856	1009	785	7541	4327	2.84 ± 1.84	17898	16526	17272	10967	17434	18847	8.63 ± 0.84
Herring Bay	Beach	0.768	67	5764	1126	3865	10955	8450	8781	6.72 ± 2.09	18887	18034	22726	15703	18723	21725	10.20 ± 0.75
9-7-90	3	0.596	167	4583	7792	7340	4537	6176	11978	9.45 ± 2.09	13997	13786	13866	16711	18729	19967	10.99 ± 1.03
Site #6	6	0.641	69	949	1013	476	403	2037	1760	1.17 ± 0.66	13827	15706	17277	18129	7107	19797	9.45 ± 1.49
	20	0.652	247	12616	3481	429	407	461	744	3.56 ± 3.27	11224	20011	11073	12003	14446	13450	8.49 ± 1.16
Drier Bay	6	0.405	68	557	816	745	632	499	666	0.93 ± 0.77	70560	20110	11769	14208	8039	8579	22.28 ± 12.96
9-9-90																	
Site #7																	
Chenega Island	Beach	0.920	66	187	373	537	475	372	272	0.16 ± 0.34	17785	20545	6625	12669	1591	17292	6.59 ± 1.74
9-9-90	3	0.919	322	547	394	273	798	1533	1194	0.53 ± 0.41	14533	14893	4328	15251		16324	5.74 ± 1.07
Site #8	6	0.892	64	299	580	360	294	694	984	0.31 ± 0.37	11131	9464	4289	6733	6576	17922	4.21 ± 1.19
	20	0.847	115	687	2230	1527	1639	445	1756	1.16 ± 0.51		16948	13928	14346	17086		7.44 ± 0.39
Iktua Bay	Beach	0.800															
9-10-90	6	0.789															
Site #9																	
Fox Farm	Beach	0.794	72	1583	5125		5600	642	1122	2.70 ± 1.23	16135	22804	16636	17052	13727	23163	9.32 ± 1.07
9-10-90	3	0.990	361	224	71	55	62	62	55	0.00 ± 0.31	90	83	70	1541	476	274	0.09 ± 0.20
Site #10	6	0.837	69	514	621	267	394	101	612	0.22 ± 0.38	93	1441	15441	9020	11523	12544	3.99 ± 1.63
	20	0.852	989	383	433	569	503	293	347	0.22 ± 0.37	15832	8681	21017	11386	11684	787	5.49 ± 1.75

R/V John N. Cobb September 5–September 15, 1990

Hexadecane ORP Data

	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	2 Day Data							4 Day Data							
				Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP	Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP	
				rep 1	rep 2	rep 1	rep 2	rep 1	rep 2	ug/g dry wt.-day (@95% conf. level)	rep 1	rep 2	rep 1	rep 2	rep 1	rep 2	ug/g dry wt.-day (@95% conf. level)	
MacLeod Harbor	Beach	0.893	124	2999	1861	981	1689	891	1916	1.40 ± 0.51	12599	18865	10399	20869	17858	14727	7.20 ±	0.99
9-11-90	3	0.732	147	812	3056	314	425	298	4530	1.51 ± 1.16	10372	13842	6494	11266	343	11563	4.92 ±	1.46
Site #11	6	0.722	126	355	2654	462	918	520	550	0.81 ± 0.68	14221	14562	4739	13096	10368	13918	6.60 ±	1.16
	20	0.689	383	411	1135	604	466	303	569	0.46 ± 0.49	15376	15496	9687	6642	18968	7618	7.20 ±	1.60
Sleepy Bay	Beach	0.789	59	2192	15592	5269	17558	3241	14675	9.93 ± 3.84	20780	32983	20956	21145	21381	24025	12.13 ±	1.33
9-11-90	3	0.784	127	5084	15454	6144	16767	15792	19219	13.29 ± 3.46	21141	19802	19012	24294	23684	25455	11.52 ±	0.75
Site #12	6	0.791	148	6899	13141	2635	14175	4161	12183	8.99 ± 2.76	16573	24585	22761	22274	15436	23504	10.70 ±	1.08
	20	0.684	690	8131	4582	6730	15685	11643	19987	13.10 ± 3.75	17942	22043	11263	18171	16638	20094	10.48 ±	1.19
Snug Harbor	Beach	0.841	122	789	1902	309	3519	308	817	1.05 ± 0.74		18603	17204	691	16085	16655	6.65 ±	1.74
9-12-90	3	0.788	87	5262	2396	3483	1205	2942	5799	3.48 ± 1.04	23863	19883	13459	14926	2750	15981	7.77 ±	1.99
Site #13	6	0.781	85	2959	6993	8425	1336	6419	7491	5.68 ± 1.61	2408	19730	19703	13005	11709	24543	7.87 ±	2.20
	20	0.717	357	244	8924	10312	10529	7839	8990	8.70 ± 2.37	16659	19812	20266	13329	23032	20042	10.87 ±	1.05
Snug Harbor	0	0.795	83	2389	3314	1481	2149	5241	6351	3.39 ± 1.12	15107	18994	17497	17844	17576	18623	8.98 ±	0.42
9-12-90	6	0.727	81	6350	6223	1388	2485	895	840	3.01 ± 1.48	16097	219	12602	14211	11575	17394	6.85 ±	1.95
Site #14																		
Block Island	Beach	0.968	106	389	1923	1700	7087	3508	2172	2.20 ± 1.09	17987	11833		16778	18856	19161	7.08 ±	0.63
9-13-90	3	0.711	335	1314	6081	1042	287	2904	1501	2.30 ± 1.35	19666	19479	17179	21425	18382	20783	11.12 ±	0.52
Site #15	6	0.686	100	5338	9141	3149	6695	777	1243	5.01 ± 2.12	21632	19308	21983	21333	17803	16346	11.67 ±	0.77
	20	0.525	856	452	875	562	565	3278	2268	1.78 ± 1.13	19420	15488	13980	14339	18313	17845	12.78 ±	0.98
N.E. Knight	Beach	0.819	132	970	2198	6647	13770	1306	4660	4.77 ± 2.80	17165	17379	14370	18567	17868	21538	8.82 ±	0.85
Island	3	0.797	167	765	4441	530	383	5969	3014	2.39 ± 1.34	15857	17824	17501	14583		14099	8.11 ±	0.46
9-13-90	6	0.868	191	152	290	527	242	342	573	0.15 ± 0.37	5198	8238	2389	17558	16698	8165	4.49 ±	1.55
Site #16	20	0.834	220	696	623	2140	282	463	2231	0.86 ± 0.59	3130	6093	6401	13836	12612	18451	4.88 ±	1.53
Green Island	Beach	0.755	82	526	1908	362	493	412	915	0.62 ± 0.63	15009	16773	14615	16421	10870	14252	7.85 ±	0.68
9-14-90	3	0.789	330	1023	899	569	842	3603	2083	1.36 ± 0.75	15313	16329	18193	19526	18274	16848	8.94 ±	0.47
Site #17	6	0.784	97	230	272	316	188	1077	586	0.26 ± 0.44	10989	9825	9163	12850	10748	12690	5.67 ±	0.46
	20	0.702	279	325	425	404	251	206	461	0.18 ± 0.45		6858	3452	1620	3273	15156	3.43 ±	1.63
Bay of Isles	Beach	0.794	68	20698	22578	15813	22390	20913	17902	20.50 ± 1.51	27124	26740	24628	22060	25319	25952	12.99 ±	0.54
9-15-90	3	0.728	97	13250	16970		1528	17930	13370	13.98 ± 3.55	25422	22558	17666	24453	24970	23320	12.88 ±	0.88
Site #18	6	0.634	76	9286	10544	17497	11141	18608	20722	18.67 ± 3.38	18462	23775	25367	21978	17140	26245	14.20 ±	1.29
	20	0.607	739	15864	15301	11042	16146	15093	15249	19.70 ± 1.44	13321	23245	22877	18864	23719	18950	13.48 ±	1.45
Bay of Isles	6	0.836	84	9283	8105	4784	4102	2989	2619	6.05 ± 1.46	20901	22770	24272	20671	22957	22386	10.85 ±	0.40
9-15-90																		
Site #19																		

R/V John N. Cobb September 5–September 15, 1990

Phenanthrene ORP Data

2 Day Data

	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)
Olsen Bay	Beach	0.614	85	67	107	106	184	214	148	0.00 ± 0.00
9-5-90	3	0.660	414	856	666	786	191	82	93	0.42 ± 1.00
Site #1	6	0.451	111	203	308	220	106	193	628	0.00 ± 0.00
	20	0.585	533	122	87	83	158	118	122	0.00 ± 0.00
Port Fidalgo	Beach	0.866	373	426	479	246	282	488	239	0.16 ± 0.67
9-5-90	3	0.672	390	1025	256	1174	586	93	61	0.63 ± 1.07
Site #2	6	0.739	342	134	234	230	330	213	1516	0.37 ± 1.01
	20	0.740	875	621	600	763	1391	110	79	0.71 ± 0.97
West Bay	Beach	0.875	128	160	198	363	172	93	529	0.00 ± 0.00
9-5-90	3	0.804	272	508	598	1015	632	220	114	0.49 ± 0.80
Site #3	6	0.805	242	198	106	103	81	138	235	0.00 ± 0.00
	20	0.510	248	1031	148	4964	490	72	86	2.79 ± 3.60
N W Bay	Beach	0.914	103	951	686	813	878	3005	2471	2.17 ± 1.18
9-6-90	3	0.744	241	10591	1019	1232	629	288	250	4.81 ± 6.05
Site #4	6	0.585	483	996	301	852	363	174	485	0.74 ± 1.14
	20	0.629	538	1000	911	411	814	171	196	0.81 ± 1.06
Disk Island	Beach	0.800	76	92	95	69	68	84	110	0.00 ± 0.00
9-6-90	3	0.845		641	1151	374	1215	128	141	0.65 ± 0.85
Site #5	6	0.822	149	128	142	134	173	144	457	0.00 ± 0.00
	20	0.756	198	637	523	1727	117	126	123	0.58 ± 1.07
Herring Bay	Beach	0.768	80	97	160	260	218	342	391	0.00 ± 0.00
9-7-90	3	0.596	275	890	2614	212	629	145	112	1.36 ± 1.75
Site #6	6	0.641	114	585	211	184	233	166	1620	0.57 ± 1.20
	20	0.652	349	553	365		332	83	92	0.02 ± 0.92
Drier Bay	6	0.405	242	376	213	456	435	272	80	0.11 ± 1.44
9-9-90										
Site #7										
Chanega Island	Beach	0.920	81	98	130	121	1610	251	1325	0.56 ± 0.92
9-9-90	3	0.919	515		1115	76	258	72	88	0.08 ± 0.74
Site #8	6	0.892	202	66	78	111	114	101	434	0.00 ± 0.00
	20	0.847	380	378	452	1290	230	67	89	0.27 ± 0.83
Iktua Bay	Beach	0.800								
9-10-90	6	0.789								
Site #9										
Fox Farm	Beach	0.794	58		93	129		187	301	0.00 ± 0.00
9-10-90	3	0.990	515	679	897	229	206	66	86	0.14 ± 0.66
Site #10	6	0.837	149	95	68	75	84	73	83	0.00 ± 0.00
	20	0.852	390	2240	686	1230	15562	81	87	5.94 ± 6.52

8 Day Data

Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)
165	1611	1533	2206	236	85	0.47 ± 0.41
319	111	105	155	121	161	0.00 ± 0.00
112	427	210	223	211	110	0.00 ± 0.00
6522	165	925		389	11587	2.59 ± 1.79
925		525	896	683	98	0.17 ± 0.18
85	85	75	80	86	118	0.00 ± 0.00
711	389	11023	403	677	135	1.10 ± 1.35
297	125	243	118	109	271	0.00 ± 0.00
939	686	402	459	245	77	0.09 ± 0.18
302	126	237	150	199	1699	0.09 ± 0.25
528	174	367	225	240	172	0.00 ± 0.18
140	11307	126	10101	5204	146	3.45 ± 2.34
12851	13401	9849	12596	15483	9293	5.46 ± 0.60
15129	12850	15723	11499	13718	13567	7.54 ± 0.51
10974	7803	13481	1225	13512	12841	7.15 ± 1.96
13373	10891	10146	15590	11772	13969	8.18 ± 0.78
4459	19079	11829	14514	14111	15705	6.77 ± 1.42
	13003	15409	13043	13248	12377	8.48 ± 0.33
16265	10774	12918	15004	15887	12548	6.90 ± 0.62
13417	11555	13476	11709	12415	13203	6.81 ± 0.32
10570	10436	14514	13129	5661	11597	5.81 ± 0.92
11765	14889	13945	11099	12028	13287	8.78 ± 0.60
13353	11563	15982	17438	16790	5334	8.54 ± 1.63
16406	9078	14755	14325	11624	15988	8.57 ± 1.01
13845	14468	13616	11636	2240	6700	10.43 ± 2.79
349	653	1113	256	334	64	0.08 ± 0.18
101	128	115	85	391	267	0.00 ± 0.00
1113	9785	311	111	684	184	0.82 ± 0.99
13315	3869	12594	110	9584	12102	4.09 ± 1.47
12940	15882	16351	15233	13063	16606	7.73 ± 0.50
68	376	94	95		678	0.00 ± 0.00
13790	102	15579	8891	14040	11040	5.12 ± 1.55
71	14371	14818	15152	11738	15613	5.71 ± 1.61

R/V John N. Cobb September 5-September 15, 1990

Phenanthrene ORP Data

				2 Day Data							8 Day Data							
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)
MacLeod Harbor	Beach	0.693	150	240	457	158	559	437	805	0.31 ± 0.68	486	181	485	185	826	168	0.05 ± 0.17
9-11-90	3	0.732	300	543	781	367	417	153	116	0.27 ± 0.84	168	166	191	171	694	368	0.01 ± 0.21
Site #11	6	0.722	140	179	102	96	70	121	288	0.00 ± 0.00	148	146	529	2548	238	168	0.20 ± 0.36
	20	0.689	284	1187	332	171	392	86	79	0.23 ± 1.00	13584	13152	2486	106	12707	1748	4.24 ± 2.15
Sleepy Bay	Beach	0.789	60	72	81	88	103	157	474	0.00 ± 0.00	10755	15623	6581	17601	16065	17583	7.26 ± 1.30
9-11-90	3	0.784	493	877	721	690	1249	105	250	0.79 ± 0.87	15157	16710	15294	14387	17449	16292	8.29 ± 0.38
Site #12	6	0.791	441	545	268	1152	848	563	1041	0.96 ± 0.82	15419	15386	16418	19026	14671	14768	8.25 ± 0.60
	20	0.684	333	2058	1336	1697	1429	1458	806	2.89 ± 1.00	14397	12761	16070	13143	15417	16771	8.82 ± 0.58
Snug Harbor	Beach	0.841	75	283	263	111	519	2563	290	0.78 ± 1.22	10620	14373	18062	15228	10488	13984	6.70 ± 0.60
9-12-90	3	0.788	183	283	296	300	131	86	65	0.00 ± 0.00	61	6681	97	122	14609	227	1.95 ± 1.81
Site #13	6	0.781	609	132	84	115	77	94	17194	5.70 ± 8.19	15364	10172	17029	18337	12790	327	6.43 ± 1.93
	20	0.717	467	2138	878	1003	397	89	125	1.16 ± 1.26	14588	8673	15895	13758	8971	12307	7.02 ± 0.97
Snug Harbor	0	0.795	73	107	154	131	323	212	329	0.00 ± 0.00	2890	10575	16788	4674	16203	16441	5.75 ± 1.80
9-12-90	6	0.727	694	342	460	494	126	127	93	0.00 ± 0.00	14004	18313	13515	12066	14986	14504	8.19 ± 0.69
Site #14																		
Block Island	Beach	0.968	61	173	164	105	255	323	378	0.00 ± 0.00	1237	13132	11436	14483	14509	11120	4.81 ± 1.19
9-13-90	3	0.711		1122	1855	958	484	775	124	1.34 ± 1.05	14513	14121	15524	14408	16132	12349	8.34 ± 0.46
Site #15	6	0.686	229	291	115	133	229	220	1015	0.13 ± 0.95	15529	16953	17028	18296	14084	17535	9.90 ± 0.55
	20	0.525	496	3321	627	1002	1212	145	145	2.63 ± 2.33	14713	15215	12671	14917	15001	15428	11.41 ± 0.51
N.E. Knight	Beach	0.819	414	290	283	1408	683	272	556	0.62 ± 0.65	15601	14841	12856	13740	15147	14060	7.17 ± 0.33
Island	3	0.797		845	1313	853	667	81	67	0.75 ± 0.91	14238	14705	12055	15324	10106	9862	6.50 ± 0.71
9-13-90	6	0.868	186	584	99	74	1202	398	886	0.50 ± 0.81	1888	14893	1327	6132	13543	7077	3.38 ± 1.53
Site #16	20	0.834	330	928	380	1012	2159	713	55	1.18 ± 1.05	14793	16167	15633	13359	14268	14965	7.29 ± 0.32
Green Island	Beach	0.755	62	101	89	78	139	88	132	0.00 ± 0.00	13047	16026	14853	16425	15553	13867	8.10 ± 0.44
9-14-90	3	0.789		770	529	764	667	84	97	0.44 ± 0.81	12577	14997	14338	15795	15611	15342	7.68 ± 0.39
Site #17	6	0.784	114	281	89	100	242	262	381	0.00 ± 0.00	13756	12880	14007	14728	16822	12984	7.40 ± 0.46
	20	0.702	361	894	606	1556	979	111	100	1.10 ± 1.09	15688	11149	15650	15600	15496	15329	8.63 ± 0.62
Bay of Isles	Beach	0.794	75	171	188	423	397	515	328	0.12 ± 0.73	10647	13886	13161	6313	10144	14237	5.83 ± 0.88
9-15-90	3	0.728	166	387	955	395	423	154	492	0.43 ± 0.85	12102	15043	14955	13899	13941	13476	7.80 ± 0.39
Site #18	6	0.634	339	350	430	377	208	450	435	0.25 ± 0.91	13118	10773	13281	15764	12622	11607	8.27 ± 0.66
	20	0.607	280	901	537	1779	1727	654	754	2.14 ± 1.25	14318	7714	14147	14347	11491	14900	8.61 ± 1.07
Bay of Isles	6	0.836	132	57	93	80	101	117	127	0.00 ± 0.00	13295	12909	13102	17844	15794	14033	7.09 ± 0.56
9-15-90																		
Site #19																		

