

Final Report

PUGET SOUND AMBIENT MONITORING PROGRAM 1990:
MARINE SEDIMENT MONITORING TASK

APPENDICES

Prepared for

Washington State Department of Ecology
Ambient Monitoring Section

by

Peter L. Striplin, Pamela J. Sparks-McConkey, Dale A. Davis, and
Fern A. Svendsen

Washington Department of Ecology
Environmental Investigations and Laboratory Services Program
Ambient Monitoring Section
Puget Sound Sediment Monitoring Unit
Olympia, Washington 98504-7710

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APPENDIX A
1990 CRUISE SUMMARY REPORT

CRUISE SUMMARY REPORT

WASHINGTON DEPARTMENT OF ECOLOGY
PUGET SOUND MARINE SEDIMENT MONITORING PROGRAM
Marine Sediment Chemistry and Benthic Infauna Survey
12 March - 30 March 1990

Sediment sampling for the Puget Sound Marine Sediment Monitoring Program occurred between 12 March and 30 March 1990. All sampling was performed in accordance with the Implementation Plan (Striplin, 1988), except as noted below.

Station locations are identified in Figure 1A and 1B. Actual station depths, latitude, longitude, and state plane coordinates are summarized in Table 1.

Details of the cruise are described in three appendices:

Appendix A - abstract of major cruise events, including participants, sailing times, stations visited, travel time between stations (Table A-1), and time on station (Table A-2).

Appendix B - number and types of samples collected.

Appendix C (bound separately) - field logsheets, precise station locations, illustrations of station positions, sampling times, and subsample aliquote information.

Sampling activities varied from the implementation plan in the following ways:

1. Monitoring began during the second week of March rather than the first week of March, but was completed in three weeks rather than four weeks (sampling occurred during 17 field days, each ranging from 10-19 hours in duration).
2. For benthic infauna samples, water overlying sediments was not removed with a suction device. Instead, upon opening the van Veen sampler, overlying water was allowed to slowly enter the upper section of the sieving stand. Sediments and water then entered the lower portion of the sieving stand that contained the sieve box. For chemistry samples, water overlying the sediments was removed using manual siphoning techniques, as planned.
3. The 2-cm layer of sediment for chemical samples was obtained using a stainless steel spatula, rather than the stainless steel "cookie cutter".

TABLE 1. DEPTH, LATITUDE, LONGITUDE, STATE PLANE COORDINATES, AND RADAR RANGES IDENTIFIED FOR 1990 SEDIMENT MONITORING STATIONS
 WASHINGTON DEPARTMENT OF ECOLOGY
 PUGET SOUND MARINE SEDIMENT MONITORING PROGRAM

Station No.	Depth Recorded in Field (m)	Charted Depth (m)	Latitude/Longitude	Degrees/Min/Sec	State Plane Coordinates	Variable Radar Ranges
1	25.0	22.5	48 59.45 N 122 51.70 W	48 59 27 122 51 42	1342721 1432552	1) 2.0nm to nearest shore on Kwomais Pt., 2) 2.7nm to nearest east shore north of Birch Pt.
3	224.6	223.2	48 52.16 N 122 58.69 W	48 52 10 122 58 42	1299280 1403137	1) 4.9nm to nearest shore N.W. of Patos Island, 2) 7.5nm to Pt Whitehome, 3) 6.5nm to nearest shore of Pt. Roberts.
4	26.0	24.0	48 41.09 N 122 32.17 W	48 41 06 122 32 10	1231167 1427330	1) 1.4nm to tip of Governors Pt., 2) 1.3nm to nearest East shore.
5	21.3	19.9	48 35.29 N 122 32.31 W	48 35 17 122 32 19	1193555 1506356	1) 2.7nm to nearest East shore of Vendovi Island, 2) 0.5nm to nearest shore of William Pt. (Samish Island).
8	21.0	21.1	48 07.96 N 123 26.84 W	48 07 58 123 26 50	1034464 1280217	1) 0.3nm to corner of pilings just South of green bouy at marina entrance, 2) 0.6nm to tip of dock due West at paper mill.
12	22.6	21.1	48 05.13 N 122 46.34 W	48 05 08 122 46 21	1011787 1444452	1) 27.5°C, 0.8nm to face of docks at pulp mill to West, 2) 190°C 1.0nm to tip of small dock, 3) 90°C, 1.2nm to dock at Walam Pt.
14	114.6	112.8	47 47.07 N 122 43.76 W	47 47 04 122 43 46	901666 1451870	1) 0.6nm to North edge of pt. on West shore to South of station, 2) 1.1nm to tip of dock at sub base, 3) 1.3nm to nearest East shore.
15	19.8	19.4	47 43.04 N 122 48.84 W	47 43 03 122 48 50	877851 1430398	1) 0.2nm to North tip of dock bearing 215°C, 2) 0.3nm to corner of shore bearing 65°C.
17	81.7	80.8	47 22.19 N 123 07.87 W	47 22 12 123 07 52	753606 1348108	1) 0.8nm to nearest shore of Ayres Pt., 2) 1.3nm to nearest shore point at Union, 3) 0.9nm to point at Pottlach.
18	20.0	19.1	48 15.35 N 122 37.41 W	48 15 21 122 37 25	1072887 1482514	1) 1.2nm to Blowers Bluff, 2) 0.8nm S.W of Forbes Pt.
19	123.4	121.5	48 06.03 N 122 28.28 W	48 06 02 122 28 17	1015278 1518183	1) 2.3nm to Mabama, 2) 1.6nm to South edge of Lowell Pt., 3) 0.8nm to South edge of East Pt.
20	12.7	10.3	48 10.38 N 122 27.39 W	48 10 23 122 27 23	1041635 1522505	1) 0.7nm to both points due West of station, 2) 1.3nm to Barnum Pt.
21	55.0	52.7	47 59.12 N 122 14.52 W	47 59 07 122 14 31	971905 1573322	1) 0.6nm to marker "4", 2) 0.9nm to S.W. corner of South pier.
22	22.5	20.2	47 57.35 N 122 17.14 W	47 57 21 122 17 08	973289 1574918	1) 0.1nm to shore (tide up to breakwater), 2) 0.4nm to tip of fuel dock.

TABLE 1. (continued)

Station No.	Depth Recorded in Field (m)	Charted Depth (m)	Latitude/ Longitude	Degrees/ Min/Sec	State Plane Coordinates	Variable Radar Ranges
26	269.4	267.9	47 51.05 N 122 27.40 W	47 51 03 122 27 24	924100 1519521	1) 2.0nm to nearest shore West, 2) 4.0nm to nearest shore of Scatchet Hd., 3) 3.7nm to nearest shore of Edwards Pt.
29	201.4	199.3	47 41.54 N 122 27.30 W	47 41 33 122 27 18	866343 1518498	1) 2.0nm to green bouy *1* off West Pt., 2) 2.0nm to nearest shore of Meadow Pt., 3) 2.1nm to nearest shore South of Pt. Monroe.
30	16.0	13.3	47 37.41 N 122 30.17 W	47 37 25 122 30 10	841515 1506096	1) 0.3nm to marker *4*, 2) 0.2nm to marker *5* off Wycoff, 3) 0.3nm to tip off Wycoff pier due South.
32	21.9	20.4	47 37.85 N 122 24.41 W	47 37 51 122 24 25	843563 1529788	1) 0.2nm to shore, 2) 2.2nm to green bouy *1* off West Pt., 3) 2.2nm to Duwamish Head marker *2*.
33	22.4	19.8	47 35.26 N 122 22.50 W	47 35 16 122 22 30	827672 1537290	None
34	8.4	6.6	47 32.79 N 122 39.79 W	47 32 47 122 39 47	814399 1465807	1) 0.2nm to North shore, 2) 0.8nm to nearest shore of Pt. Heron, 3) 0.1nm to mooring bouy A-12, 4) 0.5nm to nearest shore due West of Port Orchard and 0.5nm to radar ref. *1* on East shore.
35	13.5	11.3	47 36.81 N 122 41.88 W	47 36 49 122 41 53	839151 1457848	1) 0.4nm to nearest shore at point East of Chico Bay, 2) 0.5nm to North edge of point at Chico, 3) 0.5nm to nearest shore N. Chico.
38	201.3	198.7	47 25.72 N 122 23.50 W	47 25 43 122 23 30	769726 1531785	1) 1.8nm to North shore of Maury, 2) 1.6nm to Pt. Heyer, 3) 1.4nm to Three-Tree Pt. (Pt. Pully).
39	16.7	14.8	47 20.29 N 122 22.26 W	47 20 17 122 22 16	736583 1536089	1) 0.2nm to beach, 2) 2.6nm to Dash Pt.
40	11.7	9.4	47 15.70 N 122 26.15 W	47 15 42 122 26 09	709116 1519361	None
41	20.6	19.1	47 16.53 N 122 25.22 W	47 16 32 122 25 13	714086 1523346	1) 0.4nm to marker *1*.
43	22.9	19.8	47 17.89 N 122 44.46 W	47 17 53 122 44 28	724390 1443962	1) 0.2nm to large triangular marker, 2) 2.0nm to point due West of Mayo Cove.
44	20.7	19.5	47 09.67 N 122 40.27 W	47 09 40 122 40 16	673975 1459950	1) 0.3nm to North end of dock near Sandy Pt., 2) 0.6nm to tip of Sandy Pt., 3) 1.5nm to nearest shore of Ketron Island.
45	53.0	51.9	47 09.88 N 122 45.04 W	47 09 53 122 45 03	675847 1440162	1) 0.8nm to nearest shore of Treble Pt., 2) 0.8nm to pt. N. of Devils Hd., 3) 0.9nm to nearest shore N. of Amsterdam Bay.
47	22.6	19.5	47 14.00 N 122 50.91 W	47 14 00 122 50 55	701570 1416595	1) 0.3nm to nearest shore of Trudge Pt., 2) 1.0nm to S. end of McMicken Is., 3) 1.0nm to nearest E. shore N. of Whiteman Cove.

TABLE 1. (continued)

Station No.	Depth Recorded in Field (m)	Charted Depth (m)	Latitude/ Longitude	Degrees/ Min/Sec	State Plane Coordinates	Variable Radar Ranges
48	22.6	20.0	47 07.40 N 122 55.01 W	47 07 24 122 55 01	661981 1398397	1) 1.1nm to Dofflemeyer Pt., 2) 0.3nm to West shore.
49	7.2	4.7	47 04.86 N 122 54.77 W	47 04 52 122 54 46	646557 1398962	1) 0.5nm to notch in shore due East, 2) 0.3nm to green marker No. "5".
69	34.2	32.4	47 44.18 N 122 32.03 W	47 44 11 122 32 02	882841 1499486	1) 0.6nm to nearest West shore, 2) 0.7nm to dock due North, 3) 1.8nm to tip of point West of Point Monroe.
70	8.8	5.2	47 12.53 N 123 05.00 W	47 12 32 123 05 00	694482 1358017	1) 0.5nm to Munson Point.
71	8.5	6.1	48 30.58 N 122 35.11 W	48 30 35 122 35 07	1165268 1494302	1) Bearing 275°C, 0.5nm to Cap Sante Head, 2) 1.3nm to Southeast point (Guemes Island).
46R	23.0	19.8	47 07.87 N 122 46.81 W	47 07 52 122 46 49	663804 1432487	1) 2.0nm to nearest shore of Treble Pt., 2) 1.3nm to can bouy "3" Nisq. Delta, 3) 0.3nm to W. shore, 4) 0.5nm to nearest S. shore.
101R	5.1	2.1	47 13.97 N 123 03.08 W	47 13 58 123 03 05	702932 1366234	1) 0.5nm to nearest shore bearing 125°C, 2) 0.3nm to nearest shore bearing 30°C, 3) 0.3nm to nearest shore bearing 300°C.
102R	13.0	11.6	47 07.08 N 123 01.09 W	47 07 05 123 01 05	660844 1373176	1) 1.0nm to Burns Pt., 2) 0.4nm to nearest shore bearing 100°C.
103R	21.0	20.5	47 10.08 N 122 57.38 W	47 10 05 122 57 23	678588 1389089	1) 1.7nm to nearest shore (point) bearing 200°C, 2) 0.4nm to nearest East shore.
104R	9.9	7.0	47 05.80 N 122 58.40 W	47 05 48 122 58 24	652695 1384060	1) 0.4nm to point bearing 320°C, 2) 0.5nm to point bearing 230°C.
105R	17.5	14.0	47 08.07 N 122 56.70 W	47 08 04 122 56 42	666247 1391541	1) 1.0nm to point bearing 5°C, 2) 0.4nm to point bearing 290°C.
106R	14.0	11.2	47 05.85 N 122 55.30 W	47 05 51 122 55 18	652599 1396932	1) 0.5nm to maker "1" West of Olympia Shoal, 2) 0.4nm to nearest shore of Tykle Cove.
108R	22.2	18.9	47 08.87 N 122 53.97 W	47 08 52 122 53 58	670759 1403022	1) 0.5nm to Dofflemeyer Pt., 2) 0.1nm to Dover Pt., 3) 0.1nm to nearest shore.
109R	24.2	22.7	47 09.27 N 122 49.85 W	47 09 16 122 49 51	672678 1420159	1) 1.2nm to North edge of point bearing 170°C, 2) 0.2nm to East shore bearing 65°C.
110R	21.2	18.2	47 20.41 N 122 46.40 W	47 20 25 122 46 24	740013 1436413	1) 0.3nm to Rock Pt., 2) 0.7nm to nearest shore of Windy Bluff, 3) 0.6nm to Nothern tip of Reach Island.

TABLE 1. (continued)

Station No.	Depth Recorded in Field (m)	Charted Depth (m)	Latitude/Longitude	Degrees/Min/Sec	State Plane Coordinates	Variable Radar Ranges
111R	22.0	20.1	47 18.27 N 122 45.43 W	47 18 16 122 45 26	726834 1440032	1) 0.3nm to S. end of point bearing 20°C, 2) 1.5nm to nearest shore on stretch Is. bearing 270°C, 3) 2.1nm to Dougall Pt.
112R	22.6	19.4	47 06.17 N 122 42.30 N	47 06 10 122 42 18	652941 1450928	1) 0.8nm to nearest shore of Lyle Pt. on Anderson Is., 2) 1.4nm to nearest shore of Nisqually Head.
113R	24.4	23.8	47 16.53 N 122 35.67 W	47 16 32 122 35 40	715186 1480124	1) 0.2nm to nearest East and West shores, 2) 0.5nm to corner of bay, bearing 10°C.
114R	21.0	19.1	47 22.05 N 122 38.68 W	47 22 03 122 38 41	749046 1468559	1) 0.5nm to nearest N.W. shore, 2) 0.5nm to nearest East shore 3) 1.0nm to corner due South of Purdey.
115R	18.8	17.0	47 12.07 N 122 44.70 W	47 12 04 122 44 42	749839 1443721	1) 0.3nm to nearest shore bearing 110°C, 2) 0.2nm to nearest shore bearing 270°C, 3) 0.3nm to Mahnckes Pt., bearing 355°C.
116R	21.0	18.9	47 13.12 N 122 39.80 W	47 13 07 122 39 48	694886 1462459	1) 0.1nm to nearest shore on Gertrude Is., 2) 0.3nm to float off N.W. end of pier on McNeil Is.

nm = nautical miles

C = compass bearing in degrees

4. Internal labels for benthic infauna samples were prepared on waterproof paper using pencil rather than indelible ink.
5. A new volatile organics analysis (VOA) was collected at station 8 (not collected at station 8 in 1988).
6. Samples from stations 8, 21, and a standard reference material (SRM) labeled as station 66 were analyzed for resin acids and guaicol.
7. Three SRMs (stations 66, 67, and 68) were prepared by Dr. Joe Blazavich (EPA, Manchester Laboratory) and submitted to the chemistry laboratories for analysis.
8. Matrix spike and matrix spike duplicates (MS/MSD) were not taken at stations 32 and 38.

APPENDIX A

APPENDIX A

ABSTRACT OF EVENTS

Washinton Department of Ecology
Puget Sound Marine Sediment Monitoring Program
11 March - 30 March 1990

Sunday, 11 March Met the R/V Kittiwake at Shilshole Marina at 1400 to load sampling equipment and supplies. The sieve stand and van Veen sampler were made ready.

Monday, 12 March Departed from Shilshole Marina at 0755. The crew consisted of C. Eaton (Skipper), M. Dewey (), P. Striplin, C. Janzen, and D. Davis.

 Arrived at Station 29 at 0825. Decontaminated the van Veen sampler by washing the inside stainless steel surfaces with acetone and then with methelene chloride.

 Completed Stations 29, 26, 22, and 20 (in that order).

 Arrived and moored at Everett Marina at 2230.

Tuesday, 13 March Departed from Everett Marina at 0745 with the same crew as Monday.

 Completed Station 21 at 0915. Attempted to sample Station 19, but high winds and rough seas forced crew to stop sampling. Changed route to Station 69 in Port Madison, which is more protected. Completed Station 69.

 Arrived and moored at Poulsbo Marina at 1800.

Wednesday, 14 March

Departed from Poulsbo Marina at 0730 with the same crew as Tuesday.

Completed Stations 35 and 34.

Arrived at Manchester docks at 1820 to unload samples and drop off personnel.

Motored to Gig Harbor Marina for overnight moorage. Arrived at 2100.

Thursday, 15 March

Departed Gig Harbor Marina at 0725. Arrived at Totum Marina at 0830 to pick up C. Janzen and D. Davis (disembarked at Manchester), and A. Clingman (to replace M. Dewey).

Departed Totum Marina at 0900.

Completed Stations 40, 41, 113R, and 114R.

Arrived and moored at Steilacoom Marina at 2000. Met M. Dewey at marina to receive sample jars and decontamination chemicals.

Friday, 16 March

Departed Steilacoom Marina at 0730 with the same crew as Thursday.

Completed Stations 43, 116R, and 44.

Arrived and moored at Steilacoom Marina at 1730.

Saturday, 17 March

Departed Steilacoom Marina at 0800 with the same crew as Friday.

Completed Stations 112R, 115R, and 45.

Arrived and moored at Carlyon Beach Country Club Marina at 1700.

Sunday, 18 March

Departed Carlyon Beach Country Club Marina at 0745 with the same crew as Saturday.

Completed Stations 70 (old Station 50), 101R, 102R, and 103R.

Arrived and moored at Carlyon Beach Country Club Marina at 1825 and unloaded samples.

Monday, 19 March Rest day, no sampling done.

Tuesday, 20 March Departed Carlyon Beach Country Club Marina at 0800 with the same crew as Sunday.

Completed Stations 47, 110R, and 111R.

Arrived and moored at East Bay Marina at 1830.

Wednesday, 21 March Departed East Bay Marina at 0815 with the same crew as Tuesday.

Completed Stations 104R, 105R, 48, and 109R.

Arrived and moored at East Bay Marina at 1900.

Thursday, 22 March Departed East Bay Marina at 0815 with the same crew as Wednesday. John Dodge and Steve Bloom from the Olympian on board.

Completed Station 49 and then returned to East Bay Marina to drop off the reporters. Returned to sampling and completed Stations 106R, 108R, and 46R.

Arrived at Zittles Marina at 1800 for personnel and samples drop off. The boat was motored to Ruston Marina for overnight moorage.

Friday, 23 March Departed Ruston Marina at 0900 with the same crew as Thursday.

Had problems with sampler not closing because plates bolting grabs together were not aligned properly. Realigned plates and resumed sampling. Completed Stations 39 and 38.

Arrived and moored at Shilshole Marina at 2015.

Saturday, 24 March Rest day, no sampling done.

Sunday, 25 March Departed Shilshole Marina at 0930 with the same crew as Friday.

Completed Stations 32, 33, and 30.

Arrived and moored at Langley Marina at 2140.

Monday, 26 March

Departed Langley Marina at 0630 with the same crew as Sunday.

Completed Stations 19 and 18. Stopped at LaConner to pick up ice and groceries. Returned to sampling and completed Stations 71 and 4.

Arrived and moored at Bellingham Marina at 1930.

Tuesday, 27 March

Departed Bellingham Marina at 0630 with the same crew as Monday.

Completed Station 5. Began sampling Station 3, but seas became rough enough to warrant donning survival suits. Sampling difficult, but Station 3 completed, then went on to complete Station 1.

Arrived and moored at Blaine Marina at 2130. Unloaded samples and all personnel except the skipper.

Wednesday, 28 March

Rest day, no samples taken. Motored boat to Port Angeles Marina.

Thursday, 29 March

Departed Port Angeles Marina at 1045 with the same crew as Tuesday, except A. Clingman was replaced by D. Hallock.

Completed Stations 8 and 12.

Arrived and moored at Port Ludlow Marina at 1845.

Friday, 30 March

Departed Port Ludlow Marina at 0700 with the same crew as Thursday.

Completed Stations 14, 15, and 17.

Arrived at Alderbrook Inn docks at 1830. End of 1990 MSMT sampling cruise. Unloaded samples, equipment and supplies, and sampling personnel.

TABLE A-1. TRAVEL TIME BETWEEN 1990 SEDIMENT MONITORING STATIONS
 WASHINGTON DEPARTMENT OF ECOLOGY
 PUGET SOUND MARINE SEDIMENT MONITORING PROGRAM

Station A/Station B	Date	Travel Time Between Stations (hr:min)
Shilshole Marina/29	3/12/90	:30
29/26	3/12/90	1:00
26/22	3/12/90	1:15
22/20	3/12/90	1:50
20/Everett Marina	3/12/90	2:00
Everett Marina/21	3/13/90	:18
21/19	3/13/90	1:40
19/69	3/13/90	3:25
69/Poulsbo Marina	3/13/90	1:00
Poulsbo Marina/35	3/14/90	2:20
35/34	3/14/90	1:03
34/Manchester docks	3/14/90	1:15
Manchester docks/Gig Harbor	3/14/90	2:20
Gig Harbor/Totum Marina	3/15/90	1:05
Totum Marina/40	3/15/90	:30
40/41	3/15/90	:12
41/113R	3/15/90	:50
113R/114R	3/15/90	1:52
114R/Steilacoom Marina	3/15/90	1:30
Steilacoom Marina/43	3/16/90	1:25
43/116R	3/16/90	:50
116R/44	3/16/90	:45
44/Steilacoom Marina	3/16/90	:30
Steilacoom Marina/112R	3/17/90	1:00
112R/115R	3/17/90	1:14
115R/45	3/17/90	:35
45/Carlyon Beach Marina	3/17/90	1:32
Carlyon Beach Marina/70	3/18/90	1:10
70/101R	3/18/90	:15
101R/102R	3/18/90	1:55
102R/103R	3/18/90	:40
103R/Carlyon Beach Marina	3/18/90	:40
Carlyon Beach Marina/47	3/20/90	1:00
47/110R	3/20/90	1:05
110R/111R	3/20/90	:50
111R/East Bay Marina	3/20/90	2:00

TABLE A-1. (continued)

Station A/Station B	Date	Travel Time Between Stations (hr:min)
East Bay Marina/104R	3/21/90	1:25
104R/105R	3/21/90	:25
105R/48	3/21/90	:45
48/109R	3/21/90	1:06
109R/East Bay Marina	3/21/90	1:00
East Bay Marina/49	3/22/90	:15
49/106R	3/22/90	:33
106R/108R	3/22/90	1:02
108R/46R	3/22/90	1:02
46R/Zittles Marina	3/22/90	1:00
Ruston Marina/39	3/23/90	:55
39/38	3/23/90	:45
38/Shilshole Marina	3/23/90	2:15
Shilshole Marina/32	3/25/90	1:00
32/33	3/25/90	:20
33/30	3/25/90	:45
30/Langley Marina	3/25/90	3:55
Langley Marina/19	3/26/90	1:00
19/18	3/26/90	1:35
18/71	3/26/90	3:05
71/4	3/26/90	1:32
4/Bellingham Marina	3/26/90	:50
Bellingham Marina/5	3/27/90	1:10
5/3	3/27/90	3:26
3/1	3/27/90	1:00
1/Blaine Marina	3/27/90	1:20
Port Angeles Marina/8	3/29/90	:15
8/12	3/29/90	4:08
12/Port Ludlow	3/29/90	1:25
Port Ludlow/14	3/30/90	2:00
14/15	3/30/90	1:15
15/17	3/30/90	3:10
17/Alderbrook Inn docks	3/30/90	:30

TABLE A-2. TIME ON STATION DURING THE 1990
 WASHINGTON DEPARTMENT OF ECOLOGY
 PUGET SOUND MARINE SEDIMENT MONITORING PROGRAM

Station	Sampling Date	Time on Station (hr:min)
1	3/27/90	1:10
3	3/27/90	3:04
4	3/26/90	:48
5	3/27/90	3:50 ^a
8	3/29/90	1:37
12	3/29/90	:35
14	3/30/90	1:30
15	3/30/90	1:15
17	3/30/90	1:50
18	3/26/90	1:00
19	3/26/90	2:15
20	3/12/90	1:15
21	3/13/90	1:12
22	3/12/90	1:10
26	3/12/90	1:10
29	3/12/90	4:25 ^b
30	3/25/90	1:00
32	3/25/90	3:50 ^a
33	3/25/90	1:20
34	3/14/90	:50
35	3/14/90	5:22 ^a
38	3/23/90	5:15 ^a
39	3/23/90	2:05
40	3/15/90	1:38
41	3/15/90	1:40
43	3/16/90	1:15
44	3/16/90	4:10 ^a
45	3/17/90	1:33
47	3/20/90	1:25
48	3/21/90	1:29
49	3/21/90	1:57
69	3/13/90	1:40
70	3/18/90	1:50
71	3/26/90	:53

TABLE A-2. (continued)

Station	Sampling Date	Time on Station (hr:min)
46R	3/22/90	1:00
101R	3/18/90	1:30
102R	3/18/90	1:20
103R	3/18/90	1:20
104R	3/21/90	2:05
105R	3/21/90	1:10
106R	3/22/90	1:48
108R	3/22/90	1:08
109R	3/21/90	1:20
110R	3/20/90	2:15
111R	3/20/90	1:40
112R	3/17/90	1:55
113R	3/15/90	1:55
114R	3/15/90	1:23
115R	3/17/90	1:11
116R	3/16/90	1:05

^a Environmental variability station.

^b Training and equipment preparation and decontamination.

APPENDIX B

- - Volatile Organics
- - Resin Acids/Guaicols

- - Environmental Variability
- - MS/MSD

DEPARTMENT OF ECOLOGY

SUMMARY SAMPLING LOG

ECOLOGY MARINE SEDIMENT MONITORING PROGRAM-1990

SURVEY AREA: _____

SAMPLING DATE	STATION	SAMPLE NUMBER	SAMPLES COLLECTED									
			ORG	MET	PEST/PCB	TOC	GS	SULF	VOL	SAL	BA	BEN (1.0)
3/27/90	1		X	X	X	X	X	X			X	X
3/27/90	3		X	X	X	X	X	X	X		X	X
3/26/90	4		X	X	X	X	X	X			X	X
3/27/90	[Label station 5] #1		X	X	X	X	X	X	X		X	X
3/27/90	[Label station 51] #1R		X	X	X	X	X	X	X			
3/27/90	[Label station 52] #2		X	X	X	X	X	X	X			
3/27/90	[Label station 53] #3		X	X	X	X	X	X	X			
3/26/90	6 71		X	X	X	X	X	X			X	X
3/29/90	8		X	X	X	X	X	X			X	X
3/29/90	12		X	X	X	X	X	X			X	X
3/30/90	14		X	X	X	X	X	X	X		X	X
3/30/90	15		X	X	X	X	X	X			X	X
3/30/90	17		✓	✓	✓	✓	✓	X	X		✓	✓
3/26/90	18		X	X	X	X	X	X			X	X
3/26/90	19		✓	✓	✓	✓	✓	X	X		✓	✓
3/12/90	20		X	X	X	X	X	X			X	X
3/13/90	21		X	X	X	X	X	X			X	X
3/12/90	22		X	X	X	X	X	X			X	X
3/12/90	26		X	X	X	X	X	X			X	X
3/12/90	29		X	X	X	X	X	X	X		X	X
3/25/90	30		X	X	X	X	X	X			X	X

Split Blind Analytical Rep.
Field Rep.
Field Rep.

RECORDER: _____ ORG. CODE: _____

● - Volatile Organics

● - Environmental Variability

● - Resin Acid/Guaicols

- MS/MSD

DEPARTMENT OF ECOLOGY

SUMMARY SAMPLING LOG

ECOLOGY MARINE SEDIMENT MONITORING PROGRAM-1990

SURVEY AREA: _____

SAMPLING DATE	STATION	SAMPLE NUMBER	SAMPLES COLLECTED											
			ORG	MET	PEST/PCB	TOC	GS	SULF	VOL	SAL	BA	BEN (1.0)		
3/25/90	32	[Label station 32] #1	X	X	X	X	X	X				X	X	Blind Anal. Rep.
3/25/90		[Label station 57] #1R	X	X	X	X	X	X						
3/25/90		[Label station 58] #2	X	X	X	X	X	X						Field Rep
3/25/90		[Label station 59] #3	X	X	X	X	X	X						Field Rep
3/25/90	33		X	X	X	X	X	X				X	X	
3/14/90	34		X	X	X	X	X	X				X	X	
3/14/90	35	[Label station 35] #1	X	X	X	X	X	X	X	X		X	X	Blind Anal. Rep.
3/14/90		[Label station 54] #1R	X	X	X	X	X	X						
3/14/90		[Label station 55] #2	X	X	X	X	X	X						Field Rep
3/14/90		[Label station 56] #3	X	X	X	X	X	X						Field Rep
3/23/90	38	[Label station 38] #1	X	X	X	X	X	X	X	X		X	X	Blind Anal. Rep.
3/23/90		[Label station 60] #1R	X	X	X	X	X	X	X	X				
3/23/90		[Label station 61] #2	X	X	X	X	X	X	X	X				Field Rep
3/23/90		[Label station 62] #3	X	X	X	X	X	X	X	X				Field Rep
3/15/90	39		X	X	X	X	X	X				X	X	
3/15/90	40		X	X	X	X	X	X				X	X	
3/15/90	41		X	X	X	X	X	X				X	X	
3/16/90	43		X	X	X	X	X	X				X	X	
3/16/90	44	[Label station 44] #1	X	X	X	X	X	X				X	X	Blind Anal. Rep.
3/16/90		[Label station 63] #1R	X	X	X	X	X	X				X	X	
3/16/90		[Label station 64] #2	X	X	X	X	X	X				X	X	Field Rep
3/16/90		[Label station 65] #3	X	X	X	X	X	X				X	X	Field Rep

RECORDER: _____ ORG. CODE: _____

● - Resin Acid/Guaiacols

● - volatile Organics

DEPARTMENT OF ECOLOGY

SUMMARY SAMPLING LOG

ECOLOGY MARINE SEDIMENT MONITORING PROGRAM-1990

SURVEY AREA: _____

SAMPLING DATE	STATION	SAMPLE NUMBER	SAMPLES COLLECTED											
			ORG	MET	PEST/PCB	TOC	GS	SULF	VOL	SAL	BA	BEN (1.0)		
3/17/90	45		X	X	X	X	X	X	X	X			✓	✓
3/20/90	47		X	X	X	X	X	X	X				✓	✓
3/21/90	48		X	X	X	X	X	X	X				X	X
3/22/90	49		X	X	X	X	X	X	X				✓	✓
3/18/90	50 70		X	X	X	X	X	X	X				X	X
3/23/90	66 [SRM]		X	X	X						X			
3/23/90	67 [SRM]		X	X	X						X			
3/23/90	68 [SRM]		X	X	X									
3/13/90	69		X	X	X	X	X	X	X				X	X
3/22/90	46R		X	X	X	X	X	X	X				✓	✓
3/18/90	101R		X	X	X	X	X	X	X				X	X
3/18/90	102R		X	X	X	X	X	X	X				X	X
3/17/90	103R		X	X	X	X	X	X	X				X	X
3/21/90	104R		X	X	X	✓	✓	✓	✓				✓	✓
3/21/90	105R		X	X	✓	✓	✓	✓	✓				✓	✓
3/22/90	106R		X	X	X	✓	✓	✓	✓				✓	✓
<hr/>														
	107R		X	X	X	X	X	X	X				X	X
3/22/90	108R		X	X	X	X	X	X	X				X	✓
3/21/90	109R		X	X	X	X	X	X	X				✓	✓
3/20/90	110R		X	X	X	X	X	X	X				X	X
3/20/90	111R		X	X	X	X	X	X	X				X	X
3/22/90	112R		✓	X	X	X	X	X	X				X	✓

RECORDER: _____ ORG. CODE: _____

DEPARTMENT OF ECOLOGY

SUMMARY SAMPLING LOG

ECOLOGY MARINE SEDIMENT MONITORING PROGRAM-1990

SURVEY AREA: _____

SAMPLING DATE	STATION	SAMPLE NUMBER	SAMPLES COLLECTED									
			ORG	MET	PEST/ PCB	TOC	GS	SULF	VOL	SAL	BA	BEN (1.0)
3/15/90	113R		✓	✓	✓	✓	✓	✓			✓	✓
3/15/90	114R		✓	✓	✓	✓	✓	✓			✓	✓
3/7/90	115R		✓	✓	✓	✓	✓	✓			✓	✓
3/16/90	116R		✓	✓	✓	✓	✓	✓			✓	✓

RECORDER: _____ ORG. CODE: _____

APPENDIX B

1990 QUALITY ASSURANCE REVIEWS OF CHEMICAL AND BIOASSAY ANALYSES

PTI

ENVIRONMENTAL SERVICES

15375 SE 30th Place

Suite 250

Bellevue, Washington 98007

PUGET SOUND AMBIENT MONITORING PROGRAM
QUALITY ASSURANCE REVIEWS
OF CHEMICAL AND BIOASSAY ANALYSES

1990 Field Survey

Prepared for

Washington Department of Ecology
Olympia, Washington

PTI Contract C003-04

February 1991

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LIST OF ACRONYMS

ABN	acid/base/neutral
ARI	Analytical Resources, Inc.
BFB	bromofluorobenzene
CCB	continuing calibration blank
CLP	Contract Laboratory Program
CRDL	contract-required detection limit
CCV	continuing calibration verification standard
CVAA	cold vapor atomic absorption spectrometry
DBC	dibutylchloroendate
DFTPP	decafluorotriphenylphosphine
Ecology	Washington Department of Ecology
EPA	U.S. Environmental Protection Agency
GC/MS	gas chromatography/mass spectrometry
GFAA	graphite furnace atomic absorption spectrometry
ICB	initial calibration blank
ICP	inductively coupled plasma-atomic emission spectrometry
ICS	interference check sample
ICV	initial calibration verification standard
IDL	instrument detection limits
LOD	limit of detection
MS	matrix spike
MSA	method of standard additions
MSD	matrix spike duplicate
PCB	polychlorinated biphenyl
ppt	parts per thousand
PSAMP	Puget Sound Ambient Monitoring Program
PSEP	Puget Sound Estuary Program
QA/QC	quality assurance and quality control
RPD	relative percent difference
RRF	relative response factor
RSD	relative standard deviation
SRM	standard reference material
TOC	total organic carbon
VOC	volatile organic compound

INTRODUCTION

This report summarizes the results of a quality assurance review of analytical results for chemical and bioassay analyses performed on sediments collected by the Washington Department of Ecology (Ecology) during the 1990 Puget Sound Ambient Monitoring Program (PSAMP). Chemical laboratory services were provided by Analytical Resources, Inc. (ARI) and bioassay analyses were performed by Parametrix, Inc. All data provided by the laboratories are included as an appendix to this report. The report is divided into the following sections: volatile organic compounds; acid/base/neutral semivolatile compounds; pesticides and polychlorinated biphenyls; metals; total organic carbon, total sulfides, and total solids; particle size; and bioassays.

Sediment samples were analyzed in accordance with the Puget Sound Estuary Program (PSEP) guidelines (PSEP 1989), which are modifications to the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) statement of work for organic compound analyses (U.S. EPA 1988b). Chemical data validation was performed according to PSEP-recommended guidelines for measuring organic compounds and metals in Puget Sound sediment samples (PSEP 1989; PTI 1989) and according to the functional guidelines for laboratory data validation of organic analyses (U.S. EPA 1988a). Bioassay data validation was performed according to PSEP (1990) guidelines.

The samples analyzed for this study were surficial sediments collected at different locations in Puget Sound. Field-generated quality control samples for chemical analyses included station split samples that were taken as composites of at least five van Veen grab samples and submitted as blind spike duplicate samples. Station replicate samples were taken from separate van Veen grab samples at the same station and were submitted for monitoring variability. Chemical samples taken as field-generated quality control samples, matrix spike (MS) samples, and laboratory duplicate samples are summarized in Table 1. Similar quality control samples were analyzed for metals and are described in the *Quality Assurance Review of Metals in Sediments* section.

**TABLE 1. SAMPLE ANALYSIS FOR QUALITY CONTROL
OF ORGANIC CHEMICALS**

Volatile Organic Analyses					
Sample Number			Matrix Spike Analyses		
Field Station	Station Split	Station Replicates	Field Station	Sample Weight	Date of Analysis
5	51	52 53	5	100 grams 10 grams	04 April 1990 16 April 1990
38	60	61 62	35	100 grams	20 March 1990
			38	100 grams	28 March 1990 (in triplicate)
Duplicate Sample Analyses					
Field Station	Date of Analysis				
29	20 March 1990				
45	21 March 1990				
Acid/Base/Neutral Semivolatile Analyses					
Sample Number			Matrix Spike Analyses		
Field Station	Station Split	Station Replicates	Field Stations 5, 35, 39, 44		
5	51	52 53	Sequim Bay Fortified Samples		
35	72	73 74	Field Stations 66, 67, and 68		
32	57	58 59			
38	60	61 62			
44	63	64 65			

TABLE 1. (Continued)

Pesticide and PCB Analyses			
Sample Number			Matrix Spike Analyses
Field Station	Station Split	Station Replicate	Field Station
5	51	52 53	5
35	72	73 74	35
32	57	58 59	44
38	60	61 62	
44	63	64 65	



ENVIRONMENTAL SERVICES

15375 SE 30th Place ■ Suite 250 ■ Bellevue, Washington 98007

(206) 643-9803 ■ FAX (206) 643-9827

28 January 1991

Data Validation Report
Volatile Organic Compounds


Site: Puget Sound

Project: 1990 Marine Sediment Monitoring Program


Samples Collected By: Washington Department of Ecology

The samples included in this report were analyzed by Analytical Resources, Inc., of Seattle, Washington.

Data Evaluation By:


James McAfee

Approved By:


Robert C. Barrick

QUALITY ASSURANCE REVIEW OF VOLATILE ORGANIC COMPOUNDS IN SEDIMENTS

SUMMARY

The data for volatile organic compounds (VOCs) in sediments are acceptable as qualified during this quality assurance review for the uses specified in the PSAMP Implementation Plan.

Data for several volatile compounds in some MS samples are outside PSEP guidelines for MS recovery; however, all data were qualified following CLP functional guidelines (U.S. EPA 1988a). The analytical data reported for acetone, methylene chloride, and 2-butanone should be used with caution because of the erratic detection of these common laboratory contaminants in the sediment samples. The values for these compounds have been qualified with a *Q* (questionable).

Methylene chloride and acetone were used to decontaminate field sampling equipment during portions of the sample collection effort and were sometimes stored in open bottles, although these solvents were not used during actual collection of VOC samples. In addition, the boat used for sample collection had stored 2-butanone in the same compartment as was used to hold sample jars. The analytical results for these three compounds are highly inconsistent among samples, the MS recoveries are erratic, and compounds were detected in the method blanks. Therefore, there is a strong probability that the samples were exposed to atmospheric contamination by these solvents during collection in the field as well as in the laboratory.

Two samples (66 and 67) were determined during the quality assurance review to be blind reference samples. These samples consisted of Sequim-1 reference sediment for Puget Sound, which is a quantitative reference material for the analysis of semivolatile organic compounds (PSEP 1989). The two samples caused problems during analysis because of their high concentrations of acetone, and none of the resulting data for VOCs were accepted. This reference material is not appropriate for VOC analysis because high and variable concentrations of acetone result from acetone being used to make up the spiking solution for the semivolatile compounds (Brown, D., 19 April 1990, personal communication).

Problems with sporadic high concentrations of acetone, methylene chloride, and 2-butanone also resulted in the analysis of sediment samples by two different VOC methods. Seven samples were analyzed using a "Super VOA method" in which 100 grams of sediment (wet weight) was mixed with 100 mL of organic

free water and analyzed by purge and trap gas chromatography/mass spectrometry (GC/MS). This method is a modification of the routine CLP purge and trap protocol (U.S. EPA 1988b), which was used to analyze the remaining samples. The large sample size of the Super VOA method provides lower detection limits (i.e., $<0.1 \mu\text{g}/\text{kg}$, dry weight) than are possible with the routine protocol (i.e., $20 \mu\text{g}/\text{kg}$). However, the routine protocol was substituted for the Super VOA method during the course of analysis at the direction of PTI Environmental Services and with the concurrence of Ecology. The substitution was necessary to screen samples for VOCs because several samples analyzed by the Super VOA method had severely contaminated the GC/MS system and caused it to be shut down for several days for cleaning and recalibration. When feasible, the laboratory was instructed to analyze samples using the more sensitive Super VOA method. The laboratory was authorized to reanalyze samples using a 100-gram subsample if no volatile compounds were detected in the 10-gram subsample (Beebe, B., 30 March 1990, personal communication).

In reporting these data, the samples were summarized according to the following two categories:

- Samples analyzed for target compounds based only on 100-gram subsamples
- Samples analyzed using both 100-gram and 10-gram subsamples of the same sample (high concentrations of methylene chloride, acetone, and 2-butanone were reported for the 10-gram subsample and concentrations of all other target compounds were reported for the 100-gram subsample).

Analyses of several samples were repeated to verify original results when the recovery of a surrogate slightly exceeded control limits. In each case, the repeat analyses verified the original result; therefore, only the results of the original analysis were reported. Low concentrations ($<0.10 \mu\text{g}/\text{kg}$) of volatile aromatic compounds were detected in the 100-gram subsamples of nearly all sediments. These concentrations appear to be background levels; none of these compounds were detected in any of the 10-gram subsamples.

COMPLETENESS

The data package submitted by ARI is complete. Data for all sediment samples that were submitted, including method blanks, MS samples, and standards, were reported by the laboratory. Data were qualified according to CLP functional guidelines using PSEP qualifier codes (as in PSAMP 1989) and are discussed in detail throughout this report.

HOLDING TIMES

Sediment samples were collected between 12 and 30 March 1990 and delivered to ARI in Seattle between 15 March and 2 April 1990. All sediments were kept refrigerated during sample collection and were shipped on ice to the laboratory, where they were stored at 4°C until analysis. All sediment samples were initially analyzed between 20 March and 5 April 1990 and were within the 14-day recommended holding time for refrigerated samples as established by U.S. EPA (1988b). Analyses performed between 12 and 16 April 1990 (using 100-gram subsamples) exceeded the 14-day holding time requirement; however, these samples were initially analyzed (in 10-gram subsamples) within the recommended holding time. Sample holding times are summarized in Table 2 and were determined by comparing the dates of sample collection (as stated on the chain-of-custody forms) with the dates of laboratory analysis.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY TUNING

GC/MS tuning was established with bromofluorobenzene (BFB) prior to initial and continuing calibration for each sample sequence and was verified for every 12-hour shift. All original data were checked during the quality assurance review to verify tuning, and performance criteria were met. No transcription or calculation errors were found and all data were correctly transcribed on CLP Form V VOA. All tuning criteria established by U.S. EPA (1988b) were met prior to each calibration and sample analysis. No qualification of data was required with respect to GC/MS tuning requirements.

CALIBRATION

Instrument calibration was performed in accordance with U.S. EPA (1988b), as modified by PSEP (1989). A detailed description of the initial and continuing calibrations is presented below.

Initial Calibration

The laboratory performed a 5-point calibration (0.02, 0.05, 0.10, 0.20, and 1.0 µg/L) for all target analytes on 16 March and 11 April 1990 for 100-gram subsample analyses; a 5-point calibration (20, 50, 100, 150, and 200 µg/L) for all target analytes was performed on 29 March 1990 for 10-gram subsample analyses. A summary of all field stations and associated initial calibration dates is shown in Table 3.

Linearity is established when all average relative response factors (RRFs) are greater than 0.05 and the percent relative standard deviations (RSDs) of the RRFs

TABLE 2. SAMPLE HOLDING TIMES: VOLATILE ORGANIC ANALYSES

Sample Number	Laboratory Identification	Date Collected	Date Lab Received	Date Analyzed	Holding Time (days)
29 ^a	4917A	03/12/90	03/15/90	03/20/90	8
35 ^a	4917G	03/14/90	03/15/90	03/20/90	6
45 ^a	4917X	03/17/90	03/19/90	03/21/90	4
67 ^a	4917AT	03/23/90	03/26/90	03/28/90	5
38 ^a	4917AO	03/23/90	03/26/90	03/28/90	5
19 ^b	4917AZ	03/26/90	03/28/90	04/04/90	9
60 ^b	4917AQ	03/23/90	03/26/90	04/04/90	12
62 ^b	4917AR	03/23/90	03/26/90	04/04/90	12
61 ^b	4917AS	03/23/90	03/26/90	04/04/90	12
66 ^b	4917AU	03/23/90	03/26/90	04/04/90	12
5 ^b	4917BG	03/27/90	03/28/90	04/04/90	8
3 ^b	4917BH	03/27/90	03/28/90	04/04/90	8
51 ^b	4917BJ	03/27/90	03/28/90	04/05/90	9
52 ^b	4917BK	03/27/90	03/28/90	04/05/90	9
53 ^b	4917BL	03/27/90	03/28/90	04/05/90	9
8 ^b	4917BM	03/29/90	04/02/90	04/05/90	7
14 ^b	4917BO	03/30/90	04/02/90	04/05/90	6
17 ^b	4917BQ	03/30/90	04/02/90	04/05/90	6
60 ^a	4917AQ	03/23/90	03/26/90	04/12/90	20
61 ^a	4917AS	03/23/90	03/26/90	04/12/90	20
62 ^a	4917AR	03/23/90	03/26/90	04/12/90	20
51 ^a	4917BJ	03/27/90	03/28/90	04/12/90	16
52 ^a	4917BK	03/27/90	03/28/90	04/12/90	16
53 ^a	4917BL	03/27/90	03/28/90	04/12/90	16
5 ^a	4917BG	03/27/90	03/28/90	04/16/90	20

^a 100 grams of sediment used for analysis.

^b 10 grams of sediment used for analysis.

**TABLE 3. FIELD SAMPLES ANALYZED AND
INITIAL CALIBRATION DATES**

16 March 1990		29 March 1990		11 April 1990	
Sample Number	29	Sample Number	19	Sample Number	60
	29 Duplicate		60		61
	35		62		62
	35 MS ^a		61		51
	35 MSD ^b		66		52
	45		5		53
	45 Duplicate		5 MS		5
	67		5 MSD		5 MS
	38		3		5 MSD
	38 MS		51		
	38 MSD		52		
	38 MST ^c		53		
			52 rerun		
			53 rerun		
			8		
			14		
			8 rerun		
			14 rerun		
			17		

^a Matrix spike.

^b Matrix spike duplicate.

^c Matrix spike triplicate.

are less than 30 percent (U.S. EPA 1988b). The calibration criteria were met for all initial calibration sequences, except for the following compounds:

- 16 March 1990—2-Butanone and 2-hexanone had percent RSDs of 40.9 and 34.6, respectively. Samples 29, 29 duplicate, 35, and 38 had detectable levels of 2-butanone; 2-hexanone was not detected.
- 29 March 1990—2-Chloroethylvinylether had a percent RSD of 40.3 and was not detected in any sediment sample analyzed.
- 11 April 1990—Methylene chloride, 2-chloroethylvinylether, and 1,1,2-trichloro-1,2,2-trifluoroethane had percent RSDs of 39.6, 35.5, and 46.3, respectively. Samples 60, 61, 62, 51, 52, 53, and 5 had detectable quantities of methylene chloride; the other two compounds were not detected.

Data were not qualified for compounds that did not meet the percent RSD control limit of 30 percent because those compounds were not detected. However, methylene chloride and 2-butanone had already been qualified as questionable (*Q* qualifier) for the reasons cited in the *Summary* section.

The RRFs and percent RSDs were recalculated and verified from the original laboratory data for several compounds in each initial calibration sequence during the quality assurance review. No significant errors were found and all data were correctly transcribed on CLP Form VI VOA. Surrogate compound RRFs and percent RSDs were not reported on CLP Form VI VOA; therefore, the data were calculated and manually transcribed during the quality assurance review. All surrogate compounds met the control limits for RRFs and RSD, with the exception of BFB (35 percent RSD) in the 29 March 1990 initial calibration sequence.

Continuing Calibration

Continuing calibration was performed at the beginning of each analytical sequence to verify instrument calibration for all target analytes. Criteria for continuing calibration require all target analytes to have RRFs > 0.05 and the percent difference of the continuing calibration RRF to be < 25 percent of the average RRF calculated for the initial calibration (U.S. EPA 1988b). Several analytes that did not meet the continuing calibration criteria are summarized in Table 4. Analytes that did not meet criteria limits were either not detected in the sediments analyzed or were detected at a concentration less than the quantification limit established for the project, so qualification of data was not required. All RRF and percent difference values were verified by recalculation during quality assurance review. All data were correctly transcribed on CLP Form VII VOA; however, data for the surrogate compounds were not reported and were calculated and verified from the original data during quality assurance review.

TABLE 4. PERCENT DIFFERENCE OF COMPOUNDS NOT MEETING CONTINUING CALIBRATION CRITERIA

Compound	Date of Analysis						
	20 March 1990	21 March 1990	28 March 1990	4 April 1990 ^a	4 April 1990 ^b	12 April 1990	16 April 1990
Acetone	-125.9	-226.5	-355.6	-- ^c	--	-62.9	-48.5
Bromoform	--	--	26.7	52.9	27.3	--	42.7
Bromomethane	--	--	--	--	-57.2	--	--
2-Butanone	63.5	---	26.9	--	--	81.4	-113.3
Chloroform	--	--	--	-32.4	--	--	--
Chloromethane	--	--	-63.7	30.2	--	--	-29.6
Dibromochloromethane	--	--	--	29.8	--	--	25.4
1,2-Dichlorobenzene	25.2	--	--	--	--	--	--
1,3-Dichlorobenzene	27.1	--	27.1	--	--	--	25.5
1,4-Dichlorobenzene	25.4	--	--	--	--	--	26.0
2-Hexanone	--	--	29.7	--	--	41.5	--
4-Methyl-2-pentanone	--	-32.8	--	--	--	40.4	52.7
Methylene chloride	--	--	--	--	--	25.1	--
O-xylene	--	--	--	--	--	28.8	--
1,1,1,2-Tetrachloroethane	--	--	--	--	--	--	43.8
Tetrachloroethene	--	--	--	32.5	--	--	--
Toluene	--	--	--	--	--	31.3	--
trans-1,2-Dichloropropene	--	--	--	30.0	--	--	--
trans-1,3-Dichloropropene	--	--	--	--	--	--	26.4
1,1,1,2-Trichloro- 1,2,2-trifluoroethane	-28.0	--	--	--	--	--	--
1,1,1,2-Trichloroethane	--	--	--	--	--	--	26.5
Vinyl chloride	--	--	-29.2	--	--	--	-31.4

^a Standard concentration = 1 ng/mL.

^b Standard concentration = 5 ng/mL.

^c Not applicable.

METHOD BLANK ANALYSES

Method blank analyses were performed at the required frequency of at least once per 12-hour shift (U.S. EPA 1988b). One method blank was analyzed on 21 March, 5 April, and 12 April 1990; two method blanks were analyzed on 20 March, 4 April, and 16 April 1990; and three method blanks were analyzed on 28 March 1990.

Several target analytes were detected in the method blanks that were analyzed. Method blanks that used 100-gram equivalent weights for sample analysis had detectable levels of methylene chloride, acetone, benzene, toluene, xylenes, and 1,3-dichlorobenzene. Reported values of methylene chloride and acetone were qualified as questionable for the reasons stated in the *Summary* section or were qualified along with other chemicals detected in the method blanks based on a statistical analysis of method blank data. Method blank results for chemicals that were detected in any blank analysis are shown in Table 5. An arithmetic mean and upper-95-percent confidence limit has been calculated and adjusted to reflect the mean dry sample weight of all samples. The concentration for any chemical in Table 5 that is less than the respective upper-95-percent confidence level (adjusted for sample weight) has been qualified with a *U*.

ACCURACY

Accuracy was assessed by evaluating the recoveries of stable-isotope-labeled surrogate compounds and MS samples.

Surrogate Recoveries

Recoveries of the three stable-isotope-labeled surrogate compounds specified by U.S. EPA (1988b) are summarized in Table 6. These surrogate compounds were added to all standards, method blanks, and samples prior to analysis.

Surrogate recoveries for toluene-d₈, BFB, and 1,2-dichloroethane-d₄ averaged 105, 87, and 98 percent, respectively. Of the 132 surrogate data points, 9 did not meet CLP quality control limits for each surrogate compound. Toluene-d₈ was out of control limits 8 times and BFB was out 1 time. Data did not require qualification because any compound detected either was a laboratory contaminant and had already been qualified as questionable, or was an aromatic compound detected below the detection limit and was restated as undetected.

All surrogate recoveries were verified during quality assurance review and were correctly transcribed on CLP Form II VOA.

TABLE 5. VOLATILE METHOD BLANK SUMMARY^a

Date Analyzed	1,1,1-Trichloroethane	2-Butanone ^b	Acetone ^b	Benzene	Chloroform	Ethyl Benzene	Methylene Chloride ^b	Toluene	Xylenes
(100-gram blanks)^c									
20 March 1990	0.02 U	1.0 U	0.45	0.01	0.02 U	0.02 U	0.09	0.01	0.01
20 March 1990	0.02 U	1.0 U	0.19	0.01	0.02 U	0.02 U	0.12	0.02	0.02
21 March 1990	0.02 U	1.0 U	0.98	0.01	0.02 U	0.05 U	0.06	0.02	0.02
28 March 1990	0.02 U	1.0 U	0.17	0.01	0.02 U	0.01	0.05	0.02	0.03
28 March 1990	0.17	0.81	1.9	0.03	0.01	0.1	0.22	0.08	0.43
28 March 1990	0.02 U	1.0 U	2.6	0.05 U	0.02 U	0.02 U	0.11	0.02	0.01
12 April 1990	0.02 U	--	--	0.05 U	0.02 U	0.05 U	--	0.05 U	0.1 U
16 April 1990	0.02 U	--	--	0.01	0.02 U	0.05 U	--	0.04	0.02
16 April 1990	0.02 U	--	--	0.05 U	0.02 U	0.05 U	--	0.01	0.01
n:	9	6	6	9	9	9	6	9	9
Mean:	0.04	0.97	1.05	0.03	0.02	0.04	0.11	0.03	0.07
Standard Error:	0.13	0.16	2.04	0.05	0.01	0.07	0.12	0.06	0.37
95 Percent Confidence Limit:	0.34	1.4	6.3	0.15	0.04	0.21	0.43	0.17	0.92
Mean Sample Weight:	28.69	31.33	31.33	28.69	28.69	28.69	31.33	28.69	28.69
T[0.05,n-1]:	2.306	2.571	2.571	2.306	2.306	2.306	2.571	2.306	2.306
Adjusted 95 Percent Confidence Limit ^d	1.2	4.4	20	0.51	0.14	0.73	1.4	0.60	3.2

TABLE 5. (Continued)

Date Analyzed	Acetone ^b	Acetone	Methylene Chloride ^c
(10-gram blanks)^b			
04 April 1990	2.5 U	2.5 U	0.26
04 April 1990	13	--	0.265
05 April 1990	0.44	0.44	0.28
n:		2	3
Mean:	3	1.5	0.27
Standard Error:	5.3	1.0	0.01
95 Percent Confidence Limit:	7.8	15	0.32
Mean Sample Weight:	39	3.38	3.64

^a Concentrations in $\mu\text{g/L}$.

^b Method blanks for these compounds were analyzed using two final extract volumes (100-gram and 10-gram) because of potential field or laboratory contamination in the 100-gram sediment samples. The method blanks associated with the smaller weight samples (i.e., 10-gram extraction volume) are reported below.

^c The adjusted 95 percent confidence limits are expressed in $\mu\text{g/kg}$, dry weight. The total concentration ($\mu\text{g/L}$ of extract) is normalized to $\mu\text{g/kg}$, dry weight of sample using the average sample weight for appropriate samples (shown in grams, dry weight), and the final extract volume (100 mL).

^d Any detected concentrations at or below the adjusted confidence limits are assigned U qualifiers.

**TABLE 6. PERCENT RECOVERY FOR SURROGATE COMPOUNDS
IN SEDIMENTS**

Sample Identification No.	Surrogate 1 (Toluene-d ₈)	Surrogate 2 (Bromofluorobenzene)	Surrogate 3 (1,2-Dichloroethane-d ₄)
Method Blank (3/20)	88.8	99.2	102
MB-Post Run (3/20)	98.8	94.4	96.0
Method Blank (3/21)	101	97.2	95.0
Method Blank (3/28)	105	102	91.0
MB-Post Run (3/28)	104	98.6	101
MB-Post Run (3/28)	99.6	102	97.2
Method Blank (4/4)	98.5	97.9	98.8
Method Blank (4/4)	99.8	99.7	98.3
Method Blank (4/5)	99.6	98.7	98.8
Method Blank (4/12)	98.0	101	97.8
Method Blank (4/16)	100	99.6	109
MB-Post Run (4/16)	93.6	89.2	95.8
Organic Free Blank	112	94.0	99.0
3 (10g)	103	93.8	99.1
5 (10g)	110	88.2	94.6
5 MS ^a	109	88.4	94.2
5 MSD ^b	109	87.5	93.6
8 (10g)	128 ^c	77.9	98.9
8 (10g) Rep. ^d	130 ^c	75.6	99.8
14 (10g)	119 ^c	83.7	99.8
14 Rep.	118 ^c	84.8	96.6
17 (10g)	115	82.1	96.5
19 (10g)	112	84.7	95.9
29	86.0	88.2	104
29 Dup. ^e	92.8	92.2	98.8
35	89.4	92.2	105
35 MS	94.8	91.0	99.8
35 MSD	89.4	94.0	91.2
38	99.0	93.0	104
45	92.4	83.4	94.0
45 Dup.	99.4	79.0	104

TABLE 6. (Continued)

Sample Identification No.	Surrogate 1 (Toluene-d ₈)	Surrogate 2 (Bromofluorobenzene)	Surrogate 3 (1,2-Dichloroethane-d ₄)
38 MS	105	82.2	85.6
38 MSD	95.4	84.2	87.8
38 MST ^f	107	79.8	99.2
51 (10g)	117	81.7	96.4
52 (10g)	119 ^c	80.3	97.3
52 (10g) Rep.	119 ^c	80.5	96.6
53	93.4	68.6	101
53 (10g)	122 ^c	78.0	101
53 (10g) Rep.	119 ^c	80.7	98.6
60	92.6	91.8	94.4
60 (10g)	116	84.0	97.6
61	91.6	77.4	98.4
62	99.6	75.8	99.8
62 (10g)	113	84.4	99.0
66 (10g)	109	86.9	97.8
67	98.8	86.6	97.0
Mean	105	87	98
Standard Deviation	11	8	4
Range	86-130	69-102	86-105

^a MS - matrix spike.

^b MSD - matrix spike duplicate.

^c Outside quality control limits:

	Limits
Toluene-d ₈	(81-117)
Bromofluorobenzene	(74-121)
1,2-Dichloroethane-d ₄	(70-121)

^d Replicate.

^e Duplicate.

^f MST - matrix spike triplicate.

Matrix Spike Recoveries

MS analyses were performed by spiking the five VOCs required by PSEP guidelines and CLP protocols (U.S. EPA 1988b). CLP acceptance criteria for MS recoveries of these compounds range from 59 to 172 percent (U.S. EPA 1988b), and the results of MS recoveries are summarized in Table 7.

MS and matrix spike duplicate (MSD) analyses were performed using 100-gram and 10-gram subsamples. The average spiking concentrations were approximately 0.67 $\mu\text{g}/\text{kg}$ for the 100-gram spikes and approximately 15 $\mu\text{g}/\text{kg}$ for the 10-gram spikes.

The recoveries of the five compounds specified by CLP protocols are acceptable in all MS analyses, with the exception of Sample 35 (100 grams). The recoveries for the MS in Sample 35 are consistently low, and the recoveries in the MSD are consistently high. There is no ready explanation for the differences in the recoveries; however, laboratory error is possible.

Spike recovery data vary considerably for other compounds not addressed by CLP criteria. Using PSEP guidelines for MS recovery (50-150 percent), the sediment MS data are summarized as follows:

- Sample 35 (100-gram subsample)—Percent recovery data are outside these guidelines for 31 of 41 compounds in the MS sample and 19 of 41 compounds in the MSD sample; no qualifications of the data were made based on CLP functional guidelines
- Sample 38 (100-gram subsample)—Percent recovery data are outside these guidelines for 11 of 41 compounds in the MS sample and 5 of 41 compounds in the MSD sample; no qualifications of the data were made based on CLP functional guidelines
- Sample 5 (10-gram subsample)—Percent recovery data are outside these guidelines for 4 of 41 compounds in the MS sample and 5 of 41 compounds in the MSD sample; no qualifications of the data were made based on CLP functional guidelines
- Sample 5 (100-gram subsample)—Percent recovery data are outside these guidelines for 10 of 41 compounds in the MS sample and 8 of 41 compounds in the MSD sample; no qualifications of the data were made based on CLP functional guidelines.

All spike recovery data for percent recoveries and relative percent differences (RPDs) were verified and recalculated during the quality assurance review.

**TABLE 7. SPIKE RECOVERY DATA FOR VOLATILE ORGANIC
COMPOUNDS IN SEDIMENTS**

Compound	Percent Recovery			Relative Percent Difference
	Matrix Spike	Matrix Spike Duplicate	Average Percent Recovery	
SAMPLE 5, 100-GRAM SUBSAMPLE				
Chloromethane	66.5	83.5	75.0	-23.0
Bromomethane	67.5	90.0	78.8	-29.0
Vinyl chloride	54.5	74.0	64.3	-30.0
Chloroethane	61.5	84.0	72.8	-31.0
Methylene chloride	70.5	79.5	75.0	-12.0
Acetone	-157.0	-530.0	-344.0	-109.0
Carbon disulfide	10.0	8.0	9.0	22.0
1,1-Dichloroethene	70.5	102.0	86.3	-37.0
1,1-Dichloroethane	73.5	96.5	85.0	-27.0
trans-1,2-Dichloroethene	60.5	87.0	73.8	-36.0
cis-1,2-Dichloroethene	73.5	88.5	81.0	-19.0
Chloroform	109.0	104.0	107.0	4.7
1,2-Dichloroethane	108.0	240.0	174.0	-76.0
2-Butanone	730.0	900.0	815.0	-21.0
1,1,1-Trichloroethane	110.0	129.0	119.0	-16.0
Carbon tetrachloride	20.0	54.0	37.0	-92.0
Vinyl acetate	7.5	43.0	25.3	-141.0
Bromodichloromethane	60.0	78.5	69.3	-27.0
Trichlorofluoromethane	68.0	112.0	90.0	-49.0
1,1,2-Trichloro- 1,2,2-trifluoroethane	84.5	87.5	86.0	-3.5
1,2-Dichloropropane	140.0	145.0	142.0	-3.9
trans-1,3-Dichloropropene	72.5	73.0	72.8	-0.07
Trichloroethene	72.0	100.0	85.8	-32.0
Dibromochloromethane	31.0	49.5	40.3	-46.0
1,1,2-Trichloroethane	174.0	143.0	159.0	20.0
Benzene	115.0	127.0	121.0	-9.9
cis-1,3-Dichloropropene	81.0	85.5	83.3	-5.4
2-Chloroethylvinylether	138.0	137.0	138.0	0.7
Bromoform	23.5	51.0	37.3	-74.0
4-Methyl-2-pentanone	177.0	97.5	137.0	58.0

TABLE 7. (Continued)

Compound	Percent Recovery		Average Percent Recovery	Relative Percent Difference
	Matrix Spike	Matrix Spike Duplicate		
2-Hexanone	131.0	194.0	163.0	-39.0
Tetrachloroethane	68.0	86.5	77.3	-24.0
1,1,2,2-Tetrachloroethane	202.0	165.0	184.0	20.0
Toluene	93.0	115.0	104.0	-21.0
Chlorobenzene	90.0	112.0	101.0	-22.0
Ethylbenzene	88.0	107.0	97.5	-19.0
Styrene	83.5	91.0	87.3	-9.0
Total xylenes	56.3	74.0	65.2	-27.0
1,2-Dichlorobenzene	72.5	72.5	72.5	0.0
1,3-Dichlorobenzene	56.0	77.0	66.5	-32.0
1,4-Dichlorobenzene	63.0	75.0	69.0	-17.0
Toluene-d ₈ (SS)	96.2	96.6	96.4	-0.4
Bromofluorobenzene (SS)	81.6	78.2	79.9	4.3
1,2-Dichloroethane-d ₄ (SS)	100.0	94.2	97.1	6.0
SAMPLE 5, 10-GRAM SUBSAMPLE				
Chloromethane	147.0	137.0	142.0	6.8
Bromomethane	189.0	174.0	182.0	8.3
Vinyl chloride	144.0	135.0	140.0	6.3
Chloroethane	134.0	123.0	128.0	8.7
Methylene chloride	129.0	125.0	127.0	2.9
Acetone	70.0	30.0	50.0	80.0
Carbon disulfide	91.0	83.7	87.3	8.3
1,1-Dichloroethene	117.0	110.0	113.0	6.1
1,1-Dichloroethane	120.0	115.0	117.0	4.5
1,2-Dichloroethene (total)	118.0	110.0	114.0	6.3
Chloroform	124.0	120.0	122.0	3.5
1,2-Dichloroethane	110.0	104.0	107.0	5.5
2-Butanone	137.0	110.0	123.0	22.0
1,1,1-Trichloroethane	118.0	110.0	114.0	6.9
Carbon tetrachloride	79.8	78.5	79.2	1.7
Vinyl acetate	43.5	39.2	41.3	10.0
Bromodichloromethane	93.4	91.9	92.6	1.6

TABLE 7. (Continued)

Compound	Percent Recovery			Relative Percent Difference
	Matrix Spike	Matrix Spike Duplicate	Average Percent Recovery	
Trichlorofluoromethane	119.0	111.0	115.0	7.1
1,1,2-Trichloro-1,2,2-trifluoroethane	297.0	270.0	283.0	9.4
1,2-Dichloropropane	115.0	110.0	113.0	5.2
trans-1,3-Dichloropropene	90.1	86.6	88.3	3.9
Trichloroethene	105.0	97.6	101.0	7.3
Dibromochloromethane	68.2	67.3	67.7	1.3
1,1,2-Trichloroethane	100.0	96.0	98.1	4.2
Benzene	118.0	112.0	115.0	5.6
cis-1,3-Dichloropropene	78.1	78.6	78.4	-0.7
2-Chloroethylvinylether	103.0	97.4	100.3	5.6
Bromoform	49.1	44.5	46.8	9.9
4-Methyl-2-pentanone	124.0	109.0	116.0	13.0
2-Hexanone	115.0	99.2	107.0	15.0
Tetrachloroethene	101.0	92.6	96.7	8.6
1,1,2,2-Tetrachloroethane	100.0	90.0	95.2	11.0
Toluene	123.0	120.0	121.0	2.5
Chlorobenzene	109.0	101.0	105.0	7.2
Ethylbenzene	108.0	102.0	105.0	5.2
Styrene	107.0	101.0	104.0	5.8
Total xylenes	114.0	107.0	111.0	6.3
1,2-Dichlorobenzene	88.1	79.2	83.6	11.0
1,3-Dichlorobenzene	72.8	71.4	72.1	1.9
1,4-Dichlorobenzene	81.7	76.1	78.9	7.1
SAMPLE 35, 100-GRAM SUBSAMPLE				
Chloromethane	27.5	55.0	41.3	-66.7
Bromomethane	36.0	119.0	77.5	-107.0
Vinyl chloride	35.0	142.0	88.5	-121.0
Chloroethane	42.5	157.0	99.5	-115.0
Methylene chloride	1,840.0	127.0	983.0	174.0
Acetone	100.0	817.0	358.0	-256.0
Carbon disulfide	65.0	103.0	83.8	-44.8
1,1-Dichloroethene	41.0 ^a	142.0 ^a	91.5	-110.0

TABLE 7. (Continued)

Compound	Percent Recovery		Average Percent Recovery	Relative Percent Difference
	Matrix Spike	Matrix Spike Duplicate		
1,1-Dichloroethane	41.5	116.0	78.8	-94.6
trans-1,3-Dichloroethene	39.5	131.0	85.0	-107.0
cis-1,2-Dichloroethene	77.0	126.0	101.0	-47.9
Chloroform	48.0	168.0	108.0	-111.0
1,2-Dichloroethane	47.5	163.0	105.0	-110.0
2-Butanone	222.0	792.0	507.0	-112.0
1,1,1-Trichloroethane	37.5	166.0	102.0	-126.0
Carbon tetrachloride	16.0	58.0	37.0	-114.0
Vinyl acetate	41.0	9.5	25.3	125.0
Bromodichloromethane	32.5	108.0	70.3	-107.0
Trichlorofluoromethane	37.0	127.0	81.8	-109.0
1,1,2-Trichloro-1,2,2-trifluoroethane	111.0	154.0	132.0	-32.9
1,2-Dichloropropane	42.5	179.0	111.0	-123.0
trans-1,3-Dichloropropene	40.0	137.0	88.3	-109.0
Trichloroethene	39.0 ^a	168.0 ^a	104.0	-125.0
Dibromochloromethane	29.0	74.5	51.8	-87.9
1,1,2-Trichloroethane	51.0	174.0	112.0	-109.0
Benzene	38.2 ^a	164.0 ^a	101.0	-124.0
cis-1,3-Dichloropropene	35.5	135.0	85.3	-117.0
2-Chloroethylvinylether	116.0	178.0	147.0	-42.2
Bromoform	30.5	72.5	51.5	-81.6
4-Methyl-2-pentanone	109.0	99.0	104.0	9.2
2-Hexanone	114.0	144.0	129.0	-23.7
Tetrachloroethene	37.0	157.0	97.0	-124.0
1,1,2,2-Tetrachloroethane	56.0	196.0	123.0	-109.0
Toluene	40.2 ^a	158.0 ^a	99.0	-119.0
Chlorobenzene	35.5 ^a	176.0 ^a	106.0	-133.0
Ethylbenzene	32.7	168.0	100.0	-135.0
Styrene	80.5	145.0	113.0	-57.0
Total xylenes	152.0	30.0	90.9	135.0
1,2-Dichlorobenzene	30.5	143.0	86.8	-130.0
1,3-Dichlorobenzene	31.5	138.0	84.8	-126.0
1,4-Dichlorobenzene	29.5	145.0	87.0	-132.0

TABLE 7. (Continued)

Compound	Percent Recovery		Average Percent Recovery	Relative Percent Difference
	Matrix Spike	Matrix Spike Duplicate		
SAMPLE 38, 100-GRAM SUBSAMPLE				
Chloromethane	94.5	80.0	85.5	86.7
Bromomethane	74.5	79.0	46.0	66.5
Vinyl chloride	87.5	84.0	103.0	91.3
Chloroethane	81.5	94.0	123.0	99.5
Methylene chloride	89.0	95.3	121.0	102.0
Acetone	5,400.0	3,900.0	-980.0	2,800.0
Carbon disulfide	53.2	53.7	71.7	59.6
1,1-Dichloroethene	91.0	96.5	117.0	101.0
1,1-Dichloroethane	86.0	88.0	109.0	94.3
trans-1,2-Dichloroethene	80.5	85.5	93.5	86.5
cis-1,2-Dichloroethene	74.0	86.0	112.0	90.5
Chloroform	81.0	89.0	104.0	91.2
1,2-Dichloroethane	66.0	87.5	96.0	83.2
2-Butanone	-113.0	52.6	9.1	-17.0
1,1,1-Trichloroethane	99.5	128.0	108.0	112.0
Carbon tetrachloride	11.5	60.0	6.0	25.8
Vinyl acetate	10.0	12.0	17.5	13.2
Bromodichloromethane	18.5	38.0	17.0	24.5
Trichlorofluoromethane	117.0	131.0	128.0	125.0
1,1,2-Trichloro-1,2,2-trifluoroethane	110.0	133.0	176.0	140.0
1,2-Dichloropropane	79.0	109.0	92.5	93.5
trans-1,3-Dichloropropene	26.5	53.0	34.5	38.0
Trichloroethene	69.0	95.0	86.5	83.5
Dibromochloromethane	10.0	29.5	11.0	16.8
1,1,2-Trichloroethane	79.0	120.0	100.0	99.7
Benzene	74.9	100.0	90.4	88.4
cis-1,3-Dichloropropene	70.5	64.5	53.5	62.8
2-Chloroethylvinylether	69.0	108.0	116.0	97.5
Bromoform	4.5	18.0	6.5	9.7
4-Methyl-2-pentanone	63.5	99.0	96.5	86.3
2-Hexanone	153.0	142.0	124.0	139.0
Tetrachloroethene	70.0	95.5	87.5	84.3

TABLE 7. (Continued)

Compound	Percent Recovery			Relative Percent Difference
	Matrix Spike	Matrix Spike Duplicate	Average Percent Recovery	
1,1,2,2-Tetrachloroethane	59.0	133.0	105.0	99.0
Toluene	67.4	89.4	93.0	83.4
Chlorobenzene	68.5	108.0	88.0	88.0
Ethylbenzene	78.4	109.0	119.0	102.0
Styrene	55.0	95.0	97.0	82.3
Total xylenes	71.0	146.0	134.0	117.0
1,2-Dichlorobenzene	49.5	112.0	52.0	71.2
1,3-Dichlorobenzene	32.0	83.5	41.0	52.2
1,4-Dichlorobenzene	42.0	80.5	51.0	57.8

^a Outside CLP quality control limits:

	Limits (percent)
1,1-Dichloroethene	(59-172)
Trichloroethene	(62-137)
Benzene	(66-142)
Toluene	(59-139)
Chlorobenzene	(60-133)

PRECISION

Precision was assessed by comparing the RPDs of the MS data; all RPDs are summarized in Table 7. The CLP acceptance criteria for the RPDs of benzene, toluene, chlorobenzene, trichloroethene, and 1,1-dichloroethene in MS samples range from 21 to 24 percent (U.S. EPA 1988b). The RPDs for these five compounds are acceptable. Although not addressed by CLP criteria, relatively high RPD values were reported for methylene chloride, acetone, and 2-butanone in some of the MS samples. These values may be affected by contamination sources described earlier. No qualifications of the data were necessary, according to the functional guidelines for precision.

INTERNAL STANDARD PERFORMANCE

Internal standard performance criteria were assessed to ensure that GC/MS sensitivity and response were stable during all analyses. All criteria for internal standard performance were met and qualification of data was not required during the quality assurance review.

COMPOUND IDENTIFICATION

Mass spectra for all detected target compounds were examined during the quality assurance review to verify that all identification criteria were met as recommended by PSEP (1989) and U.S. EPA (1988b). All detected and reported analytes met the established criteria and are acceptable as qualified.

Samples containing detectable levels of carbon disulfide were qualified as estimated (*E*) because coelution with methylene chloride interfered with the confirmation of carbon disulfide.

Mass spectral searches for tentatively identified compounds were performed in accordance with U.S. EPA (1988b). The quantification and tentative identification of the compounds are acceptable as estimates.

COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

All data quantification procedures and reported detection limits meet the established criteria recommended by U.S. EPA (1988b). All data were verified during quality assurance review, no calculation or transcription errors were found, and all data were correctly transcribed on CLP Form I VOA.

COMPARISON OF DETECTION LIMITS FOR VOLATILE ORGANIC COMPOUNDS

A comparison of detection limits for VOCs between the 1989 and 1990 PSAMP surveys is provided in Table 8. Average reported detection limits are generally 5-10 times higher in the 1990 survey (and occasionally 20-30 times higher) than the average quantification limit reported for the 1989 survey, although the same weight of sample was requested for analysis in both years (approximately 100 grams). Minimum limits for the two surveys differ by approximately 2-5 times for most compounds. Both the 1990 and 1989 limits are substantially lower than the range of 10-20 $\mu\text{g}/\text{kg}$ specified for laboratory detection limits in the PSAMP Implementation Plan (Table 7 in the plan).

A review of the marine sediment monitoring program implementation plan (Tetra Tech 1989) states that a quantification level of approximately 0.01 $\mu\text{g}/\text{kg}$ could serve as an indicator of ambient conditions. This suggested level was not met by either of the average levels reported in 1989 or 1990.

SYSTEM PERFORMANCE

Ongoing data acquisition and instrument performance criteria were examined during the quality assurance review to assess overall GC/MS performance. No abrupt changes in instrument performance were indicated that could have resulted in degradation of data quality. All GC/MS performance indicators (U.S. EPA 1988a) were met and all data are valid, except as qualified and discussed during this quality assurance review.

**TABLE 8. REPORTED DETECTION LIMITS AND QUANTIFICATION LIMITS
FOR VOLATILE ORGANIC COMPOUNDS
(PSAMP 1990 AND 1989)a**

Target Parameter	1990 Reported Detection Limit		1989 Quantification Limit	
	Average	Minimum	Average	Minimum
Chloromethane	1.3	0.5	0.29	0.16
Bromomethane	1.3	0.5	0.14	0.07
Vinyl chloride	1.6	0.5	0.29	0.14
Chloroethane	1.6	0.5	0.29	0.14
Methylene chloride	1.3	0.25	0.03	***b
Acetone	*b		**b	0.1
Carbon disulfide	2.1	0.22	0.07	0.04
1,1-Dichloroethene	0.43	0.05	0.03	0.014
1,1-Dichloroethane	0.43	0.05	0.029	0.014
1,2-Dichloroethene	0.48	0.10	0.056	0.028
Chloroform	0.46	0.05	0.031	***
1,2-Dichloroethane	0.81	0.05	0.057	***
2-Butanone	9.5	2.4	0.6	0.07
1,1,1-Trichloroethane	0.43	0.05	0.028	0.019
Carbon tetrachloride	0.81	0.05	0.028	0.014
Vinyl acetate	0.81	0.05	0.06	0.03
Bromodichloromethane	0.43	0.05	0.057	0.028
1,2-Dichloropropane	0.43	0.05	0.114	0.066
cis-1,3-Dichloropropene	0.51	0.12	0.057	0.028
Trichloroethene	0.43	0.05	0.031	0.016
Dibromochloromethane	0.43	0.05	0.029	0.014
1,1,2-Trichloroethane	0.51	0.12	0.057	0.028
Benzene	0.51	0.12	0.029	0.02
trans-1,3-Dichloropropene	0.81	0.05	0.057	0.028
2-Chloroethylvinyl ether	0.88	0.12	0.14	0.07
Bromoform	1.3	0.12	0.058	0.034
4-Methyl-2-Pentanone	1.0	0.24	0.06	0.03
2-Hexanone	1.0	0.24	0.15	0.08
Tetrachloroethene	0.45	0.05	0.031	***
1,1,2,2-Tetrachloroethane	0.81	0.05	0.057	0.028
Toluene	0.48	0.05	0.028	****b

TABLE 8. (Continued).

Target Parameter	1990 Reported Detection Limit		1989 Quantification Limit	
	Average	Minimum	Average	Minimum
Chlorobenzene	0.43	0.05	0.028	0.014
Ethyl benzene	0.57	0.05	0.028 ****	0.017
Styrene	0.43	0.05	0.028	0.014
Total Xylenes	1.4	0.80	0.028 ****	
1,1,2-CI-1,2,2-F ethane	N/A ^c		0.087	0.033
Trichlorofluoromethane	0.88	0.12	N/A	
Trichlorotrifluoroethane (Freon 113)	0.88	0.12	N/A	

^a $\mu\text{g}/\text{kg}$, dry weight.

^b * All concentrations were detected.

** Only 1 undetected value, no value substituted.

*** 1 or no undetected value. Average quantification limit for trichloroethene has been substituted.

**** 1 or no undetected value. Average quantification limit for styrene has been substituted.

^c N/A - Not analyzed.

28 January 1991

Data Validation Report
Semivolatile Organic Compounds

Site: Puget Sound

Project: 1990 Marine Sediment Monitoring Program

Samples Collected By: Washington Department of Ecology

The samples included in this report were analyzed by Analytical Resources, Inc., of Seattle, Washington.

Data Evaluation By:


James McAteer

Approved By:


Robert C. Barrick

QUALITY ASSURANCE REVIEW OF ACID/BASE/NEUTRAL SEMIVOLATILE COMPOUNDS IN SEDIMENTS

SUMMARY

The data for acid/base/neutral (ABN) semivolatile compounds in sediments are acceptable as qualified in this quality assurance review for the uses specified in the PSAMP Implementation Plan. Qualification of data was in accordance with CLP functional guidelines using PSEP qualifier codes (as in PSAMP 1989) with the exception of qualifications for method blank results. These latter results were assessed using a statistical analysis rather than the functional guidelines. Qualifiers were assigned to the data for the following reasons:

- Analytical results reported between the limit of detection (LOD) and the quantification limit established for the project were assigned a *T* qualifier
- Analytical results reported at less than the LOD were assigned an *E* qualifier to indicate an estimated value
- Samples analyzed beyond the specified holding time were assigned an *E* qualifier
- Undetected target compounds were reported at the LOD and received a *U* qualifier
- Samples containing levels of bis(2-ethylhexyl)phthalate reported at a concentration less than the upper-95-percent confidence interval for method blanks received a *U* qualifier
- Reported analytical results based on presumptive evidence (i.e., all criteria for compound identification as specified by CLP protocols were not met) were assigned an *N* qualifier code.

Detection limits for nine compounds were restated using response factors of 1, 2, and 5 nanograms on-column. The laboratory originally calculated detection limits by extrapolating the standard response to 2,000 ion counts. However, review of the standard responses and their associated ion counts revealed that 2,000 ion counts could not always account for the amount of the compound (on-column) required to achieve the stated detection limits. The restated detection limits were calculated by normalizing the responses of the low-level calibration standards, either 1, 2, 5, or 10 nanograms on-column, for sample weight, final extraction volume, and injection volume.

A quantification limit of 100 $\mu\text{g}/\text{kg}$ was derived for the project based on the lowest calibration standard. Linearity over the calibration range was verified by calculating the RRFs of the 5-, 20-, 50-, 80-, and 120-nanogram on-column standards and confirming that the percent RSD values of the RRFs met the established criteria.

Four samples (40, 68, 70 and 102R) were extracted and analyzed using smaller sample weights (i.e., 30 grams). The results for these samples were assessed during a second quality assurance review and have been included at the end of each subsection contained in this section.

COMPLETENESS

The data package submitted by ARI is 100 percent of total requested analytes; data were reported for all sediment samples, standards, MS samples, and method blanks that were analyzed.

The data package submitted for the initial extractions performed using smaller sample weights is 100 percent of total requested analytes.

HOLDING TIMES

Sediment samples were collected between 12 and 30 March 1990 and delivered to ARI in Seattle between 15 March and 2 April 1990. All sediments were refrigerated during sampling and shipped on ice to the laboratory, where they were stored frozen at -20°C until an initial extraction. Extraction and analysis holding times for semivolatile sample analyses are listed in Table 9. Samples were removed from the freezer and extracted within 5 to 12 days after collection (2 to 9 days after sample receipt). The initial extraction for approximately two-thirds of the samples was incorrectly performed using only 30-50 grams (wet weight) of sediment. Following the first extraction, samples were placed in a refrigerator and stored at 4°C . The analytical laboratory discovered the error in extraction weights in late March 1990 and subsequently performed a second extraction for all affected samples. The holding times between the first and second extraction ranged from 48 to 52 days.

Because 47 of the 1990 samples were stored incorrectly at 4°C for an extended period, an evaluation was also conducted to assess the comparability of detected results for the initial analysis of 30-50 grams of sediment and subsequent reanalysis using 150 grams of sediment. These two rounds of analyses included samples 66, 67, and 68, which are blind triplicate analyses of the Sequim-1 reference material. A quality assurance review of all of the data for the initial round of analyses has not been conducted; the data values used for this evaluation are as reported by the laboratory.

TABLE 9. SAMPLE HOLDING TIMES FOR ACID/BASE/NEUTRAL SEMIVOLATILE ANALYSES

Sample Number	Date Sampled	Date Received	First		Second		Holding Times ^a			
			Extraction (wet wt, gm)	Analysis	Extraction (wet wt, gm)	Analysis	First Extraction	First Analysis	Second Extraction	Second Analysis
29	12 Mar 90	15 Mar 90	23 Mar 90 (50)	06 Apr 90	14 May 90 (130) ^b	16 May 90	11	14	52	2
26	12 Mar 90	15 Mar 90	23 Mar 90 (46)	06 Apr 90	14 May 90 (148)	16 May 90	11	14	52	2
22	12 Mar 90	15 Mar 90	23 Mar 90 (37)	06 Apr 90	14 May 90 (118)	16 May 90	11	14	52	2
20	12 Mar 90	15 Mar 90	23 Mar 90 (48)	06 Apr 90	14 May 90 (74)	16 May 90	11	14	52	2
21	13 Mar 90	15 Mar 90	23 Mar 90 (36)	06 Apr 90	14 May 90 (134)	16 May 90	10	14	52	2
69	13 Mar 90	15 Mar 90	23 Mar 90 (36)	06 Apr 90	14 May 90 (129)	16 May 90	10	14	52	2
35	14 Mar 90	15 Mar 90	23 Mar 90 (47)	06 Apr 90	14 May 90 (140)	16 May 90	9	14	52	2
72	14 Mar 90	15 Mar 90	23 Mar 90 (48)	06 Apr 90	14 May 90 (144)	17 May 90	9	14	52	3
73	14 Mar 90	15 Mar 90	23 Mar 90 (47)	06 Apr 90	14 May 90 (135)	17 May 90	9	14	52	3
74	14 Mar 90	15 Mar 90	23 Mar 90 (47)	09 Apr 90	14 May 90 (135)	17 May 90	9	17	52	3
34	14 Mar 90	15 Mar 90	23 Mar 90 (47)	06 Apr 90	14 May 90 (139)	17 May 90	9	14	52	3
47 ^b	20 Mar 90	23 Mar 90	28 Mar 90 (37)	12 Apr 90	16 May 90 (129)	19 May 90	8	15	49	3
110R ^b	20 Mar 90	23 Mar 90	28 Mar 90 (49)	12 Apr 90	16 May 90 (142)	19 May 90	8	15	49	3

TABLE 9. (Continued)

Sample Number	Date Sampled	Date Received	First Extraction (wet wt, gm)		First Analysis	Second Extraction (wet wt, gm)		Holding Times ^a			
			28 Mar 90	28 Mar 90		16 May 90	20 May 90	First Extraction	First Analysis	Second Extraction	Second Analysis
111R	20 Mar 90	23 Mar 90	28 Mar 90 (48)	28 Mar 90 (48)	12 Apr 90	16 May 90 (146)	20 May 90	8	15	49	4
104R	21 Mar 90	23 Mar 90	28 Mar 90 (47)	28 Mar 90 (47)	12 Apr 90	16 May 90 (138)	20 May 90	7	15	49	4
105R	21 Mar 90	23 Mar 90	28 Mar 90 (48)	28 Mar 90 (48)	12 Apr 90	16 May 90 (140)	20 May 90	7	15	49	4
48	21 Mar 90	23 Mar 90	28 Mar 90 (47)	28 Mar 90 (47)	12 Apr 90	16 May 90 (149)	20 May 90	7	15	49	4
109R	21 Mar 90	23 Mar 90	28 Mar 90 (49)	28 Mar 90 (49)	12 Apr 90	16 May 90 (140)	20 May 90	7	15	49	4
49	22 Mar 90	23 Mar 90	28 Mar 90 (46)	28 Mar 90 (46)	12 Apr 90	16 May 90 (147)	20 May 90	6	15	49	4
106R	22 Mar 90	23 Mar 90	28 Mar 90 (49)	28 Mar 90 (49)	12 Apr 90	16 May 90 (140)	20 May 90	6	15	49	4
108R	22 Mar 90	23 Mar 90	28 Mar 90 (38)	28 Mar 90 (38)	12 Apr 90	16 May 90 (130)	20 May 90	6	15	49	4
46R	22 Mar 90	23 Mar 90	28 Mar 90 (31)	28 Mar 90 (31)	16 Apr 90	16 May 90 (127)	20 May 90	6	19	49	4
38	23 Mar 90	26 Mar 90	28 Mar 90 (46)	28 Mar 90 (46)	16 Apr 90	16 May 90 (144)	23 May 90	5	19	49	7
39	23 Mar 90	26 Mar 90	28 Mar 90 (35)	28 Mar 90 (35)	16 Apr 90	16 May 90 (106)	20 May 90	5	19	49	4
60	23 Mar 90	26 Mar 90	28 Mar 90 (45)	28 Mar 90 (45)	16 Apr 90	16 May 90 (146)	23 May 90	5	19	49	7
62	23 Mar 90	26 Mar 90	28 Mar 90 (46)	28 Mar 90 (46)	17 Apr 90	16 May 90 (142)	23 May 90	5	20	49	7
61	23 Mar 90	26 Mar 90	28 Mar 90 (46)	28 Mar 90 (46)	16 Apr 90	16 May 90 (143)	23 May 90	5	19	49	7

TABLE 9. (Continued)

Sample Number	Date Sampled	Date Received	First		Second		Holding Times ^a			
			Date	Extraction (wet wt, gm)	Date	Extraction (wet wt, gm)	First Extraction	First Analysis	Second Extraction	Second Analysis
67	23 Mar 90	26 Mar 90	29 Mar 90 (32)	16 Apr 90	16 May 90 (108)	23 May 90	6	18	48	7
66	23 Mar 90	26 Mar 90	29 Mar 90 (35)	16 Apr 90	16 May 90 (107)	23 May 90	6	18	48	7
68	23 Mar 90	26 Mar 90	29 Mar 90 (37)	16 Apr 90	--	--	6	18	--	--
40	15 Mar 90	19 Mar 90	27 Mar 90 (41)	11 Apr 90	--	--	12	15	--	--
41	15 Mar 90	19 Mar 90	27 Mar 90 (48)	11 Apr 90	15 May 90 (130)	17 May 90	12	15	49	2
113R	15 Mar 90	19 Mar 90	27 Mar 90 (39)	11 Apr 90	15 May 90 (126)	17 May 90	12	15	49	2
114R	15 Mar 90	19 Mar 90	27 Mar 90 (48)	11 Apr 90	15 May 90 (142)	18 May 90	12	15	49	3
43	16 Mar 90	19 Mar 90	27 Mar 90 (38)	11 Apr 90	15 May 90 (129)	18 May 90	11	15	49	3
116R	16 Mar 90	19 Mar 90	27 Mar 90 (39)	11 Apr 90	15 May 90	18 May 90	11	15	49	3
44	16 Mar 90	19 Mar 90	27 Mar 90 (37)	11 Apr 90	15 May 90 (128)	18 May 90	11	15	49	3
63	16 Mar 90	19 Mar 90	27 Mar 90 (39)	11 Apr 90	15 May 90 (145)	18 May 90	11	15	49	4
64	16 Mar 90	19 Mar 90	27 Mar 90 (38)	12 Apr 90	15 May 90 (142)	18 May 90	11	16	49	3
65	16 Mar 90	19 Mar 90	27 Mar 90 (41)	12 Apr 90	15 May 90 (140)	18 May 90	11	16	49	3
112R	17 Mar 90	19 Mar 90	27 Mar 90 (36)	12 Apr 90	15 May 90 (118)	18 May 90	10	16	49	3
115R	17 Mar 90	19 Mar 90	27 Mar 90 (48)	12 Apr 90	15 May 90 (141)	18 May 90	10	16	49	3

TABLE 9. (Continued)

Sample Number	Date Sampled	Date Received	First Extraction		First Analysis	Second Extraction		Second Analysis	Holding Times ^a		
			(wet wt, gm)	(wet wt, gm)		(wet wt, gm)	(wet wt, gm)		First Extraction	First Analysis	Second Extraction
45	17 Mar 90	19 Mar 90	27 Mar 90 (49)	11 Apr 90	11 Apr 90	15 May 90 (140)	18 May 90	10	15	49	3
70	18 Mar 90	19 Mar 90	27 Mar 90 (46)	12 Apr 90	12 Apr 90	--	--	9	16	--	--
101R	18 Mar 90	19 Mar 90	27 Mar 90 (47)	12 Apr 90	12 Apr 90	15 May 90 (142)	18 May 90	9	16	49	3
102R	18 Mar 90	19 Mar 90	27 Mar 90 (47)	12 Apr 90	12 Apr 90	--	--	9	16	--	--
103R ^b	18 Mar 90	19 Mar 90	27 Mar 90 (37)	16 Apr 90	16 Apr 90	15 May 90 (121)	19 May 90	9	20	49	4
32	25 Mar 90	28 Mar 90	06 Apr 90 (104)	15 May 90	15 May 90	--	--	12	39	--	--
33	25 Mar 90	28 Mar 90	06 Apr 90 (117)	15 May 90	15 May 90	--	--	12	39	--	--
30	25 Mar 90	28 Mar 90	06 Apr 90 (124)	15 May 90	15 May 90	--	--	12	39	--	--
19	26 Mar 90	28 Mar 90	06 Apr 90 (126)	15 May 90	15 May 90	--	--	11	39	--	--
18	26 Mar 90	28 Mar 90	06 Apr 90 (124)	14 May 90	14 May 90	--	--	11	38	--	--
4	26 Mar 90	28 Mar 90	06 Apr 90 (122)	14 May 90	14 May 90	--	--	11	38	--	--
71	26 Mar 90	28 Mar 90	06 Apr 90 (132)	14 May 90	14 May 90	--	--	11	38	--	--
57	25 Mar 90	28 Mar 90	06 Apr 90 (101)	15 May 90	15 May 90	--	--	12	39	--	--
58	25 Mar 90	28 Mar 90	06 Apr 90 (109)	15 May 90	15 May 90	--	--	12	39	--	--
59	25 Mar 90	28 Mar 90	06 Apr 90 (105)	15 May 90	15 May 90	--	--	12	39	--	--
5	27 Mar 90	28 Mar 90	06 Apr 90 (121)	15 May 90	15 May 90	--	--	10	39	--	--
3	27 Mar 90	28 Mar 90	06 Apr 90 (120)	15 May 90	15 May 90	--	--	10	39	--	--
1	27 Mar 90	28 Mar 90	06 Apr 90 (122)	15 May 90	15 May 90	--	--	10	39	--	--
51	27 Mar 90	28 Mar 90	06 Apr 90 (121)	15 May 90	15 May 90	--	--	10	39	--	--
52	27 Mar 90	28 Mar 90	06 Apr 90 (123)	15 May 90	15 May 90	--	--	10	39	--	--
53	27 Mar 90	28 Mar 90	06 Apr 90 (121)	15 May 90	15 May 90	--	--	10	39	--	--

TABLE 9. (Continued)

Sample Number	Date Sampled	Date Received	First Extraction		Second Extraction		Holding Times ^a				
			(wet wt, gm)	(115)	(wet wt, gm)	(128)	First Analysis	Second Analysis	First Extraction	Second Extraction	First Analysis
8	29 Mar 90	02 Apr 90	10 Apr 90	(115)	29 May 90	--	--	12	49	--	--
12	29 Mar 90	02 Apr 90	10 Apr 90	(128)	29 May 90	--	--	12	49	--	--
14	30 Mar 90	02 Apr 90	10 Apr 90	(109)	29 May 90	--	--	11	49	--	--
15	30 Mar 90	02 Apr 90	10 Apr 90	(105)	29 May 90	--	--	11	49	--	--
17	30 Mar 90	02 Apr 90	10 Apr 90	(124)	29 May 90	--	--	11	49	--	--

^a Holding times reported are, in order: days between date sampled and first extraction; days between first extraction and first analysis; days between first and second extraction; days between second extraction and second analysis.

^b All sample analyses performed on 19 May 1990 were completed within 12 hours of the continuing calibration standard analyzed on 18 May 1990 at 3:52pm, in accordance with CLP requirements (U.S. EPA 1988).

Specific action limits for analytical replicates are not provided in U.S. EPA (1988). However, an acceptable result for analytical replicates using PSEP guidelines is 50 percent coefficient of variation, or differences of approximately a factor of two (PSEP 1989a). This guideline was used to evaluate differences between the two rounds of semivolatile compound analyses conducted by the analytical laboratory. In particular, samples in which compound concentrations decreased by >50 percent indicate differences that may not be accounted for by analytical variability and could be of concern because of refrigerated storage beyond recommended holding times. The following compounds were detected in both rounds of analyses:

- At least one low molecular weight polycyclic aromatic hydrocarbon compound was detected in 15 pairs of samples. Concentrations decreased by >50 percent of the original result for at least one detected compound in three (20 percent) of these samples, decreased by <50 percent for five (33 percent) of these samples, and increased or were constant for seven (47 percent) of these samples.
- At least one high molecular weight polycyclic aromatic hydrocarbon compound was detected in 19 pairs of samples. Concentrations decreased by >50 percent of the original result for at least one compound in five (26 percent) of these samples, decreased by <50 percent for seven (37 percent) of these samples, and increased or were constant for seven (37 percent) of these samples.
- Phenol was detected in six pairs of samples. Phenol concentrations decreased by >50 percent of the original result in three (50 percent) of these samples and increased in three (50 percent) of these samples.
- 4-Methylphenol was detected in three pairs of samples (the three blind reference samples). The concentration decreased in one (33 percent) of these samples and decreased <50 percent in two (67 percent) of these samples.
- Pentachlorophenol was detected in three pairs of samples (the three blind reference samples). The concentrations increased in all three samples.
- Bis(2-ethylhexyl)phthalate was detected in 27 samples. Concentrations increased in all but two of these samples and varied substantially more than results for any other compound, likely as a result of variable laboratory contamination.
- Other phthalate esters were detected in three samples; the concentrations decreased >50 percent in each case.
- Dibenzofuran was detected in one pair of samples and the concentrations increased over time.

A comparison was made of the concentrations reported for the most degradable compounds detected in the blind reference samples in 1989, 1990 (second round), and 1990 (first round). These compounds included low molecular weight polycyclic aromatic hydrocarbons and phenols; the results are summarized in Table 10. Data are also summarized for the 95-percent-confidence interval reported in Table 10 of the 1989 PSAMP report for this reference material. Although there is variability among the three sets of analyses, there is no consistent evidence of a positive or negative bias for these compounds in the second round of the 1990 analyses relative to the reported confidence intervals. There is, however, evidence of positive bias in the second 1990 analysis for higher molecular weight polycyclic aromatic hydrocarbons compounds (e.g., phenanthrene and anthracene in Table 10, and higher molecular weight compounds not shown in the table).

There is no overwhelming evidence that the extended holding times for the second analysis on 47 of the 68 samples from the 1990 survey adversely affected the reported results or the comparability between the 1989 and 1990 surveys. Therefore, reported data and detection limits for most of the refrigerated samples that exceeded recommended holding times are qualified as estimates. Second round data for four samples in which there is evidence of a >50 percent decrease in concentrations (i.e., Samples 40, 68, 70, and 102R) were rejected and the data from the initial round were accepted.

Holding times for Samples 40, 68, 70, and 102R, which were initially extracted using approximately 30 grams (wet weight), were assessed during a second quality assurance review. Extractions were performed between 6 and 12 days after sample collection and were analyzed between 15 and 18 days after extraction. These samples had been stored frozen until analysis.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY TUNING

GC/MS tuning was established with decafluorotriphenylphosine (DFTPP) prior to initial and continuing calibration for each sample sequence. The laboratory performed 14 mass spectrometer tunings using DFTPP during the time period sample analyses were conducted. All original data were examined during the quality assurance review to verify that tuning and performance criteria were met. In general, calculations and transcriptions were correctly entered on CLP Form V SV. A few incorrect transcriptions and slight rounding errors were found that were corrected during the quality assurance review.

The ion abundances for the DFTPP tune performed on 13 April 1990 were incorrectly transcribed on CLP Form V SV. Data obtained for the 17 April 1990 DFTPP tuning were incorrectly entered on CLP Form V SV for 13 April 1990; the correct values were entered during the quality assurance review. All tuning requirements specified by PSEP (1989) and U.S. EPA (1988b) were met by the

**TABLE 10. MEAN CONCENTRATION (n = 3)
AND COEFFICIENT OF VARIATION FOR
PUGET SOUND REFERENCE SEDIMENT^a**

Chemical	1989 Analysis ^b	1990 Second Analysis	1990 First Analysis	Independent 95% Confidence Interval ^b
Naphthalene	53 ± 9%	65 ± 22%	41 ± 12%	68-124
Acenaphthene	50 ± 11%	40 ± 19%	32 ± 28%	46-134
Acenaphthylene	86 ± 12%	110 ± 16%	65 ± 20%	56-144
Fluorene	89 ± 9%	110 ± 18%	75 ± 26%	32-182
Phenanthrene	140 ± 0%	430 ± 53%	89 ± 29%	20-396
Anthracene	130 ± 17%	210 ± 27%	84 ± 29%	28-179
Phenol	11 ± 13%	65 ± 2%	57 ± 8%	0-895
4-Methylphenol	287 ± 7%	160 ± 32%	296 ± 22%	88-342
Pentachlorophenol	240 ± 18%	230 ± 24%	139 ± 46%	242-536

^a SQ-1; $\mu\text{g}/\text{kg}$ dry weight.

^a As presented in the 1989 PSAMP final report.

laboratory, and all sample analyses were performed within the required 12-hour period after DFTPP tuning (U.S. EPA 1988b).

Tuning was performed six times during the analyses of Samples 40, 68, 70, and 102R; criteria for tuning were assessed during the second quality assurance review. The criteria for acceptable DFTPP tuning was met and the results are acceptable.

CALIBRATION

Instrument calibration was performed in accordance with the recommended PSEP guidelines (PSEP 1989) and CLP protocols (U.S. EPA 1988b). A detailed description of the results for initial and continuing calibration is presented below. All calculations for RRFs, percent RSDs, and percent differences were verified during the quality assurance review.

Initial Calibration

The initial 5-point calibration (20, 50, 80, 120, and 160 nanograms on-column) for ABN semivolatile compounds was performed on 9 May 1990 and met the initial calibration criteria established by PSEP (1989) and U.S. EPA (1988b).

Linearity is established when all average RRFs are greater than 0.05 and the percent RSDs of the RRFs are less than 30 percent. Initial calibration criteria were met for ABN compounds and are acceptable as reported. The percent RSDs are within the 30-percent limit; however, the values are relatively high because the RRFs are inconsistent.

A linearity check calibration (1, 2, and 5 nanograms on-column) was performed to assess GC/MS sensitivity. Of the percent difference values, 89 of 198 fail the criteria limit of 25 percent. The high number of ABN compounds that fail percent difference criteria in this range is not unusual because analytical variability increases near the detection limit.

A 3-point calibration (25, 75, and 150 nanograms on-column) was established for resin acid compounds, and a 1-point calibration (50 nanograms on-column) was established for guaiacols and chlorinated guaiacols. All acceptance criteria for RRF responses and percent RSDs were met for these compounds. These compounds were analyzed by GC/MS selective ion monitoring.

An initial 5-point calibration was performed on 19 March and 13 April 1990 for the analyses of Samples 40, 68, 70, and 102R. The criteria for initial calibration were met for all target compounds, with the exception of 2,6-dinitrotoluene. The value of the percent RSD was reported as 38.7, which is 8 percent above the

acceptance limit. However, this compound was not detected in the four samples and qualification of the results was not required.

Continuing Calibration

Continuing calibration standards were analyzed at the beginning of each analytical sequence to verify instrument calibration, and 12 continuing calibration standards were analyzed for all sediment samples submitted. Criteria for continuing calibration require all RRFs to exceed 0.05 and all percent differences to be less than 25 percent of the average RRF of the initial calibration. All compounds exceeded 0.05 RRF; however, a few compounds in each of the continuing calibration standards do not meet the 25-percent-difference criteria. These compounds are summarized in Table 11.

The laboratory performed four continuing calibration analyses for results associated with samples 40, 68, 70, and 102. The dates of continuing standard analyses were 11, 12, and 16 April 1990, and the criteria for acceptable performance were met for most compounds. Results for no more than five compounds exceed the 25-percent-difference criteria; however, the sample results do not require qualification because the percent differences were a negative value, indicating either greater instrument sensitivity or that the compounds were not detected.

METHOD BLANK ANALYSES

Five method blanks were analyzed and no ABN semivolatile compounds were detected except for bis(2-ethylhexyl)phthalate, which was present in significant concentrations in method blanks extracted on 14, 15, and 16 March 1990. An arithmetic mean and upper-95-percent confidence level for bis(2-ethylhexyl)phthalate was calculated from the results of the method blank analyses (Table 12). One of the method blank values was considered an outlier and was omitted from the mean and confidence level calculation. The upper-95-percent confidence level was then adjusted to reflect the mean dry sample weight of all samples. The concentration for any sample where bis(2-ethylhexyl)phthalate was less than the adjusted upper-95-percent confidence interval has been qualified with a *U*.

Two method blanks were analyzed for data associated with samples 40, 68, 70, and 102R and were assessed during the second quality assurance review. No target ABN compounds were detected, including bis(2-ethylhexyl)phthalate, and the results are acceptable as reported.

TABLE 11. PERCENT DIFFERENCE OF COMPOUNDS NOT MEETING
CONTINUING CALIBRATION CRITERIA

Compound	4/13 ^a	4/13	5/14	5/15	5/16	5/17	5/18 ^b	5/18 ^c	5/20	5/23	5/29	5/29
4-Methylphenol	25.1	-- ^d	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	--	25.6	--	--	28.4	--	--	--	--	--	--	25.6
Hexachlorocyclopentadiene	--	--	--	39.8	--	27.7	--	--	--	--	--	--
2-Chlorophenol	--	--	--	--	-25.4	--	--	--	--	--	--	--
Benzyl alcohol	--	--	--	--	33.5	--	--	32.3	--	36.2	--	--
Nitrobenzene	--	--	--	--	-38.1	--	-29.4	--	--	--	--	--
4-Nitroaniline	--	--	--	--	--	30.4	--	--	--	--	--	--
Anthracene	--	--	--	--	--	--	--	--	-25.2	--	--	--
3,3'-Dichlorobenzidine	--	--	--	--	--	--	--	--	26.6	--	--	--
di-n-Octylphthalate	--	--	--	--	--	--	--	--	-25.3	--	--	--
Benzo(k)fluoranthene	--	--	--	--	--	--	--	--	-27.4	--	--	--
4-Nitrophenol	--	--	--	--	--	--	--	--	--	27.7	--	--
2,4-Dinitrotoluene	--	--	--	--	--	--	--	--	--	-29.5	--	--
bis(2-Chloroethoxy)methane	--	--	--	--	--	--	--	--	--	--	26.8	--
Indeno(1,2,3-c,d)pyrene	--	--	--	--	--	--	--	--	--	--	26.6	--

^a All analyses occurred during 1990.

^b Standard was analyzed at 10:13 a.m.

^c Standard was analyzed at 3:52 p.m.

^d Not applicable.

**TABLE 12. ACID/BASE/NEUTRAL
METHOD BLANK SUMMARY**

Date Analyzed	Bis(2-ethylhexyl)phthalate	
6 April 1990	1.0 <i>U</i>	
10 April 1990	1.0 <i>U</i>	
14 May 1990	3.7	
15 May 1990	4.7	
16 May 1990	20 ^a	

	All Samples	Excluding 16 May 1990 Sample
n:	5	4
Mean:	6.0	2.6
Standard Error:	13.9	2.8
95 Percent Confidence Limit:	45	12
Mean Sample Weight:	67	70
T[0.05,n-1]:	2.78	3.18
Adjusted 95 Percent Confidence Limit ^b :	670	170

^a Due to the large concentration of bis(2-ethylhexyl)phthalate found in the last blank, calculations of confidence limits are done both with and without this value. The confidence limit computed with this value is applied only to those samples associated with this blank. The confidence limit computed excluding this value is applied to all other samples.

^b The 95 percent confidence limits are expressed in $\mu\text{g}/\text{kg}$, dry weight. The total concentration (in $\mu\text{g}/\text{mL}$) is normalized to $\mu\text{g}/\text{kg}$, dry weight using the average sample weight for appropriate samples (shown in grams, dry weight), and the final extract volume (1 mL). Any detected concentrations at or below the adjusted confidence limits were assigned *U* qualifiers.

ACCURACY

Accuracy was assessed by evaluating recoveries for stable-isotope-labeled surrogates and MS samples.

Surrogate Recoveries

Recoveries for the six stable-isotope-labeled surrogate compounds specified by the U.S. EPA (1988a) are summarized in Table 13. Average recoveries ranged from approximately 70 to 108 percent, with standard deviations ranging from approximately 7 to 26 percent.

Recoveries of one of the six surrogate compounds did not meet CLP quality control limits in 35 of the 81 sample and blank analyses. Because no more than one surrogate compound in any sample (usually phenol-d₅) fell outside CLP control limits, qualification of the data was not required. Surrogate recoveries were verified from the original data and some transcription errors were found on CLP Form II SV. These errors were corrected during the quality assurance review.

Surrogate recoveries for the analyses performed on samples 40, 68, 70, and 102R that used smaller sample weights meet the CLP acceptance criteria. Three recoveries for Station 68, however, do not meet the PSEP warning limit of > 50 percent recovery.

Matrix Spike Recoveries

MS samples were prepared using the 11 ABN semivolatile compounds required by CLP protocols (U.S. EPA 1988b) and were performed in duplicate on four sediment samples. The percent recoveries for MS analyses are summarized in Table 14 and are acceptable for most compounds. The CLP control limit for MS recovery (U.S. EPA 1988b) was not achieved for phenol in five of the MS analyses or for pentachlorophenol in two of the MS analyses.

Percent recoveries were calculated by dividing the quantified extract concentration by the known concentration that had been added to the sample and then multiplying by 100. If a spiking compound was detected in the original sample extract, its quantified value was subtracted from the value calculated in the MS extract. This corrected value was then used to determine the percent recovery. Spike recoveries that do not meet control limit criteria could be attributed to sample heterogeneity, which could result in a variable concentration of a compound in the sample and MS extracts and inaccurate estimates of the actual recovery of spiked compounds.

TABLE 13. PERCENT RECOVERY FOR ACID/BASE/NEUTRAL SEMIVOLATILE COMPOUNDS IN SEDIMENT SAMPLES

Sample Number	Surrogate 1 (NBZ) ^a	Surrogate 2 (FBP) ^b	Surrogate 3 (TPH) ^c	Surrogate 4 (PHL) ^d	Surrogate 5 (2FP) ^e	Surrogate 6 (TBP) ^f
Method Blank 1	42.5 ^g	37.4 ^g	42.1 ^g	38.7 ^g	34.4 ^g	26.6 ^g
Method Blank 2	68.9	60.8	72.9	60.8	52.1	50.8
Method Blank 3	83.3	75.8	76.6	104	62.9	49.4 ^g
Method Blank 4	75.7	67.4	61.8	79.4	57.4	35.5 ^g
Method Blank 5	74.3	74.0	77.9	82.3	53.4	46.0 ^g
1	71.3	77.2	57.0	93.4	62.1	63.3
3	70.7	72.7	51.1	83.5	62.4	43.8 ^g
4	77.0	74.9	61.0	88.3	63.6	61.3
5	78.9	77.3	60.7	98.1	70.2	51.8
5 MS	64.8	63.6	50.8	58.8	54.4	49.9 ^g
5 MSD	66.2	62.9	51.8	58.7	54.7	45.0
8	82.6	77.4	66.9	95.5	47.8 ^g	71.0
12	69.0	70.9	57.3	91.2	50.1	63.0
12 R	54.6	62.3	77.9	77.4	51.7	62.2
14	68.7	80.2	75.0	106	59.9	71.9
15	72.5	78.3	63.2	115 ^h	80.1	61.3
17	81.2	91.6	74.3	121 ^h	71.6	82.9
18	84.6	81.6	60.8	99.2	67.5	59.6
19	60.6	72.9	61.9	72.9	53.8	68.6
20	59.8	74.2	59.4	106	57.6	57.9
21	54.2	79.1	70.8	96.6	56.0	69.0
22	68.3	69.5	72.6	111	68.7	58.0
26	73.2	82.9	68.9	126 ^h	75.4	61.0
29	59.5	62.0	62.3	113	60.0	66.9
30	75.2	83.0	71.4	82.0	64.2	72.0
32	67.3	70.8	59.3	78.0	61.4	57.1
33	72.0	78.9	65.9	78.5	60.2	63.7
34	65.8	75.9	67.2	121	81.4	53.9
35	72.3	80.4	64.7	107	60.4	69.8
35 MS	71.4	72.9	66.1	104	70.1	62.0
35 MSD	70.2	73.1	67.8	95.3	69.7	60.1

TABLE 13. (Continued)

Sample Number	Surrogate 1 (NBZ) ^a	Surrogate 2 (FBP) ^b	Surrogate 3 (TPH) ^c	Surrogate 4 (PHL) ^d	Surrogate 5 (2FP) ^e	Surrogate 6 (TBP) ^f
38	70.3	70.8	57.0	172 ^h	102	44.0 ^g
39	74.0	69.5	73.2	136 ^h	81.4	40.0 ^g
39 MS	85.1	75.5	64.2	112	72.1	62.7
39 MSD	81.7	77.2	71.4	116 ^h	74.0	51.5
40	64.1	75.3	74.8	79.1	70.7	71.0
41	54.4	71.9	70.2	86.8	60.2	68.6
43	63.8	64.7	66.2	69.0	59.9	62.1
44	75.7	79.2	66.0	143 ^h	90.4	59.1
44 MS	81.0	72.2	67.8	96.7	79.2	57.4
4 MSD	77.8	67.8	68.1	96.9	80.8	62.0
45	58.7	75.2	75.4	122 ^h	69.2	68.5
46 R	76.6	69.9	73.1	117 ^h	80.4	49.7
47	51.9	62.1	71.7	88.3	58.2	52.5
48	72.8	74.9	71.0	115 ^h	79.3	59.5
49	72.6	69.1	70.3	114 ^h	76.9	51.6
51	68.3	68.8	57.9	87.7	57.9	63.9
52	58.9	66.8	54.0	84.4	61.2	55.2
53	62.5	72.8	61.4	99.0	69.3	67.2
72	62.7	75.6	70.1	124 ^h	77.2	61.9
73	64.2	73.9	70.1	123 ^h	76.5	68.7
74	58.6	67.1	69.1	115 ^h	70.0	61.2
57	72.9	78.5	65.9	89.4	66.1	59.7
58	79.8	81.1	61.2	101	71.4	60.1
59	78.5	76.8	56.3	93.7	66.1	56.9
63	79.6	80.5	74.3	130 ^h	79.4	61.6
60	74.6	78.1	66.0	181 ^h	91.5	49.3 ^g
61	59.3	68.3	57.6	141 ^h	74.4	40.7 ^g
62	63.5	68.1	56.1	161 ^h	90.5	38.2 ^g
64	78.1	79.6	67.3	121 ^h	74.0	58.2
65	72.2	78.1	65.7	125 ^h	78.8	61.2
66	69.8	73.8	66.7	160 ^h	84.9	55.8
67	78.0	79.1	70.8	160 ^h	88.8	66.0
68	42.8 ^g	56.6	56.3	47.9 ^g	30.7 ^g	82.3
69	66.2	77.6	69.6	111	65.9	67.9
70	54.6	74.4	69.1	71.7	66.9	75.7

TABLE 13. (Continued)

Sample Number	Surrogate 1 (NBZ) ^a	Surrogate 2 (FBP) ^b	Surrogate 3 (TPH) ^c	Surrogate 4 (PHL) ^d	Surrogate 5 (2FP) ^e	Surrogate 6 (TBP) ^f
71	72.6	78.2	59.6	86.5	60.3	57.4
101 R	49.6 ^g	69.8	86.8	98.7	59.8	63.3
102 R	54.2	62.5	74.4	74.1	66.6	74.1
103 R	71.9	79.4	73.5	132 ^h	81.1	61.4
104 R	71.9	71.7	68.9	120 ^h	79.5	59.0
105 R	69.4	69.7	72.7	121 ^h	73.8	53.0
106 R	76.5	80.5	70.7	134 ^h	79.1	59.0
108 R	76.3	74.9	71.9	115 ^h	83.2	48.3 ^g
109 R	73.9	73.3	65.0	121 ^h	78.1	49.8 ^g
110 R	73.0	72.1	78.9	123 ^h	82.3	68.8
111 R	76.0	72.6	72.9	130 ^h	80.1	53.2
114 R	71.4	75.9	70.0	96.1	72.3	75.4
113 R	77.2	76.9	67.9	114 ^h	84.0	61.6
115 R	62.1	72.4	67.0	104	64.5	56.4
116 R	75.2	73.1	65.8	102	78.9	52.0
Mean Percent Recovery	69.3	73.0	66.5	105	69.1	59.0
Standard Deviation	9.3	7.2	7.5	26.7	12.5	10.1
Range	42.5-85.1	37.4-91.6	42.1-86.8	38.7-181	30.7-102	26.6-82.9
CLP Control Limits	23-120	30-115	18-137	24-113	25-121	19-122
PSEP Control Limit	50	50	50	50	50	50

^a Nitrobenzene-d₅.

^b 2-Fluorobiphenyl.

^c Terphenyl-d₁₄.

^d Phenol-d₅.

^e 2-Fluorophenyl.

^f 2,4,6-Tribromophenol.

^g Values below PSEP 50 percent warning limit, but within CLP quality control limits.

^h Values outside CLP quality control limits.

**TABLE 14. SPIKE RECOVERY DATA FOR ACID/BASE/NEUTRAL
COMPOUNDS IN SEDIMENT SAMPLES**

Compound	Percent Recovery			Quality Control Limits	
	Matrix Spike	Matrix Spike Duplicate	Relative Percent Difference	Relative Percent Difference	Percent Recovery
Sample 5					
Phenol	58.2	58.0	0.0	35	26-90
2-Chlorophenol	47.8	47.8	0.0	50	25-102
1,4-Dichlorobenzene	56.4	55.5	1.6	27	28-104
N-nitroso-di- <i>n</i> -propylamine	60.0	57.3	4.7	38	41-126
1,2,4-Trichlorobenzene	63.6	60.0	5.9	23	38-107
4-Chloro-3-methylphenol	56.5	52.2	8.0	33	26-103
Acenaphthene	60.0	58.2	3.1	19	31-137
4-Nitrophenol	33.9	32.2	5.3	50	11-114
2,4-Dinitrotoluene	50.9	49.1	3.6	47	28-89
Pentachlorophenol	43.5	43.5	0.0	47	17-109
Pyrene	59.0	59.0	0.0	36	35-142
Sample 35					
Phenol	104 ^a	104 ^a	0.0	35	26-90
2-Chlorophenol	76.2	76.2	0.0	50	25-102
1,4-Dichlorobenzene	51.8	55.5	-6.8	27	28-104
N-nitroso-di- <i>n</i> -propylamine	78.2	72.7	7.2	38	41-126
1,2,4-Trichlorobenzene	63.6	66.4	-4.2	23	38-107
4-Chloro-3-methylphenol	61.9	66.7	-7.4	33	26-103
Acenaphthene	62.1	65.7	-5.7	19	31-137
4-Nitrophenol	45.7	47.1	-3.1	50	11-114
2,4-Dinitrotoluene	57.3	61.8	-7.6	47	28-89
Pentachlorophenol	41.4	35.7	15	47	17-109
Pyrene	45.4	45.4	0.0	36	35-142

TABLE 14. (Continued)

Compound	Percent Recovery			Quality Control Limits	
	Matrix Spike	Matrix Spike Duplicate	Relative Percent Difference	Relative Percent Difference	Percent Recovery
Sample 44					
Phenol	90.9	99.1 ^a	-8.6	35	26-90
2-Chlorophenol	73.6	73.9	-0.3	50	25-102
1,4-Dichlorobenzene	76.4	72.7	4.9	27	28-104
N-nitroso-di- <i>n</i> -propylamine	85.5	81.8	4.3	38	41-126
1,2,4-Trichlorobenzene	76.4	74.5	2.4	23	38-107
4-Chloro-3-methylphenol	69.1	70.3	-1.7	33	26-103
Acenaphthene	65.5	67.3	-2.7	19	31-137
4-Nitrophenol	54.5	58.6	-7.1	50	11-114
2,4-Dinitrotoluene	58.2	61.8	-6.1	47	28-89
Pentachlorophenol	51.8	56.8	-9.1	47	17-109
Pyrene	67.1	70.8	-5.3	36	35-142
Sample 44^b					
Phenol	69.7	70.0	0.4	35	26-90
2-Chlorophenol	77.6	80.0	3.0	50	25-102
1,4-Dichlorobenzene	78.9	77.5	1.9	27	28-104
N-nitroso-di- <i>n</i> -propylamine	60.5	60.0	0.9	38	41-126
1,2,4-Trichlorobenzene	78.4	75.0	5.1	23	38-107
4-Chloro-3-methylphenol	84.2	85.0	0.9	33	26-103
Acenaphthene	76.3	75.0	1.7	19	31-137
4-Nitrophenol	65.8	60.0	9.2	50	11-114
2,4-Dinitrotoluene	81.6	77.5	5.1	47	28-89
Pentachlorophenol	40.8	35.0	15	47	17-109
Pyrene	68.4	70.0	2.3	36	35-142

TABLE 14. (Continued)

Compound	Percent Recovery		Relative Percent Difference	Quality Control Limits	
	Matrix Spike	Matrix Spike Duplicate		Relative Percent Difference	Percent Recovery
Sample 39					
Phenol	117 ^a	125 ^a	-6.9	35	26-90
2-Chlorophenol	91.7	91.7	0.0	50	25-102
1,4-Dichlorobenzene	69.5	72.9	-4.8	27	28-104
N-nitroso-di- <i>n</i> -propylamine	88.1	102	-14	38	41-126
1,2,4-Trichlorobenzene	88.1	93.2	-5.6	23	38-107
4-Chloro-3-methylphenol	69.2	72.5	-4.7	33	26-103
Acenaphthene	66.1	69.5	-5.0	19	31-137
4-Nitrophenol	37.5	31.7	17	50	11-114
2,4-Dinitrotoluene	57.6	55.9	3.0	47	28-89
Pentachlorophenol	15.0 ^a	10.0 ^a	40	47	17-109
Pyrene	64.4	72.9	-12	36	35-142

^a Outside quality control limits.

^b The spike recovery data reported on this page are associated with the four samples that were validated during the second quality assurance review. The data are from the initial extractions and analyses performed using approximately 35 grams (wet weight).

MS analyses were not performed on samples analyzed for resin acids and guaiacols.

All data were verified and recalculated during the quality assurance review. The data were correctly transcribed on CLP Form III SV and all percent recoveries and RPDs are acceptable, except as noted in Table 14.

Results for a MS and MSD were assessed during the second quality assurance review using Sample 44, which was initially spiked and extracted using approximately 35 grams. This matrix spike analysis is associated with the initial extractions of Samples 40, 68, 70, and 102R. The recoveries of all compounds used to prepare the initial matrix spike and matrix spike duplicate for this sample are acceptable. The results for both the initial and subsequent spiking of Sample 44 are summarized in Table 14.

PRECISION

Precision was assessed by comparing the RPD of the MS and MSD percent recoveries. The RPD results are summarized in Table 14 and are acceptable for all compounds. All RPD results were verified from the original data by recalculation during the quality assurance review.

INTERNAL STANDARD PERFORMANCE

Internal standard performance criteria (U.S. EPA 1988a) were assessed to ensure that GC/MS sensitivity and response were stable during all analyses. The laboratory did not submit the internal standard performance summary (CLP Form VIII SV) with the data package. Criteria for internal standard performance were reviewed using the original data during the quality assurance review and were found to be acceptable. Qualification of the data was not required.

The criteria for internal standard performance were met for all analyses associated with Samples 40, 68, 70, and 102R. During the second quality assurance review, all results were assessed and are acceptable.

COMPOUND IDENTIFICATION

Mass spectra were examined during the quality assurance review to verify that compound identification criteria were met as recommended by U.S. EPA (1988a). Low and high molecular weight polycyclic aromatic hydrocarbons were detected in most sediment samples; benzoic acid and coprostanol were also detected in a few samples.

Compound identifications for results reported for Samples 40, 68, 70, and 102R were verified during the second quality assurance review. The criteria specified by CLP protocols were used to assess the results. If the criteria were met, the results were only qualified if they are between the LOD and the quantification limit established for this project. If the results did not meet all criteria, then an *N* qualifier was assigned to indicate presumptive evidence of the compound's identity. Specifically, an *N* qualifier was assigned to compounds identified as present by the laboratory if the molecular ion and at least one secondary ion were present, the correct retention time was indicated, and the compositional patterns of the compound and related compounds are similar to historical patterns in Puget Sound sediments (based on professional judgment).

COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

All quantification requirements stated in the CLP functional guidelines (U.S. EPA 1988b) and PSAMP detection limit requirements were reviewed during the quality assurance review. The laboratory had estimated the LOD, rather than calculating the value using low-level standards. Therefore, the LOD for most ABN compounds was recalculated during the quality assurance review by normalizing the response of a low-level standard (either 1, 2, 5, or 10 nanograms on-column) for sample weight, final extract volume, and injection volume.

A quantification limit for ABN compounds was established at 100 $\mu\text{g}/\text{kg}$ (dry weight basis) by verifying linearity using 5-, 20-, 50-, 80-, and 120-nanograms on-column calibration standards. Use of the 5-nanogram on-column standard in the calibration curve was considered appropriate, based on the linearity check, although CLP protocols do not include this standard. Recalculation of RRFs, average RRFs, and percent RSDs of the RRFs was performed during the quality assurance review to verify the quantification limit of 100 $\mu\text{g}/\text{kg}$. All ABN compounds met the acceptance criteria for RRFs and percent RSDs, based on the calibration curve that included the 5-nanogram standard.

Qualifier codes used for the sample data include the following:

- A *T* qualifier indicates the reported value is between the LOD and the quantification limit established for the project.
- An *E* qualifier indicates the compound was positively identified, but the associated numerical value may not be consistent with the amount of compound actually present in the sample extract. The data are acceptable as qualified.
- A *U* qualifier indicates the compound was not detected in the sample extract above the level that was reported. The associated numerical value indicates the approximate concentration necessary to detect the compound in this sample. A *U* qualifier was also applied to all reported values for chemicals [i.e., bis(2-ethylhexyl)

phthalate] having significant blank contamination when the reported value was less than the upper-95-percent confidence limit of method blank values.

- Reported analytical results that are based on presumptive evidence (i.e., all criteria for compound identification as specified by CLP protocols were not met) were assigned a *N* qualifier code.

COMPARISON OF DETECTION LIMITS FOR SEMIVOLATILE ORGANIC COMPOUNDS

A comparison of detection limits from the 1989 and 1990 PSAMP surveys is provided in Table 15. This comparison is based on results for 150-gram samples. Detection limits for an initial round of analyses incorrectly performed using 30–50 grams of sediment are approximately 4–100 times higher than those shown in Table 15. Reported detection limits for the 1990 survey are the same or nearly the same as the quantification limits for most compounds in the 1989 survey. Ten of the 86 compounds had higher average limits in 1990 than in 1989 (e.g., isopimaric acid and abietic acid). However, other compounds had much lower average limits in 1990 than in 1989 (e.g., chlorinated guaiacols). In general, the two sets of limits are comparable.

SYSTEM PERFORMANCE

Ongoing data acquisition and instrument performance criteria were examined during the quality assurance review to assess overall GC/MS performance. No abrupt changes in instrument performance were indicated that could have resulted in degradation of data quality. All GC/MS performance indicators were acceptable and no further qualification of the data was required.

The performance criteria for ongoing data acquisition were examined during the second quality assurance review for all data associated with Samples 40, 68, 70, and 102R. All GC/MS performance indicators are acceptable and no further qualification of the data was required.

TABLE 15. REPORTED DETECTION LIMITS AND QUANTIFICATION LIMITS FOR ACID/BASE/NEUTRAL SEMIVOLATILE COMPOUNDS—PSAMP 1990 AND 1989^a

Target Parameter	1990 Reported Detection Limit		1989 Quantification Limit	
	Average	Minimum	Average	Minimum
Phenol	33	19	16	8
bis(2-Chloroethyl)ether	N/A ^b		16	8
2-Chlorophenol	22	10	16	8
1,3-Dichlorobenzene	21	3.8	16	8
1,4-Dichlorobenzene	17	3.8	17	8
Benzyl alcohol	81	7.0	83	39
1,2-Dichlorobenzene	17	3.8	17	8
2-Methyl phenol	19	5.0	17	8
bis(2-Chloroisopropyl)ether	N/A		17	8
4-Methyl phenol	20	10	17	8
N-Nitroso-di- <i>n</i> -propylamine	N/A		17	8
Hexachloroethane	38	19	33	15
Nitrobenzene	N/A		17	8
Isophorone	22	10	17	8
2-Nitrophenol	107	47	84	39
2,4-Dimethylphenol	18	4.0	50	15
Benzoic acid	154	24	173	100
bis(2-Chloroethoxy)methane	N/A		17	8
2,4-Dichlorophenol	64	28	50	13
1,2,4-Trichlorobenzene	19	6.0	17	8
Naphthalene	17	10	17	8
4-Chloroaniline	N/A		104	36
Hexachlorobutadiene	36	10	33	16
4-Chloro-3-methylphenol	43	19	34	16
2-Methylnaphthalene	N/A		17	8
Hexachlorocyclopentadiene	107	20	74	39
2,4,6-Trichlorophenol	107	47	84	39
2,4,5-Trichlorophenol	107	47	84	39
2-Chloronaphthalene	22	10	17	8
2-Nitroaniline	N/A		84	39
Dimethyl phthalate	22	10	17	8
Acenaphthylene	17	10	17	8
3-Nitroaniline	N/A		84	39

TABLE 15. (Continued)

Target Parameter	1990 Reported Detection Limit		1989 Quantification Limit	
	Average	Minimum	Average	Minimum
Acenaphthene	18	10	19	8
2,4-Dinitrophenol	215	95	169	77
4-Nitrophenol	107	47	84	39
Dibenzofuran	18	10	17	8
2,4-Dinitrotoluene	N/A		84	39
2,6-Dinitrotoluene	N/A		84	39
Diethyl phthalate	18	10	17	8
4-Chlorophenyl phenyl ether	N/A		17	8
Fluorene	17	10	17	8
4-Nitroaniline	N/A		84	39
2-Methyl-4,6-Dinitrophenol	215	95	169	77
N-Nitrosodiphenylamine	19	10	17	8
4-Bromophenyl phenyl ether	N/A		17	8
Hexachlorobenzene	22	10	17	8
Pentachlorophenol	86	47	85	41
Phenanthrene	15	10	14	8
Anthracene	21	10	22	8
Di- <i>n</i> -butyl phthalate	22	10	16	8
Fluoranthene	11	10	12	8
Pyrene	11	10	12	10
Butyl benzyl phthalate	22	10	16	3
3,3'-Dichlorobenzidine	N/A		177	60
Benz(a)anthracene	24	10	13	8
bis(2-Ethylhexyl)phthalate	168	7.0	18	11
Chrysene	25	10	12	11
Di- <i>n</i> -octyl phthalate	22	10	17	8
Total benzofluoranthenes (B + K)	27	20	13	8
Benzo(a)pyrene	21	10	14	8
Indeno(1,2,3-c,d)pyrene	19	10	16	8
Dibenz(a,h)anthracene	18	10	16	8
Benzo(g,h,i)perylene	21	10	16	8
Cymene	N/A		17	8
Carbazole	22	10	17	8
Caffeine	N/A		17	8
Perylene	N/A		12	8

TABLE 15. (Continued)

Target Parameter	1990 Reported Detection Limit		1989 Quantification Limit	
	Average	Minimum	Average	Minimum
Coprostanol	213	21	29	17
Cholesterol	N/A		25	25
Sitosterol	N/A		55	42
Retene	N/A		14	8
Abietic acid	460	460	44	29
Chlorodehydroabietic acid	85	57	120	120
Dehydroabietic acid	110	110	29	29
Dichlorodehydroabietic acid	85	57	67	58
4,5-Dichloroguaiacol	17	11	81	58
Isopimaric acid	460	460	89	58
Guaiacol	17	11	40	29
Neoabietic acid	84	57	157	120
Palustric acid	345	230	800	580
Pimaric acid	85	57	39	29
Sandaracopimaric acid	84	57	39	29
Tetrachloroguaiacol	17	11	170	120
3,4,5-Trichloroguaiacol	17	11	158	120
4,5,6-Trichloroguaiacol	17	11	170	120

^a $\mu\text{g}/\text{kg}$, dry weight.

^b N/A - not analyzed.

28 January 1991

**Data Validation Report
Pesticides and Polychlorinated Biphenyls**


Site: Puget Sound

Project: 1990 Marine Sediment Monitoring Program

Samples Collected By: Washington Department of Ecology

The samples included in this report were analyzed by Analytical Resources, Inc., of Seattle, Washington.

Data Evaluation By:


James McAteer

Approved By:


Robert C. Barrick

QUALITY ASSURANCE REVIEW OF PESTICIDES AND POLYCHLORINATED BIPHENYLS IN SEDIMENTS

SUMMARY

All target pesticide and polychlorinated biphenyl (PCB) data are acceptable as qualified during this quality assurance review for the uses described in the PSAMP Implementation Plan. One sediment sample from Sample 12 contained PCBs detected below the LOD; this sample result was qualified as an estimate (*E*). The sample from Station 33 contained 4,4'-DDE above the LOD. Neither of these results could be verified by GC/MS because the concentrations of the compounds were too low.

COMPLETENESS

A complete data package was submitted by ARI for all requested sediment analyses, five method blanks, and three MS samples. Data completeness is 100 percent for all compounds analyzed.

HOLDING TIMES

Sediment samples were collected between 12 and 30 March 1990 and were kept refrigerated during sample collection. Samples were shipped on ice to ARI and stored frozen at -20°C until extraction, which took place between 23 March and 17 April 1990. All sediment samples were extracted and analyzed within the holding times recommended by PSAMP (1989), and qualification of data was not required. Sample holding times are summarized in Table 16.

INSTRUMENT PERFORMANCE

DDT Retention Time

The retention time for 4,4'-DDT was greater than 12 minutes for all analyses of standards and meets CLP criteria (U.S. EPA 1988b).

**TABLE 16. SAMPLE HOLDING TIMES FOR PESTICIDE
AND PCB ANALYSES**

Sample Number	Date Sampled	Date Received	Date Extracted	Days Held Before Extraction	Date Analyzed	Days Held Before Analysis
29	12 March	15 March	23 March	11	4 April	23
26	12 March	15 March	23 March	11	4 April	23
22	12 March	15 March	23 March	11	4 April	23
20	12 March	15 March	23 March	11	4 April	23
21	13 March	15 March	23 March	10	4 April	22
69	13 March	15 March	23 March	10	4 April	22
35	14 March	15 March	23 March	9	4 April	21
72	14 March	15 March	23 March	9	4 April	21
73	14 March	15 March	23 March	9	4 April	21
74	14 March	15 March	23 March	9	4 April	21
34	14 March	15 March	23 March	9	4 April	21
47	20 March	23 March	28 March	8	6 April	17
110R	20 March	23 March	28 March	8	6 April	17
111R	20 March	23 March	28 March	8	6 April	17
104R	21 March	23 March	28 March	7	6 April	16
105R	21 March	23 March	28 March	7	6 April	16
48	21 March	23 March	28 March	7	6 April	16
109R	21 March	23 March	28 March	7	6 April	16
49	22 March	23 March	28 March	6	6 April	15
106R	22 March	23 March	28 March	6	6 April	15
108R	22 March	23 March	28 March	6	6 April	15
46R	22 March	23 March	28 March	6	6 April	15
38	23 March	26 March	28 March	5	6 April	14
39	23 March	26 March	28 March	5	6 April	14
60	23 March	26 March	28 March	5	6 April	14
62	23 March	26 March	28 March	5	6 April	14
61	23 March	26 March	28 March	5	6 April	14

TABLE 16. (Continued)

Sample Number	Date Sampled	Date Received	Date Extracted	Days Held Before Extraction	Date Analyzed	Days Held Before Analysis
40	15 March	19 March	27 March	12	5 April	21
41	15 March	19 March	27 March	12	5 April	21
113R	15 March	19 March	27 March	12	5 April	21
114R	15 March	19 March	27 March	12	5 April	21
43	16 March	19 March	27 March	11	5 April	20
116R	16 March	19 March	27 March	11	5 April	20
44	16 March	19 March	27 March	11	5 April	20
63	16 March	19 March	27 March	11	5 April	20
65	16 March	19 March	27 March	11	5 April	20
112R	17 March	19 March	27 March	10	5 April	19
115R	17 March	19 March	27 March	10	5 April	19
45	17 March	19 March	27 March	10	5 April	19
70	18 March	19 March	27 March	9	5 April	18
101R	18 March	19 March	27 March	9	6 April	19
102R	18 March	19 March	27 March	9	6 April	19
103R	18 March	19 March	27 March	9	6 April	19
32	25 March	28 March	6 April	12	12 April	18
33	25 March	28 March	6 April	12	12 April	18
30	25 March	28 March	6 April	12	12 April	18
19	26 March	28 March	6 April	11	12 April	17
18	26 March	28 March	6 April	11	13 April	18
4	26 March	28 March	6 April	11	13 April	18
71	26 March	28 March	6 April	11	13 April	18
57	25 March	28 March	6 April	12	13 April	19
58	25 March	28 March	6 April	12	13 April	19
59	25 March	28 March	6 April	12	13 April	19
5	27 March	28 March	6 April	10	13 April	17
3	27 March	28 March	6 April	10	13 April	17
1	27 March	28 March	6 April	10	13 April	17
51	27 March	28 March	6 April	10	13 April	17
52	27 March	28 March	6 April	10	13 April	17

TABLE 16. (Continued)

Sample Number	Date Sampled	Date Received	Date Extracted	Days Held Before Extraction	Date Analyzed	Days Held Before Analysis
53	27 March	28 March	6 April	10	13 April	17
8	29 March	2 April	10 April	12	17 April	19
64	16 March	19 March	10 April	25	17 April	32
12	29 March	2 April	10 April	12	17 April	19
14	30 March	2 April	10 April	11	17 April	18
15	30 March	2 April	10 April	11	17 April	18
17	30 March	2 April	10 April	11	17 April	18

Retention Time Windows

Retention time windows were calculated for all calibration standards and were compared with CLP criteria (U.S. EPA 1988b). All calibration standards analyzed for this data package were within the established retention time windows, all calculations were verified, and qualification of data was not required.

DDT and Endrin Degradation Check

Total percent breakdown for 4,4'-DDT and endrin was less than 20 percent for all standard mixtures containing these compounds. All data were examined and percent breakdown values were verified during the quality assurance review. No transcription errors were found, and all data are acceptable as reported.

Dibutylchloroendate Retention Time Check

The percent differences for all dibutylchloroendate (DBC) retention times meet CLP requirements (U.S. EPA 1988b) of less than 1.5 percent for analyses performed on megabore capillary columns. All retention times and percent differences for DBC were verified during the quality assurance review, no transcription errors were found, and qualification of data was not necessary.

Initial Calibration

The laboratory performed five initial calibrations for this project, and all were in accordance with U.S. EPA (1988b). All data were reviewed to verify calibration criteria for RRFs. The percent RSDs are acceptable, and qualification of data was not required.

The initial calibration data analyzed between 12 and 13 April 1990 were misplaced after being printed by the laboratory. The original data were erased from the hard disk of the computer and could not be assessed during this quality assurance review. The laboratory indicated that the calibration data were reviewed and verified by the analyst (Dunnihoo, S., 8 August 1990, personal communication) and that the data met all acceptance criteria. There is no indication that initial calibration data acquired during this time are unacceptable. Response factors were unchanged before and after this initial calibration period, and all other initial calibration data are acceptable. All calculations performed for analyses associated with this time period have been quantified using continuing calibration standards and are acceptable as reported.

Analytical Sequence

All standard and sample analyses were performed in accordance with the protocols of U.S. EPA (1988b) established for 72-hour analytical sequences.

Continuing Calibration

All continuing calibration analyses meet CLP acceptance criteria (U.S. EPA 1988b) for percent differences. No qualification of data was required.

The percent differences for the continuing calibration standards could not be assessed during this quality assurance review because the initial calibration data were not submitted by the laboratory.

METHOD BLANK ANALYSES

Five method blanks were analyzed for this data package and no target analytes were detected. Percent recoveries for the DBC internal standard were acceptable; however, recoveries could not be evaluated for the method blank extracted on 6 April 1990 because the internal standard was not added prior to extraction. Data did not require qualification for method blank contamination.

ACCURACY

Accuracy was assessed by evaluating recoveries of surrogate compounds and MS samples.

Surrogate Recoveries

The CLP-specified surrogate compound, DBC, was added to all standards, method blanks (except as noted above), and samples. Surrogate recoveries, which are summarized in Table 17, meet the control limit criteria of 20-150 percent recovery (U.S. EPA 1988b). All recoveries were verified during quality assurance review and are acceptable as reported.

Matrix Spike Recoveries

MS and MSD analyses were performed on three samples for the six CLP-specified pesticide spiking compounds (U.S. EPA 1988b). All recoveries and RPDs meet the control limit criteria and are summarized in Table 18. Recoveries range from 53 to 107 percent, with RPDs ranging from -9 to +9, and are acceptable as reported.

TABLE 17. PERCENT RECOVERY FOR DIBUTYLCHLORENDATE

Sample Number	Percent Recovery	Sample Number	Percent Recovery
Blank (3/23/90)	69	52	61
Blank (3/27/90)	84	53	91
Blank (3/28/90)	85	72	73
Blank (4/06/90)	0 ^a	73	80
Blank (4/10/90)	67	74	82
1	84	57	78
3	73	58	86
4	79	59	79
5	73	60	87
8	84	61	84
12	71	62	87
14	67	63	85
15	58	64	78
17	78	65	81
18	83	69	96
19	68	70	107
20	86	71	80
21	85	101R	115
22	72	102R	82
26	89	103R	81
29	93	104R	85
30	82	105R	81
32	83	106R	86
33	80	108R	81
34	75	109R	83
35	84	110R	93
38	77	111R	88
39	90	112R	78
40	75	113R	82
41	90	114R	78
43	74	115R	93
44	85	116R	85
45	75	5 MS	66
46R	91	5 MSD	71
47	94	44 MS	74
48	91	44 MSD	83
49	77	35 MS	74
51	77	35 MSD	73

^a Surrogate was not added to sample.

**TABLE 18. SPIKE RECOVERY DATA FOR PESTICIDES
IN SEDIMENT SAMPLES**

SAMPLE 35 Compound	Percent Recovery		Relative Percent Difference	Quality Control Limits	
	Matrix Spike	Matrix Spike Duplicate		Relative Percent Difference	Percent Recovery
γ -HCH ^a (Lindane)	89	84	5.8	± 50	46-127
Heptachlor	88	84	5.2	± 31	35-130
Aldrin	69	66	4.1	± 43	34-132
Dieldrin	78	74	4.8	± 38	31-134
Endrin	80	78	2.2	± 45	42-139
4,4'-DDT	67	69	-2.3	± 50	23-134
SAMPLE 44					
γ -HCH (Lindane)	88	94	-6.6	± 50	46-127
Heptachlor	107	99	7.8	± 31	35-130
Aldrin	77	91	-17.0	± 43	34-132
Dieldrin	78	86	-9.0	± 38	31-134
Endrin	80	88	-8.8	± 45	42-139
4,4'-DDT	71	82	-14.0	± 50	23-134
SAMPLE 5					
γ -HCH (Lindane)	70	73	4.2	± 50	46-127
Heptachlor	102	113	8.5	± 31	35-130
Aldrin	53	54	1.9	± 43	34-132
Dieldrin	63	69	9.1	± 38	31-134
Endrin	76	80	5.1	± 45	42-139
4,4'-DDT	66	71	7.3	± 50	23-134

^a HCH - Hexachlorocyclohexane; sometimes reported as BHC (benzyl hexylchloride).

COMPOUND IDENTIFICATION

Pesticide and PCB analyses were performed using dual-column gas chromatography/electron capture detection with megabore capillary columns. The two analytical columns were a 30-meter DB-5, used for quantification, and a DB-608, used for confirmation.

COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

All pesticide and PCB quantifications were performed in accordance with CLP specification (U.S. EPA 1988b). All original data were examined to verify that correct calculations were performed by the laboratory, and no errors were found. Target pesticides and PCBs were undetected in all sediment samples, except from Samples 12 and 33, and data were acceptable as reported. PCBs were detected in Sample 12 and were qualified as an estimate because the quantified value is below the reported detection limits. Sample 33 contained 4,4'-DDE and PCBs at 22 and 28 $\mu\text{g}/\text{kg}$, respectively. The presence of 4,4'-DDE was confirmed on a second gas chromatography column.

All detection limits are acceptable as reported. The detection limits were calculated by normalizing the instrument response for sample weight, final extract volume, and injection volume.

COMPARISON OF DETECTION LIMITS

A comparison of detection limits for the 1990 and 1989 PSAMP data sets is provided in Table 19. The specification for the 1990 analyses of pesticides and PCBs was for standard CLP analyses. Standard CLP analyses are sufficient to attain approximately 20 parts per billion detection limits (dry weight) for PCBs in sediment samples without substantial interferences, assuming a 30-gram extraction, a final dilution volume that does not exceed approximately 10 mL, and 2 μL injection. Bench sheets obtained from the analytical laboratory indicate that analyses for an initial 43 samples were performed by extracting approximately 30-gram dry weight of sediment, processing through gel permeation chromatography (with an associated 50 percent mechanical loss of the extract), taking a 10 percent split for pesticides/PCBs, and concentrating the final volume of the extract to approximately 1 mL. This procedure resulted in detection limits that range from 60 to 80 $\mu\text{g}/\text{kg}$. Analyses for the remaining 22 samples were conducted by extracting approximately 40-80 grams dry weight, and processing as before, except with a final dilution volume of 0.5 mL. This procedure resulted in detection limits of approximately 10-20 $\mu\text{g}/\text{kg}$.

TABLE 19. REPORTED DETECTION LIMITS AND QUANTIFICATION LIMITS FOR PESTICIDES/PCBs—PSAMP 1990 AND 1989^a

Target Parameter	1990 Reported Detection Limit		1989 Quantification Limit	
	Average	Minimum	Average	Minimum
α -Hexachlorocyclohexane	2.5	0.5	1	0.2
β -Hexachlorocyclohexane	2.5	0.5	1	0.2
δ -Hexachlorocyclohexane	3.5	0.8	1	0.2
γ -Hexachlorocyclohexane (Lindane)	2.5	0.5	1	0.2
Heptachlor	2.5	0.5	1	0.2
Aldrin	2.5	0.5	1	0.2
Heptachlor epoxide	2.5	0.5	1	0.2
α -Endosulfan	2.5	0.5	1	0.2
Dieldrin	5.0	1.0	1.5	0.3
p,p'-DDE	5.0	1.0	1.5	0.3
Endrin	5.0	1.0	1.5	0.3
β -Endosulfan	5.0	1.0	1.5	0.3
p,p'-DDD	5.0	1.0	3	0.6
Endosulfan sulfate	10	2.0	3	0.6
p,p'-DDT	5.0	1.0	2	0.4
Methoxychlor	10	2.0	4	0.8
Endrin ketone	7.5	1.5	1.5	0.3
γ -Chlordane	3.5	0.8	1	0.2
α -Chlordane	3.5	0.8	1	0.2
Toxaphene	373	75	149	30
PCB-1016/1242	50	10	20	4
PCB-1248	50	10	20	4
PCB-1254	51	10	19	4
PCB-1260	50	10	20	4

^a $\mu\text{g}/\text{kg}$, dry weight.

28 January 1991

Data Validation Report
Metals Analyses

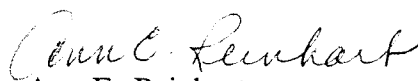
Site: Puget Sound

Project: 1990 Marine Sediment Monitoring Program

Samples Collected By: Washington Department of Ecology

The samples included in this report were analyzed by Analytical Resources, Inc., of Seattle, Washington.

Data Evaluation By:


Ann E. Reinhart

Approved By:


Robert C. Barrick

QUALITY ASSURANCE REVIEW OF METALS IN SEDIMENTS

SUMMARY

The data for metals analyses are acceptable as reported for the uses specified in the PSAMP Implementation Plan, with the exception of antimony and selenium. Data for these two metals were rejected because of poor accuracy, based on low MS/MSD and standard reference material (SRM) recoveries.

Qualification of the data for some of the sediment samples was required during the quality assurance review. The qualifications are summarized in Table 20. Results for arsenic and lead were qualified as questionable because of poor MS/MSD recoveries. Data for several metals were qualified as estimates as follows: cadmium (seven samples) - sample matrix interferences and MSA correlation coefficient outside control limits; calcium (all samples) - inconsistent MS/MSD recoveries; silver (seven samples) - sample matrix interferences and MSA correlation coefficient outside control limits; thallium (six samples) - sample concentration within 5 times blank contamination; zinc (all stations) - serial dilution results outside control limits. In addition, the holding times for all but three mercury samples were exceeded, and those results were therefore qualified as minimum estimates (*G*).

The samples that were analyzed were surficial sediment samples collected from 50 different locations in Puget Sound. Station numbers from 51 to 74 are artificial station numbers indicating field-generated (laboratory-blind) quality control samples. These samples are summarized in Table 21.

COMPLETENESS

The data package contained all deliverables necessary for evaluating completeness, accuracy, and precision. However, the data package did not contain all the required backup data as specified in the data validation guidance manual (PTI 1989). The laboratory was contacted and the majority of the missing original data were submitted. The chain-of-custody sheets, cover letter, and some backup graphite furnace atomic absorption spectrometry (GFAA) data were still missing from the data package at the time this report was submitted.

**TABLE 20. RECOMMENDED QUALIFICATIONS
FOR METALS DATA**

Analyte	Qualifier	Affected Samples	Reason
Antimony	<i>R</i>	All stations except 8 and 33	Poor accuracy based on low MS/MSD ^b and SRM ^c recoveries. Reported detection limit may be inaccurate and biased low.
	<i>Q</i>	8 and 33	Poor accuracy based on low MS/MSD and SRM recoveries. Reported results may be biased low.
Arsenic	<i>Q</i>	All stations	Poor accuracy based on MS/MSD recoveries. Determination of sample bias not possible.
Cadmium	<i>E</i>	1, 8, 18, 53, 59, 65, 71, 106R	Sample result may be inaccurate due to sample matrix interferences. MSA ^d correlation coefficient outside control limits.
Calcium	<i>E</i>	All stations	Sample results may be inaccurate based on inconsistent MS/MSD recoveries.
Lead	<i>Q</i>	All stations	Poor accuracy based on MS/MSD recoveries. Determination of sample bias not possible.
Mercury	<i>G</i>	All stations except 14, 15, 17	Violation of 28-day holding time.
Silver	<i>E</i>	40, 41, 48, 104R, 105R, 110R, 111R	Sample result may be inaccurate due to sample matrix interferences. MSA correlation coefficient outside control limits, and sample concentrations within 5 times the blank contamination.
Selenium	<i>R</i>	All stations	Poor accuracy based on low MS/MSD and SRM recoveries. Reported detection limit may be inaccurate and biased low.
Thallium	<i>E</i>	21, 26, 40, 55, 101R, 114	Sample concentrations within 5 times the blank contamination.
Zinc	<i>E</i>	All stations	Serial dilution results outside control limits. Sample results may be inaccurate due to matrix interferences.

^a *R* - Unusable.

E - Estimated.

Q - Estimate is questionable.

G - Minimum estimate.

^b MS/MSD - ratio of matrix spike to matrix spike duplicate.

^c SRM - standard reference material.

^d MSA - method of standard additions.

**TABLE 21. FIELD-GENERATED
QUALITY CONTROL SAMPLES**

Field-Generated Samples		
Field Station	Site Duplicate Station	Site Replicate Station
5	51	52 53
35	72	73 74
32	57	58 59
38	60	61 62
44	63	64 65

Sequim Bay Fortified Samples

Stations 66, 67, and 68

HOLDING TIMES

The sample data sheets and the analyses run logs were reviewed to determine whether analyses were performed within the contractual holding times. The contractual holding times of 6 months prior to sample analyses for all metals were met. The 28-day holding time requirement was exceeded for all but three mercury samples. Sample holding times for mercury analyses are summarized in Table 22.

ANALYTICAL METHODS

The samples for all analytes, except mercury, were digested using the two methods described in the SOW for inorganic analyses (U.S. EPA 1985). One method is for inductively coupled plasma-atomic emission spectrometry (ICP) analysis and one is for GFAA analysis. Mercury was analyzed by cold vapor atomic absorption spectrometry (CVAA) as described in U.S. EPA (1985). These procedures were specified in the laboratory contract, but are not adequate to achieve the contract-required detection limits (CRDLs) for work performed under PSEP guidelines. Under PSEP, either a total acid digestion or a modified strong-acid digestion is used. The strong-acid digestion (found to be the most complete digestion procedure with the fewest interferences) uses a larger subsample and a smaller final digestate volume than the CLP digestion procedure. These modifications make the lower detection limits achievable if sample matrix interferences are not too severe. Mercury analysis is often performed using a 1-gram subsample as opposed to the 0.2-gram subsample specified in U.S. EPA (1985).

CALIBRATION

Graphite Furnace Atomic Absorption Quality Control Analyses

The laboratory followed PSEP protocols, using the 3-point standard curve (plus a blank) for instrument calibration prior to analysis. The linear correlation coefficient of the calibration curves for all metals is greater than 0.99. Not all sample results were bracketed by calibration standards, but the laboratory analyzed standards at or near the instrument detection limit (IDL) to verify low-end calibration.

Laboratory quality control included the analysis of initial (ICV) and continuing (CCV) calibration verification standards, initial (ICB) and continuing (CCB) calibration blanks, and laboratory control samples at the frequencies specified in U.S. EPA (1985). All results for these quality control checks were within CLP requirements, except one CCV each for antimony (110.4 percent), arsenic (110.4 percent), cadmium (110.4 percent), lead (110.4 percent), and mercury

TABLE 22. SAMPLE HOLDING TIMES FOR MERCURY ANALYSES

Sample Number	Date Sampled	Date Received	Preparation Date	Date Analyzed	Holding Time (Days)
29	12 March 1990	15 March 1990	27 April 1990	1 May 1990	46
26	12 March 1990	15 March 1990	27 April 1990	1 May 1990	46
22	12 March 1990	15 March 1990	27 April 1990	1 May 1990	46
20	12 March 1990	15 March 1990	27 April 1990	1 May 1990	46
21	13 March 1990	15 March 1990	27 April 1990	1 May 1990	45
69	14 March 1990	15 March 1990	27 April 1990	1 May 1990	45
35	14 March 1990	15 March 1990	27 April 1990	1 May 1990	44
72	14 March 1990	15 March 1990	27 April 1990	1 May 1990	44
73	14 March 1990	15 March 1990	27 April 1990	1 May 1990	44
74	14 March 1990	15 March 1990	27 April 1990	1 May 1990	44
34	14 March 1990	15 March 1990	27 April 1990	1 May 1990	44
47	20 March 1990	23 March 1990	27 April 1990	1 May 1990	38
110R	20 March 1990	23 March 1990	27 April 1990	1 May 1990	38
111R	20 March 1990	23 March 1990	27 April 1990	1 May 1990	38
104R	21 March 1990	23 March 1990	27 April 1990	1 May 1990	37
105R	21 March 1990	23 March 1990	27 April 1990	1 May 1990	37
48	21 March 1990	23 March 1990	27 April 1990	1 May 1990	37
109R	21 March 1990	23 March 1990	27 April 1990	1 May 1990	37
49	22 March 1990	23 March 1990	27 April 1990	1 May 1990	36
106R	22 March 1990	23 March 1990	27 April 1990	1 May 1990	36
108R	22 March 1990	23 March 1990	27 April 1990	1 May 1990	36
46R	22 March 1990	23 March 1990	27 April 1990	1 May 1990	36
38	23 March 1990	26 March 1990	27 April 1990	1 May 1990	35
39	23 March 1990	26 March 1990	27 April 1990	1 May 1990	35
60	23 March 1990	26 March 1990	27 April 1990	1 May 1990	35
62	23 March 1990	26 March 1990	27 April 1990	1 May 1990	35
61	23 March 1990	26 March 1990	27 April 1990	1 May 1990	35
67	23 March 1990	26 March 1990	27 April 1990	1 May 1990	35
66	23 March 1990	26 March 1990	27 April 1990	1 May 1990	35
68	23 March 1990	26 March 1990	27 April 1990	1 May 1990	35

TABLE 22. (Continued)

Sample Number	Date Sampled	Date Received	Preparation Date	Date Analyzed	Holding Time (Days)
40	15 March 1990	19 March 1990	27 April 1990	1 May 1990	43
41	15 March 1990	19 March 1990	27 April 1990	1 May 1990	43
113R	15 March 1990	19 March 1990	27 April 1990	1 May 1990	43
114R	15 March 1990	19 March 1990	27 April 1990	1 May 1990	43
43	16 March 1990	19 March 1990	27 April 1990	1 May 1990	42
116R	16 March 1990	19 March 1990	27 April 1990	1 May 1990	42
44	16 March 1990	19 March 1990	27 April 1990	1 May 1990	42
63	16 March 1990	19 March 1990	27 April 1990	1 May 1990	42
64	16 March 1990	19 March 1990	27 April 1990	1 May 1990	42
65	16 March 1990	19 March 1990	27 April 1990	1 May 1990	42
112R	17 March 1990	19 March 1990	27 April 1990	1 May 1990	41
115R	17 March 1990	19 March 1990	27 April 1990	1 May 1990	41
45	17 March 1990	19 March 1990	27 April 1990	1 May 1990	41
70	18 March 1990	19 March 1990	27 April 1990	1 May 1990	40
101R	18 March 1990	19 March 1990	27 April 1990	1 May 1990	40
102R	18 March 1990	19 March 1990	27 April 1990	1 May 1990	40
103R	18 March 1990	19 March 1990	27 April 1990	1 May 1990	40
32	25 March 1990	19 March 1990	27 April 1990	1 May 1990	33
33	25 March 1990	19 March 1990	27 April 1990	1 May 1990	33
30	25 March 1990	19 March 1990	27 April 1990	1 May 1990	33
19	26 March 1990	19 March 1990	27 April 1990	1 May 1990	32
18	26 March 1990	19 March 1990	27 April 1990	1 May 1990	32
4	26 March 1990	19 March 1990	27 April 1990	1 May 1990	32
71	26 March 1990	19 March 1990	27 April 1990	1 May 1990	32
57	25 March 1990	19 March 1990	27 April 1990	1 May 1990	33
58	25 March 1990	19 March 1990	27 April 1990	1 May 1990	33
59	25 March 1990	19 March 1990	27 April 1990	1 May 1990	33
5	27 March 1990	19 March 1990	27 April 1990	1 May 1990	31
3	27 March 1990	19 March 1990	27 April 1990	1 May 1990	31
1	27 March 1990	19 March 1990	27 April 1990	1 May 1990	31
51	27 March 1990	19 March 1990	27 April 1990	1 May 1990	31

TABLE 22. (Continued)

Sample Number	Date Sampled	Date Received	Preparation Date	Date Analyzed	Holding Time (Days)
52	27 March 1990	19 March 1990	27 April 1990	1 May 1990	31
53	27 March 1990	28 March 1990	27 April 1990	1 May 1990	31
8	29 March 1990	2 April 1990	27 April 1990	1 May 1990	29
12	29 March 1990	2 April 1990	27 April 1990	1 May 1990	29
14	30 March 1990	2 April 1990	27 April 1990	1 May 1990	28
15	30 March 1990	2 April 1990	27 April 1990	1 May 1990	28
17	30 March 1990	2 April 1990	27 April 1990	1 May 1990	28

Note: Sample holding times for mercury analyses exceeded the 28-day requirement for all samples except Samples 14, 15, and 17. Holding time requirements for other metal analyses met the PSEP requirements.

(78.3 percent). These results do not greatly exceed the control limits; therefore, no data qualifiers were required.

For GFAA analyses, duplicate injections and postdigestion spikes were run for each sample analyzed, as outlined in U.S. EPA (1985). The method of standard additions (MSA) was employed for all samples outside the control limits of 85-115 percent recovery for the postdigestion spike. According to U.S. EPA (1985), the correlation coefficient for MSA determinations must be ≥ 0.995 to meet acceptable criteria. Because the CRDL for this project is considerably lower than the CLP control limit, the acceptance criterion for the correlation coefficient has been lowered to ≥ 0.990 . This is consistent with previous data validation reports on PSEP samples. MSA criteria were met for all samples except 9 samples for cadmium, 11 samples for lead, and 3 for silver. The following samples had MSA correlation coefficients < 0.990 :

<u>Analyte</u>	<u>Station</u>
Cadmium	1, 8, 18, 53, 59, 65, 71, 106R
Lead	15, 19, 20, 34, 35, 43, 47, 68, 106R, 115R, 116R
Silver	40, 41, 48

The results from the stations listed above should be considered estimates and assigned *E* qualifiers.

Inductively Coupled Plasma-Atomic Emission Spectrometry Analyses

For ICP, instrument calibration followed U.S. EPA (1987) protocols, which allow the laboratory to calibrate the instrument according to the instrument manufacturer's recommended procedures.

Laboratory quality control checks included ICV, CCV, ICB, and CCB samples. Additional quality control checks for ICP included serial dilutions, an interference check sample (ICS), and the linear range standard. All quality assurance and quality control (QA/QC) control limits were met, except only one serial dilution sample was analyzed. ICP serial dilution analysis is required at a frequency of 5 percent of the number of samples analyzed. Therefore, four serial dilutions should have been performed. For the one serial dilution sample that was analyzed, the percent difference between the diluted sample and the undiluted sample was within the control limits for all analytes except for copper, nickel, and zinc, which had percent differences of 11.1, 11.5, and 21.1, respectively. Because only one serial dilution was performed, determination of matrix interferences for zinc was made on those results. Therefore, all zinc results were

assigned an *E* qualifier and are considered estimates because of possible sample matrix interferences.

DETECTION LIMITS

The laboratory analyzed 23 different metals. The laboratory contract specified detection limits for 13 of these metals, including all of the PSEP metals (PSEP 1986) and aluminum and chromium. Only the metals with CRDLs specified in the 1990 contract were evaluated for detection limit compliance.

The CRDLs were met for all analytes except antimony, cadmium, and mercury. For antimony, 34 samples were reported as undetected at concentrations greater than the CRDLs of 0.1-0.3 mg/kg. The range of results reported as undetected for antimony was 0.35-2.4 mg/kg. For cadmium, only one sample, reported at <0.11 mg/kg, was reported as undetected at a concentration greater than the CRDL of 0.1 mg/kg. All mercury samples reported as undetected had detection limits greater than the CRDL of 0.005-0.01 mg/kg. The range of reported undetected results for mercury was 0.04-0.20 mg/kg.

As discussed in the *Analytical Methods* section, the laboratory digested the samples following unmodified CLP procedures. The laboratory contract specified that the samples were to be analyzed following the procedures described in U.S. EPA (1987). Because the 1989 samples were analyzed following a modified digestion method using larger sample weights and smaller final digestate volumes than specified in CLP guidelines, the lower detection limits were possible. The laboratory followed the directions given in the contract; however, because CRDLs were provided, the laboratory should have modified the digestion procedure to achieve the specified CRDLs.

COMPARISON OF DETECTION LIMITS FOR METALS

A comparison of detection limits for the 1989 and 1990 PSAMP surveys is provided in Table 23. Most metals were detected in 1990.

BLANK ANALYSES

Separate blank contamination evaluations were performed for analyses conducted by ICP (high-level analyses) and by GFAA (low-level analyses). The evaluation of blank contamination was performed on a batch basis for the preparation blank and on an analytical run basis for calibration blanks.

TABLE 23. REPORTED DETECTION LIMITS AND QUANTIFICATION LIMITS FOR METALS—PSAMP 1990 AND 1989^a

Target Parameter	1990 Reported Detection Limit		1989 Quantification Limit	
	Average	Minimum	Average	Minimum
Aluminum	* ^b		5.6	
Antimony	*		0.26	0.17
Arsenic	*		0.28	
Barium	*		0.28	
Beryllium	0.38	0.20	0.32	0.17
Cadmium	0.06	0.04	0.052	0.037
Calcium	*		2.8	
Chromium	*		1.4	
Cobalt	*		0.84	
Copper	*		0.56	
Iron	*		1.4	
Lead	*		0.28	
Magnesium	*		6.4	
Manganese	*		0.28	
Mercury	0.09	0.04	0.069	0.043
Nickel	*		2.8	
Potassium	*		224	
Selenium	*		1.62	0.85
Silver	0.05	0.04	0.053	0.034
Sodium	*		2.8	
Thallium	0.36	0.10	0.32	0.17
Vanadium	*		0.56	
Zinc	*		1.1	

^a $\mu\text{g}/\text{kg}$, dry weight.

^b * All concentrations were detected.

The laboratory analyzed four preparation blanks. ICBs and CCBs were analyzed at the frequency required: one at the beginning and end of each analytical run and another every 2 hours or 10 samples, whichever was more frequent.

High-level samples (ICP analyses) had ICB, CCB, or preparation blank results greater than the IDL for aluminum, calcium, copper, iron, potassium, sodium, and zinc. An action level of 5 times the highest blank concentration was determined in accordance with the procedure used in PSAMP (1989). For all ICP samples with detected analytes, all associated samples had concentrations greater than the analyte action level of 5 times the blank concentration. Therefore, no results required qualification.

Low-level samples (GFAA analyses) had ICB, CCB, or PB results greater than the IDL for antimony, arsenic, selenium, silver, and thallium. An action level of 2 times the LOD for this project was determined for each analyte with blank concentrations greater than the IDL. Sample results reported as less than the IDL were not qualified. Samples with concentrations greater than the IDL are considered estimates and were assigned *E* qualifiers. The samples that were qualified *E* are summarized below:

<u>Analyte</u>	<u>Station</u>
Antimony	8, 33
Arsenic	30, 39, 112R
Silver	104R, 105R, 110R, 111R
Thallium	21, 26, 40, 55, 101R, 114

MATRIX SPIKE SAMPLE ANALYSES

Five MS samples were analyzed as requested. The samples were digested in three batches for all analytes except mercury. All mercury samples were analyzed in one batch. The laboratory analyzed MSD samples in place of laboratory duplicates. In total, 10 MS and MSD samples were analyzed. All 10 spike recoveries are within the control limits (75-125 percent recovery) for all analytes except aluminum, antimony, arsenic, calcium, iron, lead, selenium, silver, and thallium. MS results are summarized in Tables 24 and 25. In addition, the spike recoveries outside the control limits are identified with a superscript in Tables 24 and 25.

**TABLE 24. RECOVERY AND REPLICATE RESULTS FOR METALS
IN SAMPLES 35, 44, AND 47**

Compound	Sample 35			Sample 44			Sample 47		
	MS ^a	MSD ^b	RPD ^c	MS	MSD	RPD	MS	MSD	RPD
Aluminum ^d	168	148	3.1	-38.8	606	5.3	105	45.9	3.9
Antimony	44.6 ^e	40.0 ^e	32.3	44.7 ^e	57.5 ^e	50.7	35.7 ^e	36.8 ^e	134
Arsenic	33.5 ^e	35.1 ^e	0.9	68.9 ^e	64.9 ^e	3.3	80.6 ^e	62.0 ^e	20.7
Barium	99.1	100	20.6	97.7	98.4	27.1	99.1	98.2	71.2
Beryllium	90.2	90.2	22.0	90.3	90.7	27.4	91.3	89.4	8.7
Cadmium	103	94.1	7.2	102	95.6	6.2	108	120	4.3
Calcium	145 ^e	99.2	24.3	4.1 ^e	27.7 ^e	11.0	-79.2 ^e	-67.2 ^e	5.3
Chromium	95.7	95.7	15.8	90.1	93.7	22.8	92.7	89.2	7.3
Cobalt	96.0	95.4	22.3	94.5	93.9	25.4	95.1	93.5	8.1
Copper	97.7	99.6	13.4	96.1	96.1	21.9	96.5	95.6	6.6
Iron ^d	135	63.2	2.0	-365	-34.6	6.1	195	41.8	2.8
Lead	-9.6 ^e	228 ^e	27.8	101	37.6 ^e	23.6	74.5 ^e	9.4 ^e	43.7
Magnesium	104	103	8.2	87.5	99.7	14.4	97.5	81.0	7.1
Manganese	97.2	96.1	11.1	79.3	100	10.2	99.1	96.9	2.3
Mercury	90.7	89.3	0.0	95.4	92.5	9.7	95.4	91.5	9.4
Nickel	97.2	96.5	19.9	96.7	97.6	25.1	99.1	96.1	8.2
Potassium	103	99.0	15.9	90.3	95.9	21.5	97.2	83.5	11.9
Selenium	51.1 ^e	58.3 ^e	9.8	12.9 ^e	0.0 ^e	19.4	-12.1 ^e	-14.0 ^e	0.0
Silver	80.9	79.7	2.5	77.3	80.0	16.5	95.5	71.2 ^e	42.8
Sodium	101	105	3.5	99.4	103	8.5	97.5	92.7	3.8
Thallium	92.0	77.7	17.7	86.9	91.1	17.5	94.3	88.0	21.4
Vanadium	97.9	97.4	19.4	94.4	95.2	23.0	97.2	94.8	7.6
Zinc	97.2	95.7	15.8	90.6	91.7	21.4	94.4	92.7	6.8

^a MS - matrix spike; reported as percent recovery.

^b MSD - matrix spike duplicate; reported as percent recovery.

^c RPD - relative percent difference.

^d Aluminum and iron contained sample concentrations greater than 4 times the spike concentration. Spike recoveries are not evaluated.

^e Spike recovery outside the control limits.

**TABLE 25. RECOVERY AND REPLICATE RESULTS FOR METALS
IN SAMPLES 71 AND 5**

Compound	Sample 71			Sample 5		
	MS ^a	MSD ^b	RPD ^c	MS	MSD	RPD
Aluminum ^d	48.2	187	8.0	61.2	161	4.5
Antimony	25.1 ^e	27.6 ^e	20.0	29.4 ^e	24.7 ^e	24.8
Arsenic	77.4	147 ^e	54.1	171 ^e	29.8 ^e	89.2
Barium	99.2	100	12.1	98.4	98.3	7.9
Beryllium	91.3	94.2	14.1	90.9	91.8	7.1
Cadmium	96.4	106	17.6	88.1	92.6	9.5
Calcium	95.2	125	16.9	95.2	98.2	2.5
Chromium	93.0	97.2	11.1	92.0	93.2	4.8
Cobalt	94.8	96.1	12.3	93.4	93.7	7.5
Copper	96.2	96.1	9.2	94.9	95.4	6.2
Iron ^d	-161	57.4	3.8	-17.5	56.9	1.2
Lead	124	57.0	28.3	126 ^e	128 ^e	4.3
Magnesium	86.8	101	7.5	90.9	93.0	1.6
Manganese	90.7	96.5	7.6	92.7	93.3	3.3
Mercury	86.8	83.6	15.9	87.0	86.7	4.7
Nickel	99.1	98.8	9.4	96.5	96.8	6.8
Potassium	94.6	102	11.9	94.9	95.6	4.3
Selenium	50.4 ^e	60.1 ^e	25.6	40.0 ^e	19.9 ^e	25.6
Silver	73.9 ^e	77.7	17.3	44.4 ^e	67.0 ^e	44.3
Sodium	103	106	3.5	101	98.7	2.0
Thallium	99.3	86.7	0.7	44.6 ^e	44.1 ^e	4.1
Vanadium	95.2	97.6	11.4	92.7	95.3	4.4
Zinc	95.1	96.4	9.6	94.0	94.4	5.8

^a MS - matrix spike; reported as percent recovery.

^b MSD - matrix spike duplicate; reported as percent recovery.

^c RPD - relative percent difference.

^d Aluminum and iron contained sample concentrations greater than 4 times the spike concentration. The spike recoveries are not evaluated.

^e Spike recovery outside the control limits.