R/V John N. Cobb September 5–September 15, 1990

Benzo[a]pyrene ORP Data

	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	21 Day Data: Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP µg/g dry wt.–day (@95% cont. level)
Olsen Bay	Beach	0.614	328	212	937	282	208	551	691	0.04 ± 0.05
9–5–90	6	0.660	218	156	308	531	329	106	1024	0.03 ± 0.04
Site #1										
Port Filidago	*Beach*	0.866	131	109	118	120	107	138	164	0.00 ± 0.00
9–5–90	6	0.672	158	147	1052	542	1177	248	630	0.05 ± 0.05
Site #2										
West Bay	Beach	0.875	293	183	381	213	428	248	705	0.02 ± 0.03
9–5–90	6	0.804	79	144	226	523	165	263	857	0.02 ± 0.03
Site #3										
N.W. Bay	Beach	0.914	782	1699	1145	602	1535	2050	2059	0.12 ± 0.04
9–6–90	6	0.744	252	537	257	184	186	557	537	0.02 ± 0.03
Site #4										
Disk Island	Beach	0.800	299	554	121	549	495	766	2059	0.06 ± 0.06
9–6–90	6	0.845	324	207	227	115	156	324	391	0.01 ± 0.03
Site #5										
Herring Bay	*Beach*	0.758	211	149	227	616	712	678	826	0.04 ± 0.04
9–7–90	6	0.596	81	149	156	89	177	215	384	0.00 ± 0.04
Site #6										
Orier Bay	6	0.405	91	105	122	126	69	54	461	0.00 ± 0.00
9–9–90										
Site #7										
Chenega Islan	Beach	0.920	67	87	115	216	1062	97	1020	0.02 ± 0.04
9–9–90	6	0.919	67	205	417	175	277	230	691	0.01 ± 0.03
Site #8										
Iktua Bay	Beach	0.800								
9–10–90	6	0.789								
Site #9										
Fox Farm	Beach	0.794	70	392	164	429	193	238	1038	0.02 ± 0.04
9–10–90	6	0.990	66	117	99	102	125	608	123	0.00 ± 0.03
Site #10										
MacLeod Hbr.	Beach	0.893								
9–11–90	6	0.732								
Site #11										
Sleepy Bay	Beach	0.789	136	914	197	582	389	609	1054	0.04 ± 0.04
9–11–90	6	0.784	408	1672	213	1750	329	2060	1285	0.11 ± 0.06
Site #12										
Snug Harbor	Beach	0.841	88	127	86	567	94	137	123	0.00 ± 0.03
9–12–90	6	0.788	76	265	257	138	401	504	2546	0.05 ± 0.08
Site #13										
Snug Harbor	Beach	0.795	136	324	199	336	217	411	442	0.01 ± 0.03
9–12–90	6	0.727	104	302	235	187	190	125	196	0.00 ± 0.03
Site #14										
Block Island	Beach	0.968	103	183	225		179	819	318	0.01 ± 0.03
9–13–90	6	0.711	97	391	231	396	253	132	1078	0.03 ± 0.04
Site #15										
N.E. Knight	Beach	0.819	142	225	607	945	210	340	1455	0.04 ± 0.04
Island	6	0.797	63	163	192	89	90	571		0.00 ± 0.03
9–13–90										
Site #16										
Green Island	Beach	0.755	72	157	121	120	104	217	213	0.00 ± 0.00
9–14–90	6	0.789	74	101	132	231	127	107	810	0.01 ± 0.03
Site #17										
Bay of Isles	Beach	0.794	182	192	132	267	341	1394	317	0.03 ± 0.04
9–15–90	6	0.728	86	222	371	313	224	226	1042	0.02 ± 0.04
Site #18										
Bay of Isles	6	0.836	414	192	89	191	163	491	1589	0.03 ± 0.05
9–15–90										
Site #19										

F/V Big Valley June 15–June 25, 1991

Hexadecane ORP Data

				2 Day Data							4 Day Data						
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)
Northwest Bay	Beach	0.810	88	226	329	531	461	422	560	0.35 ± 0.07	3916	1769	15981	15523	11975	16625	5.51 ± 1.49
6-15-91	3	0.683	59	251	438	347	445	475	746	0.45 ± 0.10	7289	10563	7650	9266	7098	13343	6.47 ± 0.66
Site #1	6	0.660	75	273	235	358	289	411	844	0.40 ± 0.13	2692	3270	7664	2032	4323	1188	2.14 ± 0.64
	20	0.587	88	251	277	214	283	234	451	0.29 ± 0.07	5453	14227	3193	7822	3412	3556	4.32 ± 1.34
	40	0.587	70	275	215	271	392	191		0.27 ± 0.08	3150	1261	3282	6003	2483	1065	1.95 ± 0.66
	100	0.583	75	135	136	143	302	126	138	0.12 ± 0.06	229	386	468	183	188	179	0.13 ± 0.04
Disk Island	Beach	0.850			280	237	227	227	206	0.15 ± 0.03	1003	2259	582	2657	293	430	0.54 ± 0.22
6-16-91	3	0.790	83	129	94	234	152	317	143	0.10 ± 0.05	650	562	1804	548	404	444	0.34 ± 0.12
Site #2	6	0.737	72	269	229	437	244	251		0.23 ± 0.06	1405	1143	2102	1327	740	469	0.62 ± 0.14
	20	0.733	69	343	242	353	332	300	338	0.27 ± 0.04	2995	2710	3170	1354	1880	624	1.14 ± 0.25
	40	0.507	67	174	153	314	256	395	268	0.30 ± 0.08	776	275	1011	663	492	352	0.41 ± 0.10
	100	0.537	89	145	155	258	144	215	133	0.15 ± 0.06	249	160	250	195	151	174	0.08 ± 0.03
Block Island	Beach	0.940	57	168	213	179	167	124	118	0.07 ± 0.03	3196	981	291	481	471	478	0.39 ± 0.22
6-17-91	3	0.690	78	389	345	326	356	658	877	0.49 ± 0.13	14908	13845	16613	10143	15406	14903	8.44 ± 0.60
Site #3	6	0.670	78	344	318	302	196	400	615	0.35 ± 0.09	4465	7045	5770	3103	1906	2008	2.42 ± 0.57
	20	0.477	67	295	244	332	217	256	411	0.37 ± 0.08	7604	7069	5429	6103	3911	3184	4.69 ± 0.67
	40	0.573	77	172	151	117	130		332	0.16 ± 0.07	317	395	348	354	1314	425	0.31 ± 0.13
	100	0.417	82	122	129		232	223	172	0.19 ± 0.07	225	253	346	315	529	212	0.22 ± 0.06
Herring Bay	Beach	0.740	69	328	370	326	277	336	329	0.28 ± 0.04	13553	10775	10420	14523	13974	13959	7.08 ± 0.45
6-17-91	3	0.760	76	255	271	205	167	250	265	0.17 ± 0.04	4979	1772	6631	5424	7047	2095	2.47 ± 0.54
Site #4	6	0.577	70	415	298	378	282	419	672	0.52 ± 0.15	8790	4030	6899	2555	6339	3349	3.72 ± 0.77
	20	0.733	64	227	264	267	683	282	262	0.28 ± 0.09	3993	994	1566	744	7157	217	1.32 ± 0.87
	40	0.740	79	200	344	280	171	270	289	0.20 ± 0.05	3769	1037	462	283	2274	339	0.71 ± 0.35
	100	0.513	112	128	262	221	269	209	183	0.22 ± 0.06	337	719	476	665	542	358	0.34 ± 0.06
	140	0.417	102	255	271	186	199	270	195	0.30 ± 0.07	397	403	191	271	253	307	0.21 ± 0.06
Lower Herring Bay	Beach	0.763	75	222	314	262	267	342	222	0.21 ± 0.04	250	351	420	477	293	569	0.17 ± 0.03
6-18-91	3	0.747	85	217	243	222	218	225	212	0.16 ± 0.03	363	240	348	345	318	350	0.13 ± 0.02
Site #5	6	0.753	77	256	265	230	244	263	208	0.19 ± 0.04	449	654	614	750	485	409	0.28 ± 0.05
	20	0.623	77	307	218	250	214	202	298	0.23 ± 0.05	646	961	426	518	521	1060	0.40 ± 0.08
	40	0.580	77	206	199	223	225	178	228	0.19 ± 0.05	270	272	346	271	353	394	0.16 ± 0.03
	100	0.350	87	258	304	219	175	182	155	0.32 ± 0.09	416	385	314	214	305	274	0.27 ± 0.05
Chenega Island	Beach	0.830	62	160	160	234	257	206	253	0.14 ± 0.03	489	1954	2379	4050	965	578	0.81 ± 0.30
6-19-91	3	0.797	64	182	151	156	172	204	155	0.10 ± 0.03	258	324	455	604	360	312	0.16 ± 0.03
Site #6	6	0.800	54	183	194	194	203	220	192	0.12 ± 0.03	365	284	331	311	291	339	0.12 ± 0.02
	20	0.770	65	194	148	206	193	144	161	0.10 ± 0.04	391	696	306	385	302	302	0.17 ± 0.04
	40	0.540	77	122	104	128	112	136	92	0.06 ± 0.05	162	177	166	169	178	182	0.07 ± 0.02
	100	0.580	72	124	118	95	96	110	114	0.05 ± 0.04	144	80	116	128	195	158	0.04 ± 0.03
	140	0.660	93	125	155	132	167	151	163	0.09 ± 0.04	205	239	218	206	218	206	0.08 ± 0.02
Drier Bay	Beach	0.827	68	209	210	208	236	425	335	0.19 ± 0.05	439	452	406	450	1388	2175	0.40 ± 0.17
6-20-91	3	0.817	72	220	247	229	233	279	230	0.16 ± 0.03	421	487	420	404	475	484	0.18 ± 0.02
Site #7	6	0.750	57	192	214	252	240	267	272	0.18 ± 0.04	370	402	379	398	438	1798	0.30 ± 0.14
	20	0.740	67	208	250	290	331	284	244	0.21 ± 0.04	432	557	761	4836	470	831	0.68 ± 0.43
	40	0.570	69	165	212	246	214	201	174	0.18 ± 0.05	333	301	303	271	268	288	0.15 ± 0.02
	100	0.250	85	153	191	218	272	205	237	0.44 ± 0.12	288	266	357	312	301	322	0.36 ± 0.06

F/V Big Valley June 15–June 25, 1991

Hexadecane ORP Data

				2 Day Data							4 Day Data						
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)
Sleepy Bay	Beach	0.867	58	110	113	103	96	108	121	0.03 ± 0.03	295	838	761	597	247	302	0.20 ± 0.06
6-20-91	3	0.830	69	170	119	131	165	181	217	0.09 ± 0.03	5506	2315	225	1409	846	378	0.84 ± 0.44
Site #8	6	0.763	76	174	158	125	144	92		0.07 ± 0.04	456	393	303	221	279	275	0.13 ± 0.03
	20	0.670	68	210	219	259	278	268	288	0.22 ± 0.04	2365	7531	10352	8093	2137	2683	3.33 ± 0.98
	40	0.747	76	70	206	136	192	172	178	0.09 ± 0.04	235	373	225	233	233	211	0.09 ± 0.02
	100	0.567	115	156	279	187	225	177	204	0.16 ± 0.06	245	205	271	178		114	0.06 ± 0.03
MacLeod Harbor	Beach	0.863	96	300	307	259	265	298	359	0.21 ± 0.03	788	681	487	1217	1255	641	0.36 ± 0.07
6-21-91	3	0.730	72	266	269	274	235	316	354	0.23 ± 0.04	585	624	3091	1839	887	1927	0.79 ± 0.25
Site #9	6	0.663	77	253	227	249	211	249	293	0.21 ± 0.04	522	527	549	558	1698	1363	0.48 ± 0.16
	20	0.580	61	232	232	245	277	213	203	0.22 ± 0.05	443	471	439	747	449	453	0.29 ± 0.04
	40	0.637	79	213	193	186	232	232	228	0.18 ± 0.04	413	392	460	404	490	461	0.23 ± 0.02
	100	0.737	87	156	173	179	150	197	208	0.11 ± 0.04	2932	329	260	263	189	357	0.35 ± 0.27
Snug Harbor	Beach	0.743	74	162	200	178	151	173	233	0.12 ± 0.04	894	5514	8621	10112	2258	2479	2.70 ± 0.93
6-22-91	3	0.736	96	182	211	254	213	312	191	0.17 ± 0.04	310	3584	931	10206	2383	2980	1.84 ± 0.89
Site #10	6	0.740	68	156	225	249	223	188	340	0.17 ± 0.05	14549	4505	6253	7244	5753	12415	4.63 ± 1.01
	20	0.690	73	212	180	227	314	268	311	0.21 ± 0.05	715	7380	1194	2346	2865	12215	2.59 ± 1.20
	40	0.727	86	165	284	178	201	196	418	0.18 ± 0.06	669	378	297	334	474	369	0.19 ± 0.04
	100	0.403	77	180	229	177	217	206	276	0.28 ± 0.07	268	429	257	339	304		0.24 ± 0.04
Bay of Isles	Beach	0.837	75	412	225	245	328	256	309	0.21 ± 0.04	1043	4664	1949	2166	2291	1575	1.07 ± 0.26
6-22-91	3	0.780	78	240	265	215	285	205		0.17 ± 0.04	738		879	680	2860	2173	0.70 ± 0.22
Site #11	6	0.803	100	179	122	160	274	264		0.13 ± 0.04	416	357	412	5831	1048	380	0.67 ± 0.60
	20	0.120	103	227	289	296		264	338	1.41 ± 0.24	574	1346	540	950	550	370	2.17 ± 0.66
	40	0.270	122	249	600	196	262	345	731	0.92 ± 0.29	888	686	413	4472	2278	855	2.30 ± 1.06
	100	0.263		361	343	396	365	236	355	0.83 ± 0.12	543	985	943	1758	511	540	1.24 ± 0.34
	140	0.413	99	166	173	160	197	110	153	0.16 ± 0.07	208	327	287	203	201	199	0.16 ± 0.04
Mooselips Bay	Beach	0.927	164	200	151	124	132	127	144	0.06 ± 0.03	311	320	300	494	314	379	0.12 ± 0.02
6-23-91	3	0.867	75	105	185	240	176	148	145	0.08 ± 0.03	305	333	2380	3391	372	354	0.51 ± 0.28
Site #12	6	0.823	71	163	158	185	164	187	199	0.10 ± 0.03	388	6035	196	309	1844	786	0.75 ± 0.51
	20	0.643	66	169	222	200	273	169	172	0.16 ± 0.05	347	454	636	667	328	400	0.25 ± 0.05
	40	0.630	67	167	180	188	189	151	178	0.13 ± 0.04	285	379	262	255	284	304	0.14 ± 0.02
	100	0.663	76	103	128	124	158	132	127	0.08 ± 0.04	169	172	227	232	227	193	0.07 ± 0.02
Rocky Bay	Beach	0.830	74	212	260	256	288	222	294	0.18 ± 0.03	454	553	5963	3366	4548	7229	1.78 ± 0.62
6-24-91	3	0.773	64	253	241	228	194	188	297	0.17 ± 0.04	6917	3072	3377	8222	11168	9553	3.69 ± 0.78
Site #13	6	0.753	51	245	287	219	320	217	301	0.20 ± 0.04	13229	7655	10331	3192	10304	9326	4.85 ± 0.83
	20	0.577	71	296	375	233	361	268	300	0.32 ± 0.06	3830	2824	6190	6636	9773	3070	3.77 ± 0.85
	40	0.520	66	240	293	273	390	162	378	0.34 ± 0.07	6371	2785	8441	2370	9204	5179	4.44 ± 1.00
	100	0.430	64	199	214	178	282	173	206	0.25 ± 0.07	4299	1315	6879	2084	2715	1289	2.87 ± 0.93
Zaikof Bay	Beach	0.647	60	220	336	392	674	378	665	0.36 ± 0.09	611	782	567	1036	475	858	0.31 ± 0.05
6-25-91	3	0.537	72	236	376	291	289	304	293	0.34 ± 0.06	635	982	1806	3580	1255	609	1.06 ± 0.39
Site #14	6	0.703	77	275	283	318	385	310	427	0.30 ± 0.05	3658	1491	516	4272	799	5369	1.51 ± 0.53
	20	0.710	84	189	228	197	335	460	342	0.25 ± 0.07	274	2366	400	715	4515		0.91 ± 0.42
	40	0.293	74	197	226	303	259	177	241	0.44 ± 0.10	2056	2104	298	1013	366	441	1.04 ± 0.53
	100	0.580	74	427	328	186	336	202	284	0.31 ± 0.07	10846	1975	1900	4965	7892	7907	4.12 ± 1.14

F/V Big Valley June 15–June 25, 1991

Hexadecane ORP Data

				2 Day Data							4 Day Data						
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP ug/g dry wt.-day (@95% conf. level)	Sediment A (DPM)		Sediment B (DPM)		Sediment C (DPM)		ORP ug/g dry wt.-day (@95% conf level)
				rep 1	rep 2	rep 1	rep 2	rep 1	rep 2		rep 1	rep 2	rep 1	rep 2	rep 1	rep 2	
Olsen Bay	Beach	0.727	74	362	384	298	505	253	330	0.31 ± 0.06	2073	9493	4868	8191	2336	9568	3.38 ± 0.88
6-25-91	3	0.730	64	307	420	290	369	383	483	0.33 ± 0.05	3541	16026	270	537	797	3667	2.28 ± 1.52
Site #15	6	0.530	80	348	425	346	359	242	379	0.42 ± 0.08	498	653	798	884	1929	4895	1.18 ± 0.59
	20	0.417	104	317	308	269	325	232	384	0.45 ± 0.08	532	534	391	3008	442	770	0.85 ± 0.45
	40	0.500	68	225	274	181	252	189	267	0.25 ± 0.06	2173	625	474	462	468	7259	1.50 ± 1.00
	100	0.350	62	142	240	182	277	239	203	0.32 ± 0.09	400	439	363	458	416	1161	0.53 ± 0.17