Aluminum and iron had sample concentrations greater than 4 times the spike concentration; therefore, the MS and MSD results were not evaluated for these metals.

Calcium had 6 of 10 spike recoveries outside the control limits. Due to the nature of the samples (marine sediment), the calcium concentrations can be greatly influenced by the heterogeneity of the samples (e.g., shell particles with a high calcium carbonate content can influence the results). The samples were assigned an *E* qualifier because an accurate determination of calcium was not possible and the sample result bias cannot be determined.

Most of the MS and MSD values for silver (6 of 10) and thallium (8 of 10) fall within the control limits. No qualification of the silver and thallium data was made.

Antimony and selenium had MS and MSD recoveries <30 percent. As specified by the CLP functional guidelines for this condition, results were rejected and qualified *R* when antimony or selenium was undetected. Although antimony is not specifically addressed by the functional guidelines, detected values for antimony in samples from Stations 8 and 33 were qualified as quantitatively questionable (*Q*). An additional qualifier, *G* (estimate is greater than value shown), was also assigned to antimony results for these two stations to show that the sample results are biased low and that the actual results may be higher than reported.

Lead and arsenic had MS recoveries that were outside the control limits. No sample result bias can be determined. In accordance with CLP functional guidelines, results for samples with recoveries outside control limits were qualified as estimates (*E*). Because the recovery of lead and arsenic in some MS samples is <30 percent, an additional qualifier, *Q*, was added.

DUPLICATE SAMPLE ANALYSES

The laboratory, as requested, performed MSD analyses that were used in place of laboratory duplicate analyses to assess precision. Results of the RPDs for the MS and MSD analyses are summarized in Tables 24 and 25.

The laboratory calculated the RPD between the spiked sample concentrations. During the data review, it was determined that several samples and analytes had high RPDs between the MS and MSD values that were due to different spike concentrations in the sample (the spike concentration added to the MS samples was different than the spike concentration added to the MSD samples). For these analytes, the RPD was recalculated using the percent recovery.

Under CLP functional guidelines, the control limit for duplicate analyses of soils and sediments is ± 35 percent RPD. Only antimony, arsenic, lead, and

silver have RPDs outside the control limits. The data for antimony was previously qualified as unusable because of poor MS and MSD recoveries. Arsenic and lead data were previously qualified *Q* for poor MS and MSD recoveries. Therefore, no further data qualifiers are required for these elements. Silver had two of five RPDs that were outside the control limits. After recalculation, only one RPD for silver falls outside the control limits. No data qualifiers were assigned for silver because four of five RPD results are within the control limits.

STANDARD REFERENCE MATERIAL

The laboratory performed three SRM analyses (Environmental Resources Association Lot 205 Soil) for all analytes as requested. Results of these analyses are summarized in Table 26. In general, analyte recoveries were low compared with the EPA-certified values. Because of the digestion methods employed and the matrix differences between the SRMs and the samples, sample qualification was not based solely on SRM results. The best measurement of accuracy is analysis of MS samples. However, the SRM results, combined with other quality assurance data, can provide useful information in determining laboratory performance and sample quality.

All SRM analytes except antimony, arsenic, chromium, cobalt, copper, mercury, selenium, and thallium were within control limits (80-120 percent recovery). Recoveries were between 74 and 80 percent for arsenic, chromium, cobalt, and copper, indicating slightly low recoveries. These recoveries could be the result of a less vigorous digestion procedure than that employed to produce the certified values. Mercury, selenium, and thallium had percent recoveries between 30 and 75 percent. Mercury and thallium had good recoveries for the MS and MSD analyses; therefore, no further data qualifications were made because of the SRM results. Antimony and selenium had low MS and MSD recoveries, as well as low SRM recoveries. These data were rejected as unusable (R).

BLIND FIELD SAMPLE ANALYSES

Two types of field-generated quality control samples were collected at five separate stations. Station duplicates were generated by splitting composited sediment from five samples; one split was assigned to the station number and the other was assigned an artificial station number. By labeling the samples this way, the laboratory could not distinguish which samples were field quality control samples. Field replicates were generated by collecting two additional grab samples at the site and assigning artificial station numbers to them.

Results for all field replicates are summarized in Tables 27-31. The coefficient of variation, a measure of intrastation variability, was determined using all four station samples (i.e., station duplicates and field replicates). The

**TABLE 26. METALS RECOVERY RESULTS FOR THE
STANDARD REFERENCE MATERIAL ERA 205 SOIL**

Compound	Reference 1 ^a Percent Recovery	Reference 2 Percent Recovery	Reference 3 Percent Recovery	True Value (mg/kg)
Aluminum	97.3	90.5	101	14,800
Antimony	19.4	25.0	13.1	16.0
Arsenic	77.9	112	76.7	42.0
Barium	92.6	90.5	93.3	282
Beryllium	84.4	85.0	88.1	16.0
Cadmium	82.8	81.5	84.4	54.0
Calcium	88.7	87.2	90.2	13,300
Chromium	74.4	74.1	76.4	108
Cobalt	78.9	79.1	81.1	44.0
Copper	76.0	75.3	76.0	146
Iron	80.1	80.1	86.4	23,600
Lead	87.2	87.2	94.9	156
Magnesium	89.8	86.9	92.8	5,110
Manganese	87.2	87.3	90.6	639
Mercury	63.6	64.4	61.1	6.4
Nickel	80.8	81.7	84.2	120
Potassium	98.6	95.5	101	4,940
Selenium	46.5	57.3	69.2	60.0
Silver	97.2	94.8	110	25.0
Sodium	107	101	106	1,110
Thallium	52.5	49.0	49.0	20.0
Vanadium	82.6	80.8	86.5	66.0
Zinc	83.5	82.0	85.8	267

^a Standard reference material sample results.

**TABLE 27. RESULTS OF STATION 5 BLIND FIELD
DUPLICATE SAMPLES**

Compound (mg/kg dry weight)	5 Field	51 Split	52 Field Rep ^a	53 Field Rep	CV ^b
Aluminum	20,900	20,300	20,000	19,700	2.53
Antimony	0.43 ^c	0.61 ^c	0.55 ^c	0.39 ^c	NC ^d
Arsenic	11.6	12.9	7.9	21.3	42.25
Barium	54.2 ^c	53.9 ^c	52.0 ^c	50.3 ^c	3.45
Beryllium	0.43 ^c	0.61 ^c	0.55 ^c	0.39 ^c	NC
Cadmium	0.21 ^c	0.21 ^c	0.11 ^c	0.23	NC
Calcium	6,840	6,690	6,620	6,690	1.38
Chromium	44.8	43.6	43.7	42.5	2.15
Cobalt	10.0 ^c	9.5 ^c	9.6 ^c	9.2 ^c	3.44
Copper	31.3	30.2	30.2	30.4	1.72
Iron	32,700	31,700	31,800	31,300	1.85
Lead	9.6	20.2	15.3	9.2	38.4
Magnesium	13,300	12,700	12,800	12,800	2.1
Manganese	326	313	319	316	1.75
Mercury	0.14 ^c	0.092	0.10 ^c	0.13 ^c	NC
Nickel	43.3	41.7	44.9	40.2	4.77
Potassium	3,880	3,840	3,850	3,660	2.62
Selenium	2.3 ^c	0.57 ^c	0.55 ^c	2.7 ^c	NC
Silver	0.17 ^c	0.17 ^c	0.19 ^c	0.23 ^c	14.89
Sodium	24,000	23,300	24,300	24,100	1.82
Thallium	0.24 ^c	0.57 ^c	0.55 ^c	0.27 ^c	NC
Vanadium	59.9	54.7	57.3	56.1	3.87
Zinc	88.1	84.8	84.8	84.4	2.02

^a Field replicates were separate grab samples from the same sample station.

^b CV - coefficient of variation (as percent).

^c Results reported at less than the Contract Laboratory Program contract-required detection limit.

^d CV not calculated because of undetected values.

**TABLE 28. RESULTS OF STATION 35 BLIND FIELD
DUPLICATE SAMPLES**

Compound (mg/kg dry weight)	35 Field	72 Split	73 Field Rep ^a	74 Field Rep	CV ^b
Aluminum	17,900	17,900	18,100	17,800	0.7
Antimony	0.47 ^c	0.45 ^c	0.56 ^c	0.49 ^c	NC ^d
Arsenic	16.7	16.4	18.9	20.2	10.03
Barium	41.5 ^e	43.8 ^e	45.5 ^e	40.5 ^e	5.27
Beryllium	0.47 ^c	0.45 ^c	0.56 ^c	0.49 ^c	NC
Cadmium	0.88 ^e	0.95 ^e	0.92 ^e	0.87 ^e	4.06
Calcium	9,390	9,760	9,430	9,820	2.31
Chromium	43.2	43.3	44.1	43.1	1.05
Cobalt	8.7 ^e	8.3 ^e	8.3 ^e	8.1	3.0
Copper	69.8	70.5	69.8	209	64.3
Iron	24,100	23,900	24,100	23,700	0.8
Lead	68.9	59.0	60.4	52.7	11.06
Magnesium	10,300	10,200	10,100	9,990	1.31
Manganese	292	296	285	296	1.78
Mercury	0.72	0.56	0.53	0.55	14.84
Nickel	42.5	41.9	37.8	38.2	6.09
Potassium	3,390	33.80	3,350	3,370	0.51
Selenium	0.48 ^c	0.52 ^c	2.1 ^c	0.41 ^c	NC
Silver	0.81 ^e	1.3 ^e	1.1 ^e	1.1 ^e	18.34
Sodium	23,100	23,200	22,700	22,100	2.19
Thallium	0.48 ^c	0.52 ^c	0.42 ^e	0.41 ^c	NC
Vanadium	48.9	49.5	50.8	49.3	1.65
Zinc	135	130	130	128	2.2

^a Field replicates were separate grab samples from the same sample station.

^b CV - coefficient of variation (as percent).

^c Undetected at the concentration shown.

^d CV not calculated because of undetected values.

^e Results reported at less than the Contract Laboratory Program contract-required detection limit.

**TABLE 29. RESULTS OF STATION 32 BLIND FIELD
DUPLICATE SAMPLES**

Compound (mg/kg dry weight)	32 Field	57 Split	58 Field Rep ^a	59 Field Rep	CV ^b
Aluminum	5,939	5,660	5,570	5,580	2.96
Antimony	0.190	0.16 ^c	0.25 ^c	0.21 ^c	NC ^d
Arsenic	3.9	7.0	6.3	7.2	24.86
Barium	13.7 ^e	13 ^e	13.1 ^e	12.2 ^e	4.74
Beryllium	0.19 ^c	0.16 ^c	0.25 ^c	0.21 ^c	NC
Cadmium	0.056 ^e	0.63 ^e	0.051 ^c	0.048 ^c	NC
Calcium	2,980	2,710	2,580	2,650	6.41
Chromium	14.2	12.9	13.0	13.3	4.41
Cobalt	4.5 ^e	4.4 ^e	4.2 ^e	4.2	3.49
Copper	6.3	6.4	6.3	6.3	0.79
Iron	9,830	9,530	9,490	9,570	1.6
Lead	8.4	8.8	9.0	8.8	2.86
Magnesium	3,310	3,440	3,290	3,320	2.03
Manganese	284	335	253	299	11.63
Mercury	0.053 ^c	0.042 ^c	0.045	0.040	NC
Nickel	13.9	12.7	13.1	13.0	3.88
Potassium	1,130	1,140	1,110 ^e	1,030 ^e	4.53
Selenium	0.21 ^c	0.25 ^c	0.26 ^c	0.24 ^c	NC
Silver	0.084 ^e	0.088 ^e	0.082 ^e	0.081 ^e	3.69
Sodium	3,300	3,700	3,650	3,810	6.1
Thallium	0.21 ^c	0.13 ^c	0.26 ^c	0.240	NC
Vanadium	21.1	18.6	18.7	19.0	6.08
Zinc	23.5	23.1	22.9	23.0	1.14

^a Field replicates were separate grab samples from the same sample station.

^b CV - coefficient of variation (as percent).

^c Undetected at the concentration shown.

^d CV not calculated because of undetected values.

^e Results reported at less than the Contract Laboratory Program contract-required detection limit.

**TABLE 30. RESULTS OF STATION 38 BLIND FIELD
DUPLICATE SAMPLES**

Compound (mg/kg dry weight)	38 Field	60 Split	61 Field Rep ^a	62 Field Rep	CV ^b
Aluminum	22,000	22,900	22,900	23,100	2.17
Antimony	0.52 ^c	0.51 ^c	0.5 ^c	0.69 ^c	NC ^d
Arsenic	13.6	18.1	7.5	18.8	35.89
Barium	55.6 ^e	57.5 ^e	56.7 ^e	58.7 ^e	2.29
Beryllium	0.61 ^e	0.57 ^e	0.55 ^e	0.79 ^e	17.39
Cadmium	0.28 ^e	0.29 ^e	0.31 ^e	0.28 ^e	4.88
Calcium	6,660	6,770	6,760	6,900	1.45
Chromium	44.2	44.3	44.5	45.3	1.12
Cobalt	13.2 ^e	13.4 ^e	13.4	13.5 ^e	0.94
Copper	52.7	52.7	52.8	54.5	1.66
Iron	32,300	32,100	32,600	32,700	0.85
Lead	24.1	32.4	30.5	35.3	15.51
Magnesium	13,300	13,300	13,400	13,300	0.38
Manganese	824	837	864	798	3.3
Mercury	0.2 ^e	0.2 ^e	0.16 ^e	0.2 ^e	10.53
Nickel	43.6	43.0	42.6	43.2	0.97
Potassium	4,400	4,440	4,450	4,740	3.47
Selenium	2.6 ^c	0.58 ^c	2.8 ^c	0.7 ^c	NC
Silver	0.57 ^e	0.56 ^e	0.66 ^e	0.57 ^e	7.95
Sodium	31,800	31,900	31,100	30,700	1.83
Thallium	0.52 ^c	0.58 ^c	0.55 ^c	0.7 ^c	NC
Vanadium	64.4	65.8	66.9	66.3	1.62
Zinc	110	107	110	109	1.29

^a Field replicates were separate grab samples from the same sample station.

^b CV - coefficient of variation (as percent).

^c Undetected at the concentration shown.

^d CV not calculated because of undetected values.

^e Results reported at less than the Contract Laboratory Program contract-required detection limit.

**TABLE 31. RESULTS OF STATION 44 BLIND FIELD
DUPLICATE SAMPLES**

Compound (mg/kg dry weight)	44 Field	63 Split	64 Field Rep ^a	65 Field Rep	CV ^b
Aluminum	9,750	8,960	8,720	9,810	5.13
Antimony	0.24 ^c	0.26 ^c	0.25 ^c	0.25 ^c	NC ^d
Arsenic	8.5	7.4	8.2	7.8	6.0
Barium	17.4 ^e	17.1 ^e	17.8 ^e	19.2 ^e	5.18
Beryllium	0.24 ^c	0.26 ^c	0.25 ^c	0.25 ^c	NC
Cadmium	0.057 ^c	0.048 ^c	0.076 ^e	0.078 ^e	NC
Calcium	6,010	4,170	8,540	4,170	36.2
Chromium	17.3	15.3	15.3	16.3	5.95
Cobalt	6.4	5.6	5.9 ^e	6.1 ^e	5.6
Copper	15.1	13.6	13.3	13.6	5.84
Iron	12,000	11,000	11,100	11,900	4.55
Lead	8.1	4.8	8.9	8.1	24.3
Magnesium	4,280	3,870	3,900	4,140	4.86
Manganese	453	418	369	385	9.46
Mercury	0.073 ^c	0.05	0.059 ^c	0.068 ^c	NC
Nickel	16.2	14.8	15.7	16.5	4.70
Potassium	1,300	1,120 ^e	1,160 ^e	1,480	12.9
Selenium	1.4 ^c	1.2 ^c	1.4 ^c	1.4 ^c	NC
Silver	0.080 ^e	0.15 ^e	0.098 ^e	0.1 ^e	28.1
Sodium	6,590	5,990	6,140	6,080	4.31
Thallium	0.28 ^c	0.24 ^c	0.27 ^c	0.28 ^c	NC
Vanadium	27.5	25.4	25.6	28.6	5.75
Zinc	38.6	32.7	33.4	35.0	7.54

^a Field replicates were separate grab samples from the same sample station.

^b CV - coefficient of variation (as percent).

^c Undetected at the concentration shown.

^d CV not calculated because of undetected values.

^e Results reported at less than the Contract Laboratory Program contract-required detection limit.

coefficients of variation are generally low (<20 percent). Arsenic had three of five samples with the percent coefficient of variation >20, while lead had two of five samples with the percent coefficient of variation >20.

Homogenized, archived sediment samples from Sequim Bay were submitted for analysis as Stations 66, 67, and 68. The sample results are summarized in Table 32. Arsenic and lead had percent coefficients of variation >20. Poor precision for arsenic and lead is demonstrated by poor RPD values between MS and MSD results. No additional qualifiers are recommended.

**TABLE 32. RESULTS OF SEQUIM BAY
FORTIFIED SAMPLES**

Compound (mg/kg dry weight)	Station			CV ^a
	66	67	68	
Aluminum	11,400	11,800	10,400	64.4
Antimony	0.24 ^b	0.24 ^b	0.29 ^b	NC ^c
Arsenic	4.4	3.8	6.9	32.9
Barium	27.3 ^d	25.3 ^d	20.2	15.1
Beryllium	0.32 ^d	0.32 ^d	0.29 ^d	5.58
Cadmium	0.63 ^d	0.58 ^d	0.59 ^d	4.41
Calcium	5,050	4,630	4,430	6.73
Chromium	27.7	27.8	24.0	8.17
Cobalt	5.6 ^d	5.1 ^d	5.2 ^d	4.99
Copper	15.3	14.5	13.8	5.18
Iron	17,900	17,700	16,500	4.36
Lead	5.6	5.1	2.7	34.5
Magnesium	7,820	7,410	7,060	5.12
Manganese	182	180	169	3.95
Mercury	0.069	0.067	0.064	3.76
Nickel	31.5	27.2	26.5	9.53
Potassium	1,810	1,770	1,710	2.85
Selenium	0.25 ^b	1.2 ^b	1.2 ^b	NC
Silver	0.14	0.13	0.081	70.6
Sodium	8,570	7,940	8,450	4.02
Thallium	0.37	0.39	0.37	3.04
Vanadium	33.8	33.5	31.6	3.62
Zinc	45.9	44.4	43.8	2.4

^a CV - coefficient of variation (as percent).

^b Undetected at the concentration shown.

^c CV not calculated because of undetected values.

^d Results reported at less than the Contract Laboratory Program contract-required detection limit.



ENVIRONMENTAL SERVICES

15375 SE 30th Place ■ Suite 250 ■ Bellevue, Washington 98007

(206) 643-9803 ■ FAX (206) 643-9827

28 January 1991

Data Validation Report
Total Organic Carbon, Total Sulfides, and Total Solids

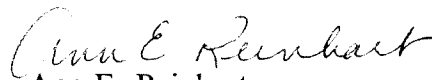
Site: Puget Sound

Project: 1990 Marine Sediment Monitoring Program


Samples Collected By: Washington Department of Ecology

The samples included in this report were analyzed by Analytical Resources, Inc., of Seattle, Washington.

Data Evaluation By:


Ann E. Reinhart

Approved By:


Robert C. Barrick

QUALITY ASSURANCE REVIEW OF TOTAL ORGANIC CARBON, TOTAL SULFIDES, AND TOTAL SOLIDS IN SEDIMENTS

SUMMARY

The data for total organic carbon (TOC), total sulfides, and total solids analyses are acceptable as reported for the uses specified in the PSAMP Implementation Plan. Qualification of all sulfide data was required because of holding time violation and poor check standard recovery. All sulfide data were qualified with a *G*.

Sixty-eight marine sediment samples were analyzed for TOC, total sulfides, and total solids by ARI (Laboratory Case No. 4917) and reviewed by EcoChem, Inc. Data validation packets for these analyses, which detail items that were reviewed, are on file at EcoChem, Inc. The quality assurance evaluations performed and the recommended data qualifications from the review are discussed in this section.

The samples that were analyzed were surficial sediment samples collected from 50 different locations in Puget Sound. Station numbers from 51 to 74 are artificial station numbers indicating field-generated (laboratory-blind) quality control samples. These samples are summarized in Table 21.

COMPLETENESS

The data package contained all deliverables necessary for evaluating accuracy, precision, and completeness of the TOC, total sulfides, and total solids analyses. Chain-of-custody sheets were not included in the data package.

To determine whether analyses were performed within the contractual holding time, the sample data sheets and analyses run logs were reviewed. The contractual holding times prior to sample analysis were met for all samples except 34 samples for total sulfides. The recommended holding time for total sulfides is 7 days; 34 samples were analyzed from 2 weeks to 1 month after sampling. All samples analyzed outside the holding time were assigned a *G* qualifier and considered an estimate.

HOLDING TIMES

Holding times for TOC analyses are summarized in Table 33.

ANALYTICAL METHODS

Sixty-five samples (plus four laboratory duplicates and triplicates) were analyzed for total sulfides and total solids. Sixty-eight samples (plus four laboratory triplicates) were analyzed for TOC. The three Sequim Bay samples (Stations 66, 67, and 68) were not analyzed for total sulfides and total solids. The procedures used for total solids and TOC analyses were in accordance with PSEP (1986). TOC was measured using a combustion technique followed by coulometric detection. Total sulfides were not analyzed following procedures described in PSEP. Under PSEP, total sulfides are determined by distillation, followed by spectrophotometric analysis. The laboratory distilled the samples, but used a titrimetric analysis to determine the sulfide content.

CALIBRATION

For TOC determinations, the laboratory used a potassium hydrogen phthalate standard to verify instrument calibration. The samples were analyzed at the beginning and end of each analytical run and after every 10 samples. The laboratory analyzed 10 standards; percent recovery ranges from 102 to 112, with a mean recovery of 108 percent.

Total sulfides determination was performed using a standardized phenyl arsine oxide solution to titrate and standardize an iodine solution. Iodine, which is added to the samples in a known amount, reacts with sulfide in an acid solution, oxidizing it to sulfur. After the iodine addition, the samples are then titrated with phenyl arsine oxide to determine the sulfide concentration.

The laboratory analyzed a check standard for total sulfides on each day of analysis. The check standard was distilled and titrated following the same procedures used for sample analysis. The laboratory analyzed 15 check standards with a mean recovery of 54.3 percent, a range of 27.5-100 percent, and a coefficient of variation of 38.0 percent. The poor recovery of the check standard indicates poor accuracy and poor reproducibility of the analysis. All sample results are considered estimates and were assigned *G* qualifiers to indicate the value reported may be biased low. Results from samples analyzed outside the recommended holding time were qualified with a *G*.

**TABLE 33. SAMPLE HOLDING TIMES FOR
TOTAL ORGANIC CARBON**

Sample Number	Date Sampled	Date Received	Date Analyzed	Holding Time (Days)
29	12 March 1990	15 March 1990	4 April 1990	23
26	12 March 1990	15 March 1990	4 April 1990	23
22	12 March 1990	15 March 1990	4 April 1990	23
20	12 March 1990	15 March 1990	4 April 1990	23
21	13 March 1990	15 March 1990	4 April 1990	22
69	13 March 1990	15 March 1990	4 April 1990	22
35	14 March 1990	15 March 1990	4 April 1990	21
72	14 March 1990	15 March 1990	4 April 1990	21
73	14 March 1990	15 March 1990	4 April 1990	21
74	14 March 1990	15 March 1990	4 April 1990	21
34	14 March 1990	15 March 1990	4 April 1990	21
40	15 March 1990	19 March 1990	4 April 1990	20
41	15 March 1990	19 March 1990	4 April 1990	20
113R	15 March 1990	19 March 1990	4 April 1990	20
114R	15 March 1990	19 March 1990	4 April 1990	20
43	16 March 1990	19 March 1990	4 April 1990	19
116R	16 March 1990	19 March 1990	4 April 1990	19
44	16 March 1990	19 March 1990	4 April 1990	19
63	16 March 1990	19 March 1990	4 April 1990	19
64	16 March 1990	19 March 1990	4 April 1990	19
65	16 March 1990	19 March 1990	4 April 1990	19
112R	17 March 1990	19 March 1990	4 April 1990	18
115R	17 March 1990	19 March 1990	4 April 1990	18
45	17 March 1990	19 March 1990	4 April 1990	18
70	18 March 1990	19 March 1990	4 April 1990	17
101R	18 March 1990	19 March 1990	4 April 1990	17
102R	18 March 1990	19 March 1990	4 April 1990	17
103R	18 March 1990	19 March 1990	4 April 1990	17
47	20 March 1990	23 March 1990	4 April 1990	15
110R	20 March 1990	23 March 1990	4 April 1990	15

TABLE 33. (Continued)

Sample Number	Date Sampled	Date Received	Date Analyzed	Holding Time (Days)
111R	20 March 1990	23 March 1990	4 April 1990	15
104R	21 March 1990	23 March 1990	4 April 1990	14
105R	21 March 1990	23 March 1990	4 April 1990	14
48	21 March 1990	23 March 1990	4 April 1990	14
109R	21 March 1990	23 March 1990	4 April 1990	14
49	22 March 1990	23 March 1990	4 April 1990	13
106R	22 March 1990	23 March 1990	4 April 1990	13
108R	22 March 1990	23 March 1990	4 April 1990	13
46R	22 March 1990	23 March 1990	4 April 1990	13
38	23 March 1990	26 March 1990	5 April 1990	13
39	23 March 1990	26 March 1990	5 April 1990	13
60	23 March 1990	26 March 1990	5 April 1990	13
62	23 March 1990	26 March 1990	5 April 1990	13
61	23 March 1990	26 March 1990	5 April 1990	13
67	23 March 1990	26 March 1990	5 April 1990	13
66	23 March 1990	26 March 1990	5 April 1990	13
68	23 March 1990	26 March 1990	5 April 1990	13
32	25 March 1990	28 March 1990	5 April 1990	11
33	25 March 1990	28 March 1990	5 April 1990	11
30	25 March 1990	28 March 1990	5 April 1990	11
19	26 March 1990	28 March 1990	5 April 1990	10
18	26 March 1990	28 March 1990	5 April 1990	10
4	26 March 1990	28 March 1990	5 April 1990	10
71	26 March 1990	28 March 1990	5 April 1990	10
57	27 March 1990	28 March 1990	5 April 1990	9
58	27 March 1990	28 March 1990	5 April 1990	9
59	27 March 1990	28 March 1990	5 April 1990	9
5	27 March 1990	28 March 1990	5 April 1990	9
3	27 March 1990	28 March 1990	5 April 1990	9
4	27 March 1990	28 March 1990	5 April 1990	9

TABLE 33. (Continued)

Sample Number	Date Sampled	Date Received	Date Analyzed	Holding Time (Days)
51	27 March 1990	28 March 1990	5 April 1990	9
52	27 March 1990	28 March 1990	5 April 1990	9
53	27 March 1990	28 March 1990	5 April 1990	9
8	29 March 1990	2 April 1990	5 April 1990	7
12	29 March 1990	2 April 1990	5 April 1990	7
14	30 March 1990	2 April 1990	5 April 1990	6
15	30 March 1990	2 April 1990	5 April 1990	6
17	30 March 1990	2 April 1990	5 April 1990	6

Note: Sample triplicate, matrix spike, and matrix spike duplicate analyses were not included in this table of sample holding times.

DETECTION LIMITS

Except for total sulfides, no undetected values were reported. The detection limits for total sulfides were not specified in the contract. However, the PSEP method specifies the spectrometric method of determining sulfide. The spectrometric method is more sensitive than the titration method used by the laboratory. Therefore, if the spectrometric method had been used, detectable amounts of sulfide may have been reported in the samples. Forty-nine of 65 samples were reported as undetected.

BLANK ANALYSES

Reagent blanks were analyzed for TOC and total sulfides. For TOC, the original blank value was subtracted from the sample value prior to calculating the sample concentrations. All blank values were less than one-tenth of the sample concentrations. Twelve blank analyses were performed for total sulfides and all were less than the detection limit.

MATRIX SPIKE SAMPLE ANALYSES

The analysis of MS samples is not specified under PSEP for total solids or TOC analyses. The laboratory analyzed four MS and MSD samples for TOC with a mean percent recovery of 117 percent and a range of 99-130 percent. Three MS samples out of eight had percent recoveries > 120 percent. The data were not qualified because a majority of the MS results are within acceptable limits.

Two MS samples were analyzed for total sulfides. At a recommended frequency of 5 percent, four MS samples should have been analyzed. The MS samples that were analyzed have percent recoveries of 30.4 and 118.2. The samples were qualified previously because holding times were exceeded and poor check standard recovery was obtained. Therefore, no further data qualifications were required.

DUPLICATE SAMPLE ANALYSES

Under PSEP, triplicate analyses at a frequency of 5 percent are recommended for TOC, total sulfides, and total solids analyses. For TOC, the laboratory analyzed four samples in triplicate and all coefficients of variation were within the control limits (± 20 percent). Three duplicate samples and one triplicate sample were analyzed for total sulfides. No duplicate or triplicate analyses were analyzed for total solids. The data for total solids were not qualified because the blind field replicate samples demonstrate good precision. Results for all duplicate and triplicate analyses are summarized in Table 34.

TABLE 34. LABORATORY REPLICATE RESULTS FOR CONVENTIONAL ANALYSES

Total Organic Carbon (percent)				
Station	Replicate Results	Mean	Standard Deviation	CV ^a
5	1.9, 2.0, 1.9	1.9	0.058	3.0
35	2.8, 2.9, 2.9	2.9	0.058	2.0
44	0.49, 0.51, 0.67	0.56	0.099	17.6
46R	3.9, 3.6, 3.9	3.8	0.173	4.6

Total Sulfides (mg/kg)				
Station	Replicate Results	Mean	Standard Deviation	CV
116R	<6.6, <3.1	--	--	NC ^b
20	<14.5, <16.0	--	--	NC
35	39.1, 26.7	32.9	--	37.7 ^c
102R	909, 806, 639	785	137	17.4

^a CV - coefficient of variation (as percent).

^b CV not calculated because of undetected values.

^c Relative percent difference calculated because sample was analyzed in duplicate.

BLIND FIELD SAMPLE ANALYSES

Two types of field-generated quality control samples were collected at five separate stations. Station duplicates were generated by splitting composited sediment from five grab samples; one split was assigned to the station number and the other was assigned an artificial station number. By labeling the samples this way, the laboratory could not distinguish which samples were field quality control samples. Site replicates were generated by collecting two additional grab samples at the site and assigning artificial station numbers to them. Homogenized archived sediment samples from Sequim Bay were submitted for analysis as Stations 66, 67, and 68. Results for all field replicates are summarized in Table 35.

The coefficient of variation is generally low (<20 percent) for all field replicates. Therefore, no additional qualifiers are necessary.

TABLE 35. FIELD REPLICATE RESULTS FOR CONVENTIONAL ANALYSES

Sample	TOC ^a		Total Sulfides		Total Solids	
	Results (percent)	CV ^b	Results (mg/kg)	CV	Results (percent)	CV
5	1.9		<30.6		30.66	
51	2.0	2.5	<23.4	NC ^c	32.36	5.3
52	2.0		<18.2		34.25	
53	2.0		<21.4		30.75	
35	2.8		39.1		31.03	
72	3.1	5.6	41.3	NC	31.8	7.0
73	3.1		<33.8		30.8	
74	3.2		234		27.06	
32	0.29		<10.7		76.24	
57	0.26	30.0	<11.8	NC	75.4	1.7
58	0.14		15.9		73.26	
59	0.2		<10.5		74.35	
38	2.5		83.2		25.59	
60	2.5	3.3	<37.7	NC	25.75	1.8
61	2.4		49.6		25.32	
62	2.6		44.8		26.4	
44	0.49		<4.5		62.83	
63	0.73	33.4	<5.5	NC	64.04	1.8
64	0.35		<5.6		59.2	
65	0.41		<6.6		62.84	
66	0.89		NA ^d		NA	
67	0.74	11.8	NA	----	NA	----
68	0.93		NA		NA	

^a TOC - total organic carbon.

^b CV - coefficient of variation.

^c NC - CV not calculated because of undetected values.

^d NA - samples not analyzed for this parameter.

28 January 1991

Data Validation Report
Particle Size Analyses

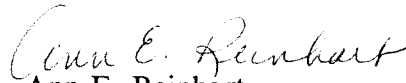
Site: Puget Sound

Project: 1990 Marine Sediment Monitoring Program


Samples Collected By: Washington Department of Ecology

The samples included in this report were analyzed by Hart Crowser, of Seattle, Washington.

Data Evaluation By:


Ann E. Reinhart

Approved By:


Robert C. Barrick

QUALITY ASSURANCE REVIEW OF PARTICLE-SIZE DETERMINATION IN SEDIMENTS

SUMMARY

Particle-size determinations were performed on 65 marine sediment samples by ARI and reviewed by EcoChem, Inc. The data are acceptable as reported for all samples except Stations 15, 22, 22 duplicate, 39, 48, 58, 108R, and 112R; the values for these stations were estimated.

COMPLETENESS

The data package contains results for all samples that were submitted for analysis. The original data sheets were submitted for all samples, and all samples were analyzed within the 6-month holding time recommended by PSEP guidelines (PSEP 1986).

The laboratory report sheets were generated from computer spreadsheets. The original data were checked against the data-entry sheets; no calculation or data-entry errors were found.

ANALYTICAL METHODS

Sixty-five samples (plus one duplicate) were analyzed for particle size. Analytical methods were in accordance with PSEP (1986). Samples were not oxidized with hydrogen peroxide prior to sieve analysis. Sand fractions were sieved to one phi interval and clay and silt fractions were differentiated by the pipette technique.

ACCURACY

SRM analysis is not specified under PSEP protocols for particle-size determinations. Overall sample recovery is assessed by comparing the sum of the fraction weights with the calculated dry weight of the initial subsample. PSEP (1986) recommends that losses assessed by this method be <5 percent (or >95 percent recovery). As directed by the PSEP protocols, the sample from Station 48 was qualified as estimated because the inaccuracies were >5 percent of the initial weight. The original and reanalysis results (52 and 30 percent, respectively) are substantially higher than the allowable losses and inaccuracies. All

other results are acceptable, based on the allowable losses and inaccuracies, although some results were estimated for other reasons.

PSEP protocols recommend that the total weight of fine-grained material used in the silt and clay determination be between 5 and 25 grams. If samples >25 grams are analyzed, particles may interfere with each other during settling and flocculation may be enhanced. If <5 grams is used, the experimental error in weighing becomes large relative to the sample size. A sample size of <5 grams was used for the following seven samples: Stations 15, 22, 22 duplicate, 39, 58, 108R, and 112R.

A sample size >25 grams was used for Stations 21 and 41. Data from the seven samples of <5 grams and the two samples of >25 grams had their silt and clay determinations qualified as estimates.

PRECISION

One duplicate analysis was performed for particle-size determination. The PSEP protocols (PSEP 1986) recommend a triplicate analysis of 1 of every 20 samples. Precision cannot be fully evaluated with one duplicate because PSEP protocols consider three sets of triplicate data the minimum requirement for a sample set this large. Table 36 lists the replicate results for the particle-size determinations for all fractions. The duplicates analyzed from Station 26 indicate that the analysis was in control, but triplicate analysis would be required to confirm that the analysis was in control. Results for blind field duplicate samples at Stations 5, 32, 35, 38, and 44 are shown in Tables 37-41.

**TABLE 36. LABORATORY REPLICATE RESULTS
OF PARTICLE-SIZE DETERMINATION**

Class Name	Phi Value	Grain Size (μm)	Sample 26	Sample 26D	RPD ^a (percent)
Gravel	< -2	> 4,750	100	100	0
	-2 to -1	4,750-2,000	99	100	1.0
Very coarse sand	-1 to 0	2,000-850	99	100	1.0
Coarse sand	0 to 1	850-425	97	98	1.0
Medium sand	1 to 2	425-250	84	85	1.2
Fine sand	2 to 3	250-106	18	16	11.7
Very fine sand	3 to 4	106-75	7	7	0
		75-62.5	5	6	17.9
Silt	4 to 5	62.5-31.2	4	4	0
	5 to 6	31.2-15.6	3	3	0
	6 to 7	15.6-7.8	3	3	0
	7 to 8	7.8-3.9	2	3	40.0
Clay	8 to 9	3.9-1.9	2	2	0
	9 to 10	1.9-0.9	1	2	66.7
	10 to 11	0.9-0.4	0	0	0

^a RPD - Relative percent difference.

**TABLE 37. RESULTS OF STATION 5 BLIND FIELD
DUPLICATE SAMPLES FOR PARTICLE-SIZE DETERMINATION^a**

Class Name	Phi Value	Grain Size (μm)	Sample 5 Field	Sample 51 Split	Sample 52 Field Rep ^b	Sample 53 Field Rep	CV ^c
Gravel	<-2	> 4,750	100	100	100	100	0
	-2 to -1	4,750-2,000	100	100	100	100	0
Very coarse sand	-1 to 0	2,000-850	99	99	100	100	0.6
Coarse sand	0 to 1	850-425	99	99	99	99	0
Medium sand	1 to 2	425-250	99	99	99	99	0
Fine sand	2 to 3	250-106	98	99	99	99	0.5
Very fine sand	3 to 4	106-75	98	98	98	98	0
		75-62.5	97	97	97	98	0.5
Silt	4 to 5	62.5-31.2	81	83	81	83	1.4
	5 to 6	31.2-15.6	58	61	59	62	3.0
	6 to 7	15.6-7.8	41	45	39	46	7.7
	7 to 8	7.8-3.9	29	32	31	35	7.8
Clay	8 to 9	3.9-1.9	20	22	22	26	10.9
	9 to 10	1.9-0.9	14	15	14	19	15.0
	10 to 11	0.9-0.4	0	2	0	0	200

^a Percent passing.

^b Field replicates were separate grab samples from the same sample station.

^c CV - coefficient of variation (as percent).

**TABLE 38. RESULTS OF STATION 32 BLIND FIELD
DUPLICATE SAMPLES FOR PARTICLE-SIZE DETERMINATION^a**

Class Name	Phi Value	Grain Size (μm)	Sample 32 Field	Sample 57 Split	Sample 58 Field Rep ^b	Sample 59 Field Rep	CV ^c
Gravel	<-2	> 4,750	100	100	100	100	0
	-2 to -1	4,750-2,000	100	100	100	100	0
Very coarse sand	-1 to 0	2,000-850	100	99	100	100	0.5
Coarse sand	0 to 1	850-425	97	96	97	96	0.6
Medium sand	1 to 2	425-250	74	75	74	74	0.7
Fine sand	2 to 3	250-106	10	13	9	10	16.5
Very fine sand	3 to 4	106-75	7	11	8	7	22.8
		75-62.5	7	10	6	7	23.1
Silt	4 to 5	62.5-31.2	6	9	4	6	32.7
	5 to 6	31.2-15.6	5	9	4	5	37
	6 to 7	15.6-7.8	5	8	3	4	43.2
	7 to 8	7.8-3.9	4	7	3	4	38.5
Clay	8 to 9	3.9-1.9	3	7	2	3	59.1
	9 to 10	1.9-0.9	3	6	2	2	58.2
	10 to 11	0.9-0.4	1	4	0	0	151.4

^a Percent passing.

^b Field replicates were separate grab samples from the same sample station.

^c CV - coefficient of variation (as percent).

**TABLE 39. RESULTS OF STATION 44 BLIND FIELD
DUPLICATE SAMPLES FOR PARTICLE SIZE DETERMINATION^a**

Class Name	Phi Value	Grain Size (μm)	Sample 44 Field	Sample 63 Split	Sample 64 Field Rep ^b	Sample 65 Field Rep	CV ^c
Gravel	<-2	> 4,750	100	100	100	100	0
	-2 to -1	4,750-2,000	99	100	99	100	0.6
Very coarse sand	-1 to 0	2,000-850	98	98	96	98	1.0
Coarse sand	0 to 1	850-425	91	91	88	90	1.6
Medium sand	1 to 2	425-250	77	77	73	76	2.5
Fine sand	2 to 3	250-106	32	31	30	30	3.1
Very fine sand	3 to 4	106-75	18	17	17	17	2.9
		75-62.5	16	14	14	14	6.9
Silt	4 to 5	62.5-31.2	13	11	12	11	8.0
	5 to 6	31.2-15.6	11	9	10	10	8.2
	6 to 7	15.6-7.8	10	8	9	9	9.1
	7 to 8	7.8-3.9	8	6	7	7	11.7
Clay	8 to 9	3.9-1.9	7	4	6	5	23.5
	9 to 10	1.9-0.9	5	2	4	4	33.6
	10 to 11	0.9-0.4	1	0	0	0	200

^a Percent passing.

^b Field replicates were separate grab samples from the same sample station.

^c CV - coefficient of variation (as percent).

**TABLE 40. RESULTS OF STATION 38 BLIND FIELD
DUPLICATE SAMPLES FOR PARTICLE-SIZE DETERMINATION^a**

Class Name	Phi Value	Grain Size (μm)	Sample 38 Field	Sample 60 Split	Sample 61 Field Rep ^b	Sample 62 Field Rep	CV ^c
Gravel	< -2	> 4,750	100	100	100	100	0
	-2 to -1	4,750-2,000	100	100	100	100	0
Very coarse sand	-1 to 0	2,000-850	100	100	100	100	0
Coarse sand	0 to 1	850-425	100	100	100	100	0
Medium sand	1 to 2	425-250	99	99	99	99	0
Fine sand	2 to 3	250-106	99	99	99	99	0
Very fine sand	3 to 4	106-75	98	98	99	98	0.5
		75-62.5	98	98	98	98	0
Silt	4 to 5	62.5-31.2	96	95	96	93	1.5
	5 to 6	31.2-15.6	86	86	84	89	2.4
Clay	6 to 7	15.6-7.8	69	70	67	66	2.7
	7 to 8	7.8-3.9	52	54	47	49	6.2
	8 to 9	3.9-1.9	37	38	32	33	8.4
	9 to 10	1.9-0.9	22	28	19	20	18.1
	10 to 11	0.9-0.4	0	0	0	0	0

^a Percent passing.

^b Field replicates were separate grab samples from the same sample station.

^c CV - coefficient of variation (as percent).

**TABLE 41. RESULTS OF STATION 35 BLIND FIELD
DUPLICATE SAMPLES FOR PARTICLE-SIZE DETERMINATION^a**

Class Name	Phi Value	Grain Size (μm)	Sample 35 Field	Sample 72 Split	Sample 73 Field Rep ^b	Sample 74 Field Rep	CV ^c
Gravel	<-2	>4,750	100	100	100	100	0
	-2 to -1	4,750-2,000	100	100	100	100	0
Very coarse sand	-1 to 0	2,000-850	99	99	99	99	0
Coarse sand	0 to 1	850-425	98	98	97	98	0.5
Medium sand	1 to 2	425-250	96	97	95	97	1.0
Fine sand	2 to 3	250-106	90	91	88	92	1.9
Very fine sand	3 to 4	106-75	85	86	82	86	2.2
		75-62.5	83	83	80	83	1.8
Silt	4 to 5	62.5-31.2	59	58	62	70	8.6
	5 to 6	31.2-15.6	52	49	52	56	5.5
	6 to 7	15.6-7.8	40	39	40	45	6.6
	7 to 8	7.8-3.9	28	29	29	32	5.8
Clay	8 to 9	3.9-1.9	21	21	22	22	2.6
	9 to 10	1.9-0.9	15	16	16	14	6.4
	10 to 11	0.9-0.4	2	2	1	0	77.0

^a Percent passing.

^b Field replicates were separate grab samples from the same sample station.

^c CV - coefficient of variation (as percent).



28 January 1991

Data Validation Report
Bioassay Analyses

Site: Puget Sound

Project: 1990 Marine Sediment Monitoring Program

Samples Collected By: Washington Department of Ecology

The samples included in this report were analyzed by Parametrix, Inc., of Bellevue, Washington.

Data Evaluation By:

D. Scott Becker
Scott Becker

Approved By:

E.W. Hogde
E.W. Hogde

QUALITY ASSURANCE REVIEW OF BIOASSAY ANALYSES

SUMMARY

This section presents a QA/QC evaluation of bioassay results reported by Parametrix, Inc. Test sediments were from 65 samples collected at subtidal stations in Puget Sound, Washington, between 12 and 30 March 1990. Negative control sediments were collected from West Beach, Whidbey Island, Washington. The amphipod mortality bioassay using *Rhepoxynius abronius* was performed on all sediment samples. The bioassays were initially performed in three test groups (a fourth group of 17 test sediments was retested at a later date).

As part of the QA/QC evaluation, the following information was reviewed:

- **Methods**—Were published methods followed and were any modifications adequately justified and documented?
- **Test conditions**—Were water quality conditions monitored adequately during testing, and were the measured conditions within the appropriate ranges?
- **Control responses**—Were positive (i.e., reference toxicant) and negative (i.e., clean sediment) controls evaluated, and did the results indicate that the test organisms were suitably responsive?
- **Response variability**—Were the results of the amphipod mortality bioassay unusually variable at any test station such that the statistical power to determine a significant effect may have been compromised?
- **Absolute Response**—Were the observed values of amphipod mortality at test stations within the expected ranges for Puget Sound, given the known levels of sediment chemical contamination at those stations?

The remainder of this section presents the results of the QA/QC evaluation for the amphipod mortality bioassays.

BIOASSAY EVALUATION

The amphipod mortality test determines percent mortality and emergence of adult amphipods exposed to test sediment for 10 days. Methods are described in

Recommended Protocols for Conducting Laboratory Bioassays on Puget Sound Sediments (PSEP 1990).

Methods

Overall, the recommended protocols were followed during testing. Samples were collected and stored properly, and all initial testing was started within the maximum time limit of 14 days after sediment collection. However, 17 test sediments were retested after the 14-day maximum holding time had expired because unusually high values of mortality were found for numerous samples during initial testing.

Photoperiod lighting was used for the first 9 days of the first test batch. The use of photoperiod lighting is not recommended by PSEP protocols. The use of this lighting cycle, however, is not thought to have contributed to increased mortality. The lighting cycle resembled that which the organisms would have experienced in the field and may have decreased mortality by allowing test organisms to exit as sediments into the overlying water.

One additional methodological departure occurred that may influence the validity of the results obtained for specific test samples. Interstitial salinity was not measured for 13 of the 65 test sediment samples. According to Parametrix, interstitial salinity could not be measured in 11 of the samples (i.e., Stations 32, 39, 43, 46R, 57, 59, 69, 103R, 108R, 112R, and 116R) because the sediment was too coarse to extract water. There was no explanation given for the lack of interstitial salinity measurements in the other two samples (i.e., Stations 22 and 56). If the interstitial salinities were below the recommended minimum level of 25 parts per thousand (ppt) for the test species, the bioassay results for those test sediment samples may be unrepresentative. Interstitial salinities for the remaining 52 sediment samples were all >25 ppt and ranged from 28 to 34 ppt.

Water Quality

Water temperatures in the test chambers were within the recommended range of 14-16°C for 953 of 1021 measurements made. All measurements of water temperature made for the first test group were 13°C on day 9 of the 10-day test. All measurements of temperature made for the second test group on day 2 and day 7 of the test were 13°C and 17°C, respectively. It is unlikely that the departures from the optimal temperature range substantially influenced the test results, because the departures were relatively small (i.e., 1°C) and each occurred only during a single day.

Salinities were outside (i.e., greater than) the recommended range of 27-29 ppt in all control and test sediment replicates. The largest exceedance was by 5 ppt. Although the elevated salinities are undesirable, they probably did not

substantially affect the bioassay results, as the test species is known to be stressed primarily by salinities below, rather than above, the optimal range.

Values of pH ranged from 7.8 to 8.3 and were all within the recommended range of 7.0-9.0. Concentrations of dissolved oxygen were greater than the desirable minimum level of 5 mg/L for all control and test sediment replicates. The lowest dissolved oxygen concentration was 5.2 mg/L.

Controls

Positive controls were tested for each batch of samples using CdCl₂ as the reference toxicant. The positive controls for the three initial test runs exhibited LC₅₀ values ranging from 0.30 to 0.39 mg/L. The value for the retested sample batch was 0.21 mg/L. These responses were considerably lower than those usually found for the test species using CdCl₂ as the reference toxicant. Joe Cummins of the EPA has generally observed 96-hour LC₅₀ values for *R. abronius* that range from approximately 0.75 to 1.5 mg/L (Cummins, J., 26 July 1990, personal communication), and Rick Swartz of the EPA has usually observed 96-hour LC₅₀ values ranging from 1.0 to 2.5 mg/L (Swartz, R., 26 July 1990, personal communication). The LC₅₀ values observed for the present data set appear unusually low and suggest that the test organisms were exceptionally sensitive to chemical toxicity. Because of this elevated degree of sensitivity, the organisms may not have been in the appropriate physiological condition to provide reliable results when exposed to test sediments.

Negative sediment controls using sediment from West Beach were evaluated for each batch of samples. The negative controls exhibited mortality values that ranged from 2.5 to 6 percent. All of these values are lower than the maximum allowable value of 10 percent. These results suggest that the test organisms were suitably healthy for survival in control sediments.

Response Variability

Response variability among the five replicates for an individual sediment sample was unusually high (i.e., standard deviation >15) in 5 of the 65 test sediments (i.e., Stations 17, 43, 45, 102R, and 106R) and in 3 of the 17 test sediments that were retested (i.e., Stations 18, 49, and 104R). This variability suggests that, for the eight test sediments with high response variability, the statistical power of comparisons with reference or control conditions may be reduced.

Absolute Response

Several test sediments exhibited unusually high amphipod mortality, given the known or suspected level of chemical contamination in those sediments. Of the 65 sediment samples tested, 29 displayed a mean response of >25 percent mortality (i.e., the maximum value usually observed in Puget Sound reference areas). Sixteen of those samples and one sample with a mean response <25 percent (i.e., 17 percent) mortality were reanalyzed after the 14-day maximum sediment holding time had been exceeded. Only three of the retested samples exhibited mean mortalities greater than 25 percent (i.e., 26, 27, and 28 percent).

Tim Thompson of Parametrix suggested that the unusually high mortality observed in many of the test sediments may have been a result of natural phenomena associated with the appearance of a high number of sexually mature animals in the population of test organisms (Thompson, T., 23 July 1990, personal communication). A letter addressing this issue is attached to this report.

CONCLUSIONS

All amphipod mortality bioassay data were qualified with a footnote on the basis of apparent high sensitivity of test organisms to chemical toxicity. These qualifiers do not necessarily limit the usefulness of the data, but they should alert data users that the test organism sensitivity to chemical toxicity was uncharacteristically high relative to the sensitivity found in past studies. This sensitivity may have caused the mortality values to be higher than what would be expected for these sediments. However, amphipod mortalities for all negative control sediments were within specified limits. Comparison of relative mortality values within this data set should not be affected by these qualifiers. Direct comparisons of the data to other studies, however, are not recommended.

Those data for which PSEP holding times were exceeded were also qualified with a footnote. This qualification does not necessarily limit the usefulness of the data, but does alert data users that sediment holding times were greater than the 14-day limit established by PSEP.

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APPENDIX C

1990 SEDIMENT CHEMISTRY AND AMPHIPOD BIOASSAY DATA

TABLE A-1. VOLATILE ORGANIC COMPOUNDS (µg/kg, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Sample	Field Replicate	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	cis-1,3-Dichloropropene
3	03/27/90	3 ²		0.80 U	1.5 U	0.80 U	0.80 U	0.80 U	1.50 U	0.80 U	0.80 U	0.80 U
5	03/27/90	5 ^{1 2}	1	0.07 UE	0.07 UE	0.17 UE	0.07 UE	0.07 UE	0.07 UE	0.14 UE	0.07 UE	0.17 UE
5	03/27/90	5 ^{1 2}	1	0.07 UE	0.07 UE	0.17 UE	0.07 UE	0.07 UE	0.07 UE	0.14 UE	0.07 UE	0.17 UE
5	03/27/90	5 ^{2 1 2}	2	0.07 UE	0.07 UE	0.17 UE	0.07 UE	0.07 UE	0.07 UE	0.14 UE	0.07 UE	0.17 UE
5	03/27/90	5 ^{3 1 2}	3	0.07 UE	0.07 UE	0.17 UE	0.07 UE	0.07 UE	0.07 UE	0.14 UE	0.07 UE	0.17 UE
8	03/29/90	8 ²		1.1 U	2.2 U	1.1 U	1.1 U	1.1 U	2.2 U	1.1 U	1.1 U	1.1 U
14	03/30/90	14 ²		0.90 U	1.8 U	0.90 U	0.90 U	0.90 U	1.8 U	0.90 U	0.90 U	0.90 U
17	03/30/90	17 ²		1.6 U	3.2 U	1.6 U	1.6 U	1.6 U	3.2 U	1.6 U	1.6 U	1.6 U
19	03/26/90	19 ²		1.7 U	3.4 U	1.7 U	1.7 U	1.7 U	3.4 U	1.7 U	1.7 U	1.7 U
29	03/12/90	29 ¹		0.06 U	0.06 U	0.16 U	0.06 U	0.06 U	0.06 U	0.12 U	0.06 U	0.16 U
35	03/14/90	35 ¹	1	0.07 U	0.07 U	0.18 U	0.07 U	0.07 U	0.07 U	0.14 U	0.07 U	0.18 U
38	03/23/90	38 ¹	1	0.08 U	0.08 U	0.21 U	0.08 U	0.08 U	0.08 U	0.16 U	0.08 U	0.21 U
38	03/23/90	60 ^{1 2}	1	0.09 UE	0.09 UE	0.22 UE	0.09 UE	0.09 UE	0.09 UE	0.18 UE	0.09 UE	0.22 UE
38	03/23/90	61 ^{1 2}	2	0.08 UE	0.08 UE	0.20 UE	0.08 UE	0.08 UE	0.08 UE	0.16 UE	0.08 UE	0.20 UE
38	03/23/90	62 ^{1 2}	3	0.09 UE	0.09 UE	0.22 UE	0.09 UE	0.09 UE	0.09 UE	0.18 UE	0.09 UE	0.22 UE
45	03/17/90	45 ¹		0.05 U	0.05 U	0.12 U	0.05 U	0.05 U	0.05 U	0.10 U	0.05 U	0.12 U

¹ 100 grams of sediment analyzed.

² 10 grams of sediment analyzed.

TABLE A-1. (Continued)

Station	Date	Sample	Field		trans-1,3-dichloropropene	2-Chloroethyl-vinyl ether	2-Butanone	2-Hexanone	4-Methyl-2-pentanone	Acetone	Benzene	Bromodi-chloromethane	Bromoform
			Replicate	Replicate									
3	03/27/90	3 ²			1.5 U	1.5 U	5.7 U	1.5 U	1.5 U	27 U	0.80 U	0.80 U	2.3 U
5	03/27/90	51 ²	1		0.07 UE	0.17 UE	12.0 U	0.33 UE	0.33 UE	29 U	0.17 UE	0.07 UE	0.2 UE
5	03/27/90	511 ²	1		0.07 UE	0.17 UE	12.0 U	0.33 UE	0.33 UE	38 U	0.17 UE	0.07 UE	0.2 UE
5	03/27/90	521 ²	2		0.07 UE	0.17 UE	12.0 U	0.33 UE	0.33 UE	30 U	0.17 UE	0.07 UE	0.2 UE
5	03/27/90	531 ²	3		0.07 UE	0.17 UE	12.0 U	0.34 UE	0.34 UE	26 U	0.17 UE	0.07 UE	0.2 UE
8	03/29/90	8 ²			2.2 U	2.2 U	8.0 U	2.2 U	2.2 U	31 U	1.1 U	1.1 U	3.3 U
14	03/30/90	14 ²			1.8 U	1.8 U	6.8 U	1.8 U	1.8 U	6.1 U	0.90 U	0.90 U	2.7 U
17	03/30/90	17 ²			3.2 U	3.2 U	12.0 U	3.2 U	3.2 U	16 U	1.6 U	1.6 U	4.8 U
19	03/26/90	19 ²			3.4 U	3.4 U	17.0 Q	3.4 U	3.4 U	30 U	1.7 U	1.7 U	5.1 U
29	03/12/90	29 ¹			0.06 U	0.16 U	3.2 UE	0.32 U	0.32 U	5.8 U	0.16 U	0.06 U	0.16 U
35	03/14/90	35 ¹	1		0.07 U	0.18 U	3.5 U	0.35 U	0.35 U	7.0 U	0.18 U	0.07 U	0.18 U
38	03/23/90	38 ¹	1		0.08 U	0.21 U	5.2 Q	0.42 U	0.42 U	22	0.21 U	0.08 U	0.21 U
38	03/23/90	601 ²	1		0.09 UE	0.22 UE	15.0 U	4.4 E	0.43 UE	53	0.22 UE	0.09 UE	0.22 UE
38	03/23/90	611 ²	2		0.08 UE	0.20 UE	13.0 U	0.41 UE	0.41 UE	43 U	0.20 UE	0.08 UE	0.20 UE
38	03/23/90	621 ²	3		0.09 UE	0.22 UE	15.0 U	0.43 UE	0.43 UE	40 U	0.22 UE	0.09 UE	0.22 UE
45	03/17/90	45 ¹			0.05 U	0.12 U	2.4 U	0.24 U	0.24 U	2.7 U	0.12 U	0.05 U	0.12 U

¹ 100 grams of sediment analyzed.

² 10 grams of sediment analyzed.

TABLE A-1. (Continued)

Station	Date	Sample	Field Replicate	Bromo- methane	Carbon Disulfide	Carbon Tetrachloride	Chloro- benzene	Chloro- ethane	Chloroform	Chloro- methane	Dibromo- chloromethane	Ethyl- benzene	Methylene Chloride
3	03/27/90	3 ²		1.5 U	1.5 U	1.5 U	0.80 U	2.3 U	0.80 U	1.5 U	0.80 U	0.80 U	0.80 U
5	03/27/90	51 ²	1	0.67 UE	0.61 E	0.07 UE	0.07 UE	0.67 UE	0.07 UE	0.67 UE	0.07 UE	0.25 UE	1.9 Q
5	03/27/90	51 ^{1 2}	1	0.66 UE	0.39 E	0.07 UE	0.07 UE	0.66 UE	0.07 UE	0.66 UE	0.07 UE	0.41 UE	1.6 U
5	03/27/90	52 ^{1 2}	2	0.66 UE	0.26 E	0.07 UE	0.07 UE	0.66 UE	0.07 UE	0.66 UE	0.07 UE	0.17 UE	1.5 U
5	03/27/90	53 ^{1 2}	3	0.68 UE	0.47 E	0.07 UE	0.07 UE	0.68 UE	0.07 UE	0.68 UE	0.07 UE	0.35 UE	1.6 U
8	03/29/90	8 ²		2.2 U	2.2 U	2.2 U	1.1 U	3.3 U	1.1 U	2.2 U	1.1 U	1.1 U	1.1 U
14	03/30/90	14 ²		1.8 U	1.8 U	1.8 U	0.90 U	2.7 U	0.90 U	1.8 U	0.90 U	0.90 U	0.90 U
17	03/30/90	17 ²		3.2 U	3.2 U	3.2 U	1.6 U	4.8 U	1.6 U	3.2 U	1.6 U	1.6 U	1.6 U
19	03/26/90	19 ²		3.4 U	3.4 U	3.4 U	1.7 U	5.1 U	1.7 U	3.4 U	1.7 U	1.7 U	1.4 UE
29	03/12/90	29 ¹		0.64 U	0.12 E	0.06 U	0.06 U	0.64 U	0.08 U	0.64 U	0.06 U	0.06 U	130 Q
35	03/14/90	35 ¹	1	0.70 U	0.25 E	0.07 U	0.07 U	0.70 U	0.07 U	0.70 U	0.07 U	0.07 U	0.93 UE
38	03/23/90	38 ¹	1	0.84 U	0.14 E	0.08 U	0.08 U	0.84 U	0.08 U	0.84 U	0.08 U	0.08 U	0.60 UE
38	03/23/90	60 ^{1 2}	1	0.86 Q	0.22 UE	0.09 UE	0.09 UE	0.86 UE	0.09 UE	0.86 UE	0.09 UE	0.51 UE	2.0 U
38	03/23/90	61 ^{1 2}	2	0.82 UE	0.74 E	0.08 UE	0.08 UE	0.82 UE	0.08 UE	0.82 UE	0.08 UE	0.43 UE	1.7 U
38	03/23/90	62 ^{1 2}	3	0.87 UE	1.80 E	0.09 UE	0.09 UE	0.87 UE	0.33 E	0.87 UE	0.09 UE	0.74 E	2.0 U
45	03/17/90	45 ¹		0.48 U	0.21 E	0.05 U	0.05 U	0.48 U	0.05 U	0.48 U	0.05 U	0.05 U	0.25 UE

TABLE A-1. (Continued)

Station	Date	Sample	Field		Toluene	Total Xylene	Trichloro-ethylene	Trichloro-fluoromethane	Trichloro-trifluoroethane	Vinyl Acetate	Vinyl Chloride
			Replicate	Styrene							
3	03/27/90	3 ²		0.80 U	0.80 U	0.80 U	0.80 U	1.5 U	1.5 U	1.5 U	2.3 U
5	03/27/90	5 ^{1 2}	1	0.07 UE	0.17 UE	1.1 UE	0.07 UE	0.17 UE	0.17 UE	0.07 UE	0.67 UE
5	03/27/90	5 ^{1 2}	1	0.07 UE	0.17 UE	2.0 UE	0.07 UE	0.17 UE	0.17 UE	0.07 UE	0.66 UE
5	03/27/90	5 ^{2 1 2}	2	0.07 UE	0.17 UE	0.80 UE	0.07 UE	0.17 UE	0.17 UE	0.07 UE	0.66 UE
5	03/27/90	5 ^{3 1 2}	3	0.07 UE	0.17 UE	1.5 UE	0.07 UE	0.17 UE	0.17 UE	0.07 UE	0.68 UE
8	03/29/90	8 ²		1.1 U	1.1 U	1.1 U	1.1 U	2.2 U	2.2 U	2.2 U	3.3 U
14	03/30/90	14 ²		0.90 U	0.90 U	0.90 U	0.90 U	1.8 U	1.8 U	1.8 U	2.7 U
17	03/30/90	17 ²		1.6 U	1.6 U	1.6 U	1.6 U	3.2 U	3.2 U	3.2 U	4.8 U
19	03/26/90	19 ²		1.7 U	1.7 U	1.7 U	1.7 U	3.4 U	3.4 U	3.4 U	5.1 U
29	03/12/90	29 ¹		0.06 U	0.06 U	1.3 U	0.06 U	0.16 U	0.16 U	0.06 U	0.64 U
35	03/14/90	35 ¹	1	0.07 U	0.07 U	1.4 U	0.07 U	0.18 U	0.18 U	0.07 U	0.70 U
38	03/23/90	38 ¹	1	0.08 U	0.08 U	1.6 U	0.08 U	0.21 U	0.21 U	0.08 U	0.84 U
38	03/23/90	60 ^{1 2}	1	0.09 UE	0.22 UE	2.1 UE	0.09 UE	0.22 UE	0.22 UE	0.09 UE	0.86 UE
38	03/23/90	61 ^{1 2}	2	0.08 UE	0.20 UE	2.0 UE	0.08 UE	0.20 UE	0.20 UE	0.08 UE	0.82 UE
38	03/23/90	62 ^{1 2}	3	0.09 UE	0.22 UE	5.1 E	0.09 UE	0.22 UE	0.22 UE	0.09 UE	0.87 UE
45	03/17/90	45 ¹		0.05 U	0.05 U	1.0 U	0.05 U	0.12 U	0.12 U	0.05 U	0.48 U

¹ 100 grams of sediment analyzed.

² 10 grams of sediment analyzed.

TABLE A-2. LOW MOLECULAR WEIGHT POLYCYCLIC AROMATIC HYDROCARBONS ($\mu\text{g}/\text{kg}$, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Field		Low Molecular						
		Sample	Replicate	Weight PAH	Naphthalene	Acenaphthylene	Acenaphthen	Fluorene	Phenanthrene	Anthracene
1	03/27/90	1		120 L	21 U	21 U	21 U	21 U	29 T	9.0 NT
3	03/27/90	3		79 L	14 U	14 U	14 U	14 U	9.0 NT	14 U
4	03/26/90	4		140 L	25 U	25 U	25 U	25 U	19 E	25 U
5	03/27/90	5	1	130 L	23 U	23 U	23 U	23 U	10 NT	23 U
5	03/27/90	51	1	120 L	23 U	23 U	23 U	23 U	24 T	7.0 NT
5	03/27/90	52	2	130 L	23 U	23 U	23 U	23 U	14 NT	23 U
5	03/27/90	53	3	140 L	24 U	24 U	24 U	24 U	18 NT	24 U
8	03/29/90	8		150 L	23 T	17 U	4.0 NT	9.0 E	60 T	38 T
12	03/29/90	12		130 L	19 U	19 U	19 U	5.0 E	35 T	28 T
14	03/30/90	14		76 L	15 U	15 U	15 U	15 U	13 E	3.0 NT
15	03/30/90	15		72 U	12 U	12 U	12 U	12 U	12 U	12 U
17	03/30/90	17		160 U	27 U	27 U	27 U	27 U	27 U	27 U
18	03/26/90	18		140 U	23 U	23 U	23 U	23 U	23 U	23 U
19	03/26/90	19		140 L	25 U	25 U	25 U	25 U	16 NT	25 U
20	03/12/90	20		79 L	13 UE	13 UE	13 UE	13 UE	14 NT	13 UE
21	03/13/90	21		98 E	14 T	6.0 E	7.0 E	10 E	41 T	20 T
22	03/12/90	22		62 L	11 UE	11 UE	11 UE	11 UE	15 NT	3.0 NT
26	03/12/90	26		55 L	10 UE	10 UE	10 UE	10 UE	10 UE	5.0 NT
29	03/12/90	29		130 L	20 UE	20 UE	20 UE	5.0 NT	54 T	14 E
30	03/25/90	30		770 L	22 T	47 T	16 T	50 T	310	320
32	03/25/90	32	1	69 L	12 U	12 U	12 U	12 U	16 NT	5.0 NT
32	03/25/90	57	1	65 L	3.0 NT	12 U	12 U	12 U	17 T	9.0 T
32	03/25/90	58	2	67 L	9.0 NT	12 U	12 U	12 U	15 T	7.0 NT
32	03/25/90	59	3	71 L	3.0 NT	12 U	12 U	12 U	21 T	11 E
33	03/25/90	33		910 L	47 T	49 T	36 T	68 T	500	210
34	03/14/90	34		160 L	8.0 NT	9.0 NT	7.0 NT	7.0 NT	93 T	34 T
35	03/14/90	35	1	370 L	6.0 NT	43 T	7.0 NT	20 UE	140 T	150 T
35	03/14/90	72	1	360 L	8.0 T	43 T	8.0 NT	15 T	150 T	140 T
35	03/14/90	73	2	340 E	8.0 T	43 T	4.0 NT	15 E	140 T	130 T
35	03/14/90	74	3	410 L	10 E	39 T	5.0 NT	21 UE	150 T	180 T
38	03/23/90	38	1	140 L	7.0 NT	24 UE	24 UE	24 UE	49 T	16 E
38	03/23/90	60	1	120 L	9.0 E	25 UE	6.0 NT	5.0 NT	53 T	18 E
38	03/23/90	61	2	220 L	27 T	10 E	25 UE	14 E	120 T	25 UE
38	03/23/90	62	3	140 L	10 NT	25 UE	25 UE	6.0 NT	54 T	20 E
39	03/23/90	39		72 U	12 UE	12 UE	12 UE	12 UE	12 UE	12 UE
40	03/15/90	40		6,300 L	89 T	290	230	450	3400	1800
41	03/15/90	41		66 L	7.0 NT	12 UE	3.0 NT	4.0 NT	34 T	6.0 NT
43	03/16/90	43		60 U	10 UE	10 UE	10 UE	10 UE	10 UE	10 UE
44	03/16/90	44	1	63 L	11 UE	11 UE	11 UE	11 UE	8.0 E	11 UE
44	03/16/90	63	1	59 L	10 UE	10 UE	10 UE	10 UE	9.0 E	10 UE
44	03/16/90	64	2	56 L	10 UE	10 UE	10 UE	10 UE	6.0 E	10 UE
44	03/16/90	65	3	56 L	10 UE	10 UE	10 UE	10 UE	6.0 E	10 UE
45	03/17/90	45		72 L	4.0 NT	14 UE	14 UE	14 UE	17 T	9.0 NT
46R	03/22/90	46R		66 U	11 UE	11 UE	11 UE	11 UE	11 UE	11 UE
47	03/20/90	47		66 U	11 UE	11 UE	11 UE	11 UE	11 UE	11 UE
48	03/21/90	48		110 L	20 UE	20 UE	20 UE	20 UE	20 UE	7.0 NT
49	03/22/90	49		130 L	24 UE	24 UE	24 UE	24 UE	14 NT	24 UE
66	03/23/90	66		880 E	58 T	38 T	95 T	94 T	400 E	190 T
67	03/23/90	67		1,300 E	82 T	48 T	130 T	130 T	670 E	280 E
68	03/23/90	68		410 L	37 NT	31 NT	65 T	74 T	110 T	96 T
69	03/13/90	69		61 L	10 UE	10 UE	10 UE	10 UE	11 T	10 UE
70	03/18/90	70		310 L	85 E	24 U	42 U	20 NT	120 T	23 NT
71	03/26/90	71		80 L	3.0 NT	13 U	13 U	4.0 E	35 T	12 E
101R	03/18/90	101R		120 L	22 UE	22 UE	22 UE	22 UE	12 NT	22 UE

TABLE A-2. (Continued)

Station	Date	Sample Replicate	Field Low Molecular							
			Weight PAH	Naphthalene	Acenaphthylene	Acenaphthen	Fluorene	Phenanthrene	Anthracene	
102R	03/18/90	102R	370 L	64 E	29 U	52 U	37 U	43 NT	140 U	
103R	03/18/90	103R	66 U	11 UE	11 UE	11 UE	11 UE	11 UE	11 UE	
104R	03/21/90	104R	160 U	26 UE	26 UE	26 UE	26 UE	26 UE	26 UE	
105R	03/21/90	105R	110 L	19 UE	19 UE	19 UE	19 UE	15 NT	19 UE	
106R	03/22/90	106R	130 L	23 UE	23 UE	23 UE	23 UE	17 NT	23 UE	
108R	03/22/90	108R	60 U	10 UE	10 UE	10 UE	10 UE	10 UE	10 UE	
109R	03/21/90	109R	110 L	19 UE	19 UE	19 UE	19 UE	12 NT	19 UE	
110R	03/20/90	110R	150 L	26 UE	26 UE	26 UE	26 UE	16 E	26 UE	
111R	03/20/90	111R	67 L	14 UE	14 UE	14 UE	14 UE	6.0 NT	5.0 NT	
112R	03/17/90	112R	66 U	11 UE	11 UE	11 UE	11 UE	11 UE	11 UE	
113R	03/15/90	113R	62 L	11 UE	11 UE	11 UE	11 UE	7.0 NT	11 UE	
114R	03/15/90	114R	96 U	16 UE	16 UE	16 UE	16 UE	16 UE	16 UE	
115R	03/17/90	115R	77 L	14 UE	14 UE	14 UE	14 UE	7.0 E	14 UE	
116R	03/16/90	116R	59 L	10 UE	10 UE	10 UE	10 UE	13 T	6.0 NT	

TABLE A-3. HIGH MOLECULAR WEIGHT POLYCYCLIC AROMATIC HYDROCARBONS ($\mu\text{g}/\text{kg}$, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Field Sample Replicate	High Molecular Weight PAH	Fluoranthene	Pyrene	Benz(a)-anthracene	Chrysene	Total Benzo-fluoranthenes (B+K)
1	03/27/90	1	240 E	42 T	35 T	18 E	26 T	49 E
3	03/27/90	3	110 L	7.0 E	6.0 E	4.0 NT	4.0 NT	28 U
4	03/26/90	4	160 L	22 E	19 E	10 E	13 E	23 E
5	03/27/90	5 1	150 L	13 E	11 E	7.0 NT	8.0 NT	14 NT
5	03/27/90	51 1	160 L	17 E	21 E	10 NT	13 E	20 NT
5	03/27/90	52 2	160 L	16 E	17 E	8.0 NT	13 NT	24 NT
5	03/27/90	53 3	180 L	21 NT	20 NT	9.0 NT	18 NT	24 NT
8	03/29/90	8	400 L	83 T	62 T	29 T	63 T	88 T
12	03/29/90	12	250 E	45 T	34 T	19 E	32 T	58 T
14	03/30/90	14	120 L	15 U	12 E	15 U	9.0 E	30 U
15	03/30/90	15	80 L	10 NT	5.0 E	4.0 NT	5.0 NT	8.0 NT
17	03/30/90	17	160 L	15 E	13 E	27 U	8.0 E	25 NT
18	03/26/90	18	200 L	10 E	9.0 E	23 U	23 U	46 U
19	03/26/90	19	200 L	24 E	28 T	12 NT	19 E	37 E
20	03/12/90	20	120 L	10 E	8.0 E	13 UE	6.0 E	26 UE
21	03/13/90	21	330 L	70 T	55 T	27 T	54 T	70 T
22	03/12/90	22	99 L	12 T	14 T	6.0 NT	11 NT	18 NT
26	03/12/90	26	87 L	11 T	12 T	7.0 T	11 E	17 E
29	03/12/90	29	380 L	63 T	73 T	29 T	46 T	81 T
30	03/25/90	30	4,000 L	490	450	380	820	1100
32	03/25/90	32 1	190 L	27 T	24 T	12 E	26 T	48 T
32	03/25/90	57 1	190 T	27 T	28 T	13 T	23 T	49 T
32	03/25/90	58 2	170 L	23 T	22 T	12 E	20 T	43 T
32	03/25/90	59 3	230 T	35 T	31 T	16 T	29 T	55 T
33	03/25/90	33	3,400 L	410	510	300	560	820
34	03/14/90	34	1,100 L	190 T	190 T	90 T	140 T	260 T
35	03/14/90	35 1	2,500 E	370 T	480 E	260 T	380 T	510 T
35	03/14/90	72 1	2,600 L	380 T	510 E	290 T	410 E	560 E
35	03/14/90	73 2	2,600 L	380 T	530 E	270 T	400 T	550 T
35	03/14/90	74 3	2,500 L	410 T	510 E	250 T	380 T	530 T
38	03/23/90	38 1	420 L	84 T	75 T	29 T	47 T	93 T
38	03/23/90	60 1	450 L	75 T	110 T	29 T	48 T	98 T
38	03/23/90	61 2	680 L	140 T	130 T	44 T	72 T	150 T
38	03/23/90	62 3	450 L	82 T	86 T	31 T	50 T	95 T
39	03/23/90	39	120 U	12 UE	12 UE	12 UE	12 UE	24 UE
40	03/15/90	40	10,000 L	1700	2400	1300	1500	1700
41	03/15/90	41	220 L	31 T	41 T	12 E	27 T	40 E
43	03/16/90	43	100 U	10 UE	10 UE	10 UE	10 UE	20 UE
44	03/16/90	44 1	100 L	13 T	11 E	7.0 E	14 E	17 E
44	03/16/90	63 1	88 L	13 T	18 T	6.0 E	8.0 E	14 E
44	03/16/90	64 2	73 L	9.0 E	8.0 E	5.0 E	7.0 E	11 E
44	03/16/90	65 3	67 L	10 E	9.0 E	4.0 E	6.0 E	11 E
45	03/17/90	45	150 L	28 T	27 T	11 E	14 UE	28 E
46R	03/22/90	46R	110 U	11 UE	11 UE	11 UE	11 UE	22 UE
47	03/20/90	47	110 U	11 UE	11 UE	11 UE	11 UE	22 UE
48	03/21/90	48	160 L	20 E	21 T	10 NT	19 NT	21 NT
49	03/22/90	49	160 L	20 E	20 E	8.0 NT	14 NT	20 NT
66	03/23/90	66	2,500 E	430 E	410 E	220 T	310 E	580 E
67	03/23/90	67	3,800 E	670 E	580 E	320 E	470 E	960 E
68	03/23/90	68	650 L	95 T	77 E	63 T	82 T	59 T
69	03/13/90	69	100 L	16 T	16 T	7.0 E	13 T	21 T
70	03/18/90	70	650 L	130 T	130 T	43 NT	87 E	100 NT
71	03/26/90	71	250 E	51 T	44 T	20 T	43 T	47 T
101R	03/18/90	101R	240 L	31 T	41 T	15 E	30 T	36 T

TABLE A-3. (Continued)

Station	Date	Field Sample Replicate	High Molecular Weight PAH	Fluoranthene	Pyrene	Benz(a)-anthracene	Chrysene	Total Benzo-fluoranthenes (B+K)
102R	03/18/90	102R	780 L	40 NT	51 NT	140 U	140 U	32 NT
103R	03/18/90	103R	100 L	8.0 E	6.0 E	11 UE	11 UE	22 UE
104R	03/21/90	104R	240 L	15 E	16 E	26 UE	26 UE	52 UE
105R	03/21/90	105R	140 L	18 E	18 E	8.0 NT	12 E	20 E
106R	03/22/90	106R	190 L	25 T	25 T	11 NT	18 E	29 NT
108R	03/22/90	108R	100 U	10 UE	10 UE	10 UE	10 UE	20 UE
109R	03/21/90	109R	150 L	22 T	17 E	8.0 E	16 E	19 E
110R	03/20/90	110R	230 L	32 T	33 T	13 E	17 E	39 E
111R	03/20/90	111R	120 L	11 E	11 E	5.0 E	6.0 E	28 UE
112R	03/17/90	112R	110 U	11 UE	11 UE	11 UE	11 UE	22 UE
113R	03/15/90	113R	110 L	16 T	13 T	7.0 E	11 E	22 UE
114R	03/15/90	114R	140 L	15 E	10 E	16 UE	16 UE	15 NT
115R	03/17/90	115R	110 L	17 T	14 E	7.0 E	14 E	15 E
116R	03/16/90	116R	110 L	17 E	13 E	6.0 E	13 T	16 E

TABLE A-3. (Continued)

Station	Date	Field Sample Replicate	Benzo(a)-pyrene	Indeno(1,2,3-cd)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene
1	03/27/90	1	26 T	19 E	5.0 E	17 E
3	03/27/90	3	14 U	14 U	14 U	14 U
4	03/26/90	4	11 E	9.0 NT	25 U	25 U
5	03/27/90	5 1	23 U	23 U	23 U	23 U
5	03/27/90	51 1	11 NT	23 U	23 U	23 U
5	03/27/90	52 2	10 NT	23 U	23 U	23 U
5	03/27/90	53 3	11 NT	24 U	24 U	24 U
8	03/29/90	8	31 T	13 NT	17 U	16 NT
12	03/29/90	12	23 T	16 NT	8.0 NT	17 E
14	03/30/90	14	15 U	4.0 NT	15 U	5.0 NT
15	03/30/90	15	12 U	12 U	12 U	12 U
17	03/30/90	17	8.0 NT	27 U	27 U	11 NT
18	03/26/90	18	23 U	23 U	23 U	23 U
19	03/26/90	19	19 E	17 NT	25 U	20 NT
20	03/12/90	20	13 UE	13 UE	13 UE	13 UE
21	03/13/90	21	20 T	11 NT	8.0 NT	12 UE
22	03/12/90	22	5.0 NT	11 UE	11 UE	11 UE
26	03/12/90	26	5.0 E	4.0 NT	10 UE	10 UE
29	03/12/90	29	35 T	20 UE	13 NT	20 UE
30	03/25/90	30	400	180 T	15 U	130 T
32	03/25/90	32 1	18 T	14 T	12 U	13 T
32	03/25/90	57 1	21 T	15 T	4.0 NT	13 NT
32	03/25/90	58 2	19 T	15 T	3.0 NT	13 NT
32	03/25/90	59 3	23 T	19 T	6.0 NT	14 T
33	03/25/90	33	380	220	12 U	180
34	03/14/90	34	95 T	56 T	23 T	20 UE
35	03/14/90	35 1	280 T	120 T	40 T	23 T
35	03/14/90	72 1	290 T	140 T	20 UE	21 T
35	03/14/90	73 2	300 T	150 T	21 UE	22 T
35	03/14/90	74 3	260 T	120 T	21 UE	11 NT
38	03/23/90	38 1	28 T	23 E	24 UE	12 E
38	03/23/90	60 1	31 T	20 E	17 NT	25 UE
38	03/23/90	61 2	50 T	46 T	22 NT	25 UE
38	03/23/90	62 3	31 T	25 NT	25 UE	25 UE
39	03/23/90	39	12 UE	12 UE	12 UE	12 UE
40	03/15/90	40	1000	540	160 T	140 T
41	03/15/90	41	31 T	14 NT	12 UE	12 NT
43	03/16/90	43	10 UE	10 UE	10 UE	10 UE
44	03/16/90	44 1	5.0 E	11 UE	11 UE	11 UE
44	03/16/90	63 1	4.0 E	8.0 NT	10 UE	7.0 NT
44	03/16/90	64 2	3.0 NT	10 UE	10 UE	10 UE
44	03/16/90	65 3	3.0 NT	4.0 NT	10 UE	10 UE
45	03/17/90	45	11 E	7.0 NT	14 UE	14 UE
46R	03/22/90	46R	11 UE	11 UE	11 UE	11 UE
47	03/20/90	47	11 UE	11 UE	11 UE	11 UE
48	03/21/90	48	8.0 NT	20 UE	20 UE	20 UE
49	03/22/90	49	7.0 NT	24 UE	24 UE	24 UE
66	03/23/90	66	220 T	120 T	190 T	23 T
67	03/23/90	67	340 E	200 T	240 T	43 T
68	03/23/90	68	91 T	41 U	60 NT	81 U
69	03/13/90	69	7.0 E	4.0 NT	10 UE	10 UE
70	03/18/90	70	46 NT	36 U	44 U	37 NT
71	03/26/90	71	21 T	8.0 E	4.0 NT	11 E
101R	03/18/90	101R	25 T	22 UE	22 UE	16 NT

TABLE A-3. (Continued)

Station	Date	Field Sample Replicate	Benzo(a)-pyrene	Indeno(1,2,3-cd)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene
102R	03/18/90	102R	140 U	44 U	55 U	140 U
103R	03/18/90	103R	11 UE	11 UE	11 UE	11 UE
104R	03/21/90	104R	26 UE	26 UE	26 UE	26 UE
105R	03/21/90	105R	6.0 NT	19 UE	19 UE	19 UE
106R	03/22/90	106R	9.0 NT	23 UE	23 UE	23 UE
108R	03/22/90	108R	10 UE	10 UE	10 UE	10 UE
109R	03/21/90	109R	6.0 NT	19 UE	19 UE	19 UE
110R	03/20/90	110R	17 E	26 UE	26 UE	26 UE
111R	03/20/90	111R	14 UE	14 UE	14 UE	14 UE
112R	03/17/90	112R	11 UE	11 UE	11 UE	11 UE
113R	03/15/90	113R	7.0 E	11 UE	11 UE	11 UE
114R	03/15/90	114R	16 UE	16 UE	16 UE	16 UE
115R	03/17/90	115R	6.0 E	5.0 NT	14 UE	14 UE
116R	03/16/90	116R	10 UE	10 UE	10 UE	10 UE

TABLE A-4. PHENOLS AND SUBSTITUTED PHENOLS ($\mu\text{g}/\text{kg}$, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Field Sample Replicate	Phenol	2-Methyl phenol	4-Methyl phenol	2,4-Dimethyl phenol	2-Nitro-phenol	4-Nitro-phenol	2,4-Dinitro-phenol
1	03/27/90	1	14 NT	21 U	21 U	21 U	110 U	110 U	210 U
3	03/27/90	3	25 NT	14 U	56 T	14 U	72 U	72 U	140 U
4	03/26/90	4	26 NT	25 U	25 U	25 U	130 U	130 U	250 U
5	03/27/90	5 1	63 NT	23 U	13 NT	23 U	110 U	110 U	230 U
5	03/27/90	51 1	210 T	23 U	23 U	23 U	120 U	120 U	230 U
5	03/27/90	52 2	13 NT	23 U	23 U	23 U	120 U	120 U	230 U
5	03/27/90	53 3	47 U	24 U	24 U	24 U	120 U	120 U	230 U
8	03/29/90	8	51 NT	17 U	35 U	17 U	87 U	87 U	170 U
12	03/29/90	12	34 NT	19 U	33 NT	19 U	95 U	95 U	190 U
14	03/30/90	14	23 NT	15 U	29 NT	15 U	73 U	73 U	150 U
15	03/30/90	15	55 NT	12 U	12 U	12 U	61 U	61 U	120 U
17	03/30/90	17	53 U	27 U	27 U	27 U	130 U	130 U	270 U
18	03/26/90	18	12 NT	23 U	23 U	23 U	110 U	110 U	230 U
19	03/26/90	19	24 NT	25 U	25 U	25 U	120 U	120 U	250 U
20	03/12/90	20	27 UE	6.0 UE	13 UE	5.0 UE	67 UE	67 UE	130 UE
21	03/13/90	21	5.0 NT	12 UE	12 NT	12 UE	58 UE	58 UE	110 UE
22	03/12/90	22	22 UE	11 UE	11 UE	11 UE	54 UE	54 UE	110 UE
26	03/12/90	26	6.0 NT	10 UE	10 UE	10 UE	47 UE	47 UE	95 UE
29	03/12/90	29	40 UE	20 UE	20 UE	20 UE	99 UE	99 UE	200 UE
30	03/25/90	30	30 U	15 U	15 U	15 U	75 U	75 U	150 U
32	03/25/90	32 1	6.0 NT	12 U	12 U	12 U	60 U	60 U	120 U
32	03/25/90	57 1	25 U	12 U	12 U	12 U	62 U	62 U	120 U
32	03/25/90	58 2	14 NT	12 U	12 U	12 U	58 U	58 U	120 U
32	03/25/90	59 3	14 E	12 U	12 U	12 U	60 U	60 U	120 U
33	03/25/90	33	16 NT	12 U	12 U	12 U	61 U	61 U	120 U
34	03/14/90	34	41 UE	20 UE	20 UE	20 UE	100 UE	100 UE	200 UE
35	03/14/90	35 1	11 NT	20 UE	20 UE	20 UE	100 UE	100 UE	200 UE
35	03/14/90	72 1	39 UE	20 UE	20 UE	20 UE	98 UE	98 UE	200 UE
35	03/14/90	73 2	42 UE	21 UE	21 UE	21 UE	110 UE	110 UE	210 UE
35	03/14/90	74 3	330 T	21 UE	1100 E	21 UE	110 UE	110 UE	210 UE
38	03/23/90	38 1	49 UE	24 UE	24 UE	24 UE	120 UE	120 UE	240 UE
38	03/23/90	60 1	50 UE	25 UE	25 UE	25 UE	120 UE	120 UE	250 UE
38	03/23/90	61 2	49 UE	25 UE	25 UE	25 UE	120 UE	120 UE	250 UE
38	03/23/90	62 3	50 UE	25 UE	25 UE	25 UE	120 UE	120 UE	250 UE
39	03/23/90	39	24 UE	12 UE	12 UE	12 UE	60 UE	60 UE	120 UE
40	03/15/90	40	28 U	37 U	40 U	35 U	340 U	340 U	680 U
41	03/15/90	41	24 UE	12 UE	12 UE	12 UE	59 UE	59 UE	120 UE
43	03/16/90	43	20 UE	10 UE	10 UE	10 UE	49 UE	49 UE	98 UE
44	03/16/90	44 1	22 UE	11 UE	11 UE	11 UE	50 UE	50 UE	110 UE
44	03/16/90	63 1	20 UE	10 UE	25 T	10 UE	50 UE	50 UE	100 UE
44	03/16/90	64 2	20 UE	10 UE	4.0 NT	10 UE	49 UE	49 UE	98 UE
44	03/16/90	65 3	20 UE	10 UE	10 UE	10 UE	50 UE	50 UE	99 UE
45	03/17/90	45	28 UE	14 UE	14 UE	14 UE	70 UE	70 UE	140 UE
46R	03/22/90	46R	22 UE	11 UE	11 UE	11 UE	54 UE	54 UE	110 UE
47	03/20/90	47	21 UE	11 UE	11 UE	11 UE	52 UE	52 UE	100 UE
48	03/21/90	48	40 UE	20 UE	20 UE	20 UE	99 UE	99 UE	200 UE
49	03/22/90	49	48 UE	24 UE	24 UE	24 UE	120 UE	120 UE	240 UE
66	03/23/90	66	64 E	14 UE	190 E	14 UE	70 UE	70 UE	140 UE
67	03/23/90	67	66 E	14 UE	190 E	14 UE	67 UE	67 UE	130 UE
68	03/23/90	68	62 T	52 U	280	51 U	400 U	400 U	810 U
69	03/13/90	69	20 UE	10 UE	10 UE	10 UE	50 UE	50 UE	100 UE
70	03/18/90	70	97 NT	57 U	62 U	50 U	550 U	550 U	1100 U
71	03/26/90	71	160 T	13 U	36 T	13 U	66 U	66 U	130 U
101R	03/18/90	101R	44 UE	22 UE	22 UE	22 UE	110 UE	110 UE	220 UE

TABLE A-4. (Continued)

Station	Date	Field Sample Replicate	Phenol	2-Methyl phenol	4-Methyl phenol	2,4-Dimethyl phenol	2-Nitro- phenol	4-Nitro- phenol	2,4-Dinitro- phenol
102R	03/18/90	102R	210 N	70 U	76 U	61 U	680 U	680 U	1400 U
103R	03/18/90	103R	22 UE	11 UE	11 UE	11 UE	55 UE	55 UE	110 UE
104R	03/21/90	104R	52 UE	26 UE	26 UE	26 UE	130 UE	130 UE	260 UE
105R	03/21/90	105R	39 UE	19 UE	19 UE	19 UE	96 UE	96 UE	190 UE
106R	03/22/90	106R	46 UE	23 UE	23 UE	23 UE	110 UE	110 UE	230 UE
108R	03/22/90	108R	19 UE	10 UE	10 UE	10 UE	48 UE	48 UE	97 UE
109R	03/21/90	109R	37 UE	19 UE	55 E	19 UE	92 UE	92 UE	180 UE
110R	03/20/90	110R	52 UE	26 UE	26 UE	26 UE	130 UE	130 UE	260 UE
111R	03/20/90	111R	27 UE	14 UE	14 UE	14 UE	68 UE	68 UE	140 UE
112R	03/17/90	112R	20 UE	11 UE	11 UE	11 UE	60 UE	60 UE	110 UE
113R	03/15/90	113R	23 UE	11 UE	11 UE	11 UE	57 UE	57 UE	110 UE
114R	03/15/90	114R	32 UE	16 UE	16 UE	16 UE	79 UE	79 UE	160 UE
115R	03/17/90	115R	28 UE	14 UE	14 UE	14 UE	69 UE	69 UE	140 UE
116R	03/16/90	116R	20 UE	5.0 UE	10 UE	4.0 UE	50 UE	50 UE	100 UE

TABLE A-4. (Continued)

Station	Date	Field Sample Replicate	2-Chloro-phenol	2,4-Dichloro-phenol	4-Chloro-3-Methylphenol	2,4,6-Tri-chlorophenol	2,4,5-Tri-chlorophenol	Penta-chlorophenol
1	03/27/90	1	21 U	64 U	43 U	110 U	110 U	110 U
3	03/27/90	3	14 U	43 U	29 U	72 U	72 U	72 U
4	03/26/90	4	25 U	76 U	51 U	130 U	130 U	130 U
5	03/27/90	5 1	23 U	69 U	46 U	110 U	110 U	110 U
5	03/27/90	51 1	23 U	69 U	46 U	120 U	120 U	120 U
5	03/27/90	52 2	23 U	69 U	46 U	120 U	120 U	120 U
5	03/27/90	53 3	24 U	70 U	47 U	120 U	120 U	120 U
8	03/29/90	8	17 U	52 U	35 U	87 U	87 U	87 U
12	03/29/90	12	19 U	57 U	38 U	95 U	95 U	95 U
14	03/30/90	14	15 U	44 U	29 U	73 U	73 U	73 U
15	03/30/90	15	12 U	37 U	24 U	61 U	61 U	61 U
17	03/30/90	17	27 U	80 U	53 U	130 U	130 U	130 U
18	03/26/90	18	23 U	69 U	46 U	110 U	110 U	110 U
19	03/26/90	19	25 U	74 U	49 U	120 U	120 U	120 U
20	03/12/90	20	13 UE	40 UE	27 UE	67 UE	67 UE	67 UE
21	03/13/90	21	12 UE	35 UE	23 UE	58 UE	58 UE	58 UE
22	03/12/90	22	11 UE	33 UE	22 UE	54 UE	54 UE	54 UE
26	03/12/90	26	10 UE	28 UE	19 UE	47 UE	47 UE	47 UE
29	03/12/90	29	20 UE	59 UE	40 UE	99 UE	99 UE	99 UE
30	03/25/90	30	15 U	50 U	30 U	75 U	75 U	75 U
32	03/25/90	32 1	12 U	36 U	24 U	60 U	60 U	60 U
32	03/25/90	57 1	12 U	37 U	25 U	62 U	62 U	62 U
32	03/25/90	58 2	12 U	35 U	23 U	58 U	58 U	58 U
32	03/25/90	59 3	12 U	36 U	24 U	60 U	60 U	60 U
33	03/25/90	33	12 U	36 U	24 U	61 U	61 U	61 U
34	03/14/90	34	20 UE	61 UE	41 UE	100 UE	100 UE	100 UE
35	03/14/90	35 1	20 UE	61 UE	41 UE	100 UE	100 UE	100 UE
35	03/14/90	72 1	20 UE	59 UE	39 UE	98 UE	98 UE	98 UE
35	03/14/90	73 2	21 UE	63 UE	42 UE	110 UE	110 UE	110 UE
35	03/14/90	74 3	21 UE	63 UE	42 UE	110 UE	110 UE	110 UE
38	03/23/90	38 1	24 UE	73 UE	49 UE	120 UE	120 UE	120 UE
38	03/23/90	60 1	25 UE	74 UE	50 UE	120 UE	120 UE	120 UE
38	03/23/90	61 2	25 UE	74 UE	49 UE	120 UE	120 UE	120 UE
38	03/23/90	62 3	25 UE	75 UE	50 UE	120 UE	120 UE	120 UE
39	03/23/90	39	12 UE	36 UE	24 UE	60 UE	60 UE	60 UE
40	03/15/90	40	68 U	200 U	140 U	340 U	340 U	95 U
41	03/15/90	41	12 UE	36 UE	24 UE	59 UE	59 UE	59 UE
43	03/16/90	43	10 UE	30 UE	20 UE	49 UE	49 UE	49 UE
44	03/16/90	44 1	11 UE	30 UE	20 UE	50 UE	50 UE	50 UE
44	03/16/90	63 1	10 UE	30 UE	20 UE	50 UE	50 UE	50 UE
44	03/16/90	64 2	10 UE	29 UE	20 UE	49 UE	49 UE	49 UE
44	03/16/90	65 3	10 UE	30 UE	20 UE	50 UE	50 UE	50 UE
45	03/17/90	45	14 UE	42 UE	28 UE	70 UE	70 UE	70 UE
46R	03/22/90	46R	11 UE	32 UE	22 UE	54 UE	54 UE	54 UE
47	03/20/90	47	11 UE	31 UE	21 UE	52 UE	52 UE	52 UE
48	03/21/90	48	20 UE	60 UE	40 UE	99 UE	99 UE	99 UE
49	03/22/90	49	24 UE	72 UE	48 UE	120 UE	120 UE	120 UE
66	03/23/90	66	14 UE	42 UE	28 UE	70 UE	70 UE	170 T
67	03/23/90	67	14 UE	40 UE	27 UE	67 UE	67 UE	240 T
68	03/23/90	68	81 U	240 U	160 U	400 U	400 U	210 NT
69	03/13/90	69	10 UE	30 UE	20 UE	50 UE	50 UE	50 UE
70	03/18/90	70	110 U	330 U	220 U	550 U	550 U	150 U
71	03/26/90	71	13 U	39 U	26 U	66 U	66 U	66 U
101R	03/18/90	101R	22 UE	66 UE	44 UE	110 UE	110 UE	110 UE

TABLE A-4. (Continued)

Station	Date	Field Sample Replicate	2-Chloro-phenol	2,4-Dichloro-phenol	4-Chloro-3-Methylphenol	2,4,6-Tri-chlorophenol	2,4,5-Tri-chlorophenol	Penta-chlorophenol
102R	03/18/90	102R	140 U	410 U	270 U	680 U	680 U	180 U
103R	03/18/90	103R	11 UE	33 UE	22 UE	55 UE	55 UE	55 UE
104R	03/21/90	104R	26 UE	77 UE	52 UE	130 UE	130 UE	130 UE
105R	03/21/90	105R	19 UE	58 UE	39 UE	96 UE	96 UE	96 UE
106R	03/22/90	106R	23 UE	68 UE	46 UE	110 UE	110 UE	110 UE
108R	03/22/90	108R	10 UE	29 UE	19 UE	48 UE	48 UE	48 UE
109R	03/21/90	109R	19 UE	55 UE	37 UE	92 UE	92 UE	92 UE
110R	03/20/90	110R	26 UE	78 UE	52 UE	130 UE	130 UE	130 UE
111R	03/20/90	111R	14 UE	41 UE	27 UE	68 UE	68 UE	68 UE
112R	03/17/90	112R	11 UE	30 UE	20 UE	60 UE	60 UE	60 UE
113R	03/15/90	113R	11 UE	34 UE	23 UE	57 UE	57 UE	57 UE
114R	03/15/90	114R	16 UE	48 UE	32 UE	79 UE	79 UE	79 UE
115R	03/17/90	115R	14 UE	41 UE	28 UE	69 UE	69 UE	69 UE
116R	03/16/90	116R	10 UE	30 UE	20 UE	50 UE	50 UE	50 UE

TABLE A-5. PHTHALATE ESTERS ($\mu\text{g}/\text{kg}$, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Sample	Field Replicate	Dimethyl phthalate	Diethyl phthalate	Di-n-butyl phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate
1	03/27/90	1		21 U	21 U	21 U	21 U	32 UE	21 U
3	03/27/90	3		14 U	14 U	14 U	14 U	11 UE	14 U
4	03/26/90	4		25 U	25 U	25 U	25 U	36 UE	25 U
5	03/27/90	5	1	23 U	23 U	23 U	23 U	21 UE	23 U
5	03/27/90	51	1	23 U	23 U	23 U	23 U	24 UE	23 U
5	03/27/90	52	2	23 U	23 U	23 U	23 U	28 UE	23 U
5	03/27/90	53	3	24 U	24 U	24 U	24 U	34 UE	24 U
8	03/29/90	8		17 U	17 U	17 U	17 U	39 UE	17 U
12	03/29/90	12		19 U	19 U	19 U	19 U	20 UE	19 U
14	03/30/90	14		15 U	15 U	15 U	15 U	10 UE	15 U
15	03/30/90	15		12 U	12 U	12 U	10 E	7.0 UE	12 U
17	03/30/90	17		27 U	27 U	27 U	27 U	380 T	27 U
18	03/26/90	18		23 U	23 U	23 U	23 U	32 UE	23 U
19	03/26/90	19		25 U	25 U	25 U	25 U	24 UE	25 U
20	03/12/90	20		13 UE	13 UE	13 UE	13 UE	150 UE	13 UE
21	03/13/90	21		12 UE	12 UE	12 UE	12 UE	160 UE	12 UE
22	03/12/90	22		11 UE	11 UE	11 UE	11 UE	190 E	11 UE
26	03/12/90	26		10 UE	10 UE	10 UE	3.0 T	72 UE	10 UE
29	03/12/90	29		20 UE	9.0 E	20 UE	20 UE	98 UE	20 UE
30	03/25/90	30		15 U	15 U	15 U	15 U	27 UE	15 U
32	03/25/90	32	1	12 U	12 U	12 U	12 U	18 UE	12 U
32	03/25/90	57	1	12 U	12 U	12 U	12 U	17 UE	12 U
32	03/25/90	58	2	12 U	12 U	12 U	12 U	16 UE	12 U
32	03/25/90	59	3	12 U	12 U	12 U	12 U	17 UE	12 U
33	03/25/90	33		12 U	12 U	12 U	12 U	91 UE	12 U
34	03/14/90	34		20 UE	20 UE	20 UE	21 T	560 E	20 UE
35	03/14/90	35	1	20 UE	7.0 NT	20 UE	17 T	440 E	20 UE
35	03/14/90	72	1	20 UE	6.0 NT	20 UE	11 E	580 E	20 UE
35	03/14/90	73	2	21 UE	6.0 NT	21 UE	14 NT	550 E	21 UE
35	03/14/90	74	3	21 UE	21 UE	21 UE	14 NT	620 E	21 UE
38	03/23/90	38	1	24 UE	24 UE	24 UE	24 UE	450 UE	24 UE
38	03/23/90	60	1	25 UE	25 UE	25 UE	25 UE	510 UE	25 UE
38	03/23/90	61	2	25 UE	25 UE	25 UE	25 UE	740 E	25 UE
38	03/23/90	62	3	25 UE	25 UE	25 UE	25 UE	550 UE	25 UE
39	03/23/90	39		12 UE	12 UE	12 UE	12 UE	140 UE	12 UE
40	03/15/90	40		68 U	23 U	68 U	68 U	200	68 U
41	03/15/90	41		12 UE	12 UE	12 UE	12 UE	120 UE	12 UE
43	03/16/90	43		10 UE	10 UE	10 UE	10 UE	44 UE	10 UE
44	03/16/90	44	1	11 UE	11 UE	11 UE	11 UE	130 UE	11 UE
44	03/16/90	63	1	10 UE	10 UE	10 UE	10 UE	48 UE	10 UE
44	03/16/90	64	2	10 UE	10 UE	10 UE	10 UE	82 UE	10 UE
44	03/16/90	65	3	10 UE	10 UE	10 UE	10 UE	140 UE	10 UE
45	03/17/90	45		14 UE	13 T	14 UE	14 UE	240 E	14 UE
46R	03/22/90	46R		11 UE	11 UE	11 UE	11 UE	130 UE	11 UE
47	03/20/90	47		11 UE	11 UE	11 UE	11 UE	210 UE	11 UE
48	03/21/90	48		20 UE	20 UE	20 UE	20 UE	530 UE	20 UE
49	03/22/90	49		24 UE	24 UE	24 UE	24 UE	530 UE	24 UE
66	03/23/90	66		14 UE	14 UE	8.0 T	14 UE	380 UE	14 UE
67	03/23/90	67		14 UE	14 UE	18 T	14 UE	420 UE	14 UE
68	03/23/90	68		81 U	37 U	81 U	81 U	88 T	81 U
69	03/13/90	69		10 UE	10 UE	10 UE	10 UE	170 UE	10 UE
70	03/18/90	70		110 U	33 U	110 U	110 U	98 E	110 U
71	03/26/90	71		13 U	13 U	13 U	13 U	13 U	13 U
101R	03/18/90	101R		22 UE	22 UE	22 UE	22 UE	430 E	22 UE

TABLE A-5. (Continued)

Station	Date	Field Sample Replicate	Dimethyl phthalate	Diethyl phthalate	Di-n-butyl phthalate	Butyl benzyl phthalate	Bis(2-ethylhexyl) phthalate	Di-n-octyl phthalate
102R	03/18/90	102R	140 U	40 U	140 U	140 U	46 E	140 U
103R	03/18/90	103R	11 UE	4.0 E	6.0 E	11 UE	120 UE	11 UE
104R	03/21/90	104R	26 UE	26 UE	26 UE	26 UE	720 E	26 UE
105R	03/21/90	105R	19 UE	19 UE	19 UE	19 UE	560 UE	19 UE
106R	03/22/90	106R	23 UE	23 UE	23 UE	23 UE	590 UE	23 UE
108R	03/22/90	108R	10 UE	10 UE	10 UE	10 UE	140 UE	10 UE
109R	03/21/90	109R	19 UE	19 UE	19 UE	19 UE	490 UE	19 UE
110R	03/20/90	110R	26 UE	26 UE	26 UE	26 UE	580 UE	26 UE
111R	03/20/90	111R	14 UE	14 UE	14 UE	14 UE	310 UE	14 UE
112R	03/17/90	112R	11 UE	11 UE	11 UE	11 UE	99 UE	11 UE
113R	03/15/90	113R	11 UE	79 T	11 UE	11 UE	61 UE	11 UE
114R	03/15/90	114R	16 UE	16 UE	16 UE	16 UE	110 UE	16 UE
115R	03/17/90	115R	14 UE	14 UE	14 UE	14 UE	200 E	14 UE
116R	03/16/90	116R	10 UE	10 UE	10 UE	10 UE	81 UE	10 UE

TABLE A-6. CHLORINATED AROMATIC HYDROCARBONS ($\mu\text{g}/\text{kg}$, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Field Sample Replicate	1,2-Dichloro- benzene	1,3-Dichloro- benzene	1,4-Dichloro- benzene	1,2,4-Tri- chlorobenzene	2-Chloro- naphthalene	Hexachloro- benzene
1	03/27/90	1	21 U	21 U	21 U	21 U	21 U	21 U
3	03/27/90	3	3.8 U	3.8 U	3.8 U	14 U	14 U	14 U
4	03/26/90	4	25 U	25 U	25 U	25 U	25 U	25 U
5	03/27/90	5 1	23 U	23 U	23 U	23 U	23 U	23 U
5	03/27/90	51 1	23 U	23 U	23 U	23 U	23 U	19 U
5	03/27/90	52 2	23 U	23 U	23 U	23 U	23 U	23 U
5	03/27/90	53 3	24 U	24 U	24 U	24 U	24 U	24 U
8	03/29/90	8	5.4 U	5.4 U	5.4 U	17 U	17 U	17 U
12	03/29/90	12	19 U	19 U	19 U	19 U	19 U	19 U
14	03/30/90	14	4.6 U	4.6 U	4.6 U	15 U	15 U	15 U
15	03/30/90	15	12 U	12 U	12 U	12 U	12 U	12 U
17	03/30/90	17	8.1 U	8.1 U	8.1 U	27 U	27 U	27 U
18	03/26/90	18	23 U	23 U	23 U	23 U	23 U	23 U
19	03/26/90	19	8.5 U	8.5 U	8.5 U	25 U	25 U	25 U
20	03/12/90	20	4.0 UE	13 UE	13 UE	7.0 UE	13 UE	13 UE
21	03/13/90	21	12 UE	12 UE	12 UE	12 UE	12 UE	12 UE
22	03/12/90	22	11 UE	11 UE	11 UE	11 UE	11 UE	11 UE
26	03/12/90	26	10 UE	10 UE	10 UE	10 UE	10 UE	10 UE
29	03/12/90	29	20 UE	20 UE	20 UE	20 UE	20 UE	20 UE
30	03/25/90	30	15 U	15 U	15 U	15 U	15 U	15 U
32	03/25/90	32 1	12 U	12 U	12 U	12 U	12 U	12 U
32	03/25/90	57 1	12 U	12 U	12 U	12 U	12 U	12 U
32	03/25/90	58 2	12 U	12 U	12 U	12 U	12 U	12 U
32	03/25/90	59 3	12 U	12 U	12 U	12 U	12 U	12 U
33	03/25/90	33	12 U	12 U	12 U	12 U	12 U	12 U
34	03/14/90	34	20 UE	20 UE	20 UE	20 UE	20 UE	20 UE
35	03/14/90	35 1	20 UE	20 UE	20 UE	20 UE	20 UE	20 UE
35	03/14/90	72 1	20 UE	20 UE	20 UE	20 UE	20 UE	20 UE
35	03/14/90	73 2	21 UE	21 UE	21 UE	21 UE	21 UE	21 UE
35	03/14/90	74 3	21 UE	21 UE	21 UE	21 UE	21 UE	21 UE
38	03/23/90	38 1	24 UE	24 UE	24 UE	24 UE	24 UE	24 UE
38	03/23/90	60 1	25 UE	25 UE	25 UE	25 UE	25 UE	25 UE
38	03/23/90	61 2	25 UE	25 UE	25 UE	25 UE	25 UE	25 UE
38	03/23/90	62 3	25 UE	25 UE	25 UE	25 UE	25 UE	25 UE
39	03/23/90	39	12 UE	12 UE	12 UE	12 UE	12 UE	12 UE
40	03/15/90	40	28 U	68 U	30 U	43 U	68 U	74 U
41	03/15/90	41	12 UE	12 UE	12 UE	12 UE	12 UE	12 UE
43	03/16/90	43	10 UE	10 UE	10 UE	10 UE	10 UE	10 UE
44	03/16/90	44 1	11 UE	11 UE	11 UE	11 UE	11 UE	11 UE
44	03/16/90	63 1	10 UE	10 UE	10 UE	10 UE	10 UE	10 UE
44	03/16/90	64 2	10 UE	10 UE	10 UE	10 UE	10 UE	10 UE
44	03/16/90	65 3	10 UE	10 UE	10 UE	10 UE	10 UE	10 UE
45	03/17/90	45	14 UE	14 UE	14 UE	14 UE	14 UE	14 UE
46R	03/22/90	46R	11 UE	11 UE	11 UE	11 UE	11 UE	11 UE
47	03/20/90	47	11 UE	11 UE	11 UE	11 UE	11 UE	11 UE
48	03/21/90	48	20 UE	20 UE	20 UE	20 UE	20 UE	20 UE
49	03/22/90	49	24 UE	24 UE	24 UE	24 UE	24 UE	24 UE
66	03/23/90	66	20 E	39 E	15 E	14 UE	14 UE	14 UE
67	03/23/90	67	24 E	34 E	15 E	14 UE	14 UE	14 UE
68	03/23/90	68	43 U	81 U	44 U	53 U	81 U	100 U
69	03/13/90	69	10 UE	10 UE	10 UE	10 UE	10 UE	10 UE
70	03/18/90	70	43 U	110 U	47 U	60 U	110 U	110 U
71	03/26/90	71	13 U	13 U	13 U	13 U	13 U	13 U
101R	03/18/90	101R	22 UE	22 UE	22 UE	22 UE	22 UE	22 UE

TABLE A-6. (Continued)

Station	Date	Field Sample Replicate	1,2-Dichloro- benzene	1,3-Dichloro- benzene	1,4-Dichloro- benzene	1,2,4-Tri- chlorobenzene	2-Chloro- naphthalene	Hexachloro- benzene
102R	03/18/90	102R	53 U	140 U	58 U	74 U	140 U	140 U
103R	03/18/90	103R	11 UE	11 UE	11 UE	11 UE	11 UE	11 UE
104R	03/21/90	104R	26 UE	26 UE	26 UE	26 UE	26 UE	26 UE
105R	03/21/90	105R	19 UE	19 UE	19 UE	19 UE	19 UE	19 UE
106R	03/22/90	106R	23 UE	23 UE	23 UE	23 UE	23 UE	23 UE
108R	03/22/90	108R	10 UE	10 UE	10 UE	10 UE	10 UE	10 UE
109R	03/21/90	109R	19 UE	19 UE	19 UE	19 UE	19 UE	19 UE
110R	03/20/90	110R	26 UE	26 UE	26 UE	26 UE	26 UE	26 UE
111R	03/20/90	111R	14 UE	14 UE	14 UE	14 UE	14 UE	14 UE
112R	03/17/90	112R	11 UE	11 UE	11 UE	11 UE	11 UE	11 UE
113R	03/15/90	113R	11 UE	11 UE	11 UE	11 UE	11 UE	11 UE
114R	03/15/90	114R	16 UE	16 UE	16 UE	16 UE	16 UE	16 UE
115R	03/17/90	115R	14 UE	14 UE	14 UE	14 UE	14 UE	14 UE
116R	03/16/90	116R	4.0 UE	10 UE	10 UE	6.0 UE	10 UE	10 UE

TABLE A-7. CHLORINATED ALIPHATIC HYDROCARBONS ($\mu\text{g}/\text{kg}$, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Sample	Field Replicate	Hexachloro-ethane	Hexachloro-butadiene	Hexachloro-cyclopentadiene
1	03/27/90	1		43 U	43 U	110 U
3	03/27/90	3		29 U	29 U	72 U
4	03/26/90	4		50 U	51 U	130 U
5	03/27/90	5	1	50 U	46 U	110 U
5	03/27/90	51	1	46 U	23 U	120 U
5	03/27/90	52	2	46 U	23 U	120 U
5	03/27/90	53	3	47 U	47 U	120 U
8	03/29/90	8		35 U	35 U	87 U
12	03/29/90	12		38 U	38 U	95 U
14	03/30/90	14		29 U	29 U	73 U
15	03/30/90	15		24 U	24 U	61 U
17	03/30/90	17		53 U	53 U	130 U
18	03/26/90	18		50 U	46 U	110 U
19	03/26/90	19		49 U	49 U	120 U
20	03/12/90	20		27 UE	27 UE	67 UE
21	03/13/90	21		23 UE	23 UE	58 UE
22	03/12/90	22		22 UE	22 UE	54 UE
26	03/12/90	26		19 UE	19 UE	47 UE
29	03/12/90	29		40 UE	40 UE	99 UE
30	03/25/90	30		30 U	30 U	75 U
32	03/25/90	32	1	24 U	24 U	60 U
32	03/25/90	57	1	25 U	25 U	62 U
32	03/25/90	58	2	23 U	23 U	58 U
32	03/25/90	59	3	24 U	24 U	60 U
33	03/25/90	33		24 U	24 U	61 U
34	03/14/90	34		41 UE	41 UE	100 UE
35	03/14/90	35	1	41 UE	41 UE	100 UE
35	03/14/90	72	1	39 UE	39 UE	98 UE
35	03/14/90	73	2	42 UE	42 UE	110 UE
35	03/14/90	74	3	42 UE	42 UE	110 UE
38	03/23/90	38	1	49 UE	49 UE	120 UE
38	03/23/90	60	1	25 UE	50 UE	120 UE
38	03/23/90	61	2	49 UE	25 UE	120 UE
38	03/23/90	62	3	50 UE	20 UE	120 UE
39	03/23/90	39		24 UE	24 UE	60 UE
40	03/15/90	40		85 U	84 U	340 U
41	03/15/90	41		24 UE	24 UE	59 UE
43	03/16/90	43		20 UE	20 UE	49 UE
44	03/16/90	44	1	20 UE	22 UE	50 UE
44	03/16/90	63	1	20 UE	20 UE	50 UE
44	03/16/90	64	2	20 UE	20 UE	49 UE
44	03/16/90	65	3	20 UE	20 UE	50 UE
45	03/17/90	45		28 UE	28 UE	70 UE
46R	03/22/90	46R		22 UE	22 UE	54 UE
47	03/20/90	47		21 UE	21 UE	52 UE
48	03/21/90	48		40 UE	40 UE	99 UE
49	03/22/90	49		48 UE	48 UE	120 UE
66	03/23/90	66		28 UE	28 UE	70 UE
67	03/23/90	67		27 UE	27 UE	67 UE
68	03/23/90	68		120 U	110 U	400 U
69	03/13/90	69		20 UE	20 UE	50 UE
70	03/18/90	70		130 U	120 U	550 U
71	03/26/90	71		30 U	26 U	66 U
101R	03/18/90	101R		44 UE	44 UE	110 UE

TABLE A-7. (Continued)

Station	Date	Field Sample Replicate	Hexachloro-ethane	Hexachloro-butadiene	Hexachloro-cyclopentadiene
102R	03/18/90	102R	160 U	140 U	680 U
103R	03/18/90	103R	22 UE	22 UE	55 UE
104R	03/21/90	104R	52 UE	52 UE	130 UE
105R	03/21/90	105R	39 UE	39 UE	96 UE
106R	03/22/90	106R	46 UE	46 UE	110 UE
108R	03/22/90	108R	19 UE	19 UE	48 UE
109R	03/21/90	109R	37 UE	37 UE	92 UE
110R	03/20/90	110R	52 UE	52 UE	130 UE
111R	03/20/90	111R	27 UE	27 UE	68 UE
112R	03/17/90	112R	20 UE	20 UE	20 UE
113R	03/15/90	113R	23 UE	23 UE	57 UE
114R	03/15/90	114R	32 UE	32 UE	79 UE
115R	03/17/90	115R	28 UE	28 UE	69 UE
116R	03/16/90	116R	20 UE	10 UE	50 UE

TABLE A-8. RESIN ACIDS ($\mu\text{g}/\text{kg}$, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Sample	Field Replicate	Abietic Acid	Chlorodehydro-abietic Acid	Dehydroabietic Acid	3,4,5-Tri-chloroguaiacol	4,5,6-Tri-chloroguaiacol	4,5-Dichloroguaiacol	Tetrachloroguaiacol
5	03/27/90	5	1	460 U	110 U	110 U	23 U	23 U	23 U	23 U
8	03/29/90	8		630	87 U	730	17 U	17 U	17 U	17 U
21	03/13/90	21		200 E	57 U	390	11 U	11 U	11 U	11 U

Station	Date	Sample	Field Replicate	Dichlorodehydro-abietic Acid	Isopimaric Acid	Neoabietic Acid	Palustric Acid	Pimaric Acid	Sandaracopimaric Acid
5	03/27/90	5	1	110 U	460 U	110 U	460 U	110 U	110 U
8	03/29/90	8		87 U	410	150 T	130 E	87 U	87 T
21	03/13/90	21		57 U	120 E	57 U	230 U	57 U	57 U

TABLE A-9. MISCELLANEOUS OXYGENATED COMPOUNDS ($\mu\text{g}/\text{kg}$, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Field Sample	Replicate	Isophorone	Benzyl Alcohol	Benzoic Acid	Dibenzo-furan	Coprostanol	N-Nitroso diphenylamine	Carbazole
1	03/27/90	1		21 U	110 U	210 U	21 U	21 U	21 U	21 U
3	03/27/90	3		14 U	72 U	140 U	14 U	140 U	14 U	14 U
4	03/26/90	4		25 U	130 U	75 E	25 U	220 E	25 U	25 U
5	03/27/90	5	1	23 U	110 U	230 U	23 U	230 U	23 U	23 U
5	03/27/90	51	1	23 U	120 U	230 U	23 U	230 U	14 U	23 U
5	03/27/90	52	2	23 U	120 U	230 U	23 U	230 U	23 U	23 U
5	03/27/90	53	3	24 U	120 U	120 U	24 U	230 U	24 U	24 U
8	03/29/90	8		13 E	87 U	170 U	6.0 E	170 U	17 U	17 U
12	03/29/90	12		19 U	95 U	190 U	19 U	160 NT	19 U	19 U
14	03/30/90	14		15 U	73 U	150 U	15 U	150 U	15 U	15 U
15	03/30/90	15		12 U	61 U	120 U	12 U	120 U	12 U	12 U
17	03/30/90	17		27 U	130 U	270 U	27 U	270 U	27 U	27 U
18	03/26/90	18		23 U	110 U	61 NT	23 U	580 E	23 U	23 U
19	03/26/90	19		25 U	120 U	250 U	25 U	250 U	25 U	25 U
20	03/12/90	20		13 UE	7.0 UE	130 UE	13 UE	130 UE	13 UE	13 UE
21	03/13/90	21		12 UE	58 UE	110 UE	6.0 NT	110 UE	12 UE	12 UE
22	03/12/90	22		11 UE	54 UE	110 UE	11 UE	110 UE	11 UE	11 UE
26	03/12/90	26		10 UE	47 UE	95 UE	10 UE	95 UE	10 UE	10 UE
29	03/12/90	29		20 UE	99 UE	200 UE	20 UE	200 UE	20 UE	20 UE
30	03/25/90	30		15 U	75 U	150 U	19 T	150 U	15 U	51 E
32	03/25/90	32	1	12 U	60 U	120 U	12 U	120 U	12 U	12 U
32	03/25/90	57	1	12 U	62 U	120 U	12 U	120 U	12 U	12 U
32	03/25/90	58	2	12 U	58 U	120 U	12 U	120 U	12 U	12 U
32	03/25/90	59	3	12 U	60 U	120 U	12 U	120 U	12 U	12 U
33	03/25/90	33		12 U	61 U	120 U	20 T	120 U	12 U	47 E
34	03/14/90	34		20 UE	100 UE	200 UE	20 UE	200 UE	20 UE	20 UE
35	03/14/90	35	1	20 UE	100 UE	200 UE	20 UE	200 UE	20 UE	20 UE
35	03/14/90	72	1	20 UE	98 UE	200 UE	20 UE	200 UE	20 UE	20 UE
35	03/14/90	73	2	21 UE	110 UE	210 UE	21 UE	210 UE	21 UE	21 UE
35	03/14/90	74	3	21 UE	110 UE	210 UE	21 UE	210 UE	21 UE	21 UE
38	03/23/90	38	1	24 UE	120 UE	240 UE	24 UE	240 UE	24 UE	24 UE
38	03/23/90	60	1	25 UE	120 UE	250 UE	25 UE	250 UE	25 UE	25 UE
38	03/23/90	61	2	25 UE	120 UE	250 UE	25 UE	250 UE	25 UE	25 UE
38	03/23/90	62	3	25 UE	120 UE	250 UE	25 UE	250 UE	25 UE	25 UE
39	03/23/90	39		12 UE	60 UE	120 UE	12 UE	120 UE	12 UE	12 UE
40	03/15/90	40		68 U	43 U	57 U	48 T	680 U	47 U	68 U
41	03/15/90	41		12 UE	59 UE	120 UE	3.0 NT	660 E	12 UE	12 UE
43	03/16/90	43		10 UE	49 UE	98 UE	10 UE	98 UE	10 UE	10 UE
44	03/16/90	44	1	11 UE	50 UE	110 UE	11 UE	110 UE	11 UE	11 UE
44	03/16/90	63	1	10 UE	50 UE	100 UE	10 UE	100 UE	10 UE	10 UE
44	03/16/90	64	2	10 UE	49 UE	98 UE	10 UE	98 UE	10 UE	10 UE
44	03/16/90	65	3	10 UE	50 UE	99 UE	10 UE	99 UE	10 UE	10 UE
45	03/17/90	45		14 UE	70 UE	140 UE	14 UE	140 UE	14 UE	14 UE
46R	03/22/90	46R		11 UE	54 UE	110 UE	11 UE	110 UE	11 UE	11 UE
47	03/20/90	47		11 UE	52 UE	100 UE	11 UE	100 UE	11 UE	11 UE
48	03/21/90	48		20 UE	99 UE	200 UE	20 UE	200 UE	20 UE	20 UE
49	03/22/90	49		24 UE	120 UE	24 UE	24 UE	240 UE	24 UE	24 UE
66	03/23/90	66		25 T	70 UE	140 UE	21 T	140 UE	14 UE	29 T
67	03/23/90	67		38 E	67 UE	130 UE	37 T	130 UE	14 UE	60 T
68	03/23/90	68		81 U	75 U	82 U	25 U	810 U	54 U	81 U
69	03/13/90	69		10 UE	50 UE	100 UE	10 UE	100 UE	10 UE	10 UE
70	03/18/90	70		110 U	67 U	80 U	25 U	1100 U	72 U	110 U
71	03/26/90	71		13 U	66 U	29 E	13 U	130 U	13 U	13 U
101R	03/18/90	101R		22 UE	110 UE	220 UE	22 UE	220 UE	22 UE	22 UE

TABLE A-9. (Continued)

Station	Date	Field Sample Replicate	Isophorone	Benzyl Alcohol	Benzoic Acid	Dibenzo- furan	Coprostanol	N-Nitroso diphenylamine	Carbazole
102R	03/18/90	102R	140 U	82 U	98 U	30 U	1400 U	88 U	140 U
103R	03/18/90	103R	11 UE	55 UE	110 UE	11 UE	110 UE	11 UE	11 UE
104R	03/21/90	104R	26 UE	130 UE	260 UE	26 UE	260 UE	26 UE	26 UE
105R	03/21/90	105R	19 UE	96 UE	190 UE	19 UE	190 UE	19 UE	19 UE
106R	03/22/90	106R	23 UE	110 UE	230 UE	23 UE	230 UE	23 UE	23 UE
108R	03/22/90	108R	10 UE	48 UE	97 UE	10 UE	97 UE	10 UE	10 UE
109R	03/21/90	109R	19 UE	92 UE	180 UE	19 UE	180 UE	19 UE	19 UE
110R	03/20/90	110R	26 UE	130 UE	260 UE	26 UE	260 UE	26 UE	26 UE
111R	03/20/90	111R	14 UE	68 UE	140 UE	14 UE	140 UE	14 UE	14 UE
112R	03/17/90	112R	11 UE	60 UE	110 UE	11 UE	110 UE	11 UE	11 UE
113R	03/15/90	113R	11 UE	57 UE	110 UE	11 UE	110 UE	11 UE	11 UE
114R	03/15/90	114R	16 UE	79 UE	160 UE	16 UE	160 UE	16 UE	16 UE
115R	03/17/90	115R	14 UE	69 UE	140 UE	14 UE	140 UE	14 UE	14 UE
116R	03/16/90	116R	10 UE	7.0 UE	100 UE	10 UE	100 UE	10 UE	10 UE

TABLE A-10. PESTICIDES ($\mu\text{g}/\text{kg}$, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Field		P,P'-DDE	P,P'-DDD	P,P'-DDT	Aldrin	Dieldrin	Alpha	Alpha	Beta
		Sample	Replicate						Chlordane	Endosulfan	Endosulfan
1	03/27/90	1		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
3	03/27/90	3		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
4	03/26/90	4		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
5	03/27/90	5	1	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
5	03/27/90	51	1	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
5	03/27/90	52	2	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
5	03/27/90	53	3	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
8	03/29/90	8		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
12	03/29/90	12		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
14	03/30/90	14		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
15	03/30/90	15		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
17	03/30/90	17		1.0 U	1.0 U	1.0 U	0.50 U	1.0 U	0.80 U	0.50 U	1.0 U
18	03/26/90	18		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
19	03/26/90	19		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
20	03/12/90	20		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
21	03/13/90	21		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
22	03/12/90	22		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
26	03/12/90	26		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
29	03/12/90	29		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
30	03/25/90	30		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
32	03/25/90	32	1	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
32	03/25/90	57	1	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
32	03/25/90	58	2	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
32	03/25/90	59	3	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
33	03/25/90	33		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
34	03/14/90	34		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
35	03/14/90	35	1	6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
35	03/14/90	72	1	6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
35	03/14/90	73	2	6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
35	03/14/90	74	3	6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
38	03/23/90	38	1	8.0 U	8.0 U	8.0 U	4.0 U	8.0 U	6.0 U	4.0 U	8.0 U
38	03/23/90	60	1	8.0 U	8.0 U	8.0 U	4.0 U	8.0 U	6.0 U	4.0 U	8.0 U
38	03/23/90	61	2	8.0 U	8.0 U	8.0 U	4.0 U	8.0 U	6.0 U	4.0 U	8.0 U
38	03/23/90	62	3	8.0 U	8.0 U	8.0 U	4.0 U	8.0 U	6.0 U	4.0 U	8.0 U
39	03/23/90	39		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
40	03/15/90	40		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
41	03/15/90	41		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
43	03/16/90	43		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
44	03/16/90	44	1	6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
44	03/16/90	63	1	6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
44	03/16/90	64	2	2.0 UE	2.0 UE	2.0 UE	1.0 UE	2.0 UE	1.5 UE	1.0 UE	2.0 UE
44	03/16/90	65	3	6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
45	03/17/90	45		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
46R	03/22/90	46R		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
47	03/20/90	47		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
48	03/21/90	48		8.0 U	8.0 U	8.0 U	4.0 U	8.0 U	6.0 U	4.0 U	8.0 U
49	03/22/90	49		8.0 U	8.0 U	8.0 U	4.0 U	8.0 U	6.0 U	4.0 U	8.0 U
66	03/23/90	66		ND	ND	ND	ND	ND	ND	ND	ND
67	03/23/90	67		ND	ND	ND	ND	ND	ND	ND	ND
68	03/23/90	68		ND	ND	ND	ND	ND	ND	ND	ND
69	03/13/90	69		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
70	03/18/90	70		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
71	03/26/90	71		2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	1.5 U	1.0 U	2.0 U
101R	03/18/90	101R		8.0 U	8.0 U	8.0 U	4.0 U	8.0 U	6.0 U	4.0 U	8.0 U

TABLE A-10. (Continued)

Station	Date	Field		P,P'-DDE	P,P'-DDD	P,P'-DDT	Aldrin	Dieldrin	Alpha	Alpha	Beta
		Sample	Replicate						Chlordane	Endosulfan	Endosulfan
102R	03/18/90	102R		8.0 U	8.0 U	8.0 U	4.0 U	8.0 U	6.0 U	4.0 U	8.0 U
103R	03/18/90	103R		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
104R	03/21/90	104R		8.0 U	8.0 U	8.0 U	4.0 U	8.0 U	6.0 U	4.0 U	8.0 U
105R	03/21/90	105R		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
106R	03/22/90	106R		8.0 U	8.0 U	8.0 U	4.0 U	8.0 U	6.0 U	4.0 U	8.0 U
108R	03/22/90	108R		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
109R	03/21/90	109R		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
110R	03/20/90	110R		8.0 U	8.0 U	8.0 U	4.0 U	8.0 U	6.0 U	4.0 U	8.0 U
111R	03/20/90	111R		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
112R	03/17/90	112R		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
113R	03/15/90	113R		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
114R	03/15/90	114R		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
115R	03/17/90	115R		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U
116R	03/16/90	116R		6.0 U	6.0 U	6.0 U	3.0 U	6.0 U	4.0 U	3.0 U	6.0 U

TABLE A-10. (Continued)

Station	Date	Field		Endrin	Endrin	Endrin	Endosulfan	Heptachlor	Heptachlor	Hexachlorocyclo-
		Sample	Replicate	Endrin	Ketone	Aldehyde	Sulfate	Heptachlor	Epoxide	hexane - Alpha
1	03/27/90	1		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
3	03/27/90	3		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
4	03/26/90	4		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
5	03/27/90	5	1	2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
5	03/27/90	51	1	2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
5	03/27/90	52	2	2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
5	03/27/90	53	3	2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
8	03/29/90	8		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
12	03/29/90	12		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
14	03/30/90	14		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
15	03/30/90	15		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
17	03/30/90	17		1.0 U	1.5 U	1.0 U	2.0 U	0.5 U	0.50 U	0.50 U
18	03/26/90	18		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
19	03/26/90	19		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
20	03/12/90	20		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
21	03/13/90	21		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
22	03/12/90	22		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
26	03/12/90	26		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
29	03/12/90	29		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
30	03/25/90	30		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
32	03/25/90	32	1	2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
32	03/25/90	57	1	2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
32	03/25/90	58	2	2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
32	03/25/90	59	3	2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
33	03/25/90	33		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
34	03/14/90	34		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
35	03/14/90	35	1	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
35	03/14/90	72	1	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
35	03/14/90	73	2	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
35	03/14/90	74	3	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
38	03/23/90	38	1	8.0 U	12 U	8.0 U	16 U	4.0 U	4.0 U	4.0 U
38	03/23/90	60	1	8.0 U	12 U	8.0 U	16 U	4.0 U	4.0 U	4.0 U
38	03/23/90	61	2	8.0 U	12 U	8.0 U	16 U	4.0 U	4.0 U	4.0 U
38	03/23/90	62	3	8.0 U	12 U	8.0 U	16 U	4.0 U	4.0 U	4.0 U
39	03/23/90	39		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
40	03/15/90	40		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
41	03/15/90	41		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
43	03/16/90	43		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
44	03/16/90	44	1	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
44	03/16/90	63	1	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
44	03/16/90	64	2	2.0 UE	3.0 UE	2.0 UE	4.0 UE	1.0 UE	1.0 UE	1.0 UE
44	03/16/90	65	3	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
45	03/17/90	45		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
46R	03/22/90	46R		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
47	03/20/90	47		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
48	03/21/90	48		8.0 U	12 U	8.0 U	16 U	4.0 U	4.0 U	4.0 U
49	03/22/90	49		8.0 U	12 U	8.0 U	16 U	4.0 U	4.0 U	4.0 U
66	03/23/90	66		ND	ND	ND	ND	ND	ND	ND
67	03/23/90	67		ND	ND	ND	ND	ND	ND	ND
68	03/23/90	68		ND	ND	ND	ND	ND	ND	ND
69	03/13/90	69		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
70	03/18/90	70		6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
71	03/26/90	71		2.0 U	3.0 U	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U
101R	03/18/90	101R		8.0 U	12 U	8.0 U	16 U	4.0 U	4.0 U	4.0 U

TABLE A-10. (Continued)

Station	Date	Field Sample Replicate	Endrin	Endrin	Endrin	Endosulfan	Heptachlor	Heptachlor	Hexachlorocyclo-
			Endrin	Ketone	Aldehyde	Sulfate	Epoxide	hexane - Alpha	
102R	03/18/90	102R	8.0 U	12 U	8.0 U	16 U	4.0 U	4.0 U	4.0 U
103R	03/18/90	103R	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
104R	03/21/90	104R	8.0 U	12 U	8.0 U	16 U	4.0 U	4.0 U	4.0 U
105R	03/21/90	105R	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
106R	03/22/90	106R	8.0 U	12 U	8.0 U	16 U	4.0 U	4.0 U	4.0 U
108R	03/22/90	108R	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
109R	03/21/90	109R	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
110R	03/20/90	110R	8.0 U	12 U	8.0 U	16 U	4.0 U	4.0 U	4.0 U
111R	03/20/90	111R	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
112R	03/17/90	112R	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
113R	03/15/90	113R	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
114R	03/15/90	114R	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
115R	03/17/90	115R	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U
116R	03/16/90	116R	6.0 U	9.0 U	6.0 U	12 U	3.0 U	3.0 U	3.0 U

TABLE A-10. (Continued)

Station	Date	Field Sample Replicate	Hexachlorocyclo- hexane - Beta	Hexachlorocyclo- hexane - Delta	Hexachlorocyclo- hexane - Gamma (Lindane)	Methoxychlor	Toxaphene
1	03/27/90	1	1.0 U	1.5 U	1.0 U	4.0 U	150 U
3	03/27/90	3	1.0 U	1.5 U	1.0 U	4.0 U	150 U
4	03/26/90	4	1.0 U	1.5 U	1.0 U	4.0 U	150 U
5	03/27/90	5 1	1.0 U	1.5 U	1.0 U	4.0 U	150 U
5	03/27/90	51 1	1.0 U	1.5 U	1.0 U	4.0 U	150 U
5	03/27/90	52 2	1.0 U	1.5 U	1.0 U	4.0 U	150 U
5	03/27/90	53 3	1.0 U	1.5 U	1.0 U	4.0 U	150 U
8	03/29/90	8	1.0 U	1.5 U	1.0 U	4.0 U	150 U
12	03/29/90	12	1.0 U	1.5 U	1.0 U	4.0 U	150 U
14	03/30/90	14	1.0 U	1.5 U	1.0 U	4.0 U	150 U
15	03/30/90	15	1.0 U	1.5 U	1.0 U	4.0 U	150 U
17	03/30/90	17	0.50 U	0.80 U	0.50 U	2.0 U	75 U
18	03/26/90	18	1.0 U	1.5 U	1.0 U	4.0 U	150 U
19	03/26/90	19	1.0 U	1.5 U	1.0 U	4.0 U	150 U
20	03/12/90	20	3.0 U	4.0 U	3.0 U	12 U	450 U
21	03/13/90	21	3.0 U	4.0 U	3.0 U	12 U	450 U
22	03/12/90	22	3.0 U	4.0 U	3.0 U	12 U	450 U
26	03/12/90	26	3.0 U	4.0 U	3.0 U	12 U	450 U
29	03/12/90	29	3.0 U	4.0 U	3.0 U	12 U	450 U
30	03/25/90	30	1.0 U	1.5 U	1.0 U	4.0 U	150 U
32	03/25/90	32 1	1.0 U	1.5 U	1.0 U	4.0 U	150 U
32	03/25/90	57 1	1.0 U	1.5 U	1.0 U	4.0 U	150 U
32	03/25/90	58 2	1.0 U	1.5 U	1.0 U	4.0 U	150 U
32	03/25/90	59 3	1.0 U	1.5 U	1.0 U	4.0 U	150 U
33	03/25/90	33	1.0 U	1.5 U	1.0 U	4.0 U	150 U
34	03/14/90	34	3.0 U	4.0 U	3.0 U	12 U	450 U
35	03/14/90	35 1	3.0 U	4.0 U	3.0 U	12 U	450 U
35	03/14/90	72 1	3.0 U	4.0 U	3.0 U	12 U	450 U
35	03/14/90	73 2	3.0 U	4.0 U	3.0 U	12 U	450 U
35	03/14/90	74 3	3.0 U	4.0 U	3.0 U	12 U	450 U
38	03/23/90	38 1	4.0 U	6.0 U	4.0 U	16 U	600 U
38	03/23/90	60 1	4.0 U	6.0 U	4.0 U	16 U	600 U
38	03/23/90	61 2	4.0 U	6.0 U	4.0 U	16 U	600 U
38	03/23/90	62 3	4.0 U	6.0 U	4.0 U	16 U	600 U
39	03/23/90	39	3.0 U	4.0 U	3.0 U	12 U	450 U
40	03/15/90	40	3.0 U	4.0 U	3.0 U	12 U	450 U
41	03/15/90	41	3.0 U	4.0 U	3.0 U	12 U	450 U
43	03/16/90	43	3.0 U	4.0 U	3.0 U	12 U	450 U
44	03/16/90	44 1	3.0 U	4.0 U	3.0 U	12 U	450 U
44	03/16/90	63 1	3.0 U	4.0 U	3.0 U	12 U	450 U
44	03/16/90	64 2	1.0 UE	1.5 UE	1.0 UE	4.0 UE	150 UE
44	03/16/90	65 3	3.0 U	4.0 U	3.0 U	12 U	450 U
45	03/17/90	45	3.0 U	4.0 U	3.0 U	12 U	450 U
46R	03/22/90	46R	3.0 U	4.0 U	3.0 U	12 U	450 U
47	03/20/90	47	3.0 U	4.0 U	3.0 U	12 U	450 U
48	03/21/90	48	4.0 U	6.0 U	4.0 U	16 U	600 U
49	03/22/90	49	4.0 U	6.0 U	4.0 U	16 U	600 U
66	03/23/90	66	ND	ND	ND	ND	ND
67	03/23/90	67	ND	ND	ND	ND	ND
68	03/23/90	68	ND	ND	ND	ND	ND
69	03/13/90	69	3.0 U	4.0 U	3.0 U	12 U	450 U
70	03/18/90	70	3.0 U	4.0 U	3.0 U	12 U	450 U
71	03/26/90	71	1.0 U	1.5 U	1.0 U	4.0 U	150 U
101R	03/18/90	101R	4.0 U	6.0 U	4.0 U	16 U	600 U

TABLE A-10. (Continued)

Station	Date	Field Sample Replicate	Hexachlorocyclo- hexane - Beta	Hexachlorocyclo- hexane - Delta	Hexachlorocyclo- hexane - Gamma (Lindane)	Methoxychlor	Toxaphene
102R	03/18/90	102R	4.0 U	6.0 U	4.0 U	16 U	600 U
103R	03/18/90	103R	3.0 U	4.0 U	3.0 U	12 U	450 U
104R	03/21/90	104R	4.0 U	6.0 U	4.0 U	16 U	600 U
105R	03/21/90	105R	3.0 U	4.0 U	3.0 U	12 U	450 U
106R	03/22/90	106R	4.0 U	6.0 U	4.0 U	16 U	600 U
108R	03/22/90	108R	3.0 U	4.0 U	3.0 U	12 U	450 U
109R	03/21/90	109R	3.0 U	4.0 U	3.0 U	12 U	450 U
110R	03/20/90	110R	4.0 U	6.0 U	4.0 U	16 U	600 U
111R	03/20/90	111R	3.0 U	4.0 U	3.0 U	12 U	450 U
112R	03/17/90	112R	3.0 U	4.0 U	3.0 U	12 U	450 U
113R	03/15/90	113R	3.0 U	4.0 U	3.0 U	12 U	450 U
114R	03/15/90	114R	3.0 U	4.0 U	3.0 U	12 U	450 U
115R	03/17/90	115R	3.0 U	4.0 U	3.0 U	12 U	450 U
116R	03/16/90	116R	3.0 U	4.0 U	3.0 U	12 U	450 U

TABLE A-11. POLYCHLORINATED BIPHENYLS ($\mu\text{g}/\text{kg}$, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Field Sample Replicate	Polychlorinated Biphenyls	PCB-1016/ PCB-1242	PCB-1248	PCB-1254	PCB-1260
1	03/27/90	1	20 U	20 U	20 U	20 U	20 U
3	03/27/90	3	20 U	20 U	20 U	20 U	20 U
4	03/26/90	4	20 U	20 U	20 U	20 U	20 U
5	03/27/90	5 1	20 U	20 U	20 U	20 U	20 U
5	03/27/90	51 1	20 U	20 U	20 U	20 U	20 U
5	03/27/90	52 2	20 U	20 U	20 U	20 U	20 U
5	03/27/90	53 3	20 U	20 U	20 U	20 U	20 U
8	03/29/90	8	20 U	20 U	20 U	20 U	20 U
12	03/29/90	12	6.3 E	20 U	20 U	6.3 E	20 U
14	03/30/90	14	20 U	20 U	20 U	20 U	20 U
15	03/30/90	15	20 U	20 U	20 U	20 U	20 U
17	03/30/90	17	10 U	10 U	10 U	10 U	10 U
18	03/26/90	18	20 U	20 U	20 U	20 U	20 U
19	03/26/90	19	20 U	20 U	20 U	20 U	20 U
20	03/12/90	20	60 U	60 U	60 U	60 U	60 U
21	03/13/90	21	60 U	60 U	60 U	60 U	60 U
22	03/12/90	22	60 U	60 U	60 U	60 U	60 U
26	03/12/90	26	60 U	60 U	60 U	60 U	60 U
29	03/12/90	29	60 U	60 U	60 U	60 U	60 U
30	03/25/90	30	20 U	20 U	20 U	20 U	20 U
32	03/25/90	32 1	20 U	20 U	20 U	20 U	20 U
32	03/25/90	57 1	20 U	20 U	20 U	20 U	20 U
32	03/25/90	58 2	20 U	20 U	20 U	20 U	20 U
32	03/25/90	59 3	20 U	20 U	20 U	20 U	20 U
33	03/25/90	33	28	20 U	20 U	28	20 U
34	03/14/90	34	60 U	60 U	60 U	60 U	60 U
35	03/14/90	35 1	60 U	60 U	60 U	60 U	60 U
35	03/14/90	72 1	60 U	60 U	60 U	60 U	60 U
35	03/14/90	73 2	60 U	60 U	60 U	60 U	60 U
35	03/14/90	74 3	60 U	60 U	60 U	60 U	60 U
38	03/23/90	38 1	80 U	80 U	80 U	80 U	80 U
38	03/23/90	60 1	80 U	80 U	80 U	80 U	80 U
38	03/23/90	61 2	80 U	80 U	80 U	80 U	80 U
38	03/23/90	62 3	80 U	80 U	80 U	80 U	80 U
39	03/23/90	39	60 U	60 U	60 U	60 U	60 U
40	03/15/90	40	60 U	60 U	60 U	60 U	60 U
41	03/15/90	41	60 U	60 U	60 U	60 U	60 U
43	03/16/90	43	60 U	60 U	60 U	60 U	60 U
44	03/16/90	44 1	60 U	60 U	60 U	60 U	60 U
44	03/16/90	63 1	60 U	60 U	60 U	60 U	60 U
44	03/16/90	64 2	20 UE	20 UE	20 UE	20 UE	20 UE
44	03/16/90	65 3	60 U	60 U	60 U	60 U	60 U
45	03/17/90	45	60 U	60 U	60 U	60 U	60 U
46R	03/22/90	46R	60 U	60 U	60 U	60 U	60 U
47	03/20/90	47	60 U	60 U	60 U	60 U	60 U
48	03/21/90	48	80 U	80 U	80 U	80 U	80 U
49	03/22/90	49	80 U	80 U	80 U	80 U	80 U
66	03/23/90	66	ND	ND	ND	ND	ND
67	03/23/90	67	ND	ND	ND	ND	ND
68	03/23/90	68	ND	ND	ND	ND	ND
69	03/13/90	69	60 U	60 U	60 U	60 U	60 U
70	03/18/90	70	60 U	60 U	60 U	60 U	60 U
71	03/26/90	71	20 U	20 U	20 U	20 U	20 U
101R	03/18/90	101R	80 U	80 U	80 U	80 U	80 U

TABLE A-11. (Continued)

Station	Date	Field Sample Replicate	Polychlorinated Biphenyls	PCB-1016/ PCB-1242	PCB-1248	PCB-1254	PCB-1260
102R	03/18/90	102R	80 U	80 U	80 U	80 U	80 U
103R	03/18/90	103R	60 U	60 U	60 U	60 U	60 U
104R	03/21/90	104R	80 U	80 U	80 U	80 U	80 U
105R	03/21/90	105R	60 U	60 U	60 U	60 U	60 U
106R	03/22/90	106R	80 U	80 U	80 U	80 U	80 U
108R	03/22/90	108R	60 U	60 U	60 U	60 U	60 U
109R	03/21/90	109R	60 U	60 U	60 U	60 U	60 U
110R	03/20/90	110R	80 U	80 U	80 U	80 U	80 U
111R	03/20/90	111R	60 U	60 U	60 U	60 U	60 U
112R	03/17/90	112R	60 U	60 U	60 U	60 U	60 U
113R	03/15/90	113R	60 U	60 U	60 U	60 U	60 U
114R	03/15/90	114R	60 U	60 U	60 U	60 U	60 U
115R	03/17/90	115R	60 U	60 U	60 U	60 U	60 U
116R	03/16/90	116R	60 U	60 U	60 U	60 U	60 U

TABLE A-12. METALS (mg/kg, dry weight) FOR PSAMP 1990 SAMPLING

Station	Date	Field		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium
		Sample	Replicate							
1	03/27/90	1		18,400	R	7.30 Q	50.8	0.500 U	0.230 E	5,950 E
3	03/27/90	3		13,800	R	7.20 Q	38.5	0.300	0.140	16,200 E
4	03/26/90	4		22,700	R	19.1 Q	59.5	0.600 U	0.290	6,290 E
5	03/27/90	5	1	20,900	R	11.6 Q	54.2	0.400 U	0.210	6,840 E
5	03/27/90	51	1	20,300	R	12.9 Q	53.9	0.600 U	0.210	6,690 E
5	03/27/90	52	2	20,000	R	7.90 Q	52.0	0.500 U	0.110 U	6,620 E
5	03/27/90	53	3	19,700	R	21.3 Q	50.3	0.400 U	0.230 E	6,690 E
8	03/29/90	8		16,100	16 Q	17.9 Q	34.7	0.400 U	1.04 E	4,590 E
12	03/29/90	12		17,500	R	10.7 Q	43.7	0.500 U	0.140	5,920 E
14	03/30/90	14		11,900	R	12.3 Q	26.7	0.200 U	0.130	5,130 E
15	03/30/90	15		6,700	R	3.20 Q	9.80	0.200 U	0.050 U	3,790 E
17	03/30/90	17		33,700	R	29.3 Q	21.1	0.600 U	0.220	14,800 E
18	03/26/90	18		20,900	R	7.40 Q	54.4	0.500 U	0.280 E	6,430 E
19	03/26/90	19		18,900	R	12.9 Q	46.6	0.500 U	0.140	5,670 E
20	03/12/90	20		22,300	R	13.4 Q	60.7	0.400 U	0.110	5,950 E
21	03/13/90	21		17,400	R	20.9 Q	42.1	0.200	0.340	4,500 E
22	03/12/90	22		6,750	R	5.60 Q	14.4	0.200 U	0.050 U	3,130 E
26	03/12/90	26		10,700	R	8.60 Q	26.0	0.200 U	0.130	6,280 E
29	03/12/90	29		20,000	R	14.6 Q	54.1	0.400 U	0.300	8,300 E
30	03/25/90	30		11,300	R	3.50 Q	27.4	0.300 U	0.800	4,520 E
32	03/25/90	32	1	5,930	R	3.90 Q	13.7	0.200 U	0.060	2,980 E
32	03/25/90	57	1	5,660	R	7.00 Q	13.0	0.200 U	0.060	2,710 E
32	03/25/90	58	2	5,570	R	6.30 Q	13.1	0.300 U	0.050 U	2,580 E
32	03/25/90	59	3	5,580	R	7.20 Q	12.2	0.200 U	0.050 E	2,650 E
33	03/25/90	33		10,700	0.8 Q	8.30 Q	43.6	0.200 U	0.150	3,920 E
34	03/14/90	34		18,800	R	24.8 Q	50.8	0.500 U	0.810	6,830 E
35	03/14/90	35	1	17,900	R	16.7 Q	41.5	0.500 U	0.880	9,390 E
35	03/14/90	72	1	17,900	R	16.4 Q	43.8	0.500 U	0.950	9,760 E
35	03/14/90	73	2	18,100	R	18.9 Q	45.5	0.600 U	0.920	9,430 E
35	03/14/90	74	3	17,800	R	20.2 Q	40.5	0.500 U	0.870	9,820 E
38	03/23/90	38	1	22,000	R	13.6 Q	55.6	0.600	0.280	6,660 E
38	03/23/90	60	1	22,900	R	18.1 Q	57.5	0.600	0.290	6,770 E
38	03/23/90	61	2	22,900	R	7.50 Q	56.7	0.500	0.310	6,760 E
38	03/23/90	62	3	23,100	R	18.8 Q	58.7	0.800	0.280	6,900 E
39	03/23/90	39		5,240	R	1.80 Q	9.90	0.200 U	0.060	2,150 E
40	03/15/90	40		9,200	R	12.7 Q	24.8	0.200 U	0.130	4,770 E
41	03/15/90	41		13,600	R	14.3 Q	31.5	0.200 U	0.060	6,010 E
43	03/16/90	43		4,840	R	3.40 Q	11.0	0.300 U	0.040 U	2,640 E
44	03/16/90	44	1	9,750	R	8.50 Q	17.4	0.200 U	0.060 U	6,010 E
44	03/16/90	63	1	8,960	R	7.40 Q	17.1	0.300 U	0.050 U	4,170 E
44	03/16/90	64	2	8,720	R	8.20 Q	17.8	0.200 U	0.080	8,540 E
44	03/16/90	65	3	9,810	R	7.80 Q	19.2	0.300 U	0.080 E	4,170 E
45	03/17/90	45		13,800	R	11.1 Q	25.5	0.400 U	0.310	5,950 E
46R	03/22/90	46R		7,150	R	2.80 Q	11.8	0.300 U	0.140	3,290 E
47	03/20/90	47		7,730	R	6.40 Q	11.9	0.300 U	0.090	10,000 E
48	03/21/90	48		18,200	R	16.0 Q	31.5	0.500 U	0.800	8,160 E
49	03/22/90	49		24,100	R	9.00 Q	28.0	0.700 U	1.52	5,490 E
66	03/23/90	66		11,400	R	4.40 Q	27.3	0.300	0.630	5,050 E
67	03/23/90	67		11,800	R	3.80 Q	25.3	0.300	0.580	4,630 E
68	03/23/90	68		10,400	R	6.90 Q	20.2	0.300 U	0.590	4,430 E
69	03/13/90	69		6,890	R	5.00 Q	14.7	0.200 U	0.170	3,970 E
70	03/18/90	70		19,600	R	7.00 Q	29.5	0.400 U	0.550	10,300 E
71	03/26/90	71		11,700	R	4.90 Q	30.4	0.300 U	0.420 E	4,600 E
101R	03/18/90	101R		21,500	R	15.0 Q	31.0	0.600 U	0.900	9,760 E

TABLE A-12. (Continued)

Station	Date	Field		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium
		Sample	Replicate							
102R	03/18/90	102R		24,200	R	12.5 Q	30.2	0.500 U	1.00	9,240 E
103R	03/18/90	103R		9,780	R	3.80 Q	16.9	0.200 U	0.470	4,760 E
104R	03/21/90	104R		22,000	R	4.80 Q	32.1	0.700 U	1.40	7,470 E
105R	03/21/90	105R		17,600	R	14.0 Q	29.9	0.600 U	0.720	10,300 E
106R	03/22/90	106R		21,900	R	12.3 Q	34.3	0.700 U	1.10 E	6,600 E
108R	03/22/90	108R		6,300	R	2.20 Q	9.90	0.200 U	0.130	2,940 E
109R	03/21/90	109R		16,800	R	7.00 Q	28.0	0.400 U	0.710	5,850 E
110R	03/20/90	110R		20,500	R	11.1 Q	38.6	0.700 U	1.42	6,590 E
111R	03/20/90	111R		10,300	R	5.10 Q	18.8	0.400 U	0.520	4,760 E
112R	03/17/90	112R		6,020	R	1.10 Q	10.7	0.200 U	0.050 U	3,500 E
113R	03/15/90	113R		8,480	R	7.20 Q	17.3	0.300 U	0.230	3,850 E
114R	03/15/90	114R		13,100	R	11.0 Q	25.5	0.300 U	1.67	5,890 E
115R	03/17/90	115R		13,300	R	12.2 Q	25.6	0.300 U	0.280	6,550 E
116R	03/16/90	116R		7,470	R	6.20 Q	14.5	0.300 U	0.040 U	3,290 E

TABLE A-12. (Continued)

Station	Date	Field		Total	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury
		Sample	Replicate	Chromium							
1	03/27/90	1		37.2	8.60	27.4	29,300	7.00 Q	11,600	265	0.110 UG
3	03/27/90	3		23.3	6.80	18.5	21,800	7.60 Q	7,680	261	0.070 UG
4	03/26/90	4		53.7	11.9	37.8	34,800	11.1 Q	15,300	375	0.160 UG
5	03/27/90	5	1	44.8	10.0	31.3	32,700	9.60 Q	13,300	326	0.140 UG
5	03/27/90	51	1	43.6	9.50	30.2	31,700	20.2 Q	12,700	313	0.090 UG
5	03/27/90	52	2	43.7	9.60	30.2	31,800	15.3 Q	12,800	319	0.100 UG
5	03/27/90	53	3	42.5	9.20	30.4	31,300	9.20 Q	12,800	316	0.130 UG
8	03/29/90	8		30.2	7.20	81.9	25,800	7.90 Q	9,290	219	0.250 G
12	03/29/90	12		36.5	8.30	26.1	28,100	8.70 Q	11,000	262	0.100 UG
14	03/30/90	14		26.7	8.00	14.3	20,600	9.80 Q	7,740	308	0.070 U
15	03/30/90	15		15.3	4.00	5.60	10,600	1.80 Q	4,090	185	0.040 U
17	03/30/90	17		55.6	22.7	110	52,900	6.70 Q	18,900	680	0.110 U
18	03/26/90	18		67.6	12.2	44.8	32,300	7.70 Q	15,600	366	0.150 UG
19	03/26/90	19		56.7	16.1	37.6	31,500	15.9 Q	14,500	711	0.150 UG
20	03/12/90	20		112	18.5	46.4	37,400	7.30 Q	20,000	593	0.090 G
21	03/13/90	21		39.1	10.2	43.8	23,800	10.3 Q	10,100	302	0.080 UG
22	03/12/90	22		16.1	3.70	5.20	8,520	4.30 Q	3,550	142	0.060 UG
26	03/12/90	26		26.1	8.20	12.2	18,800	7.40 Q	7,910	327	0.060 UG
29	03/12/90	29		40.6	10.7	35.0	29,800	22.3 Q	11,700	480	0.110 UG
30	03/25/90	30		28.1	5.40	34.1	14,900	10.5 Q	6,500	164	0.240 G
32	03/25/90	32	1	14.2	4.50	6.30	9,830	8.40 Q	3,310	284	0.050 UG
32	03/25/90	57	1	12.9	4.40	6.40	9,530	8.80 Q	3,440	335	0.040 UG
32	03/25/90	58	2	13.0	4.20	6.30	9,490	9.00 Q	3,290	253	0.040 UG
32	03/25/90	59	3	13.3	4.20	6.30	9,570	8.80 Q	3,320	299	0.040 UG
33	03/25/90	33		26.7	6.00	39.2	15,300	51.4 Q	5,950	224	0.130 G
34	03/14/90	34		53.6	8.10	126	25,800	62.6 Q	10,200	289	0.870 G
35	03/14/90	35	1	43.2	8.70	69.8	24,100	68.9 Q	10,300	292	0.720 G
35	03/14/90	72	1	43.3	8.30	70.5	23,900	59 Q	10,200	296	0.560 G
35	03/14/90	73	2	44.1	8.30	69.8	24,100	60.4 Q	10,100	285	0.530 G
35	03/14/90	74	3	43.1	8.10	209	23,700	52.7 Q	9,990	296	0.550 G
38	03/23/90	38	1	44.2	13.2	52.7	32,300	24.1 Q	13,300	824	0.200 G
38	03/23/90	60	1	44.3	13.4	52.7	32,100	32.4 Q	13,300	837	0.200 G
38	03/23/90	61	2	44.5	13.4	52.8	32,600	30.5 Q	13,400	864	0.160 G
38	03/23/90	62	3	45.3	13.5	54.5	32,700	35.3 Q	13,300	798	0.200 G
39	03/23/90	39		13.2	2.50	3.80	7,340	4.10 Q	2,910	121	0.050 UG
40	03/15/90	40		10.8	4.00	35.9	10,400	22.8 Q	3,510	179	0.090 G
41	03/15/90	41		13.1	5.00	26.9	15,200	7.00 Q	4,790	146	0.080 UG
43	03/16/90	43		11.4	2.60	4.80	6,250	2.10 Q	2,670	184	0.060 UG
44	03/16/90	44	1	17.3	6.40	15.1	12,000	8.10 Q	4,280	453	0.070 UG
44	03/16/90	63	1	15.3	5.60	13.6	11,000	4.80 Q	3,870	418	0.050 UG
44	03/16/90	64	2	15.3	5.90	13.3	11,100	8.90 Q	3,900	369	0.060 UG
44	03/16/90	65	3	16.3	6.10	13.6	11,900	8.10 Q	4,140	385	0.070 UG
45	03/17/90	45		18.4	6.60	29.1	14,400	18.5 Q	5,410	434	0.100 UG
46R	03/22/90	46R		12.3	4.70	11.3	9,400	3.70 Q	3,350	270	0.070 UG
47	03/20/90	47		20.7	6.10	9.80	16,800	5.50 Q	5,660	352	0.070 UG
48	03/21/90	48		32.2	8.50	41.6	22,800	11.9 Q	9,440	519	0.150 G
49	03/22/90	49		35.6	8.90	53.7	27,100	25.3 Q	10,100	318	0.170 G
66	03/23/90	66		27.7	5.60	15.3	17,900	5.60 Q	7,820	182	0.070 UG
67	03/23/90	67		27.8	5.10	14.5	17,700	5.10 Q	7,410	180	0.070 UG
68	03/23/90	68		24.0	5.20	13.8	16,500	2.70 Q	7,060	169	0.060 UG
69	03/13/90	69		17.5	4.70	8.00	10,200	2.80 Q	4,480	208	0.050 UG
70	03/18/90	70		41.8	12.4	39.5	27,300	12.3 Q	9,810	954	0.110 UG
71	03/26/90	71		26.5	5.70	17.3	18,500	6.40 Q	7,600	199	0.080 UG
101R	03/18/90	101R		48.5	11.8	43.2	29,800	13.2 Q	10,700	964	0.150 UG

TABLE A-12. (Continued)

Station	Date	Sample	Field	Total	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury
			Replicate	Chromium							
102R	03/18/90	102R		52.6	10.7	46.7	32,800	13.1 Q	11,600	492	0.170 UG
103R	03/18/90	103R		20.3	6.70	10.9	14,200	2.80 Q	5,030	341	0.060 UG
104R	03/21/90	104R		42.4	8.50	47.0	27,000	12.5 Q	10,900	374	0.180 UG
105R	03/21/90	105R		33.6	7.90	36.9	22,900	13.8 Q	9,080	564	0.120 UG
106R	03/22/90	106R		38.2	8.40	49.1	26,300	19.9 Q	10,600	483	0.180 G
108R	03/22/90	108R		14.1	5.00	6.20	10,700	2.40 Q	3,860	273	0.060 UG
109R	03/21/90	109R		31.7	7.90	37.7	21,600	14.6 Q	8,390	296	0.140 G
110R	03/20/90	110R		44.5	8.70	45.4	24,000	13.9 Q	11,000	383	0.200 UG
111R	03/20/90	111R		21.9	5.90	18.8	13,200	6.80 Q	5,860	443	0.090 UG
112R	03/17/90	112R		9.50	2.90	8.50	7,780	1.60 Q	2,150	75.8	0.060 UG
113R	03/15/90	113R		19.0	6.80	13.2	11,200	7.80 Q	4,360	283	0.080 UG
114R	03/15/90	114R		30.6	5.40	25.0	16,300	8.20 Q	6,920	204	0.110 UG
115R	03/17/90	115R		25.4	5.80	24.4	15,200	12.9 Q	6,520	212	0.090 UG
116R	03/16/90	116R		18.7	3.70	7.70	11,600	5.70 Q	3,830	327	0.060 UG

TABLE A-12. (Continued)

Station	Date	Field		Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
		Sample	Replicate								
1	03/27/90	1		34.0	3,470	R	0.180	20,100	0.300 U	52.5	81.2 E
3	03/27/90	3		22.0	2,320	R	0.090	10,200	0.300 U	40.2	60.2 E
4	03/26/90	4		67.0	4,160	R	0.290	25,900	0.300 U	62.9	95.5 E
5	03/27/90	5	1	43.0	3,880	R	0.170	24,000	0.200 U	59.9	88.1 E
5	03/27/90	51	1	42.0	3,840	R	0.170	23,300	0.600 U	54.7	84.8 E
5	03/27/90	52	2	45.0	3,850	R	0.190	24,300	0.500 U	57.3	84.8 E
5	03/27/90	53	3	40.0	3,660	R	0.230	24,100	0.300 U	56.1	84.4 E
8	03/29/90	8		25.0	2,640	R	0.140	14,300	0.200 U	46.3	93.1 E
12	03/29/90	12		34.0	3,400	R	0.180	20,100	0.500 U	50.4	76.8 E
14	03/30/90	14		31.0	1,900	R	0.070	8,610	0.300 U	38.6	46.2 E
15	03/30/90	15		15.0	923	R	0.050 U	3,860	0.100 U	18.8	24.2 E
17	03/30/90	17		53.0	3,260	R	0.260	24,100	0.500 U	136	88.3 E
18	03/26/90	18		66.0	3,720	R	0.360	24,300	0.600 U	63.6	86.1 E
19	03/26/90	19		62.0	3,770	R	0.240	26,200	0.500 U	62.2	89.6 E
20	03/12/90	20		127	2,470	R	0.150	10,800	0.300 U	66.2	84.5 E
21	03/13/90	21		40.0	1,820	R	0.200	8,110	0.400 E	49.1	68.1 E
22	03/12/90	22		14.0	925	R	0.050	3,300	0.200 U	17.5	22.3 E
26	03/12/90	26		33.0	1,540	R	0.100	5,600	0.200 E	32.5	45.3 E
29	03/12/90	29		37.0	3,530	R	0.500	21,000	0.400 U	57.2	94.0 E
30	03/25/90	30		28.0	1,930	R	0.330	11,400	0.400	32.7	55.0 E
32	03/25/90	32	1	14.0	1,130	R	0.080	3,300	0.200 U	21.1	23.5 E
32	03/25/90	57	1	13.0	1,140	R	0.090	3,700	0.100 U	18.6	23.1 E
32	03/25/90	58	2	13.0	1,110	R	0.080	3,650	0.300 U	18.7	22.9 E
32	03/25/90	59	3	13.0	1,030	R	0.080	3,810	0.200 U	19.0	23.0 E
33	03/25/90	33		31.0	1,380	R	0.230	6,390	0.200 U	31.6	67.6 E
34	03/14/90	34		41.0	3,270	R	1.43	22,000	0.500 U	52.0	147 E
35	03/14/90	35	1	42.0	3,390	R	0.810	23,100	0.500 U	48.9	135 E
35	03/14/90	72	1	42.0	3,380	R	1.35	23,200	0.500 U	49.5	130 E
35	03/14/90	73	2	38.0	3,350	R	1.14	22,700	0.400 E	50.8	130 E
35	03/14/90	74	3	38.0	3,370	R	1.14	22,100	0.400 U	49.3	128 E
38	03/23/90	38	1	44.0	4,400	R	0.570	31,800	0.500 U	64.4	110 E
38	03/23/90	60	1	43.0	4,440	R	0.560	31,900	0.600 U	65.8	107 E
38	03/23/90	61	2	43.0	4,450	R	0.660	31,100	0.600 U	66.9	110 E
38	03/23/90	62	3	43.0	4,740	R	0.570	30,700	0.700 U	66.3	109 E
39	03/23/90	39		10.0	948	R	0.050	3,500	0.200 U	13.8	17.0 E
40	03/15/90	40		10.0	1,060	R	0.250 E	7,260	0.200 E	27.4	37.7 E
41	03/15/90	41		13.0	1,260	R	0.150 E	9,040	0.300 U	37.7	31.7 E
43	03/16/90	43		11.0	855	R	0.040 U	3,830	0.200 U	13.3	15.8 E
44	03/16/90	44	1	16.0	1,300	R	0.080	6,590	0.300 U	27.5	38.6 E
44	03/16/90	63	1	15.0	1,120	R	0.150	5,990	0.200 U	25.4	32.7 E
44	03/16/90	64	2	16.0	1,160	R	0.100	6,140	0.300 U	25.6	33.4 E
44	03/16/90	65	3	17.0	1,480	R	0.100	6,080	0.300 U	28.6	35.0 E
45	03/17/90	45		17.0	1,800	R	0.270	13,600	0.300 U	33.9	48.9 E
46R	03/22/90	46R		11.0	956	R	0.090	5,230	0.200 U	22.7	25.5 E
47	03/20/90	47		26.0	1,860	R	0.080	5,080	0.200 U	26.5	32.0 E
48	03/21/90	48		28.0	3,110	R	0.440 E	25,500	0.600 U	47.5	80.6 E
49	03/22/90	49		31.0	3,210	R	0.490	25,600	0.600 U	50.7	80.0 E
66	03/23/90	66		31.0	1,810	R	0.140	8,570	0.400	33.8	45.9 E
67	03/23/90	67		27.0	1,770	R	0.130	7,940	0.400	33.5	44.4 E
68	03/23/90	68		26.0	1,710	R	0.080	8,450	0.400	31.6	43.8 E
69	03/13/90	69		19.0	884	R	0.110	3,980	0.200 U	21.3	26.5 E
70	03/18/90	70		38.0	2,320	R	0.220	16,400	0.400 U	65.9	75.7 E
71	03/26/90	71		28.0	1,880	R	0.110	10,700	0.200 U	34.0	50.1 E
101R	03/18/90	101R		41.5	2,900	R	0.430	20,600	0.600 E	65.5	88.3 E

TABLE A-12. (Continued)

Station	Date	Field		Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
		Sample	Replicate								
102R	03/18/90	102R		44.0	3,680	R	0.330	24,700	0.600 U	64.5	88.2 E
103R	03/18/90	103R		21.0	1,070	R	0.050 U	4,520	0.300 U	29.5	38.4 E
104R	03/21/90	104R		34.0	3,780	R	0.430 E	28,700	0.700	50.5	84.0 E
105R	03/21/90	105R		29.0	2,980	R	0.330 E	21,700	0.500 U	48.6	73.1 E
106R	03/22/90	106R		31.0	3,740	R	0.500	29,100	0.600 U	54.3	91.2 E
108R	03/22/90	108R		16.0	1,150	R	0.050	3,800	0.300	20.2	23.8 E
109R	03/21/90	109R		27.0	2,790	R	0.340	19,000	0.400 U	46.8	74.9 E
110R	03/20/90	110R		41.0	3,940	R	0.440 E	32,300	0.600 U	50.3	87.2 E
111R	03/20/90	111R		21.0	1,740	R	0.200 E	13,000	0.400	26.5	44.4 E
112R	03/17/90	112R		6.00	571	R	0.050 U	5,150	0.300 U	30.1	16.3 E
113R	03/15/90	113R		18.0	1,300	R	0.140	6,470	0.300 U	23.8	32.7 E
114R	03/15/90	114R		27.0	1,920	R	0.280	14,500	0.400 E	35.7	50.2 E
115R	03/17/90	115R		24.0	1,900	R	0.250	12,700	0.300 U	33.1	49.0 E
116R	03/16/90	116R		15.0	1,320	R	0.050	4,630	0.200 U	22.3	25.6 E

TABLE A-13. GRAIN SIZE AND CONVENTIONAL VARIABLES FOR PSAMP 1990 SAMPLING

Station	Date	Sample	Field		Sand (%)					Silt (%)	Clay (%)
			Replicate	Gravel (%)	Phi -1 to 0	Phi 0 to 1	Phi 1 to 2	Phi 2 to 3	Phi 3 to 4		
1	03/27/90	1		0.0	0.0	0.0	1.0	0.0	2.0	71	26
101R	03/18/90	101R		0.0	2.0	1.0	1.0	2.0	4.0	63	27
102R	03/18/90	102R		0.0	2.0	2.0	2.0	3.0	3.0	54	34
103R	03/18/90	103R		0.0	1.0	3.0	28	56	4.0	3.0	5.0
104R	03/21/90	104R		0.0	0.0	0.0	1.0	0.0	1.0	59	39
105R	03/21/90	105R		1.0	0.0	2.0	3.0	12	7.0	46	29
106R	03/22/90	106R		1.0	0.0	1.0	2.0	5.0	5.0	55	31
108R	03/22/90	108R		2.0	2.0	10	31	49	1.0	2.0 E	3.0 E
109R	03/21/90	109R		2.0	0.0	0.0	2.0	2.0	4.0	65	26
110R	03/20/90	110R		0.0	1.0	2.0	2.0	1.0	3.0	58	33
111R	03/20/90	111R		0.0	1.0	2.0	11	39	11	19	17
112R	03/17/90	112R		0.0	0.0	0.0	20	76	3.0	0.0 E	1.0 E
113R	03/15/90	113R		0.0	1.0	4.0	10	37	28	13	7.0
114R	03/15/90	114R		0.0	1.0	0.0	4.0	5.0	3.0	66	21
115R	03/17/90	115R		0.0	0.0	2.0	3.0	6.0	17	53	19
116R	03/16/90	116R		0.0	0.0	9.0	23	38	19	6.0	5.0
12	03/29/90	12		0.0	0.0	1.0	0.0	2.0	4.0	65	28
14	03/30/90	14		0.0	1.0	14	21	16	11	23	14
15	03/30/90	15		0.0	1.0	6.0	27	50	11	3.0 E	2.0 E
17	03/30/90	17		0.0	0.0	1.0	0.0	0.0	1.0	68	30
18	03/26/90	18		0.0	0.0	1.0	3.0	3.0	1.0	54	38
19	03/26/90	19		0.0	0.0	1.0	1.0	7.0	8.0	37	46
20	03/12/90	20		0.0	0.0	0.0	1.0	0.0	2.0	66	31
21	03/13/90	21		0.0	1.0	0.0	2.0	10	26	49 E	12 E
22	03/12/90	22		0.5	0.0	2.0	13	68	11	3.0 EM	2.5 EM
26	03/12/90	26		0.0	0.0	1.0	6.0	56	16	11	10
29	03/12/90	29		0.0	0.0	1.0	0.0	1.0	5.0	59	34
3	03/27/90	3		24	2.0	1.0	3.0	8.0	17	31	14
30	03/25/90	30		0.0	1.0	1.0	2.0	13	21	46	16
32	03/25/90	32	1	0.0	0.0	3.0	23	64	3.0	3.0	4.0
32	03/25/90	57	1	0.0	1.0	3.0	21	62	3.0	3.0	7.0
32	03/25/90	58	2	0.0	0.0	3.0	23	65	3.0	3.0 E	3.0 E
32	03/25/90	59	3	0.0	0.0	4.0	22	64	3.0	3.0	4.0
33	03/25/90	33		4.0	2.0	2.0	8.0	29	21	23	11
34	03/14/90	34		0.0	1.0	1.0	0.0	1.0	2.0	62	33
35	03/14/90	35	1	0.0	1.0	1.0	2.0	6.0	7.0	55	28
35	03/14/90	72	1	0.0	1.0	1.0	1.0	6.0	8.0	54	29
35	03/14/90	73	2	0.0	1.0	2.0	2.0	7.0	8.0	51	29
35	03/14/90	74	3	0.0	1.0	1.0	1.0	5.0	9.0	51	32
38	03/23/90	38	1	0.0	0.0	0.0	1.0	0.0	1.0	46	52
38	03/23/90	60	1	0.0	0.0	0.0	1.0	0.0	1.0	44	54
38	03/23/90	61	2	0.0	0.0	0.0	1.0	0.0	1.0	51	47
38	03/23/90	62	3	0.0	0.0	0.0	1.0	0.0	1.0	49	49
39	03/23/90	39		0.0	2.0	13	33	48	2.0	1.0 E	1.0 E
4	03/26/90	4		0.0	0.0	1.0	0.0	0.0	1.0	56	42
40	03/15/90	40		0.0	2.0	10	20	33	7.0	21	7.0
41	03/15/90	41		0.0	0.0	1.0	1.0	7.0	25	56 E	10 E
43	03/16/90	43		0.0	0.0	2.0	19	66	6.0	3.0	4.0
44	03/16/90	44	1	1.0	1.0	7.0	14	45	16	8.0	8.0
44	03/16/90	63	1	0.0	2.0	7.0	14	46	17	8.0	6.0
44	03/16/90	64	2	1.0	3.0	8.0	15	43	16	7.0	7.0
44	03/16/90	65	3	0.0	2.0	8.0	14	46	16	7.0	7.0
45	03/17/90	45		0.0	0.0	1.0	1.0	12	26	38	22
46R	03/22/90	46R		0.0	0.0	2.0	7.0	39	33	13	6.0