F/V Big Valley June 15–June 25, 1991

Phenanthrene ORP Data

				2 Day Data							8 Day Data						
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)
Northwest Bay	Beach	0.810	75	302	113	166	159	265	134	0.13 ± 0.05	20752	16933	24446	20979	19472	22034	6.00 ± 0.33
6-15-91	3	0.663	72	97	99	125	105	87	116	0.04 ± 0.04	26331	30776	24355	30847	22859	11608	8.39 ± 1.12
Site #1	6	0.660		98	84	90	81	134	305	*0.08 ± 0.07*	*24678*	*26639*	21074		29760	23529	8.92 ± 0.48
	20	0.587	96	156	149	102	213	157	146	0.12 ± 0.05	22924	26603	21473	25217	22152	26414	9.63 ± 0.41
	40	0.587	95	116	108	108	90	185	121	0.07 ± 0.05	19324	18744	22031	21220	27958	16338	8.35 ± 0.73
	100	0.583	62	73	90	108	85	1166	142	0.32 ± 0.32	155	195	7104	556	108	*89*	0.52 ± 0.52
Disk Island	Beach	0.850	72	638	2569	465	84	100	64	0.64 ± 0.49	1799	56		99	3341	1264	0.34 ± 0.15
6-16-91	3	0.790		128	68	71	*69*	*80*	*173*	0.03 ± 0.04	160	146	386	83	243	138	0.03 ± 0.02
Site #2	6	0.737	60	110	79	89	160	165	90	0.05 ± 0.04	28995	24108	21713	23578	29559	20681	7.87 ± 0.54
	20	0.733	66	107	111	160	99	246	95	0.08 ± 0.05	23910	20525	29549	23265	17675	20862	7.23 ± 0.59
	40	0.507	126	97	81	109	89	139	327	0.12 ± 0.10	*1578*	*21045*	*268*	3996	8241	13555	3.72 ± 1.69
	100	0.537	75	89	71	112	234	154	267	0.14 ± 0.08	126	761	210	121	241	117	0.08 ± 0.05
Block Island	Beach	*0.940*	*88*	*122*	101	81	74	80	67	0.01 ± 0.03	130		82	79	86	64	0.00 ± 0.00
6-17-91	3	0.690	90	93	88	93	78	88	517	0.11 ± 0.12	25320	29270	26187	29250	30175	22320	9.20 ± 0.47
Site #3	6	0.670	65	90	88	83	141	144	449	0.12 ± 0.10	18281	19458	25352	18668	23885	23267	7.51 ± 0.49
	20	0.477	88	93	122	105	236	127	121	*0.11 ± 0.07*	*26159*	*25387*	22553	22342	27869	26676	12.36 ± 0.51
	40	0.573	102	78	111	82	98	106	456	0.13 ± 0.12	355	202	237	23090	18554	14578	3.87 ± 1.96
	100	0.417	72	89	90	108	1070	212	144	0.47 ± 0.40	119	97	13794	13135	117	19013	4.30 ± 2.21
Herring Bay	Beach	0.740	73	188	125	128	179	93	94	0.07 ± 0.04	6025	14499	587	1071	*12676*	*24618*	3.12 ± 1.34
6-17-91	3	0.760	114	88	119	92	88	84	244	0.06 ± 0.05	673	242	1176	196	175	108	0.11 ± 0.08
Site #4	6	0.577	101	89	89	93	117	136	130	*0.06 ± 0.05*	*25407*	*25201*	*8701*	18835	19120	22817	8.12 ± 1.16
	20	0.733	92	103	130	94	82	411	125	0.10 ± 0.08	25401	19806	18811	16194	393	20115	5.36 ± 1.26
	40	0.740	78	85	86	641	90	88	216	0.16 ± 0.13	1352	2079	12901	167	98	960	0.90 ± 0.72
	100	0.513	71	166	101	103	129	158	388	0.16 ± 0.11	120	17288	20270	104	1597	*176*	*2.98 ± 1.99*
	140	0.417	102	162	119	181	209	185	126	0.20 ± 0.08	175	905	133	161	167	180	0.12 ± 0.08
Lower Herring Bay	Beach	0.763	58	133	*160*	*160*	93	93	91	0.08 ± 0.04	85	111	87	89	58	77	0.00 ± 0.00
6-18-91	3	0.747	86	107	75	85	90	81	90	0.01 ± 0.04	74	84	99	89	86	99	0.00 ± 0.00
Site #5	6	0.753	73	81	73	88	95	91	107	0.02 ± 0.04	96	75	100	140	118	78	0.01 ± 0.01
	20	0.623	70	83	78	83	77	100	93	0.01 ± 0.05	*119*	*123*	*115*	*93*	*90*	*92*	0.01 ± 0.01
	40	0.580	74	75	78	82	86	89	111	0.02 ± 0.05	111	126	105	2592	107	94	0.18 ± 0.19
	100	*0.350*	*58*	105	82	95	112	78	75	0.04 ± 0.08	101	154	97	89	98	89	0.02 ± 0.02
Chenega Island	Beach	0.830	69	93	128	119	92	78	91	0.03 ± 0.04	123	128	104	95	99	79	0.01 ± 0.01
6-19-91	3	0.797	60	83	73	81	70	77	95	0.00 ± 0.00	106	90	495	101	99	74	0.02 ± 0.02
Site #6	6	0.800	64	112	77	68	73	86	76	*0.01 ± 0.04*	108	108	100	96	81	192	0.01 ± 0.01
	20	0.770	69	91	87	74	79	98	97	0.01 ± 0.04	3138		101	83	103	88	0.19 ± 0.17
	40	0.540	83	94	95	102	79	100	91	0.03 ± 0.05	102	91	92	92	110	64	0.01 ± 0.01
	100	0.580	93	88	80	75	82	91	75	0.01 ± 0.05	104	96	83	85	125	98	*0.01 ± 0.01*
	140	0.660	90	146	81	160	97	110	146	0.07 ± 0.05	140	138	139	121	105	177	0.02 ± 0.01
Drier Bay	Beach	0.827	76	103	126	123	108	107	148	0.05 ± 0.03	129	95	96	126	148	87	0.01 ± 0.01
6-20-91	3	0.817	59	95	88	84	61	83	88	0.01 ± 0.03	98	107	97	90	104	83	0.01 ± 0.01
Site #7	6	0.750	66	82	87	97	79	83	84	0.01 ± 0.04	88	87	95	77	102	86	0.00 ± 0.00
	20	0.740	70	98	93	94	93	95	105	*0.02 ± 0.04*	*86*	*86*		91	101	86	0.00 ± 0.00
	40	0.570	87	90	74	176	90	72	92	0.04 ± 0.06	134	804	108	90	104	90	0.06 ± 0.06
	100	0.250	74		88	97	83	124	92	0.07 ± 0.12	85	89	125	111	104		0.02 ± 0.03

F/V Big Valley June 15–June 25, 1991

Phenanthrene ORP Data

				2 Day Data							8 Day Data						
	Depth (m)	% Dry Weight (*.01)	Day 0 (DPM)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)	Sediment A (DPM) rep 1	Sediment A (DPM) rep 2	Sediment B (DPM) rep 1	Sediment B (DPM) rep 2	Sediment C (DPM) rep 1	Sediment C (DPM) rep 2	ORP ug/g dry wt.-day (@95% conf. level)
Olsen Bay	Beach	0.727	73	112	163	120	122	252	78	0.08 ± 0.06	110	96	94	97	79	77	0.00 ± 0.00
6-25-91	3	0.730	82	97	98	126	97	112	107	0.04 ± 0.04	305	128	160	87	158	124	0.03 ± 0.01
Site #15	6	0.530	83	110	69	116	130	71	116	0.04 ± 0.06	165	85	75	88	152	93	0.01 ± 0.02
	20	0.417	73	141	125	70	85	104	89	0.06 ± 0.07	88	94	94	97	1010	90	0.09 ± 0.10
	40	0.600		120	90	227	86	76	75	0.07 ± 0.08	104	67	172	84	126	95	0.01 ± 0.02
	100	0.350	65	82	65	82	85	90	289	0.11 ± 0.13	123	96	126	85	1036	89	0.12 ± 0.12

Appendix D

Data Summaries for All Cruises (1989-1991)

R/V Fairweather July 1–August 22, 1989

Data Summary

	Sample	Mean MPN (cells/g dry wt.)	Hexadecane ORP (ug/g dry wt.–day) Day 2	Hexadecane ORP (ug/g dry wt.–day) Day 10	Naphthalene ORP (ug/g dry wt.–day) Day 2	Naphthalene ORP (ug/g dry wt.–day) Day 10
Fox Farm	Beach Comp.	2.9E+05	6.83	2.65	6.72	1.46
7–1–89	3 m	4.2E+02	4.76	1.93	0.00	1.15
Site 01	6 m	<2.0E+01	0.03	1.38	0.00	0.76
	20 m	5.1E+02		2.74	0.00	3.42
	40 m	<2.0E+01	0.00	2.49	0.00	1.66
	Porewater	2.8E+04	4.75	1.78		1.06
	1:10 PW		1.75	1.80	0.00	0.63
Sawmill Bay	Beach Comp.	9.7E+05	3.08	1.41	0.00	0.81
7–2–89	3 m	8.1E+02	6.58	2.12	0.00	0.85
Site 02	6 m	8.7E+02	3.67	1.92	0.00	1.58
	20 m	<2.0E+01 *	0.98	2.48	0.00	1.79
	40 m	<2.0E+01	0.00	1.84	0.00	0.53
	100m	1.1E+03	2.35	1.91	0.00	1.45
	Porewater	3.3E+03	7.36		0.00	1.17
	1:10 PW		1.40	1.13	0.00	0.70
Shelter Bay	Beach Comp.	3.1E+03	0.42	1.99	0.00	0.56
7–3–89	3 m	<2.0E+01	0.14	0.55	0.00	0.29
Site 03	6 m	<2.0E+01	0.17	2.03	0.00	0.57
	20 m	<2.0E+01	0.00	1.28	0.00	1.03
	40 m	<2.0E+01	0.00	1.28	0.00	1.79
	100 m	<2.0E+01	0.00	0.89	0.00	0.58
	Porewater	8.0E+01	2.07	1.53	0.00	0.08
	1:10 PW		1.27	0.93	0.00	0.05
Iktua Bay	Beach comp.	2.8E+02	6.04	1.41	0.00	0.84
7–4–89	3 m	<2.0E+01 *	0.46	1.13	0.00	0.00
Site 04	6 m	<2.0E+01	1.11	0.59	0.00	0.62
	20 m	<2.0E+01	0.00	1.22	0.00	0.00
	40 m	<2.0E+01	0.00	1.47		0.12
	100 m	<2.0E+01	0.00	1.34	0.13	0.89
	Porewater	<2.0E+01	2.58	0.92	0.00	0.22
	1:10 PW		2.89	0.30	0.00	0.07
Mummy Bay	Beach Comp.	7.4E+03	5.17	6.32	0.00	3.73
7–5–89	3 m	4.7E+02	0.00	7.87	0.00	1.70
Site 05	6 m	<2.0E+01	0.91	6.12	0.00	1.05
	20 m	<2.0E+01	0.00	4.48	0.00	1.23
	40 m	<2.0E+01	0.00	3.43	0.00	3.35
	100 m	<2.0E+01	0.00	4.01	0.00	6.27
	Porewater	5.0E+01	3.98	5.20	0.00	2.59
	1:10 PW		1.07	2.54	0.00	0.63
Snug Harbor	Beach Comp.	4.5E+04	5.83	3.72	4.80	3.12
7–6–89	3 m	<2.0E+01 *	3.67	3.81	0.00	2.61
Site 06	6 m	2.5E+02	6.03	4.80	0.00	2.43
	20 m	<2.0E+01	1.38	4.10	0.00	2.78
	40 m	<2.0E+01	0.00	6.69	0.00	4.40
	100 m	<2.0E+01 *	0.00	6.35	0.00	3.66
	Porewater	1.4E+02	3.77	4.77	2.14	3.41
	1:10 PW		6.99	3.48	0.00	2.27
Green Island	Beach Comp.	6.3E+02	0.21	7.01	0.00	1.84
7–7–89	3 m	<2.0E+01 *	0.00	4.57	0.00	2.38
Site 07	6 m	<2.0E+01	0.91	5.07	0.00	2.19
	20 m	<2.0E+01	0.00	5.44	0.00	6.99
	40 m	<2.0E+01	0.00	4.96	0.00	3.17
	100 m	<2.0E+01	0.00	6.02	0.00	5.94
	Porewater	<2.0E+01	2.94	4.73	0.00	0.81
	1:10 PW		0.62	1.82	0.00	0.00

* Mean values unavailable. Lesser of the duplicate values used.

R/V Fairweather July 1–August 22, 1989

Data Summary

	Sample	Mean MPN (cells/g dry wt.)		Hexadecane ORP (ug/g dry wt.–day) Day 2	Hexadecane ORP (ug/g dry wt.–day) Day 10	Naphthalene ORP (ug/g dry wt.–day) Day 2	Naphthalene ORP (ug/g dry wt.–day) Day 10
Bay of Isles	Beach Comp.	1.7E+04		21.53	2.21	1.66	1.11
7–8–89	3 m	2.7E+02		20.66	3.91	4.22	2.30
Site 08	6 m	8.9E+01		12.34	1.84	10.19	0.50
	20 m	<2.0E+01	*	6.60	3.89	6.68	2.67
	40 m	1.6E+02		20.33	1.77	1.27	1.20
	100 m	4.3E+02		7.79	2.64	0.90	2.66
	Porewater	2.8E+02		7.77	1.71	17.16	1.44
	1:10 PW			9.53	1.97	1.68	0.26
Smith Island	Beach Comp.	2.3E+05	*	2.11	1.15	7.19	1.28
7–9–89	3 m	4.5E+02		2.37	1.46	0.00	1.50
Site 09	6 m	9.2E+01		1.13	1.38	0.00	1.93
	20 m	<2.0E+01		0.09	1.02	0.00	0.87
	40 m	<2.0E+01		0.00	1.16	0.00	1.51
	100 m	<2.0E+01		0.00	1.30	0.00	1.83
	Porewater	1.7E+05	*	1.45	0.45	3.16	1.01
	1:10 PW			3.53	1.03	2.72	0.65
Cabin Bay	Beach Comp.	1.0E+02		0.19	1.17	0.00	0.00
7–10–89	3 m	<2.0E+01	*	0.13	0.60	0.00	0.26
Site 10	6 m	5.0E+01		0.00	0.54	0.00	0.27
	20 m	<2.0E+01	*	0.47	1.05	0.00	0.91
	40 m	<2.0E+01		0.74	0.86	0.00	0.58
	100 m	<2.0E+01	*	0.38	1.22	0.00	0.76
	Porewater	8.0E+01		0.17	0.55	0.00	0.00
	1:10 PW			0.38	0.34	0.00	0.00
Columbia Bay	Beach Comp.	<2.0E+01		0.00	1.53	0.00	0.00
7–11–89	3 m	<2.0E+01	*	0.01	0.27	0.00	0.00
Site 11	6 m	9.0E+01		0.01	0.57	0.00	0.00
	20 m	<2.0E+01		0.00	1.17	0.00	0.82
	40 m	<2.0E+01		0.10	0.83	0.00	0.00
	100 m	<2.0E+01		0.00	0.44	0.00	0.58
	Porewater	M.D.		1.44	0.71	0.00	0.00
	1:10 PW			0.20	0.77	0.00	0.00
Northwest Bay	Beach Comp.	2.3E+04		3.00	2.51	5.27	0.86
7–12–89	3 m	1.9E+04		4.40	2.43	9.06	0.97
Site 12	6 m	3.7E+03		8.86	4.44	4.19	1.51
	20 m	1.1E+03		0.84	4.26	0.05	3.03
	40 m	4.8E+02		0.47	2.26	3.16	2.14
	100 m	<2.0E+01	*	0.00	3.70	0.00	4.25
	Porewater	1.4E+04		0.17	1.53	0.59	1.96
	1:10 PW			2.69	2.26	3.30	1.38
Disk Island	Beach Comp.	1.1E+06	*	12.38	2.19	22.00	2.41
7–13–89	3 m	8.0E+01		0.68	2.37	0.09	1.57
Site 13	6 m	3.9E+02		1.69	4.25	0.00	2.76
	20 m	<2.0E+01	*	5.83	2.42	0.00	1.51
	40 m	2.2E+02		0.98	3.00	0.00	2.28
	100 m	<2.0E+01	*	0.22	4.56	0.00	3.64
	Porewater	2.2E+05	*	8.33	1.86	15.26	2.19
	1:10 PW			11.59	1.49	0.24	1.08
Herring Bay	Beach Comp.	2.1E+06		12.71	4.83	14.43	1.09
7–14–89	3 m	6.7E+02		11.56	5.32	16.34	3.12
Site 14	6 m	1.4E+03		14.49	4.43	20.80	3.67
	20 m	7.7E+01		11.06	7.48	0.00	3.12
	40 m	9.3E+01		0.00	5.34	0.00	3.33
	100 m	<2.0E+01		5.69	5.93	0.00	3.90
	Porewater	7.9E+04	*	8.34	3.96	6.45	1.90
	1:10 PW			12.33	4.22	15.28	4.63

* Mean values unavailable. Lesser of the duplicate values used.