TABLE A-13. (Continued)

Station	Date	Sample	Field Replicate	Gravel (%)	Sand (%)					Silt (%)	Clay (%)
					Phi -1 to 0	Phi 0 to 1	Phi 1 to 2	Phi 2 to 3	Phi 3 to 4		
47	03/20/90	47		4.0	2.0	6.0	24	50	2.0	6.0	6.0
48	03/21/90	48		0.0 E	0.0	1.0	1.0	3.0	3.0	37 E	55 E
49	03/22/90	49		0.0	0.0	1.0	1.0	0.0	1.0	62	35
5	03/27/90	5	1	0.0	1.0	0.0	0.0	1.0	1.0	68	29
5	03/27/90	51	1	0.0	1.0	0.0	0.0	0.0	2.0	65	32
5	03/27/90	52	2	0.0	0.0	1.0	0.0	0.0	2.0	66	31
5	03/27/90	53	3	0.0	0.0	1.0	0.0	0.0	1.0	63	35
66	03/23/90	66		ND	ND	ND	ND	ND	ND	ND	ND
67	03/23/90	67		ND	ND	ND	ND	ND	ND	ND	ND
68	03/23/90	68		ND	ND	ND	ND	ND	ND	ND	ND
69	03/13/90	69		0.0	1.0	3.0	13	57	11	10	5.0
70	03/18/90	70		0.0	2.0	1.0	3.0	16	14	40	24
71	03/26/90	71		0.0	1.0	0.0	3.0	40	10	27	19
8	03/29/90	8		0.0	2.0	2.0	4.0	12	16	45	19

TABLE A-13. (Continued)

Station	Date	Sample	Field Replicate	Sulfides (ppm)	Total Organic Carbon (ppm)	Total Solids (Dry wt. as % of wet wt.)
1	03/27/90	1		32 G	18,000	36
101R	03/18/90	101R		52 G	40,000	29
102R	03/18/90	102R		910 G	26,000	28
103R	03/18/90	103R		11 G	4,600	71
104R	03/21/90	104R		30 UG	30,000	24
105R	03/21/90	105R		36 UG	22,000	32
106R	03/22/90	106R		42 G	28,000	24
108R	03/22/90	108R		12 UG	1,600	75
109R	03/21/90	109R		25 UG	25,000	32
110R	03/20/90	110R		26 UG	34,000	24
111R	03/20/90	111R		16 UG	13,000	38
112R	03/17/90	112R		4.1 UG	620	74
113R	03/15/90	113R		6.5 UG	5,100	60
114R	03/15/90	114R		15 UG	17,000	30
115R	03/17/90	115R		5.2 UG	14,000	47
116R	03/16/90	116R		6.6 UG	3,100	73
12	03/29/90	12		22 UG	18,000	35
14	03/30/90	14		12 UG	7,200	57
15	03/30/90	15		9.1 UG	1,800	74
17	03/30/90	17		18 UG	17,000	32
18	03/26/90	18		27 UG	15,000	36
19	03/26/90	19		34 UG	18,000	28
20	03/12/90	20		15 UG	12,000	48
21	03/13/90	21		11 UG	15,000	54
22	03/12/90	22		9.0 UG	2,000	79
26	03/12/90	26		8.4 UG	5,400	68
29	03/12/90	29		19 UG	18,000	36
3	03/27/90	3		11 G	8,100	62
30	03/25/90	30		21 UG	14,000	46
32	03/25/90	32	1	11 UG	2,900	76
32	03/25/90	57	1	12 UG	2,600	75
32	03/25/90	58	2	16 G	1,400	73
32	03/25/90	59	3	11 UG	2,000	74
33	03/25/90	33		15 UG	11,000	65
34	03/14/90	34		27 UG	27,000	33
35	03/14/90	35	1	39 G	28,700 M	31
35	03/14/90	72	1	41 G	31,000	32
35	03/14/90	73	2	34 UG	31,000	31
35	03/14/90	74	3	230 G	32,000	27
38	03/23/90	38	1	83 G	25,000	26
38	03/23/90	60	1	38 UG	25,000	26
38	03/23/90	61	2	50 G	26,000	26
38	03/23/90	62	3	45 G	24,000	25
39	03/23/90	39		5.3 UG	1,500	75
4	03/26/90	4		43 G	19,000	29
40	03/15/90	40		5.4 UG	11,000	64
41	03/15/90	41		6.1 UG	15,000	54
43	03/16/90	43		4.1 UG	2,600	72
44	03/16/90	44	1	4.5 UG	5,570 M	63
44	03/16/90	63	1	5.5 UG	7,300	64
44	03/16/90	64	2	5.6 UG	3,500	59
44	03/16/90	65	3	6.6 UG	4,100	63
45	03/17/90	45		7.1 UG	12,000	46
46R	03/22/90	46R		5.3 UG	3,900	68

TABLE A-13. (Continued)

Station	Date	Sample	Field Replicate	Sulfides (ppm)	Total Organic Carbon (ppm)	Total Solids (Dry wt. as % of wet wt.)
47	03/20/90	47		11 UG	3,200	72
48	03/21/90	48		27 G	22,000	30
49	03/22/90	49		33 UG	30,000	25
5	03/27/90	5	1	31 UG	19,300 M	31
5	03/27/90	51	1	23 UG	20,000	32
5	03/27/90	52	2	18 UG	20,000	34
5	03/27/90	53	3	21 UG	20,000	31
66	03/23/90	66		ND	8,900	ND
67	03/23/90	67		ND	7,400	ND
68	03/23/90	68		ND	9,300	ND
69	03/13/90	69		9.5 UG	4,700	69
70	03/18/90	70		40 G	31,000	33
71	03/26/90	71		33 UG	14,000	48
8	03/29/90	8		18 UG	34,000	41

TABLE A-14. AMPHIPOD BIOASSAY DATA BY STATION FOR 1990 PSAMP SAMPLING

Station	Sample	Field Replicate	Analytical Group	Lab Replicate	Number Tested	Number Surviving	Number Reburying	Percent Mortality	Percent Emergence
1	1		3	1	20	16	16	20	20
1	1		3	2	20	15	15	25	25
1	1		3	3	20	15	14	25	30
1	1		3	4	20	13	13	35	35
1	1		3	5	20	13	13	35	35
3	3		3	1	20	20	20	0	0
3	3		3	2	20	17	15	15	25
3	3		3	3	20	16	16	20	20
3	3		3	4	20	15	14	25	30
3	3		3	5	20	17	15	15	25
4	4		3	1	20	15	15	25	25
4	4		3	2	20	14	13	30	35
4	4		3	3	20	8	7	60	65
4	4		3	4	20	14	14	30	30
4	4		3	5	20	14	14	30	30
5	5	1	3	1	20	17	17	15	15
5	5	1	3	2	20	14	14	30	30
5	5	1	3	3	20	17	15	15	25
5	5	1	3	4	20	14	13	30	35
5	5	1	3	5	20	14	14	30	30
5	51	1	3	1	20	16	16	20	20
5	51	1	3	2	20	18	18	10	10
5	51	1	3	3	20	18	18	10	10
5	51	1	3	4	20	17	17	15	15
5	51	1	3	5	20	11	11	45	45
5	52	2	3	1	20	13	13	35	35
5	52	2	3	2	20	15	15	25	25
5	52	2	3	3	20	13	13	35	35
5	52	2	3	4	20	14	14	30	30
5	52	2	3	5	20	18	17	10	15
5	53	3	3	1	20	11	10	45	50
5	53	3	3	2	20	15	12	25	40
5	53	3	3	3	20	15	15	25	25
5	53	3	3	4	20	15	15	25	25
5	53	3	3	5	20	15	15	25	25
8	8		3	1	20	20	20	0	0
8	8		3	2	20	18	17	10	15
8	8		3	3	20	19	19	5	5
8	8		3	4	20	19	18	5	10
8	8		3	5	20	15	15	25	25
12	12		3	1	20	11	11	45	45
12	12		3	2	20	12	12	40	40
12	12		3	3	20	12	12	40	40
12	12		3	4	20	18	18	10	10
12	12		3	5	20	11	11	45	45
14	14		3	1	20	15	15	25	25
14	14		3	2	20	14	14	30	30
14	14		3	3	20	13	13	35	35
14	14		3	4	20	15	15	25	25
14	14		3	5	20	13	13	35	35
15	15		3	1	20	18	18	10	10
15	15		3	2	20	15	15	25	25

TABLE A-14. (Continued)

Station	Sample	Field Replicate	Analytical Group	Lab Replicate	Number Tested	Number Surviving	Number Reburying	Percent Mortality	Percent Emergence
15	15		3	3	20	15	13	25	35
15	15		3	4	20	18	18	10	10
15	15		3	5	20	18	18	10	10
17	17		3	1	20	11	10	45	50
17	17		3	2	20	13	13	35	35
17	17		3	3	20	9	9	55	55
17	17		3	4	20	16	16	20	20
17	17		3	5	20	16	16	20	20
18	18		3	1	20	15	15	25	25
18	18		3	2	20	12	12	40	40
18	18		3	3	20	12	12	40	40
18	18		3	4	20	8	8	60	60
18	18		3	5	20	15	16	25	20
19	19		3	1	20	11	11	45	45
19	19		3	2	20	12	12	40	40
19	19		3	3	20	9	6	55	70
19	19		3	4	20	12	12	40	40
19	19		3	5	20	12	12	40	40
20	20		1	1	20	12	11	40	45
20	20		1	2	20	8	8	60	60
20	20		1	3	20	12	12	40	40
20	20		1	4	20	13	13	35	35
20	20		1	5	20	12	12	40	40
21	21		1	1	20	17	16	15	20
21	21		1	2	20	14	12	30	40
21	21		1	3	20	16	17	20	15
21	21		1	4	20	18	18	10	10
21	21		1	5	20	17	16	15	20
22	22		1	1	20	16	15	20	25
22	22		1	2	20	17	17	15	15
22	22		1	3	20	18	16	10	20
22	22		1	4	20	17	17	15	15
22	22		1	5	20	17	17	15	15
26	26		1	1	20	14	14	30	30
26	26		1	2	20	17	17	15	15
26	26		1	3	20	16	12	20	40
26	26		1	4	20	17	14	15	30
26	26		1	5	20	18	17	10	15
29	29		1	1	20	13	12	35	40
29	29		1	2	20	17	14	15	30
29	29		1	3	20	16	16	20	20
29	29		1	4	20	17	17	15	15
29	29		1	5	20	18	15	10	25
30	30		3	1	20	14	14	30	30
30	30		3	2	20	16	12	20	40
30	30		3	3	20	17	17	15	15
30	30		3	4	20	18	18	10	10
30	30		3	5	20	15	15	25	25
32	32	1	3	1	20	17	17	15	15
32	32	1	3	2	20	16	16	20	20
32	32	1	3	3	20	17	17	15	15
32	32	1	3	4	20	14	14	30	30

TABLE A-14. (Continued)

Station	Sample	Field Replicate	Analytical Group	Lab Replicate	Number Tested	Number Surviving	Number Reburying	Percent Mortality	Percent Emergence
32	32	1	3	5	20	19	19	5	5
32	57	1	3	1	20	19	19	5	5
32	57	1	3	2	20	20	20	0	0
32	57	1	3	3	20	14	14	30	30
32	57	1	3	4	20	15	12	25	40
32	57	1	3	5	20	18	18	10	10
32	58	2	3	1	20	16	16	20	20
32	58	2	3	2	20	20	20	0	0
32	58	2	3	3	20	16	16	20	20
32	58	2	3	4	20	13	13	35	35
32	58	2	3	5	20	20	20	0	0
32	59	3	3	1	20	14	14	30	30
32	59	3	3	2	20	17	17	15	15
32	59	3	3	3	20	14	14	30	30
32	59	3	3	4	20	18	18	10	10
32	59	3	3	5	20	20	18	0	10
33	33		3	1	20	16	16	20	20
33	33		3	2	20	16	16	20	20
33	33		3	3	20	17	16	15	20
33	33		3	4	20	14	14	30	30
33	33		3	5	20	18	18	10	10
34	34		1	1	20	18	17	10	15
34	34		1	2	20	12	9	40	55
34	34		1	3	20	13	12	35	40
34	34		1	4	20	13	12	35	40
34	34		1	5	20	17	16	15	20
35	35	1	1	1	20	17	17	15	15
35	35	1	1	2	20	13	12	35	40
35	35	1	1	3	20	11	11	45	45
35	35	1	1	4	20	12	11	40	45
35	35	1	1	5	20	10	9	50	55
35	72	1	1	1	20	12	12	40	40
35	72	1	1	2	20	17	16	15	20
35	72	1	1	3	20	12	15	40	25
35	72	1	1	4	20	15	13	25	35
35	72	1	1	5	20	13	13	35	35
35	73	2	1	1	20	14	13	30	35
35	73	2	1	2	20	12	12	40	40
35	73	2	1	3	20	12	12	40	40
35	73	2	1	4	20	16	16	20	20
35	73	2	1	5	20	14	14	30	30
35	74	3	1	1	20	12	12	40	40
35	74	3	1	2	20	14	14	30	30
35	74	3	1	3	20	13	13	35	35
35	74	3	1	4	20	12	12	40	40
35	74	3	1	5	20	9	8	55	60
38	38	1	2	1	20	16	16	20	20
38	38	1	2	2	20	10	10	50	50
38	38	1	2	3	20	15	15	25	25
38	38	1	2	4	20	17	15	15	25
38	38	1	2	5	20	13	11	35	45
38	60	1	2	1	20	17	16	15	20

TABLE A-14. (Continued)

Station	Sample	Field Replicate	Analytical Group	Lab Replicate	Number Tested	Number Surviving	Number Reburying	Percent Mortality	Percent Emergence
38	60	1	2	2	20	13	13	35	35
38	60	1	2	3	20	17	13	15	35
38	60	1	2	4	20	12	13	40	35
38	60	1	2	5	20	16	13	20	35
38	61	2	2	1	20	11	10	45	50
38	61	2	2	2	20	17	17	15	15
38	61	2	2	3	20	18	14	10	30
38	61	2	2	4	20	14	14	30	30
38	61	2	2	5	20	13	12	35	40
38	62	3	2	1	20	12	11	40	45
38	62	3	2	2	20	14	12	30	40
38	62	3	2	3	20	13	11	35	45
38	62	3	2	4	20	18	19	10	5
38	62	3	2	5	20	13	12	35	40
39	39		2	1	20	20	20	0	0
39	39		2	2	20	19	18	5	10
39	39		2	3	20	19	19	5	5
39	39		2	4	20	16	16	20	20
39	39		2	5	20	19	17	5	15
40	40		1	1	20	19	19	5	5
40	40		1	2	20	17	15	15	25
40	40		1	3	20	19	17	5	15
40	40		1	4	20	15	15	25	25
40	40		1	5	20	19	17	5	15
41	41		1	1	20	18	18	10	10
41	41		1	2	20	14	14	30	30
41	41		1	3	20	16	14	20	30
41	41		1	4	20	18	16	10	20
41	41		1	5	20	15	15	25	25
43	43		1	1	20	9	7	55	65
43	43		1	2	20	18	16	10	20
43	43		1	3	20	17	17	15	15
43	43		1	4	20	16	12	20	40
43	43		1	5	20	17	16	15	20
44	44	1	1	1	20	18	18	10	10
44	44	1	1	2	20	16	16	20	20
44	44	1	1	3	20	18	14	10	30
44	44	1	1	4	20	15	14	25	30
44	44	1	1	5	20	18	18	10	10
44	63	1	1	1	20	18	16	10	20
44	63	1	1	2	20	20	17	0	15
44	63	1	1	3	20	17	15	15	25
44	63	1	1	4	20	14	13	30	35
44	63	1	1	5	20	17	15	15	25
44	64	2	1	1	20	19	17	5	15
44	64	2	1	2	20	17	15	15	25
44	64	2	1	3	20	18	17	10	15
44	64	2	1	4	20	14	14	30	30
44	64	2	1	5	20	15	13	25	35
44	65	3	1	1	20	15	15	25	25
44	65	3	1	2	20	18	16	10	20
44	65	3	1	3	20	17	16	15	20

TABLE A-14. (Continued)

Station	Sample	Field Replicate	Analytical Group	Lab Replicate	Number Tested	Number Surviving	Number Reburying	Percent Mortality	Percent Emergence
44	65	3	1	4	20	16	16	20	20
44	65	3	1	5	20	13	12	35	40
45	45		1	1	20	14	12	30	40
45	45		1	2	20	19	19	5	5
45	45		1	3	20	17	16	15	20
45	45		1	4	20	18	17	10	15
45	45		1	5	20	11	10	45	50
46R	46R		2	1	20	16	15	20	25
46R	46R		2	2	20	20	19	0	5
46R	46R		2	3	20	19	16	5	20
46R	46R		2	4	20	18	15	10	25
46R	46R		2	5	20	17	14	15	30
47	47		2	1	20	17	17	15	15
47	47		2	2	20	16	16	20	20
47	47		2	3	20	13	10	35	50
47	47		2	4	20	19	19	5	5
47	47		2	5	20	17	17	15	15
48	48		2	1	20	13	13	35	35
48	48		2	2	20	16	16	20	20
48	48		2	3	20	12	12	40	40
48	48		2	4	20	14	14	30	30
48	48		2	5	20	14	14	30	30
49	49		2	1	20	10	16	50	20
49	49		2	2	20	7	7	65	65
49	49		2	3	20	11	10	45	50
49	49		2	4	20	13	10	35	50
49	49		2	5	20	18	20	10	0
69	69		1	1	20	18	14	10	30
69	69		1	2	20	16	14	20	30
69	69		1	3	20	18	19	10	5
69	69		1	4	20	17	16	15	20
69	69		1	5	20	16	16	20	20
70	70		2	1	20	17	12	15	40
70	70		2	2	20	16	15	20	25
70	70		2	3	20	15	14	25	30
70	70		2	4	20	18	14	10	30
70	70		2	5	20	16	15	20	25
71	71		3	1	20	14	14	30	30
71	71		3	2	20	15	15	25	25
71	71		3	3	20	18	17	10	15
71	71		3	4	20	15	15	25	25
71	71		3	5	20	15	15	25	25
101R	101R		2	1	20	15	15	25	25
101R	101R		2	2	20	11	10	45	50
101R	101R		2	3	20	16	15	20	25
101R	101R		2	4	20	13	12	35	40
101R	101R		2	5	20	16	15	20	25
102R	102R		2	1	20	9	9	55	55
102R	102R		2	2	20	12	13	40	35
102R	102R		2	3	20	11	10	45	50
102R	102R		2	4	20	13	13	35	35
102R	102R		2	5	20	5	4	75	80

TABLE A-14. (Continued)

Station	Sample	Field Replicate	Analytical Group	Lab Replicate	Number Tested	Number Surviving	Number Reburying	Percent Mortality	Percent Emergence
103R	103R		2	1	20	17	18	15	10
103R	103R		2	2	20	19	19	5	5
103R	103R		2	3	20	18	19	10	5
103R	103R		2	4	20	17	17	15	15
103R	103R		2	5	20	20	19	0	5
104R	104R		2	1	20	5	4	75	80
104R	104R		2	2	20	12	12	40	40
104R	104R		2	3	20	10	8	50	60
104R	104R		2	4	20	11	11	45	45
104R	104R		2	5	20	12	11	40	45
105R	105R		2	1	20	14	13	30	35
105R	105R		2	2	20	11	12	45	40
105R	105R		2	3	20	13	12	35	40
105R	105R		2	4	20	14	13	30	35
105R	105R		2	5	20	12	11	40	45
106R	106R		2	1	20	16	16	20	20
106R	106R		2	2	20	4	4	80	80
106R	106R		2	3	20	13	13	35	35
106R	106R		2	4	20	8	8	60	60
106R	106R		2	5	20	8	7	60	65
108R	108R		2	1	20	16	16	20	20
108R	108R		2	2	20	20	20	0	0
108R	108R		2	3	20	20	20	0	0
108R	108R		2	4	20	20	19	0	5
108R	108R		2	5	20	16	16	20	20
109R	109R		2	1	20	15	13	25	35
109R	109R		2	2	20	12	10	40	50
109R	109R		2	3	20	11	11	45	45
109R	109R		2	4	20	10	10	50	50
109R	109R		2	5	20	12	11	40	45
110R	110R		2	1	20	8	7	60	65
110R	110R		2	2	20	14	14	30	30
110R	110R		2	3	20	10	11	50	45
110R	110R		2	4	20	13	11	35	45
110R	110R		2	5	20	9	9	55	55
111R	111R		2	1	20	16	14	20	30
111R	111R		2	2	20	17	16	15	20
111R	111R		2	3	20	14	13	30	35
111R	111R		2	4	20	15	12	25	40
111R	111R		2	5	20	14	14	30	30
112R	112R		1	1	20	17	16	15	20
112R	112R		1	2	20	16	17	20	15
112R	112R		1	3	20	15	12	25	40
112R	112R		1	4	20	19	18	5	10
112R	112R		1	5	20	19	19	5	5
113R	113R		1	1	20	16	12	20	40
113R	113R		1	2	20	16	15	20	25
113R	113R		1	3	20	20	19	0	5
113R	113R		1	4	20	16	16	20	20
113R	113R		1	5	20	18	17	10	15
114R	114R		1	1	20	12	12	40	40
114R	114R		1	2	20	10	10	50	50

TABLE A-14. (Continued)

Station	Sample	Field Replicate	Analytical Group	Lab Replicate	Number Tested	Number Surviving	Number Reburying	Percent Mortality	Percent Emergence
114R	114R		1	3	20	15	15	25	25
114R	114R		1	4	20	15	15	25	25
114R	114R		1	5	20	15	14	25	30
115R	115R		1	1	20	13	12	35	40
115R	115R		1	2	20	15	14	25	30
115R	115R		1	3	20	12	13	40	35
115R	115R		1	4	20	16	16	20	20
115R	115R		1	5	20	16	15	20	25
116R	116R		1	1	20	20	20	0	0
116R	116R		1	2	20	18	18	10	10
116R	116R		1	3	20	16	15	20	25
116R	116R		1	4	20	18	17	10	15
116R	116R		1	5	20	17	14	15	30

Samples retested after holding time expired:

1	1		4	2	20	16	16	20	20
1	1		4	3	20	16	16	20	20
1	1		4	5	20	16	14	20	30
1	1		4	1	20	20	20	0	0
1	1		4	4	20	18	18	10	10
4	4		4	4	20	14	14	30	30
4	4		4	3	20	16	15	20	25
4	4		4	2	20	16	16	20	20
4	4		4	1	20	14	13	30	35
4	4		4	5	20	19	19	5	5
5	53	3	4	1	20	18	18	10	10
5	53	3	4	4	20	15	15	25	25
5	53	3	4	3	20	17	17	15	15
5	53	3	4	2	20	17	17	15	15
5	53	3	4	5	20	18	18	10	10
12	12		4	3	20	17	17	15	15
12	12		4	2	20	16	16	20	20
12	12		4	4	20	12	12	40	40
12	12		4	1	20	19	19	5	5
12	12		4	5	20	15	15	25	25
14	14		4	2	20	19	19	5	5
14	14		4	4	20	17	17	15	15
14	14		4	3	20	20	19	0	5
14	14		4	1	20	17	17	15	15
14	14		4	5	20	15	15	25	25
17	17		4	4	20	14	14	30	30
17	17		4	3	20	15	15	25	25
17	17		4	1	20	15	15	25	25
17	17		4	5	20	18	17	10	15
17	17		4	2	20	14	14	30	30
18	18		4	4	20	20	19	0	5
18	18		4	1	20	19	19	5	5
18	18		4	3	20	16	15	20	25
18	18		4	5	20	12	12	40	40
18	18		4	2	20	16	17	20	15
19	19		4	4	20	14	13	30	35
19	19		4	1	20	14	14	30	30

TABLE A-14. (Continued)

Station	Sample	Field Replicate	Analytical Group	Lab Replicate	Number Tested	Number Surviving	Number Reburying	Percent Mortality	Percent Emergence
19	19		4	5	20	18	18	10	10
19	19		4	3	20	17	17	15	15
19	19		4	2	20	15	15	25	25
32	32	1	4	1	20	19	19	5	5
32	32	1	4	3	20	19	18	5	10
32	32	1	4	5	20	20	20	0	0
32	32	1	4	4	20	18	17	10	15
32	32	1	4	2	20	20	20	0	0
38	38	1	4	4	20	15	15	25	25
38	38	1	4	2	20	14	14	30	30
38	38	1	4	3	20	16	16	20	20
38	38	1	4	1	20	14	14	30	30
38	38	1	4	5	20	14	14	30	30
48	48		4	2	20	18	17	10	15
48	48		4	4	20	17	17	15	15
48	48		4	3	20	13	13	35	35
48	48		4	1	20	16	16	20	20
48	48		4	5	20	16	16	20	20
49	49		4	4	20	10	10	50	50
49	49		4	2	20	17	17	15	15
49	49		4	3	20	18	18	10	10
49	49		4	5	20	19	19	5	5
49	49		4	1	20	15	15	25	25
102R	102R		4	4	20	15	15	25	25
102R	102R		4	2	20	16	16	20	20
102R	102R		4	3	20	15	15	25	25
102R	102R		4	5	20	18	18	10	10
102R	102R		4	1	20	13	14	35	30
104R	104R		4	4	20	9	10	55	50
104R	104R		4	1	20	18	18	10	10
104R	104R		4	5	20	18	18	10	10
104R	104R		4	2	20	15	15	25	25
104R	104R		4	3	20	14	14	30	30
106R	106R		4	4	20	17	15	15	25
106R	106R		4	1	20	18	18	10	10
106R	106R		4	2	20	18	18	10	10
106R	106R		4	3	20	16	15	20	25
106R	106R		4	5	20	14	14	30	30
109R	109R		4	2	20	18	17	10	15
109R	109R		4	3	20	20	20	0	0
109R	109R		4	5	20	17	17	15	15
109R	109R		4	1	20	14	12	30	40
109R	109R		4	4	20	16	16	20	20
110R	110R		4	4	20	19	18	5	10
110R	110R		4	5	20	14	13	30	35
110R	110R		4	3	20	12	9	40	55
110R	110R		4	2	20	13	13	35	35
110R	110R		4	1	20	14	14	30	30

^a Species used was *Rhepoxynius abronius*.

TABLE A-15. BIOASSAY CONTROL DATA FOR PSAMP 1990 SAMPLING

Bioassay Type	Bioassay Variable	Analytical Group	Dilution	Negative Control?	Replicate	Number Tested	Number Reburying	Number Surviving	Percent Response
AMP10	Emergence	1	100	Y	1	20	20	N/A	0
AMP10	Emergence	1	100	Y	2	20	20	N/A	0
AMP10	Emergence	1	100	Y	3	20	19	N/A	5
AMP10	Emergence	1	100	Y	4	20	17	N/A	15
AMP10	Emergence	1	100	Y	5	20	17	N/A	15
AMP10	Emergence	1	100	Y	6	20	20	N/A	0
AMP10	Emergence	2	100	Y	1	20	20	N/A	0
AMP10	Emergence	2	100	Y	2	20	19	N/A	5
AMP10	Emergence	2	100	Y	3	20	19	N/A	5
AMP10	Emergence	2	100	Y	4	20	20	N/A	0
AMP10	Emergence	2	100	Y	5	20	18	N/A	10
AMP10	Emergence	3	100	Y	1	20	18	N/A	10
AMP10	Emergence	3	100	Y	2	20	18	N/A	10
AMP10	Emergence	3	100	Y	3	20	20	N/A	0
AMP10	Emergence	3	100	Y	4	20	20	N/A	0
AMP10	Emergence	3	100	Y	5	20	19	N/A	5
AMP10	Emergence	3	100	Y	6	20	19	N/A	5
AMP10	Emergence	4	100	Y	1	20	16	N/A	20
AMP10	Emergence	4	100	Y	2	20	17	N/A	15
AMP10	Emergence	4	100	Y	3	20	20	N/A	0
AMP10	Emergence	4	100	Y	4	20	18	N/A	10
AMP10	Emergence	4	100	Y	5	20	19	N/A	5
AMP10	Emergence	4	100	Y	6	20	20	N/A	0
AMP10	Emergence	4	100	Y	7	20	19	N/A	5
AMP10	Emergence	4	100	Y	8	20	20	N/A	0
AMP10	Emergence	4	100	Y	9	20	18	N/A	10
AMP10	Emergence	4	100	Y	10	20	16	N/A	20
AMP10	Mortality	1	0.4	N	1	20	N/A	17	15
AMP10	Mortality	1	0.4	N	2	20	N/A	19	5
AMP10	Mortality	1	4	N	1	20	N/A	15	25
AMP10	Mortality	1	4	N	2	20	N/A	15	25
AMP10	Mortality	1	50	N	1	20	N/A	1	95
AMP10	Mortality	1	50	N	2	20	N/A	0	100
AMP10	Mortality	1	100	N	1	20	N/A	0	100
AMP10	Mortality	1	100	N	2	20	N/A	0	100
AMP10	Mortality	1	100	Y	1	20	N/A	20	0
AMP10	Mortality	1	100	Y	2	20	N/A	20	0
AMP10	Mortality	1	100	Y	3	20	N/A	20	0
AMP10	Mortality	1	100	Y	4	20	N/A	17	15
AMP10	Mortality	1	100	Y	5	20	N/A	17	15
AMP10	Mortality	1	100	Y	6	20	N/A	20	0
AMP10	Mortality	2	0.4	N	1	20	N/A	19	5
AMP10	Mortality	2	0.4	N	2	20	N/A	20	0
AMP10	Mortality	2	4	N	1	20	N/A	12	40
AMP10	Mortality	2	4	N	2	20	N/A	13	35
AMP10	Mortality	2	50	N	1	20	N/A	1	95
AMP10	Mortality	2	50	N	2	20	N/A	2	90
AMP10	Mortality	2	100	N	1	20	N/A	0	100
AMP10	Mortality	2	100	N	2	20	N/A	0	100
AMP10	Mortality	2	100	Y	1	20	N/A	20	0
AMP10	Mortality	2	100	Y	2	20	N/A	19	5
AMP10	Mortality	2	100	Y	3	20	N/A	19	5
AMP10	Mortality	2	100	Y	4	20	N/A	20	0
AMP10	Mortality	2	100	Y	5	20	N/A	19	5

TABLE A-15. (Continued)

Bioassay Type	Bioassay Variable	Analytical Group	Dilution	Negative Control?	Replicate	Number Tested	Number Reburying	Number Surviving	Percent Response
AMP10	Mortality	3	0.4	N	1	20	N/A	16	20
AMP10	Mortality	3	0.4	N	2	20	N/A	19	5
AMP10	Mortality	3	4	N	1	20	N/A	11	45
AMP10	Mortality	3	4	N	2	20	N/A	11	45
AMP10	Mortality	3	50	N	1	20	N/A	3	85
AMP10	Mortality	3	50	N	2	20	N/A	5	75
AMP10	Mortality	3	100	N	1	20	N/A	0	100
AMP10	Mortality	3	100	N	2	20	N/A	0	100
AMP10	Mortality	3	100	Y	1	20	N/A	19	5
AMP10	Mortality	3	100	Y	2	20	N/A	20	0
AMP10	Mortality	3	100	Y	3	20	N/A	20	0
AMP10	Mortality	3	100	Y	4	20	N/A	20	0
AMP10	Mortality	3	100	Y	5	20	N/A	19	5
AMP10	Mortality	3	100	Y	6	20	N/A	19	5
AMP10	Mortality	4	0.4	N	1	20	N/A	16	20
AMP10	Mortality	4	0.4	N	2	20	N/A	17	15
AMP10	Mortality	4	4	N	1	20	N/A	14	30
AMP10	Mortality	4	4	N	2	20	N/A	16	20
AMP10	Mortality	4	50	N	1	20	N/A	0	100
AMP10	Mortality	4	50	N	2	20	N/A	0	100
AMP10	Mortality	4	100	N	1	20	N/A	0	100
AMP10	Mortality	4	100	N	2	20	N/A	0	100
AMP10	Mortality	4	100	Y	1	20	N/A	16	20
AMP10	Mortality	4	100	Y	2	20	N/A	17	15
AMP10	Mortality	4	100	Y	3	20	N/A	20	0
AMP10	Mortality	4	100	Y	4	20	N/A	19	5
AMP10	Mortality	4	100	Y	5	20	N/A	19	5
AMP10	Mortality	4	100	Y	6	20	N/A	20	0
AMP10	Mortality	4	100	Y	7	20	N/A	19	5
AMP10	Mortality	4	100	Y	8	20	N/A	20	0
AMP10	Mortality	4	100	Y	9	20	N/A	18	10
AMP10	Mortality	4	100	Y	10	20	N/A	20	0

a Amphipod 10-day bioassay, using *Rhepoxynius abronius*.

b Analytical group 4 is the group of 17 sediments retested after the 14-day holding time expired.

c Toxicant for the positive control is cadmium chloride. Dilution series concentrations for the positive controls are expressed as a percent of the maximum concentration in the series (6 mg/L).

APPENDIX D

1990 BENTHIC INFAUNA DATA

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0001

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0001	2	50013101	Lumbrineris spp.	4
SED19003	0001	2	5001310118	Lumbrineris cruzensis	15
SED19003	0001	2	5001400510	Orbinia (Phylo) felix	1
SED19003	0001	2	5001410801	Levinsenia gracilis	27
SED19003	0001	2	5001430201	Laonice cirrata	1
SED19003	0001	2	5001430506	Prionospio steenstrupi	1
SED19003	0001	2	5001430521	Prionospio lighti	107
SED19003	0001	2	5001431701	Paraprionospio pinnata	3
SED19003	0001	2	5001580202	Armandia brevis	2
SED19003	0001	2	5004	Oligochaeta	5
SED19003	0001	2	510801019938	Odostomia (O.) sp. B	3
SED19003	0001	2	5110040205	Cylichna attonsa	1
SED19003	0001	2	5502020101	Acila castrensis	18
SED19003	0001	2	5502020201	Nucula tenuis	2
SED19003	0001	2	5515010101	Parvilucina tenuisculpta	2
SED19003	0001	2	5515100102	Mysella tumida	32
SED19003	0001	2	55153101	Macoma spp.	1
SED19003	0001	2	5515310112	Macoma carlottensis	1
SED19003	0001	2	6154040202	Eudorella pacifica	12
SED19003	0001	2	6169260303	Protomedeia grandimana	69
SED19003	0001	2	6169370816	Monoculodes zernovi	1
SED19003	0001	2	6169420301	Heterophoxus oculatus	23
SED19003	0001	2	6189060404	Pinnixa schmitti	87
SED19003	0001	2	81290301	Amphiodia spp.	2
SED19003	0001	2	812903019999	Amphiodia urtica/periercta	362
SED19003	0001	2	8129030999	Amphioplus strongyloplax	2
SED19003	0001	3	5001060101	Pholoe minuta	53
SED19003	0001	3	5001280101	Glycinde picta	1
SED19003	0001	3	5001310118	Lumbrineris cruzensis	5
SED19003	0001	3	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0001	3	5001310197	Lumbrineris sp. gr. 1	4
SED19003	0001	3	5001410801	Levinsenia gracilis	4
SED19003	0001	3	5001430521	Prionospio lighti	20
SED19003	0001	3	5001431701	Paraprionospio pinnata	6
SED19003	0001	3	5001580202	Armandia brevis	1
SED19003	0001	3	5001590101	Sternaspis scutata	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0001

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A L ABUN- DANCE
SED19003	0001	1	3743010303	Pachycerianthus fimbriatus	1
SED19003	0001	1	43	Nemertea	2
SED19003	0001	1	5001060101	Pholoe minuta	28
SED19003	0001	1	5001130205	Eteone longa	1
SED19003	0001	1	5001250106	Nephtys rickettsi	1
SED19003	0001	1	5001280101	Glycinde picta	2
SED19003	0001	1	5001310118	Lumbrineris cruzensis	7
SED19003	0001	1	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0001	1	5001410801	Levinsenia gracilis	16
SED19003	0001	1	5001430521	Prionospio lighti	99
SED19003	0001	1	5001431701	Paraprionospio pinnata	3
SED19003	0001	1	5001590101	Sternaspis scutata	1
SED19003	0001	1	5001660304	Pectinaria californiensis	1
SED19003	0001	1	5009020706	Limnodriloides victoriensis	1
SED19003	0001	1	510801019938	Odostomia (O.) sp. B	3
SED19003	0001	1	5502020101	Acila castrensis	15
SED19003	0001	1	5502020201	Nucula tenuis	2
SED19003	0001	1	5515020201	Axinopsida serricata	2
SED19003	0001	1	5515100102	Mysella tumida	22
SED19003	0001	1	5515220102	Clinocardium nuttali	1
SED19003	0001	1	55153101	Macoma spp.	1
SED19003	0001	1	5515310112	Macoma carlottensis	1
SED19003	0001	1	6111070303	Euphilomedes producta	1
SED19003	0001	1	6154040202	Eudorella pacifica	3
SED19003	0001	1	6169260303	Protomedeia grandimana	63
SED19003	0001	1	6169371502	Westwoodilla caecula	1
SED19003	0001	1	6169420301	Heterophoxus oculatus	29
SED19003	0001	1	6189060404	Pinnixa schmitti	53
SED19003	0001	1	8120	Ophiuroidea	2
SED19003	0001	1	812903	Amphiuridae	8
SED19003	0001	1	812903019999	Amphiodia urtica/periercta	211
SED19003	0001	2	3743010303	Pachycerianthus fimbriatus	2
SED19003	0001	2	5001060101	Pholoe minuta	43
SED19003	0001	2	5001280101	Glycinde picta	1
SED19003	0001	2	5001280103	Glycinde armigera	1
SED19003	0001	2	5001280203	Goniada brunnea	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0003

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0003	1	5001060101	Pholoe minuta	4
SED19003	0003	1	5001250102	Nephtys ciliata	1
SED19003	0003	1	500125010401	Nephtys cornuta franciscana	1
SED19003	0003	1	5001280101	Glycinde picta	2
SED19003	0003	1	5001430506	Prionospio steenstrupi	33
SED19003	0003	1	5001430521	Prionospio lighti	11
SED19003	0003	1	5001431004	Spiophanes berkelyorum	6
SED19003	0003	1	5001520101	Cossura longocirrata	4
SED19003	0003	1	5103760201	Natica clausa	6
SED19003	0003	1	51050401	Buccinum spp.	1
SED19003	0003	1	51050801	Nassarius spp.	1
SED19003	0003	1	5502040504	Yoldia scissurata	2
SED19003	0003	1	5515310101	Macoma calcarea	4
SED19003	0003	1	6169201307	Rhachotropis oculata	1
SED19003	0003	1	6169260303	Protomedeia grandimana	9
SED19003	0003	1	61693501	Melphidippa spp.	1
SED19003	0003	1	6189060404	Pinnixa schmitti	3
SED19003	0003	2	5001250105	Nephtys punctata	1
SED19003	0003	2	5103760201	Natica clausa	3
SED19003	0003	2	5502040504	Yoldia scissurata	4
SED19003	0003	2	55070104	Musculus spp.	1
SED19003	0003	2	5515310101	Macoma calcarea	2
SED19003	0003	2	6169260303	Protomedeia grandimana	2
SED19003	0003	2	6189060404	Pinnixa schmitti	1
SED19003	0003	3	5001060101	Pholoe minuta	1
SED19003	0003	3	50012501	Nephtys spp.	2
SED19003	0003	3	5001400301	Scoloplos armiger	2
SED19003	0003	3	5001430506	Prionospio steenstrupi	21
SED19003	0003	3	5001430521	Prionospio lighti	5
SED19003	0003	3	5001431004	Spiophanes berkelyorum	3
SED19003	0003	3	5001520101	Cossura longocirrata	2
SED19003	0003	3	5001660304	Pectinaria californiensis	1
SED19003	0003	3	5103760201	Natica clausa	9
SED19003	0003	3	5105030204	Mitrella gouldi	2
SED19003	0003	3	5502040504	Yoldia scissurata	22
SED19003	0003	3	5515310101	Macoma calcarea	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0001

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0001	3	51032001	Alvania spp.	2
SED19003	0001	3	5103530102	Melanella micrans	1
SED19003	0001	3	510801019938	Odostomia (O.) sp. B	4
SED19003	0001	3	5502020101	Acila castrensis	31
SED19003	0001	3	5502020201	Nucula tenuis	1
SED19003	0001	3	5502040504	Yoldia scissurata	1
SED19003	0001	3	5515100102	Mysella tumida	88
SED19003	0001	3	55153101	Macoma spp.	1
SED19003	0001	3	5515310112	Macoma carlottensis	5
SED19003	0001	3	5515470301	Compsomyax subdiaphana	1
SED19003	0001	3	6154040202	Eudorella pacifica	3
SED19003	0001	3	6169260303	Protomedeia grandimana	47
SED19003	0001	3	6169420301	Heterophoxus oculatus	21
SED19003	0001	3	6189060404	Pinnixa schmitti	97
SED19003	0001	3	81290301	Amphiodia spp.	6
SED19003	0001	3	812903019999	Amphiodia urtica/periercta	459

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0003

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A	ABUN-
					L	DANCE		
SED19003	0003	3	5515310112	Macoma carlottensis				1
SED19003	0003	3	6169201307	Rhachotropis oculata				1
SED19003	0003	3	6169260303	Protomedeia grandimana				7
SED19003	0003	3	61693501	Melphidippa spp.				1
SED19003	0003	3	6169420301	Heterophoxus oculatus				1
SED19003	0003	3	6169420928	Eobrolgus spinosus				1
SED19003	0003	3	6189060404	Pinnixa schmitti				11

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0004

Data quality less than or equal to 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0004	1	3743010303	Pachycerianthus fimbriatus	5
SED19003	0004	1	43	Nemertea	1
SED19003	0004	1	5001020606	Gattyana treadwelli	1
SED19003	0004	1	5001060301	Sthenelais berkeleyi	1
SED19003	0004	1	5001240406	Nereis zonata	1
SED19003	0004	1	500125010401	Nephtys cornuta franciscana	3
SED19003	0004	1	5001250111	Nephtys ferruginea	1
SED19003	0004	1	5001270101	Glycera capitata	2
SED19003	0004	1	5001280203	Goniada brunnea	1
SED19003	0004	1	5001310109	Lumbrineris luti	3
SED19003	0004	1	5001310118	Lumbrineris cruzensis	5
SED19003	0004	1	5001310195	Lumbrineris sp. gr. 3	5
SED19003	0004	1	5001310197	Lumbrineris sp. gr. 1	9
SED19003	0004	1	5001410801	Levinsenia gracilis	72
SED19003	0004	1	5001411302	Acesta lopezi	7
SED19003	0004	1	5001430201	Laonice cirrata	3
SED19003	0004	1	5001430506	Prionospio steenstrupi	1
SED19003	0004	1	5001430521	Prionospio lighti	4
SED19003	0004	1	5001431701	Paraprionospio pinnata	1
SED19003	0004	1	5001500101	Cirratulus cirratus	3
SED19003	0004	1	5001500308	Tharyx tessellata	2
SED19003	0004	1	5001520101	Cossura longocirrata	5
SED19003	0004	1	5001580202	Armandia brevis	76
SED19003	0004	1	5001590101	Sternaspis scutata	10
SED19003	0004	1	500160	Capitellidae	3
SED19003	0004	1	5001600203	Heteromastus filobranchus	1
SED19003	0004	1	500163090301	Praxillella affinis pacifica	1
SED19003	0004	1	5001680401	Neoamphitrite robusta	1
SED19003	0004	1	5001680701	Pista cristata	1
SED19003	0004	1	5009020706	Limnodriloides victoriensis	1
SED19003	0004	1	51032001	Alvania spp.	1
SED19003	0004	1	5105030204	Mitrella gouldi	1
SED19003	0004	1	5110040205	Cylichna attonsa	1
SED19003	0004	1	5402	Chaetodermatida	1
SED19003	0004	1	5502020101	Acila castrensis	10
SED19003	0004	1	5502020201	Nucula tenuis	3

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0004

Data quality less than or equal to 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0004	1	5502040202	Nuculana minuta	4
SED19003	0004	1	5502040504	Yoldia scissurata	4
SED19003	0004	1	5515010101	Parvilucina tenuisculpta	1
SED19003	0004	1	5515020201	Axinopsida serricata	61
SED19003	0004	1	5515100102	Mysella tumida	12
SED19003	0004	1	5515310112	Macoma carlottensis	5
SED19003	0004	1	5515310114	Macoma nasuta	1
SED19003	0004	1	5515470301	Compsomyax subdiaphana	4
SED19003	0004	1	5515470501	Psephidia lordi	1
SED19003	0004	1	56	Scaphopoda	1
SED19003	0004	1	6111070303	Euphilomedes producta	30
SED19003	0004	1	6154040202	Eudorella pacifica	22
SED19003	0004	1	6169020135	Ampelisca careyi	1
SED19003	0004	1	6169260303	Protomedeia grandimana	10
SED19003	0004	1	6169370816	Monoculodes zernovi	2
SED19003	0004	1	6169420301	Heterophoxus oculatus	38
SED19003	0004	1	7200020104	Golfingia pugettensis	3
SED19003	0004	1	812903019999	Amphiodia urtica/periercta	50
SED19003	0004	2	3743010303	Pachycerianthus fimbriatus	2
SED19003	0004	2	43	Nemertea	2
SED19003	0004	2	5001060101	Pholoe minuta	2
SED19003	0004	2	5001060301	Sthenelais berkeleyi	1
SED19003	0004	2	50012101	Gyptis spp.	1
SED19003	0004	2	5001220301	Pilargis berkeleyi	2
SED19003	0004	2	500125010401	Nephtys cornuta franciscana	4
SED19003	0004	2	5001270101	Glycera capitata	5
SED19003	0004	2	5001280103	Glycinde armigera	1
SED19003	0004	2	5001310109	Lumbrineris luti	3
SED19003	0004	2	5001310118	Lumbrineris cruzensis	13
SED19003	0004	2	5001310197	Lumbrineris sp. gr. 1	15
SED19003	0004	2	5001410801	Levinsenia gracilis	34
SED19003	0004	2	5001411302	Acesta lopezi	5
SED19003	0004	2	5001430201	Laonice cirrata	3
SED19003	0004	2	5001430521	Prionospio lighti	18
SED19003	0004	2	5001431004	Spiophanes berkelyorum	2
SED19003	0004	2	5001431701	Paraprionospio pinnata	2

Benthic Abundance Report

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0004	2	5001500101	<i>Cirratulus cirratus</i>	1
SED19003	0004	2	5001500302	<i>Tharyx multifilis</i>	1
SED19003	0004	2	5001520101	<i>Cossura longocirrata</i>	2
SED19003	0004	2	5001540199	<i>Brada sachalina</i>	3
SED19003	0004	2	5001580202	<i>Armandia brevis</i>	128
SED19003	0004	2	5001580403	<i>Travisia pupa</i>	2
SED19003	0004	2	5001590101	<i>Sternaspis scutata</i>	5
SED19003	0004	2	500160	Capitellidae	4
SED19003	0004	2	5001600203	<i>Heteromastus filobranchus</i>	2
SED19003	0004	2	500163090301	<i>Praxillella affinis pacifica</i>	1
SED19003	0004	2	5009020706	<i>Limnodriloides victoriensis</i>	3
SED19003	0004	2	51032001	<i>Alvania</i> spp.	2
SED19003	0004	2	510801019938	<i>Odostomia</i> (O.) sp. B	2
SED19003	0004	2	5502020101	<i>Acila castrensis</i>	7
SED19003	0004	2	5502020201	<i>Nucula tenuis</i>	5
SED19003	0004	2	5502040202	<i>Nuculana minuta</i>	4
SED19003	0004	2	5502040504	<i>Yoldia scissurata</i>	3
SED19003	0004	2	5515010101	<i>Parvilucina tenuisculpta</i>	1
SED19003	0004	2	5515020201	<i>Axinopsida serricata</i>	119
SED19003	0004	2	5515100102	<i>Mysella tumida</i>	39
SED19003	0004	2	55153101	<i>Macoma</i> spp.	3
SED19003	0004	2	5515310112	<i>Macoma carlottensis</i>	3
SED19003	0004	2	5515470501	<i>Psephidia lordi</i>	2
SED19003	0004	2	56	Scaphopoda	1
SED19003	0004	2	6111070303	<i>Euphilomedes producta</i>	29
SED19003	0004	2	6154040202	<i>Eudorella pacifica</i>	31
SED19003	0004	2	6169260201	<i>Photis brevipes</i>	2
SED19003	0004	2	6169260303	<i>Protomedeia grandimana</i>	3
SED19003	0004	2	6169370816	<i>Monoculodes zernovi</i>	1
SED19003	0004	2	6169420301	<i>Heterophoxus oculatus</i>	71
SED19003	0004	2	6179220102	<i>Crangon alaskensis</i>	1
SED19003	0004	2	618906	Pinnotheridae	1
SED19003	0004	2	6189060404	<i>Pinnixa schmitti</i>	2
SED19003	0004	2	7200020104	<i>Golfingia pugettensis</i>	4
SED19003	0004	2	812903019999	<i>Amphiodia urtica/periercta</i>	68
SED19003	0004	3	3743010303	<i>Pachycerianthus fimbriatus</i>	2

Benthic Abundance Report

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0004	3	50012101	Gyptis spp.	1
SED19003	0004	3	5001220301	Pilargis berkeleyi	1
SED19003	0004	3	50012307	Exogone spp.	1
SED19003	0004	3	500125010401	Nephtys cornuta franciscana	1
SED19003	0004	3	5001270101	Glycera capitata	2
SED19003	0004	3	5001280103	Glycinde armigera	1
SED19003	0004	3	5001280202	Goniada maculata	1
SED19003	0004	3	50013101	Lumbrineris spp.	3
SED19003	0004	3	5001310109	Lumbrineris luti	1
SED19003	0004	3	5001310118	Lumbrineris cruzensis	14
SED19003	0004	3	500136	Dorvilleidae	1
SED19003	0004	3	5001410801	Levinsenia gracilis	54
SED19003	0004	3	50014113	Acmira spp.	2
SED19003	0004	3	5001430201	Laonice cirrata	2
SED19003	0004	3	5001430521	Prionospio lighti	6
SED19003	0004	3	5001431701	Paraprionospio pinnata	3
SED19003	0004	3	5001440105	Magelona longicornis	1
SED19003	0004	3	5001450102	Trochochaeta multisetosa	3
SED19003	0004	3	500150	Cirratulidae	1
SED19003	0004	3	5001520104	Cossura soyeri	5
SED19003	0004	3	5001540199	Brada sachalina	1
SED19003	0004	3	5001580202	Armandia brevis	91
SED19003	0004	3	5001580403	Travisia pupa	1
SED19003	0004	3	5001580607	Ophelina acuminata	3
SED19003	0004	3	5001590101	Sternaspis scutata	7
SED19003	0004	3	50016004	Mediomastus spp.	2
SED19003	0004	3	50016309	Praxillella spp.	1
SED19003	0004	3	5001680703	Pista elongata	1
SED19003	0004	3	50016808	Polycirrus spp.	1
SED19003	0004	3	5004	Oligochaeta	2
SED19003	0004	3	510801019939	Odostomia (O.) sp. A	4
SED19003	0004	3	5502020101	Acila castrensis	16
SED19003	0004	3	5502020201	Nucula tenuis	3
SED19003	0004	3	5502040202	Nuculana minuta	2
SED19003	0004	3	5502040504	Yoldia scissurata	4
SED19003	0004	3	5515020201	Axinopsida serricata	16

Benthic Abundance Report

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0004	3	5515100102	Mysella tumida	20
SED19003	0004	3	55153101	Macoma spp.	1
SED19003	0004	3	5515310112	Macoma carlottensis	1
SED19003	0004	3	5515470501	Psephidia lordi	4
SED19003	0004	3	56	Scaphopoda	1
SED19003	0004	3	6111070303	Euphilomedes producta	13
SED19003	0004	3	6154040202	Eudorella pacifica	21
SED19003	0004	3	6157020204	Leptognathia brevimana	1
SED19003	0004	3	6169020135	Ampelisca careyi	1
SED19003	0004	3	6169260303	Protomedeia grandimana	1
SED19003	0004	3	6169420301	Heterophoxus oculatus	40
SED19003	0004	3	7200020104	Golfingia pugettensis	1
SED19003	0004	3	8120	Ophiuroidea	3
SED19003	0004	3	812903019999	Amphiodia urtica/periercta	28

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A	ABUN-
					L	DANCE		
SED19003	0005	1	3743010303	Pachycerianthus fimbriatus				1
SED19003	0005	1	43030202	Cerebratulus spp.				2
SED19003	0005	1	500102	Polynoidae				1
SED19003	0005	1	5001020606	Gattyana treadwelli				2
SED19003	0005	1	5001210102	Gyptis brevipalpa				1
SED19003	0005	1	500125010401	Nephtys cornuta franciscana				3
SED19003	0005	1	5001270101	Glycera capitata				5
SED19003	0005	1	5001280103	Glycinde armigera				3
SED19003	0005	1	5001280203	Goniada brunnea				1
SED19003	0005	1	5001310118	Lumbrineris cruzensis				6
SED19003	0005	1	5001310195	Lumbrineris sp. gr. 3				2
SED19003	0005	1	5001310197	Lumbrineris sp. gr. 1				12
SED19003	0005	1	5001410801	Levinsenia gracilis				59
SED19003	0005	1	5001411306	Acmira catherinae				4
SED19003	0005	1	5001430201	Laonice cirrata				1
SED19003	0005	1	5001430521	Prionospio lighti				38
SED19003	0005	1	5001431004	Spiophanes berkelyorum				5
SED19003	0005	1	5001431701	Paraprionospio pinnata				2
SED19003	0005	1	5001520101	Cossura longocirrata				5
SED19003	0005	1	5001570101	Scalibregma inflatum				1
SED19003	0005	1	5001580202	Armandia brevis				9
SED19003	0005	1	5001590101	Sternaspis scutata				4
SED19003	0005	1	5001600402	Mediomastus californiensis				6
SED19003	0005	1	500163090301	Praxillella affinis pacifica				3
SED19003	0005	1	5001660304	Pectinaria californiensis				1
SED19003	0005	1	5001690101	Terebellides stroemi				1
SED19003	0005	1	5009020706	Limnodriloides victoriensis				19
SED19003	0005	1	5103460101	Bittium munitum				1
SED19003	0005	1	510801019938	Odostomia (O.) sp. B				1
SED19003	0005	1	51100901	Diaphana spp.				1
SED19003	0005	1	5502020101	Acila castrensis				16
SED19003	0005	1	5502020201	Nucula tenuis				5
SED19003	0005	1	5502040504	Yoldia scissurata				1
SED19003	0005	1	5515010101	Parvilucina tenuisculpta				2
SED19003	0005	1	5515020201	Axinopsida serricata				78
SED19003	0005	1	5515100102	Mysella tumida				3

Benthic Abundance Report

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0005	1	5515310112	Macoma carlottensis	2
SED19003	0005	1	5515470501	Psephidia lordi	31
SED19003	0005	1	5520020103	Pandora bilirata	1
SED19003	0005	1	6111070303	Euphilomedes producta	15
SED19003	0005	1	6154040202	Eudorella pacifica	48
SED19003	0005	1	61691202	Calliopius spp.	3
SED19003	0005	1	6169260303	Protomedeia grandimana	16
SED19003	0005	1	6169370816	Monoculodes zernovi	1
SED19003	0005	1	6169420204	Harpiniopsis fulgens	6
SED19003	0005	1	6169420301	Heterophoxus oculatus	10
SED19003	0005	1	6189060404	Pinnixa schmitti	3
SED19003	0005	1	812903019999	Amphiodia urtica/periercta	61
SED19003	0005	2	3743010303	Pachycerianthus fimbriatus	2
SED19003	0005	2	39	Platyhelminthes	2
SED19003	0005	2	500125010401	Nephtys cornuta franciscana	1
SED19003	0005	2	500125010402	Nephtys cornuta cornuta	1
SED19003	0005	2	5001270101	Glycera capitata	6
SED19003	0005	2	5001280203	Goniada brunnea	1
SED19003	0005	2	50013101	Lumbrineris spp.	1
SED19003	0005	2	5001310109	Lumbrineris luti	1
SED19003	0005	2	5001310118	Lumbrineris cruzensis	6
SED19003	0005	2	5001310195	Lumbrineris sp. gr. 3	2
SED19003	0005	2	5001310197	Lumbrineris sp. gr. 1	9
SED19003	0005	2	5001410801	Levinsenia gracilis	52
SED19003	0005	2	5001411306	Acmira catherinae	1
SED19003	0005	2	5001430201	Laonice cirrata	3
SED19003	0005	2	5001430402	Polydora socialis	1
SED19003	0005	2	5001430521	Prionospio lighti	26
SED19003	0005	2	5001431004	Spiophanes berkelyorum	6
SED19003	0005	2	5001431701	Paraprionospio pinnata	2
SED19003	0005	2	5001520101	Cossura longocirrata	11
SED19003	0005	2	5001540199	Brada sachalina	1
SED19003	0005	2	5001580202	Armandia brevis	11
SED19003	0005	2	5001590101	Sternaspis scutata	2
SED19003	0005	2	5001600402	Mediomastus californiensis	6
SED19003	0005	2	500163090301	Praxillella affinis pacifica	1

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0005	2	5001660304	Pectinaria californiensis	2
SED19003	0005	2	5001670101	Amage anops	1
SED19003	0005	2	5001681501	Laphania boeckii	1
SED19003	0005	2	5009020706	Limnodriloides victoriensis	9
SED19003	0005	2	5103460101	Bittium munitum	7
SED19003	0005	2	5103509998	Nitidiscala caamanoi	1
SED19003	0005	2	510801019938	Odostomia (O.) sp. B	4
SED19003	0005	2	5110070101	Gastropterion pacificum	1
SED19003	0005	2	5502020101	Acila castrensis	16
SED19003	0005	2	5502020201	Nucula tenuis	8
SED19003	0005	2	5502040202	Nuculana minuta	1
SED19003	0005	2	5502040504	Yoldia scissurata	3
SED19003	0005	2	5502040507	Yoldia thraciaeformis	1
SED19003	0005	2	5515010101	Parvilucina tenuisculpta	1
SED19003	0005	2	5515020201	Axinopsida serricata	66
SED19003	0005	2	5515100102	Mysella tumida	2
SED19003	0005	2	5515310112	Macoma carlottensis	8
SED19003	0005	2	5515470301	Compsomyax subdiaphana	1
SED19003	0005	2	5515470501	Psephidia lordi	28
SED19003	0005	2	6111070301	Euphilomedes carcharodonta	1
SED19003	0005	2	6111070303	Euphilomedes producta	27
SED19003	0005	2	6154040202	Eudorella pacifica	54
SED19003	0005	2	6154070102	Campylaspis canaliculata	1
SED19003	0005	2	6169020135	Ampelisca careyi	1
SED19003	0005	2	6169260303	Protomedeia grandimana	3
SED19003	0005	2	6169420204	Harpiniopsis fulgens	4
SED19003	0005	2	6169420301	Heterophoxus oculatus	11
SED19003	0005	2	6189060404	Pinnixa schmitti	7
SED19003	0005	2	812903019999	Amphiodia urtica/periercta	52
SED19003	0005	3	5001250111	Nephtys ferruginea	1
SED19003	0005	3	5001270101	Glycera capitata	1
SED19003	0005	3	5001280103	Glycinde armigera	2
SED19003	0005	3	5001310109	Lumbrineris luti	1
SED19003	0005	3	5001310118	Lumbrineris cruzensis	7
SED19003	0005	3	5001310195	Lumbrineris sp. gr. 3	2
SED19003	0005	3	5001310197	Lumbrineris sp. gr. 1	11

Benthic Abundance Report

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0005	3	5001410801	Levinsenia gracilis	34
SED19003	0005	3	5001430201	Laonice cirrata	4
SED19003	0005	3	5001430521	Prionospio lighti	26
SED19003	0005	3	5001431004	Spiophanes berkelyorum	1
SED19003	0005	3	5001431701	Paraprionospio pinnata	1
SED19003	0005	3	5001520101	Cossura longocirrata	1
SED19003	0005	3	5001540199	Brada sachalina	1
SED19003	0005	3	5001580202	Armandia brevis	29
SED19003	0005	3	5001590101	Sternaspis scutata	3
SED19003	0005	3	5001600402	Mediomastus californiensis	4
SED19003	0005	3	5001660304	Pectinaria californiensis	1
SED19003	0005	3	5009020706	Limnodriloides victoriensis	4
SED19003	0005	3	51032001	Alvania spp.	1
SED19003	0005	3	5103460101	Bittium munitum	3
SED19003	0005	3	510801019938	Odostomia (O.) sp. B	4
SED19003	0005	3	5502020101	Acila castrensis	12
SED19003	0005	3	5502020201	Nucula tenuis	8
SED19003	0005	3	5502040504	Yoldia scissurata	3
SED19003	0005	3	5515010101	Parvilucina tenuisculpta	2
SED19003	0005	3	5515020201	Axinopsida serricata	33
SED19003	0005	3	5515100102	Mysella tumida	1
SED19003	0005	3	5515310112	Macoma carlottensis	6
SED19003	0005	3	5515470301	Compsomyax subdiaphana	1
SED19003	0005	3	5515470501	Psephidia lordi	84
SED19003	0005	3	56	Scaphopoda	1
SED19003	0005	3	6111070303	Euphilomedes producta	44
SED19003	0005	3	6154040202	Eudorella pacifica	43
SED19003	0005	3	6169020125	Ampelisca brevisimulata	2
SED19003	0005	3	6169260303	Protomedeia grandimana	28
SED19003	0005	3	6169370816	Monoculodes zernovi	1
SED19003	0005	3	6169420301	Heterophoxus oculatus	15
SED19003	0005	3	6189060404	Pinnixa schmitti	1
SED19003	0005	3	812903019999	Amphiodia urtica/periercta	53
SED19003	0005	4	430302	Lineidae	3
SED19003	0005	4	500102	Polynoidae	1
SED19003	0005	4	500125010401	Nephtys cornuta franciscana	1

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0005	4	5001270101	Glycera capitata	3
SED19003	0005	4	5001280103	Glycinde armigera	1
SED19003	0005	4	5001280203	Goniada brunnea	1
SED19003	0005	4	5001310109	Lumbrineris luti	2
SED19003	0005	4	5001310118	Lumbrineris cruzensis	5
SED19003	0005	4	5001310195	Lumbrineris sp. gr. 3	2
SED19003	0005	4	5001310197	Lumbrineris sp. gr. 1	4
SED19003	0005	4	5001410801	Levinsenia gracilis	43
SED19003	0005	4	5001411306	Acmira catherinae	2
SED19003	0005	4	5001430201	Laonice cirrata	3
SED19003	0005	4	5001430521	Prionospio lighti	37
SED19003	0005	4	5001431004	Spiophanes berkelyorum	1
SED19003	0005	4	5001520101	Cossura longocirrata	6
SED19003	0005	4	5001540199	Brada sachalina	1
SED19003	0005	4	5001580202	Armandia brevis	5
SED19003	0005	4	5001580403	Travisia pupa	1
SED19003	0005	4	5001590101	Sternaspis scutata	6
SED19003	0005	4	5001600402	Mediomastus californiensis	6
SED19003	0005	4	5001631103	Euclymene zonalis	1
SED19003	0005	4	5001670101	Amage anops	1
SED19003	0005	4	5009020706	Limnodriloides victoriensis	6
SED19003	0005	4	5103460101	Bittium munitum	9
SED19003	0005	4	510801019938	Odostomia (O.) sp. B	4
SED19003	0005	4	5402	Chaetodermatida	1
SED19003	0005	4	5502020101	Acila castrensis	7
SED19003	0005	4	5502020201	Nucula tenuis	5
SED19003	0005	4	5515010101	Parvilucina tenuisculpta	3
SED19003	0005	4	5515020201	Axinopsida serricata	67
SED19003	0005	4	5515310112	Macoma carlottensis	7
SED19003	0005	4	5515470301	Compsomyax subdiaphana	1
SED19003	0005	4	5515470501	Psephidia lordi	94
SED19003	0005	4	6111070301	Euphilomedes carcharodonta	5
SED19003	0005	4	6111070303	Euphilomedes producta	26
SED19003	0005	4	6154040202	Eudorella pacifica	61
SED19003	0005	4	6169260303	Protomedeia grandimana	24
SED19003	0005	4	6169420204	Harpiniopsis fulgens	7

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0005

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0005	4	6169420301	Heterophoxus oculatus	13
SED19003	0005	4	6189060404	Pinnixa schmitti	3
SED19003	0005	4	812903019999	Amphiodia urtica/periercta	37
SED19003	0005	5	3743010303	Pachycerianthus fimbriatus	1
SED19003	0005	5	430302	Lineidae	1
SED19003	0005	5	5001020603	Gattyana cirrosa	1
SED19003	0005	5	5001210102	Gyptis brevipalpa	1
SED19003	0005	5	5001270101	Glycera capitata	4
SED19003	0005	5	5001310109	Lumbrineris luti	4
SED19003	0005	5	5001310118	Lumbrineris cruzensis	14
SED19003	0005	5	5001310197	Lumbrineris sp. gr. 1	6
SED19003	0005	5	5001410801	Levinsenia gracilis	101
SED19003	0005	5	5001411306	Acmira catherinae	2
SED19003	0005	5	5001430521	Prionospio lighti	80
SED19003	0005	5	5001431004	Spiophanes berkelyorum	4
SED19003	0005	5	5001500101	Cirratulus cirratus	1
SED19003	0005	5	5001520101	Cossura longocirrata	8
SED19003	0005	5	5001540199	Brada sachalina	1
SED19003	0005	5	5001580202	Armandia brevis	6
SED19003	0005	5	5001590101	Sternaspis scutata	3
SED19003	0005	5	5001600402	Mediomastus californiensis	7
SED19003	0005	5	500163090301	Praxillella affinis pacifica	1
SED19003	0005	5	5001660304	Pectinaria californiensis	1
SED19003	0005	5	5001670101	Amage anops	1
SED19003	0005	5	5001670701	Anobothrus gracilis	1
SED19003	0005	5	5001680701	Pista cristata	2
SED19003	0005	5	5001690101	Terebellides stroemi	1
SED19003	0005	5	5009020706	Limnodriloides victoriensis	19
SED19003	0005	5	5103460101	Bittium munitum	3
SED19003	0005	5	510801019999	Odostomia (Odostomia) spp.	2
SED19003	0005	5	5110040205	Cylichna attonsa	1
SED19003	0005	5	5502020101	Acila castrensis	15
SED19003	0005	5	5502020201	Nucula tenuis	14
SED19003	0005	5	5502040202	Nuculana minuta	2
SED19003	0005	5	5502040504	Yoldia scissurata	1
SED19003	0005	5	5515010101	Parvilucina tenuisculpta	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0005

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0005	5	5515020201	Axinopsida serricata	15
SED19003	0005	5	5515100102	Mysella tumida	2
SED19003	0005	5	55153101	Macoma spp.	2
SED19003	0005	5	5515310112	Macoma carlottensis	4
SED19003	0005	5	5515470501	Psephidia lordi	42
SED19003	0005	5	55200201	Pandora spp.	1
SED19003	0005	5	6111070303	Euphilomedes producta	26
SED19003	0005	5	6154040202	Eudorella pacifica	51
SED19003	0005	5	6169260303	Protomedeia grandimana	13
SED19003	0005	5	6169370816	Monoculodes zernovi	1
SED19003	0005	5	6169420204	Harpiniopsis fulgens	4
SED19003	0005	5	6169420301	Heterophoxus oculatus	12
SED19003	0005	5	6189060404	Pinnixa schmitti	2
SED19003	0005	5	7200020104	Golfingia pugettensis	1
SED19003	0005	5	81270106	Ophiura spp.	1
SED19003	0005	5	812903019999	Amphiodia urtica/periercta	60

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0008

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0008	1	39	Platyhelminthes	1
SED19003	0008	1	5001020603	Gattyana cirrosa	1
SED19003	0008	1	5001021801	Lepidasthenia berkeleyae	1
SED19003	0008	1	5001060101	Pholoe minuta	1
SED19003	0008	1	5001230703	Exogone lourei	16
SED19003	0008	1	5001250111	Nephtys ferruginea	2
SED19003	0008	1	5001270101	Glycera capitata	1
SED19003	0008	1	5001310109	Lumbrineris luti	15
SED19003	0008	1	5001310195	Lumbrineris sp. gr. 3	2
SED19003	0008	1	5001310197	Lumbrineris sp. gr. 1	1
SED19003	0008	1	5001330302	Notocirrus californiensis	2
SED19003	0008	1	5001411306	Acmira catherinae	1
SED19003	0008	1	5001430429	Polydora brachycephala	1
SED19003	0008	1	5001430506	Prionospio steenstrupi	5
SED19003	0008	1	5001430521	Prionospio lighti	4
SED19003	0008	1	5001431701	Paraprionospio pinnata	4
SED19003	0008	1	5001440105	Magelona longicornis	5
SED19003	0008	1	5001500302	Tharyx multifilis	16
SED19003	0008	1	5001500308	Tharyx tessellata	1
SED19003	0008	1	5001580202	Armandia brevis	1
SED19003	0008	1	500160	Capitellidae	1
SED19003	0008	1	5001600402	Mediomastus californiensis	3
SED19003	0008	1	5001600601	Barantolla americana	7
SED19003	0008	1	500163	Maldanidae	23
SED19003	0008	1	5001630901	Praxillella gracilis	50
SED19003	0008	1	500163090301	Praxillella affinis pacifica	10
SED19003	0008	1	5001631103	Euclymene zonalis	2
SED19003	0008	1	5001670503	Melinna elisabethae	1
SED19003	0008	1	5001680703	Pista elongata	3
SED19003	0008	1	5001680810	Polycirrus californicus	2
SED19003	0008	1	5001690101	Terebellides stroemi	22
SED19003	0008	1	5001700204	Euchone incolor	3
SED19003	0008	1	5001701401	Laonome kroyeri	1
SED19003	0008	1	5009020706	Limnodriloides victoriensis	1
SED19003	0008	1	51032001	Alvania spp.	8
SED19003	0008	1	5105030247	Mitrella gausapata	11

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0008

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0008	1	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0008	1	5108011134	Turbonilla aurantia	2
SED19003	0008	1	5502020101	Acila castrensis	10
SED19003	0008	1	5502020201	Nucula tenuis	7
SED19003	0008	1	5502040202	Nuculana minuta	2
SED19003	0008	1	5502040504	Yoldia scissurata	2
SED19003	0008	1	5507010201	Crenella decussata	2
SED19003	0008	1	5507010301	Megacrenella columbiana	1
SED19003	0008	1	5515020201	Axinopsida serricata	1
SED19003	0008	1	5515100102	Mysella tumida	5
SED19003	0008	1	5515170101	Cyclocardia ventricosa	5
SED19003	0008	1	5515310102	Macoma elimata	1
SED19003	0008	1	5515310112	Macoma carlottensis	4
SED19003	0008	1	5515470301	Compsomyax subdiaphana	1
SED19003	0008	1	5515470501	Psephidia lordi	35
SED19003	0008	1	5520020104	Pandora grandis	1
SED19003	0008	1	6111070303	Euphilomedes producta	15
SED19003	0008	1	6154040202	Eudorella pacifica	10
SED19003	0008	1	6157020204	Leptognathia brevimana	7
SED19003	0008	1	6169020135	Ampelisca careyi	1
SED19003	0008	1	61692602	Photis spp.	1
SED19003	0008	1	6169260307	Protomedeia articulata	6
SED19003	0008	1	6169342904	Orchomene pinquis	1
SED19003	0008	1	6169345701	Prachynella lodo	1
SED19003	0008	1	6169370816	Monoculodes zernovi	10
SED19003	0008	1	6169420301	Heterophoxus oculatus	25
SED19003	0008	1	6171010719	Caprella mendax	1
SED19003	0008	1	61880301	Cancer spp.	1
SED19003	0008	1	812903019999	Amphiodia urtica/periercta	5
SED19003	0008	2	43030202	Cerebratulus spp.	1
SED19003	0008	2	500102	Polynoidae	1
SED19003	0008	2	5001230703	Exogone lourei	6
SED19003	0008	2	500125010401	Nephtys cornuta franciscana	1
SED19003	0008	2	5001250111	Nephtys ferruginea	5
SED19003	0008	2	50012801	Glycinde spp.	1
SED19003	0008	2	5001310109	Lumbrineris luti	15

Benthic Abundance Report

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Survey : SED19003 Station : 0008

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0008	2	5001310129	Lumbrineris lagunae	1
SED19003	0008	2	5001400102	Leitoscoloplos pugettensis	3
SED19003	0008	2	5001410801	Levinsenia gracilis	3
SED19003	0008	2	5001411306	Acmira catherinae	1
SED19003	0008	2	5001430201	Laonice cirrata	2
SED19003	0008	2	5001430429	Polydora brachycephala	5
SED19003	0008	2	5001430431	Polydora cardalia	1
SED19003	0008	2	5001430506	Prionospio steenstrupi	4
SED19003	0008	2	5001430521	Prionospio lighti	4
SED19003	0008	2	5001431701	Paraprionospio pinnata	4
SED19003	0008	2	5001440105	Magelona longicornis	7
SED19003	0008	2	5001500302	Tharyx multifilis	39
SED19003	0008	2	5001580202	Armandia brevis	1
SED19003	0008	2	5001590101	Sternaspis scutata	1
SED19003	0008	2	5001600203	Heteromastus filobranchus	1
SED19003	0008	2	5001600402	Mediomastus californiensis	5
SED19003	0008	2	5001600601	Barantolla americana	26
SED19003	0008	2	500163	Maldanidae	3
SED19003	0008	2	5001630901	Praxillella gracilis	19
SED19003	0008	2	500163090301	Praxillella affinis pacifica	17
SED19003	0008	2	5001631001	Rhodine bitorquata	1
SED19003	0008	2	5001631103	Euclymene zonalis	3
SED19003	0008	2	5001680701	Pista cristata	6
SED19003	0008	2	5001690101	Terebellides stroemi	42
SED19003	0008	2	5001700204	Euchone incolor	6
SED19003	0008	2	500902	Tubificidae	3
SED19003	0008	2	51032001	Alvania spp.	4
SED19003	0008	2	5105030247	Mitrella gausapata	2
SED19003	0008	2	5502020101	Acila castrensis	6
SED19003	0008	2	5502020201	Nucula tenuis	8
SED19003	0008	2	5502040202	Nuculana minuta	1
SED19003	0008	2	5502040504	Yoldia scissurata	2
SED19003	0008	2	5507010201	Crenella decussata	2
SED19003	0008	2	5507010301	Megacrenella columbiana	1
SED19003	0008	2	5515020201	Axinopsida serricata	6
SED19003	0008	2	5515020301	Thyasira flexuosa	1

Benthic Abundance Report

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Survey : SED19003 Station : 0008

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0008	2	5515100102	<i>Mysella tumida</i>	8
SED19003	0008	2	5515170101	<i>Cyclocardia ventricosa</i>	1
SED19003	0008	2	5515310102	<i>Macoma elimata</i>	1
SED19003	0008	2	5515310112	<i>Macoma carlottensis</i>	1
SED19003	0008	2	5515470301	<i>Compsomyax subdiaphana</i>	3
SED19003	0008	2	5515470501	<i>Psephidia lordi</i>	17
SED19003	0008	2	6111070303	<i>Euphilomedes producta</i>	5
SED19003	0008	2	61180102	<i>Calanus</i> spp.	1
SED19003	0008	2	611910	Harpacticoidae	3
SED19003	0008	2	6154040202	<i>Eudorella pacifica</i>	4
SED19003	0008	2	6157020204	<i>Leptognathia brevimana</i>	3
SED19003	0008	2	6163060601	<i>Caecianiropsis psammophila</i>	3
SED19003	0008	2	6169020113	<i>Ampelisca hancocki</i>	1
SED19003	0008	2	6169020135	<i>Ampelisca careyi</i>	1
SED19003	0008	2	6169020208	<i>Byblis millsi</i>	1
SED19003	0008	2	6169211008	<i>Melita desdichada</i>	3
SED19003	0008	2	61692602	<i>Photis</i> spp.	1
SED19003	0008	2	6169260307	<i>Protomedeia articulata</i>	1
SED19003	0008	2	6169370816	<i>Monoculodes zernovi</i>	2
SED19003	0008	2	6169420301	<i>Heterophoxus oculatus</i>	14
SED19003	0008	2	616942099999	<i>Foxiphalus similis/cognatus</i>	1
SED19003	0008	2	618906	Pinnotheridae	2
SED19003	0008	2	61890604	<i>Pinnixa</i> spp.	1
SED19003	0008	2	8120	Ophiuroidea	2
SED19003	0008	2	812903019999	<i>Amphiodia urtica/periercta</i>	3
SED19003	0008	3	43030202	<i>Cerebratulus</i> spp.	2
SED19003	0008	3	5001021801	<i>Lepidasthenia berkeleyae</i>	1
SED19003	0008	3	5001130202	<i>Eteone spetsbergensis</i>	1
SED19003	0008	3	5001230703	<i>Exogone lourei</i>	5
SED19003	0008	3	5001250111	<i>Nephtys ferruginea</i>	5
SED19003	0008	3	5001270104	<i>Glycera americana</i>	1
SED19003	0008	3	5001280202	<i>Goniada maculata</i>	1
SED19003	0008	3	5001310109	<i>Lumbrineris luti</i>	24
SED19003	0008	3	5001310118	<i>Lumbrineris cruzensis</i>	2
SED19003	0008	3	5001310195	<i>Lumbrineris</i> sp. gr. 3	12
SED19003	0008	3	5001310197	<i>Lumbrineris</i> sp. gr. 1	1

Benthic Abundance Report

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Survey : SED19003 Station : 0008

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0008	3	5001330302	Notocirrus californiensis	2
SED19003	0008	3	5001360505	Schistomeringos caeca	1
SED19003	0008	3	5001400102	Leitoscoloplos pugettensis	4
SED19003	0008	3	5001400510	Orbinia (Phylo) felix	1
SED19003	0008	3	5001410801	Levinsenia gracilis	3
SED19003	0008	3	5001411306	Acmira catherinae	2
SED19003	0008	3	5001430201	Laonice cirrata	1
SED19003	0008	3	5001430429	Polydora brachycephala	4
SED19003	0008	3	5001430506	Prionospio steenstrupi	1
SED19003	0008	3	5001430521	Prionospio lighti	4
SED19003	0008	3	5001431701	Paraprionospio pinnata	9
SED19003	0008	3	5001440105	Magelona longicornis	5
SED19003	0008	3	5001500302	Tharyx multifilis	71
SED19003	0008	3	5001580202	Armandia brevis	3
SED19003	0008	3	5001590101	Sternaspis scutata	1
SED19003	0008	3	500160	Capitellidae	5
SED19003	0008	3	5001600203	Heteromastus filobranchus	4
SED19003	0008	3	5001600601	Barantolla americana	6
SED19003	0008	3	500163	Maldanidae	12
SED19003	0008	3	5001630901	Praxillella gracilis	33
SED19003	0008	3	500163090301	Praxillella affinis pacifica	13
SED19003	0008	3	5001631103	Euclymene zonalis	7
SED19003	0008	3	5001640201	Myriochele heeri	1
SED19003	0008	3	5001680701	Pista cristata	9
SED19003	0008	3	5001680810	Polycirrus californicus	1
SED19003	0008	3	5001690101	Terebellides stroemi	27
SED19003	0008	3	5001700204	Euchone incolor	4
SED19003	0008	3	50090202	Tubificoides spp.	1
SED19003	0008	3	51050302	Mitrella spp.	1
SED19003	0008	3	5105030247	Mitrella gausapata	3
SED19003	0008	3	5502020101	Acila castrensis	6
SED19003	0008	3	5502020201	Nucula tenuis	7
SED19003	0008	3	5502040202	Nuculana minuta	1
SED19003	0008	3	5507010201	Crenella decussata	1
SED19003	0008	3	5515010101	Parvilucina tenuisculpta	2
SED19003	0008	3	5515020201	Axinopsida serricata	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0008

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0008	3	5515100102	<i>Mysella tumida</i>	2
SED19003	0008	3	5515170101	<i>Cyclocardia ventricosa</i>	2
SED19003	0008	3	5515310112	<i>Macoma carlottensis</i>	4
SED19003	0008	3	5515470301	<i>Compsomyax subdiaphana</i>	1
SED19003	0008	3	5515470501	<i>Psephidia lordi</i>	20
SED19003	0008	3	5520020102	<i>Pandora filosa</i>	1
SED19003	0008	3	6111070303	<i>Euphilomedes producta</i>	2
SED19003	0008	3	611910	Harpacticoidae	2
SED19003	0008	3	6154040202	<i>Eudorella pacifica</i>	2
SED19003	0008	3	6157020204	<i>Leptognathia brevimana</i>	4
SED19003	0008	3	6169020135	<i>Ampelisca careyi</i>	1
SED19003	0008	3	6169370816	<i>Monoculodes zernovi</i>	3
SED19003	0008	3	6169420301	<i>Heterophoxus oculatus</i>	20
SED19003	0008	3	6171010719	<i>Caprella mendax</i>	5
SED19003	0008	3	618906	Pinnotheridae	1
SED19003	0008	3	61890604	<i>Pinnixa</i> spp.	1
SED19003	0008	3	7200020104	<i>Golfingia pugettensis</i>	1
SED19003	0008	3	7400010101	<i>Priapulus caudatus</i>	1
SED19003	0008	3	81290301	<i>Amphiodia</i> spp.	1
SED19003	0008	3	812903019999	<i>Amphiodia urtica/periercta</i>	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0012

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0012	1	430302	Lineidae	4
SED19003	0012	1	5001060101	Pholoe minuta	32
SED19003	0012	1	5001210102	Gyptis brevipalpa	1
SED19003	0012	1	5001250106	Nephtys rickettsi	1
SED19003	0012	1	5001250111	Nephtys ferruginea	2
SED19003	0012	1	5001310109	Lumbrineris luti	3
SED19003	0012	1	5001310118	Lumbrineris cruzensis	2
SED19003	0012	1	5001310194	Lumbrineris sp. gr. 4	1
SED19003	0012	1	5001310195	Lumbrineris sp. gr. 3	3
SED19003	0012	1	5001410801	Levinsenia gracilis	12
SED19003	0012	1	5001411306	Acmira catherinae	7
SED19003	0012	1	5001430201	Laonice cirrata	3
SED19003	0012	1	5001430402	Polydora socialis	1
SED19003	0012	1	5001430506	Prionospio steenstrupi	1
SED19003	0012	1	5001430521	Prionospio lighti	9
SED19003	0012	1	5001431701	Paraprionospio pinnata	2
SED19003	0012	1	5001490302	Spiochaetopterus costarum	1
SED19003	0012	1	5001520101	Cossura longocirrata	4
SED19003	0012	1	5001520199	Cossura modica	2
SED19003	0012	1	5001580202	Armandia brevis	1
SED19003	0012	1	5001590101	Sternaspis scutata	1
SED19003	0012	1	5001600402	Mediomastus californiensis	2
SED19003	0012	1	500163	Maldanidae	1
SED19003	0012	1	500163090301	Praxillella affinis pacifica	5
SED19003	0012	1	500163099999	Praxillella sp. A	1
SED19003	0012	1	5001631103	Euclymene zonalis	2
SED19003	0012	1	5001640201	Myriochele heeri	1
SED19003	0012	1	5001660304	Pectinaria californiensis	7
SED19003	0012	1	5001690101	Terebellides stroemi	1
SED19003	0012	1	5009020706	Limnodriloides victoriensis	1
SED19003	0012	1	51032001	Alvania spp.	2
SED19003	0012	1	5105030247	Mitrella gausapata	2
SED19003	0012	1	5108011134	Turbonilla aurantia	3
SED19003	0012	1	5110040205	Cylichna attonsa	1
SED19003	0012	1	5502020101	Acila castrensis	4
SED19003	0012	1	5502020201	Nucula tenuis	9