R/V Fairweather July 1–August 22, 1989

Data Summary

	Sample	Mean MPN (cells/g dry wt.)	Hexadecane ORP (ug/g dry wt.–day) Day 2	Hexadecane ORP (ug/g dry wt.–day) Day 10	Naphthalene ORP (ug/g dry wt.–day) Day 2	Naphthalene ORP (ug/g dry wt.–day) Day 10
Eshamy Bay	Beach Comp.	<2.0E+01 *	1.17	2.30	0.00	1.06
7–15–89	3 m	<2.0E+01 *	0.04	3.44	0.00	1.71
Site 15	6 m	<2.0E+01	1.51	7.13	0.89	3.95
	20 m	5.5E+01	0.00	4.60	0.79	3.95
	40 m	<2.0E+01	0.00	9.99	1.40	8.18
	100 m	<2.0E+01 *	0.00	9.97	0.23	5.44
	Porewater	3.3E+01	0.26	0.82	0.00	0.29
	1:10 PW		0.10	3.43	0.00	0.09
Sleepy Bay	3 m	9.7E+02	12.71	4.26	0.00	2.85
7–16–89	6 m	8.9E+01	5.44	3.71	0.00	2.81
Site 16	20 m	8.2E+01	9.45	5.12	0.00	7.35
	40 m	<2.0E+01	0.00	1.14	0.00	2.64
	100 m	<2.0E+01	0.00	5.77	0.00	2.29
	Porewater	4.9E+04 *	9.06	3.42	19.76	5.76
	1:10 PW		12.20	3.94	6.26	3.57
Rocky Bay	Beach Comp.	2.3E+02	8.51	4.97	0.00	0.10
7–17–89	3 m	1.5E+02	6.29	5.86	0.87	0.14
Site 17	6 m	1.1E+02	0.74	4.79	0.00	0.29
	20 m	<2.0E+01 *	0.82	2.91	34.69	4.03
	40 m	<2.0E+01	0.00	3.55	0.00	2.27
	100 m	7.2E+01	0.05	4.12	0.00	0.00
	Porewater	1.2E+01	12.59	4.52	1.83	1.91
	1:10 PW		3.20	1.71	0.59	0.58
Snug Harbor	Beach High Tide	7.9E+05 *	14.45	4.18	11.00	1.06
7–17–89	Beach Mid Tide	2.6E+03	9.48	3.57	0.00	3.62
Site 06	Beach Low Tide	1.7E+06 *	14.98	4.85	0.89	2.17
	Porewater Mid	7.9E+03	10.27	5.18	18.04	4.03
	Porewater Low	4.1E+02	8.19	5.43	11.07	3.25
	1:10 PW Mid		11.86	4.84	2.98	2.13
	1:10 PW Hi		9.20	2.37	0.77	2.64
Olsen Bay	Beach Comp.	M.D.	20.67	11.18	0.00	0.00
7–18–89	3 m	7.1E+01	1.03	8.15	0.00	0.00
Site 18	6 m	<2.0E+01 *	2.42	4.55	0.00	0.00
	20 m	4.6E+02	0.00	4.66	0.00	0.14
	40 m	2.7E+02	0.00	4.26	0.00	0.13
	100 m	4.4E+01	0.00	4.52	0.00	0.00
	Porewater	5.6E+01	2.05	5.00	0.51	0.00
	1:10 PW		6.79	3.70	0.00	0.00
Cordova Harbor	Beach	4.9E+04	12.39	2.80	4.33	3.66
7–24–89	Porewater	>2.4E+04			2.54	5.41
	1:10 PW		4.97	4.47	0.85	2.40
Fox Island	Beach Comp.	<2.0E+01 *	0.41	3.20	0.00	0.00
7–25–89	3 m	2.4E+01	0.00	5.04	1.08	0.00
Site 20	6 m	4.1E+01	0.08	5.15	0.00	1.19
	20 m	9.5E+01	0.00	4.62	0.22	1.88
	40 m	<2.0E+01 *	0.19	5.39	0.00	3.93
	100 m	<2.0E+01	0.00	1.04	0.00	0.00
	Porewater	8.7E+01	7.47	5.40	0.00	2.20
	1:10 PW		0.22	2.35	0.00	0.23
Agnes Cove	Beach Comp.	3.7E+02	6.60	5.12	0.00	2.66
7–26–89	3 m	2.6E+01	1.31	3.67	0.00	2.74
Site 21	6 m	4.0E+01	2.19	1.29	0.00	2.54
	20 m	<2.0E+01	0.00	7.49	0.00	3.79
	40 m	1.0E+02	6.04	7.99	0.00	6.46
	100 m	<2.0E+01	0.00	5.52	0.00	1.50
	Porewater	>2.4E+04	2.44	2.03	0.00	3.34
	1:10 PW		1.36	3.96	0.00	0.83

* Mean values unavailable. Lesser of the duplicate values used.

R/V Fairweather July 1–August 22, 1989

Data Summary

	Sample	Mean MPN (cells/g dry wt.)	Hexadecane ORP (ug/g dry wt.–day) Day 2	Hexadecane ORP (ug/g dry wt.–day) Day 10	Naphthalene ORP (ug/g dry wt.–day) Day 2	Naphthalene ORP (ug/g dry wt.–day) Day 10
Taroka Arm	Beach Comp.	<2.0E+01 *	0.82	4.34	0.00	0.00
7–27–89	3 m	5.2E+02	6.11	6.85	0.54	10.02
Site 22	6 m	2.6E+02	11.72	5.24	0.00	1.31
	20 m	>2.4E+05	0.50	3.91	0.00	1.05
	40 m	<2.0E+01 *	0.00	5.09	0.00	3.66
	100 m	2.7E+03	0.00	2.36	0.00	0.64
	Porewater	4.5E+02	9.11	3.98	0.00	3.06
	1:10 PW		0.59	2.47	0.00	0.00
Black Bay	Beach Comp.	1.3E+02	0.24	3.69	0.00	0.14
7–28–89	3 m	9.0E+02	1.52	8.30	0.00	1.43
Site 23	6 m	1.8E+02	0.49	6.29	0.00	0.45
	20 m	1.1E+02 *	0.02	6.42	0.00	0.00
	40 m	>2.4E+05 *	0.60	3.79	0.00	0.24
	100 m	1.9E+02	0.22	5.27	0.00	0.66
	Porewater	2.2E+01	1.90	3.36	0.00	1.44
	1:10 PW		0.00	2.63	0.00	0.13
McArthur Cove	Beach Comp.	1.6E+04	2.72	5.15	0.00	2.70
7–29–89	3 m	1.4E+02	0.00	5.76	0.00	3.54
Site 24	6 m	>2.4E+05 *	1.54	5.93	0.00	2.00
	20 m	>2.4E+05 *	0.13	8.32	0.00	2.87
	40 m	<2.0E+01	0.00	3.07	0.00	3.41
	100 m	1.5E+04	0.00	7.45	1.07	1.12
	Porewater	2.4E+02 *	4.95	4.08	0.69	3.92
	1:10 PW		0.66	2.38	0.00	1.56
Tonsina Bay	Beach Comp.	3.1E+03	8.91	2.88	0.00	2.26
7–30–89	3 m	2.4E+03	6.79	4.46	0.00	3.71
Site 25	6 m	8.2E+03	5.15	4.71	0.16	2.33
	20 m	2.5E+03	4.15	5.93	0.45	3.37
	40 m	7.9E+02	0.19	6.66	0.00	2.91
	100 m	>2.4E+05	0.78	5.75	0.00	7.14
	Porewater	1.7E+03 *	3.84	2.99	1.26	2.76
	1:10 PW		0.84	3.09	0.00	2.43
Gore Point	Beach Comp.	9.3E+01	2.84	4.46	0.01	2.80
7–31–89	3 m	2.6E+01	0.35	3.98	0.00	1.82
Site 26	6 m	3.6E+02	1.14	3.85	0.00	1.19
	20 m	1.3E+02	4.02	4.49	4.47	1.03
	40 m	2.1E+02	1.11	3.53	0.00	3.46
	100 m	<2.0E+01 *	0.00	6.46	4.23	2.42
	Porewater	3.0E+02	8.72	3.10	0.66	4.56
	1:10 PW		0.28	4.41	0.00	3.19
Port Dick	Beach Comp.	3.3E+02	0.97	3.48	0.00	0.41
8–1–89	3 m	2.5E+01	0.06	4.58	3.11	2.24
Site 27	6 m	>2.4E+05	0.09	3.22	0.00	0.73
	20 m	<2.0E+01 *	0.00	4.92	0.00	4.22
	40 m	<2.0E+01 *	0.00	4.33	0.00	3.54
	100 m	<2.0E+01 *	0.15	4.66	0.00	2.66
	Porewater	1.8E+01	2.24	4.73	0.00	2.54
	1:10 PW		0.17	4.50	1.87	1.45
Windy Bay	Beach Comp.	1.6E+04	7.44	6.01	0.00	2.09
8–2–89	3 m	9.0E+03	8.02	6.10	9.96	3.23
Site 28	6 m	7.7E+02	9.39	7.08	0.08	3.87
	20 m	5.9E+02	0.69	9.38	2.83	4.90
	40 m	1.4E+02	1.82	6.49	0.00	4.27
	100 m	7.5E+02	0.12	5.85	0.29	1.03
	Porewater	4.1E+03	11.34	5.74	0.05	3.58
	1:10 PW		0.72	3.04	0.00	1.38

* Mean values unavailable. Lesser of the duplicate values used.

R/V Fairweather July 1–August 22, 1989

Data Summary

	Sample	Mean MPN (cells/g dry wt.)		Hexadecane ORP (ug/g dry wt.–day) Day 2	Hexadecane ORP (ug/g dry wt.–day) Day 10	Naphthalene ORP (ug/g dry wt.–day) Day 2	Naphthalene ORP (ug/g dry wt.–day) Day 10
Chugach Bay	Beach Comp.	3.7E+02		2.01	3.90	0.06	1.75
8–3–89	3 m	3.3E+02		2.94	4.78	0.00	0.92
Site 29	6 m	1.7E+03	*	4.16	3.50	0.00	2.47
	20 m	1.8E+04		6.85	4.01	0.00	2.82
	40 m	3.4E+03		0.18	2.93	5.21	1.91
	100 m	>2.4E+05		0.23	2.66	0.00	0.00
	Porewater	7.9E+02	*	6.42	5.46	0.00	2.63
	1:10 PW			1.96	2.96	0.00	0.43
Seldovia Bay	Beach Comp.	4.9E+03		0.54	4.49	0.00	1.45
8–4–89	3 m	4.0E+03		0.00	6.41	0.00	1.01
Site 30	6 m	9.6E+02		1.74	7.17	0.00	2.34
	20 m	5.1E+03		0.00	6.02	0.00	3.35
	40 m	<2.0E+01		0.15	4.43	0.00	1.04
	100 m	2.0E+03		0.36	3.56	0.00	0.00
	Porewater	1.2E+02					
	1:10 PW			0.00	3.09	0.00	0.00
Ursus Cove	Beach Comp.	7.9E+03	*	0.31	3.16	0.00	0.08
8–5–89	3 m	M.D.		0.00	4.22	0.00	0.00
Site 31	6 m	2.3E+01		0.21	3.57	0.00	0.00
	20 m	4.8E+04		0.00	3.66	0.00	0.00
	30 m	M.D.		0.00	3.50	0.00	1.64
	Porewater	3.6E+01		1.28	4.96	6.10	0.02
	1:10 PW			0.00	1.89	0.00	0.00
Amakdedori Beach	Beach Comp.	<2.0E+01	*	0.00	4.96	0.81	0.04
8–6–89	3 m	1.2E+03		0.00	1.66	2.52	0.53
Site 32	6 m	1.1E+02		0.15	3.28	6.38	0.71
	10 m	<2.0E+01	*	0.41	0.66	2.63	0.22
	20 m	<2.0E+01		0.00	3.96	0.63	0.00
	30 m	M.D.		0.00	4.29	0.66	0.74
	Porewater	8.2E+02		6.56	4.90	0.46	0.10
	1:10 PW			1.66	5.14	0.63	0.00
Douglas Beach	Beach Comp.	1.4E+04		0.24	4.71	0.00	1.40
8–7–89	3 m	2.4E+03		1.66	2.85	0.04	0.66
Site 33	6 m	1.5E+05		0.19	3.49	1.46	1.46
	10 m	>2.4E+05		0.64	3.50	0.00	0.82
	20 m	1.1E+05		0.00	2.01	0.67	0.89
	Porewater	4.8E+02		5.46	2.05	0.67	4.46
	1:10 PW			1.33	2.78	0.00	3.25
Ushagat Island	Beach Comp.	>2.4E+05		7.65	3.24	0.00	1.55
8–8–89	3 m	1.6E+03	*	5.87	3.98	0.00	1.19
Site 34	6 m	>2.4E+05	*	14.12	2.82	3.17	1.27
	10 m	>2.4E+05		1.40	3.28	0.00	1.28
	20 m	>2.4E+05		4.52	2.53	0.82	0.80
	Porewater	>2.4E+05		10.66	5.03	4.30	1.61
	1:10 PW		*	6.78	2.48	0.00	2.54
	Beach–Oiled	4.8E+06		16.24	2.90	15.06	3.09
Andreon Bay	Beach Comp.	1.1E+04		6.49	4.50	0.00	0.80
8–9–89	3 m	8.8E+01		1.54	4.74	0.00	0.70
Site 35	6 m	>2.4E+05		1.56	3.73	0.00	0.80
	20 m	2.7E+02		2.77	4.00	0.00	2.56
	40 m	<2.0E+01	*	0.48	4.02	0.81	0.03
	100 m	>2.4E+05		0.00	5.13	0.00	2.65
	Porewater	1.0E+02		8.84	4.34	0.15	2.96
	1:10 PW			0.59	1.90	0.00	1.03

* Mean values unavailable. Lesser of the duplicate values used.

R/V Fairweather July 1–August 22, 1989

Data Summary

	Sample	Mean MPN (cells/g dry wt.)		Hexadecane ORP (ug/g dry wt.–day) Day 2	Hexadecane ORP (ug/g dry wt.–day) Day 10	Naphthalene ORP (ug/g dry wt.–day) Day 2	Naphthalene ORP (ug/g dry wt.–day) Day 10
King Cove	Beach Comp.	1.3E+04	*	5.35	2.26	0.00	0.10
8–14–89	Beach–Tar Ball	>2.4E+05	*	4.68	3.38	0.00	2.15
Site 36	3 m	2.4E+04		1.24	5.92	0.00	0.00
	6 m	5.4E+02		1.37	5.06	0.00	0.86
	20 m	<2.0E+01		0.14	4.16	0.00	0.05
	40 m	<2.0E+01	*	0.00	3.96	0.00	0.00
	Porewater	7.9E+05	*	19.04	6.06	0.00	3.44
	1:10 PW			9.96	3.68	0.26	1.31
Douglas Pt.	Beach Comp.	2.9E+03		1.59	1.62	0.00	0.12
8–15–89	Beach–Tar Ball	1.4E+04		7.10	3.08	0.00	2.94
Site 37	3 m	4.1E+02		4.26	2.51	0.00	0.30
	6 m	3.0E+03		1.39	3.12	0.00	0.91
	20 m	1.3E+02		0.01	3.83	0.00	5.89
	40 m	2.1E+02	*	0.00	3.72	1.47	2.78
	100 m	3.0E+04		0.00	4.91	1.56	1.67
	Porewater	2.5E+01		8.06	2.12	3.04	1.61
	1:10 PW			1.49	3.07	2.79	1.09
Halo Bay	Beach Comp.	>2.4E+05	*	14.58	4.72	0.00	1.97
8–16–89	Beach–Tar Ball	>2.4E+05	*	16.07	5.44	19.23	5.07
Site 38	3 m	2.2E+04	*	0.08	5.30	0.00	0.40
	6 m	1.7E+04		0.47	5.35	0.00	1.19
	20 m	2.6E+02	*	0.17	2.74	0.62	1.63
	40 m	1.6E+03		1.14	5.52	0.00	2.50
	100 m	1.9E+05		0.77	4.53	6.61	0.03
	Porewater	3.2E+03		16.90	6.26	0.37	2.30
	1:10 PW			1.46	3.08	0.00	1.66
Katmai Bay	Beach Comp.	3.6E+04		18.97	5.13	0.00	2.92
8–17–89	3 m	1.8E+02		0.53	5.48	0.00	0.61
Site 39	6 m	2.0E+04		1.03	5.02	0.00	0.30
	20 m	2.4E+03	*	0.96	3.82	0.00	1.46
	40 m	1.6E+05		1.33	5.02	3.41	0.14
	75 m	5.5E+01		0.00	4.61	3.62	0.00
	Porewater	1.7E+03		9.74	6.13	0.16	3.06
	1:10 PW			0.00	3.90	0.00	1.46
Halibut Bay	Beach Comp.	<2.0E+01		2.66	3.31	0.00	1.13
8–18–89	3 m	<2.0E+01	*	0.77	2.17	1.67	1.41
Site 40	6 m	6.2E+02		4.67	3.01	0.00	1.07
	20 m	2.6E+01		2.78	3.66	0.00	1.26
	40 m	<2.0E+01		0.10	5.30	0.00	0.47
	100 m	<2.0E+01		0.00	3.54	1.77	0.23
	Porewater	4.9E+01		3.73	2.50	0.00	0.26
	1:10 PW			0.93	3.41	0.00	1.90
Wide Bay	Beach comp.	1.2E+02		0.45	4.76	1.29	0.22
8–19–89	3 m	2.3E+02		0.35	3.93	0.06	0.14
Site 41	6 m	5.6E+02		1.77	4.21	0.00	0.00
	20 m	3.0E+01		0.77	3.04	2.00	0.00
	40 m	3.4E+02		0.15	4.25	0.32	0.00
	Porewater	1.1E+02		14.74	5.25	0.50	2.29
	1:10 PW			0.00	2.29	0.00	0.00
Chignik Bay	Beach Comp.	2.8E+01		1.35	3.38	7.68	0.00
8–20–89	3 m	1.5E+02		12.46	4.00	2.59	2.97
Site 42	6 m	3.3E+03		1.15	5.64	9.65	3.16
	20 m	8.3E+01		3.62	5.42	6.28	4.24
	30 m	1.4E+02		0.56	2.26	1.05	2.16
	Porewater	<2.0E+01	*	4.75	5.33	0.35	0.63
	1:10 PW			1.01	2.52	1.36	0.00

* Mean values unavailable. Lesser of the duplicate values used.

F/V Nautilis Nov. 7–Dec. 8, 1989

Data Summary

	Sample	MPN (cells/g dry sediment)		Naphthalene ORP		Phenanthrene ORP	
				Day 2	Day 8–10	Day 2	Day 8–10
				ug/g dry wt.–day	ug/g dry wt.–day	ug/g dry wt.–day	ug/g dry wt.–da
		Mean	Std. dev.	(@95% cont. level)	(@95% cont. level)	(@95% cont. level)	(@95% cont. leve
Site 4	Porewater	2.32E+05	2.69E+05	0.85 ± 0.52	0.77 ± 0.96	0.39 ± 0.39	0.49 ± 0.10
11–26–89	Beach	2.36E+05	7.02E+03	3.25 ± 0.78	2.84 ± 2.85	0.51 ± 0.43	2.82 ± 0.42
NW Bay	3m	4.13E+04	4.38E+04	0.47 ± 0.63	2.81 ± 4.43	0.71 ± 0.52	3.24 ± 1.12
Site 5	Porewater	2.06E+05	1.43E+04		0.02 ± 0.67		0.42 ± 0.11
11–7–89	Beach	2.76E+05	2.25E+05		0.02 ± 0.75		3.87 ± 0.29
NW Bay	3m						
Site 5	Porewater	5.87E+03	4.45E+03	0.06 ± 0.47	2.28 ± 2.33	0.37 ± 0.44	1.93 ± 0.14
12–7–89	Beach	4.19E+04	4.56E+03	0.00 ± 0.00	3.13 ± 1.20	0.00 ± 0.00	3.03 ± 0.55
NW Bay	3m	5.77E+02	7.09E+02	0.00 ± 0.00	2.67 ± 2.03	0.00 ± 0.00	3.34 ± 0.47
Site 7	Porewater	2.51E+03	2.10E+03		0.00 ± 0.67		1.56 ± 0.38
11–9–89	Beach	1.27E+05	3.42E+04		0.00 ± 0.72		2.69 ± 0.87
Block Is.	3m	1.29E+04	2.62E+03		6.02 ± 2.16		5.71 ± 0.37
Site 18	Porewater	2.25E+02			2.33 ± 2.00		0.51 ± 0.10
11–11–89	Beach	4.84E+03	5.60E+03		6.01 ± 3.32		4.19 ± 0.24
NE Knight	3m	7.34E+02	6.23E+03		3.87 ± 1.46		4.69 ± 0.25
Site 22	Porewater	4.30E+03	3.22E+03				2.79 ± 0.25
11–16–89	Beach	5.81E+04	3.17E+04				3.62 ± 0.49
Green Is.	3m	1.51E+03	6.84E+02				5.78 ± 0.31
Site 25	Porewater	2.50E+04	2.08E+04				0.89 ± 0.09
11–15–89	Beach	1.18E+05	2.61E+04				3.20 ± 0.40
Snug Hbr.	3m	1.50E+03	4.04E+02				4.55 ± 0.37
Site 36	Porewater	1.50E+04	1.57E+04	1.88 ± 0.51	2.99 ± 2.22	2.56 ± 0.56	3.87 ± 0.52
11–18–89	Beach	1.58E+05	5.82E+04	2.81 ± 0.70	3.42 ± 2.09	4.17 ± 0.72	2.81 ± 0.43
Pt. Helen	3m	9.00E+02	5.88E+02	0.19 ± 0.56	2.68 ± 1.65	0.00 ± 0.00	3.40 ± 0.46
Site 38	Porewater	4.10E+02		0.00 ± 0.00	1.61 ± 1.01	0.00 ± 0.00	0.61 ± 0.12
11–19–89	Beach	2.03E+04	1.58E+04	0.00 ± 0.00	1.90 ± 0.94	0.31 ± 0.48	2.54 ± 0.53
Chenega Is.	3m	1.59E+02		0.58 ± 0.64	1.51 ± 3.48	0.20 ± 0.47	2.33 ± 0.28
Site 43	Porewater	5.20E+03	2.56E+03				0.93 ± 0.11
11–17–89	Beach	1.27E+04	7.02E+03				4.24 ± 0.37
Sleepy Bay	3m	2.36E+03	2.92E+03				4.28 ± 0.31
Site 47	Porewater	8.80E+03	4.10E+03		0.00 ± 0.00		1.01 ± 0.15
11–09–89	Beach	5.83E+04	3.78E+04		3.25 ± 6.21		1.70 ± 0.60
Block Is.	3m	2.85E+03	8.72E+01				
Site 47	Porewater	7.80E+03	4.66E+03	0.81 ± 0.48	3.27 ± 1.96	0.12 ± 0.39	0.87 ± 0.15
11–30–89	Beach	2.81E+04	1.25E+04	0.00 ± 0.00	4.83 ± 4.45	0.37 ± 0.50	4.25 ± 0.34
Block Is.	3m	2.85E+03	8.72E+01	0.00 ± 0.00	2.98 ± 3.91	0.23 ± 0.66	5.68 ± 0.77
Site 49	Porewater	9.17E+03	7.28E+03		0.00 ± 0.00		1.87 ± 0.20
11–14–89	Beach	6.24E+05					3.85 ± 0.48
Rua Cove	3m	1.25E+04					5.52 ± 0.27
Site 53	Porewater	4.03E+02	1.50E+02	0.00 ± 0.00	2.06 ± 1.52	0.00 ± 0.00	0.37 ± 0.12
11–20–89	Beach	8.45E+04		0.00 ± 0.00	3.21 ± 2.17	0.04 ± 0.46	2.87 ± 0.63
Herring Bay	3m	6.11E+03	7.79E+03	0.00 ± 0.00	2.44 ± 0.92	0.00 ± 0.00	5.21 ± 0.26
Site 67	Porewater	3.80E+02	7.00E+01	15.65 ± 2.04	0.03 ± 0.47	0.28 ± 0.39	2.07 ± 0.18
12–4–89	Beach	2.06E+04	1.21E+04	0.00 ± 0.00	3.25 ± 1.33	0.12 ± 0.40	2.45 ± 0.35
Smith Is.	3m	5.41E+03	3.66E+03	0.00 ± 0.00	1.76 ± 1.57	0.00 ± 0.00	2.62 ± 0.78

F/V Nautilis Nov. 7–Dec. 8, 1989

Data Summary

	Sample	MPN (cells/g dry sediment)		Naphthalene ORP		Phenanthrene ORP	
				Day 2	Day 8–10	Day 2	Day 8–10
				ug/g dry wt.–day (@95% conf. level)	ug/g dry wt.–day (@95% conf. level)	ug/g dry wt.–day (@95% conf. level)	ug/g dry wt.–da (@95% conf. leve
		Mean	Std. dev.				
Site 82	Porewater	1.45E+03	4.39E+02	0.83 ± 0.53	1.88 ± 1.96	2.12 ± 0.41	1.55 ± 0.11
11–25–89	Beach	1.01E+04	5.09E+03	0.00 ± 0.00	2.85 ± 1.87	0.12 ± 0.45	3.54 ± 0.47
Ingot Is.	3m	1.66E+03	1.36E+03	0.00 ± 0.00	2.84 ± 4.54	0.23 ± 0.70	5.74 ± 0.59
							±
Site 86	Porewater	9.03E+02	7.46E+02		2.59 ± 2.60		0.91 ± 0.09
11–12–89	Beach	1.10E+04	6.38E+03		2.55 ± 4.11		4.18 ± 0.29
Bay of Isles	3m	5.40E+03	1.92E+03		4.26 ± 3.10		4.22 ± 0.49
Site 88	Porewater	1.76E+04	1.01E+04	0.95 ± 0.00	2.91 ± 1.47	0.18 ± 0.39	0.38 ± 0.09
11–29–89	Beach	1.04E+05	7.01E+04	0.00 ± 0.00	3.76 ± 1.15	0.00 ± 0.00	6.45 ± 0.73
Applegate Island	3m	1.29E+03	1.77E+03	0.00 ± 0.00	2.26 ± 1.44	0.35 ± 0.58	6.34 ± 0.47
Site 90	Porewater	2.40E+03	3.46E+02		3.07 ± 1.81		0.22 ± 0.09
11–13–89	Beach	3.42E+04	1.56E+04		6.39 ± 2.85		2.88 ± 0.28
Bay of Isles	3m	9.61E+03	5.89E+02		4.13 ± 3.40		4.27 ± 0.32
Site 93	Porewater	4.50E+01	2.99E+01	0.93 ± 0.56	1.56 ± 1.05	0.31 ± 0.40	0.72 ± 0.13
12–8–89	Beach	2.19E+03	1.78E+03	0.11 ± 0.54	1.84 ± 1.50	0.32 ± 0.47	3.44 ± 0.24
Lone Is.	3m	6.02E+02	5.08E+02	0.52 ± 0.67	0.89 ± 0.80	0.23 ± 0.49	3.53 ± 0.36
Site 110	Porewater	8.53E+02	4.76E+02	0.00 ± 0.00	1.74 ± 1.12	0.00 ± 0.00	0.21 ± 0.09
11–24–89	Beach	2.23E+04	1.52E+04	0.00 ± 0.00	2.39 ± 2.36	0.00 ± 0.00	2.49 ± 0.36
Herring Bay	3m	4.89E+03		0.00 ± 0.00	2.39 ± 3.02	0.21 ± 0.50	4.06 ± 0.41
Site 125	Porewater	2.01E+02	2.52E+02	10.11 ± 0.86	2.24 ± 0.87	1.15 ± 0.41	0.46 ± 0.10
11–23–89	Beach	2.04E+05	9.77E+04	19.65 ± 2.07	4.25 ± 2.42	10.52 ± 1.58	3.68 ± 0.61
Herring Bay	3m	7.51E+03	3.19E+03	14.00 ± 2.89	3.48 ± 1.92	12.19 ± 1.39	3.75 ± 0.16
Site 200	Porewater	7.00E+01	8.76E+01	0.00 ± 0.00	0.48 ± 0.72	0.00 ± 0.00	0.00 ± 0.00
12–2–89	Beach	2.70E+01	2.95E+01	0.04 ± 0.56	0.78 ± 1.50	0.00 ± 0.00	0.00 ± 0.00
Two Moon	3m	6.29E+01	8.09E+00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
Site 201	Porewater	2.67E+01	1.94E+01	0.10 ± 0.48	1.57 ± 1.92	0.00 ± 0.00	0.00 ± 0.00
12–3–89	Beach	1.33E+02	1.13E+02	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
Port Fidalgo	3m	7.16E+01	6.23E+01	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.64 ± 0.59

R/V John N. Cobb May 31–June10, 1990

Data Summary

	Depth (m)	MPN (cells/g dry wt.) Mean	MPN Std. dev.	Hexadecane ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Hexadecane ORP Day 10 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 10 ug/g dry wt.–day (@95% conf. level)
N.E. Port Fidalgo	0			1.43 ± 1.03	5.44 ± 0.25	0.00 ± 0.00	0.00 ± 0.00
5–31–90	3			0.86 ± 0.93	4.05 ± 0.18	0.00 ± 0.00	0.00 ± 0.00
Site #1	6			0.00 ± 0.00	4.34 ± 0.18	0.00 ± 0.00	0.58
	20			0.00 ± 0.00	3.62 ± 0.41	0.00 ± 0.00	0.00 ± 0.00
Port Olson	0			0.00* ± 0.00	3.86 ± 1.12	0.00 ± 0.00	0.17 ± 0.19*
5–31–90	3			0.23 ± 2.01	9.17 ± 0.82	0.00 ± 0.00	0.00 ± 0.00
Site #2	6			1.60 ± 1.29	5.78 ± 0.29	0.00 ± 0.00	0.26 ± 0.25
	20			0.00 ± 0.00	5.37 ± 0.27	0.00 ± 0.00	0.23 ± 0.20
Macleod Harbor	0	<2.00E+01		0.00 ± 0.00	1.81 ± 0.55	0.00 ± 0.00	0.04 ± 0.11
6–1–90	3			0.00 ± 0.00	3.56 ± 0.27	0.00 ± 0.00	0.86 ± 0.49
Site #3	6			0.00 ± 0.00	3.10 ± 0.52	0.00 ± 0.00	1.32 ± 1.04
	20			0.00 ± 0.00	1.97 ± 0.72	0.00 ± 0.00	0.00 ± 0.17
Snug Harbor	0	4.58E+02	3.77E+02	5.13 ± 1.43	4.25 ± 0.25	0.00 ± 0.00	5.12 ± 0.35
6–1–90	3	1.41E+02	7.50E+01	0.15 ± 0.88	3.82 ± 0.21	0.00 ± 0.00	0.58 ± 0.14
Site #4	6			11.52 ± 2.21	6.29 ± 0.42	0.00 ± 0.00	3.58 ± 1.05
	20	1.66E+03	1.16E+03	15.51 ± 1.30	4.97 ± 0.47	0.00 ± 0.00	6.14 ± 0.20
Fox Farm	0			5.37 ± 1.12	5.69 ± 0.36	0.00 ± 0.00	7.01 ± 0.31
6–2–90	3			0.26 ± 0.80	3.33 ± 0.23	0.00 ± 0.00	5.62 ± 0.18
Site #5	6			0.08 ± 0.81	3.38 ± 0.19	0.00 ± 0.00	6.66 ± 0.14
	20			0.00 ± 0.00	4.00 ± 0.20	0.00 ± 0.00	5.67 ± 0.69
Sleepy Bay	0	2.06E+02	1.26E+02	7.46 ± 1.83	5.31 ± 0.28	0.43 ± 0.61	5.34 ± 0.48
6–2–90	3	6.71E+02	4.33E+02	2.81 ± 0.97	4.19 ± 0.23	0.14 ± 0.65	6.26
Site #6	6			14.35 ± 0.92	4.76 ± 0.31	0.06 ± 0.65	5.47 ± 0.40
	20	3.02E+02	1.26E+02	5.25 ± 1.26	5.42 ± 0.21	0.03 ± 0.68	6.33 ± 0.18
Chenega	0	1.33E+03	1.28E+03	0.00 ± 0.00	4.40 ± 0.36	0.00 ± 0.00	0.75 ± 0.41
6–3–90	3	4.61E+01	4.49E+01	0.00 ± 0.00	2.54 ± 0.22	0.00 ± 0.00	0.05 ± 0.11
Site #7	6	2.93E+01	1.39E+01	0.00 ± 0.00	3.47 ± 0.28	0.00 ± 0.00	0.00 ± 0.00
	20	<2.00E+01		0.00 ± 0.00	3.34 ± 0.17	0.00 ± 0.00	0.00 ± 0.00
Herring Bay	0	1.56E+03	7.70E+02	9.38 ± 0.95	4.11 ± 0.28	1.57 ± 0.91	3.28 ± 0.94
6–4–90	3	8.09E+02	5.12E+02	5.66 ± 1.00	4.67 ± 0.38	0.26 ± 0.55	3.74 ± 0.69
Site #8	6	1.02E+02	4.78E+01	5.28 ± 1.19	2.96 ± 0.48	0.16 ± 0.55	6.19 ± 0.32
	20	1.92E+02	1.59E+02	2.21 ± 1.04	4.65 ± 0.24	0.51 ± 0.71	8.18 ± 0.28
Block Island	0	5.03E+04	3.28E+04	23.40 ± 1.35	3.97 ± 0.37	29.97 ± 1.20	5.96 ± 0.16
6–5–90	3	1.82E+03	1.05E+03	22.96 ± 1.08	5.26 ± 0.21	1.11 ± 0.83	6.64 ± 1.00
Site #9	20	1.82E+03	1.05E+03	0.17 ± 0.82	6.39 ± 0.20	0.00 ± 0.00	6.73 ± 0.35
Disk Island	0	2.43E+02	3.17E+01	3.42 ± 1.07	5.72 ± 0.18	0.04 ± 0.57	4.66 ± 0.65
6–5–90	3	5.61E+01	1.94E+01	1.10 ± 0.67	3.86 ± 0.22	0.03 ± 0.53	3.75
Site #10	6	6.20E+02	3.98E+02	18.02 ± 1.05	4.71 ± 0.35	0.07 ± 0.60	5.34 ± 0.52
	20	3.64E+02	1.58E+02	0.40 ± 1.01	5.49 ± 0.57	0.17 ± 0.74	6.66
N.W. Bay	0	2.84E+04	9.50E+03	10.29 ± 1.76	3.70 ± 0.64	9.91 ± 1.85	5.61 ± 0.43
6–5–90	3	6.23E+03	5.35E+03	18.62 ± 2.14	1.98 ± 0.93	24.77 ± 2.54	7.86
Site #11	6			22.73 ± 1.90	6.79 ± 0.24	26.10 ± 3.58	7.63 ± 0.20
	20	1.01E+03	5.63E+02	30.73 ± 2.07	7.59 ± 0.34	28.46 ± 1.72	9.27 ± 0.30
N.E. Knight Island	0	1.45E+02	2.08E+01	7.58 ± 0.96	4.44 ± 0.25	0.00 ± 0.00	6.64 ± 0.15
6–6–90	3			11.25 ± 2.35	3.93 ± 0.22	0.00 ± 0.00	6.54 ± 0.19
Site #12	6			0.06 ± 0.77	1.83 ± 0.58	0.00 ± 0.00	6.57 ± 0.21
	20			0.15 ± 0.88	2.85 ± 0.36	0.00 ± 0.00	7.02 ± 0.28
Smith Island	0	1.19E+02	0.00E+00	0.03	4.74 ± 0.22	0.29	5.32 ± 0.14
6–6–90	3	2.74E+02	1.40E+02	1.95	4.68 ± 0.24	1.05	6.33 ± 0.46
Site #13	6	3.21E+01	1.65E+01	0.30 ± 0.82	4.20 ± 0.18	0.98 ± 0.67	4.43 ± 0.72
	20	<2.00E+01		0.44	4.59 ± 0.24	1.92	7.04 ± 0.42
Bay of Isles	0	1.19E+03		8.73 ± 2.18	6.19 ± 0.28	0.04 ± 0.64	5.14 ± 0.44
6–7–90	3	1.28E+01	9.20E+00	10.59 ± 1.41	7.89 ± 0.41	0.00 ± 0.00	8.16 ± 0.24
Site #14	6			17.46 ± 1.18	6.93 ± 0.40	2.01	5.95 ± 0.89
	20	5.50E+01	1.90E+01	6.36 ± 1.62	5.22 ± 0.49	0.00 ± 0.00	7.33 ± 0.44
Green Island	0	3.26E+02	2.37E+02	0.00 ± 0.00	3.50 ± 0.36	0.00 ± 0.00	6.25 ± 0.15
6–7–90	3			0.00 ± 0.00	3.53 ± 0.45	0.00 ± 0.00	6.17 ± 0.16
Site #15	6			0.14 ± 0.78	2.65 ± 0.63	0.00 ± 0.00	5.02 ± 0.31
	20			0.00 ± 0.00	2.83 ± 0.58	0.00 ± 0.00	5.82 ± 0.39