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0012

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0012	1	5515010101	Parvilucina tenuisculpta	2
SED19003	0012	1	5515020102	Adontorhina cyclica	1
SED19003	0012	1	5515020201	Axinopsida serricata	5
SED19003	0012	1	5515100102	Mysella tumida	99
SED19003	0012	1	5515310101	Macoma calcarea	3
SED19003	0012	1	5515470301	Compsomyax subdiaphana	5
SED19003	0012	1	5515470501	Psephidia lordi	1
SED19003	0012	1	55200502	Lyonsia spp.	1
SED19003	0012	1	56	Scaphopoda	4
SED19003	0012	1	6111070303	Euphilomedes producta	8
SED19003	0012	1	6154040202	Eudorella pacifica	31
SED19003	0012	1	6169020113	Ampelisca hancocki	1
SED19003	0012	1	6169020125	Ampelisca brevisimulata	1
SED19003	0012	1	6169020135	Ampelisca careyi	3
SED19003	0012	1	6169260307	Protomedeia articulata	5
SED19003	0012	1	6169420204	Harpiniopsis fulgens	1
SED19003	0012	1	6169420301	Heterophoxus oculatus	15
SED19003	0012	1	812903019999	Amphiodia urtica/periercta	179
SED19003	0012	2	43	Nemertea	2
SED19003	0012	2	5001022301	Tenonia kitsapensis	1
SED19003	0012	2	5001060101	Pholoe minuta	34
SED19003	0012	2	5001250106	Nephtys rickettsi	1
SED19003	0012	2	5001290103	Onuphis iridescens	1
SED19003	0012	2	5001310109	Lumbrineris luti	4
SED19003	0012	2	5001310118	Lumbrineris cruzensis	1
SED19003	0012	2	5001310195	Lumbrineris sp. gr. 3	2
SED19003	0012	2	5001400102	Leitoscoloplos pugettensis	2
SED19003	0012	2	5001410801	Levinsenia gracilis	6
SED19003	0012	2	5001411306	Acmira catherinae	4
SED19003	0012	2	5001430201	Laonice cirrata	2
SED19003	0012	2	5001430521	Prionospio lighti	19
SED19003	0012	2	5001431701	Paraprionospio pinnata	1
SED19003	0012	2	5001490302	Spiochaetopterus costarum	1
SED19003	0012	2	5001500302	Tharyx multifilis	1
SED19003	0012	2	5001520101	Cossura longocirrata	3
SED19003	0012	2	5001540199	Brada sachalina	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0012

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0012	2	5001580202	Armandia brevis	4
SED19003	0012	2	5001590101	Sternaspis scutata	7
SED19003	0012	2	5001600402	Mediomastus californiensis	2
SED19003	0012	2	500163090301	Praxillella affinis pacifica	5
SED19003	0012	2	5001631103	Euclymene zonalis	2
SED19003	0012	2	5001690101	Terebellides stroemi	2
SED19003	0012	2	5009020706	Limnodriloides victoriensis	4
SED19003	0012	2	51032001	Alvania spp.	2
SED19003	0012	2	51080101	Odostomia spp.	1
SED19003	0012	2	5110040205	Cylichna attonsa	3
SED19003	0012	2	5502020101	Acila castrensis	3
SED19003	0012	2	5502020201	Nucula tenuis	10
SED19003	0012	2	5515010101	Parvilucina tenuisculpta	1
SED19003	0012	2	5515020201	Axinopsida serricata	6
SED19003	0012	2	5515100102	Mysella tumida	130
SED19003	0012	2	55153101	Macoma spp.	1
SED19003	0012	2	5515310101	Macoma calcarea	1
SED19003	0012	2	5515310112	Macoma carlottensis	2
SED19003	0012	2	5515470301	Compsomyax subdiaphana	2
SED19003	0012	2	5515470501	Psephidia lordi	1
SED19003	0012	2	56	Scaphopoda	8
SED19003	0012	2	611103	Cylindroleberididae	1
SED19003	0012	2	61180102	Calanus spp.	1
SED19003	0012	2	6154040202	Eudorella pacifica	46
SED19003	0012	2	61692603	Protomedeia spp.	1
SED19003	0012	2	6169370816	Monoculodes zernovi	3
SED19003	0012	2	6169420204	Harpiniopsis fulgens	2
SED19003	0012	2	6169420301	Heterophoxus oculatus	4
SED19003	0012	2	618906	Pinnotheridae	1
SED19003	0012	2	61890604	Pinnixa spp.	1
SED19003	0012	2	812903019999	Amphiodia urtica/periercta	152
SED19003	0012	3	43	Nemertea	1
SED19003	0012	3	5001060101	Pholoe minuta	35
SED19003	0012	3	500125010401	Nephtys cornuta franciscana	1
SED19003	0012	3	5001310109	Lumbrineris luti	1
SED19003	0012	3	5001310195	Lumbrineris sp. gr. 3	4

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0012

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0012	3	5001310197	Lumbrineris sp. gr. 1	1
SED19003	0012	3	5001410801	Levinsenia gracilis	7
SED19003	0012	3	5001411306	Acmira catherinae	4
SED19003	0012	3	5001430201	Laonice cirrata	1
SED19003	0012	3	5001430506	Prionospio steenstrupi	2
SED19003	0012	3	5001430521	Prionospio lighti	15
SED19003	0012	3	5001431701	Paraprionospio pinnata	2
SED19003	0012	3	5001500302	Tharyx multifilis	2
SED19003	0012	3	5001520101	Cossura longocirrata	1
SED19003	0012	3	5001580202	Armandia brevis	3
SED19003	0012	3	5001580403	Travisia pupa	1
SED19003	0012	3	5001590101	Sternaspis scutata	1
SED19003	0012	3	5001600402	Mediomastus californiensis	2
SED19003	0012	3	500163	Maldanidae	4
SED19003	0012	3	5001630302	Maldane glebifex	1
SED19003	0012	3	500163090301	Praxillella affinis pacifica	2
SED19003	0012	3	500163099999	Praxillella sp. A	1
SED19003	0012	3	5001631103	Euclymene zonalis	1
SED19003	0012	3	5001640201	Myriochele heeri	5
SED19003	0012	3	5001660304	Pectinaria californiensis	2
SED19003	0012	3	5001690101	Terebellides stroemi	1
SED19003	0012	3	5009020706	Limnodriloides victoriensis	1
SED19003	0012	3	5110040205	Cylichna attonsa	1
SED19003	0012	3	5502020101	Acila castrensis	5
SED19003	0012	3	5502020201	Nucula tenuis	10
SED19003	0012	3	5502040504	Yoldia scissurata	1
SED19003	0012	3	5515010101	Parvilucina tenuisculpta	1
SED19003	0012	3	5515020201	Axinopsida serricata	14
SED19003	0012	3	5515100102	Mysella tumida	51
SED19003	0012	3	55153101	Macoma spp.	1
SED19003	0012	3	5515310112	Macoma carlottensis	7
SED19003	0012	3	5515470301	Compsomyax subdiaphana	5
SED19003	0012	3	5520050202	Lyonsia californica	2
SED19003	0012	3	5520080203	Thracia trapezoides	1
SED19003	0012	3	56	Scaphopoda	8
SED19003	0012	3	6111070303	Euphilomedes producta	11

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0012

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0012	3	6153013201	Alienacanthomysis macropsis	1
SED19003	0012	3	6154040202	Eudorella pacifica	39
SED19003	0012	3	6169020113	Ampelisca hancocki	1
SED19003	0012	3	6169020135	Ampelisca careyi	1
SED19003	0012	3	6169420204	Harpiniopsis fulgens	1
SED19003	0012	3	6169420301	Heterophoxus oculatus	9
SED19003	0012	3	6169420926	Rhepoxynius variatus	1
SED19003	0012	3	618906	Pinnotheridae	4
SED19003	0012	3	812903019999	Amphiodia urtica/periercta	189

Benthic Abundance Report

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Survey : SED19003 Station : 0014

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0014	1	5001020810	Harmothoe lunulata	1
SED19003	0014	1	5001060101	Pholoe minuta	5
SED19003	0014	1	5001250106	Nephtys rickettsi	1
SED19003	0014	1	5001310109	Lumbrineris luti	1
SED19003	0014	1	5001430429	Polydora brachycephala	1
SED19003	0014	1	5001430506	Prionospio steenstrupi	3
SED19003	0014	1	5001430521	Prionospio lighti	2
SED19003	0014	1	5001431701	Paraprionospio pinnata	1
SED19003	0014	1	5001540302	Pherusa plumosa	1
SED19003	0014	1	5001580202	Armandia brevis	1
SED19003	0014	1	5001600402	Mediomastus californiensis	1
SED19003	0014	1	5001600501	Decamastus gracilis	2
SED19003	0014	1	500163	Maldanidae	1
SED19003	0014	1	5001630302	Maldane glebifex	4
SED19003	0014	1	500163099999	Praxillella sp. A	1
SED19003	0014	1	5001640201	Myriochele heeri	1
SED19003	0014	1	5001680710	Pista brevibranchiata	3
SED19003	0014	1	5001680810	Polycirrus californicus	1
SED19003	0014	1	5001690101	Terebellides stroemi	1
SED19003	0014	1	5105030247	Mitrella gausapata	2
SED19003	0014	1	55	Bivalvia	1
SED19003	0014	1	5502040504	Yoldia scissurata	2
SED19003	0014	1	5515010101	Parvilucina tenuisculpta	1
SED19003	0014	1	5515010201	Lucinoma acutilineata	1
SED19003	0014	1	5515020102	Adontorhina cyclica	2
SED19003	0014	1	5515020201	Axinopsida serricata	20
SED19003	0014	1	5515310101	Macoma calcarea	3
SED19003	0014	1	5515310102	Macoma elimata	11
SED19003	0014	1	5515310112	Macoma carlottensis	3
SED19003	0014	1	6153011901	Pseudomma berkeleyi	15
SED19003	0014	1	6154050401	Leptostylis villosa	1
SED19003	0014	1	6169342903	Orchomene pacifica	1
SED19003	0014	1	6169345701	Prachynella lodo	1
SED19003	0014	1	6169371502	Westwoodilla caecula	1
SED19003	0014	1	6169420301	Heterophoxus oculatus	3
SED19003	0014	1	6171010719	Caprella mendax	1

Benthic Abundance Report

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Survey : SED19003 Station : 0014

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0014	1	6189060404	Pinnixa schmitti	24
SED19003	0014	1	7200020104	Golfingia pugettensis	1
SED19003	0014	2	3743010303	Pachycerianthus fimbriatus	3
SED19003	0014	2	37590401	Halcapa spp	2
SED19003	0014	2	43	Nemertea	4
SED19003	0014	2	5001020602	Gattyana ciliata	1
SED19003	0014	2	5001060101	Pholoe minuta	8
SED19003	0014	2	5001130202	Eteone spetsbergensis	1
SED19003	0014	2	5001131101	Eulalia (Eumida) sanguinea	1
SED19003	0014	2	500123	Syllidae	1
SED19003	0014	2	5001230512	Syllis variegata	1
SED19003	0014	2	5001230703	Exogone lourei	1
SED19003	0014	2	5001231303	Odontosyllis phosphorea	1
SED19003	0014	2	5001240406	Nereis zonata	1
SED19003	0014	2	5001250106	Nephtys rickettsi	3
SED19003	0014	2	5001280101	Glycinde picta	2
SED19003	0014	2	5001290111	Onuphis elegans	1
SED19003	0014	2	5001310109	Lumbrineris luti	2
SED19003	0014	2	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0014	2	5001400102	Leitoscoloplos pugettensis	2
SED19003	0014	2	5001430201	Laonice cirrata	1
SED19003	0014	2	5001430402	Polydora socialis	1
SED19003	0014	2	5001430429	Polydora brachycephala	1
SED19003	0014	2	5001430431	Polydora cardalia	1
SED19003	0014	2	5001430506	Prionospio steenstrupi	6
SED19003	0014	2	5001430521	Prionospio lighti	9
SED19003	0014	2	5001431001	Spiophanes bombyx	1
SED19003	0014	2	5001431004	Spiophanes berkelyorum	4
SED19003	0014	2	5001431701	Paraprionospio pinnata	2
SED19003	0014	2	5001490202	Phyllochaetopterus prolifica	8
SED19003	0014	2	5001500101	Cirratulus cirratus	1
SED19003	0014	2	5001500302	Tharyx multifilis	3
SED19003	0014	2	5001520199	Cossura modica	2
SED19003	0014	2	5001540199	Brada sachalina	2
SED19003	0014	2	5001540302	Pherusa plumosa	7
SED19003	0014	2	5001580202	Armandia brevis	5

Benthic Abundance Report

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Survey : SED19003 Station : 0014

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0014	2	50016004	Mediomastus spp.	1
SED19003	0014	2	5001600402	Mediomastus californiensis	25
SED19003	0014	2	5001600501	Decamastus gracilis	8
SED19003	0014	2	500163	Maldanidae	41
SED19003	0014	2	5001630302	Maldane glebifex	37
SED19003	0014	2	500163090301	Praxillella affinis pacifica	1
SED19003	0014	2	500163099999	Praxillella sp. A	2
SED19003	0014	2	5001670208	Ampharete acutifrons	1
SED19003	0014	2	5001680701	Pista cristata	1
SED19003	0014	2	5001690101	Terebellides stroemi	1
SED19003	0014	2	50090202	Tubificoides spp.	1
SED19003	0014	2	51032001	Alvania spp.	7
SED19003	0014	2	5105030247	Mitrella gausapata	7
SED19003	0014	2	51340901	Doto spp.	2
SED19003	0014	2	5502020201	Nucula tenuis	1
SED19003	0014	2	5502040504	Yoldia scissurata	1
SED19003	0014	2	5507010201	Crenella decussata	1
SED19003	0014	2	5509050502	Propeamussium alaskense	17
SED19003	0014	2	5515010201	Lucinoma acutilineata	1
SED19003	0014	2	5515020201	Axinopsida serricata	34
SED19003	0014	2	5515100102	Mysella tumida	2
SED19003	0014	2	55153101	Macoma spp.	1
SED19003	0014	2	5515310101	Macoma calcarea	2
SED19003	0014	2	5515310102	Macoma elimata	22
SED19003	0014	2	5515310112	Macoma carlottensis	8
SED19003	0014	2	5515470301	Compsomyax subdiaphana	2
SED19003	0014	2	5517060401	Panopea generosa	1
SED19003	0014	2	61180102	Calanus spp.	1
SED19003	0014	2	6153011901	Pseudomma berkeleyi	3
SED19003	0014	2	6154040202	Eudorella pacifica	1
SED19003	0014	2	6154040306	Eudorellopsis longirostris	3
SED19003	0014	2	6154050101	Diastylis alaskensis	1
SED19003	0014	2	6157020202	Leptognathia gracilis	2
SED19003	0014	2	6160011601	Haliophasma geminata	1
SED19003	0014	2	61690602	Aoroides spp.	1
SED19003	0014	2	61692099	Eusirus sp.	3

Benthic Abundance Report

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Survey : SED19003 Station : 0014

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A	ABUN-
								DANCE
SED19003	0014	2	6169260201	Photis brevipes				38
SED19003	0014	2	61692704	Microjassa litodes				2
SED19003	0014	2	6169340303	Anonyx lilljeborgi				1
SED19003	0014	2	6169342903	Orchomene pacifica				1
SED19003	0014	2	6169342904	Orchomene pinquis				1
SED19003	0014	2	6169420301	Heterophoxus oculatus				6
SED19003	0014	2	6169420601	Metaphoxus frequens				1
SED19003	0014	2	61694803	Metopella spp.				1
SED19003	0014	2	6171010719	Caprella mendax				5
SED19003	0014	2	61830402	Callianassa spp.				1
SED19003	0014	2	618906	Pinnotheridae				6
SED19003	0014	2	6189060404	Pinnixa schmitti				22
SED19003	0014	2	730102020101	Echiurus echiurus alaskanus				1
SED19003	0014	2	812903019999	Amphiodia urtica/periercta				8
SED19003	0014	2	8129030202	Amphipholis squamata				1
SED19003	0014	3	3743010303	Pachycerianthus fimbriatus				6
SED19003	0014	3	37590401	Halcapa spp				2
SED19003	0014	3	3759040101	Halcapa decententaculata				1
SED19003	0014	3	43	Nemertea				2
SED19003	0014	3	47	Nematoda				1
SED19003	0014	3	5001020810	Harmothoe lunulata				2
SED19003	0014	3	5001021701	Hesperonoe complanata				2
SED19003	0014	3	5001021805	Lepidasthenia longicirrata				1
SED19003	0014	3	5001060101	Pholoe minuta				3
SED19003	0014	3	5001131101	Eulalia (Eumida) sanguinea				5
SED19003	0014	3	50011314	Phyllodoce spp.				1
SED19003	0014	3	5001230512	Syllis variegata				1
SED19003	0014	3	5001230703	Exogone lourei				4
SED19003	0014	3	5001230806	Sphaerosyllis brandhorsti				1
SED19003	0014	3	5001231002	Syllis heterochaeta				1
SED19003	0014	3	5001231303	Odontosyllis phosphorea				2
SED19003	0014	3	5001240501	Platynereis bicanaliculata				1
SED19003	0014	3	5001250106	Nephtys rickettsi				2
SED19003	0014	3	5001280101	Glycinde picta				1
SED19003	0014	3	500129	Onuphidae				1
SED19003	0014	3	5001290202	Diopatra ornata				4

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0014

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0014	3	5001310109	Lumbrineris luti	2
SED19003	0014	3	5001310194	Lumbrineris sp. gr. 4	1
SED19003	0014	3	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0014	3	5001400102	Leitoscoloplos pugettensis	1
SED19003	0014	3	5001400301	Scoloplos armiger	1
SED19003	0014	3	5001410801	Levinsenia gracilis	2
SED19003	0014	3	5001430402	Polydora socialis	4
SED19003	0014	3	5001430429	Polydora brachycephala	6
SED19003	0014	3	5001430506	Prionospio steenstrupi	6
SED19003	0014	3	5001430521	Prionospio lighti	7
SED19003	0014	3	5001431004	Spiophanes berkelyorum	4
SED19003	0014	3	5001490202	Phyllochaetopterus prolifica	7
SED19003	0014	3	5001500101	Cirratulus cirratus	6
SED19003	0014	3	5001500302	Tharyx multifilis	1
SED19003	0014	3	5001520199	Cossura modica	1
SED19003	0014	3	5001540302	Pherusa plumosa	10
SED19003	0014	3	5001570101	Scalibregma inflatum	1
SED19003	0014	3	5001580202	Armandia brevis	4
SED19003	0014	3	5001590101	Sternaspis scutata	2
SED19003	0014	3	5001600402	Mediomastus californiensis	10
SED19003	0014	3	5001600501	Decamastus gracilis	5
SED19003	0014	3	5001600601	Barantolla americana	1
SED19003	0014	3	500163	Maldanidae	4
SED19003	0014	3	5001630302	Maldane glebifex	13
SED19003	0014	3	5001631103	Euclymene zonalis	1
SED19003	0014	3	5001660304	Pectinaria californiensis	1
SED19003	0014	3	500168	Terebellidae	2
SED19003	0014	3	5001680401	Neoamphitrite robusta	2
SED19003	0014	3	5001680710	Pista brevibranchiata	2
SED19003	0014	3	5001680810	Polycirrus californicus	1
SED19003	0014	3	5001690101	Terebellides stroemi	2
SED19003	0014	3	5001700401	Megalomma splendida	2
SED19003	0014	3	50017006	Potamilla spp.	1
SED19003	0014	3	500902	Tubificidae	1
SED19003	0014	3	51032001	Alvania spp.	2
SED19003	0014	3	5103760201	Natica clausa	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0014

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A	ABUN-
								L
SED19003	0014	3	5105030247	Mitrella gausapata				1
SED19003	0014	3	510801019999	Odostomia (Odostomia) spp.				1
SED19003	0014	3	51420301	Aeolida spp.				1
SED19003	0014	3	5509050502	Propeamussium alaskense				12
SED19003	0014	3	5515020201	Axinopsida serricata				11
SED19003	0014	3	55150802	Pseudopythina spp.				1
SED19003	0014	3	55150901	Orobitella spp.				1
SED19003	0014	3	5515100102	Mysella tumida				2
SED19003	0014	3	5515310101	Macoma calcarea				2
SED19003	0014	3	5515310102	Macoma elimata				7
SED19003	0014	3	5515310112	Macoma carlottensis				1
SED19003	0014	3	6111070303	Euphilomedes producta				1
SED19003	0014	3	6153011901	Pseudomma berkeleyi				4
SED19003	0014	3	6154040202	Eudorella pacifica				1
SED19003	0014	3	61690602	Aoroides spp.				1
SED19003	0014	3	6169420301	Heterophoxus oculatus				7
SED19003	0014	3	61694803	Metopella spp.				2
SED19003	0014	3	61830402	Callianassa spp.				1
SED19003	0014	3	6187010101	Oregonia gracilis				1
SED19003	0014	3	6189060404	Pinnixa schmitti				22
SED19003	0014	3	730102020101	Echiurus echiurus alaskanus				8
SED19003	0014	3	8127010607	Ophiura lutkeni				2
SED19003	0014	3	812903019999	Amphiodia urtica/periercta				4
SED19003	0014	3	8129030202	Amphipholis squamata				7
SED19003	0014	3	83000003	Sagitta spp.				1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0015

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0015	1	43	Nemertea	3
SED19003	0015	1	5001230312	Syllis hyalina	1
SED19003	0015	1	5001230703	Exogone lourei	27
SED19003	0015	1	5001231002	Syllis heterochaeta	1
SED19003	0015	1	500125010401	Nephtys cornuta franciscana	2
SED19003	0015	1	5001250111	Nephtys ferruginea	1
SED19003	0015	1	5001270101	Glycera capitata	4
SED19003	0015	1	5001310109	Lumbrineris luti	3
SED19003	0015	1	5001310195	Lumbrineris sp. gr. 3	8
SED19003	0015	1	5001310197	Lumbrineris sp. gr. 1	1
SED19003	0015	1	5001400102	Leitoscoloplos pugettensis	6
SED19003	0015	1	5001400510	Orbinia (Phylo) felix	2
SED19003	0015	1	5001411306	Acmira catherinae	3
SED19003	0015	1	5001420102	Apistobranchnus ornatus	9
SED19003	0015	1	5001430402	Polydora socialis	5
SED19003	0015	1	5001430506	Prionospio steenstrupi	20
SED19003	0015	1	5001430521	Prionospio lighti	1
SED19003	0015	1	5001430599	Prionospio multibranchiata	2
SED19003	0015	1	5001430703	Spio cirrifera	2
SED19003	0015	1	5001430812	Polydora (Boccardia) pugettensis	9
SED19003	0015	1	5001431701	Paraprionospio pinnata	1
SED19003	0015	1	5001440105	Magelona longicornis	2
SED19003	0015	1	5001490202	Phyllochaetopterus prolifica	4
SED19003	0015	1	5001500308	Tharyx tessellata	1
SED19003	0015	1	5001500401	Chaetozone setosa	1
SED19003	0015	1	5001600303	Notomastus lineatus	1
SED19003	0015	1	5001600501	Decamastus gracilis	17
SED19003	0015	1	500163	Maldanidae	1
SED19003	0015	1	5001630802	Axiothella rubrocincta	1
SED19003	0015	1	500163099999	Praxillella sp. A	4
SED19003	0015	1	5001631103	Euclymene zonalis	1
SED19003	0015	1	500164	Oweniidae	2
SED19003	0015	1	5001640201	Myriochele heeri	1
SED19003	0015	1	5001670208	Ampharete acutifrons	1
SED19003	0015	1	5001670401	Lysippe labiata	2
SED19003	0015	1	5001670503	Melinna elisabethae	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0015

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0015	1	500168	Terebellidae	4
SED19003	0015	1	50016808	Polycirrus spp.	1
SED19003	0015	1	51032001	Alvania spp.	11
SED19003	0015	1	51034601	Bittium spp.	4
SED19003	0015	1	5105080101	Nassarius mendicus	1
SED19003	0015	1	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0015	1	51080102	Turbonilla spp.	2
SED19003	0015	1	51100404	Cylichnella spp.	2
SED19003	0015	1	5507010201	Crenella decussata	1
SED19003	0015	1	5509050502	Propeamussium alaskense	1
SED19003	0015	1	5515010101	Parvilucina tenuisculpta	21
SED19003	0015	1	5515010201	Lucinoma acutilineata	2
SED19003	0015	1	5515020201	Axinopsida serricata	5
SED19003	0015	1	5515020301	Thyasira flexuosa	9
SED19003	0015	1	5515100102	Mysella tumida	2
SED19003	0015	1	5515220301	Nemocardium centifilosum	1
SED19003	0015	1	5515310204	Tellina modesta	2
SED19003	0015	1	5515470301	Compsomyax subdiaphana	1
SED19003	0015	1	5515470501	Psephidia lordi	13
SED19003	0015	1	5520020102	Pandora filosa	2
SED19003	0015	1	5520080203	Thracia trapezoides	2
SED19003	0015	1	6111070301	Euphilomedes carcharodonta	1
SED19003	0015	1	6111070303	Euphilomedes producta	10
SED19003	0015	1	6154040115	Leucon subnasica	1
SED19003	0015	1	6157020101	Leptochelia savignyi	7
SED19003	0015	1	6157020202	Leptognathia gracilis	2
SED19003	0015	1	6157020204	Leptognathia brevimana	3
SED19003	0015	1	6169020135	Ampelisca careyi	2
SED19003	0015	1	6169020208	Byblis millsi	1
SED19003	0015	1	6169342903	Orchomene pacifica	1
SED19003	0015	1	6169370816	Monoculodes zernovi	1
SED19003	0015	1	6169421504	Rhepoxynius abronius	4
SED19003	0015	1	6183060201	Pagurus armatus	1
SED19003	0015	1	618906	Pinnotheridae	2
SED19003	0015	1	77000102	Phoronis spp.	13
SED19003	0015	1	81720601	Cucumaria spp.	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0015

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0015	2	43	Nemertea	1
SED19003	0015	2	5001130803	Phyllodoce (Paranaitis) polynoides	1
SED19003	0015	2	5001230702	Exgone gemmifera	2
SED19003	0015	2	5001230703	Exgone lourei	39
SED19003	0015	2	5001231002	Syllis heterochaeta	1
SED19003	0015	2	5001240501	Platynereis bicanaliculata	1
SED19003	0015	2	5001250111	Nephtys ferruginea	1
SED19003	0015	2	5001270101	Glycera capitata	2
SED19003	0015	2	5001280202	Goniada maculata	1
SED19003	0015	2	5001290111	Onuphis elegans	2
SED19003	0015	2	50013101	Lumbrineris spp.	1
SED19003	0015	2	5001310109	Lumbrineris luti	6
SED19003	0015	2	5001310195	Lumbrineris sp. gr. 3	3
SED19003	0015	2	5001310197	Lumbrineris sp. gr. 1	2
SED19003	0015	2	5001400102	Leitoscoloplos pugettensis	3
SED19003	0015	2	5001400510	Orbinia (Phylo) felix	2
SED19003	0015	2	5001411306	Acmira catherinae	1
SED19003	0015	2	5001420102	Apistobranthus ornatus	4
SED19003	0015	2	5001430402	Polydora socialis	22
SED19003	0015	2	5001430506	Prionospio steenstrupi	11
SED19003	0015	2	5001430521	Prionospio lighti	1
SED19003	0015	2	5001430599	Prionospio multibranchiata	7
SED19003	0015	2	5001430812	Polydora (Boccardia) pugettensis	7
SED19003	0015	2	5001431701	Paraprionospio pinnata	2
SED19003	0015	2	5001440105	Magelona longicornis	1
SED19003	0015	2	5001490202	Phyllochaetopterus prolifica	9
SED19003	0015	2	5001600303	Notomastus lineatus	1
SED19003	0015	2	5001600501	Decamastus gracilis	7
SED19003	0015	2	500163	Maldanidae	1
SED19003	0015	2	50016309	Praxillella spp.	1
SED19003	0015	2	5001631103	Euclymene zonalis	1
SED19003	0015	2	5001640201	Myriochele heeri	1
SED19003	0015	2	50016807	Pista spp.	1
SED19003	0015	2	5001680810	Polycirrus californicus	2
SED19003	0015	2	5001681803	Scionella estevanica	1
SED19003	0015	2	51032001	Alvania spp.	9

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0015

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A ABUN-
							L DANCE
SED19003	0015	2	51034601	Bittium spp.			2
SED19003	0015	2	510801019999	Odostomia (Odostomia) spp.			1
SED19003	0015	2	5110040205	Cylichna attonsa			1
SED19003	0015	2	5502020201	Nucula tenuis			1
SED19003	0015	2	5507010201	Crenella decussata			1
SED19003	0015	2	5507010301	Megacrenella columbiana			1
SED19003	0015	2	5515010101	Parvilucina tenuisculpta			23
SED19003	0015	2	5515020201	Axinopsida serricata			5
SED19003	0015	2	5515020301	Thyasira flexuosa			13
SED19003	0015	2	5515100102	Mysella tumida			3
SED19003	0015	2	5515310204	Tellina modesta			1
SED19003	0015	2	5515470501	Psephidia lordi			22
SED19003	0015	2	5520020102	Pandora filosa			1
SED19003	0015	2	5520080203	Thracia trapezoides			2
SED19003	0015	2	6111070303	Euphilomedes producta			7
SED19003	0015	2	61180102	Calanus spp.			1
SED19003	0015	2	6154040115	Leucon subnasica			1
SED19003	0015	2	6157020101	Leptochelia savignyi			6
SED19003	0015	2	6157020202	Leptognathia gracilis			4
SED19003	0015	2	6157020204	Leptognathia brevimana			1
SED19003	0015	2	6169020112	Ampelisca cristata			2
SED19003	0015	2	6169020113	Ampelisca hancocki			5
SED19003	0015	2	6169020208	Byblis millsii			1
SED19003	0015	2	6169421504	Rhepoxynius abronius			7
SED19003	0015	2	617916	Hippolytidae			1
SED19003	0015	2	77000102	Phoronis spp.			16
SED19003	0015	2	83000003	Sagitta spp.			1
SED19003	0015	3	43	Nemertea			1
SED19003	0015	3	5001040101	Pholoides aspera			5
SED19003	0015	3	5001130308	Eulalia (Eumida) bilineata			1
SED19003	0015	3	5001230702	Exgone gemmifera			14
SED19003	0015	3	5001230703	Exgone lourei			50
SED19003	0015	3	5001231002	Syllis heterochaeta			6
SED19003	0015	3	5001250111	Nephtys ferruginea			1
SED19003	0015	3	5001270101	Glycera capitata			1
SED19003	0015	3	5001290111	Onuphis elegans			6

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0015

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0015	3	5001310109	Lumbrineris luti	8
SED19003	0015	3	5001310118	Lumbrineris cruzensis	5
SED19003	0015	3	5001310128	Lumbrineris limicola	1
SED19003	0015	3	5001310132	Lumbrineris californiensis	1
SED19003	0015	3	5001310195	Lumbrineris sp. gr. 3	6
SED19003	0015	3	5001310197	Lumbrineris sp. gr. 1	1
SED19003	0015	3	5001400102	Leitoscoloplos pugettensis	8
SED19003	0015	3	5001400510	Orbinia (Phylo) felix	1
SED19003	0015	3	5001411306	Acmira catherinae	2
SED19003	0015	3	5001420102	Apistobranthus ornatus	1
SED19003	0015	3	5001430201	Laonice cirrata	1
SED19003	0015	3	5001430402	Polydora socialis	6
SED19003	0015	3	5001430506	Prionospio steenstrupi	12
SED19003	0015	3	5001430599	Prionospio multibranchiata	6
SED19003	0015	3	5001430812	Polydora (Boccardia) pugettensis	5
SED19003	0015	3	5001440105	Magelona longicornis	1
SED19003	0015	3	5001490202	Phyllochaetopterus prolifica	14
SED19003	0015	3	5001500302	Tharyx multifilis	3
SED19003	0015	3	5001500401	Chaetozone setosa	1
SED19003	0015	3	5001580401	Travisia brevis	2
SED19003	0015	3	5001600402	Mediomastus californiensis	3
SED19003	0015	3	5001600501	Decamastus gracilis	18
SED19003	0015	3	500163	Maldanidae	6
SED19003	0015	3	500163090301	Praxillella affinis pacifica	2
SED19003	0015	3	500163099999	Praxillella sp. A	1
SED19003	0015	3	5001631103	Euclymene zonalis	2
SED19003	0015	3	5001632001	Isocirrus longiceps	2
SED19003	0015	3	5001640201	Myriochele heeri	12.
SED19003	0015	3	500167	Ampharetidae	1
SED19003	0015	3	5001670208	Ampharete acutifrons	1
SED19003	0015	3	5001670401	Lysippe labiata	2
SED19003	0015	3	500168	Terebellidae	2
SED19003	0015	3	5001680710	Pista brevibranchiata	1
SED19003	0015	3	5001680810	Polycirrus californicus	2
SED19003	0015	3	51032001	Alvania spp.	29
SED19003	0015	3	51034601	Bittium spp.	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0015

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A L ABUN- DANCE
SED19003	0015	3	5103640301	Crepipatella lingulata	2
SED19003	0015	3	5105030247	Mitrella gausapata	1
SED19003	0015	3	51080102	Turbonilla spp.	2
SED19003	0015	3	55020402	Nuculana spp.	5
SED19003	0015	3	5507010201	Crenella decussata	2
SED19003	0015	3	5509050502	Propeamussium alaskense	14
SED19003	0015	3	5515010101	Parvilucina tenuisculpta	7
SED19003	0015	3	5515020102	Adontorhina cyclica	3
SED19003	0015	3	5515020201	Axinopsida serricata	2
SED19003	0015	3	5515020301	Thyasira flexuosa	3
SED19003	0015	3	5515100102	Mysella tumida	1
SED19003	0015	3	5515220301	Nemocardium centifilosum	6
SED19003	0015	3	5515310204	Tellina modesta	10
SED19003	0015	3	5515470301	Compsomyx subdiaphana	1
SED19003	0015	3	5515470501	Psephidia lordi	2
SED19003	0015	3	5520020102	Pandora filosa	2
SED19003	0015	3	5520100108	Cardiomya californica	2
SED19003	0015	3	6111070301	Euphilomedes carcharodonta	1
SED19003	0015	3	6111070303	Euphilomedes producta	3
SED19003	0015	3	611910	Harpacticoidae	1
SED19003	0015	3	6154040115	Leucon subnasica	2
SED19003	0015	3	6157020101	Leptochelia savignyi	7
SED19003	0015	3	6157020204	Leptognathia brevimana	1
SED19003	0015	3	6169020113	Ampelisca hancocki	1
SED19003	0015	3	6169020135	Ampelisca careyi	3
SED19003	0015	3	61690602	Aoroides spp.	1
SED19003	0015	3	6169370816	Monoculodes zernovi	1
SED19003	0015	3	6169371402	Synchelidium shoemakeri	2
SED19003	0015	3	6169421504	Rhepoxynius abronius	1
SED19003	0015	3	617916	Hippolytidae	1
SED19003	0015	3	7200020104	Golfingia pugettensis	2
SED19003	0015	3	77000102	Phoronis spp.	10

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0017

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0017	1	5001210102	Gyptis brevipalpa	1
SED19003	0017	1	5001220201	Sigambra tentaculata	8
SED19003	0017	1	5001250105	Nephtys punctata	1
SED19003	0017	1	5001250111	Nephtys ferruginea	2
SED19003	0017	1	5001280203	Goniada brunnea	3
SED19003	0017	1	5001400102	Leitoscoloplos pugettensis	5
SED19003	0017	1	5001410801	Levinsenia gracilis	1
SED19003	0017	1	5001430506	Prionospio steenstrupi	1
SED19003	0017	1	5001431004	Spiophanes berkelyorum	6
SED19003	0017	1	5001431701	Paraprionospio pinnata	3
SED19003	0017	1	5001500302	Tharyx multifilis	2
SED19003	0017	1	5001520101	Cossura longocirrata	4
SED19003	0017	1	5001520199	Cossura modica	4
SED19003	0017	1	5001600203	Heteromastus filobranchus	1
SED19003	0017	1	5001670208	Ampharete acutifrons	2
SED19003	0017	1	510801019999	Odostomia (Odostomia) spp.	2
SED19003	0017	1	5515020201	Axinopsida serricata	46
SED19003	0017	1	5515310112	Macoma carlottensis	3
SED19003	0017	1	6154040202	Eudorella pacifica	1
SED19003	0017	1	6169400602	Halicella halona	2
SED19003	0017	1	6174020101	Euphausia pacifica	2
SED19003	0017	1	618906	Pinnotheridae	10
SED19003	0017	2	5001021702	Hesperonoe adventor	2
SED19003	0017	2	5001220201	Sigambra tentaculata	12
SED19003	0017	2	5001250111	Nephtys ferruginea	6
SED19003	0017	2	5001270101	Glycera capitata	2
SED19003	0017	2	5001280203	Goniada brunnea	1
SED19003	0017	2	5001410801	Levinsenia gracilis	4
SED19003	0017	2	5001411306	Acmira catherinae	9
SED19003	0017	2	5001430506	Prionospio steenstrupi	3
SED19003	0017	2	5001430521	Prionospio lighti	2
SED19003	0017	2	5001431004	Spiophanes berkelyorum	66
SED19003	0017	2	5001431701	Paraprionospio pinnata	3
SED19003	0017	2	5001520101	Cossura longocirrata	12
SED19003	0017	2	5001520199	Cossura modica	32
SED19003	0017	2	5001600203	Heteromastus filobranchus	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0017

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0017	2	5001670208	Ampharete acutifrons	1
SED19003	0017	2	51032001	Alvania spp.	1
SED19003	0017	2	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0017	2	5502020201	Nucula tenuis	1
SED19003	0017	2	5515020201	Axinopsida serricata	96
SED19003	0017	2	5515310112	Macoma carlottensis	4
SED19003	0017	2	6154040202	Eudorella pacifica	6
SED19003	0017	2	6169371502	Westwoodilla caecula	1
SED19003	0017	2	6174020101	Euphausia pacifica	2
SED19003	0017	2	618906	Pinnotheridae	17
SED19003	0017	3	43	Nemertea	1
SED19003	0017	3	5001220201	Sigambra tentaculata	22
SED19003	0017	3	5001250111	Nephtys ferruginea	5
SED19003	0017	3	5001270101	Glycera capitata	1
SED19003	0017	3	5001280203	Goniada brunnea	2
SED19003	0017	3	5001290111	Onuphis elegans	1
SED19003	0017	3	5001310109	Lumbrineris luti	2
SED19003	0017	3	5001400102	Leitoscoloplos pugettensis	1
SED19003	0017	3	5001410801	Levinsenia gracilis	5
SED19003	0017	3	5001411306	Acmira catherinea	6
SED19003	0017	3	5001430506	Prionospio steenstrupi	1
SED19003	0017	3	5001431004	Spiophanes berkelyorum	61
SED19003	0017	3	5001431701	Paraprionospio pinnata	3
SED19003	0017	3	5001500302	Tharyx multifilis	2
SED19003	0017	3	5001520101	Cossura longocirrata	2
SED19003	0017	3	5001520199	Cossura modica	13
SED19003	0017	3	5001600203	Heteromastus filobranchus	1
SED19003	0017	3	5001670208	Ampharete acutifrons	2
SED19003	0017	3	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0017	3	5502020201	Nucula tenuis	2
SED19003	0017	3	5515020201	Axinopsida serricata	75
SED19003	0017	3	5515100102	Mysella tumida	1
SED19003	0017	3	5515310112	Macoma carlottensis	3
SED19003	0017	3	6153011901	Pseudomma berkeleyi	1
SED19003	0017	3	6154040202	Eudorella pacifica	4
SED19003	0017	3	6169420204	Harpiniopsis fulgens	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0017

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0017	3	6174020101	Euphausia pacifica	3
SED19003	0017	3	618906	Pinnotheridae	20

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0018

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0018	1	37590401	Halcompa spp	1
SED19003	0018	1	43	Nemertea	2
SED19003	0018	1	5001020810	Harmothoe lunulata	1
SED19003	0018	1	5001060101	Pholoe minuta	1
SED19003	0018	1	5001210102	Gyptis brevipalpa	2
SED19003	0018	1	5001220201	Sigambra tentaculata	16
SED19003	0018	1	5001230501	Syllis alternata	1
SED19003	0018	1	500125010401	Nephtys cornuta franciscana	2
SED19003	0018	1	500125010402	Nephtys cornuta cornuta	4
SED19003	0018	1	5001270101	Glycera capitata	2
SED19003	0018	1	5001270104	Glycera americana	1
SED19003	0018	1	5001280103	Glycinde armigera	5
SED19003	0018	1	5001280203	Goniada brunnea	1
SED19003	0018	1	5001310109	Lumbrineris luti	1
SED19003	0018	1	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0018	1	5001430506	Prionospio steenstrupi	1
SED19003	0018	1	5001431004	Spiophanes berkelyorum	4
SED19003	0018	1	5001431701	Paraprionospio pinnata	6
SED19003	0018	1	5001490302	Spiochaetopterus costarum	1
SED19003	0018	1	5001500302	Tharyx multifilis	1
SED19003	0018	1	5001590101	Sternaspis scutata	1
SED19003	0018	1	5001600203	Heteromastus filibranchus	9
SED19003	0018	1	5001631103	Euclymene zonalis	1
SED19003	0018	1	5001660304	Pectinaria californiensis	9
SED19003	0018	1	51060203	Mangelia spp.	1
SED19003	0018	1	5110040205	Cylichna attonsa	4
SED19003	0018	1	5502020201	Nucula tenuis	7
SED19003	0018	1	5515020201	Axinopsida serricata	175
SED19003	0018	1	5515100102	Mysella tumida	29
SED19003	0018	1	5515310112	Macoma carlottensis	7
SED19003	0018	1	5515470301	Compsomyax subdiaphana	1
SED19003	0018	1	5520020102	Pandora filosa	1
SED19003	0018	1	6111070301	Euphilomedes carcharodonta	1
SED19003	0018	1	6111070303	Euphilomedes producta	2
SED19003	0018	1	61180102	Calanus spp.	1
SED19003	0018	1	6153011505	Neomysis mercedis	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0018

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0018	1	6154040202	Eudorella pacifica	2
SED19003	0018	1	6169260303	Protomedeia grandimana	15
SED19003	0018	1	6189060404	Pinnixa schmitti	2
SED19003	0018	2	43	Nemertea	4
SED19003	0018	2	5001130202	Eteone spetsbergensis	1
SED19003	0018	2	5001220201	Sigambra tentaculata	20
SED19003	0018	2	500125010402	Nephtys cornuta cornuta	6
SED19003	0018	2	5001270101	Glycera capitata	1
SED19003	0018	2	5001280103	Glycinde armigera	2
SED19003	0018	2	5001310109	Lumbrineris luti	3
SED19003	0018	2	5001431004	Spiophanes berkelyorum	2
SED19003	0018	2	5001431701	Paraprionospio pinnata	1
SED19003	0018	2	5001600203	Heteromastus filobranchus	10
SED19003	0018	2	5001660304	Pectinaria californiensis	13
SED19003	0018	2	5001690101	Terebellides stroemi	1
SED19003	0018	2	51032001	Alvania spp.	1
SED19003	0018	2	5105030247	Mitrella gausapata	5
SED19003	0018	2	5110040205	Cylichna attonsa	6
SED19003	0018	2	5502020201	Nucula tenuis	6
SED19003	0018	2	5502040504	Yoldia scissurata	2
SED19003	0018	2	5515010101	Parvilucina tenuisculpta	1
SED19003	0018	2	5515020201	Axinopsida serricata	176
SED19003	0018	2	5515100102	Mysella tumida	11
SED19003	0018	2	5515310112	Macoma carlottensis	3
SED19003	0018	2	5515470501	Psephidia lordi	1
SED19003	0018	2	6111070301	Euphilomedes carcharodonta	1
SED19003	0018	2	6154040202	Eudorella pacifica	2
SED19003	0018	2	6169260303	Protomedeia grandimana	9
SED19003	0018	2	6179220102	Crangon alaskensis	1
SED19003	0018	2	618906	Pinnotheridae	1
SED19003	0018	3	43	Nemertea	6
SED19003	0018	3	5001220201	Sigambra tentaculata	23
SED19003	0018	3	500125010402	Nephtys cornuta cornuta	1
SED19003	0018	3	5001250111	Nephtys ferruginea	1
SED19003	0018	3	5001280103	Glycinde armigera	6
SED19003	0018	3	5001310109	Lumbrineris luti	5

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0018

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0018	3	5001410801	Levinsenia gracilis	1
SED19003	0018	3	5001431004	Spiophanes berkelyorum	3
SED19003	0018	3	5001431701	Paraprionospio pinnata	4
SED19003	0018	3	5001490302	Spiochaetopterus costarum	1
SED19003	0018	3	5001500302	Tharyx multifilis	2
SED19003	0018	3	5001600203	Heteromastus filobranthus	8
SED19003	0018	3	5001660304	Pectinaria californiensis	15
SED19003	0018	3	5105030247	Mitrella gausapata	1
SED19003	0018	3	5110040205	Cylichna attonsa	3
SED19003	0018	3	5502020201	Nucula tenuis	3
SED19003	0018	3	5515020201	Axinopsida serricata	134
SED19003	0018	3	5515100102	Mysella tumida	11
SED19003	0018	3	5515310112	Macoma carlottensis	5
SED19003	0018	3	5515470501	Psephidia lordi	1
SED19003	0018	3	5520020102	Pandora filosa	1
SED19003	0018	3	6154040202	Eudorella pacifica	7
SED19003	0018	3	6169260303	Protomedeia grandimana	4
SED19003	0018	3	6189060404	Pinnixa schmitti	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0019

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0019	1	5001210102	Gyptis brevipalpa	1
SED19003	0019	1	5001280103	Glycinde armigera	1
SED19003	0019	1	5001290103	Onuphis iridescens	4
SED19003	0019	1	5001310109	Lumbrineris luti	1
SED19003	0019	1	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0019	1	5001360502	Schistomeringos annulata	7
SED19003	0019	1	5001430201	Laonice cirrata	1
SED19003	0019	1	5001430506	Prionospio steenstrupi	1
SED19003	0019	1	5001430521	Prionospio lighti	1
SED19003	0019	1	5001431701	Paraprionospio pinnata	2
SED19003	0019	1	5001660304	Pectinaria californiensis	36
SED19003	0019	1	5402	Chaetodermatida	1
SED19003	0019	1	5515020301	Thyasira flexuosa	1
SED19003	0019	1	60010602	Anoplodactylus spp.	1
SED19003	0019	1	6153011901	Pseudomma berkeleyi	1
SED19003	0019	1	6169201309	Rhachotropis clemens	2
SED19003	0019	1	6169341101	Cyphocaris challengeri	1
SED19003	0019	1	61693705	Bathymedon spp.	2
SED19003	0019	1	6169500302	Syrrhoë longifrons	1
SED19003	0019	1	812903019999	Amphiodia urtica/periercta	1
SED19003	0019	1	8179010101	Molpadia intermedia	1
SED19003	0019	2	39	Platyhelminthes	2
SED19003	0019	2	43030202	Cerebratulus spp.	1
SED19003	0019	2	5001020810	Harmothoe lunulata	1
SED19003	0019	2	5001210102	Gyptis brevipalpa	2
SED19003	0019	2	500125010401	Nephtys cornuta franciscana	2
SED19003	0019	2	5001290103	Onuphis iridescens	2
SED19003	0019	2	5001310195	Lumbrineris sp. gr. 3	5
SED19003	0019	2	5001410801	Levinsenia gracilis	1
SED19003	0019	2	5001490302	Spiochaetopterus costarum	1
SED19003	0019	2	5001660304	Pectinaria californiensis	45
SED19003	0019	2	5001670208	Ampharete acutifrons	1
SED19003	0019	2	5001670306	Amphicteis mucronata	1
SED19003	0019	2	5110040205	Cylichna attonsa	1
SED19003	0019	2	5402	Chaetodermatida	7
SED19003	0019	2	5515020301	Thyasira flexuosa	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0019

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0019	2	6111070301	Euphilomedes carcharodonta	1
SED19003	0019	2	6154040115	Leucon subnasica	1
SED19003	0019	2	6154040202	Eudorella pacifica	1
SED19003	0019	2	6169420204	Harpiniopsis fulgens	1
SED19003	0019	2	6169420301	Heterophoxus oculatus	2
SED19003	0019	2	8179010101	Molpadia intermedia	3
SED19003	0019	3	5001020606	Gattyana treadwelli	1
SED19003	0019	3	500125010401	Nephtys cornuta franciscana	1
SED19003	0019	3	500125010402	Nephtys cornuta cornuta	1
SED19003	0019	3	5001280103	Glycinde armigera	1
SED19003	0019	3	5001280203	Goniada brunnea	2
SED19003	0019	3	5001290103	Onuphis iridescens	1
SED19003	0019	3	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0019	3	5001400102	Leitoscoloplos pugettensis	1
SED19003	0019	3	5001410801	Levinsenia gracilis	1
SED19003	0019	3	5001540199	Brada sachalina	1
SED19003	0019	3	5001580403	Travisia pupa	1
SED19003	0019	3	5001590101	Sternaspis scutata	1
SED19003	0019	3	5001600203	Heteromastus filobranchus	1
SED19003	0019	3	5001630901	Praxillella gracilis	1
SED19003	0019	3	5001660304	Pectinaria californiensis	23
SED19003	0019	3	5001670208	Ampharete acutifrons	1
SED19003	0019	3	5001680710	Pista brevibranchiata	1
SED19003	0019	3	5110040205	Cylichna attonsa	2
SED19003	0019	3	5402	Chaetodermatida	5
SED19003	0019	3	6169201309	Rhachotropis clemens	1
SED19003	0019	3	6169420301	Heterophoxus oculatus	1
SED19003	0019	3	8179010101	Molpadia intermedia	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0020

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A L ABUN- L DANCE
SED19003	0020	1	5001250111	Nephtys ferruginea	9
SED19003	0020	1	5001260103	Sphaerodoropsis sphaerulifer	1
SED19003	0020	1	5001270101	Glycera capitata	2
SED19003	0020	1	5001310109	Lumbrineris luti	57
SED19003	0020	1	5001310195	Lumbrineris sp. gr. 3	36
SED19003	0020	1	5001410801	Levinsenia gracilis	7
SED19003	0020	1	5001411306	Acmira catherinae	1
SED19003	0020	1	5001430506	Prionospio steenstrupi	5
SED19003	0020	1	5001600201	Heteromastus filiformis	2
SED19003	0020	1	500163	Maldanidae	13
SED19003	0020	1	5001630302	Maldane glebifex	2
SED19003	0020	1	5001630901	Praxillella gracilis	40
SED19003	0020	1	5001660304	Pectinaria californiensis	11
SED19003	0020	1	5001680701	Pista cristata	42
SED19003	0020	1	5001690101	Terebellides stroemi	16
SED19003	0020	1	5001700204	Euchone incolor	1
SED19003	0020	1	51032001	Alvania spp.	1
SED19003	0020	1	5108011134	Turbonilla aurantia	3
SED19003	0020	1	5110040205	Cylichna attonsa	3
SED19003	0020	1	5502020201	Nucula tenuis	4
SED19003	0020	1	5515020201	Axinopsida serricata	14
SED19003	0020	1	5515100102	Mysella tumida	16
SED19003	0020	1	5515310101	Macoma calcarea	1
SED19003	0020	1	5515310102	Macoma elimata	1
SED19003	0020	1	5515310112	Macoma carlottensis	4
SED19003	0020	1	5515470301	Compsomyax subdiaphana	5
SED19003	0020	1	5515470501	Psephidia lordi	7
SED19003	0020	1	5520020102	Pandora filosa	4
SED19003	0020	1	5520080203	Thracia trapezoides	1
SED19003	0020	1	6111070303	Euphilomedes producta	30
SED19003	0020	1	6154040202	Eudorella pacifica	6
SED19003	0020	1	6169420301	Heterophoxus oculatus	42
SED19003	0020	1	6169430501	Pleusymptes subglaber	1
SED19003	0020	2	5001240404	Nereis procera	5
SED19003	0020	2	5001250111	Nephtys ferruginea	6
SED19003	0020	2	5001270101	Glycera capitata	4

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0020

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0020	2	50013101	Lumbrineris spp.	8
SED19003	0020	2	5001310109	Lumbrineris luti	33
SED19003	0020	2	5001310195	Lumbrineris sp. gr. 3	45
SED19003	0020	2	5001410801	Levinsenia gracilis	6
SED19003	0020	2	5001411306	Acmira catherinae	1
SED19003	0020	2	5001430431	Polydora cardalia	1
SED19003	0020	2	5001430506	Prionospio steenstrupi	1
SED19003	0020	2	5001490302	Spiochaetopterus costarum	1
SED19003	0020	2	5001500302	Tharyx multifilis	1
SED19003	0020	2	50015201	Cossura spp.	1
SED19003	0020	2	5001520101	Cossura longocirrata	6
SED19003	0020	2	500163	Maldanidae	3
SED19003	0020	2	5001630302	Maldane glebifex	1
SED19003	0020	2	5001630901	Praxillella gracilis	35
SED19003	0020	2	500163090301	Praxillella affinis pacifica	2
SED19003	0020	2	5001660304	Pectinaria californiensis	8
SED19003	0020	2	5001670306	Amphicteis mucronata	1
SED19003	0020	2	5001680701	Pista cristata	18
SED19003	0020	2	5001690101	Terebellides stroemi	24
SED19003	0020	2	51080102	Turbonilla spp.	1
SED19003	0020	2	5108011134	Turbonilla aurantia	4
SED19003	0020	2	5502020201	Nucula tenuis	15
SED19003	0020	2	5515020201	Axinopsida serricata	15
SED19003	0020	2	5515100102	Mysella tumida	25
SED19003	0020	2	5515310102	Macoma elimata	2
SED19003	0020	2	5515310112	Macoma carlottensis	3
SED19003	0020	2	5515470301	Compsomyax subdiaphana	4
SED19003	0020	2	5515470501	Psephidia lordi	4
SED19003	0020	2	5520020102	Pandora filosa	2
SED19003	0020	2	5520050202	Lyonsia californica	2
SED19003	0020	2	6111070303	Euphilomedes producta	36
SED19003	0020	2	6154040202	Eudorella pacifica	4
SED19003	0020	2	6169211005	Melita californica	1
SED19003	0020	2	6169211008	Melita desdichada	2
SED19003	0020	2	6169370816	Monoculodes zernovi	3
SED19003	0020	2	6169420301	Heterophoxus oculatus	35

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0020

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0020	3	43	Nemertea	2
SED19003	0020	3	5001020810	Harmothoe lunulata	1
SED19003	0020	3	5001240404	Nereis procera	1
SED19003	0020	3	500125010401	Nephtys cornuta franciscana	1
SED19003	0020	3	5001250111	Nephtys ferruginea	8
SED19003	0020	3	5001260103	Sphaerodoropsis sphaerulifer	1
SED19003	0020	3	5001270101	Glycera capitata	9
SED19003	0020	3	5001280103	Glycinde armigera	1
SED19003	0020	3	50013101	Lumbrineris spp.	15
SED19003	0020	3	5001310101	Lumbrineris bicirrata	1
SED19003	0020	3	5001310109	Lumbrineris luti	40
SED19003	0020	3	5001310194	Lumbrineris sp. gr. 4	1
SED19003	0020	3	5001310195	Lumbrineris sp. gr. 3	27
SED19003	0020	3	5001410801	Levinsenia gracilis	3
SED19003	0020	3	5001430506	Prionospio steenstrupi	1
SED19003	0020	3	5001490302	Spiochaetopterus costarum	1
SED19003	0020	3	5001500302	Tharyx multifilis	1
SED19003	0020	3	5001520101	Cossura longocirrata	1
SED19003	0020	3	5001580202	Armandia brevis	2
SED19003	0020	3	5001600201	Heteromastus filiformis	1
SED19003	0020	3	500163	Maldanidae	10
SED19003	0020	3	5001630302	Maldane glebifex	9
SED19003	0020	3	5001630901	Praxillella gracilis	47
SED19003	0020	3	500163090301	Praxillella affinis pacifica	1
SED19003	0020	3	5001640201	Myriochele heeri	1
SED19003	0020	3	5001660304	Pectinaria californiensis	11
SED19003	0020	3	5001680701	Pista cristata	40
SED19003	0020	3	5001680810	Polycirrus californicus	1
SED19003	0020	3	5001690101	Terebellides stroemi	29
SED19003	0020	3	5001700204	Euchone incolor	1
SED19003	0020	3	5105030247	Mitrella gausapata	1
SED19003	0020	3	5108011134	Turbonilla aurantia	6
SED19003	0020	3	5502020201	Nucula tenuis	12
SED19003	0020	3	5515020201	Axinopsida serricata	14
SED19003	0020	3	5515100102	Mysella tumida	20
SED19003	0020	3	5515220301	Nemocardium centifilosum	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0020

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0020	3	55153101	Macoma spp.	1
SED19003	0020	3	5515310102	Macoma elimata	1
SED19003	0020	3	5515470201	Saxidomus giganteus	1
SED19003	0020	3	5515470301	Compsomyax subdiaphana	3
SED19003	0020	3	5515470501	Psephidia lordi	3
SED19003	0020	3	6111070303	Euphilomedes producta	34
SED19003	0020	3	6153011505	Neomysis mercedis	1
SED19003	0020	3	6154040202	Eudorella pacifica	2
SED19003	0020	3	6169020113	Ampelisca hancocki	1
SED19003	0020	3	6169420301	Heterophoxus oculatus	34
SED19003	0020	3	6169430501	Pleusymptes subglaber	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0021

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0021	1	43	Nemertea	1
SED19003	0021	1	50010208	Harmothoe spp.	2
SED19003	0021	1	5001020810	Harmothoe lunulata	1
SED19003	0021	1	5001130202	Eteone spetsbergensis	7
SED19003	0021	1	5001240404	Nereis procera	1
SED19003	0021	1	500125010402	Nephtys cornuta cornuta	1
SED19003	0021	1	5001250111	Nephtys ferruginea	19
SED19003	0021	1	5001260103	Sphaerodoropsis sphaerulifer	7
SED19003	0021	1	5001270101	Glycera capitata	9
SED19003	0021	1	5001280101	Glycinde picta	3
SED19003	0021	1	5001280103	Glycinde armigera	1
SED19003	0021	1	5001290202	Diopatra ornata	1
SED19003	0021	1	50013101	Lumbrineris spp.	4
SED19003	0021	1	5001310109	Lumbrineris luti	12
SED19003	0021	1	5001310195	Lumbrineris sp. gr. 3	9
SED19003	0021	1	5001400102	Leitoscoloplos pugettensis	18
SED19003	0021	1	5001430506	Prionospio steenstrupi	7
SED19003	0021	1	5001431701	Paraprionospio pinnata	3
SED19003	0021	1	5001500302	Tharyx multifilis	3
SED19003	0021	1	5001580202	Armandia brevis	2
SED19003	0021	1	5001600203	Heteromastus filobranchus	34
SED19003	0021	1	5001631103	Euclymene zonalis	7
SED19003	0021	1	5001660304	Pectinaria californiensis	8
SED19003	0021	1	5001670208	Ampharete acutifrons	1
SED19003	0021	1	50016808	Polycirrus spp.	1
SED19003	0021	1	5001680810	Polycirrus californicus	8
SED19003	0021	1	500168130201	Lanassa venusta venusta	12
SED19003	0021	1	5001690101	Terebellides stroemi	2
SED19003	0021	1	51032001	Alvania spp.	2
SED19003	0021	1	5105030247	Mitrella gausapata	2
SED19003	0021	1	5108011134	Turbonilla aurantia	2
SED19003	0021	1	5502020201	Nucula tenuis	6
SED19003	0021	1	5502040504	Yoldia scissurata	1
SED19003	0021	1	5515010101	Parvilucina tenuisculpta	5
SED19003	0021	1	5515020201	Axinopsida serricata	262
SED19003	0021	1	5515100102	Mysella tumida	14

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0021

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0021	1	5515310102	Macoma elimata	2
SED19003	0021	1	5515310112	Macoma carlottensis	110
SED19003	0021	1	55153102	Tellina spp.	1
SED19003	0021	1	5515470301	Compsomyax subdiaphana	2
SED19003	0021	1	5515470501	Psephidia lordi	14
SED19003	0021	1	611103	Cylindroleberididae	2
SED19003	0021	1	6111070301	Euphilomedes carcharodonta	130
SED19003	0021	1	6111070303	Euphilomedes producta	86
SED19003	0021	1	61180102	Calanus spp.	1
SED19003	0021	1	6169342904	Orchomene pinquis	1
SED19003	0021	1	6169371402	Synchelidium shoemakeri	2
SED19003	0021	1	6169420926	Rhepoxynius variatus	1
SED19003	0021	1	6169421503	Rhepoxynius bicuspidata	9
SED19003	0021	2	43	Nemertea	1
SED19003	0021	2	50010208	Harmothoe spp.	5
SED19003	0021	2	5001060101	Pholoe minuta	2
SED19003	0021	2	5001130202	Eteone spetsbergensis	9
SED19003	0021	2	500125010401	Nephtys cornuta franciscana	4
SED19003	0021	2	5001250111	Nephtys ferruginea	12
SED19003	0021	2	5001260103	Sphaerodoropsis sphaerulifer	9
SED19003	0021	2	5001270101	Glycera capitata	2
SED19003	0021	2	5001280101	Glycinde picta	5
SED19003	0021	2	5001280103	Glycinde armigera	2
SED19003	0021	2	5001280203	Goniada brunnea	1
SED19003	0021	2	5001290202	Diopatra ornata	1
SED19003	0021	2	50013101	Lumbrineris spp.	2
SED19003	0021	2	5001310109	Lumbrineris luti	9
SED19003	0021	2	5001310195	Lumbrineris sp. gr. 3	3
SED19003	0021	2	5001400102	Leitoscoloplos pugettensis	5
SED19003	0021	2	5001430506	Prionospio steenstrupi	6
SED19003	0021	2	5001430521	Prionospio lighti	1
SED19003	0021	2	5001500302	Tharyx multifilis	2
SED19003	0021	2	5001580202	Armandia brevis	6
SED19003	0021	2	5001600101	Capitella capitata	2
SED19003	0021	2	5001600203	Heteromastus filobranchus	23
SED19003	0021	2	5001600501	Decamastus gracilis	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0021

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0021	2	500163	Maldanidae	1
SED19003	0021	2	5001631103	Euclymene zonalis	11
SED19003	0021	2	5001660304	Pectinaria californiensis	3
SED19003	0021	2	5001670208	Ampharete acutifrons	2
SED19003	0021	2	5001680810	Polycirrus californicus	8
SED19003	0021	2	500168130201	Lanassa venusta venusta	7
SED19003	0021	2	5001690101	Terebellides stroemi	1
SED19003	0021	2	51032001	Alvania spp.	7
SED19003	0021	2	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0021	2	51080102	Turbonilla spp.	1
SED19003	0021	2	5502020201	Nucula tenuis	6
SED19003	0021	2	5515010101	Parvilucina tenuisculpta	3
SED19003	0021	2	5515020201	Axinopsida serricata	192
SED19003	0021	2	55150501	Diplodonta spp.	1
SED19003	0021	2	5515100102	Mysella tumida	18
SED19003	0021	2	5515220301	Nemocardium centifilosum	1
SED19003	0021	2	5515310112	Macoma carlottensis	199
SED19003	0021	2	5515310204	Tellina modesta	4
SED19003	0021	2	5515470501	Psephidia lordi	6
SED19003	0021	2	5520020102	Pandora filosa	1
SED19003	0021	2	6111070301	Euphilomedes carcharodonta	206
SED19003	0021	2	6111070303	Euphilomedes producta	135
SED19003	0021	2	61180102	Calanus spp.	1
SED19003	0021	2	611910	Harpacticoidae	1
SED19003	0021	2	6169371402	Synchelidium shoemakeri	1
SED19003	0021	2	6169421503	Rhepoxynius bicuspidata	3
SED19003	0021	2	7200020104	Golfingia pugettensis	1
SED19003	0021	2	83000003	Sagitta spp.	1
SED19003	0021	3	43	Nemertea	3
SED19003	0021	3	5001060101	Pholoe minuta	1
SED19003	0021	3	5001130202	Eteone spetsbergensis	1
SED19003	0021	3	5001250111	Nephtys ferruginea	9
SED19003	0021	3	5001260103	Sphaerodoropsis sphaerulifer	3
SED19003	0021	3	5001270101	Glycera capitata	3
SED19003	0021	3	5001280101	Glycinde picta	2
SED19003	0021	3	5001290103	Onuphis iridescens	1

Benthic Abundance Report

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Survey : SED19003 Station : 0021

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0021	3	5001310109	Lumbrineris luti	16
SED19003	0021	3	5001310195	Lumbrineris sp. gr. 3	2
SED19003	0021	3	5001400102	Leitoscoloplos pugettensis	22
SED19003	0021	3	5001430506	Prionospio steenstrupi	5
SED19003	0021	3	5001430521	Prionospio lighti	1
SED19003	0021	3	5001500302	Tharyx multifilis	2
SED19003	0021	3	5001520101	Cossura longocirrata	1
SED19003	0021	3	5001580202	Armandia brevis	2
SED19003	0021	3	5001600203	Heteromastus filobranchus	27
SED19003	0021	3	500163	Maldanidae	3
SED19003	0021	3	5001630901	Praxillella gracilis	1
SED19003	0021	3	5001631103	Euclymene zonalis	14
SED19003	0021	3	5001660304	Pectinaria californiensis	1
SED19003	0021	3	5001670208	Ampharete acutifrons	1
SED19003	0021	3	500168	Terebellidae	1
SED19003	0021	3	5001680810	Polycirrus californicus	2
SED19003	0021	3	500168130201	Lanassa venusta venusta	5
SED19003	0021	3	5001690101	Terebellides stroemi	1
SED19003	0021	3	5105080101	Nassarius mendicus	2
SED19003	0021	3	5108011134	Turbonilla aurantia	2
SED19003	0021	3	5502020201	Nucula tenuis	4
SED19003	0021	3	5515010101	Parvilucina tenuisculpta	1
SED19003	0021	3	5515020201	Axinopsida serricata	131
SED19003	0021	3	5515100102	Mysella tumida	11
SED19003	0021	3	5515310112	Macoma carlottensis	87
SED19003	0021	3	5515310204	Tellina modesta	2
SED19003	0021	3	5515470501	Psephidia lordi	10
SED19003	0021	3	611103	Cylindroleberididae	2
SED19003	0021	3	6111070301	Euphilomedes carcharodonta	81
SED19003	0021	3	6111070303	Euphilomedes producta	46
SED19003	0021	3	61180102	Calanus spp.	1
SED19003	0021	3	61692119	Eogammarus spp.	1
SED19003	0021	3	6169371402	Synchelidium shoemakeri	2
SED19003	0021	3	6169421503	Rhepoxynius bicuspidata	6
SED19003	0021	3	6169421504	Rhepoxynius abronius	1

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Only Verified data.

Survey : SED19003 Station : 0022

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0022	1	5001230703	Exogone lourei	1
SED19003	0022	1	5001400102	Leitoscoloplos pugettensis	13
SED19003	0022	1	5001400301	Scoloplos armiger	3
SED19003	0022	1	5001411306	Acmira catherinae	2
SED19003	0022	1	5001430506	Prionospio steenstrupi	11
SED19003	0022	1	5001600303	Notomastus lineatus	9
SED19003	0022	1	5001631103	Euclymene zonalis	1
SED19003	0022	1	5001660304	Pectinaria californiensis	1
SED19003	0022	1	500168	Terebellidae	1
SED19003	0022	1	5001680810	Polycirrus californicus	5
SED19003	0022	1	500168130201	Lanassa venusta venusta	1
SED19003	0022	1	5001681803	Scionella estevanica	3
SED19003	0022	1	51032001	Alvania spp.	4
SED19003	0022	1	51034601	Bittium spp.	21
SED19003	0022	1	5105080101	Nassarius mendicus	1
SED19003	0022	1	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0022	1	5502020201	Nucula tenuis	2
SED19003	0022	1	5507010201	Crenella decussata	1
SED19003	0022	1	5507010301	Megacrenella columbiana	1
SED19003	0022	1	5515010101	Parvilucina tenuisculpta	3
SED19003	0022	1	5515020201	Axinopsida serricata	70
SED19003	0022	1	5515220301	Nemocardium centifilosum	2
SED19003	0022	1	5515310112	Macoma carlottensis	1
SED19003	0022	1	5515470301	Compsomyax subdiaphana	2
SED19003	0022	1	5515470501	Psephidia lordi	64
SED19003	0022	1	5515470701	Protothaca staminea	2
SED19003	0022	1	55170102	Mya spp.	1
SED19003	0022	1	5520020102	Pandora filosa	1
SED19003	0022	1	5520100108	Cardiomya californica	2
SED19003	0022	1	6111070301	Euphilomedes carcharodonta	132
SED19003	0022	1	6111070303	Euphilomedes producta	5
SED19003	0022	1	6157020101	Leptochelia savignyi	3
SED19003	0022	1	6157020202	Leptognathia gracilis	1
SED19003	0022	1	6169020135	Ampelisca careyi	2
SED19003	0022	1	61692602	Photis spp.	1
SED19003	0022	1	6169341101	Cyphocaris challengerii	1

Benthic Abundance Report

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Survey : SED19003 Station : 0022

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0022	1	6169341411	Hippomedon coecus	2
SED19003	0022	1	6169342903	Orchomene pacifica	1
SED19003	0022	1	6169421504	Rhepoxynius abronius	18
SED19003	0022	1	6189060404	Pinnixa schmitti	1
SED19003	0022	2	5001060101	Pholoe minuta	1
SED19003	0022	2	5001130701	Phyllodoce (Genetyllis) castanea	1
SED19003	0022	2	50011314	Phyllodoce spp.	2
SED19003	0022	2	5001230703	Exogone lourei	1
SED19003	0022	2	5001240501	Platynereis bicanaliculata	1
SED19003	0022	2	5001250111	Nephtys ferruginea	5
SED19003	0022	2	5001270101	Glycera capitata	1
SED19003	0022	2	5001280101	Glycinde picta	2
SED19003	0022	2	5001290103	Onuphis iridescens	1
SED19003	0022	2	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0022	2	5001400102	Leitoscoloplos pugettensis	5
SED19003	0022	2	5001411306	Acmira catherinae	2
SED19003	0022	2	5001430201	Laonice cirrata	1
SED19003	0022	2	5001430402	Polydora socialis	1
SED19003	0022	2	5001430506	Prionospio steenstrupi	9
SED19003	0022	2	5001430521	Prionospio lighti	1
SED19003	0022	2	5001580202	Armandia brevis	1
SED19003	0022	2	500160	Capitellidae	2
SED19003	0022	2	5001600101	Capitella capitata	8
SED19003	0022	2	500163	Maldanidae	1
SED19003	0022	2	5001660303	Pectinaria granulata	4
SED19003	0022	2	5001671	Ampharetinae	4
SED19003	0022	2	5001680810	Polycirrus californicus	2
SED19003	0022	2	500168130201	Lanassa venusta venusta	1
SED19003	0022	2	51032001	Alvania spp.	9
SED19003	0022	2	51034601	Bittium spp.	19
SED19003	0022	2	5105080101	Nassarius mendicus	5
SED19003	0022	2	510801019999	Odostomia (Odostomia) spp.	2
SED19003	0022	2	5108011134	Turbonilla aurantia	1
SED19003	0022	2	511013	Retusidae	1
SED19003	0022	2	5504010106	Solemya reidi	1
SED19003	0022	2	5515010101	Parvilucina tenuisculpta	3

Benthic Abundance Report

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Survey : SED19003 Station : 0022

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0022	2	5515020201	Axinopsida serricata	10
SED19003	0022	2	5515100102	Mysella tumida	3
SED19003	0022	2	5515310102	Macoma elimata	2
SED19003	0022	2	5515310112	Macoma carlottensis	11
SED19003	0022	2	5515310204	Tellina modesta	1
SED19003	0022	2	5515470501	Psephidia lordi	5
SED19003	0022	2	6111070301	Euphilomedes carcharodonta	87
SED19003	0022	2	6111070303	Euphilomedes producta	3
SED19003	0022	2	6154070105	Campylaspis hartae	1
SED19003	0022	2	6157020101	Leptochelia savignyi	144
SED19003	0022	2	6169020208	Byblis millsii	1
SED19003	0022	2	6169341411	Hippomedon coecus	2
SED19003	0022	2	61830402	Callianassa spp.	1
SED19003	0022	3	5001022301	Tenonia kitsapensis	1
SED19003	0022	3	5001130803	Phyllodoce (Paranaitis) polynoides	1
SED19003	0022	3	5001250103	Nephtys caeca	2
SED19003	0022	3	5001250111	Nephtys ferruginea	2
SED19003	0022	3	5001400102	Leitoscoloplos pugettensis	4
SED19003	0022	3	5001400301	Scoloplos armiger	2
SED19003	0022	3	5001400510	Orbinia (Phylo) felix	3
SED19003	0022	3	5001411306	Acmira catherinae	1
SED19003	0022	3	5001430506	Prionospio steenstrupi	10
SED19003	0022	3	5001500302	Tharyx multifilis	1
SED19003	0022	3	5001600303	Notomastus lineatus	5
SED19003	0022	3	5001660303	Pectinaria granulata	1
SED19003	0022	3	5001671	Ampharetinae	2
SED19003	0022	3	500168	Terebellidae	2
SED19003	0022	3	5001680810	Polycirrus californicus	6
SED19003	0022	3	500168130201	Lanassa venusta venusta	4
SED19003	0022	3	5001681501	Laphania boeckii	3
SED19003	0022	3	5001681803	Scionella estevanica	2
SED19003	0022	3	51032001	Alvania spp.	4
SED19003	0022	3	51034601	Bittium spp.	21
SED19003	0022	3	5105030247	Mitrella gausapata	2
SED19003	0022	3	5105080101	Nassarius mendicus	4
SED19003	0022	3	510801019999	Odostomia (Odostomia) spp.	1

Benthic Abundance Report

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Survey : SED19003 Station : 0022

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0022	3	5110040205	Cylichna attonsa	1
SED19003	0022	3	5502020201	Nucula tenuis	2
SED19003	0022	3	5507010201	Crenella decussata	2
SED19003	0022	3	5507010301	Megacrenella columbiana	3
SED19003	0022	3	5515010101	Parvilucina tenuisculpta	3
SED19003	0022	3	5515020201	Axinopsida serricata	97
SED19003	0022	3	5515100102	Mysella tumida	3
SED19003	0022	3	5515190108	Astarte esquimalti	1
SED19003	0022	3	5515220301	Nemocardium centifilosum	1
SED19003	0022	3	5515310112	Macoma carlottensis	3
SED19003	0022	3	5515310204	Tellina modesta	1
SED19003	0022	3	5515470301	Compsomyax subdiaphana	5
SED19003	0022	3	5515470501	Psephidia lordi	62
SED19003	0022	3	55170102	Mya spp.	1
SED19003	0022	3	5520020102	Pandora filosa	4
SED19003	0022	3	5520100108	Cardiomya californica	2
SED19003	0022	3	6111070301	Euphilomedes carcharodonta	151
SED19003	0022	3	6111070303	Euphilomedes producta	2
SED19003	0022	3	6157020101	Leptochelia savignyi	5
SED19003	0022	3	6169341411	Hippomedon coecus	7
SED19003	0022	3	6169421504	Rhepoxynius abronius	7

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0026

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0026	1	3758	Actiniaria	2
SED19003	0026	1	43	Nemertea	1
SED19003	0026	1	5001060101	Pholoe minuta	1
SED19003	0026	1	5001130205	Eteone longa	1
SED19003	0026	1	500125010401	Nephtys cornuta franciscana	1
SED19003	0026	1	5001250106	Nephtys rickettsi	1
SED19003	0026	1	5001250111	Nephtys ferruginea	3
SED19003	0026	1	5001270101	Glycera capitata	2
SED19003	0026	1	5001280101	Glycinde picta	1
SED19003	0026	1	5001280103	Glycinde armigera	1
SED19003	0026	1	5001310109	Lumbrineris luti	6
SED19003	0026	1	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0026	1	5001400102	Leitoscoloplos pugettensis	2
SED19003	0026	1	5001400204	Naineris uncinata	1
SED19003	0026	1	5001430201	Laonice cirrata	1
SED19003	0026	1	5001430431	Polydora cardalia	1
SED19003	0026	1	5001430506	Prionospio steenstrupi	24
SED19003	0026	1	5001431001	Spiophanes bombyx	4
SED19003	0026	1	5001431004	Spiophanes berkelyorum	8
SED19003	0026	1	5001500302	Tharyx multifilis	2
SED19003	0026	1	5001500308	Tharyx tesselata	1
SED19003	0026	1	5001500407	Chaetozone spinosa	2
SED19003	0026	1	5001600302	Notomastus tenuis	2
SED19003	0026	1	5001600402	Mediomastus californiensis	3
SED19003	0026	1	5001600501	Decamastus gracilis	2
SED19003	0026	1	500163	Maldanidae	12
SED19003	0026	1	5001630302	Maldane glebifex	5
SED19003	0026	1	500163090301	Praxillella affinis pacifica	1
SED19003	0026	1	5001631103	Euclymene zonalis	4
SED19003	0026	1	5001640102	Owenia fusiformis	1
SED19003	0026	1	5001640201	Myriochele heeri	3
SED19003	0026	1	5001660304	Pectinaria californiensis	9
SED19003	0026	1	5001670208	Ampharete acutifrons	2
SED19003	0026	1	5001670804	Asabellides lineata	1
SED19003	0026	1	5001680810	Polycirrus californicus	2
SED19003	0026	1	51034601	Bittium spp.	7

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0026

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0026	1	5103760201	Natica clausa	1
SED19003	0026	1	5105030247	Mitrella gausapata	1
SED19003	0026	1	51050801	Nassaricus spp.	1
SED19003	0026	1	5110040205	Cylichna attonsa	2
SED19003	0026	1	5507010301	Megacrenella columbiana	1
SED19003	0026	1	5515010101	Parvilucina tenuisculpta	16
SED19003	0026	1	5515010201	Lucinoma acutilineata	3
SED19003	0026	1	5515100102	Mysella tumida	4
SED19003	0026	1	5515220301	Nemocardium centifilosum	2
SED19003	0026	1	5515310112	Macoma carlottensis	12
SED19003	0026	1	5515310204	Tellina modesta	1
SED19003	0026	1	55170102	Mya spp.	1
SED19003	0026	1	611103	Cylindroleberididae	1
SED19003	0026	1	6111070303	Euphilomedes producta	20
SED19003	0026	1	6154040202	Eudorella pacifica	1
SED19003	0026	1	6157020202	Leptognathia gracilis	1
SED19003	0026	1	6157020204	Leptognathia brevimana	2
SED19003	0026	1	6169260299	Photis parvidons	7
SED19003	0026	1	61692603	Protomedeia spp.	1
SED19003	0026	1	6169342903	Orchomene pacifica	12
SED19003	0026	1	61693501	Melphidippa spp.	1
SED19003	0026	1	6169371502	Westwoodilla caecula	3
SED19003	0026	1	6169420926	Rhepoxynius variatus	9
SED19003	0026	1	6169421503	Rhepoxynius bicuspidata	5
SED19003	0026	1	61700110	Parathemisto pacifica	2
SED19003	0026	1	6189060404	Pinnixa schmitti	2
SED19003	0026	1	83000003	Sagitta spp.	2
SED19003	0026	2	37590401	Halcapa spp	1
SED19003	0026	2	39	Platyhelminthes	1
SED19003	0026	2	43	Nemertea	6
SED19003	0026	2	5001060101	Pholoe minuta	6
SED19003	0026	2	5001130202	Eteone spetsbergensis	1
SED19003	0026	2	5001130701	Phyllodoce (Genetyllis) castanea	1
SED19003	0026	2	5001131101	Eulalia (Eumida) sanguinea	1
SED19003	0026	2	5001230512	Syllis variegata	1
SED19003	0026	2	5001230806	Sphaerosyllis brandhorsti	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0026

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0026	2	5001231002	Syllis heterochaeta	1
SED19003	0026	2	5001231303	Odontosyllis phosphorea	3
SED19003	0026	2	5001240406	Nereis zonata	1
SED19003	0026	2	500125010401	Nephtys cornuta franciscana	2
SED19003	0026	2	5001250111	Nephtys ferruginea	3
SED19003	0026	2	5001270101	Glycera capitata	1
SED19003	0026	2	5001280103	Glycinde armigera	2
SED19003	0026	2	5001290103	Onuphis iridescens	1
SED19003	0026	2	5001290202	Diopatra ornata	1
SED19003	0026	2	50013101	Lumbrineris spp.	1
SED19003	0026	2	5001310129	Lumbrineris lagunae	2
SED19003	0026	2	5001310195	Lumbrineris sp. gr. 3	2
SED19003	0026	2	5001400204	Naineris uncinata	1
SED19003	0026	2	5001430506	Prionospio steenstrupi	32
SED19003	0026	2	5001430521	Prionospio lighti	1
SED19003	0026	2	5001431001	Spiophanes bombyx	1
SED19003	0026	2	5001431004	Spiophanes berkelyorum	3
SED19003	0026	2	5001490202	Phyllochaetopterus prolifica	1
SED19003	0026	2	5001500302	Tharyx multifilis	2
SED19003	0026	2	5001540302	Pherusa plumosa	1
SED19003	0026	2	5001580202	Armandia brevis	2
SED19003	0026	2	5001600402	Mediomastus californiensis	6
SED19003	0026	2	500163	Maldanidae	4
SED19003	0026	2	5001630302	Maldane glebifex	4
SED19003	0026	2	5001630502	Nicomache personata	1
SED19003	0026	2	5001630901	Praxillella gracilis	1
SED19003	0026	2	5001640201	Myriochele heeri	1
SED19003	0026	2	5001660304	Pectinaria californiensis	16
SED19003	0026	2	5001670804	Asabellides lineata	1
SED19003	0026	2	5001680701	Pista cristata	1
SED19003	0026	2	5001680710	Pista brevibranchiata	1
SED19003	0026	2	5001680810	Polycirrus californicus	2
SED19003	0026	2	5001682502	Streblosoma bairdi	1
SED19003	0026	2	51034601	Bittium spp.	7
SED19003	0026	2	5103760201	Natica clausa	1
SED19003	0026	2	5105030247	Mitrella gausapata	5

Benthic Abundance Report

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Survey : SED19003 Station : 0026

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A L ABUN- L DANCE
SED19003	0026	2	51050801	Nassarius spp.	1
SED19003	0026	2	5110040205	Cylichna attonsa	4
SED19003	0026	2	5515010101	Parvilucina tenuisculpta	11
SED19003	0026	2	5515010201	Lucinoma acutilineata	3
SED19003	0026	2	5515020201	Axinopsida serricata	1
SED19003	0026	2	5515100102	Mysella tumida	4
SED19003	0026	2	5515220301	Nemocardium centifilosum	1
SED19003	0026	2	551527	Cardiliidae	1
SED19003	0026	2	5515310112	Macoma carlottensis	25
SED19003	0026	2	55170102	Mya spp.	3
SED19003	0026	2	611103	Cylindroleberididae	2
SED19003	0026	2	6111070303	Euphilomedes producta	29
SED19003	0026	2	6154040306	Eudorellopsis longirostris	1
SED19003	0026	2	6154050101	Diastylis alaskensis	1
SED19003	0026	2	6157020204	Leptognathia brevimana	7
SED19003	0026	2	6169260299	Photis parvidons	7
SED19003	0026	2	6169340303	Anonyx lilljeborgi	1
SED19003	0026	2	6169342903	Orchomene pacifica	16
SED19003	0026	2	61693501	Melphidippa spp.	1
SED19003	0026	2	6169371402	Synchelidium shoemakeri	1
SED19003	0026	2	6169371502	Westwoodilla caecula	2
SED19003	0026	2	6169420926	Rhepoxynius variatus	4
SED19003	0026	2	6169421503	Rhepoxynius bicuspidata	3
SED19003	0026	2	6171010719	Caprella mendax	1
SED19003	0026	2	6189060301	Fabia subquadrata	1
SED19003	0026	2	6189060404	Pinnixa schmitti	5
SED19003	0026	3	43	Nemertea	1
SED19003	0026	3	5001021701	Hesperonoe complanata	1
SED19003	0026	3	5001060101	Pholoe minuta	5
SED19003	0026	3	5001130205	Eteone longa	1
SED19003	0026	3	5001131402	Phyllodoce (Aponaitides) hartmanae	4
SED19003	0026	3	5001210102	Gyptis brevipalpa	1
SED19003	0026	3	5001250106	Nephtys rickettsi	1
SED19003	0026	3	5001250111	Nephtys ferruginea	1
SED19003	0026	3	5001280103	Glycinde armigera	1
SED19003	0026	3	5001310109	Lumbrineris luti	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0026

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0026	3	5001400102	Leitoscoloplos pugettensis	1
SED19003	0026	3	5001411306	Acmira catherinae	1
SED19003	0026	3	5001430506	Prionospio steenstrupi	18
SED19003	0026	3	5001430521	Prionospio lighti	5
SED19003	0026	3	5001431001	Spiophanes bombyx	7
SED19003	0026	3	5001431004	Spiophanes berkelyorum	5
SED19003	0026	3	5001500302	Tharyx multifilis	2
SED19003	0026	3	5001600402	Mediomastus californiensis	4
SED19003	0026	3	500163	Maldanidae	9
SED19003	0026	3	5001630302	Maldane glebifex	18
SED19003	0026	3	5001630502	Nicomache personata	1
SED19003	0026	3	5001631103	Euclymene zonalis	15
SED19003	0026	3	5001640102	Owenia fusiformis	1
SED19003	0026	3	5001640201	Myriochele heeri	1
SED19003	0026	3	5001660304	Pectinaria californiensis	14
SED19003	0026	3	5001670208	Ampharete acutifrons	2
SED19003	0026	3	5001670804	Asabellides lineata	1
SED19003	0026	3	5001700106	Chone magna	1
SED19003	0026	3	51034601	Bittium spp.	14
SED19003	0026	3	5110040205	Cylichna attonsa	3
SED19003	0026	3	5502040504	Yoldia scissurata	1
SED19003	0026	3	5507010301	Megacrenella columbiana	1
SED19003	0026	3	5515010101	Parvilucina tenuisculpta	10
SED19003	0026	3	5515010201	Lucinoma acutilineata	2
SED19003	0026	3	5515020201	Axinopsida serricata	2
SED19003	0026	3	5515100102	Mysella tumida	2
SED19003	0026	3	5515220301	Nemocardium centifilosum	3
SED19003	0026	3	5515310102	Macoma elimata	1
SED19003	0026	3	5515310112	Macoma carlottensis	20
SED19003	0026	3	5515310204	Tellina modesta	2
SED19003	0026	3	5520050202	Lyonsia californica	1
SED19003	0026	3	611103	Cylindroleberididae	1
SED19003	0026	3	6111070303	Euphilomedes producta	12
SED19003	0026	3	6154050101	Diastylis alaskensis	2
SED19003	0026	3	6157020202	Leptognathia gracilis	3
SED19003	0026	3	6157020204	Leptognathia brevimana	6

Benthic Abundance Report

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Survey : SED19003 Station : 0026

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0026	3	6169260299	Photis parvidons	7
SED19003	0026	3	61692603	Protomeдея spp.	1
SED19003	0026	3	61693401	Acidostoma sp.	2
SED19003	0026	3	6169340303	Anonyx lilljeborgi	1
SED19003	0026	3	6169341101	Cyphocaris challengerii	5
SED19003	0026	3	6169342903	Orchomene pacifica	26
SED19003	0026	3	61693501	Melphidippa spp.	12
SED19003	0026	3	6169371402	Synchelidium shoemakeri	2
SED19003	0026	3	6169371502	Westwoodilla caecula	1
SED19003	0026	3	6169420926	Rhepoxynius variatus	6
SED19003	0026	3	6169421503	Rhepoxynius bicuspidata	6
SED19003	0026	3	6169500103	Bruzelia tuberculata	1
SED19003	0026	3	617101	Caprellidae	1
SED19003	0026	3	617916	Hippolytidae	1
SED19003	0026	3	6189060404	Pinnixa schmitti	4
SED19003	0026	3	83000003	Sagitta spp.	1

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Survey : SED19003 Station : 0029

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0029	1	43	Nemertea	3
SED19003	0029	1	5001020810	Harmothoe lunulata	2
SED19003	0029	1	5001060101	Pholoe minuta	1
SED19003	0029	1	5001220201	Sigambra tentaculata	1
SED19003	0029	1	500125010401	Nephtys cornuta franciscana	1
SED19003	0029	1	500125010402	Nephtys cornuta cornuta	3
SED19003	0029	1	5001250111	Nephtys ferruginea	8
SED19003	0029	1	5001260103	Sphaerodoropsis sphaerulifer	1
SED19003	0029	1	5001280203	Goniada brunnea	1
SED19003	0029	1	5001410801	Levinsenia gracilis	10
SED19003	0029	1	5001430521	Prionospio lighti	2
SED19003	0029	1	5001431004	Spiophanes berkelyorum	3
SED19003	0029	1	5001540199	Brada sachalina	1
SED19003	0029	1	5001600402	Mediomastus californiensis	1
SED19003	0029	1	500163090301	Praxillella affinis pacifica	1
SED19003	0029	1	5001640201	Myriochele heeri	1
SED19003	0029	1	5001670208	Ampharete acutifrons	10
SED19003	0029	1	51034601	Bittium spp.	5
SED19003	0029	1	5402	Chaetodermatida	1
SED19003	0029	1	5502020101	Acila castrensis	2
SED19003	0029	1	5515010101	Parvilucina tenuisculpta	1
SED19003	0029	1	5515010201	Lucinoma acutilineata	1
SED19003	0029	1	5515020201	Axinopsida serricata	9
SED19003	0029	1	5515310112	Macoma carlottensis	148
SED19003	0029	1	5520020102	Pandora filosa	1
SED19003	0029	1	6111070303	Euphilomedes producta	18
SED19003	0029	1	6153011901	Pseudomma berkeleyi	1
SED19003	0029	1	6154040202	Eudorella pacifica	8
SED19003	0029	1	6169260307	Protomedeia articulata	3
SED19003	0029	1	6169342904	Orchomene pinquis	2
SED19003	0029	1	6169420204	Harpiniopsis fulgens	1
SED19003	0029	1	6169420301	Heterophoxus oculatus	1
SED19003	0029	1	6189060404	Pinnixa schmitti	1
SED19003	0029	1	8162040103	Brisaster latifrons	1
SED19003	0029	2	5001020606	Gattyana treadwelli	1
SED19003	0029	2	5001020810	Harmothoe lunulata	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0029

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0029	2	5001060101	Pholoe minuta	1
SED19003	0029	2	500125010402	Nephtys cornuta cornuta	1
SED19003	0029	2	5001250111	Nephtys ferruginea	5
SED19003	0029	2	5001260103	Sphaerodoropsis sphaerulifer	1
SED19003	0029	2	5001270101	Glycera capitata	2
SED19003	0029	2	5001280103	Glycinde armigera	1
SED19003	0029	2	5001290103	Onuphis iridescens	2
SED19003	0029	2	5001310109	Lumbrineris luti	1
SED19003	0029	2	5001410801	Levinsenia gracilis	6
SED19003	0029	2	5001430521	Prionospio lighti	3
SED19003	0029	2	5001431004	Spiophanes berkelyorum	4
SED19003	0029	2	5001520199	Cossura modica	1
SED19003	0029	2	5001540199	Brada sachalina	3
SED19003	0029	2	5001660304	Pectinaria californiensis	2
SED19003	0029	2	5001670208	Ampharete acutifrons	4
SED19003	0029	2	5001680710	Pista brevibranchiata	1
SED19003	0029	2	51034601	Bittium spp.	17
SED19003	0029	2	510801019939	Odostomia (O.) sp. A	1
SED19003	0029	2	5110040205	Cylichna attonsa	1
SED19003	0029	2	5110050199	Philine bakeri	1
SED19003	0029	2	5502020101	Acila castrensis	4
SED19003	0029	2	5502020201	Nucula tenuis	1
SED19003	0029	2	5515010101	Parvilucina tenuisculpta	1
SED19003	0029	2	5515010201	Lucinoma acutilineata	2
SED19003	0029	2	5515020201	Axinopsida serricata	3
SED19003	0029	2	5515310112	Macoma carlottensis	196
SED19003	0029	2	6111070303	Euphilomedes producta	21
SED19003	0029	2	6153011901	Pseudomma berkeleyi	4
SED19003	0029	2	6154040202	Eudorella pacifica	18
SED19003	0029	2	6154040301	Eudorellopsis integra	1
SED19003	0029	2	6154050101	Diastylis alaskensis	1
SED19003	0029	2	6169201309	Rhachotropis clemens	1
SED19003	0029	2	61692099	Eusirus sp.	1
SED19003	0029	2	6169211005	Melita californica	1
SED19003	0029	2	61693501	Melphidippa spp.	1
SED19003	0029	2	6169420204	Harpiniopsis fulgens	7

Benthic Abundance Report

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Survey : SED19003 Station : 0029

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0029	2	6169420301	Heterophoxus oculatus	10
SED19003	0029	2	6169420925	Paraphoxus oculatus	1
SED19003	0029	2	6189060404	Pinnixa schmitti	1
SED19003	0029	2	8162040103	Brisaster latifrons	1
SED19003	0029	2	8179010101	Molpadia intermedia	4
SED19003	0029	3	43	Nemertea	2
SED19003	0029	3	5001020810	Harmothoe lunulata	1
SED19003	0029	3	5001210102	Gyptis brevipalpa	1
SED19003	0029	3	500125010401	Nephtys cornuta franciscana	1
SED19003	0029	3	5001250111	Nephtys ferruginea	2
SED19003	0029	3	5001270101	Glycera capitata	2
SED19003	0029	3	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0029	3	5001431004	Spiophanes berkelyorum	2
SED19003	0029	3	5001600402	Mediomastus californiensis	1
SED19003	0029	3	500163	Maldanidae	1
SED19003	0029	3	5001660304	Pectinaria californiensis	1
SED19003	0029	3	5001670208	Ampharete acutifrons	6
SED19003	0029	3	51034601	Bittium spp.	9
SED19003	0029	3	5502020101	Acila castrensis	5
SED19003	0029	3	5515010101	Parvilucina tenuisculpta	1
SED19003	0029	3	5515020201	Axinopsida serricata	4
SED19003	0029	3	5515310112	Macoma carlottensis	169
SED19003	0029	3	5515310204	Tellina modesta	1
SED19003	0029	3	5520020102	Pandora filosa	1
SED19003	0029	3	6111070303	Euphilomedes producta	25
SED19003	0029	3	6154040115	Leucon subnasica	1
SED19003	0029	3	6154040202	Eudorella pacifica	8
SED19003	0029	3	6154050101	Diastylis alaskensis	2
SED19003	0029	3	61610702	Rocinela spp.	1
SED19003	0029	3	6169020135	Ampelisca careyi	1
SED19003	0029	3	6169340303	Anonyx lilljeborgi	1
SED19003	0029	3	6169341101	Cyphocaris challengerii	2
SED19003	0029	3	6169420204	Harpiniopsis fulgens	4
SED19003	0029	3	6169420301	Heterophoxus oculatus	5
SED19003	0029	3	6169420925	Paraphoxus oculatus	1
SED19003	0029	3	8179010101	Molpadia intermedia	3

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Only Verified data.