R/V John N. Cobb May 31–June10, 1990

Data Summary

	Depth	MPN (cells/g dry wt.)		Hexadecane ORP		Phenanthrene ORP	
				Day 2	Day 10	Day 2	Day 10
	(m)	Mean	Std. dev.	ug/g dry wt.–day (@95% conf. level)	ug/g dry wt.–day (@95% conf. level)	ug/g dry wt.–day (@95% conf. level)	ug/g dry wt.–day (@95% conf. level)
Rocky Bay	0	2.79E+01	1.26E+01	0.19 ± 0.68	1.70 ± 0.21	0.00 ± 0.00	0.63 ± 0.30
6–8–90	3			0.09 ± 0.84	3.50 ± 0.45	0.02 ± 0.61	0.24 ± 0.18
Site #16	6			0.09 ± 0.72	2.48 ± 0.17	0.13 ± 0.53	0.00
	20			0.00 ± 0.00	5.24 ± 0.31	0.00 ± 0.00	2.56 ± 1.13
Zaikof Bay	0	*<2.00E+01*		*0.35 ± 0.70*	2.24 ± 0.73	0.00 ± 0.00	1.37 ± 0.81
6–8–90	3			0.00 ± 0.00	4.04 ± 0.40	0.00 ± 0.00	6.75 ± 0.23
Site #17	6			0.00 ± 0.00	4.28 ± 0.29	0.00 ± 0.00	0.00 ± 0.16
	20			0.00 ± 0.00	5.77 ± 0.32	0.00 ± 0.00	1.47 ± 0.46
West Bay	0			0.00 ± 0.00	4.20 ± 0.19	0.25 ± 0.60	0.00 ± 0.00
6–9–90	3			0.00 ± 0.00	5.72 ± 0.26	0.00 ± 0.00	0.00 ± 0.00
Site #18	6			0.00 ± 0.00		0.00 ± 0.00	
	20			0.00 ± 0.00	8.99 ± 0.45	0.00 ± 0.00	6.27 ± 1.98
N.E. Port Fidalgo	0	3.17E+03	2.16E+03				
6–9–90	3	9.41E+01	4.07E+01				
Site #19	6	1.66E+02	4.21E+01				
	20	6.94E+01	6.13E+01				

R/V Davidson June 27–August 5, 1990

Data Summary

	Depth (m)	MPN (cells/g dry wt.) Mean	MPN (cells/g dry wt.) Std. dev.	Hexadecane ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Hexadecane ORP Day 4 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 6 ug/g dry wt.–day (@95% conf. level)
Olsen Bay	Beach	6.45E+01	9.00E-01	0.00 ± 0.00	2.36 ± 0.59	0.00 ± 0.00	0.00 ± 0.00
06-27-90	3	0.00E+00	0.00E+00	0.02 ± 0.55	1.77 ± 0.77	0.00 ± 0.00	0.00 ± 0.00
Site #1	6	9.82E+00	1.54E+01	0.08 ± 0.42	1.16 ± 0.81	0.00 ± 0.00	0.00 ± 0.00
	20	2.48E+01	0.00E+00	0.02 ± 0.36	1.74 ± 0.44	0.00 ± 0.00	0.00 ± 0.00
	40	0.00E+00	0.00E+00	0.13 ± 0.52	0.03 ± 0.25	0.13 ± 0.52	0.00 ± 0.00
	100	0.00E+00	0.00E+00	0.00 ± 0.00	0.05 ± 0.33	0.00 ± 0.00	0.00 ± 0.00
Port Fildago	Beach	5.30E+01	5.30E+01	0.13 ± 0.32	3.76 ± 1.10	0.00 ± 0.00	0.00 ± 0.00
06-28-90	3	0.00E+00	0.00E+00	0.00 ± 0.00	1.18 ± 0.57	0.00 ± 0.00	0.00 ± 0.00
Site #2	6	0.00E+00	0.00E+00	0.01 ± 0.36	1.30 ± 0.84	0.00 ± 0.00	0.00 ± 0.00
	20	0.00E+00	0.00E+00	0.02 ± 0.37	0.83 ± 0.38	0.00 ± 0.00	0.00 ± 0.00
	40	0.00E+00	0.00E+00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
	100	1.11E+01	1.74E+01	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
Smith Island	Beach	1.67E+03	3.89E+02	0.21 ± 0.33	5.55 ± 0.43	0.00 ± 0.00	0.24 ± 0.10
07-02-90	3	7.60E+02	8.20E+02	3.90 ± 1.93	5.42 ± 1.03	0.06 ± 0.39	7.47 ± 0.18
Site #3	6	8.67E+01	5.70E+01	0.00 ± 0.00	4.19 ± 0.91	0.00 ± 0.00	0.14 ± 0.10
	20	7.98E+01	1.54E+01	1.91 ± 0.68	6.82 ± 1.20	0.00 ± 0.00	8.60 ± 0.35
	40	3.30E+02	3.08E+02	0.48 ± 0.45	2.20 ± 0.33	0.33 ± 0.43	7.60 ± 0.32
	100	5.64E+01	3.20E+01	0.32 ± 0.56	2.06 ± 0.82	0.00 ± 0.00	8.77 ± 0.29
Zaikof Bay	Beach	9.11E+01		0.25 ± 0.36	3.37 ± 0.79	0.00 ± 0.00	0.00 ± 0.00
07-03-90	3	9.72E+00	1.53E+01	0.19 ± 0.41	0.34 ± 0.22	0.00 ± 0.00	3.46 ± 1.50
Site #4	6	1.06E+01	1.66E+01	0.24 ± 0.46	3.47 ± 0.90	0.00 ± 0.00	2.99 ± 1.18
	20	4.26E+01	3.69E+01	0.08 ± 0.42	4.95 ± 0.69	0.00 ± 0.00	0.00 ± 0.00
	40	5.36E+01	0.00E+00	0.00 ± 0.00	1.56 ± 0.98	0.00 ± 0.00	0.17 ± 0.23
	100	0.00E+00	0.00E+00	0.10 ± 0.47	3.54 ± 1.27	0.00 ± 0.00	2.67 ± 1.25
Rocky Bay	Beach	1.01E+02	6.16E+01	0.29 ± 0.37	4.58 ± 1.13	0.00 ± 0.00	0.00 ± 0.00
07-04-90	3	1.80E+01	1.59E+01	0.29 ± 0.43	4.12 ± 1.74	0.00 ± 0.00	0.00 ± 0.00
Site #5	6	9.36E+00	1.47E+01	0.10 ± 0.38	3.41 ± 1.11	0.04 ± 0.41	0.00 ± 0.00
	20	0.00E+00	0.00E+00	0.15 ± 0.43	1.62 ± 0.63	0.00 ± 0.00	2.12 ± 1.21
	40	1.92E+01	1.70E+01	0.08 ± 0.43	1.94 ± 0.87	0.00 ± 0.00	0.05 ± 0.13
	100	4.51E+01	4.90E+01	0.29 ± 0.58	1.83 ± 1.05	0.00 ± 0.00	2.20 ± 1.04
West Bay	Beach	6.03E+01	6.94E+01	0.21 ± 0.38	3.85 ± 1.50	0.00 ± 0.00	0.00 ± 0.00
07-05-90	3	3.38E+01	5.31E+01	0.10 ± 1.42	2.83 ± 1.86	0.00 ± 0.00	0.00 ± 0.00
Site #6	6	9.90E+01	2.81E+01	0.44 ± 0.49	2.25 ± 0.52	0.13 ± 0.51	0.00 ± 0.00
	20	2.06E+02	1.61E+02	1.80 ± 1.67	6.66 ± 2.09	0.00 ± 0.00	0.14 ± 0.42
	40	4.17E+01	7.11E+01	0.31 ± 0.72	1.73 ± 0.80	0.52 ± 0.77	0.22 ± 0.21
	100	0.00E+00	0.00E+00	0.40 ± 0.81	0.49 ± 0.33	0.00 ± 0.00	2.60 ± 1.28
Herring Bay	Beach	8.35E+03	7.90E+03	15.41 ± 2.84	10.67 ± 0.43	0.17 ± 0.38	7.65 ± 0.38
07-06-90	3	2.55E+02		1.33 ± 0.57	11.65 ± 0.36	0.06 ± 0.45	9.23 ± 0.56
Site #7	6	2.38E+02	5.56E+01	0.87 ± 0.54	8.52 ± 0.59	0.10 ± 0.48	10.35 ± 0.37
	20	2.60E+02		0.94 ± 0.46	9.26 ± 0.76	0.06 ± 0.44	10.02 ± 0.18
	40	1.79E+02		0.19 ± 0.38	1.88 ± 0.49	0.15 ± 0.38	8.36 ± 0.16
	100	2.07E+02		0.21 ± 0.51	1.83 ± 0.87	0.00 ± 0.00	6.02 ± 1.64
Disk Island	Beach	1.61E+03		2.73 ± 0.91	2.75 ± 0.22	0.00 ± 0.00	2.71 ± 0.13
07-07-90	3	1.51E+03	2.25E+03	0.10 ± 0.35	1.32 ± 0.19	0.00 ± 0.00	2.01 ± 0.14
Site #8	6	9.98E+01	6.12E+01	0.06 ± 0.35	1.58 ± 0.18	0.00 ± 0.00	1.93 ± 0.12
	20	0.00E+00		0.00 ± 0.00	1.73 ± 0.38	0.00 ± 0.00	3.15 ± 0.17
	40	3.88E+02	4.36E+02	0.00 ± 0.00	0.57 ± 0.27	0.00 ± 0.00	2.98 ± 0.16
	100	6.36E+01	3.60E+01	0.00 ± 0.00	0.34 ± 0.35	0.00 ± 0.00	2.52 ± 0.28
Block Island	Beach	7.90E+03	8.55E+03	5.52 ± 2.61	6.80 ± 0.96	0.00 ± 0.00	3.26 ± 0.51
07-08-90	3	1.33E+04	1.53E+03	1.64 ± 0.58	10.66 ± 0.45	0.10 ± 0.42	8.68 ± 0.30
Site #9	6	1.19E+03	1.66E+03	1.04 ± 0.49	10.10 ± 1.15	0.00 ± 0.00	7.11 ± 0.69
	20	2.86E+03	3.24E+01	1.08 ± 0.67	10.41 ± 0.88	0.02 ± 0.57	11.67 ± 0.59
	40	1.32E+03	1.16E+03	0.66 ± 0.47	5.62 ± 0.92	1.07 ± 0.82	7.19 ± 1.27
	100	1.11E+03	9.53E+01	1.41 ± 0.88	7.81 ± 1.43	0.19 ± 0.58	10.50 ± 0.79
N.W. Bay	Beach	1.15E+04	1.61E+04	10.78 ± 2.09	9.14 ± 0.50	0.22 ± 0.33	6.37 ± 0.44
07-09-90	3	5.04E+03	6.54E+03	10.62 ± 3.40	13.70 ± 0.58	1.31 ± 0.49	10.44 ± 0.32
Site #10	6	4.64E+03	2.27E+03	5.62 ± 0.69	12.53 ± 0.54	1.14 ± 0.63	10.64 ± 0.58
	20	2.79E+03	1.44E+03	0.71 ± 0.48	5.21 ± 0.29	0.61 ± 0.48	7.40 ± 0.36
	40	1.23E+03	3.00E+02	0.54 ± 0.48	4.21 ± 0.33	0.12 ± 0.43	4.16 ± 0.16
	100	1.49E+02	2.60E+02	0.00 ± 0.00	2.83 ± 0.48	0.00 ± 0.00	4.82 ± 0.18

R/V Davidson June 27–August 5, 1990

Data Summary

	Depth (m)	MPN (cells/g dry wt.) Mean	MPN (cells/g dry wt.) Std. dev.	Hexadecane ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Hexadecane ORP Day 4 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 8 ug/g dry wt.–day (@95% conf. level)
N.E. Knight Is.	Beach	5.93E+02	4.16E+02	3.67 ± 0.91	9.62 ± 0.65	0.06 ± 0.39	8.41 ± 0.30
07-10-90	3	1.62E+02	2.03E+02	6.85 ± 1.78	10.41 ± 0.54	0.00 ± 0.00	5.65 ± 0.52
Site #11	6	4.15E+01	3.63E+01	0.22 ± 0.31	3.06 ± 0.60	0.03 ± 0.31	5.52 ± 0.21
	20	1.02E+02	8.44E+01	0.56 ± 0.54	8.72 ± 0.79	0.04 ± 0.54	10.02 ± 0.46
	40	8.44E+01	4.74E+01	0.96 ± 0.64	5.39 ± 0.83	0.00 ± 0.00	9.24 ± 0.36
	100	0.00E+00		0.09 ± 0.67	6.14 ± 1.05	0.00 ± 0.00	12.60 ± 0.50
Bay of Isles	Beach			2.62 ± 0.95	13.49 ± 0.42	0.00 ± 0.00	10.83 ± 0.27
07-11-90	3			3.10 ± 0.69	10.58 ± 0.55	0.13 ± 0.40	8.92 ± 0.25
Site #12	6			1.04 ± 0.40	9.91 ± 0.31	0.27 ± 0.37	8.11 ± 0.28
	20			5.62 ± 2.58	29.81 ± 1.62	2.56 ± 1.77	23.78 ± 2.96
	40			0.92 ± 0.50	6.47 ± 0.78	0.61 ± 0.44	7.95 ± 0.42
	100			3.08 ± 1.40	5.31 ± 3.21	0.69 ± 1.05	18.69 ± 0.79
Green Island	Beach	1.51E+02	9.60E+01	1.17 ± 0.43	9.54 ± 0.81	0.03 ± 0.41	5.92 ± 1.78
07-12-90	3	6.40E+01	3.84E+01	0.87 ± 0.46	2.83 ± 0.94	0.03 ± 0.38	2.35 ± 1.28
Site #13	6			1.05 ± 0.46	8.51 ± 0.71	0.17 ± 0.40	9.13 ± 0.44
	20			1.10 ± 0.55	8.59 ± 0.81	0.08 ± 0.47	11.14 ± 0.43
	40	2.00E+04	8.13E+01	1.41 ± 0.72	6.18 ± 0.68	0.20 ± 0.50	10.91 ± 0.17
	100	6.62E+02	3.75E+02	0.93 ± 0.72	1.43 ± 0.44	0.00 ± 0.00	9.64 ± 1.72
MacLeod Hbr.	Beach	3.45E+01	4.14E+01	0.58 ± 0.39	4.82 ± 0.78	0.00 ± 0.00	0.00 ± 0.00
07-16-90	3	1.38E+02		0.24 ± 0.37	6.01 ± 0.34	0.29 ± 0.41	0.00 ± 0.00
Site #14	6	2.70E+02	7.10E+01	0.26 ± 0.43	7.63 ± 0.29	0.00 ± 0.00	1.64 ± 1.33
	20	1.10E+02	6.90E+01	0.12 ± 0.40	4.60 ± 0.41	0.28 ± 0.46	1.64 ± 1.33
	40	1.41E+02		0.33 ± 0.44	8.02 ± 0.55	0.00 ± 0.00	7.20 ± 1.24
	100	0.00E+00		0.11 ± 0.40	3.41 ± 1.05	0.18 ± 0.44	3.19 ± 1.73
Mooselips	Beach	0.00E+00		0.42 ± 0.39	8.75 ± 0.93	0.00 ± 0.00	0.04 ± 0.10
Bay	3	6.85E+01		0.95 ± 0.48	5.58 ± 1.56	1.27 ± 0.61	1.17 ± 1.00
07-17-90	6	1.38E+01		0.30 ± 0.41	5.21 ± 1.23	0.00 ± 0.00	0.17 ± 0.12
Site #15	20	2.77E+01		2.73 ± 1.72	3.99 ± 0.79	0.27 ± 0.43	4.45 ± 1.47
	40	1.48E+02		0.64 ± 0.60	1.40 ± 0.59	0.24 ± 0.48	4.58 ± 1.73
	100						
Snug Harbor	Beach	4.60E+04	3.42E+04	10.54 ± 0.88	7.96 ± 0.59	0.00 ± 0.35	4.69 ± 0.31
07-18-90	3	5.05E+02	4.40E+02	1.34 ± 0.42	8.41 ± 0.60	0.00 ± 0.00	0.31 ± 0.16
Site #16	6	7.23E+02	8.54E+02	2.21 ± 0.90	9.48 ± 1.02	0.00 ± 0.00	6.30 ± 0.73
	20	1.11E+04	1.11E+04	6.01 ± 2.03	11.04 ± 0.65	0.29 ± 0.43	8.87 ± 0.48
	40	8.14E+03	3.02E+03	0.00 ± 0.00	0.00 ± 0.00	2.02 ± 1.53	0.07 ± 0.18
	100	1.84E+04	1.89E+04	0.11 ± 0.69	9.90 ± 1.99	0.08 ± 0.70	11.50 ± 1.98
Chenega	Beach	1.09E+04	6.90E+03	2.71 ± 1.03	5.96 ± 0.48	0.00 ± 0.00	5.43 ± 0.56
07-19-90	3	5.79E+02	0.00E+00	2.90 ± 0.68	6.14 ± 0.63	0.48 ± 0.55	0.04 ± 0.12
Site #17	6	3.98E+02	0.00E+00	1.84 ± 0.58	9.04 ± 0.40	1.85 ± 0.85	0.00 ± 0.00
	20	1.30E+02	6.11E+01	0.57 ± 0.42	7.92 ± 0.45	0.00 ± 0.00	0.00 ± 0.00
	40	1.06E+02	9.30E+01	0.17 ± 0.39	4.63 ± 1.03	0.08 ± 0.52	2.38 ± 1.14
	100	1.73E+02	2.22E+02	0.00 ± 0.00	1.77 ± 0.45	0.00 ± 0.00	0.16 ± 0.19
L. Herring	Beach	8.12E+02	7.60E+02	3.65 ± 0.88	9.24 ± 0.48	0.01 ± 0.50	1.52 ± 1.16
Bay	3	5.18E+01	2.20E+01	1.06 ± 0.51	6.16 ± 0.87	0.19 ± 0.51	0.00 ± 0.00
07-20-90	6	7.87E+00	1.36E+01	1.80 ± 0.87	7.12 ± 0.81	0.00 ± 0.00	0.08 ± 0.12
Site #18	20	1.58E+02	1.25E+02	1.45 ± 1.01	5.89 ± 1.28	0.16 ± 0.52	0.18 ± 0.20
	40	3.07E+02	4.32E+02	0.19 ± 0.48	6.16 ± 0.57	0.00 ± 0.00	6.32 ± 1.70
	100	9.64E+02	4.53E+02	0.56 ± 0.77	6.42 ± 1.22	0.30 ± 1.01	5.24 ± 1.40
Drier Bay	Beach			1.96 ± 0.82	9.27 ± 1.67	0.29 ± 0.80	0.12 ± 0.21
07-21-90	3	4.16E+01	3.59E+01	1.12 ± 0.98	13.79 ± 2.56	0.33 ± 1.24	0.00 ± 0.00
Site #19	6	8.63E+01	1.08E+02	0.73 ± 0.60	14.98 ± 3.07	0.00 ± 0.00	0.24 ± 0.28
	20	4.68E+01	6.02E+01	0.32 ± 0.39	5.78 ± 1.53	0.29 ± 0.50	0.00 ± 0.00
	40	1.56E+03	2.63E+03	0.98 ± 0.67	11.27 ± 1.80	0.00 ± 0.00	0.36 ± 0.27
	100	1.16E+02	1.00E+02	0.20 ± 0.73	8.15 ± 1.50	0.44 ± 1.01	1.19 ± 0.88
Sleepy Bay	Beach	7.43E+03		5.66 ± 0.45	7.06 ± 0.49	0.00 ± 0.00	5.17 ± 0.25
07-22-90	3	1.72E+03	1.15E+03	11.68 ± 0.79	8.84 ± 0.32	0.79 ± 0.66	5.64 ± 0.57
Site #20	6	9.38E+04		10.74 ± 1.36	10.98 ± 0.40	0.12 ± 0.52	4.49 ± 1.10
	20	7.17E+03		1.67 ± 0.92	11.53 ± 0.36	0.67 ± 0.68	8.99 ± 0.40
	40	3.78E+02	1.24E+02	0.02 ± 0.40	7.28 ± 1.92	0.00 ± 0.00	5.78 ± 1.42
	100	3.31E+02	2.31E+02	0.13 ± 0.49	1.19 ± 0.95	0.57 ± 0.75	2.79 ± 1.51

R/V Davidson June 27–August 5, 1990

Data Summary

	Depth (m)	MPN (cells/g dry wt.) Mean	MPN (cells/g dry wt.) Std. dev.	Hexadecane ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Hexadecane ORP Day 4 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 8 ug/g dry wt.–day (@95% conf. level)
Fox Farm	Beach	3.39E+02		1.44 ± 0.46	6.23 ± 0.53	0.10 ± 0.47	4.45 ± 0.81
07-23-90	3	5.32E+02	3.60E+02	0.32 ± 0.35	3.53 ± 0.29	0.42 ± 0.52	3.35 ± 0.98
Site #21	6	3.49E+02	2.65E+02	0.40 ± 0.39	4.56 ± 0.56	0.20 ± 0.52	6.45 ± 1.21
	20	2.25E+03		0.26 ± 0.38	1.85 ± 0.37	0.65 ± 0.58	8.23 ± 0.31
	40	1.43E+03		0.21 ± 0.41	4.26 ± 1.10	0.10 ± 0.53	6.16 ± 0.83
	100	1.61E+02	2.35E+02	0.26 ± 0.39	1.90 ± 0.49	0.13 ± 0.51	6.54 ± 1.14
Sunny Cove	Beach	4.21E+01	7.17E+01	0.90 ± 0.39	8.56 ± 0.70	1.52 ± 0.59	0.08 ± 0.11
07-24-90	3	0.00E+00	0.00E+00	0.42 ± 0.40	2.62 ± 0.83	0.88 ± 0.54	0.06 ± 0.12
Site #22	6	0.00E+00	0.00E+00	0.24 ± 0.35	0.44 ± 0.18	0.16 ± 0.46	0.15 ± 0.12
	20	1.25E+01		0.27 ± 0.38	2.80 ± 0.64	0.19 ± 0.50	1.87 ± 1.10
	40	2.13E+02	3.69E+02	0.11 ± 0.38	0.88 ± 0.24	0.04 ± 0.51	1.78 ± 1.39
	100	1.83E+01	1.62E+01	0.07 ± 0.41	1.46 ± 0.82	0.30 ± 0.58	5.86 ± 1.60
Agnes Cove	Beach	8.79E+01	1.10E+01	0.56 ± 0.34	4.34 ± 0.57	1.86 ± 1.66	4.03 ± 1.01
07-25-90	3	1.05E+03	1.58E+03	4.86 ± 2.30	9.23 ± 0.49	0.17 ± 0.49	5.08 ± 0.34
Site #23	6	1.09E+02	1.24E+02	0.12 ± 0.37	4.81 ± 1.17	0.08 ± 0.49	6.05 ± 1.38
	20	5.56E+02		0.68 ± 1.37	21.20 ± 4.22	1.35 ± 1.97	30.60 ± 1.42
	40	3.50E+01	0.00E+00	0.03 ± 0.51	1.36 ± 0.56	0.00 ± 0.00	0.38 ± 0.30
	100	1.20E+01	2.08E+01	0.04 ± 0.53	0.78 ± 0.40	0.04 ± 0.71	6.73 ± 1.83
Black Bay	Beach	0.00E+00	0.00E+00	0.09 ± 0.30	1.13 ± 0.57	0.09 ± 0.40	0.02 ± 0.10
07-26-90	3						
Site #24	6	2.64E+01	2.64E+01	0.46 ± 0.39	2.87 ± 0.49	0.09 ± 0.52	0.02 ± 0.13
	20	1.97E+02	2.94E+02	0.20 ± 0.39	2.69 ± 0.65	0.60 ± 0.54	0.00 ± 0.13
	40	3.69E+02	3.72E+02	0.13 ± 0.45	2.93 ± 1.40	0.00 ± 0.00	0.05 ± 0.18
	100	2.52E+02	3.86E+02	0.14 ± 0.49	1.55 ± 0.89	0.66 ± 0.70	6.67 ± 1.88
Chugach	Beach	3.51E+02		2.98 ± 0.59	5.47 ± 0.57	0.09 ± 0.42	2.13 ± 1.01
07-30-90	3	5.16E+02	4.35E+02	0.62 ± 0.36	6.44 ± 0.54	1.18 ± 0.77	4.20 ± 0.94
Site #25	6	1.24E+02		1.07 ± 0.45	7.72 ± 1.16	0.21 ± 0.52	6.50 ± 0.94
	20	2.53E+03		1.22 ± 0.58	10.16 ± 0.54	0.40 ± 0.62	11.04 ± 0.17
	40	2.29E+01	3.98E+01	0.09 ± 0.41	2.74 ± 0.98	0.00 ± 0.00	8.58 ± 0.27
	100	2.98E+01	5.15E+01	0.33 ± 0.53	3.12 ± 0.54	0.29 ± 0.70	11.61 ± 0.49
Tonsina Bay	Beach	2.44E+01	2.84E+01	0.00 ± 0.00	1.18 ± 0.41	0.12 ± 0.41	0.00 ± 0.00
07-31-90	3	1.64E+02	1.71E+02	0.10 ± 0.32	3.61 ± 0.53	0.00 ± 0.00	4.98 ± 1.04
Site #26	6	1.67E+01	3.24E+01	0.00 ± 0.00	2.66 ± 0.64	0.00 ± 0.00	3.13 ± 1.17
	20	3.20E+02	2.89E+02	0.32 ± 0.38	3.96 ± 0.93	0.62 ± 0.54	10.17 ± 1.32
	40			0.25 ± 0.50	2.96 ± 0.62	0.66 ± 0.72	9.90 ± 0.34
	100			0.24 ± 0.53	2.11 ± 0.71	0.30 ± 0.70	9.22 ± 0.69
Katmai Bay	Beach			4.32 ± 1.19	11.97 ± 0.51	0.00 ± 0.00	8.54 ± 0.91
08-03-90	3			0.36 ± 0.36	6.29 ± 0.51	0.28 ± 0.51	0.00 ± 0.00
Site #29	6			0.47 ± 0.40	7.23 ± 0.78	0.00 ± 0.00	2.64 ± 1.51
	20			0.36 ± 0.47	7.19 ± 1.32	0.21 ± 0.64	11.01 ± 0.23
	40			0.27 ± 0.58	4.32 ± 2.06	0.51 ± 0.90	7.10 ± 1.36
	100			0.09 ± 0.55	0.58 ± 0.34	0.00 ± 0.00	4.06 ± 2.18
Hallo Bay	Beach	7.64E+00	1.32E+01	3.81 ± 1.22	7.38 ± 0.51	0.00 ± 0.00	4.71 ± 1.35
08-05-90	3	8.37E+00	1.44E+01	4.66 ± 1.59	6.98 ± 1.12	0.11 ± 0.50	8.53 ± 0.18
Site #28	6			2.21 ± 0.65	7.69 ± 0.87	0.19 ± 0.53	7.87 ± 0.81
	20			0.55 ± 0.41	4.67 ± 1.41	0.26 ± 0.52	4.50 ± 1.29
	40			3.72 ± 1.06	10.47 ± 1.11	0.00 ± 0.00	9.59 ± 0.26
	100			0.62 ± 0.53	3.49 ± 0.97	0.79 ± 0.74	8.77 ± 1.87
Windy Bay	Beach			1.31 ± 0.51	3.81 ± 0.75	2.36 ± 1.30	0.66 ± 0.66
08-05-90	3			1.92 ± 0.64	7.52 ± 0.41	0.02 ± 0.49	3.75 ± 1.23
Site #27	6			3.43 ± 0.70	9.72 ± 0.46	1.16 ± 0.93	5.82 ± 1.37
	20			1.16 ± 0.71	8.52 ± 1.16	6.02 ± 3.03	6.47 ± 1.46
	40						
	100			0.32 ± 0.44	0.81 ± 0.42	5.69 ± 2.96	2.93 ± 1.03

R/V John N. Cobb September 5–September 15, 1990

Data Summary

	Depth (m)	MPN (cells/g dry wt.) Mean	MPN (cells/g dry wt.) Std. dev.	Hexadecane ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Hexadecane ORP Day 4 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 8 ug/g dry wt.–day (@95% conf. level)
Olsen Bay	Beach	4.34E+01	1.88E+01	13.85 ± 2.30	12.72 ± 1.47	0.00 ± 0.00	0.47 ± 0.41
9–5–90	3	2.63E+02	4.29E+02	3.45 ± 1.75	8.72 ± 1.03	0.42 ± 1.00	0.00 ± 0.00
Site #1	6	1.63E+02	2.82E+02	9.31 ± 1.55	16.55 ± 0.91	0.00 ± 0.00	0.00 ± 0.00
	20	1.99E+02	1.83E+02	9.90 ± 2.08	14.07 ± 0.62	0.00 ± 0.00	2.59 ± 1.79
Port Fidalgo	Beach	3.85E+01	1.33E+01	0.63 ± 0.37	7.20 ± 0.35	0.16 ± 0.67	0.17 ± 0.18
9–5–90	3	0.00E+00	0.00E+00	7.68 ± 1.32	10.02 ± 0.86	0.63 ± 1.07	0.00 ± 0.00
Site #2	6	1.80E+01	1.56E+01	6.37 ± 2.58	9.55 ± 0.47	0.37 ± 1.01	1.10 ± 1.35
	20	9.01E+00	1.56E+01	0.34 ± 0.45	6.07 ± 1.94	0.71 ± 0.97	0.00 ± 0.00
West Bay	Beach	1.03E+02	5.71E+01	5.31 ± 0.78	7.96 ± 0.57	0.00 ± 0.00	0.09 ± 0.18
9–5–90	3	0.00E+00	0.00E+00	0.83 ± 0.47	4.48 ± 0.80	0.49 ± 0.80	0.09 ± 0.25
Site #3	6	8.28E+00	1.43E+01	0.81 ± 0.47	4.92 ± 1.10	0.00 ± 0.00	0.00 ± 0.18
	20	0.00E+00	0.00E+00	0.50 ± 0.66	7.62 ± 0.88	2.79 ± 3.60	3.45 ± 2.34
N.W. Bay	Beach	4.79E+05	4.34E+05	15.66 ± 0.84	9.44 ± 0.85	2.17 ± 1.18	5.46 ± 0.60
9–6–90	3	1.62E+03		13.03 ± 2.34	11.58 ± 0.67	4.81 ± 5.05	7.54 ± 0.51
Site #4	6	1.77E+04	1.11E+04	10.19 ± 4.70	14.49 ± 1.35	0.74 ± 1.14	7.15 ± 1.96
	20	2.38E+03	9.67E+02	4.70 ± 2.07	11.67 ± 0.64	0.81 ± 1.05	8.18 ± 0.78
Disk Island	Beach	1.79E+02	1.16E+02	7.16 ± 0.76	9.78 ± 0.45	0.00 ± 0.00	6.77 ± 1.42
9–6–90	3	3.39E+02	2.27E+02	2.03 ± 0.48	7.40 ± 0.62	0.65 ± 0.85	6.48 ± 0.33
Site #5	6	5.80E+02	4.08E+02	2.76 ± 0.81	9.86 ± 0.82	0.00 ± 0.00	6.90 ± 0.62
	20	2.29E+03	1.47E+03	2.64 ± 1.64	8.83 ± 0.84	0.58 ± 1.07	6.81 ± 0.32
Herring Bay	Beach	7.55E+02	6.31E+02	6.72 ± 2.09	10.20 ± 0.76	0.00 ± 0.00	5.81 ± 0.92
9–7–90	3	1.53E+03	8.50E+02	9.45 ± 2.09	10.99 ± 1.03	1.36 ± 1.75	8.78 ± 0.60
Site #6	6	2.91E+02	4.50E+01	1.17 ± 0.66	9.45 ± 1.49	0.57 ± 1.20	8.54 ± 1.63
	20	5.98E+02	4.24E+02	3.58 ± 3.27	8.49 ± 1.15	0.02 ± 0.92	8.57 ± 1.01
Drier Bay	6	1.89E+02	2.01E+02	0.93 ± 0.77	22.28 ± 12.96	0.11 ± 1.44	10.43 ± 2.79
9–8–90							
Site #7							
Chenega Island	Beach	7.61E+01	7.13E+01	0.16 ± 0.34	5.58 ± 1.74	0.56 ± 0.92	0.08 ± 0.18
9–9–90	3	2.50E+02	7.14E+01	0.53 ± 0.41	5.74 ± 1.07	0.08 ± 0.74	0.00 ± 0.00
Site #8	6	2.99E+02	2.28E+02	0.31 ± 0.37	4.21 ± 1.19	0.00 ± 0.00	0.82 ± 0.99
	20	5.90E+01	5.15E+01	1.15 ± 0.51	7.44 ± 0.38	0.27 ± 0.83	4.09 ± 1.47
Iktua Bay	Beach	3.33E+01	1.44E+01				
9–10–90	6	3.36E+01	1.46E+01				
Site #9							
Fox Farm	Beach	5.50E+02	7.35E+02	2.70 ± 1.23	9.32 ± 1.07	0.00 ± 0.00	7.73 ± 0.50
9–10–90	3	9.43E+01	4.77E+01	0.00 ± 0.31	0.09 ± 0.20	0.14 ± 0.66	0.00 ± 0.00
Site #10	6	4.38E+02	1.38E+02	0.22 ± 0.38	3.99 ± 1.63	0.00 ± 0.00	5.12 ± 1.55
	20	9.00E+01	4.12E+01	0.22 ± 0.37	5.49 ± 1.75	5.94 ± 6.52	5.71 ± 1.61
MacLeod Harbor	Beach	5.60E+01	5.82E+01	1.40 ± 0.51	7.20 ± 0.99	0.31 ± 0.68	0.05 ± 0.17
9–11–90	3	9.11E+01	3.15E+01	1.51 ± 1.16	4.92 ± 1.48	0.27 ± 0.84	0.01 ± 0.21
Site #11	6	2.77E+01	2.77E+01	0.81 ± 0.66	6.60 ± 1.16	0.00 ± 0.00	0.20 ± 0.36
	20	7.74E+01	1.10E+02	0.46 ± 0.49	7.20 ± 1.60	0.23 ± 1.00	4.24 ± 2.15
Sleepy Bay	Beach	5.75E+02	3.81E+02	9.93 ± 3.84	12.13 ± 1.33	0.00 ± 0.00	7.26 ± 1.30
9–11–90	3	2.13E+03	7.02E+02	13.29 ± 3.46	11.52 ± 0.75	0.79 ± 0.87	8.29 ± 0.38
site #12	6	1.17E+03	9.67E+02	8.99 ± 2.75	10.70 ± 1.08	0.96 ± 0.82	8.25 ± 0.50
	20	5.17E+02	2.06E+02	13.10 ± 3.75	10.46 ± 1.19	2.89 ± 1.00	8.82 ± 0.58
Snug Harbor	Beach	1.47E+02	1.87E+02	1.05 ± 0.74	6.66 ± 1.74	0.78 ± 1.22	6.70 ± 0.80
9–12–90	3	1.89E+01	1.47E+01	3.46 ± 1.04	7.77 ± 1.99	0.00 ± 0.00	1.95 ± 1.81
Site #13	6	5.98E+01	3.91E+01	5.68 ± 1.61	7.87 ± 2.20	5.70 ± 8.19	6.43 ± 1.93
	20	3.30E+02	3.31E+02	8.70 ± 2.37	10.67 ± 1.05	1.15 ± 1.26	7.02 ± 0.97
Snug Harbor	0	1.76E+02	2.15E+02	3.39 ± 1.12	8.98 ± 0.42	0.00 ± 0.00	5.75 ± 1.80
9–12–90	6	2.48E+02	1.59E+02	3.01 ± 1.48	6.85 ± 1.95	0.00 ± 0.00	8.19 ± 0.69
Site #14							
Block Island	Beach	1.52E+03	1.30E+03	2.20 ± 1.09	7.08 ± 0.63	0.00 ± 0.00	4.61 ± 1.19
9–13–90	3	7.13E+03	4.08E+03	2.30 ± 1.35	11.12 ± 0.52	1.34 ± 1.05	8.34 ± 0.46
Site #15	6	4.42E+03	2.84E+03	5.01 ± 2.12	11.67 ± 0.77	0.13 ± 0.95	9.90 ± 0.55
	20	8.76E+02	6.89E+02	1.78 ± 1.13	12.78 ± 0.98	2.53 ± 2.33	11.41 ± 0.51
N.E. Knight	Beach	1.63E+01	1.41E+01	4.77 ± 2.60	8.82 ± 0.65	0.62 ± 0.85	7.17 ± 0.33
Island	3	3.35E+01	1.45E+01	2.39 ± 1.34	8.11 ± 0.48	0.75 ± 0.91	6.50 ± 0.71
9–13–90	6	1.61E+02	2.60E+02	0.15 ± 0.37	4.49 ± 1.55	0.50 ± 0.81	3.38 ± 1.53
Site #16	20	1.16E+02	7.96E+01	0.66 ± 0.59	4.88 ± 1.53	1.18 ± 1.05	7.29 ± 0.32