Survey : SED19003 Station : 0030

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0030	1	43	Nemertea	1
SED19003	0030	1	5001022301	Tenonia kitsapensis	2
SED19003	0030	1	5001060101	Pholoe minuta	2
SED19003	0030	1	5001130202	Eteone spetsbergensis	1
SED19003	0030	1	5001131101	Eulalia (Eumida) sanguinea	3
SED19003	0030	1	5001210102	Gyptis brevipalpa	1
SED19003	0030	1	5001230703	Exogone lourei	2
SED19003	0030	1	5001240406	Nereis zonata	1
SED19003	0030	1	5001240501	Platynereis bicanaliculata	5
SED19003	0030	1	500125010401	Nephtys cornuta franciscana	4
SED19003	0030	1	5001270104	Glycera americana	1
SED19003	0030	1	5001280101	Glycinde picta	9
SED19003	0030	1	50013101	Lumbrineris spp.	5
SED19003	0030	1	5001310109	Lumbrineris luti	6
SED19003	0030	1	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0030	1	5001310196	Lumbrineris sp. gr. 2	1
SED19003	0030	1	5001360101	Dorvillea pseudorubrovittata	1
SED19003	0030	1	5001410801	Levinsenia gracilis	1
SED19003	0030	1	5001430429	Polydora brachycephala	6
SED19003	0030	1	5001430506	Prionospio steenstrupi	1
SED19003	0030	1	5001431701	Paraprionospio pinnata	2
SED19003	0030	1	5001490302	Spiochaetopterus costarum	1
SED19003	0030	1	5001500302	Tharyx multifilis	171
SED19003	0030	1	5001520101	Cossura longocirrata	1
SED19003	0030	1	5001600101	Capitella capitata	3
SED19003	0030	1	5001600302	Notomastus tenuis	1
SED19003	0030	1	5001600402	Mediomastus californiensis	24
SED19003	0030	1	5001600601	Barantolla americana	31
SED19003	0030	1	500163090301	Praxillella affinis pacifica	5
SED19003	0030	1	5001660304	Pectinaria californiensis	2
SED19003	0030	1	500168	Terebellidae	1
SED19003	0030	1	5001680701	Pista cristata	2
SED19003	0030	1	5001680710	Pista brevibranchiata	1
SED19003	0030	1	5001680810	Polycirrus californicus	41
SED19003	0030	1	5001681501	Laphania boeckii	1
SED19003	0030	1	5001682502	Streblosoma bairdi	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0030

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0030	1	5001690101	Terebellides stroemi	1
SED19003	0030	1	5001700204	Euchone incolor	2
SED19003	0030	1	51032001	Alvania spp.	7
SED19003	0030	1	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0030	1	510801119999	Turbonilla sp. A	13
SED19003	0030	1	511004	Scaphandridae	1
SED19003	0030	1	5502020201	Nucula tenuis	1
SED19003	0030	1	5515010101	Parvilucina tenuisculpta	9
SED19003	0030	1	5515010201	Lucinoma acutilineata	1
SED19003	0030	1	5515020201	Axinopsida serricata	27
SED19003	0030	1	5515100102	Mysella tumida	1
SED19003	0030	1	5515310112	Macoma carlottensis	19
SED19003	0030	1	5515310204	Tellina modesta	5
SED19003	0030	1	5520050202	Lyonsia californica	1
SED19003	0030	1	6111070301	Euphilomedes carcharodonta	11
SED19003	0030	1	6111070303	Euphilomedes producta	2
SED19003	0030	1	6154040202	Eudorella pacifica	50
SED19003	0030	1	6157020101	Leptochelia savignyi	1
SED19003	0030	1	6169370816	Monoculodes zernovi	2
SED19003	0030	1	6169371502	Westwoodilla caecula	1
SED19003	0030	1	6169420301	Heterophoxus oculatus	1
SED19003	0030	1	61870101	Oregonia spp.	1
SED19003	0030	1	61880301	Cancer spp.	1
SED19003	0030	1	6189060404	Pinnixa schmitti	12
SED19003	0030	2	39	Platyhelminthes	1
SED19003	0030	2	43	Nemertea	3
SED19003	0030	2	5001022301	Tenonia kitsapensis	1
SED19003	0030	2	5001060101	Pholoe minuta	2
SED19003	0030	2	5001131101	Eulalia (Eumida) sanguinea	1
SED19003	0030	2	5001210102	Gyptis brevipalpa	2
SED19003	0030	2	5001230501	Syllis alternata	1
SED19003	0030	2	500125010401	Nephtys cornuta franciscana	4
SED19003	0030	2	5001250111	Nephtys ferruginea	2
SED19003	0030	2	5001270104	Glycera americana	1
SED19003	0030	2	5001280101	Glycinde picta	6
SED19003	0030	2	500129	Onuphidae	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0030

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A ABUN-	L DANCE
SED19003	0030	2	50013101	Lumbrineris spp.				3
SED19003	0030	2	5001310109	Lumbrineris luti				8
SED19003	0030	2	5001410801	Levinsenia gracilis				2
SED19003	0030	2	5001430402	Polydora socialis				2
SED19003	0030	2	5001430429	Polydora brachycephala				1
SED19003	0030	2	5001430506	Prionospio steenstrupi				2
SED19003	0030	2	5001430521	Prionospio lighti				4
SED19003	0030	2	5001431701	Paraprionospio pinnata				1
SED19003	0030	2	5001490302	Spiochaetopterus costarum				1
SED19003	0030	2	500150	Cirratulidae				3
SED19003	0030	2	5001500302	Tharyx multifilis				151
SED19003	0030	2	5001600101	Capitella capitata				7
SED19003	0030	2	5001600203	Heteromastus filobranchus				2
SED19003	0030	2	5001600302	Notomastus tenuis				4
SED19003	0030	2	5001600303	Notomastus lineatus				1
SED19003	0030	2	5001600402	Mediomastus californiensis				25
SED19003	0030	2	5001600601	Barantolla americana				21
SED19003	0030	2	500163	Maldanidae				3
SED19003	0030	2	500163090301	Praxillella affinis pacifica				12
SED19003	0030	2	5001660304	Pectinaria californiensis				1
SED19003	0030	2	5001670804	Asabellides lineata				1
SED19003	0030	2	500168	Terebellidae				2
SED19003	0030	2	5001680701	Pista cristata				4
SED19003	0030	2	5001680810	Polycirrus californicus				45
SED19003	0030	2	500168130201	Lanassa venusta venusta				3
SED19003	0030	2	5001682502	Streblosoma bairdi				1
SED19003	0030	2	5001690101	Terebellides stroemi				2
SED19003	0030	2	5009020706	Limnodriloides victoriensis				3
SED19003	0030	2	51032001	Alvania spp.				1
SED19003	0030	2	510801119999	Turbonilla sp. A				12
SED19003	0030	2	5502020101	Acila castrensis				2
SED19003	0030	2	5515010101	Parvilucina tenuisculpta				6
SED19003	0030	2	5515020201	Axinopsida serricata				9
SED19003	0030	2	5515100102	Mysella tumida				1
SED19003	0030	2	5515310111	Macoma yoldiformis				1
SED19003	0030	2	5515310112	Macoma carlottensis				15

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0030

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0030	2	6111070301	Euphilomedes carcharodonta	8
SED19003	0030	2	6154040202	Eudorella pacifica	89
SED19003	0030	2	6154050101	Diastylis alaskensis	1
SED19003	0030	2	6157020101	Leptochelia savignyi	1
SED19003	0030	2	6169370816	Monoculodes zernovi	1
SED19003	0030	?	6189060404	Pinnixa schmitti	1
SED19003	0030	3	5001021801	Lepidasthenia berkeleyae	1
SED19003	0030	3	5001060101	Pholoe minuta	2
SED19003	0030	3	5001130205	Eteone longa	1
SED19003	0030	3	5001210102	Gyptis brevipalpa	2
SED19003	0030	3	5001230501	Syllis alternata	2
SED19003	0030	3	500125010401	Nephtys cornuta franciscana	6
SED19003	0030	3	5001250111	Nephtys ferruginea	2
SED19003	0030	3	5001280101	Glycinde picta	5
SED19003	0030	3	5001310109	Lumbrineris luti	4
SED19003	0030	3	5001310195	Lumbrineris sp. gr. 3	2
SED19003	0030	3	5001410801	Levinsenia gracilis	1
SED19003	0030	3	5001430506	Prionospio steenstrupi	1
SED19003	0030	3	5001431701	Paraprionospio pinnata	2
SED19003	0030	3	500150	Cirratulidae	2
SED19003	0030	3	5001500302	Tharyx multifilis	135
SED19003	0030	3	5001600101	Capitella capitata	2
SED19003	0030	3	5001600203	Heteromastus filobranthus	2
SED19003	0030	3	5001600302	Notomastus tenuis	2
SED19003	0030	3	5001600402	Mediomastus californiensis	13
SED19003	0030	3	5001600601	Barantolla americana	10
SED19003	0030	3	500163	Maldanidae	1
SED19003	0030	3	500163090301	Praxillella affinis pacifica	9
SED19003	0030	3	5001680701	Pista cristata	2
SED19003	0030	3	50016808	Polycirrus spp.	1
SED19003	0030	3	5001680810	Polycirrus californicus	37
SED19003	0030	3	5001682502	Streblosoma bairdi	2
SED19003	0030	3	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0030	3	510801119999	Turbonilla sp. A	13
SED19003	0030	3	5502020201	Nucula tenuis	2

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Survey : SED19003 Station : 0030

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A	ABUN-
					L	DANCE		
SED19003	0030	3	5507010301	Megacrenella columbiana				1
SED19003	0030	3	5515010101	Parvilucina tenuisculpta				4
SED19003	0030	3	5515020201	Axinopsida serricata				11
SED19003	0030	3	5515310112	Macoma carlottensis				16
SED19003	0030	3	5515310204	Tellina modesta				1
SED19003	0030	3	6111070301	Euphilomedes carcharodonta				18
SED19003	0030	3	6154040202	Eudorella pacifica				88
SED19003	0030	3	6169020208	Byblis millsii				1
SED19003	0030	3	6169260312	Protomedeia prudens				2
SED19003	0030	3	6169341411	Hippomedon coecus				1
SED19003	0030	3	6169420301	Heterophoxus oculatus				1
SED19003	0030	3	6189060301	Fabia subquadrata				1
SED19003	0030	3	6189060404	Pinnixa schmitti				12

Benthic Abundance Report

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Survey : SED19003 Station : 0032

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0032	1	43	Nemertea	34
SED19003	0032	1	5001020603	Gattyana cirrosa	2
SED19003	0032	1	5001040101	Pholoides aspera	67
SED19003	0032	1	5001060301	Sthenelais berkeleyi	1
SED19003	0032	1	5001080101	Paleonotus bellis	1
SED19003	0032	1	500113	Phyllodoceidae	1
SED19003	0032	1	5001130114	Phyllodoce (Anaitides) williamsi	1
SED19003	0032	1	5001130308	Eulalia (Eumida) bilineata	8
SED19003	0032	1	5001131101	Eulalia (Eumida) sanguinea	16
SED19003	0032	1	5001210102	Gyptis brevipalpa	1
SED19003	0032	1	50012302	Pionosyllis spp.	1
SED19003	0032	1	5001230201	Pionosyllis gigantea	6
SED19003	0032	1	50012307	Exogone spp.	41
SED19003	0032	1	5001230806	Sphaerosyllis brandhorsti	1
SED19003	0032	1	5001231303	Odontosyllis phosphorea	9
SED19003	0032	1	500125010401	Nephtys cornuta franciscana	1
SED19003	0032	1	5001250111	Nephtys ferruginea	3
SED19003	0032	1	5001270101	Glycera capitata	1
SED19003	0032	1	5001280103	Glycinde armigera	3
SED19003	0032	1	500129	Onuphidae	6
SED19003	0032	1	5001290111	Onuphis elegans	2
SED19003	0032	1	5001290202	Diopatra ornata	1
SED19003	0032	1	5001310132	Lumbrineris californiensis	2
SED19003	0032	1	5001310196	Lumbrineris sp. gr. 2	14
SED19003	0032	1	5001310197	Lumbrineris sp. gr. 1	4
SED19003	0032	1	5001360101	Dorvillea pseudorubrovittata	22
SED19003	0032	1	5001430201	Laonice cirrata	1
SED19003	0032	1	5001430415	Polydora limicola	1
SED19003	0032	1	5001430419	Polydora armata	4
SED19003	0032	1	5001430506	Prionospio steenstrupi	19
SED19003	0032	1	5001430521	Prionospio lighti	1
SED19003	0032	1	5001431004	Spiophanes berkelyorum	2
SED19003	0032	1	5001490202	Phyllochaetopterus prolifica	161
SED19003	0032	1	5001490302	Spiochaetopterus costarum	4
SED19003	0032	1	5001500101	Cirratulus cirratus	57
SED19003	0032	1	5001500202	Caulleriella alata	1

Benthic Abundance Report

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0032	1	50015003	Tharyx spp.	2
SED19003	0032	1	5001500302	Tharyx multifilis	1
SED19003	0032	1	50015004	Chaetozone spp.	1
SED19003	0032	1	5001540202	Flabelligera affinis	1
SED19003	0032	1	5001540302	Pherusa plumosa	2
SED19003	0032	1	5001600302	Notomastus tenuis	8
SED19003	0032	1	500163	Maldanidae	1
SED19003	0032	1	500163090301	Praxillella affinis pacifica	1
SED19003	0032	1	5001660303	Pectinaria granulata	14
SED19003	0032	1	5001660304	Pectinaria californiensis	1
SED19003	0032	1	5001670701	Anobothrus gracilis	2
SED19003	0032	1	500168	Terebellidae	11
SED19003	0032	1	5001681803	Scionella estevanica	5
SED19003	0032	1	5001700401	Megalomma splendida	2
SED19003	0032	1	51032001	Alvania spp.	2
SED19003	0032	1	51034601	Bittium spp.	5
SED19003	0032	1	51035306	Balcis spp.	2
SED19003	0032	1	5105100102	Olivella baetica	1
SED19003	0032	1	5110010401	Rictaxis punctocaelatus	1
SED19003	0032	1	5502020201	Nucula tenuis	1
SED19003	0032	1	5507010301	Megacrenella columbiana	10
SED19003	0032	1	55070106	Modiolus spp.	2
SED19003	0032	1	55090599	Leptopecten spp.	2
SED19003	0032	1	5515010101	Parvilucina tenuisculpta	4
SED19003	0032	1	5515020201	Axinopsida serricata	4
SED19003	0032	1	5515100102	Mysella tumida	1
SED19003	0032	1	551522	Cardiidae	1
SED19003	0032	1	5515220301	Nemocardium centifilosum	1
SED19003	0032	1	5515310112	Macoma carlottensis	1
SED19003	0032	1	5515310204	Tellina modesta	1
SED19003	0032	1	5515470501	Psephidia lordi	1
SED19003	0032	1	5517060201	Hiatella arctica	1
SED19003	0032	1	5520050202	Lyonsia californica	3
SED19003	0032	1	5520100108	Cardiomya californica	1
SED19003	0032	1	6001010107	Nymphon pixellae	2
SED19003	0032	1	6111060103	Rutiderma lomae	1

Benthic Abundance Report

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Survey : SED19003 Station : 0032

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0032	1	6111070301	Euphilomedes carcharodonta	97
SED19003	0032	1	6154040306	Eudorellopsis longirostris	1
SED19003	0032	1	6157020101	Leptocheilia savignyi	2
SED19003	0032	1	6160011601	Haliophasma geminata	1
SED19003	0032	1	6169020134	Ampelisca lobata	8
SED19003	0032	1	6169020135	Ampelisca careyi	1
SED19003	0032	1	6169020208	Byblis millsii	9
SED19003	0032	1	61691502	Corophium spp.	2
SED19003	0032	1	6169341411	Hippomedon coecus	5
SED19003	0032	1	61693501	Melphidippa spp.	1
SED19003	0032	1	6169371402	Synchelidium shoemakeri	2
SED19003	0032	1	6169420301	Heterophoxus oculatus	7
SED19003	0032	1	6169420601	Metaphoxus frequens	2
SED19003	0032	1	6169421504	Rhepoxynius abronius	1
SED19003	0032	1	6189060404	Pinnixa schmitti	4
SED19003	0032	1	80	Brachiopoda	7
SED19003	0032	1	81290302	Amphipholis spp.	3
SED19003	0032	1	8170	Holothuroidea	12
SED19003	0032	1	8172060110	Cucumaria miniata	12
SED19003	0032	1	8401	Asciidiacea	6
SED19003	0032	2	43	Nemertea	13
SED19003	0032	2	5001020603	Gattyana cirrosa	1
SED19003	0032	2	5001021103	Lepidonotus squamatus	1
SED19003	0032	2	5001040101	Pholoides aspera	67
SED19003	0032	2	5001080101	Paleonotus bellis	2
SED19003	0032	2	5001130112	Phyllodoce (Anaitides) longipes	1
SED19003	0032	2	5001130308	Eulalia (Eumida) bilineata	5
SED19003	0032	2	5001131101	Eulalia (Eumida) sanguinea	8
SED19003	0032	2	5001230201	Pionosyllis gigantea	6
SED19003	0032	2	5001230502	Syllis armillaris	1
SED19003	0032	2	5001230703	Exogone lourei	34
SED19003	0032	2	5001231002	Syllis heterochaeta	1
SED19003	0032	2	5001231303	Odontosyllis phosphorea	5
SED19003	0032	2	50012404	Nereis spp.	1
SED19003	0032	2	5001250111	Nephtys ferruginea	2
SED19003	0032	2	5001270101	Glycera capitata	1

Benthic Abundance Report

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Survey : SED19003 Station : 0032

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A	ABUN-
					L	DANCE		
SED19003	0032	2	5001270104	Glycera americana				1
SED19003	0032	2	5001280103	Glycinde armigera				1
SED19003	0032	2	5001290111	Onuphis elegans				1
SED19003	0032	2	5001290202	Diopatra ornata				2
SED19003	0032	2	5001310118	Lumbrineris cruzensis				4
SED19003	0032	2	5001310132	Lumbrineris californiensis				6
SED19003	0032	2	5001310196	Lumbrineris sp. gr. 2				10
SED19003	0032	2	5001310197	Lumbrineris sp. gr. 1				3
SED19003	0032	2	5001360101	Dorvillea pseudorubrovittata				5
SED19003	0032	2	5001400102	Leitoscoloplos pugettensis				1
SED19003	0032	2	5001430415	Polydora limicola				2
SED19003	0032	2	5001430419	Polydora armata				9
SED19003	0032	2	5001430506	Prionospio steenstrupi				24
SED19003	0032	2	5001440105	Magelona longicornis				1
SED19003	0032	2	5001490202	Phyllochaetopterus prolifica				219
SED19003	0032	2	5001490302	Spiochaetopterus costarum				4
SED19003	0032	2	5001500101	Cirratulus cirratus				28
SED19003	0032	2	5001500202	Caulleriella alata				2
SED19003	0032	2	5001500302	Tharyx multifilis				1
SED19003	0032	2	5001500308	Tharyx tessellata				2
SED19003	0032	2	5001600302	Notomastus tenuis				8
SED19003	0032	2	500163090301	Praxillella affinis pacifica				2
SED19003	0032	2	5001650201	Sabellaria cementarium				3
SED19003	0032	2	5001660303	Pectinaria granulata				8
SED19003	0032	2	5001660304	Pectinaria californiensis				1
SED19003	0032	2	500167	Ampharetidae				5
SED19003	0032	2	5001670701	Anobothrus gracilis				1
SED19003	0032	2	5001680810	Polycirrus californicus				1
SED19003	0032	2	5001681803	Scionella estevanica				6
SED19003	0032	2	5001682502	Streblosoma bairdi				2
SED19003	0032	2	500170	Sabellidae				1
SED19003	0032	2	5001700401	Megalomma splendida				1
SED19003	0032	2	500902	Tubificidae				2
SED19003	0032	2	51032001	Alvania spp.				1
SED19003	0032	2	5103640301	Crepipatella lingulata				3
SED19003	0032	2	510801019999	Odostomia (Odostomia) spp.				1

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Survey : SED19003 Station : 0032

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0032	2	55	Bivalvia	1
SED19003	0032	2	5502020201	Nucula tenuis	2
SED19003	0032	2	5502040299	Nuculana penderi	1
SED19003	0032	2	5507010301	Megacrenella columbiana	4
SED19003	0032	2	55070106	Modiolus spp.	2
SED19003	0032	2	5515010101	Parvilucina tenuisculpta	2
SED19003	0032	2	5515010201	Lucinoma acutilineata	2
SED19003	0032	2	5515020201	Axinopsida serricata	3
SED19003	0032	2	551522	Cardiidae	2
SED19003	0032	2	5515220301	Nemocardium centifilosum	6
SED19003	0032	2	5515310112	Macoma carlottensis	5
SED19003	0032	2	5515310204	Tellina modesta	1
SED19003	0032	2	5515470501	Psephidia lordi	1
SED19003	0032	2	55170102	Mya spp.	1
SED19003	0032	2	5517060201	Hiatella arctica	10
SED19003	0032	2	5520050202	Lyonsia californica	5
SED19003	0032	2	611103	Cylindroleberididae	1
SED19003	0032	2	6111070301	Euphilomedes carcharodonta	71
SED19003	0032	2	6154040306	Eudorellopsis longirostris	2
SED19003	0032	2	6157020101	Leptochelia savignyi	1
SED19003	0032	2	6169020134	Ampelisca lobata	3
SED19003	0032	2	6169020208	Byblis millsii	13
SED19003	0032	2	6169341411	Hippomedon coecus	2
SED19003	0032	2	6169370816	Monoculodes zernovi	1
SED19003	0032	2	6169400303	Pardalisca tenuipes	4
SED19003	0032	2	6169420301	Heterophoxus oculus	5
SED19003	0032	2	6169420925	Paraphoxus oculus	1
SED19003	0032	2	6169421504	Rhepoxynius abronius	3
SED19003	0032	2	6179160408	Eualus pusiolus	1
SED19003	0032	2	618906	Pinnotheridae	1
SED19003	0032	2	6189060404	Pinnixa schmitti	2
SED19003	0032	2	7200020104	Golfingia pugettensis	2
SED19003	0032	2	80	Brachiopoda	7
SED19003	0032	2	8104	Asteroidea	1
SED19003	0032	2	8129030202	Amphipholis squamata	5
SED19003	0032	2	8170	Holothuroidea	1

Benthic Abundance Report

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0032	3	43	Nemertea	41
SED19003	0032	3	5001021103	Lepidonotus squamatus	1
SED19003	0032	3	5001040101	Pholoides aspera	58
SED19003	0032	3	5001060301	Sthenelais berkeleyi	1
SED19003	0032	3	5001080101	Paleonotus bellis	3
SED19003	0032	3	5001130205	Eteone longa	1
SED19003	0032	3	5001130308	Eulalia (Eumida) bilineata	4
SED19003	0032	3	5001131101	Eulalia (Eumida) sanguinea	30
SED19003	0032	3	5001210401	Ophiodromus pugettensis	6
SED19003	0032	3	5001230201	Pionosyllis gigantea	9
SED19003	0032	3	50012307	Exogone spp.	34
SED19003	0032	3	5001231002	Syllis heterochaeta	1
SED19003	0032	3	5001231303	Odontosyllis phosphorea	4
SED19003	0032	3	5001240501	Platynereis bicanaliculata	2
SED19003	0032	3	500125010401	Nephtys cornuta franciscana	1
SED19003	0032	3	500129	Onuphidae	2
SED19003	0032	3	5001290111	Onuphis elegans	2
SED19003	0032	3	5001290202	Diopatra ornata	3
SED19003	0032	3	5001310118	Lumbrineris cruzensis	1
SED19003	0032	3	5001310132	Lumbrineris californiensis	6
SED19003	0032	3	5001310196	Lumbrineris sp. gr. 2	7
SED19003	0032	3	5001310197	Lumbrineris sp. gr. 1	4
SED19003	0032	3	5001360101	Dorvillea pseudorubrovittata	28
SED19003	0032	3	5001430201	Laonice cirrata	3
SED19003	0032	3	5001430415	Polydora limicola	1
SED19003	0032	3	5001430419	Polydora armata	3
SED19003	0032	3	5001430506	Prionospio steenstrupi	15
SED19003	0032	3	5001430599	Prionospio multibranchiata	1
SED19003	0032	3	5001490202	Phyllochaetopterus prolifica	204
SED19003	0032	3	5001490302	Spiochaetopterus costarum	7
SED19003	0032	3	5001500101	Cirratulus cirratus	37
SED19003	0032	3	5001500202	Caulleriella alata	9
SED19003	0032	3	5001500302	Tharyx multifilis	2
SED19003	0032	3	5001500308	Tharyx tessellata	1
SED19003	0032	3	5001540202	Flabelligera affinis	1
SED19003	0032	3	5001540302	Pherusa plumosa	4

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0032

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0032	3	5001600402	Mediomastus californiensis	1
SED19003	0032	3	500163090301	Praxillella affinis pacifica	1
SED19003	0032	3	5001632001	Isocirrus longiceps	1
SED19003	0032	3	5001650201	Sabellaria cementarium	3
SED19003	0032	3	5001660303	Pectinaria granulata	14
SED19003	0032	3	500167	Ampharetidae	2
SED19003	0032	3	5001670701	Anobothrus gracilis	1
SED19003	0032	3	5001680703	Pista elongata	1
SED19003	0032	3	5001680710	Pista brevibranchiata	2
SED19003	0032	3	50016808	Polycirrus spp.	5
SED19003	0032	3	5001681803	Scionella estevanica	6
SED19003	0032	3	5001682502	Streblosoma bairdi	1
SED19003	0032	3	5001700401	Megalomma splendida	1
SED19003	0032	3	51034601	Bittium spp.	4
SED19003	0032	3	5103640301	Crepipatella lingulata	1
SED19003	0032	3	5507010301	Megacrenella columbiana	7
SED19003	0032	3	5507010601	Modiolus modiolus	6
SED19003	0032	3	55090599	Leptopecten spp.	2
SED19003	0032	3	5515010101	Parvilucina tenuisculpta	3
SED19003	0032	3	5515020201	Axinopsida serricata	1
SED19003	0032	3	5515100102	Mysella tumida	3
SED19003	0032	3	5515220301	Nemocardium centifilosum	1
SED19003	0032	3	5515310111	Macoma yoldiformis	5
SED19003	0032	3	5517060201	Hiatella arctica	6
SED19003	0032	3	5520050202	Lyonsia californica	2
SED19003	0032	3	5520100108	Cardiomya californica	2
SED19003	0032	3	6111070301	Euphilomedes carcharodonta	73
SED19003	0032	3	6111070303	Euphilomedes producta	1
SED19003	0032	3	6154070119	Campylaspis rubromaculata	1
SED19003	0032	3	61590101	Gnathia spp.	1
SED19003	0032	3	6169020111	Ampelisca agassizi	1
SED19003	0032	3	6169020134	Ampelisca lobata	11
SED19003	0032	3	6169020135	Ampelisca careyi	1
SED19003	0032	3	6169020208	Byblis millsii	8
SED19003	0032	3	61691502	Corophium spp.	2
SED19003	0032	3	6169201307	Rhachotropis oculata	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0032

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0032	3	6169341411	Hippomedon coecus	1
SED19003	0032	3	6169370816	Monoculodes zernovi	1
SED19003	0032	3	6169371402	Synchelidium shoemakeri	2
SED19003	0032	3	6169420301	Heterophoxus oculatus	6
SED19003	0032	3	6179160408	Eualus pusiolus	1
SED19003	0032	3	6187010101	Oregonia gracilis	2
SED19003	0032	3	6189060404	Pinnixa schmitti	3
SED19003	0032	3	7200020104	Golfingia pugettensis	1
SED19003	0032	3	8005110201	Terebratalia transversa	4
SED19003	0032	3	81130101	Crossaster spp.	1
SED19003	0032	3	8129030202	Amphipholis squamata	12
SED19003	0032	3	8136	Echinoidea	4
SED19003	0032	3	8170	Holothuroidea	8
SED19003	0032	3	8172060110	Cucumaria miniata	1
SED19003	0032	3	81720603	Pentamera spp.	1
SED19003	0032	3	8401	Ascidacea	3

Benthic Abundance Report

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Survey : SED19003 Station : 0033

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0033	1	43	Nemertea	1
SED19003	0033	1	5001040101	Pholoides aspera	2
SED19003	0033	1	5001060101	Pholoe minuta	1
SED19003	0033	1	5001060301	Sthenelais berkeleyi	1
SED19003	0033	1	5001130308	Eulalia (Eumida) bilineata	1
SED19003	0033	1	5001131101	Eulalia (Eumida) sanguinea	3
SED19003	0033	1	5001131402	Phyllodoce (Aponaitides) hartmanae	1
SED19003	0033	1	5001230703	Exogone lourei	1
SED19003	0033	1	5001240501	Platynereis bicanaliculata	1
SED19003	0033	1	5001250111	Nephtys ferruginea	4
SED19003	0033	1	5001260103	Sphaerodoropsis sphaerulifer	1
SED19003	0033	1	5001270101	Glycera capitata	5
SED19003	0033	1	5001270104	Glycera americana	1
SED19003	0033	1	5001280103	Glycinde armigera	2
SED19003	0033	1	5001290202	Diopatra ornata	1
SED19003	0033	1	5001310109	Lumbrineris luti	8
SED19003	0033	1	5001310118	Lumbrineris cruzensis	4
SED19003	0033	1	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0033	1	5001310197	Lumbrineris sp. gr. 1	11
SED19003	0033	1	5001330302	Notocirrus californiensis	1
SED19003	0033	1	5001411306	Acmira catherinae	1
SED19003	0033	1	5001420102	Apistobanchus ornatus	1
SED19003	0033	1	500143	Spionidae	2
SED19003	0033	1	5001430201	Laonice cirrata	1
SED19003	0033	1	5001430506	Prionospio steenstrupi	57
SED19003	0033	1	5001430521	Prionospio lighti	1
SED19003	0033	1	5001431701	Paraprionospio pinnata	3
SED19003	0033	1	5001440105	Magelona longicornis	11
SED19003	0033	1	5001490302	Spiochaetopterus costarum	6
SED19003	0033	1	5001490401	Mesochaetopterus taylori	2
SED19003	0033	1	5001500302	Tharyx multifilis	13
SED19003	0033	1	5001500309	Tharyx secundus	15
SED19003	0033	1	5001500407	Chaetozone spinosa	9
SED19003	0033	1	5001600101	Capitella capitata	1
SED19003	0033	1	5001600302	Notomastus tenuis	23
SED19003	0033	1	5001600402	Mediomastus californiensis	5

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0033

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0033	1	5001600601	Barantolla americana	2
SED19003	0033	1	500163099999	Praxillella sp. A	1
SED19003	0033	1	5001640102	Owenia fusiformis	1
SED19003	0033	1	5001640201	Myriochele heeri	7
SED19003	0033	1	5001660303	Pectinaria granulata	5
SED19003	0033	1	5001660304	Pectinaria californiensis	1
SED19003	0033	1	500167	Ampharetidae	1
SED19003	0033	1	5001670701	Anobothrus gracilis	6
SED19003	0033	1	50016808	Polycirrus spp.	3
SED19003	0033	1	5001681803	Scionella estevanica	2
SED19003	0033	1	5103640301	Crepipatella lingulata	1
SED19003	0033	1	5103760201	Natica clausa	1
SED19003	0033	1	5110010401	Rictaxis punctocaelatus	2
SED19003	0033	1	5502020201	Nucula tenuis	11
SED19003	0033	1	5507010301	Megacrenella columbiana	16
SED19003	0033	1	5515010101	Parvilucina tenuisculpta	2
SED19003	0033	1	5515020201	Axinopsida serricata	95
SED19003	0033	1	5515220301	Nemocardium centifilosum	1
SED19003	0033	1	55153101	Macoma spp.	36
SED19003	0033	1	5515310102	Macoma elimata	2
SED19003	0033	1	5515310112	Macoma carlottensis	8
SED19003	0033	1	5515470301	Compsomyax subdiaphana	1
SED19003	0033	1	6111060103	Rutiderma lomae	2
SED19003	0033	1	6111070301	Euphilomedes carcharodonta	64
SED19003	0033	1	6111070303	Euphilomedes producta	17
SED19003	0033	1	6154040202	Eudorella pacifica	1
SED19003	0033	1	6154040306	Eudorellopsis longirostris	1
SED19003	0033	1	6157020101	Leptochelia savignyi	3
SED19003	0033	1	6157020202	Leptognathia gracilis	1
SED19003	0033	1	6160011601	Haliophasma geminata	2
SED19003	0033	1	6169020135	Ampelisca careyi	1
SED19003	0033	1	6169371403	Synchelidium rectipalium	1
SED19003	0033	1	6169371502	Westwoodilla caecula	1
SED19003	0033	1	6169420301	Heterophoxus oculatus	1
SED19003	0033	1	6189060301	Fabia subquadrata	1
SED19003	0033	1	6189060404	Pinnixa schmitti	2

Benthic Abundance Report

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Survey : SED19003 Station : 0033

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0033	1	7200020104	Golfingia pugettensis	1
SED19003	0033	1	8120	Ophiuroidea	1
SED19003	0033	1	8127010607	Ophiura lutkeni	1
SED19003	0033	1	812903019999	Amphiodia urtica/periercta	1
SED19003	0033	2	5001040101	Pholoides aspera	9
SED19003	0033	2	5001060101	Pholoe minuta	1
SED19003	0033	2	5001131101	Eulalia (Eumida) sanguinea	1
SED19003	0033	2	5001210102	Gyptis brevipalpa	1
SED19003	0033	2	5001230201	Pionosyllis gigantea	1
SED19003	0033	2	5001230501	Syllis alternata	1
SED19003	0033	2	5001231002	Syllis heterochaeta	2
SED19003	0033	2	5001240501	Platynereis bicanaliculata	5
SED19003	0033	2	500125	Nephtyidae	2
SED19003	0033	2	500125010401	Nephtys cornuta franciscana	1
SED19003	0033	2	5001250111	Nephtys ferruginea	2
SED19003	0033	2	5001260103	Sphaerodoropsis sphaerulifer	4
SED19003	0033	2	5001270101	Glycera capitata	2
SED19003	0033	2	5001280101	Glycinde picta	3
SED19003	0033	2	5001280103	Glycinde armigera	5
SED19003	0033	2	5001290103	Onuphis iridescens	1
SED19003	0033	2	5001290111	Onuphis elegans	1
SED19003	0033	2	5001290202	Diopatra ornata	2
SED19003	0033	2	5001310118	Lumbrineris cruzensis	11
SED19003	0033	2	5001310197	Lumbrineris sp. gr. 1	19
SED19003	0033	2	5001330302	Notocirrus californiensis	1
SED19003	0033	2	5001410801	Levinsenia gracilis	1
SED19003	0033	2	5001420102	Apistobanchus ornatus	3
SED19003	0033	2	500143	Spionidae	2
SED19003	0033	2	5001430201	Laonice cirrata	1
SED19003	0033	2	5001430402	Polydora socialis	2
SED19003	0033	2	5001430415	Polydora limicola	1
SED19003	0033	2	5001430431	Polydora cardalia	15
SED19003	0033	2	5001430506	Prionospio steenstrupi	55
SED19003	0033	2	5001430521	Prionospio lighti	1
SED19003	0033	2	5001431701	Paraprionospio pinnata	1
SED19003	0033	2	5001440105	Magelona longicornis	5

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0033

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0033	2	5001490302	Spiochaetopterus costarum	3
SED19003	0033	2	5001490401	Mesochaetopterus taylori	9
SED19003	0033	2	500150	Cirratulidae	1
SED19003	0033	2	5001500202	Caulleriella alata	1
SED19003	0033	2	5001500302	Tharyx multifilis	7
SED19003	0033	2	5001500309	Tharyx secundus	1
SED19003	0033	2	5001500407	Chaetozone spinosa	2
SED19003	0033	2	5001600302	Notomastus tenuis	18
SED19003	0033	2	5001600303	Notomastus lineatus	2
SED19003	0033	2	500163099999	Praxillella sp. A	1
SED19003	0033	2	5001640201	Myriochele heeri	1
SED19003	0033	2	5001660303	Pectinaria granulata	7
SED19003	0033	2	5001660304	Pectinaria californiensis	3
SED19003	0033	2	500167	Ampharetidae	3
SED19003	0033	2	5001670701	Anobothrus gracilis	4
SED19003	0033	2	50016808	Polycirrus spp.	1
SED19003	0033	2	5001681803	Scionella estevanica	3
SED19003	0033	2	50017006	Potamilla spp.	1
SED19003	0033	2	51032001	Alvania spp.	2
SED19003	0033	2	51035306	Balcis spp.	2
SED19003	0033	2	5103640301	Crepipatella lingulata	1
SED19003	0033	2	510801019999	Odostomia (Odostomia) spp.	2
SED19003	0033	2	5110010401	Rictaxis punctocaelatus	2
SED19003	0033	2	5502020201	Nucula tenuis	9
SED19003	0033	2	5507010301	Megacrenella columbiana	16
SED19003	0033	2	5515010101	Parvilucina tenuisculpta	6
SED19003	0033	2	5515010201	Lucinoma acutilineata	2
SED19003	0033	2	5515020201	Axinopsida serricata	58
SED19003	0033	2	5515020301	Thyasira flexuosa	2
SED19003	0033	2	5515100102	Mysella tumida	1
SED19003	0033	2	55153101	Macoma spp.	5
SED19003	0033	2	5515310102	Macoma elimata	2
SED19003	0033	2	5515310112	Macoma carlottensis	7
SED19003	0033	2	5520050202	Lyonsia californica	1
SED19003	0033	2	611103	Cylindroleberididae	2
SED19003	0033	2	6111060103	Rutiderma lomae	5

Benthic Abundance Report

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Survey : SED19003 Station : 0033

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0033	2	6111070301	Euphilomedes carcharodonta	91
SED19003	0033	2	6111070303	Euphilomedes producta	10
SED19003	0033	2	6154040202	Eudorella pacifica	1
SED19003	0033	2	6157020101	Leptocheilia savignyi	5
SED19003	0033	2	6157020202	Leptognathia gracilis	3
SED19003	0033	2	6160011601	Haliophasma geminata	2
SED19003	0033	2	6169341411	Hippomedon coecus	2
SED19003	0033	2	6169371403	Synchelidium rectipalmum	1
SED19003	0033	2	6169420301	Heterophoxus oculatus	9
SED19003	0033	2	6189060404	Pinnixa schmitti	14
SED19003	0033	2	7200020106	Golfingia minuta	1
SED19003	0033	2	812903019999	Amphiodia urtica/periercta	2
SED19003	0033	2	81720603	Pentamera spp.	2
SED19003	0033	3	43	Nemertea	1
SED19003	0033	3	5001040101	Pholoides aspera	2
SED19003	0033	3	5001060101	Pholoe minuta	1
SED19003	0033	3	5001060301	Sthenelais berkeleyi	1
SED19003	0033	3	5001080101	Paleonotus bellis	1
SED19003	0033	3	5001130102	Phyllodoce (Anaitides) groenlandica	1
SED19003	0033	3	5001130308	Eulalia (Eumida) bilineata	1
SED19003	0033	3	5001131101	Eulalia (Eumida) sanguinea	5
SED19003	0033	3	500123	Syllidae	1
SED19003	0033	3	5001231002	Syllis heterochaeta	3
SED19003	0033	3	5001231303	Odontosyllis phosphorea	1
SED19003	0033	3	5001250111	Nephtys ferruginea	5
SED19003	0033	3	5001270101	Glycera capitata	1
SED19003	0033	3	5001280101	Glycinde picta	2
SED19003	0033	3	5001280103	Glycinde armigera	9
SED19003	0033	3	500129	Onuphidae	1
SED19003	0033	3	5001290111	Onuphis elegans	1
SED19003	0033	3	50013101	Lumbrineris spp.	1
SED19003	0033	3	5001310118	Lumbrineris cruzensis	11
SED19003	0033	3	5001310197	Lumbrineris sp. gr. 1	23
SED19003	0033	3	5001400102	Leitoscoloplos pugettensis	3
SED19003	0033	3	5001430201	Laonice cirrata	1
SED19003	0033	3	5001430402	Polydora socialis	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0033

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0033	3	5001430506	Prionospio steenstrupi	19
SED19003	0033	3	5001430521	Prionospio lighti	3
SED19003	0033	3	5001430599	Prionospio multibranchiata	1
SED19003	0033	3	5001431701	Paraprionospio pinnata	2
SED19003	0033	3	5001490302	Spiochaetopterus costarum	10
SED19003	0033	3	5001490401	Mesochaetopterus taylori	3
SED19003	0033	3	5001500202	Caulleriella alata	2
SED19003	0033	3	5001500302	Tharyx multifilis	2
SED19003	0033	3	5001500308	Tharyx tessellata	1
SED19003	0033	3	5001500309	Tharyx secundus	1
SED19003	0033	3	5001500407	Chaetozone spinosa	1
SED19003	0033	3	500160	Capitellidae	3
SED19003	0033	3	5001600302	Notomastus tenuis	9
SED19003	0033	3	5001600303	Notomastus lineatus	4
SED19003	0033	3	500163	Maldanidae	1
SED19003	0033	3	5001660303	Pectinaria granulata	3
SED19003	0033	3	5001660304	Pectinaria californiensis	1
SED19003	0033	3	5001670701	Anobothrus gracilis	3
SED19003	0033	3	500168	Terebellidae	2
SED19003	0033	3	5001681803	Scionella estevanica	4
SED19003	0033	3	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0033	3	51080102	Turbonilla spp.	1
SED19003	0033	3	5108011134	Turbonilla aurantia	1
SED19003	0033	3	5110010401	Rictaxis punctocaelatus	1
SED19003	0033	3	5502020201	Nucula tenuis	2
SED19003	0033	3	5507010301	Megacrenella columbiana	8
SED19003	0033	3	5515010101	Parvilucina tenuisculpta	22
SED19003	0033	3	5515020201	Axinopsida serricata	19
SED19003	0033	3	5515020301	Thyasira flexuosa	1
SED19003	0033	3	5515100102	Mysella tumida	4
SED19003	0033	3	551522	Cardiidae	1
SED19003	0033	3	5515310112	Macoma carlottensis	1
SED19003	0033	3	6111070301	Euphilomedes carcharodonta	98
SED19003	0033	3	6111070303	Euphilomedes producta	3
SED19003	0033	3	6169020208	Byblis millsii	2
SED19003	0033	3	6169371502	Westwoodilla caecula	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0033

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0033	3	6169420301	Heterophoxus oculatus	2
SED19003	0033	3	6169420601	Metaphoxus frequens	1
SED19003	0033	3	6189060404	Pinnixa schmitti	3
SED19003	0033	3	7200020106	Golfingia minuta	3
SED19003	0033	3	812903019999	Amphiodia urtica/periercta	3
SED19003	0033	3	8170	Holothuroidea	4

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0034

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A L ABUN- DANCE
SED19003	0034	1	3743010303	Pachycerianthus fimbriatus	1
SED19003	0034	1	43	Nemertea	2
SED19003	0034	1	5001021801	Lepidasthenia berkeleyae	2
SED19003	0034	1	5001131101	Eulalia (Eumida) sanguinea	2
SED19003	0034	1	5001210102	Gyptis brevipalpa	3
SED19003	0034	1	500125010401	Nephtys cornuta franciscana	2
SED19003	0034	1	50013101	Lumbrineris spp.	5
SED19003	0034	1	5001310109	Lumbrineris luti	41
SED19003	0034	1	5001310118	Lumbrineris cruzensis	53
SED19003	0034	1	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0034	1	5001310197	Lumbrineris sp. gr. 1	11
SED19003	0034	1	5001410801	Levinsenia gracilis	4
SED19003	0034	1	5001430402	Polydora socialis	10
SED19003	0034	1	5001430415	Polydora limicola	1
SED19003	0034	1	5001430506	Prionospio steenstrupi	30
SED19003	0034	1	5001430521	Prionospio lighti	10
SED19003	0034	1	5001431004	Spiophanes berkelyorum	9
SED19003	0034	1	5001431701	Paraprionospio pinnata	15
SED19003	0034	1	5001490202	Phyllochaetopterus prolifica	11
SED19003	0034	1	5001490302	Spiochaetopterus costarum	3
SED19003	0034	1	500150	Cirratulidae	6
SED19003	0034	1	5001500302	Tharyx multifilis	139
SED19003	0034	1	50015004	Chaetozone spp.	2
SED19003	0034	1	5001500407	Chaetozone spinosa	2
SED19003	0034	1	5001520101	Cossura longocirrata	11
SED19003	0034	1	5001600402	Mediomastus californiensis	12
SED19003	0034	1	500163	Maldanidae	1
SED19003	0034	1	500163090301	Praxillella affinis pacifica	5
SED19003	0034	1	5001680810	Polycirrus californicus	4
SED19003	0034	1	5001690101	Terebellides stroemi	3
SED19003	0034	1	50017006	Potamilla spp.	3
SED19003	0034	1	5001730602	Spirorbis spirillum	4
SED19003	0034	1	51032001	Alvania spp.	5
SED19003	0034	1	510801019999	Odostomia (Odostomia) spp.	17
SED19003	0034	1	51080102	Turbonilla spp.	4
SED19003	0034	1	5502020101	Acila castrensis	8

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0034

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0034	1	5515020201	Axinopsida serricata	7
SED19003	0034	1	5515100102	Mysella tumida	2
SED19003	0034	1	5515310112	Macoma carlottensis	1
SED19003	0034	1	5515470501	Psephidia lordi	3
SED19003	0034	1	5515470701	Protothaca staminea	1
SED19003	0034	1	6134020104	Balanus crenatus	2
SED19003	0034	1	6154040202	Eudorella pacifica	81
SED19003	0034	1	6169020135	Ampelisca careyi	2
SED19003	0034	1	6169260307	Protomedeia articulata	4
SED19003	0034	1	6169371502	Westwoodilla caecula	2
SED19003	0034	1	6169420301	Heterophoxus oculatus	22
SED19003	0034	1	6169440101	Dyopedos arcticus	1
SED19003	0034	1	6171010719	Caprella mendax	1
SED19003	0034	1	6189060404	Pinnixa schmitti	29
SED19003	0034	1	812903019999	Amphiodia urtica/periercta	3
SED19003	0034	1	8401	Asciacea	1
SED19003	0034	2	3754010103	Stylatula elongata	1
SED19003	0034	2	5001021801	Lepidasthenia berkeleyae	2
SED19003	0034	2	5001131101	Eulalia (Eumida) sanguinea	4
SED19003	0034	2	5001210102	Gyptis brevipalpa	2
SED19003	0034	2	5001240501	Platynereis bicanaliculata	2
SED19003	0034	2	5001280101	Glycinde picta	1
SED19003	0034	2	5001310109	Lumbrineris luti	24
SED19003	0034	2	5001310118	Lumbrineris cruzensis	29
SED19003	0034	2	5001310195	Lumbrineris sp. gr. 3	7
SED19003	0034	2	5001310197	Lumbrineris sp. gr. 1	9
SED19003	0034	2	5001410801	Levinsenia gracilis	1
SED19003	0034	2	5001430201	Laonice cirrata	1
SED19003	0034	2	5001430402	Polydora socialis	2
SED19003	0034	2	5001430415	Polydora limicola	1
SED19003	0034	2	5001430419	Polydora armata	1
SED19003	0034	2	5001430506	Prionospio steenstrupi	29
SED19003	0034	2	5001430521	Prionospio lighti	2
SED19003	0034	2	5001431004	Spiophanes berkelyorum	7
SED19003	0034	2	5001431701	Paraprionospio pinnata	18
SED19003	0034	2	5001490202	Phyllochaetopterus prolifica	31

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0034

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
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					A ABUN-
					L DANCE
SED19003	0034	2	5001490302	Spiochaetopterus costarum	4
SED19003	0034	2	500150	Cirratulidae	1
SED19003	0034	2	5001500302	Tharyx multifilis	80
SED19003	0034	2	5001520101	Cossura longocirrata	1
SED19003	0034	2	5001600402	Mediomastus californiensis	3
SED19003	0034	2	500163090301	Praxillella affinis pacifica	3
SED19003	0034	2	5001680810	Polycirrus californicus	2
SED19003	0034	2	5001681803	Scionella estevanica	1
SED19003	0034	2	5001690101	Terebellides stroemi	1
SED19003	0034	2	5001730602	Spirorbis spirillum	2
SED19003	0034	2	51032001	Alvania spp.	1
SED19003	0034	2	510801019999	Odostomia (Odostomia) spp.	8
SED19003	0034	2	5502020101	Acila castrensis	4
SED19003	0034	2	55090501	Chlamys spp.	2
SED19003	0034	2	5515020201	Axinopsida serricata	5
SED19003	0034	2	5515310112	Macoma carlottensis	1
SED19003	0034	2	5515470501	Psephidia lordi	4
SED19003	0034	2	6134020104	Balanus crenatus	1
SED19003	0034	2	6154040202	Eudorella pacifica	73
SED19003	0034	2	6169260307	Protomedeia articulata	1
SED19003	0034	2	6169420301	Heterophoxus oculatus	7
SED19003	0034	2	6169440111	Dulichia rhabdoplastis	1
SED19003	0034	2	6171010719	Caprella mendax	2
SED19003	0034	2	6179220102	Crangon alaskensis	1
SED19003	0034	2	6189060404	Pinnixa schmitti	12
SED19003	0034	2	7200020104	Golfingia pugettensis	1
SED19003	0034	2	812903019999	Amphiodia urtica/periercta	2
SED19003	0034	3	5001060101	Pholoe minuta	1
SED19003	0034	3	5001080101	Paleonotus bellis	1
SED19003	0034	3	5001130114	Phyllodoce (Anaitides) williamsi	1
SED19003	0034	3	5001131101	Eulalia (Eumida) sanguinea	1
SED19003	0034	3	5001210102	Gyptis brevipalpa	1
SED19003	0034	3	5001280101	Glycinde picta	1
SED19003	0034	3	5001310109	Lumbrineris luti	22
SED19003	0034	3	5001310118	Lumbrineris cruzensis	14
SED19003	0034	3	5001310195	Lumbrineris sp. gr. 3	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0034

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0034	3	5001310197	Lumbrineris sp. gr. 1	12
SED19003	0034	3	5001400102	Leitoscoloplos pugettensis	1
SED19003	0034	3	5001430402	Polydora socialis	1
SED19003	0034	3	5001430415	Polydora limicola	1
SED19003	0034	3	5001430506	Prionospio steenstrupi	26
SED19003	0034	3	5001431004	Spiophanes berkelyorum	4
SED19003	0034	3	5001431701	Paraprionospio pinnata	7
SED19003	0034	3	5001490202	Phyllochaetopterus prolifica	29
SED19003	0034	3	5001490302	Spiochaetopterus costarum	2
SED19003	0034	3	500150	Cirratulidae	5
SED19003	0034	3	5001500302	Tharyx multifilis	84
SED19003	0034	3	5001500401	Chaetozone setosa	3
SED19003	0034	3	5001520101	Cossura longocirrata	1
SED19003	0034	3	5001600402	Mediomastus californiensis	1
SED19003	0034	3	5001670306	Amphicteis mucronata	1
SED19003	0034	3	5001670701	Anobothrus gracilis	1
SED19003	0034	3	500168	Terebellidae	1
SED19003	0034	3	5001680810	Polycirrus californicus	2
SED19003	0034	3	5001690101	Terebellides stroemi	1
SED19003	0034	3	5001730602	Spirorbis spirillum	3
SED19003	0034	3	51032001	Alvania spp.	2
SED19003	0034	3	510801019999	Odostomia (Odostomia) spp.	11
SED19003	0034	3	51080102	Turbonilla spp.	1
SED19003	0034	3	5502020101	Acila castrensis	6
SED19003	0034	3	55070106	Modiolus spp.	1
SED19003	0034	3	55090501	Chlamys spp.	1
SED19003	0034	3	5515020201	Axinopsida serricata	1
SED19003	0034	3	5515310112	Macoma carlottensis	1
SED19003	0034	3	5515470301	Compsomyax subdiaphana	1
SED19003	0034	3	5515470501	Psephidia lordi	1
SED19003	0034	3	6134020104	Balanus crenatus	2
SED19003	0034	3	6154040202	Eudorella pacifica	55
SED19003	0034	3	6169260307	Protomedeia articulata	4
SED19003	0034	3	6169420301	Heterophoxus oculatus	14
SED19003	0034	3	6189060404	Pinnixa schmitti	8
SED19003	0034	3	812903019999	Amphiodia urtica/periercta	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0034

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0034	3	81720602	Eupentacta spp.	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0035

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0035	1	39	Platyhelminthes	2
SED19003	0035	1	43	Nemertea	1
SED19003	0035	1	5001022301	Tenonia kitsapensis	2
SED19003	0035	1	5001060101	Pholoe minuta	13
SED19003	0035	1	5001130201	Eteone californica	2
SED19003	0035	1	5001230512	Syllis variegata	1
SED19003	0035	1	500125010401	Nephtys cornuta franciscana	2
SED19003	0035	1	5001250111	Nephtys ferruginea	1
SED19003	0035	1	5001280101	Glycinde picta	1
SED19003	0035	1	5001280103	Glycinde armigera	1
SED19003	0035	1	5001310109	Lumbrineris luti	2
SED19003	0035	1	5001310118	Lumbrineris cruzensis	1
SED19003	0035	1	5001310195	Lumbrineris sp. gr. 3	2
SED19003	0035	1	5001310197	Lumbrineris sp. gr. 1	5
SED19003	0035	1	5001410801	Levinsenia gracilis	3
SED19003	0035	1	5001430521	Prionospio lighti	10
SED19003	0035	1	5001431004	Spiophanes berkelyorum	4
SED19003	0035	1	5001431701	Paraprionospio pinnata	5
SED19003	0035	1	5001490202	Phyllochaetopterus prolifica	11
SED19003	0035	1	5001490302	Spiochaetopterus costarum	1
SED19003	0035	1	50015003	Tharyx spp.	6
SED19003	0035	1	5001500302	Tharyx multifilis	169
SED19003	0035	1	5001520101	Cossura longocirrata	2
SED19003	0035	1	5001680810	Polycirrus californicus	2
SED19003	0035	1	5001690101	Terebellides stroemi	1
SED19003	0035	1	5001730101	Pseudochitinopoma occidentalis	1
SED19003	0035	1	5001730602	Spirorbis spirillum	2
SED19003	0035	1	51032001	Alvania spp.	1
SED19003	0035	1	510801019999	Odostomia (Odostomia) spp.	17
SED19003	0035	1	51080102	Turbonilla spp.	2
SED19003	0035	1	5515010101	Parvilucina tenuisculpta	1
SED19003	0035	1	5515310112	Macoma carlottensis	1
SED19003	0035	1	5515310114	Macoma nasuta	1
SED19003	0035	1	6111070301	Euphilomedes carcharodonta	2
SED19003	0035	1	6154040202	Eudorella pacifica	100
SED19003	0035	1	6169150302	Erichthonius brasiliensis	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0035

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0035	1	6169371502	Westwoodilla caecula	1
SED19003	0035	1	6171010719	Caprella mendax	1
SED19003	0035	1	6189060404	Pinnixa schmitti	188
SED19003	0035	1	812903019999	Amphiodia urtica/periercta	42
SED19003	0035	2	43	Nemertea	1
SED19003	0035	2	5001022301	Tenonia kitsapensis	1
SED19003	0035	2	5001060101	Pholoe minuta	6
SED19003	0035	2	5001131101	Eulalia (Eumida) sanguinea	5
SED19003	0035	2	5001230201	Pionosyllis gigantea	2
SED19003	0035	2	5001240501	Platynereis bicanaliculata	1
SED19003	0035	2	500125010401	Nephtys cornuta franciscana	2
SED19003	0035	2	5001250111	Nephtys ferruginea	1
SED19003	0035	2	5001270101	Glycera capitata	1
SED19003	0035	2	5001310109	Lumbrineris luti	4
SED19003	0035	2	5001310118	Lumbrineris cruzensis	4
SED19003	0035	2	5001310197	Lumbrineris sp. gr. 1	1
SED19003	0035	2	5001410801	Levinsenia gracilis	3
SED19003	0035	2	5001430402	Polydora socialis	5
SED19003	0035	2	5001430409	Polydora spongicola	2
SED19003	0035	2	5001430417	Polydora pygidialis	1
SED19003	0035	2	5001430521	Prionospio lighti	28
SED19003	0035	2	5001431004	Spiophanes berkelyorum	1
SED19003	0035	2	5001431701	Paraprionospio pinnata	2
SED19003	0035	2	5001490202	Phyllochaetopterus prolifica	332
SED19003	0035	2	5001490302	Spiochaetopterus costarum	4
SED19003	0035	2	500150	Cirratulidae	3
SED19003	0035	2	50015003	Tharyx spp.	7
SED19003	0035	2	5001500302	Tharyx multifilis	144
SED19003	0035	2	5001520101	Cossura longocirrata	2
SED19003	0035	2	5001540202	Flabelligera affinis	1
SED19003	0035	2	5001600402	Mediomastus californiensis	1
SED19003	0035	2	5001650201	Sabellaria cementarium	3
SED19003	0035	2	5001680810	Polycirrus californicus	4
SED19003	0035	2	5001690101	Terebellides stroemi	1
SED19003	0035	2	5001730101	Pseudochitinopoma occidentalis	2
SED19003	0035	2	5001730602	Spirorbis spirillum	11

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0035

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0035	2	51032001	Alvania spp.	26
SED19003	0035	2	51033505	Petalocochus sp.	42
SED19003	0035	2	51036402	Crepidula spp.	1
SED19003	0035	2	5105030247	Mitrella gausapata	1
SED19003	0035	2	510801019999	Odostomia (Odostomia) spp.	10
SED19003	0035	2	55090501	Chlamys spp.	8
SED19003	0035	2	5515100102	Mysella tumida	2
SED19003	0035	2	6154040202	Eudorella pacifica	73
SED19003	0035	2	6169020134	Ampelisca lobata	9
SED19003	0035	2	6169060203	Aoroides inermis	1
SED19003	0035	2	61691502	Corophium spp.	5
SED19003	0035	2	6169150302	Erichthonius brasiliensis	5
SED19003	0035	2	6169420301	Heterophoxus oculatus	5
SED19003	0035	2	6171010719	Caprella mendax	2
SED19003	0035	2	6179160408	Eualus pusiolus	1
SED19003	0035	2	6189060404	Pinnixa schmitti	149
SED19003	0035	2	812903019999	Amphiodia urtica/periercta	35
SED19003	0035	2	8401	Asciacea	1
SED19003	0035	3	3743010303	Pachycerianthus fimbriatus	1
SED19003	0035	3	3754010103	Stylatula elongata	1
SED19003	0035	3	39	Platyhelminthes	1
SED19003	0035	3	43	Nemertea	1
SED19003	0035	3	5001022301	Tenonia kitsapensis	2
SED19003	0035	3	5001060101	Pholoe minuta	19
SED19003	0035	3	5001130201	Eteone californica	2
SED19003	0035	3	5001210102	Gyptis brevipalpa	2
SED19003	0035	3	5001220201	Sigambra tentaculata	1
SED19003	0035	3	5001240501	Platynereis bicanaliculata	1
SED19003	0035	3	500125010401	Nephtys cornuta franciscana	2
SED19003	0035	3	5001280103	Glycinde armigera	1
SED19003	0035	3	5001310109	Lumbrineris luti	6
SED19003	0035	3	5001310118	Lumbrineris cruzensis	15
SED19003	0035	3	5001410801	Levinsenia gracilis	7
SED19003	0035	3	5001430402	Polydora socialis	1
SED19003	0035	3	5001430521	Prionospio lighti	40
SED19003	0035	3	5001431004	Spiophanes berkelyorum	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0035

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A L ABUN- L DANCE
SED19003	0035	3	5001431701	Paraprionospio pinnata	9
SED19003	0035	3	5001490202	Phyllochaetopterus prolifica	4
SED19003	0035	3	5001490302	Spiochaetopterus costarum	6
SED19003	0035	3	50015003	Tharyx spp.	20
SED19003	0035	3	5001500302	Tharyx multifilis	351
SED19003	0035	3	5001520101	Cossura longocirrata	18
SED19003	0035	3	5001680810	Polycirrus californicus	1
SED19003	0035	3	5001730602	Spirorbis spirillum	18
SED19003	0035	3	5009020706	Limnodriloides victoriensis	3
SED19003	0035	3	510801019999	Odostomia (Odostomia) spp.	25
SED19003	0035	3	51080102	Turbonilla spp.	6
SED19003	0035	3	55070106	Modiolus spp.	1
SED19003	0035	3	55090501	Chlamys spp.	1
SED19003	0035	3	5515470501	Psephidia lordi	1
SED19003	0035	3	6111070301	Euphilomedes carcharodonta	1
SED19003	0035	3	6154040202	Eudorella pacifica	66
SED19003	0035	3	6169150302	Erichthonius brasiliensis	2
SED19003	0035	3	6169420301	Heterophoxus oculatus	1
SED19003	0035	3	6189060404	Pinnixa schmitti	210
SED19003	0035	3	812903019999	Amphiodia urtica/periercta	45

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Only Verified data.

Survey : SED19003 Station : 0038

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0038	1	5001250111	Nephtys ferruginea	4
SED19003	0038	1	5001280103	Glycinde armigera	1
SED19003	0038	1	5001410801	Levinsenia gracilis	6
SED19003	0038	1	5001430201	Laonice cirrata	1
SED19003	0038	1	5001430506	Prionospio steenstrupi	1
SED19003	0038	1	5001431004	Spiophanes berkelyorum	1
SED19003	0038	1	5001431701	Paraprionospio pinnata	1
SED19003	0038	1	5001500407	Chaetozone spinosa	2
SED19003	0038	1	5001520199	Cossura modica	7
SED19003	0038	1	5001540199	Brada sachalina	1
SED19003	0038	1	5001660304	Pectinaria californiensis	3
SED19003	0038	1	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0038	1	5502040504	Yoldia scissurata	1
SED19003	0038	1	5515020201	Axinopsida serricata	1
SED19003	0038	1	5515310112	Macoma carlottensis	8
SED19003	0038	1	6111070303	Euphilomedes producta	5
SED19003	0038	1	6153011301	Mysidella americana	1
SED19003	0038	1	6154040202	Eudorella pacifica	3
SED19003	0038	1	6154040301	Eudorellopsis integra	3
SED19003	0038	1	6169020135	Ampelisca careyi	1
SED19003	0038	1	6169260312	Protomedeia prudens	1
SED19003	0038	1	6169341101	Cyphocaris challengeri	1
SED19003	0038	1	6169420204	Harpiniopsis fulgens	1
SED19003	0038	1	6169420301	Heterophoxus oculatus	10
SED19003	0038	1	812903019999	Amphiodia urtica/periercta	2
SED19003	0038	1	8179010101	Molpadia intermedia	5
SED19003	0038	2	5001020606	Gattyana treadwelli	2
SED19003	0038	2	5001220201	Sigambra tentaculata	1
SED19003	0038	2	500125010401	Nephtys cornuta franciscana	1
SED19003	0038	2	5001250111	Nephtys ferruginea	1
SED19003	0038	2	5001280103	Glycinde armigera	1
SED19003	0038	2	5001410801	Levinsenia gracilis	6
SED19003	0038	2	5001430431	Polydora cardalia	1
SED19003	0038	2	5001430521	Prionospio lighti	1
SED19003	0038	2	5001431004	Spiophanes berkelyorum	3
SED19003	0038	2	5001520199	Cossura modica	7

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0038

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0038	2	5001660304	<i>Pectinaria californiensis</i>	1
SED19003	0038	2	5001670208	<i>Ampharete acutifrons</i>	2
SED19003	0038	2	51034601	<i>Bittium</i> spp.	1
SED19003	0038	2	5502040504	<i>Yoldia scissurata</i>	1
SED19003	0038	2	5515020201	<i>Axinopsida serricata</i>	1
SED19003	0038	2	5515310112	<i>Macoma carlottensis</i>	6
SED19003	0038	2	6111070303	<i>Euphilomedes producta</i>	11
SED19003	0038	2	6153011901	<i>Pseudomma berkeleyi</i>	1
SED19003	0038	2	6154040202	<i>Eudorella pacifica</i>	1
SED19003	0038	2	6154040301	<i>Eudorellopsis integra</i>	9
SED19003	0038	2	6169260312	<i>Protomedeia prudens</i>	1
SED19003	0038	2	6169370599	<i>Bathymedon pumilus</i>	2
SED19003	0038	2	6169420204	<i>Harpiniopsis fulgens</i>	1
SED19003	0038	2	6169420301	<i>Heterophoxus oculatus</i>	12
SED19003	0038	2	6169420925	<i>Paraphoxus oculatus</i>	11
SED19003	0038	2	8179010101	<i>Molpadia intermedia</i>	1
SED19003	0038	3	5001250111	<i>Nephtys ferruginea</i>	2
SED19003	0038	3	5001270101	<i>Glycera capitata</i>	1
SED19003	0038	3	5001280203	<i>Goniada brunnea</i>	1
SED19003	0038	3	5001410801	<i>Levinsenia gracilis</i>	16
SED19003	0038	3	5001411306	<i>Acmira catherinae</i>	1
SED19003	0038	3	5001430201	<i>Laonice cirrata</i>	1
SED19003	0038	3	5001430521	<i>Prionospio lighti</i>	1
SED19003	0038	3	5001431004	<i>Spiophanes berkelyorum</i>	1
SED19003	0038	3	5001431701	<i>Paraprionospio pinnata</i>	3
SED19003	0038	3	5001520101	<i>Cossura longocirrata</i>	4
SED19003	0038	3	5001520199	<i>Cossura modica</i>	1
SED19003	0038	3	5001600203	<i>Heteromastus filobranchus</i>	2
SED19003	0038	3	5402	Chaetodermatida	3
SED19003	0038	3	5502040504	<i>Yoldia scissurata</i>	1
SED19003	0038	3	5515010101	<i>Parvilucina tenuisculpta</i>	1
SED19003	0038	3	5515010201	<i>Lucinoma acutilineata</i>	1
SED19003	0038	3	6111070303	<i>Euphilomedes producta</i>	1
SED19003	0038	3	6154040115	<i>Leucon subnasica</i>	1
SED19003	0038	3	6154040202	<i>Eudorella pacifica</i>	8
SED19003	0038	3	6154040301	<i>Eudorellopsis integra</i>	2

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0038	3	6169260312	Protomedeia prudens	6
SED19003	0038	3	6169370599	Bathymedon pumilus	2
SED19003	0038	3	6169420204	Harpiniopsis fulgens	3
SED19003	0038	3	6169420301	Heterophoxus oculatus	9
SED19003	0038	3	6169420925	Paraphoxus oculatus	19
SED19003	0038	3	812903019999	Amphiodia urtica/periercta	1
SED19003	0038	3	8179010101	Molpadia intermedia	1

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q
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					A ABUN-
					L DANCE
SED19003	0039	1	3754020201	Ptilosarcus gurneyi	1
SED19003	0039	1	5001131101	Eulalia (Eumida) sanguinea	6
SED19003	0039	1	5001240501	Platynereis bicanaliculata	5
SED19003	0039	1	500125	Nephtyidae	1
SED19003	0039	1	5001250111	Nephtys ferruginea	2
SED19003	0039	1	5001280103	Glycinde armigera	3
SED19003	0039	1	5001290111	Onuphis elegans	1
SED19003	0039	1	5001290202	Diopatra ornata	2
SED19003	0039	1	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0039	1	5001400102	Leitoscoloplos pugettensis	2
SED19003	0039	1	5001430506	Prionospio steenstrupi	21
SED19003	0039	1	5001490302	Spiochaetopterus costarum	1
SED19003	0039	1	500160	Capitellidae	1
SED19003	0039	1	5001600101	Capitella capitata	1
SED19003	0039	1	500167	Ampharetidae	7
SED19003	0039	1	50016808	Polycirrus spp.	1
SED19003	0039	1	51034601	Bittium spp.	2
SED19003	0039	1	5105100102	Olivella baetica	4
SED19003	0039	1	5108011134	Turbonilla aurantia	1
SED19003	0039	1	5515010101	Parvilucina tenuisculpta	13
SED19003	0039	1	5515100102	Mysella tumida	1
SED19003	0039	1	5515310111	Macoma yoldiformis	1
SED19003	0039	1	5515310204	Tellina modesta	19
SED19003	0039	1	5520050202	Lyonsia californica	1
SED19003	0039	1	611103	Cylindroleberididae	1
SED19003	0039	1	6111070301	Euphilomedes carcharodonta	29
SED19003	0039	1	61450101	Nebalia spp.	2
SED19003	0039	1	6169020208	Byblis millsii	1
SED19003	0039	1	6169060203	Aoroides inermis	1
SED19003	0039	1	61692603	Protomedeia spp.	2
SED19003	0039	1	6169261199	Cheirimedeia zotea	3
SED19003	0039	1	6169421504	Rhepoxynius abronius	20
SED19003	0039	1	6189060404	Pinnixa schmitti	2
SED19003	0039	1	812903019999	Amphiodia urtica/periercta	1
SED19003	0039	2	3754020201	Ptilosarcus gurneyi	1
SED19003	0039	2	5001060301	Sthenelais berkeleyi	1

Benthic Abundance Report

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0039	2	500113	Phyllodocidae	1
SED19003	0039	2	5001130205	Eteone longa	1
SED19003	0039	2	5001130403	Notophyllum tectum	1
SED19003	0039	2	5001131101	Eulalia (Eumida) sanguinea	3
SED19003	0039	2	5001210102	Gyptis brevipalpa	1
SED19003	0039	2	5001210401	Ophiodromus pugettensis	2
SED19003	0039	2	5001240501	Platynereis bicanaliculata	26
SED19003	0039	2	5001250111	Nephtys ferruginea	3
SED19003	0039	2	5001270101	Glycera capitata	2
SED19003	0039	2	5001290111	Onuphis elegans	2
SED19003	0039	2	5001290202	Diopatra ornata	1
SED19003	0039	2	500131	Lumbrineridae	1
SED19003	0039	2	5001400102	Leitoscoloplos pugettensis	3
SED19003	0039	2	5001411306	Acmira catherinae	1
SED19003	0039	2	5001430506	Prionospio steenstrupi	26
SED19003	0039	2	5001430521	Prionospio lighti	1
SED19003	0039	2	5001440105	Magelona longicornis	1
SED19003	0039	2	5001490302	Spiochaetopterus costarum	2
SED19003	0039	2	5001500407	Chaetozone spinosa	2
SED19003	0039	2	5001600402	Mediomastus californiensis	2
SED19003	0039	2	5001660303	Pectinaria granulata	1
SED19003	0039	2	500167	Ampharetidae	7
SED19003	0039	2	5001680701	Pista cristata	1
SED19003	0039	2	5001680810	Polycirrus californicus	1
SED19003	0039	2	500902	Tubificidae	3
SED19003	0039	2	51032001	Alvania spp.	3
SED19003	0039	2	51035306	Balcis spp.	2
SED19003	0039	2	5105030247	Mitrella gausapata	1
SED19003	0039	2	5105080101	Nassarius mendicus	1
SED19003	0039	2	5105100102	Olivella baetica	1
SED19003	0039	2	5108011134	Turbonilla aurantia	2
SED19003	0039	2	55	Bivalvia	1
SED19003	0039	2	5515010101	Parvilucina tenuisculpta	22
SED19003	0039	2	5515100102	Mysella tumida	6
SED19003	0039	2	5515310111	Macoma yoldiformis	1
SED19003	0039	2	5515310204	Tellina modesta	28

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0039	2	5520050202	Lyonsia californica	1
SED19003	0039	2	611103	Cylindroleberididae	1
SED19003	0039	2	6111070301	Euphilomedes carcharodonta	93
SED19003	0039	2	61450101	Nebalia spp.	3
SED19003	0039	2	6154050101	Diastylis alaskensis	1
SED19003	0039	2	6157020101	Leptochelia savignyi	1
SED19003	0039	2	6169201309	Rhachotropis clemens	1
SED19003	0039	2	6169211008	Melita desdichada	1
SED19003	0039	2	61692603	Protomedeia spp.	2
SED19003	0039	2	6169261199	Cheirimedeia zotea	1
SED19003	0039	2	6169370816	Monoculodes zernovi	2
SED19003	0039	2	6169371403	Synchelidium rectipalmum	1
SED19003	0039	2	6169371502	Westwoodilla caecula	1
SED19003	0039	2	6169421504	Rhepoxynius abronius	18
SED19003	0039	2	812903019999	Amphiodia urtica/periercta	1
SED19003	0039	3	3740	Anthozoa	1
SED19003	0039	3	43	Nemertea	1
SED19003	0039	3	500113	Phyllodocidae	1
SED19003	0039	3	5001130202	Eteone spetsbergensis	3
SED19003	0039	3	5001130308	Eulalia (Eumida) bilineata	1
SED19003	0039	3	5001130403	Notophyllum tectum	3
SED19003	0039	3	5001131101	Eulalia (Eumida) sanguinea	15
SED19003	0039	3	500121	Hesionidae	2
SED19003	0039	3	5001240501	Platynereis bicanaliculata	33
SED19003	0039	3	5001250111	Nephtys ferruginea	5
SED19003	0039	3	50012801	Glycinde spp.	1
SED19003	0039	3	5001290202	Diopatra ornata	1
SED19003	0039	3	5001310118	Lumbrineris cruzensis	1
SED19003	0039	3	5001360201	Protodorvillea gracilis	1
SED19003	0039	3	5001400102	Leitoscoloplos pugettensis	1
SED19003	0039	3	5001411306	Acmira catherinae	2
SED19003	0039	3	5001430415	Polydora limicola	2
SED19003	0039	3	5001430506	Prionospio steenstrupi	24
SED19003	0039	3	5001500202	Caulleriella alata	1
SED19003	0039	3	5001580202	Armandia brevis	1
SED19003	0039	3	500160	Capitellidae	1

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0039	3	5001600402	Mediomastus californiensis	2
SED19003	0039	3	500167	Ampharetidae	6
SED19003	0039	3	500902	Tubificidae	1
SED19003	0039	3	51034601	Bittium spp.	1
SED19003	0039	3	51035306	Balcis spp.	2
SED19003	0039	3	51036402	Crepidula spp.	1
SED19003	0039	3	5105030247	Mitrella gausapata	2
SED19003	0039	3	5105080101	Nassarius mendicus	1
SED19003	0039	3	5105100102	Olivella baetica	2
SED19003	0039	3	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0039	3	51080102	Turbonilla spp.	1
SED19003	0039	3	5502020201	Nucula tenuis	1
SED19003	0039	3	5515010101	Parvilucina tenuisculpta	28
SED19003	0039	3	5515100102	Mysella tumida	3
SED19003	0039	3	5515310204	Tellina modesta	12
SED19003	0039	3	611103	Cylindroleberididae	3
SED19003	0039	3	6111070301	Euphilomedes carcharodonta	45
SED19003	0039	3	61450101	Nebalia spp.	1
SED19003	0039	3	6157020101	Leptocheilia savignyi	2
SED19003	0039	3	61692603	Protomedeia spp.	2
SED19003	0039	3	6169371403	Synchelidium rectipalmum	1
SED19003	0039	3	6169371502	Westwoodilla caecula	2
SED19003	0039	3	6169421504	Rhepoxynius abronius	12
SED19003	0039	3	6187010501	Pugettia producta	1
SED19003	0039	3	7200020104	Golfingia pugettensis	1

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Survey : SED19003 Station : 0040

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0040	1	39	Platyhelminthes	1
SED19003	0040	1	43	Nemertea	1
SED19003	0040	1	5001060101	Pholoe minuta	1
SED19003	0040	1	5001131402	Phyllodoce (Aponaitides) hartmanae	1
SED19003	0040	1	500121	Hesionidae	1
SED19003	0040	1	5001230704	Exogone molesta	1
SED19003	0040	1	500125010401	Nephtys cornuta franciscana	1
SED19003	0040	1	5001250111	Nephtys ferruginea	5
SED19003	0040	1	500129	Onuphidae	3
SED19003	0040	1	5001310118	Lumbrineris cruzensis	1
SED19003	0040	1	5001310195	Lumbrineris sp. gr. 3	3
SED19003	0040	1	5001310197	Lumbrineris sp. gr. 1	4
SED19003	0040	1	5001400102	Leitoscoloplos pugettensis	1
SED19003	0040	1	5001430506	Prionospio steenstrupi	33
SED19003	0040	1	5001430521	Prionospio lighti	1
SED19003	0040	1	5001431004	Spiophanes berkelyorum	10
SED19003	0040	1	5001500302	Tharyx multifilis	40
SED19003	0040	1	5001500407	Chaetozone spinosa	2
SED19003	0040	1	5001600302	Notomastus tenuis	2
SED19003	0040	1	5001600402	Mediomastus californiensis	6
SED19003	0040	1	500167	Ampharetidae	14
SED19003	0040	1	500168	Terebellidae	19
SED19003	0040	1	5001680810	Polycirrus californicus	3
SED19003	0040	1	500168130201	Lanassa venusta venusta	2
SED19003	0040	1	5001682502	Streblosoma bairdi	5
SED19003	0040	1	5001690101	Terebellides stroemi	3
SED19003	0040	1	51080102	Turbonilla spp.	2
SED19003	0040	1	55	Bivalvia	2
SED19003	0040	1	5502020201	Nucula tenuis	2
SED19003	0040	1	5515010101	Parvilucina tenuisculpta	1
SED19003	0040	1	5515010201	Lucinoma acutilineata	1
SED19003	0040	1	5515020201	Axinopsida serricata	23
SED19003	0040	1	5515220301	Nemocardium centifilum	1
SED19003	0040	1	5515310102	Macoma elimata	4
SED19003	0040	1	5515310111	Macoma yoldiformis	3
SED19003	0040	1	5515310112	Macoma carlottensis	17