R/V John N. Cobb September 5–September 15, 1990

Data Summary

	Depth (m)	MPN (cells/g dry wt.) Mean	MPN (cells/g dry wt.) Std. dev.	Hexadecane ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Hexadecane ORP Day 4 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Day 6 ug/g dry wt.–day (@95% conf. level)
Green Island	Beach	5.74E+01	3.33E+01	0.62 ± 0.53	7.85 ± 0.66	0.00 ± 0.00	8.10 ± 0.44
9–14–90	3	8.45E+01	7.43E+01	1.36 ± 0.75	8.94 ± 0.47	0.44 ± 0.81	7.66 ± 0.39
Site #17	6	6.80E+01	2.95E+01	0.26 ± 0.44	5.67 ± 0.46	0.00 ± 0.00	7.40 ± 0.46
	20	1.04E+02	5.22E+01	0.18 ± 0.45	3.43 ± 1.53	1.10 ± 1.09	8.53 ± 0.62
Bay of Isles	Beach	2.14E+04	0.00E+00	20.50 ± 1.51	12.96 ± 0.54	0.12 ± 0.73	5.83 ± 0.88
9–15–90	3	7.65E+02	4.38E+02	13.98 ± 3.55	12.88 ± 0.88	0.43 ± 0.86	7.80 ± 0.39
Site #18	6	1.15E+03	1.34E+03	16.67 ± 3.38	14.20 ± 1.29	0.25 ± 0.91	8.27 ± 0.66
	20	2.20E+03	1.28E+03	19.70 ± 1.44	13.48 ± 1.45	2.14 ± 1.25	8.61 ± 1.07
Bay of Isles	6	2.19E+02	1.32E+02	5.06 ± 1.46	10.86 ± 0.40	0.00 ± 0.00	7.09 ± 0.56
9–15–90							
Site #19							

F/V Big Valley June 15–June 25, 1991

Data Summary

	Depth (m)	MPN (cells/g dry wt.) Mean	MPN (cells/g dry wt.) Std. Dev.	Hexadecane ORP Day 2 ug/g dry wt.–day (@95% conf. level)	Hexadecane ORP Day 4 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Data Day 2 ug/g dry wt.–day (@95% conf. level)	Phenanthrene ORP Data Day 8 ug/g dry wt.–day (@95% conf. level)
Northwest Bay	Beach	1.09E+03	1.17E+03	0.35 ± 0.07	5.51 ± 1.49	0.13 ± 0.05	6.00 ± 0.33
6–15–91	3	1.59E+03	7.69E+01	0.45 ± 0.10	5.47 ± 0.88	0.04 ± 0.04	8.39 ± 1.12
Site #1	6	3.04E+02	2.39E+02	0.40 ± 0.13	2.14 ± 0.64	0.08 ± 0.07	6.92 ± 0.48
	20	2.94E+02	1.17E+02	0.29 ± 0.07	4.32 ± 1.34	0.12 ± 0.05	9.63 ± 0.41
	40	3.13E+01	1.36E+01	0.27 ± 0.06	1.95 ± 0.56	0.07 ± 0.05	8.35 ± 9.73
	100	3.89E+00	6.73E+00	0.12 ± 0.06	0.13 ± 0.04	0.32 ± 0.32	0.52 ± 0.52
Disk Island	Beach	8.22E+01	9.85E+01	0.15 ± 0.03	0.54 ± 0.22	0.64 ± 0.49	0.34 ± 0.15
6–16–91	3	5.14E+01		0.10 ± 0.05	0.34 ± 0.12	0.03 ± 0.04	0.03 ± 0.02
Site #2	6	1.40E+02	9.92E+01	0.23 ± 0.05	0.62 ± 0.14	0.05 ± 0.04	7.87 ± 0.54
	20	2.86E+02	1.40E+02	0.27 ± 0.04	1.14 ± 0.25	0.08 ± 0.05	7.23 ± 0.59
	40	1.01E+01	1.01E+01	0.30 ± 0.08	0.41 ± 0.10	0.12 ± 0.10	3.72 ± 1.69
	100	1.79E+01	1.64E+01	0.15 ± 0.06	0.08 ± 0.03	0.14 ± 0.08	0.08 ± 0.05
Block Island	Beach	1.63E+03	1.01E+03	0.07 ± 0.03	0.39 ± 0.22	0.01 ± 0.03	0.00 ± 0.00
6–17–91	3	2.94E+02	2.24E+02	0.49 ± 0.13	8.44 ± 0.60	0.11 ± 0.12	9.20 ± 0.47
Site #3	6	2.86E+02	2.27E+02	0.35 ± 0.09	2.42 ± 0.57	0.12 ± 0.10	7.51 ± 0.49
	20	7.79E+01	2.75E+01	0.37 ± 0.08	4.69 ± 0.67	0.11 ± 0.07	12.36 ± 0.51
	40	7.64E+01	8.45E+01	0.15 ± 0.07	0.31 ± 0.13	0.13 ± 0.12	3.87 ± 1.96
	100	<2.00E+01	<2.00E+01	0.19 ± 0.07	0.22 ± 0.06	0.47 ± 0.40	4.30 ± 2.21
Herring Bay	Beach	4.32E+02	4.59E+02	0.28 ± 0.04	7.08 ± 0.45	0.07 ± 0.04	3.12 ± 1.34
6–17–91	3	6.43E+02	8.92E+02	0.17 ± 0.04	2.47 ± 0.54	0.05 ± 0.05	0.11 ± 0.06
Site #4	6	4.81E+01	2.60E+01	0.52 ± 0.15	3.72 ± 0.77	0.05 ± 0.05	8.12 ± 1.15
	20	5.86E+01	5.86E+01	0.28 ± 0.09	1.32 ± 0.67	0.10 ± 0.08	5.36 ± 1.26
	40	1.09E+02	5.65E+01	0.20 ± 0.05	0.71 ± 0.35	0.16 ± 0.13	0.90 ± 0.72
	100	2.91E+01	3.42E+01	0.22 ± 0.06	0.34 ± 0.06	0.18 ± 0.11	2.98 ± 1.99
	140	1.11E+01	1.93E+01	0.30 ± 0.07	0.21 ± 0.05	0.20 ± 0.08	0.12 ± 0.08
Lower Herring Bay	Beach	2.03E+01	1.76E+01	0.21 ± 0.04	0.17 ± 0.03	0.06 ± 0.04	0.00 ± 0.00
6–18–91	3	<2.00E+01	<2.00E+01	0.16 ± 0.03	0.13 ± 0.02	0.01 ± 0.04	0.00 ± 0.00
Site #5	6	2.01E+01	8.69E+00	0.19 ± 0.04	0.28 ± 0.05	0.02 ± 0.04	0.01 ± 0.01
	20	1.25E+01	1.25E+01	0.23 ± 0.05	0.40 ± 0.06	0.01 ± 0.05	0.01 ± 0.01
	40	<2.00E+01	<2.00E+01	0.19 ± 0.05	0.16 ± 0.03	0.02 ± 0.05	0.16 ± 0.19
	100	1.28E+01	2.22E+01	0.32 ± 0.09	0.27 ± 0.05	0.04 ± 0.08	0.02 ± 0.02
Chenega Island	Beach	1.22E+02	8.34E+01	0.14 ± 0.03	0.81 ± 0.30	0.03 ± 0.04	0.01 ± 0.01
6–19–91	3	2.13E+01	9.20E+00	0.10 ± 0.03	0.15 ± 0.03	0.00 ± 0.00	0.02 ± 0.02
Site #6	6	1.07E+01	9.24E+00	0.12 ± 0.03	0.12 ± 0.02	0.01 ± 0.04	0.01 ± 0.01
	20	5.13E+00	8.89E+00	0.10 ± 0.04	0.17 ± 0.04	0.01 ± 0.04	0.19 ± 0.17
	40	7.20E+00	6.24E+00	0.06 ± 0.05	0.07 ± 0.02	0.03 ± 0.05	0.01 ± 0.01
	100	3.87E+00	6.70E+00	0.05 ± 0.04	0.04 ± 0.03	0.01 ± 0.05	0.01 ± 0.01
	140	<2.00E+01	<2.00E+01	0.09 ± 0.04	0.08 ± 0.02	0.07 ± 0.05	0.02 ± 0.01
Drier Bay	Beach	2.48E+01		0.19 ± 0.05	0.40 ± 0.17	0.05 ± 0.03	0.01 ± 0.01
6–20–91	3	1.09E+01	9.43E+00	0.16 ± 0.03	0.18 ± 0.02	0.01 ± 0.03	0.01 ± 0.01
Site #7	6	9.00E+01		0.18 ± 0.04	0.30 ± 0.14	0.01 ± 0.04	0.00 ± 0.00
	20	1.48E+01	1.48E+01	0.21 ± 0.04	0.68 ± 0.43	0.02 ± 0.04	0.00 ± 0.00
	40	<2.00E+01	<2.00E+01	0.18 ± 0.05	0.15 ± 0.02	0.04 ± 0.06	0.06 ± 0.06
	100	<2.00E+01	<2.00E+01	0.44 ± 0.12	0.36 ± 0.06	0.07 ± 0.12	0.02 ± 0.03
Sleepy Bay	Beach	1.04E+02	3.97E+01	0.03 ± 0.03	0.20 ± 0.06	0.01 ± 0.03	0.71 ± 0.50
6–20–91	3	1.36E+02	5.83E+01	0.09 ± 0.03	0.84 ± 0.44	0.00 ± 0.00	1.83 ± 0.61
Site #8	6	9.16E+01	3.50E+01	0.07 ± 0.04	0.13 ± 0.03	0.02 ± 0.04	1.13 ± 0.94
	20	6.70E+01	5.96E+01	0.22 ± 0.04	3.33 ± 0.88	0.10 ± 0.09	6.17 ± 1.59
	40	9.96E+00	8.63E+00	0.09 ± 0.04	0.09 ± 0.02	0.07 ± 0.05	1.07 ± 0.83
	100	<2.00E+01	<2.00E+01	0.18 ± 0.05	0.08 ± 0.03	0.07 ± 0.05	0.01 ± 0.01
MacLeod Harbor	Beach	2.59E+01	3.11E+01	0.21 ± 0.03	0.36 ± 0.07	0.03 ± 0.03	0.01 ± 0.01
6–21–91	3	4.87E+00	8.43E+00	0.23 ± 0.04	0.79 ± 0.25	0.02 ± 0.04	0.01 ± 0.01
Site #9	6	1.33E+01		0.21 ± 0.04	0.48 ± 0.15	0.02 ± 0.04	0.01 ± 0.01
	20	5.80E+00		0.22 ± 0.05	0.29 ± 0.04	0.03 ± 0.05	0.01 ± 0.01
	40	3.61E+01	2.05E+01	0.16 ± 0.04	0.23 ± 0.02	0.03 ± 0.05	0.07 ± 0.05
	100	4.91E+00	8.51E+00	0.11 ± 0.04	0.36 ± 0.27	0.02 ± 0.04	0.01 ± 0.01

F/V Big Valley June 15–June 25, 1991

Data Summary

	Depth (m)	MPN (cells/g dry wt.) Mean	MPN (cells/g dry wt.) Std. Dev.	Hexadecane ORP Day 2 ug/g dry wt.–day (@95% cont. level)	Hexadecane ORP Day 4 ug/g dry wt.–day (@95% cont. level)	Phenanthrene ORP Data Day 2 ug/g dry wt.–day (@95% cont. level)	Phenanthrene ORP Data Day 8 ug/g dry wt.–day (@95% cont. level)
Snug Harbor	Beach	4.95E+00	8.58E+00	0.12 ± 0.04	2.70 ± 0.93	0.12 ± 0.06	0.14 ± 0.07
6–22–91	3	<2.00E+01	<2.00E+01	0.17 ± 0.04	1.84 ± 0.89	0.02 ± 0.04	0.09 ± 0.06
Site #10	6	<2.00E+01	<2.00E+01	0.17 ± 0.06	4.83 ± 1.01	0.02 ± 0.04	0.38 ± 0.21
	20	4.60E+01	3.11E+01	0.21 ± 0.06	2.59 ± 1.20	0.05 ± 0.05	0.05 ± 0.02
	40	<2.00E+01	<2.00E+01	0.18 ± 0.06	0.19 ± 0.04	0.05 ± 0.04	4.04 ± 1.65
	100	2.69E+00	4.65E+00	0.28 ± 0.07	0.24 ± 0.04	0.10 ± 0.08	3.91 ± 1.22
Bay of Isles	Beach	4.74E+01	3.98E+01	0.21 ± 0.04	1.07 ± 0.28	0.16 ± 0.10	4.41 ± 2.04
6–22–91	3	7.54E+01	9.04E+01	0.17 ± 0.04	0.70 ± 0.22	0.05 ± 0.04	5.63 ± 1.40
Site #11	6	5.62E+01	7.14E+01	0.13 ± 0.04	0.67 ± 0.50	0.05 ± 0.04	4.57 ± 1.36
	20	1.60E+00	1.39E+00	1.41 ± 0.24	2.17 ± 0.58	0.78 ± 0.50	31.90 ± 5.10
	40	1.08E+01	1.08E+01	0.92 ± 0.29	2.30 ± 1.08	0.40 ± 0.19	15.30 ± 1.46
	100	5.26E+00	9.11E+00	0.83 ± 0.12	1.24 ± 0.34	0.39 ± 0.18	8.71 ± 3.02
	140	<2.00E+01	<2.00E+01	0.16 ± 0.07	0.15 ± 0.04	0.12 ± 0.07	1.03 ± 0.88
Mooselios Bay	Beach	6.16E+00	1.07E+01	0.06 ± 0.03	0.12 ± 0.02	0.09 ± 0.07	0.01 ± 0.01
6–23–91	3	9.17E+01	8.05E+01	0.08 ± 0.03	0.51 ± 0.26	0.00 ± 0.00	0.01 ± 0.01
Site #12	6	<2.00E+01	<2.00E+01	0.10 ± 0.03	0.75 ± 0.51	0.00 ± 0.00	0.01 ± 0.01
	20	<2.00E+01	<2.00E+01	0.16 ± 0.05	0.25 ± 0.05	0.00 ± 0.00	0.07 ± 0.05
	40	<2.00E+01	<2.00E+01	0.13 ± 0.04	0.14 ± 0.02	0.01 ± 0.04	0.01 ± 0.01
	100	4.42E+00	7.66E+00	0.06 ± 0.04	0.07 ± 0.02	0.02 ± 0.04	0.01 ± 0.01
Rocky Bay	Beach	1.11E+01	9.58E+00	0.16 ± 0.03	1.78 ± 0.62	0.02 ± 0.03	0.01 ± 0.01
6–24–91	3	1.55E+01	1.55E+01	0.17 ± 0.04	3.89 ± 0.78	0.02 ± 0.04	0.04 ± 0.02
Site #13	6	2.01E+01	2.30E+01	0.20 ± 0.04	4.85 ± 0.83	0.02 ± 0.04	0.05 ± 0.02
	20	4.23E+01	1.67E+01	0.32 ± 0.06	3.77 ± 0.85	0.09 ± 0.07	0.09 ± 0.03
	40	4.33E+01	2.67E+01	0.34 ± 0.07	4.44 ± 1.00	0.09 ± 0.07	0.03 ± 0.02
	100	5.73E+00	4.97E+00	0.25 ± 0.07	2.87 ± 0.93	0.07 ± 0.07	0.03 ± 0.02
Zaikof Bay	Beach	<2.00E+01	<2.00E+01	0.36 ± 0.09	0.31 ± 0.05	0.03 ± 0.03	0.01 ± 0.01
6–25–91	3	<2.00E+01	<2.00E+01	0.34 ± 0.06	1.06 ± 0.39	0.06 ± 0.05	9.08 ± 2.44
Site #14	6	9.37E+00	8.12E+00	0.30 ± 0.05	1.51 ± 0.53	0.03 ± 0.04	0.09 ± 0.03
	20	3.08E+01	5.33E+01	0.25 ± 0.07	0.81 ± 0.42	0.11 ± 0.10	0.07 ± 0.04
	40	7.81E+00	6.77E+00	0.44 ± 0.10	1.34 ± 0.53	0.23 ± 0.19	0.61 ± 0.55
	100	2.71E+01	2.41E+01	0.31 ± 0.07	4.12 ± 1.14	0.15 ± 0.08	0.07 ± 0.03
Olsen Bay	Beach	4.85E+00	8.39E+00	0.31 ± 0.06	3.36 ± 0.66	0.08 ± 0.05	0.00 ± 0.00
6–25–91	3	4.87E+00	8.43E+00	0.33 ± 0.05	2.28 ± 1.52	0.04 ± 0.04	0.03 ± 0.01
Site #15	6	3.53E+00	5.12E+00	0.42 ± 0.06	1.18 ± 0.59	0.04 ± 0.06	0.01 ± 0.02
	20	5.58E+00	4.82E+00	0.45 ± 0.08	0.85 ± 0.45	0.06 ± 0.07	0.09 ± 0.10
	40	<2.00E+01	<2.00E+01	0.25 ± 0.06	1.50 ± 1.00	0.07 ± 0.08	0.01 ± 0.02
	100	<2.00E+01	<2.00E+01	0.32 ± 0.09	0.53 ± 0.17	0.11 ± 0.13	0.12 ± 0.12
Valdez Pos. Control	Beach	1.14E+05					