Benthic Abundance Report

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0040	1	5515470301	Compsomyax subdiaphana	2
SED19003	0040	1	5520050202	Lyonsia californica	4
SED19003	0040	1	6111070301	Euphilomedes carcharodonta	71
SED19003	0040	1	6111070303	Euphilomedes producta	44
SED19003	0040	1	6157020101	Leptochelia savignyi	6
SED19003	0040	1	6169341411	Hippomedon coecus	2
SED19003	0040	1	6189060404	Pinnixa schmitti	6
SED19003	0040	1	8120	Ophiuroidea	1
SED19003	0040	2	3754020201	Ptilosarcus gurneyi	1
SED19003	0040	2	43	Nemertea	2
SED19003	0040	2	5001060301	Sthenelais berkeleyi	1
SED19003	0040	2	5001130201	Eteone californica	1
SED19003	0040	2	5001240501	Platynereis bicanaliculata	2
SED19003	0040	2	500125010401	Nephtys cornuta franciscana	2
SED19003	0040	2	5001250111	Nephtys ferruginea	3
SED19003	0040	2	5001270101	Glycera capitata	1
SED19003	0040	2	5001280103	Glycinde armigera	8
SED19003	0040	2	500129	Onuphidae	1
SED19003	0040	2	5001290111	Onuphis elegans	1
SED19003	0040	2	5001310109	Lumbrineris luti	2
SED19003	0040	2	5001310118	Lumbrineris cruzensis	2
SED19003	0040	2	5001310128	Lumbrineris limicola	1
SED19003	0040	2	5001310132	Lumbrineris californiensis	6
SED19003	0040	2	5001310195	Lumbrineris sp. gr. 3	6
SED19003	0040	2	5001310196	Lumbrineris sp. gr. 2	3
SED19003	0040	2	5001310197	Lumbrineris sp. gr. 1	3
SED19003	0040	2	5001400102	Leitoscoloplos pugettensis	2
SED19003	0040	2	5001430201	Laonice cirrata	1
SED19003	0040	2	5001430402	Polydora socialis	1
SED19003	0040	2	5001430506	Prionospio steenstrupi	14
SED19003	0040	2	5001430521	Prionospio lighti	3
SED19003	0040	2	5001430599	Prionospio multibranchiata	1
SED19003	0040	2	5001430806	Polydora (Boccardiella) hamata	1
SED19003	0040	2	5001431004	Spiophanes berkelyorum	3
SED19003	0040	2	5001500302	Tharyx multifilis	89
SED19003	0040	2	5001500407	Chaetozone spinosa	4

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Survey : SED19003 Station : 0040

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0040	2	5001600101	Capitella capitata	2
SED19003	0040	2	5001600302	Notomastus tenuis	4
SED19003	0040	2	5001600402	Mediomastus californiensis	13
SED19003	0040	2	500163	Maldanidae	2
SED19003	0040	2	5001660303	Pectinaria granulata	1
SED19003	0040	2	500167	Ampharetidae	11
SED19003	0040	2	5001670101	Amage anops	2
SED19003	0040	2	5001670208	Ampharete acutifrons	8
SED19003	0040	2	5001670804	Asabellides lineata	1
SED19003	0040	2	500168	Terebellidae	25
SED19003	0040	2	5001680701	Pista cristata	3
SED19003	0040	2	5001680710	Pista brevibranchiata	1
SED19003	0040	2	50016808	Polycirrus spp.	1
SED19003	0040	2	500168130201	Lanassa venusta venusta	5
SED19003	0040	2	5001682502	Streblosoma bairdi	2
SED19003	0040	2	51032001	Alvania spp.	1
SED19003	0040	2	51037604	Polinices spp.	1
SED19003	0040	2	51050302	Mitrella spp.	1
SED19003	0040	2	51080102	Turbonilla spp.	1
SED19003	0040	2	5502020201	Nucula tenuis	1
SED19003	0040	2	5515010101	Parvilucina tenuisculpta	1
SED19003	0040	2	5515020201	Axinopsida serricata	31
SED19003	0040	2	5515220301	Nemocardium centifilosum	2
SED19003	0040	2	5515310101	Macoma calcarea	1
SED19003	0040	2	5515310111	Macoma yoldiformis	2
SED19003	0040	2	5515310112	Macoma carlottensis	9
SED19003	0040	2	5515470501	Psephidia lordi	1
SED19003	0040	2	55180202	Teredo spp.	2
SED19003	0040	2	5520020102	Pandora filosa	1
SED19003	0040	2	5520050202	Lyonsia californica	2
SED19003	0040	2	6111070301	Euphilomedes carcharodonta	65
SED19003	0040	2	6111070303	Euphilomedes producta	15
SED19003	0040	2	6134020104	Balanus crenatus	6
SED19003	0040	2	6154040202	Eudorella pacifica	1
SED19003	0040	2	6157020101	Leptochelia savignyi	4
SED19003	0040	2	6169341411	Hippomedon coecus	3

Benthic Abundance Report

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Survey : SED19003 Station : 0040

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A	ABUN-
					L	DANCE		
SED19003	0040	2	6169371403	Synchelidium rectipalmum				1
SED19003	0040	2	6169371502	Westwoodilla caecula				2
SED19003	0040	2	7200020104	Golfingia pugettensis				2
SED19003	0040	2	812903019999	Amphiodia urtica/periercta				4
SED19003	0040	3	43	Nemertea				3
SED19003	0040	3	5001131402	Phyllodoce (Aponaitides) hartmanae				1
SED19003	0040	3	500125010401	Nephtys cornuta franciscana				2
SED19003	0040	3	5001250111	Nephtys ferruginea				8
SED19003	0040	3	5001270101	Glycera capitata				2
SED19003	0040	3	5001280103	Glycinde armigera				7
SED19003	0040	3	500129	Onuphidae				4
SED19003	0040	3	5001290202	Diopatra ornata				1
SED19003	0040	3	5001310118	Lumbrineris cruzensis				1
SED19003	0040	3	5001310132	Lumbrineris californiensis				2
SED19003	0040	3	5001400102	Leitoscoloplos pugettensis				2
SED19003	0040	3	5001410801	Levinsenia gracilis				1
SED19003	0040	3	5001430415	Polydora limicola				1
SED19003	0040	3	5001430506	Prionospio steenstrupi				36
SED19003	0040	3	5001430806	Polydora (Boccardiella) hamata				1
SED19003	0040	3	5001431004	Spiophanes berkelyorum				11
SED19003	0040	3	5001500302	Tharyx multifilis				4
SED19003	0040	3	5001580202	Armandia brevis				1
SED19003	0040	3	5001600101	Capitella capitata				1
SED19003	0040	3	5001600402	Mediomastus californiensis				12
SED19003	0040	3	500163	Maldanidae				3
SED19003	0040	3	500167	Ampharetidae				3
SED19003	0040	3	5001670101	Amage anops				1
SED19003	0040	3	5001670208	Ampharete acutifrons				10
SED19003	0040	3	500168	Terebellidae				17
SED19003	0040	3	5001680701	Pista cristata				3
SED19003	0040	3	500168130201	Lanassa venusta venusta				1
SED19003	0040	3	5001682502	Streblosoma bairdi				4
SED19003	0040	3	5001690101	Terebellides stroemi				2
SED19003	0040	3	51032001	Alvania spp.				1
SED19003	0040	3	510801019999	Odostomia (Odostomia) spp.				1
SED19003	0040	3	51080102	Turbonilla spp.				2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0040

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0040	3	5108011134	Turbonilla aurantia	2
SED19003	0040	3	5110040205	Cylichna attonsa	1
SED19003	0040	3	55	Bivalvia	3
SED19003	0040	3	5502020201	Nucula tenuis	1
SED19003	0040	3	5515010101	Parvilucina tenuisculpta	2
SED19003	0040	3	5515020201	Axinopsida serricata	29
SED19003	0040	3	5515220301	Nemocardium centifilosum	3
SED19003	0040	3	5515310101	Macoma calcarea	2
SED19003	0040	3	5515310102	Macoma elimata	3
SED19003	0040	3	5515310111	Macoma yoldiformis	3
SED19003	0040	3	5515310112	Macoma carlottensis	9
SED19003	0040	3	5515470501	Psephidia lordi	1
SED19003	0040	3	55200502	Lyonsia spp.	1
SED19003	0040	3	6111070301	Euphilomedes carcharodonta	47
SED19003	0040	3	6111070303	Euphilomedes producta	27
SED19003	0040	3	6154040202	Eudorella pacifica	1
SED19003	0040	3	6157020101	Leptochelia savignyi	2
SED19003	0040	3	6169341411	Hippomedon coecus	3
SED19003	0040	3	6169371402	Synchelidium shoemakeri	2
SED19003	0040	3	7200020106	Golfingia minuta	2
SED19003	0040	3	8120	Ophiuroidea	1
SED19003	0040	3	812903019999	Amphiodia urtica/periercta	3

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0041

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0041	1	43	Nemertea	4
SED19003	0041	1	5001022301	Tenonia kitsapensis	1
SED19003	0041	1	5001130202	Eteone spetsbergensis	1
SED19003	0041	1	5001131402	Phyllodoce (Aponaitides) hartmanae	1
SED19003	0041	1	5001210102	Gyptis brevipalpa	1
SED19003	0041	1	5001250111	Nephtys ferruginea	1
SED19003	0041	1	5001270101	Glycera capitata	1
SED19003	0041	1	5001310109	Lumbrineris luti	18
SED19003	0041	1	5001310195	Lumbrineris sp. gr. 3	6
SED19003	0041	1	5001360101	Dorvillea pseudorubrovittata	4
SED19003	0041	1	5001410801	Levinsenia gracilis	1
SED19003	0041	1	5001430402	Polydora socialis	1
SED19003	0041	1	5001430506	Prionospio steenstrupi	6
SED19003	0041	1	5001430806	Polydora (Boccardiella) hamata	1
SED19003	0041	1	5001431004	Spiophanes berkelyorum	2
SED19003	0041	1	5001500302	Tharyx multifilis	716
SED19003	0041	1	5001520101	Cossura longocirrata	7
SED19003	0041	1	500160	Capitellidae	1
SED19003	0041	1	5001600101	Capitella capitata	2
SED19003	0041	1	5001600203	Heteromastus filobranchus	19
SED19003	0041	1	5001600302	Notomastus tenuis	22
SED19003	0041	1	5001630901	Praxillella gracilis	1
SED19003	0041	1	5001670101	Amage anops	1
SED19003	0041	1	500168	Terebellidae	2
SED19003	0041	1	5001680701	Pista cristata	1
SED19003	0041	1	50016808	Polycirrus spp.	1
SED19003	0041	1	5001680810	Polycirrus californicus	1
SED19003	0041	1	5105030247	Mitrella gausapata	1
SED19003	0041	1	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0041	1	51080102	Turbonilla spp.	8
SED19003	0041	1	5110010401	Rictaxis punctocaelatus	3
SED19003	0041	1	5502020201	Nucula tenuis	2
SED19003	0041	1	5507010201	Crenella decussata	1
SED19003	0041	1	5515010101	Parvilucina tenuisculpta	4
SED19003	0041	1	5515020201	Axinopsida serricata	1030
SED19003	0041	1	5515310101	Macoma calcarea	12

Benthic Abundance Report

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Survey : SED19003 Station : 0041

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0041	1	5515310112	Macoma carlottensis	87
SED19003	0041	1	6111070301	Euphilomedes carcharodonta	22
SED19003	0041	1	6111070303	Euphilomedes producta	70
SED19003	0041	1	6157020101	Leptocheilia savignyi	5
SED19003	0041	1	6169371402	Synchelidium shoemakeri	1
SED19003	0041	1	6169421503	Rhepoxynius bicuspidata	4
SED19003	0041	1	6189060404	Pinnixa schmitti	10
SED19003	0041	1	812903019999	Amphiodia urtica/periercta	3
SED19003	0041	1	81290302	Amphipholis spp.	2
SED19003	0041	2	43	Nemertea	8
SED19003	0041	2	5001060101	Pholoe minuta	2
SED19003	0041	2	5001060301	Sthenelais berkeleyi	1
SED19003	0041	2	5001131402	Phyllodoce (Aponaitides) hartmanae	2
SED19003	0041	2	5001230704	Exogone molesta	2
SED19003	0041	2	5001240406	Nereis zonata	1
SED19003	0041	2	500125010401	Nephtys cornuta franciscana	5
SED19003	0041	2	5001250111	Nephtys ferruginea	8
SED19003	0041	2	5001270101	Glycera capitata	2
SED19003	0041	2	5001280103	Glycinde armigera	2
SED19003	0041	2	50013101	Lumbrineris spp.	2
SED19003	0041	2	5001310109	Lumbrineris luti	6
SED19003	0041	2	5001310195	Lumbrineris sp. gr. 3	4
SED19003	0041	2	5001360101	Dorvillea pseudorubrovittata	4
SED19003	0041	2	5001410801	Levinsenia gracilis	1
SED19003	0041	2	5001430506	Prionospio steenstrupi	28
SED19003	0041	2	5001430521	Prionospio lighti	2
SED19003	0041	2	5001430806	Polydora (Boccardiella) hamata	1
SED19003	0041	2	5001431004	Spiophanes berkelyorum	3
SED19003	0041	2	5001500302	Tharyx multifilis	823
SED19003	0041	2	5001520101	Cossura longocirrata	22
SED19003	0041	2	5001580202	Armandia brevis	1
SED19003	0041	2	5001600101	Capitella capitata	11
SED19003	0041	2	5001600203	Heteromastus filobranchus	10
SED19003	0041	2	5001600302	Notomastus tenuis	1
SED19003	0041	2	500163090301	Praxillella affinis pacifica	1
SED19003	0041	2	5001670101	Amage anops	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0041

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0041	2	5001670208	Ampharete acutifrons	1
SED19003	0041	2	500168	Terebellidae	1
SED19003	0041	2	500168130201	Lanassa venusta venusta	2
SED19003	0041	2	5001682502	Streblosoma bairdi	2
SED19003	0041	2	510801019999	Odostomia (Odostomia) spp.	6
SED19003	0041	2	51080102	Turbonilla spp.	24
SED19003	0041	2	5110010401	Rictaxis punctocaelatus	5
SED19003	0041	2	5110040205	Cylichna attonsa	1
SED19003	0041	2	5502020201	Nucula tenuis	5
SED19003	0041	2	5502040504	Yoldia scissurata	1
SED19003	0041	2	5515010101	Parvilucina tenuisculpta	5
SED19003	0041	2	5515010201	Lucinoma acutilineata	2
SED19003	0041	2	5515020201	Axinopsida serricata	1000
SED19003	0041	2	5515100102	Mysella tumida	1
SED19003	0041	2	55153101	Macoma spp.	7
SED19003	0041	2	5515310101	Macoma calcarea	6
SED19003	0041	2	5515310112	Macoma carlottensis	86
SED19003	0041	2	5515470301	Compsomyax subdiaphana	1
SED19003	0041	2	6111070301	Euphilomedes carcharodonta	25
SED19003	0041	2	6111070303	Euphilomedes producta	60
SED19003	0041	2	6153010105	Pacifacanthomysis nephrophthalma	1
SED19003	0041	2	6154040202	Eudorella pacifica	1
SED19003	0041	2	6157020101	Leptocheilia savignyi	1
SED19003	0041	2	6169421503	Rhepoxynius bicuspidata	7
SED19003	0041	2	6189060404	Pinnixa schmitti	3
SED19003	0041	2	812903019999	Amphiodia urtica/periercta	2
SED19003	0041	3	39	Platyhelminthes	2
SED19003	0041	3	43	Nemertea	3
SED19003	0041	3	5001060101	Pholoe minuta	1
SED19003	0041	3	5001130102	Phyllodoce (Anaitides) groenlandica	1
SED19003	0041	3	5001130201	Eteone californica	1
SED19003	0041	3	5001250111	Nephtys ferruginea	3
SED19003	0041	3	5001260103	Sphaerodoropsis sphaerulifer	1
SED19003	0041	3	5001270101	Glycera capitata	6
SED19003	0041	3	5001280101	Glycinde picta	2
SED19003	0041	3	5001280103	Glycinde armigera	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0041

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A ABUN-	L DANCE
SED19003	0041	3	5001310109	Lumbrineris luti				4
SED19003	0041	3	5001310195	Lumbrineris sp. gr. 3				6
SED19003	0041	3	5001360101	Dorvillea pseudorubrovittata				1
SED19003	0041	3	5001411306	Acmira catherinae				1
SED19003	0041	3	5001430506	Prionospio steenstrupi				22
SED19003	0041	3	5001430521	Prionospio lighti				1
SED19003	0041	3	5001430806	Polydora (Boccardiella) hamata				2
SED19003	0041	3	5001431004	Spiophanes berkelyorum				4
SED19003	0041	3	5001500302	Tharyx multifilis				1013
SED19003	0041	3	5001500407	Chaetozone spinosa				1
SED19003	0041	3	5001520101	Cossura longocirrata				10
SED19003	0041	3	5001580202	Armandia brevis				3
SED19003	0041	3	500160	Capitellidae				1
SED19003	0041	3	5001600101	Capitella capitata				5
SED19003	0041	3	5001600203	Heteromastus filobranchus				9
SED19003	0041	3	5001600302	Notomastus tenuis				1
SED19003	0041	3	5001670208	Ampharete acutifrons				1
SED19003	0041	3	500168	Terebellidae				2
SED19003	0041	3	5001680701	Pista cristata				2
SED19003	0041	3	500168130201	Lanassa venusta venusta				1
SED19003	0041	3	5001682502	Streblosoma bairdi				5
SED19003	0041	3	510801019999	Odostomia (Odostomia) spp.				3
SED19003	0041	3	51080102	Turbonilla spp.				9
SED19003	0041	3	5110010401	Rictaxis punctocaelatus				2
SED19003	0041	3	5502020201	Nucula tenuis				7
SED19003	0041	3	5515010101	Parvilucina tenuisculpta				4
SED19003	0041	3	5515020201	Axinopsida serricata				967
SED19003	0041	3	5515310101	Macoma calcarea				3
SED19003	0041	3	5515310112	Macoma carlottensis				55
SED19003	0041	3	6111070301	Euphilomedes carcharodonta				28
SED19003	0041	3	6111070303	Euphilomedes producta				32
SED19003	0041	3	6157020101	Leptochelia savignyi				1
SED19003	0041	3	6169371402	Synchelidium shoemakeri				1
SED19003	0041	3	6169421503	Rhepoxynius bicuspidata				21
SED19003	0041	3	6189060404	Pinnixa schmitti				7

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0043

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0043	1	39	Platyhelminthes	1
SED19003	0043	1	5001022301	Tenonia kitsapensis	1
SED19003	0043	1	5001060101	Pholoe minuta	1
SED19003	0043	1	5001060301	Sthenelais berkeleyi	2
SED19003	0043	1	5001131101	Eulalia (Eumida) sanguinea	10
SED19003	0043	1	5001230501	Syllis alternata	4
SED19003	0043	1	5001240404	Nereis procera	1
SED19003	0043	1	5001240501	Platynereis bicanaliculata	2
SED19003	0043	1	500125	Nephtyidae	1
SED19003	0043	1	5001270101	Glycera capitata	4
SED19003	0043	1	5001280101	Glycinde picta	1
SED19003	0043	1	5001280103	Glycinde armigera	3
SED19003	0043	1	5001290103	Onuphis iridescens	1
SED19003	0043	1	5001310109	Lumbrineris luti	1
SED19003	0043	1	5001310196	Lumbrineris sp. gr. 2	1
SED19003	0043	1	5001310197	Lumbrineris sp. gr. 1	1
SED19003	0043	1	5001400102	Leitoscoloplos pugettensis	2
SED19003	0043	1	5001430506	Prionospio steenstrupi	4
SED19003	0043	1	5001490202	Phyllochaetopterus prolifica	6
SED19003	0043	1	5001490302	Spiochaetopterus costarum	63
SED19003	0043	1	5001490401	Mesochaetopterus taylori	18
SED19003	0043	1	5001570101	Scalibregma inflatum	2
SED19003	0043	1	5001600302	Notomastus tenuis	1
SED19003	0043	1	5001600303	Notomastus lineatus	2
SED19003	0043	1	5001600402	Mediomastus californiensis	2
SED19003	0043	1	500163	Maldanidae	3
SED19003	0043	1	5001630601	Notoproctus pacificus	1
SED19003	0043	1	500163090301	Praxillella affinis pacifica	1
SED19003	0043	1	500163099999	Praxillella sp. A	9
SED19003	0043	1	5001660303	Pectinaria granulata	1
SED19003	0043	1	5001670101	Amage anops	2
SED19003	0043	1	5001670701	Anobothrus gracilis	1
SED19003	0043	1	5001690101	Terebellides stroemi	1
SED19003	0043	1	5103509999	Nitidiscala tinctoria	2
SED19003	0043	1	5105030247	Mitrella gausapata	6
SED19003	0043	1	5105080101	Nassarius mendicus	3

Benthic Abundance Report

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Survey : SED19003 Station : 0043

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0043	1	5106021107	Kurtziella plumbea	2
SED19003	0043	1	5108011134	Turbonilla aurantia	1
SED19003	0043	1	55	Bivalvia	1
SED19003	0043	1	5502020201	Nucula tenuis	3
SED19003	0043	1	5507010301	Megacrenella columbiana	2
SED19003	0043	1	5515010101	Parvilucina tenuisculpta	5
SED19003	0043	1	5515020201	Axinopsida serricata	1
SED19003	0043	1	5515020301	Thyasira flexuosa	3
SED19003	0043	1	5515100102	Mysella tumida	12
SED19003	0043	1	5515310111	Macoma yoldiformis	15
SED19003	0043	1	5515310112	Macoma carlottensis	1
SED19003	0043	1	5515470501	Psephidia lordi	2
SED19003	0043	1	5520050202	Lyonsia californica	4
SED19003	0043	1	611103	Cylindroleberididae	1
SED19003	0043	1	6111070301	Euphilomedes carcharodonta	116
SED19003	0043	1	6157020101	Leptochelia savignyi	10
SED19003	0043	1	6169020208	Byblis millsii	8
SED19003	0043	1	6169060203	Aoroides inermis	3
SED19003	0043	1	6169150203	Corophium crassicorne	1
SED19003	0043	1	6169260312	Protomedeia prudens	1
SED19003	0043	1	6169420301	Heterophoxus oculatus	18
SED19003	0043	1	6169420918	Eyakia robustus	5
SED19003	0043	1	6169420926	Rhepoxynius variatus	27
SED19003	0043	1	6189060404	Pinnixa schmitti	57
SED19003	0043	1	7200020104	Golfingia pugettensis	1
SED19003	0043	1	812903019999	Amphiodia urtica/periercta	237
SED19003	0043	1	8129030999	Amphioplus strongyloplax	50
SED19003	0043	1	8401	Ascidacea	2
SED19003	0043	2	5001022301	Tenonia kitsapensis	1
SED19003	0043	2	5001060101	Pholoe minuta	1
SED19003	0043	2	5001130102	Phyllodoce (Anaitides) groenlandica	1
SED19003	0043	2	5001131101	Eulalia (Eumida) sanguinea	7
SED19003	0043	2	5001210102	Gyptis brevipalpa	1
SED19003	0043	2	5001230806	Sphaerosyllis brandhorsti	1
SED19003	0043	2	5001250103	Nephtys caeca	1
SED19003	0043	2	5001250111	Nephtys ferruginea	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0043

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0043	2	5001270101	Glycera capitata	2
SED19003	0043	2	5001280103	Glycinde armigera	7
SED19003	0043	2	5001290103	Onuphis iridescens	1
SED19003	0043	2	5001310109	Lumbrineris luti	3
SED19003	0043	2	5001310118	Lumbrineris cruzensis	4
SED19003	0043	2	5001310128	Lumbrineris limicola	1
SED19003	0043	2	5001400102	Leitoscoloplos pugettensis	1
SED19003	0043	2	5001430506	Prionospio steenstrupi	3
SED19003	0043	2	5001430521	Prionospio lighti	1
SED19003	0043	2	5001440105	Magelona longicornis	1
SED19003	0043	2	5001490202	Phyllochaetopterus prolifica	6
SED19003	0043	2	5001490302	Spiochaetopterus costarum	107
SED19003	0043	2	5001490401	Mesochaetopterus taylori	14
SED19003	0043	2	5001570101	Scalibregma inflatum	1
SED19003	0043	2	5001580202	Armandia brevis	1
SED19003	0043	2	5001600303	Notomastus lineatus	1
SED19003	0043	2	500163090301	Praxillella affinis pacifica	1
SED19003	0043	2	500163099999	Praxillella sp. A	4
SED19003	0043	2	5001632001	Isocirrus longiceps	2
SED19003	0043	2	5001660303	Pectinaria granulata	1
SED19003	0043	2	5001680601	Nicolea zostericola	1
SED19003	0043	2	5001681803	Scionella estevanica	1
SED19003	0043	2	5105030247	Mitrella gausapata	34
SED19003	0043	2	5105080101	Nassarius mendicus	1
SED19003	0043	2	5106021107	Kurtziella plumbea	3
SED19003	0043	2	51080102	Turbonilla spp.	1
SED19003	0043	2	5110040205	Cylichna attonsa	4
SED19003	0043	2	5110070101	Gastropterion pacificum	1
SED19003	0043	2	5502020201	Nucula tenuis	7
SED19003	0043	2	5507010301	Megacrenella columbiana	1
SED19003	0043	2	5515010101	Parvilucina tenuisculpta	4
SED19003	0043	2	5515020201	Axinopsida serricata	2
SED19003	0043	2	5515020301	Thyasira flexuosa	6
SED19003	0043	2	5515100102	Mysella tumida	9
SED19003	0043	2	5515310101	Macoma calcarea	1
SED19003	0043	2	5515310111	Macoma yoldiformis	10

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0043

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0043	2	5515470501	Psephidia lordi	2
SED19003	0043	2	5520050202	Lyonsia californica	4
SED19003	0043	2	6111070301	Euphilomedes carcharodonta	142
SED19003	0043	2	61690201	Ampelisca spp.	1
SED19003	0043	2	6169020208	Byblis millsii	8
SED19003	0043	2	6169150203	Corophium crassicorne	10
SED19003	0043	2	6169420301	Heterophoxus oculatus	6
SED19003	0043	2	6169420918	Eyakia robustus	12
SED19003	0043	2	6169420926	Rhepoxynius variatus	32
SED19003	0043	2	6169421504	Rhepoxynius abronius	2
SED19003	0043	2	6189060404	Pinnixa schmitti	25
SED19003	0043	2	812903019999	Amphiodia urtica/periercta	102
SED19003	0043	2	8129030999	Amphioplus strongyloplax	21
SED19003	0043	2	8406030402	Eugyra arenosa	1
SED19003	0043	3	39	Platyhelminthes	2
SED19003	0043	3	43	Nemertea	2
SED19003	0043	3	5001022301	Tenonia kitsapensis	1
SED19003	0043	3	5001060101	Pholoe minuta	2
SED19003	0043	3	5001060301	Sthenelais berkeleyi	2
SED19003	0043	3	500113	Phyllodocidae	2
SED19003	0043	3	5001131101	Eulalia (Eumida) sanguinea	11
SED19003	0043	3	5001131402	Phyllodoce (Aponaitides) hartmanae	1
SED19003	0043	3	5001230501	Syllis alternata	1
SED19003	0043	3	500124	Nereidae	1
SED19003	0043	3	5001240501	Platynereis bicanaliculata	6
SED19003	0043	3	5001250103	Nephtys caeca	1
SED19003	0043	3	500125010401	Nephtys cornuta franciscana	1
SED19003	0043	3	5001250111	Nephtys ferruginea	1
SED19003	0043	3	5001270101	Glycera capitata	3
SED19003	0043	3	5001280103	Glycinde armigera	6
SED19003	0043	3	5001310109	Lumbrineris luti	2
SED19003	0043	3	5001310118	Lumbrineris cruzensis	4
SED19003	0043	3	5001310197	Lumbrineris sp. gr. 1	4
SED19003	0043	3	5001400102	Leitoscoloplos pugettensis	6
SED19003	0043	3	5001430506	Prionospio steenstrupi	3
SED19003	0043	3	5001430521	Prionospio lighti	1

Benthic Abundance Report

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Survey : SED19003 Station : 0043

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0043	3	5001431701	Paraprionospio pinnata	2
SED19003	0043	3	5001440105	Magelona longicornis	1
SED19003	0043	3	5001490202	Phyllochaetopterus prolifica	11
SED19003	0043	3	5001490302	Spiochaetopterus costarum	66
SED19003	0043	3	5001490401	Mesochaetopterus taylori	8
SED19003	0043	3	5001570101	Scalibregma inflatum	1
SED19003	0043	3	5001600303	Notomastus lineatus	2
SED19003	0043	3	500163090301	Praxillella affinis pacifica	1
SED19003	0043	3	500163099999	Praxillella sp. A	5
SED19003	0043	3	5001660303	Pectinaria granulata	1
SED19003	0043	3	500167	Ampharetidae	1
SED19003	0043	3	5001670701	Anobothrus gracilis	1
SED19003	0043	3	500168	Terebellidae	4
SED19003	0043	3	5105030247	Mitrella gausapata	12
SED19003	0043	3	5105080101	Nassarius mendicus	3
SED19003	0043	3	5106021107	Kurtziella plumbea	1
SED19003	0043	3	510801019999	Odostomia (Odostomia) spp.	3
SED19003	0043	3	5108011134	Turbonilla aurantia	2
SED19003	0043	3	5110040205	Cylichna attonsa	7
SED19003	0043	3	5502020101	Acila castrensis	1
SED19003	0043	3	5502020201	Nucula tenuis	2
SED19003	0043	3	5502040504	Yoldia scissurata	1
SED19003	0043	3	5507010301	Megacrenella columbiana	2
SED19003	0043	3	55070106	Modiolus spp.	1
SED19003	0043	3	5515010101	Parvilucina tenuisculpta	4
SED19003	0043	3	5515020301	Thyasira flexuosa	4
SED19003	0043	3	5515100102	Mysella tumida	16
SED19003	0043	3	5515310111	Macoma yoldiformis	2
SED19003	0043	3	5515310204	Tellina modesta	1
SED19003	0043	3	55170604	Panopea spp.	1
SED19003	0043	3	6111070301	Euphilomedes carcharodonta	103
SED19003	0043	3	6154040202	Eudorella pacifica	1
SED19003	0043	3	6157020101	Leptochelia savignyi	2
SED19003	0043	3	6169020208	Byblis millsii	3
SED19003	0043	3	6169420301	Heterophoxus oculatus	7
SED19003	0043	3	6169420918	Eyakia robustus	11

Benthic Abundance Report

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Survey : SED19003 Station : 0043

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0043	3	6169420926	Rhepoxynius variatus	22
SED19003	0043	3	6189060404	Pinnixa schmitti	26
SED19003	0043	3	7200020104	Golfingia pugettensis	2
SED19003	0043	3	812903019999	Amphiodia urtica/periercta	193
SED19003	0043	3	8129030999	Amphioplus strongyloplax	34

Benthic Abundance Report

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Survey : SED19003 Station : 0044

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A L ABUN- L DANCE
SED19003	0044	1	43	Nemertea	20
SED19003	0044	1	5001020603	Gattyana cirrosa	2
SED19003	0044	1	5001021103	Lepidonotus squamatus	1
SED19003	0044	1	5001040101	Pholoides aspera	12
SED19003	0044	1	5001060101	Pholoe minuta	2
SED19003	0044	1	5001130308	Eulalia (Eumida) bilineata	2
SED19003	0044	1	5001131101	Eulalia (Eumida) sanguinea	15
SED19003	0044	1	5001131402	Phyllodoce (Aponaitides) hartmanae	3
SED19003	0044	1	5001210401	Ophiodromus pugettensis	8
SED19003	0044	1	5001220301	Pilargis berkeleyi	1
SED19003	0044	1	5001230201	Pionosyllis gigantea	1
SED19003	0044	1	5001230501	Syllis alternata	10
SED19003	0044	1	5001230703	Exogone lourei	7
SED19003	0044	1	5001230704	Exogone molesta	1
SED19003	0044	1	5001230806	Sphaerosyllis brandhorsti	1
SED19003	0044	1	5001231002	Syllis heterochaeta	16
SED19003	0044	1	5001240404	Nereis procera	4
SED19003	0044	1	5001240501	Platynereis bicanaliculata	16
SED19003	0044	1	5001250103	Nephtys caeca	2
SED19003	0044	1	5001250111	Nephtys ferruginea	6
SED19003	0044	1	5001270101	Glycera capitata	2
SED19003	0044	1	5001280101	Glycinde picta	4
SED19003	0044	1	5001280103	Glycinde armigera	1
SED19003	0044	1	5001290111	Onuphis elegans	1
SED19003	0044	1	5001290202	Diopatra ornata	7
SED19003	0044	1	5001310118	Lumbrineris cruzensis	2
SED19003	0044	1	5001310132	Lumbrineris californiensis	20
SED19003	0044	1	5001310196	Lumbrineris sp. gr. 2	15
SED19003	0044	1	5001310197	Lumbrineris sp. gr. 1	1
SED19003	0044	1	5001330302	Notocirrus californiensis	2
SED19003	0044	1	5001360201	Protodorvillea gracilis	2
SED19003	0044	1	5001400102	Leitoscoloplos pugettensis	6
SED19003	0044	1	5001410801	Levinsenia gracilis	1
SED19003	0044	1	5001411306	Acmira catherinae	8
SED19003	0044	1	5001430415	Polydora limicola	3
SED19003	0044	1	5001430419	Polydora armata	1

Benthic Abundance Report

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0044	1	5001430506	Prionospio steenstrupi	24
SED19003	0044	1	5001430521	Prionospio lighti	6
SED19003	0044	1	5001430599	Prionospio multibranchiata	1
SED19003	0044	1	5001431004	Spiophanes berkelyorum	89
SED19003	0044	1	5001431701	Paraprionospio pinnata	5
SED19003	0044	1	5001490202	Phyllochaetopterus prolifica	321
SED19003	0044	1	5001490302	Spiochaetopterus costarum	40
SED19003	0044	1	5001490401	Mesochaetopterus taylori	16
SED19003	0044	1	5001500202	Caulleriella alata	5
SED19003	0044	1	5001500302	Tharyx multifilis	5
SED19003	0044	1	5001500308	Tharyx tessellata	3
SED19003	0044	1	5001500401	Chaetozone setosa	1
SED19003	0044	1	5001520101	Cossura longocirrata	1
SED19003	0044	1	5001580202	Armandia brevis	1
SED19003	0044	1	5001600302	Notomastus tenuis	12
SED19003	0044	1	5001600402	Mediomastus californiensis	51
SED19003	0044	1	500163090301	Praxillella affinis pacifica	2
SED19003	0044	1	5001631103	Euclymene zonalis	1
SED19003	0044	1	5001632001	Isocirrus longiceps	1
SED19003	0044	1	5001650201	Sabellaria cementarium	11
SED19003	0044	1	5001660303	Pectinaria granulata	2
SED19003	0044	1	5001660304	Pectinaria californiensis	2
SED19003	0044	1	5001670101	Amage anops	2
SED19003	0044	1	5001670701	Anobothrus gracilis	1
SED19003	0044	1	5001680601	Nicolea zostericola	1
SED19003	0044	1	50016808	Polycirrus spp.	1
SED19003	0044	1	5001680810	Polycirrus californicus	2
SED19003	0044	1	5001681501	Laphania boeckii	1
SED19003	0044	1	5001690101	Terebellides stroemi	1
SED19003	0044	1	5001730101	Pseudochitinopoma occidentalis	1
SED19003	0044	1	500901	Enchytraeidae	1
SED19003	0044	1	5103640301	Crepipatella lingulata	1
SED19003	0044	1	5105080101	Nassaricus mendicus	1
SED19003	0044	1	5106021107	Kurtziella plumbea	7
SED19003	0044	1	510801019999	Odostomia (Odostomia) spp.	3
SED19003	0044	1	5108011134	Turbonilla aurantia	1

Benthic Abundance Report

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Survey : SED19003 Station : 0044

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0044	1	5110040205	Cylichna attonsa	1
SED19003	0044	1	5502020101	Acila castrensis	1
SED19003	0044	1	5502020201	Nucula tenuis	1
SED19003	0044	1	5507010201	Crenella decussata	1
SED19003	0044	1	55070104	Musculus spp.	2
SED19003	0044	1	55090501	Chlamys spp.	3
SED19003	0044	1	5515010101	Parvilucina tenuisculpta	4
SED19003	0044	1	5515010201	Lucinoma acutilineata	1
SED19003	0044	1	5515020201	Axinopsida serricata	6
SED19003	0044	1	5515100102	Mysella tumida	13
SED19003	0044	1	55153101	Macoma spp.	2
SED19003	0044	1	5515310111	Macoma yoldiformis	10
SED19003	0044	1	5517060201	Hiatella arctica	2
SED19003	0044	1	55200502	Lyonsia spp.	1
SED19003	0044	1	6111070301	Euphilomedes carcharodonta	4
SED19003	0044	1	6134020104	Balanus crenatus	1
SED19003	0044	1	6154040202	Eudorella pacifica	3
SED19003	0044	1	6154050101	Diastylis alaskensis	1
SED19003	0044	1	6157020101	Leptochelia savignyi	4
SED19003	0044	1	6169020134	Ampelisca lobata	7
SED19003	0044	1	6169020208	Byblis millsii	8
SED19003	0044	1	6169060203	Aoroides inermis	4
SED19003	0044	1	6169150203	Corophium crassicorne	7
SED19003	0044	1	6169150301	Erichthonius hunteri	3
SED19003	0044	1	6169150302	Erichthonius brasiliensis	10
SED19003	0044	1	61693501	Melphidippa spp.	1
SED19003	0044	1	6169370816	Monoculodes zernovi	1
SED19003	0044	1	6169420301	Heterophoxus oculatus	4
SED19003	0044	1	6179220115	Mesocrangon munitella	1
SED19003	0044	1	6187010101	Oregonia gracilis	1
SED19003	0044	1	618902010102	Lophopanopeus bellus diegensis	3
SED19003	0044	1	6189060404	Pinnixa schmitti	32
SED19003	0044	1	72000201	Golfingia spp.	1
SED19003	0044	1	7200020104	Golfingia pugettensis	5
SED19003	0044	1	812903019999	Amphiodia urtica/periercta	12
SED19003	0044	1	8129030202	Amphipholis squamata	2

Benthic Abundance Report

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Survey : SED19003 Station : 0044

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0044	1	8406010505	Styela gibbsii	1
SED19003	0044	2	3759010102	Edwardsia sipunculoides	5
SED19003	0044	2	43	Nemertea	17
SED19003	0044	2	5001020603	Gattyana cirrosa	2
SED19003	0044	2	5001021805	Lepidasthenia longicirrata	2
SED19003	0044	2	5001040101	Pholoides aspera	20
SED19003	0044	2	5001060101	Pholoe minuta	1
SED19003	0044	2	5001060301	Sthenelais berkeleyi	1
SED19003	0044	2	5001130308	Eulalia (Eumida) bilineata	1
SED19003	0044	2	5001130403	Notophyllum tectum	3
SED19003	0044	2	5001131101	Eulalia (Eumida) sanguinea	19
SED19003	0044	2	5001131402	Phyllodoce (Aponaitides) hartmanae	2
SED19003	0044	2	500121	Hesionidae	2
SED19003	0044	2	5001210202	Microphthalmus aberrans	2
SED19003	0044	2	5001210401	Ophiodromus pugettensis	2
SED19003	0044	2	5001220301	Pilargis berkeleyi	1
SED19003	0044	2	5001230201	Pionosyllis gigantea	3
SED19003	0044	2	5001230512	Syllis variegata	1
SED19003	0044	2	5001230702	Exgone gemmifera	8
SED19003	0044	2	5001231002	Syllis heterochaeta	4
SED19003	0044	2	5001231303	Odontosyllis phosphorea	4
SED19003	0044	2	5001240201	Cheilonereis cyclurus	1
SED19003	0044	2	5001240406	Nereis zonata	1
SED19003	0044	2	5001240501	Platynereis bicanaliculata	1
SED19003	0044	2	5001250111	Nephtys ferruginea	5
SED19003	0044	2	5001260103	Sphaerodoropsis sphaerulifer	2
SED19003	0044	2	5001270101	Glycera capitata	2
SED19003	0044	2	5001280103	Glycinde armigera	1
SED19003	0044	2	5001280203	Goniada brunnea	1
SED19003	0044	2	5001290202	Diopatra ornata	14
SED19003	0044	2	5001310118	Lumbrineris cruzensis	12
SED19003	0044	2	5001310197	Lumbrineris sp. gr. 1	6
SED19003	0044	2	5001360101	Dorvillea pseudorubrovittata	1
SED19003	0044	2	5001400102	Leitoscoloplos pugettensis	6
SED19003	0044	2	5001410801	Levinsenia gracilis	4
SED19003	0044	2	5001411306	Acmira catherinae	6

Benthic Abundance Report

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Survey : SED19003 Station : 0044

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0044	2	5001430201	Laonice cirrata	2
SED19003	0044	2	5001430402	Polydora socialis	1
SED19003	0044	2	5001430415	Polydora limicola	1
SED19003	0044	2	5001430506	Prionospio steenstrupi	15
SED19003	0044	2	5001430521	Prionospio lighti	3
SED19003	0044	2	5001431004	Spiophanes berkelyorum	36
SED19003	0044	2	5001431701	Paraprionospio pinnata	1
SED19003	0044	2	5001490202	Phyllochaetopterus prolifica	220
SED19003	0044	2	5001490302	Spiochaetopterus costarum	64
SED19003	0044	2	5001490401	Mesochaetopterus taylori	15
SED19003	0044	2	500150	Cirratulidae	3
SED19003	0044	2	5001500202	Caulleriella alata	3
SED19003	0044	2	5001500302	Tharyx multifilis	6
SED19003	0044	2	5001500401	Chaetozone setosa	1
SED19003	0044	2	5001600302	Notomastus tenuis	7
SED19003	0044	2	5001600303	Notomastus lineatus	2
SED19003	0044	2	5001600402	Mediomastus californiensis	12
SED19003	0044	2	5001630901	Praxillella gracilis	3
SED19003	0044	2	500163099999	Praxillella sp. A	6
SED19003	0044	2	5001631103	Euclymene zonalis	2
SED19003	0044	2	5001640201	Myriochele heeri	1
SED19003	0044	2	5001650201	Sabellaria cementarium	3
SED19003	0044	2	5001660303	Pectinaria granulata	7
SED19003	0044	2	5001660304	Pectinaria californiensis	1
SED19003	0044	2	5001670208	Ampharete acutifrons	1
SED19003	0044	2	5001670701	Anobothrus gracilis	2
SED19003	0044	2	50016808	Polycirrus spp.	3
SED19003	0044	2	5001690101	Terebellides stroemi	3
SED19003	0044	2	5001730101	Pseudochitinopoma occidentalis	1
SED19003	0044	2	51032001	Alvania spp.	6
SED19003	0044	2	5105030247	Mitrella gausapata	4
SED19003	0044	2	5105080101	Nassarius mendicus	2
SED19003	0044	2	5106021107	Kurtziella plumbea	8
SED19003	0044	2	5108011134	Turbonilla aurantia	1
SED19003	0044	2	5402	Chaetodermatida	1
SED19003	0044	2	5502020101	Acila castrensis	1

Benthic Abundance Report

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0044	2	5507010301	Megacrenella columbiana	5
SED19003	0044	2	55090501	Chlamys spp.	1
SED19003	0044	2	5515010101	Parvilucina tenuisculpta	3
SED19003	0044	2	5515020201	Axinopsida serricata	5
SED19003	0044	2	5515100102	Mysella tumida	9
SED19003	0044	2	55153101	Macoma spp.	3
SED19003	0044	2	5515310111	Macoma yoldiformis	3
SED19003	0044	2	5520050202	Lyonsia californica	3
SED19003	0044	2	6111070301	Euphilomedes carcharodonta	10
SED19003	0044	2	6154040202	Eudorella pacifica	8
SED19003	0044	2	6160011601	Haliophasma geminata	2
SED19003	0044	2	6169020113	Ampelisca hancocki	3
SED19003	0044	2	6169020134	Ampelisca lobata	5
SED19003	0044	2	6169020208	Byblis millsii	14
SED19003	0044	2	6169060203	Aoroides inermis	4
SED19003	0044	2	6169150203	Corophium crassicorne	5
SED19003	0044	2	6169260401	Gammaropsis thompsoni	1
SED19003	0044	2	6169270402	Microjassa litodes	2
SED19003	0044	2	6169341411	Hippomedon coecus	4
SED19003	0044	2	6169370816	Monoculodes zernovi	1
SED19003	0044	2	6169371502	Westwoodilla caecula	1
SED19003	0044	2	6169420301	Heterophoxus oculatus	7
SED19003	0044	2	6179160204	Spirontocaris snyderi	1
SED19003	0044	2	6179160408	Eualus pusiolus	2
SED19003	0044	2	6183060201	Pagurus armatus	1
SED19003	0044	2	618902010102	Lophopanopeus bellus diegensis	2
SED19003	0044	2	618906	Pinnotheridae	1
SED19003	0044	2	6189060404	Pinnixa schmitti	20
SED19003	0044	2	7200020104	Golfingia pugettensis	9
SED19003	0044	2	812903019999	Amphiodia urtica/periercta	10
SED19003	0044	2	8129030202	Amphipholis squamata	1
SED19003	0044	2	81720602	Eupentacta spp.	2
SED19003	0044	3	3759010102	Edwardsia sipunculoides	5
SED19003	0044	3	43	Nemertea	3
SED19003	0044	3	5001020603	Gattyana cirrosa	2
SED19003	0044	3	5001020810	Harmothoe lunulata	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0044

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0044	3	5001040101	Pholoides aspera	12
SED19003	0044	3	5001060301	Sthenelais berkeleyi	1
SED19003	0044	3	5001130112	Phyllodoce (Anaitides) longipes	1
SED19003	0044	3	5001130205	Eteone longa	2
SED19003	0044	3	5001131101	Eulalia (Eumida) sanguinea	8
SED19003	0044	3	5001131402	Phyllodoce (Aponaitides) hartmanae	2
SED19003	0044	3	500121	Hesionidae	4
SED19003	0044	3	5001210401	Ophiodromus pugettensis	1
SED19003	0044	3	5001230201	Pionosyllis gigantea	2
SED19003	0044	3	5001230501	Syllis alternata	4
SED19003	0044	3	5001230702	Exgone gemmifera	2
SED19003	0044	3	5001231002	Syllis heterochaeta	6
SED19003	0044	3	5001240404	Nereis procera	1
SED19003	0044	3	5001240501	Platynereis bicanaliculata	5
SED19003	0044	3	500125010401	Nephtys cornuta franciscana	3
SED19003	0044	3	5001250106	Nephtys rickettsi	1
SED19003	0044	3	5001250111	Nephtys ferruginea	2
SED19003	0044	3	5001260103	Sphaerodoropsis sphaerulifer	1
SED19003	0044	3	5001270104	Glycera americana	1
SED19003	0044	3	5001280101	Glycinde picta	3
SED19003	0044	3	5001280103	Glycinde armigera	3
SED19003	0044	3	5001290202	Diopatra ornata	10
SED19003	0044	3	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0044	3	5001310197	Lumbrineris sp. gr. 1	4
SED19003	0044	3	5001360201	Protodorvillea gracilis	1
SED19003	0044	3	5001400102	Leitoscoloplos pugettensis	6
SED19003	0044	3	5001410801	Levinsenia gracilis	1
SED19003	0044	3	5001411306	Acmira catherinae	18
SED19003	0044	3	5001420102	Apistobranthus ornatus	1
SED19003	0044	3	5001430201	Laonice cirrata	1
SED19003	0044	3	5001430402	Polydora socialis	1
SED19003	0044	3	5001430415	Polydora limicola	1
SED19003	0044	3	5001430506	Prionospio steenstrupi	32
SED19003	0044	3	5001430521	Prionospio lighti	2
SED19003	0044	3	5001431004	Spiophanes berkelyorum	47
SED19003	0044	3	5001431701	Paraprionospio pinnata	6

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0044

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0044	3	5001440105	Magelona longicornis	1
SED19003	0044	3	5001490202	Phyllochaetopterus prolifica	148
SED19003	0044	3	5001490302	Spiochaetopterus costarum	37
SED19003	0044	3	5001490401	Mesochaetopterus taylori	3
SED19003	0044	3	5001500202	Caulleriella alata	2
SED19003	0044	3	50015003	Tharyx spp.	1
SED19003	0044	3	5001500302	Tharyx multifilis	4
SED19003	0044	3	5001600302	Notomastus tenuis	4
SED19003	0044	3	5001600303	Notomastus lineatus	1
SED19003	0044	3	5001600402	Mediomastus californiensis	21
SED19003	0044	3	500163	Maldanidae	2
SED19003	0044	3	500163099999	Praxillella sp. A	3
SED19003	0044	3	5001631103	Euclymene zonalis	2
SED19003	0044	3	5001650201	Sabellaria cementarium	3
SED19003	0044	3	5001660303	Pectinaria granulata	3
SED19003	0044	3	5001670701	Anobothrus gracilis	3
SED19003	0044	3	50016808	Polycirrus spp.	2
SED19003	0044	3	5001681101	Artacama coniferi	3
SED19003	0044	3	500168130201	Lanassa venusta venusta	4
SED19003	0044	3	5001690101	Terebellides stroemi	2
SED19003	0044	3	5105080101	Nassaricus mendicus	2
SED19003	0044	3	5106021107	Kurtziella plumbea	3
SED19003	0044	3	5108011134	Turbonilla aurantia	1
SED19003	0044	3	5142	Aeolidacea	1
SED19003	0044	3	5402	Chaetodermatida	1
SED19003	0044	3	5507010301	Megacrenella columbiana	3
SED19003	0044	3	55090501	Chlamys spp.	2
SED19003	0044	3	5515010101	Parvilucina tenuisculpta	2
SED19003	0044	3	5515020201	Axinopsida serricata	3
SED19003	0044	3	5515100102	Mysella tumida	14
SED19003	0044	3	5515310102	Macoma elimata	1
SED19003	0044	3	5515310111	Macoma yoldiformis	8
SED19003	0044	3	6111070301	Euphilomedes carcharodonta	5
SED19003	0044	3	6154040202	Eudorella pacifica	2
SED19003	0044	3	6169020113	Ampelisca hancocki	8
SED19003	0044	3	6169020134	Ampelisca lobata	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0044

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0044	3	6169020208	Byblis millsii	3
SED19003	0044	3	6169060203	Aoroides inermis	3
SED19003	0044	3	6169150203	Corophium crassicorne	8
SED19003	0044	3	6169150301	Erichthonius hunteri	13
SED19003	0044	3	6169260401	Gammaropsis thompsoni	6
SED19003	0044	3	61693501	Melphidippa spp.	1
SED19003	0044	3	6169370816	Monoculodes zernovi	1
SED19003	0044	3	6169371502	Westwoodilla caecula	1
SED19003	0044	3	6169420301	Heterophoxus oculatus	10
SED19003	0044	3	6179160201	Spirontocaris prionata	1
SED19003	0044	3	6179160204	Spirontocaris snyderi	1
SED19003	0044	3	6179160408	Eualus pusiolus	2
SED19003	0044	3	6183060201	Pagurus armatus	1
SED19003	0044	3	6183060208	Pagurus caurinus	1
SED19003	0044	3	6187010101	Oregonia gracilis	3
SED19003	0044	3	618902010102	Lophopanopeus bellus diegensis	2
SED19003	0044	3	6189060404	Pinnixa schmitti	32
SED19003	0044	3	7200020104	Golfingia pugettensis	7
SED19003	0044	3	812903019999	Amphiodia urtica/periercta	11
SED19003	0044	3	81720602	Eupentacta spp.	2
SED19003	0044	3	8404050105	Ascidia paratropa	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0045

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0045	1	43	Nemertea	7
SED19003	0045	1	5001021801	Lepidasthenia berkeleyae	1
SED19003	0045	1	5001060101	Pholoe minuta	1
SED19003	0045	1	5001220201	Sigambra tentaculata	13
SED19003	0045	1	5001220301	Pilargis berkeleyi	2
SED19003	0045	1	5001240406	Nereis zonata	3
SED19003	0045	1	5001270101	Glycera capitata	1
SED19003	0045	1	5001280203	Goniada brunnea	2
SED19003	0045	1	5001310118	Lumbrineris cruzensis	1
SED19003	0045	1	5001400102	Leitoscoloplos pugettensis	3
SED19003	0045	1	5001410801	Levinsenia gracilis	58
SED19003	0045	1	5001411306	Acmira catherinae	32
SED19003	0045	1	5001430201	Laonice cirrata	4
SED19003	0045	1	5001430506	Prionospio steenstrupi	2
SED19003	0045	1	5001431004	Spiophanes berkelyorum	3
SED19003	0045	1	5001431701	Paraprionospio pinnata	1
SED19003	0045	1	5001490302	Spiochaetopterus costarum	1
SED19003	0045	1	500150	Cirratulidae	3
SED19003	0045	1	5001520101	Cossura longocirrata	1
SED19003	0045	1	5001600203	Heteromastus filobranchus	2
SED19003	0045	1	5001600402	Mediomastus californiensis	1
SED19003	0045	1	500163090301	Praxillella affinis pacifica	5
SED19003	0045	1	5001660304	Pectinaria californiensis	2
SED19003	0045	1	5001681101	Artacama coniferi	1
SED19003	0045	1	5110040205	Cylichna attonsa	1
SED19003	0045	1	5402	Chaetodermatida	2
SED19003	0045	1	5507010201	Crenella decussata	1
SED19003	0045	1	5515010101	Parvilucina tenuisculpta	9
SED19003	0045	1	5515010201	Lucinoma acutilineata	2
SED19003	0045	1	5515020201	Axinopsida serricata	1
SED19003	0045	1	6111070301	Euphilomedes carcharodonta	39
SED19003	0045	1	6111070303	Euphilomedes producta	1
SED19003	0045	1	6154040202	Eudorella pacifica	1
SED19003	0045	1	61692602	Photis spp.	1
SED19003	0045	1	61692603	Protomedeia spp.	1
SED19003	0045	1	6169420301	Heterophoxus oculatus	4

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0045

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0045	1	6189060404	Pinnixa schmitti	3
SED19003	0045	1	812903019999	Amphiodia urtica/periercta	13
SED19003	0045	2	3743010303	Pachycerianthus fimbriatus	2
SED19003	0045	2	43	Nemertea	4
SED19003	0045	2	5001021801	Lepidasthenia berkeleyae	3
SED19003	0045	2	5001060301	Sthenelais berkeleyi	4
SED19003	0045	2	500113	Phyllodocidae	1
SED19003	0045	2	5001210102	Gyptis brevipalpa	1
SED19003	0045	2	5001220201	Sigambra tentaculata	21
SED19003	0045	2	5001220301	Pilargis berkeleyi	1
SED19003	0045	2	5001240406	Nereis zonata	3
SED19003	0045	2	5001270101	Glycera capitata	1
SED19003	0045	2	5001310197	Lumbrineris sp. gr. 1	1
SED19003	0045	2	5001400102	Leitoscoloplos pugettensis	1
SED19003	0045	2	5001410801	Levinsenia gracilis	65
SED19003	0045	2	5001411306	Acmira catherinae	42
SED19003	0045	2	5001430201	Laonice cirrata	4
SED19003	0045	2	5001430431	Polydora cardalia	1
SED19003	0045	2	5001430506	Prionospio steenstrupi	3
SED19003	0045	2	5001430521	Prionospio lighti	1
SED19003	0045	2	5001431004	Spiophanes berkelyorum	2
SED19003	0045	2	5001431701	Paraprionospio pinnata	1
SED19003	0045	2	50015003	Tharyx spp.	1
SED19003	0045	2	5001520101	Cossura longocirrata	4
SED19003	0045	2	5001540302	Pherusa plumosa	1
SED19003	0045	2	5001600203	Heteromastus filobranchus	1
SED19003	0045	2	500163	Maldanidae	1
SED19003	0045	2	500163090301	Praxillella affinis pacifica	4
SED19003	0045	2	5001660304	Pectinaria californiensis	1
SED19003	0045	2	50016808	Polycirrus spp.	1
SED19003	0045	2	5001681101	Artacama coniferi	1
SED19003	0045	2	5103509999	Nitidiscala tincta	1
SED19003	0045	2	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0045	2	5502040504	Yoldia scissurata	2
SED19003	0045	2	5515010101	Parvilucina tenuisculpta	7
SED19003	0045	2	5515100102	Mysella tumida	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0045

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0045	2	5515310111	Macoma yoldiformis	1
SED19003	0045	2	5515470301	Compsomyax subdiaphana	1
SED19003	0045	2	6111070301	Euphilomedes carcharodonta	28
SED19003	0045	2	6111070303	Euphilomedes producta	4
SED19003	0045	2	6154040202	Eudorella pacifica	3
SED19003	0045	2	6169345701	Prachynella lodo	2
SED19003	0045	2	6169371502	Westwoodilla caecula	1
SED19003	0045	2	6169420301	Heterophoxus oculatus	2
SED19003	0045	2	6189060404	Pinnixa schmitti	3
SED19003	0045	2	7200020104	Golfingia pugettensis	3
SED19003	0045	2	812903019999	Amphiodia urtica/periercta	4
SED19003	0045	2	8129030999	Amphioplus strongyloplax	1
SED19003	0045	3	3743010303	Pachycerianthus fimbriatus	2
SED19003	0045	3	43	Nemertea	8
SED19003	0045	3	5001021801	Lepidasthenia berkeleyae	4
SED19003	0045	3	5001040101	Pholoides aspera	1
SED19003	0045	3	5001060301	Sthenelais berkeleyi	1
SED19003	0045	3	5001131101	Eulalia (Eumida) sanguinea	3
SED19003	0045	3	5001220201	Sigambra tentaculata	28
SED19003	0045	3	5001220301	Pilargis berkeleyi	3
SED19003	0045	3	500125010401	Nephtys cornuta franciscana	1
SED19003	0045	3	5001270101	Glycera capitata	2
SED19003	0045	3	5001290111	Onuphis elegans	2
SED19003	0045	3	5001310118	Lumbrineris cruzensis	2
SED19003	0045	3	5001310195	Lumbrineris sp. gr. 3	2
SED19003	0045	3	5001410801	Levinsenia gracilis	88
SED19003	0045	3	5001411306	Acmira catherinae	50
SED19003	0045	3	5001430201	Laonice cirrata	4
SED19003	0045	3	5001430506	Prionospio steenstrupi	1
SED19003	0045	3	5001430521	Prionospio lighti	1
SED19003	0045	3	5001431004	Spiophanes berkelyorum	3
SED19003	0045	3	5001431701	Paraprionospio pinnata	2
SED19003	0045	3	50015003	Tharyx spp.	1
SED19003	0045	3	5001520101	Cossura longocirrata	1
SED19003	0045	3	5001600402	Mediomastus californiensis	2
SED19003	0045	3	500163090301	Praxillella affinis pacifica	8

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0045

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A	ABUN-
								DANCE
SED19003	0045	3	5001660304	<i>Pectinaria californiensis</i>				8
SED19003	0045	3	5001680401	<i>Neoamphitrite robusta</i>				2
SED19003	0045	3	5001681101	<i>Artacama coniferi</i>				2
SED19003	0045	3	510801019999	<i>Odostomia (Odostomia) spp.</i>				1
SED19003	0045	3	5402	<i>Chaetodermatida</i>				1
SED19003	0045	3	5507010201	<i>Crenella decussata</i>				1
SED19003	0045	3	5515010101	<i>Parvilucina tenuisculpta</i>				4
SED19003	0045	3	5515310111	<i>Macoma yoldiformis</i>				1
SED19003	0045	3	6111070301	<i>Euphilomedes carcharodonta</i>				35
SED19003	0045	3	6111070303	<i>Euphilomedes producta</i>				5
SED19003	0045	3	6154040202	<i>Eudorella pacifica</i>				3
SED19003	0045	3	6169371502	<i>Westwoodilla caecula</i>				1
SED19003	0045	3	6169420204	<i>Harpiniopsis fulgens</i>				1
SED19003	0045	3	6169420301	<i>Heterophoxus oculatus</i>				8
SED19003	0045	3	61830402	<i>Callianassa spp.</i>				1
SED19003	0045	3	6189060404	<i>Pinnixa schmitti</i>				4
SED19003	0045	3	812903019999	<i>Amphiodia urtica/periercta</i>				6

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0046R

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0046R	1	43	Nemertea	5
SED19003	0046R	1	5001021801	Lepidasthenia berkeleyae	1
SED19003	0046R	1	5001022301	Tenonia kitsapensis	1
SED19003	0046R	1	5001060101	Pholoe minuta	2
SED19003	0046R	1	5001060305	Sthenelais tertiaglabra	3
SED19003	0046R	1	5001080101	Paleonotus bellis	2
SED19003	0046R	1	5001131101	Eulalia (Eumida) sanguinea	8
SED19003	0046R	1	5001131402	Phyllodoce (Aponaitides) hartmanae	1
SED19003	0046R	1	500121	Hesionidae	1
SED19003	0046R	1	5001230201	Pionosyllis gigantea	2
SED19003	0046R	1	5001230702	Exgone gemmifera	9
SED19003	0046R	1	5001250111	Nephtys ferruginea	4
SED19003	0046R	1	5001270101	Glycera capitata	3
SED19003	0046R	1	5001280101	Glycinde picta	1
SED19003	0046R	1	5001310109	Lumbrineris luti	2
SED19003	0046R	1	5001400102	Leitoscoloplos pugettensis	15
SED19003	0046R	1	5001411306	Acmira catherinae	1
SED19003	0046R	1	5001430201	Laonice cirrata	4
SED19003	0046R	1	5001430415	Polydora limicola	2
SED19003	0046R	1	5001430506	Prionospio steenstrupi	13
SED19003	0046R	1	5001431004	Spiophanes berkelyorum	49
SED19003	0046R	1	5001440105	Magelona longicornis	1
SED19003	0046R	1	5001490202	Phyllochaetopterus prolifica	93
SED19003	0046R	1	5001490302	Spiochaetopterus costarum	1
SED19003	0046R	1	5001500302	Tharyx multifilis	1
SED19003	0046R	1	5001632001	Isocirrus longiceps	1
SED19003	0046R	1	5001650201	Sabellaria cementarium	40
SED19003	0046R	1	5001670701	Anobothrus gracilis	2
SED19003	0046R	1	5001680401	Neoamphitrite robusta	1
SED19003	0046R	1	5001680601	Nicolea zostericola	1
SED19003	0046R	1	5001681803	Scionella estevanica	1
SED19003	0046R	1	51032001	Alvania spp.	2
SED19003	0046R	1	5105030247	Mitrella gausapata	12
SED19003	0046R	1	5105080101	Nassarius mendicus	6
SED19003	0046R	1	5106021107	Kurtziella plumbea	2
SED19003	0046R	1	510801019999	Odostomia (Odostomia) spp.	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0046R

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0046R	1	5108011134	Turbonilla aurantia	2
SED19003	0046R	1	5110040205	Cylichna attonsa	1
SED19003	0046R	1	5502020201	Nucula tenuis	2
SED19003	0046R	1	5507010301	Megacrenella columbiana	1
SED19003	0046R	1	55070106	Modiolus spp.	2
SED19003	0046R	1	5515010201	Lucinoma acutilineata	1
SED19003	0046R	1	5515020201	Axinopsida serricata	3
SED19003	0046R	1	5515100102	Mysella tumida	3
SED19003	0046R	1	5515310111	Macoma yoldiformis	5
SED19003	0046R	1	5515310112	Macoma carlottensis	2
SED19003	0046R	1	6111070301	Euphilomedes carcharodonta	57
SED19003	0046R	1	6111070303	Euphilomedes producta	1
SED19003	0046R	1	6154040202	Eudorella pacifica	2
SED19003	0046R	1	6157020204	Leptognathia brevimana	1
SED19003	0046R	1	6169020113	Ampelisca hancocki	2
SED19003	0046R	1	6169020125	Ampelisca brevisimulata	1
SED19003	0046R	1	6169020208	Byblis millsii	1
SED19003	0046R	1	6169060203	Aoroides inermis	4
SED19003	0046R	1	6169150302	Erichthonius brasiliensis	1
SED19003	0046R	1	61692602	Photis spp.	1
SED19003	0046R	1	6169260312	Protomedea prudens	4
SED19003	0046R	1	6169371502	Westwoodilla caecula	2
SED19003	0046R	1	6169420301	Heterophoxus oculatus	5
SED19003	0046R	1	6169420926	Rhepoxynius variatus	22
SED19003	0046R	1	6189060404	Pinnixa schmitti	11
SED19003	0046R	1	7200020104	Golfingia pugettensis	6
SED19003	0046R	1	812903019999	Amphiodia urtica/periercta	4
SED19003	0046R	2	3759010102	Edwardsia sipunculooides	3
SED19003	0046R	2	39	Platyhelminthes	1
SED19003	0046R	2	43	Nemertea	4
SED19003	0046R	2	5001021801	Lepidasthenia berkeleyae	1
SED19003	0046R	2	5001060101	Pholoe minuta	5
SED19003	0046R	2	5001060305	Sthenelais tertiaglabra	2
SED19003	0046R	2	5001080101	Paleonotus bellis	2
SED19003	0046R	2	5001131101	Eulalia (Eumida) sanguinea	3
SED19003	0046R	2	5001210401	Ophiodromus pugettensis	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0046R

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0046R	2	5001230201	Pionosyllis gigantea	1
SED19003	0046R	2	5001230702	Exgone gemmifera	13
SED19003	0046R	2	5001240501	Platynereis bicanaliculata	1
SED19003	0046R	2	5001250111	Nephtys ferruginea	4
SED19003	0046R	2	5001270101	Glycera capitata	1
SED19003	0046R	2	5001280103	Glycinde armigera	1
SED19003	0046R	2	5001290202	Diopatra ornata	8
SED19003	0046R	2	5001310109	Lumbrineris luti	3
SED19003	0046R	2	5001310195	Lumbrineris sp. gr. 3	2
SED19003	0046R	2	5001400102	Leitoscoloplos pugettensis	19
SED19003	0046R	2	5001410801	Levinsenia gracilis	6
SED19003	0046R	2	5001411306	Acmira catherinae	3
SED19003	0046R	2	5001430201	Laonice cirrata	5
SED19003	0046R	2	5001430431	Polydora cardalia	5
SED19003	0046R	2	5001430506	Prionospio steenstrupi	17
SED19003	0046R	2	5001430521	Prionospio lighti	1
SED19003	0046R	2	5001431004	Spiophanes berkelyorum	116
SED19003	0046R	2	5001431701	Paraprionospio pinnata	1
SED19003	0046R	2	5001440105	Magelona longicornis	14
SED19003	0046R	2	5001490202	Phyllochaetopterus prolifica	42
SED19003	0046R	2	5001490302	Spiochaetopterus costarum	2
SED19003	0046R	2	5001500302	Tharyx multifilis	1
SED19003	0046R	2	5001600402	Mediomastus californiensis	2
SED19003	0046R	2	500163	Maldanidae	1
SED19003	0046R	2	5001631103	Euclymene zonalis	1
SED19003	0046R	2	5001650201	Sabellaria cementarium	23
SED19003	0046R	2	5001670701	Anobothrus gracilis	3
SED19003	0046R	2	5001680601	Nicolea zostericola	3
SED19003	0046R	2	5001682502	Streblosoma bairdi	1
SED19003	0046R	2	50017006	Potamilla spp.	3
SED19003	0046R	2	5105030247	Mitrella gausapata	6
SED19003	0046R	2	5105080101	Nassarius mendicus	1
SED19003	0046R	2	5108011134	Turbonilla aurantia	1
SED19003	0046R	2	5110040205	Cylichna attonsa	1
SED19003	0046R	2	5502020201	Nucula tenuis	3
SED19003	0046R	2	5502040504	Yoldia scissurata	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0046R

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0046R	2	5515010101	Parvilucina tenuisculpta	6
SED19003	0046R	2	5515020201	Axinopsida serricata	3
SED19003	0046R	2	5515310111	Macoma yoldiformis	11
SED19003	0046R	2	5517060201	Hiatella arctica	1
SED19003	0046R	2	5520020102	Pandora filosa	1
SED19003	0046R	2	6111070301	Euphilomedes carcharodonta	39
SED19003	0046R	2	6111070303	Euphilomedes producta	1
SED19003	0046R	2	6154040202	Eudorella pacifica	1
SED19003	0046R	2	6157020204	Leptognathia brevimana	2
SED19003	0046R	2	6169020113	Ampelisca hancocki	1
SED19003	0046R	2	6169020134	Ampelisca lobata	2
SED19003	0046R	2	6169020208	Byblis millsii	1
SED19003	0046R	2	61691502	Corophium spp.	1
SED19003	0046R	2	6169150302	Erichthonius brasiliensis	1
SED19003	0046R	2	6169260312	Protomedeia prudens	1
SED19003	0046R	2	6169371502	Westwoodilla caecula	1
SED19003	0046R	2	6169420301	Heterophoxus oculatus	3
SED19003	0046R	2	6169420926	Rhepoxynius variatus	32
SED19003	0046R	2	61830402	Callianassa spp.	1
SED19003	0046R	2	6183060201	Pagurus armatus	1
SED19003	0046R	2	6183060208	Pagurus caurinus	2
SED19003	0046R	2	6189060404	Pinnixa schmitti	22
SED19003	0046R	2	7200020104	Golfingia pugettensis	3
SED19003	0046R	2	812903019999	Amphiodia urtica/periercta	39
SED19003	0046R	3	3759010102	Edwardsia sipunculoides	2
SED19003	0046R	3	43	Nemertea	16
SED19003	0046R	3	5001021801	Lepidasthenia berkeleyae	1
SED19003	0046R	3	5001060101	Pholoe minuta	3
SED19003	0046R	3	5001060305	Sthenelais tertiaglabra	3
SED19003	0046R	3	5001080101	Paleonotus bellis	5
SED19003	0046R	3	5001131101	Eulalia (Eumida) sanguinea	21
SED19003	0046R	3	5001131402	Phyllodoce (Aponaitides) hartmanae	2
SED19003	0046R	3	5001210401	Ophiodromus pugettensis	1
SED19003	0046R	3	5001230201	Pionosyllis gigantea	1
SED19003	0046R	3	5001230501	Syllis alternata	1
SED19003	0046R	3	5001230702	Exgone gemmifera	25

Benthic Abundance Report

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Survey : SED19003 Station : 0046R

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0046R	3	500125010401	<i>Nephtys cornuta franciscana</i>	1
SED19003	0046R	3	5001250111	<i>Nephtys ferruginea</i>	4
SED19003	0046R	3	5001260103	<i>Sphaerodoropsis sphaerulifer</i>	1
SED19003	0046R	3	5001270101	<i>Glycera capitata</i>	2
SED19003	0046R	3	5001280103	<i>Glycinde armigera</i>	1
SED19003	0046R	3	5001310109	<i>Lumbrineris luti</i>	5
SED19003	0046R	3	5001310128	<i>Lumbrineris limicola</i>	1
SED19003	0046R	3	5001310195	<i>Lumbrineris</i> sp. gr. 3	1
SED19003	0046R	3	5001400102	<i>Leitoscoloplos pugettensis</i>	18
SED19003	0046R	3	5001410801	<i>Levinsenia gracilis</i>	1
SED19003	0046R	3	5001411306	<i>Acmira catherinae</i>	1
SED19003	0046R	3	5001430415	<i>Polydora limicola</i>	1
SED19003	0046R	3	5001430506	<i>Prionospio steenstrupi</i>	7
SED19003	0046R	3	5001430599	<i>Prionospio multibranchiata</i>	1
SED19003	0046R	3	5001431004	<i>Spiophanes berkelyorum</i>	51
SED19003	0046R	3	5001431701	<i>Paraprionospio pinnata</i>	1
SED19003	0046R	3	5001440105	<i>Magelona longicornis</i>	6
SED19003	0046R	3	5001490202	<i>Phyllochaetopterus prolifica</i>	100
SED19003	0046R	3	5001490302	<i>Spiochaetopterus costarum</i>	4
SED19003	0046R	3	5001590101	<i>Sternaspis scutata</i>	1
SED19003	0046R	3	5001600402	<i>Mediomastus californiensis</i>	3
SED19003	0046R	3	500163	Maldanidae	2
SED19003	0046R	3	5001650201	<i>Sabellaria cementarium</i>	70
SED19003	0046R	3	5001670701	<i>Anobothrus gracilis</i>	7
SED19003	0046R	3	5001680601	<i>Nicolea zostericola</i>	2
SED19003	0046R	3	5001681101	<i>Artacama coniferi</i>	1
SED19003	0046R	3	5001690101	<i>Terebellides stroemi</i>	3
SED19003	0046R	3	51032001	<i>Alvania</i> spp.	2
SED19003	0046R	3	51035306	<i>Balcis</i> spp.	1
SED19003	0046R	3	5105030247	<i>Mitrella gausapata</i>	28
SED19003	0046R	3	5105080101	<i>Nassarius mendicus</i>	8
SED19003	0046R	3	5110040205	<i>Cylichna attonsa</i>	1
SED19003	0046R	3	5502020201	<i>Nucula tenuis</i>	3
SED19003	0046R	3	5507010301	<i>Megacrenella columbiana</i>	2
SED19003	0046R	3	55070106	<i>Modiolus</i> spp.	4
SED19003	0046R	3	5515010101	<i>Parvilucina tenuisculpta</i>	4

Benthic Abundance Report

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Survey : SED19003 Station : 0046R

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SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A	ABUN-
								DANCE
SED19003	0046R	3	5515010201	Lucinoma acutilineata				3
SED19003	0046R	3	5515100102	Mysella tumida				1
SED19003	0046R	3	5515310111	Macoma yoldiformis				4
SED19003	0046R	3	5517060201	Hiatella arctica				1
SED19003	0046R	3	6111070301	Euphilomedes carcharodonta				49
SED19003	0046R	3	6154040202	Eudorella pacifica				1
SED19003	0046R	3	6169020125	Ampelisca brevisimulata				1
SED19003	0046R	3	6169020134	Ampelisca lobata				1
SED19003	0046R	3	6169020208	Byblis millsi				2
SED19003	0046R	3	6169060203	Aoroides inermis				4
SED19003	0046R	3	6169150302	Erichthonius brasiliensis				2
SED19003	0046R	3	6169260312	Protomedeia prudens				1
SED19003	0046R	3	6169371502	Westwoodilla caecula				3
SED19003	0046R	3	6169420301	Heterophoxus oculatus				6
SED19003	0046R	3	6169420926	Rhepoxynius variatus				19
SED19003	0046R	3	6183060208	Pagurus caurinus				1
SED19003	0046R	3	6189060404	Pinnixa schmitti				14
SED19003	0046R	3	7200020104	Golfingia pugettensis				13
SED19003	0046R	3	812903019999	Amphiodia urtica/periercta				26
SED19003	0046R	3	8170	Holothuroidea				2
SED19003	0046R	3	8401	Ascidacea				2

Benthic Abundance Report

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Survey : SED19003 Station : 0047

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0047	1	3758	Actiniaria	2
SED19003	0047	1	3759010102	Edwardsia sipunculoides	126
SED19003	0047	1	43	Nemertea	27
SED19003	0047	1	5001020603	Gattyana cirrosa	4
SED19003	0047	1	5001020810	Harmothoe lunulata	3
SED19003	0047	1	5001022301	Tenonia kitsapensis	3
SED19003	0047	1	5001040101	Pholoides aspera	27
SED19003	0047	1	5001060305	Sthenelais tertiaglabra	2
SED19003	0047	1	5001080101	Paleonotus bellis	1
SED19003	0047	1	5001130205	Eteone longa	1
SED19003	0047	1	5001130214	Eteone balboensis	1
SED19003	0047	1	5001130308	Eulalia (Eumida) bilineata	2
SED19003	0047	1	5001131101	Eulalia (Eumida) sanguinea	9
SED19003	0047	1	5001131402	Phyllodoce (Aponaitides) hartmanae	1
SED19003	0047	1	5001210401	Ophiodromus pugettensis	1
SED19003	0047	1	5001220301	Pilargis berkeleyi	1
SED19003	0047	1	5001230201	Pionosyllis gigantea	2
SED19003	0047	1	5001230502	Syllis armillaris	1
SED19003	0047	1	5001230512	Syllis variegata	2
SED19003	0047	1	5001230702	Exgone gemmifera	1
SED19003	0047	1	5001230703	Exogone lourei	1
SED19003	0047	1	5001240404	Nereis procera	2
SED19003	0047	1	5001270101	Glycera capitata	1
SED19003	0047	1	5001270104	Glycera americana	1
SED19003	0047	1	5001280203	Goniada brunnea	1
SED19003	0047	1	500129	Onuphidae	2
SED19003	0047	1	5001290111	Onuphis elegans	2
SED19003	0047	1	5001290202	Diopatra ornata	6
SED19003	0047	1	5001310109	Lumbrineris luti	15
SED19003	0047	1	5001310118	Lumbrineris cruzensis	4
SED19003	0047	1	5001310195	Lumbrineris sp. gr. 3	3
SED19003	0047	1	5001310197	Lumbrineris sp. gr. 1	2
SED19003	0047	1	5001330302	Notocirrus californiensis	1
SED19003	0047	1	5001400102	Leitoscoloplos pugettensis	6
SED19003	0047	1	5001410801	Levinsenia gracilis	1
SED19003	0047	1	5001411306	Acmira catherinae	8

Benthic Abundance Report

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0047	1	5001430201	Laonice cirrata	2
SED19003	0047	1	5001430506	Prionospio steenstrupi	12
SED19003	0047	1	5001431004	Spiophanes berkelyorum	9
SED19003	0047	1	5001440105	Magelona longicornis	16
SED19003	0047	1	5001490202	Phyllochaetopterus prolifica	12
SED19003	0047	1	5001490302	Spiochaetopterus costarum	9
SED19003	0047	1	5001500302	Tharyx multifilis	2
SED19003	0047	1	5001540202	Flabelligera affinis	1
SED19003	0047	1	5001580202	Armandia brevis	1
SED19003	0047	1	5001600302	Notomastus tenuis	1
SED19003	0047	1	5001600402	Mediomastus californiensis	16
SED19003	0047	1	500163	Maldanidae	2
SED19003	0047	1	5001630302	Maldane glebifex	1
SED19003	0047	1	500163090301	Praxillella affinis pacifica	1
SED19003	0047	1	5001650201	Sabellaria cementarium	1
SED19003	0047	1	5001670101	Amage anops	21
SED19003	0047	1	5001670701	Anobothrus gracilis	1
SED19003	0047	1	50016808	Polycirrus spp.	1
SED19003	0047	1	500168130201	Lanassa venusta venusta	1
SED19003	0047	1	5001681803	Scionella estevanica	2
SED19003	0047	1	5001682502	Streblosoma bairdi	1
SED19003	0047	1	5001690101	Terebellides stroemi	2
SED19003	0047	1	51032001	Alvania spp.	3
SED19003	0047	1	5103640301	Crepidatella lingulata	6
SED19003	0047	1	5105030247	Mitrella gausapata	13
SED19003	0047	1	5105080101	Nassarius mendicus	3
SED19003	0047	1	5106021107	Kurtziella plumbea	3
SED19003	0047	1	510801019999	Odostomia (Odostomia) spp.	2
SED19003	0047	1	5142	Aeolidacea	1
SED19003	0047	1	55090501	Chlamys spp.	1
SED19003	0047	1	5515010101	Parvilucina tenuisculpta	28
SED19003	0047	1	5515010201	Lucinoma acutilineata	4
SED19003	0047	1	5515020201	Axinopsida serricata	1
SED19003	0047	1	5515020301	Thyasira flexuosa	1
SED19003	0047	1	5515100102	Mysella tumida	1
SED19003	0047	1	5515290201	Solen sicarius	1

Benthic Abundance Report

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Survey : SED19003 Station : 0047

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0047	1	5515310111	Macoma yoldiformis	3
SED19003	0047	1	5515310112	Macoma carlottensis	1
SED19003	0047	1	5515470501	Psephidia lordi	1
SED19003	0047	1	5520100108	Cardiomya californica	1
SED19003	0047	1	6111070301	Euphilomedes carcharodonta	2
SED19003	0047	1	6134020104	Balanus crenatus	18
SED19003	0047	1	6157020101	Leptochelia savignyi	2
SED19003	0047	1	6169020134	Ampelisca lobata	3
SED19003	0047	1	6169020208	Byblis millsi	2
SED19003	0047	1	6169371502	Westwoodilla caecula	2
SED19003	0047	1	6169420301	Heterophoxus oculatus	6
SED19003	0047	1	6169440111	Dulichia rhabdoplastis	1
SED19003	0047	1	6179160408	Eualus pusiolus	1
SED19003	0047	1	61890604	Pinnixa spp.	1
SED19003	0047	1	7200020104	Golfingia pugettensis	4
SED19003	0047	1	812903019999	Amphiodia urtica/periercta	44
SED19003	0047	1	8129030999	Amphioplus strongyloplax	3
SED19003	0047	1	8170	Holothuroidea	1
SED19003	0047	1	8401	Ascidacea	1
SED19003	0047	2	3759010102	Edwardsia sipunculoides	72
SED19003	0047	2	39	Platyhelminthes	1
SED19003	0047	2	43	Nemertea	18
SED19003	0047	2	5001010103	Aphrodita parva	1
SED19003	0047	2	5001020603	Gattyana cirrosa	1
SED19003	0047	2	5001020810	Harmothoe lunulata	2
SED19003	0047	2	5001022301	Tenonia kitsapensis	1
SED19003	0047	2	5001040101	Pholoides aspera	27
SED19003	0047	2	5001060305	Sthenelais tertiaglabra	1
SED19003	0047	2	5001080101	Paleonotus bellis	1
SED19003	0047	2	5001130308	Eulalia (Eumida) bilineata	2
SED19003	0047	2	5001131101	Eulalia (Eumida) sanguinea	9
SED19003	0047	2	5001210401	Ophiodromus pugettensis	2
SED19003	0047	2	5001220301	Pilargis berkeleyi	3
SED19003	0047	2	5001230201	Pionosyllis gigantea	1
SED19003	0047	2	5001230501	Syllis alternata	2
SED19003	0047	2	5001230512	Syllis variegata	4

Benthic Abundance Report

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0047	2	5001230702	Exgone gemmifera	2
SED19003	0047	2	5001230703	Exogone lourei	4
SED19003	0047	2	5001231002	Syllis heterochaeta	4
SED19003	0047	2	5001240404	Nereis procera	6
SED19003	0047	2	5001240406	Nereis zonata	2
SED19003	0047	2	5001240501	Platynereis bicanaliculata	1
SED19003	0047	2	5001250103	Nephtys caeca	1
SED19003	0047	2	5001270101	Glycera capitata	2
SED19003	0047	2	5001270104	Glycera americana	1
SED19003	0047	2	5001280103	Glycinde armigera	1
SED19003	0047	2	5001280203	Goniada brunnea	1
SED19003	0047	2	500129	Onuphidae	3
SED19003	0047	2	5001290111	Onuphis elegans	1
SED19003	0047	2	5001290202	Diopatra ornata	10
SED19003	0047	2	5001310109	Lumbrineris luti	13
SED19003	0047	2	5001310118	Lumbrineris cruzensis	9
SED19003	0047	2	5001310195	Lumbrineris sp. gr. 3	4
SED19003	0047	2	5001310197	Lumbrineris sp. gr. 1	2
SED19003	0047	2	5001400102	Leitoscoloplos pugettensis	3
SED19003	0047	2	5001400510	Orbinia (Phylo) felix	1
SED19003	0047	2	5001410801	Levinsenia gracilis	1
SED19003	0047	2	5001411306	Acmira catherinae	4
SED19003	0047	2	5001430201	Laonice cirrata	1
SED19003	0047	2	5001430506	Prionospio steenstrupi	35
SED19003	0047	2	5001430521	Prionospio lighti	1
SED19003	0047	2	5001431004	Spiophanes berkelyorum	14
SED19003	0047	2	5001431701	Paraprionospio pinnata	1
SED19003	0047	2	5001440105	Magelona longicornis	21
SED19003	0047	2	5001490202	Phyllochaetopterus prolifica	30
SED19003	0047	2	5001490302	Spiochaetopterus costarum	4
SED19003	0047	2	500150	Cirratulidae	2
SED19003	0047	2	5001600402	Mediomastus californiensis	17
SED19003	0047	2	5001631001	Rhodine bitorquata	1
SED19003	0047	2	5001632001	Isocirrus longiceps	1
SED19003	0047	2	5001650201	Sabellaria cementarium	1
SED19003	0047	2	500167	Ampharetidae	1

Benthic Abundance Report

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0047	2	5001670101	Amage anops	18
SED19003	0047	2	5001670701	Anobothrus gracilis	1
SED19003	0047	2	500168	Terebellidae	1
SED19003	0047	2	5001680601	Nicolea zostericola	1
SED19003	0047	2	500168130201	Lanassa venusta venusta	1
SED19003	0047	2	5001690101	Terebellides stroemi	1
SED19003	0047	2	5001700602	Potamilla myriops	1
SED19003	0047	2	5102100308	Margarites pupillus	1
SED19003	0047	2	51032001	Alvania spp.	6
SED19003	0047	2	5105030247	Mitrella gausapata	62
SED19003	0047	2	5105080101	Nassarius mendicus	8
SED19003	0047	2	5106021107	Kurtziella plumbea	5
SED19003	0047	2	510801019999	Odostomia (Odostomia) spp.	6
SED19003	0047	2	5402	Chaetodermatida	1
SED19003	0047	2	55070106	Modiolus spp.	1
SED19003	0047	2	5515010101	Parvilucina tenuisculpta	22
SED19003	0047	2	5515010201	Lucinoma acutilineata	1
SED19003	0047	2	55153101	Macoma spp.	1
SED19003	0047	2	5515310111	Macoma yoldiformis	3
SED19003	0047	2	5517060201	Hiatella arctica	1
SED19003	0047	2	6111070301	Euphilomedes carcharodonta	5
SED19003	0047	2	6134020104	Balanus crenatus	5
SED19003	0047	2	6169020134	Ampelisca lobata	5
SED19003	0047	2	6169020208	Byblis millsii	3
SED19003	0047	2	6169150302	Erichthonius brasiliensis	2
SED19003	0047	2	6169211008	Melita desdichada	1
SED19003	0047	2	6169371502	Westwoodilla caecula	1
SED19003	0047	2	6169420301	Heterophoxus oculatus	2
SED19003	0047	2	616942099999	Foxiphalus similis/cognatus	1
SED19003	0047	2	6169440111	Dulichia rhabdoplastis	1
SED19003	0047	2	61830602	Pagurus spp.	1
SED19003	0047	2	6188030105	Cancer gracilis	1
SED19003	0047	2	61890604	Pinnixa spp.	1
SED19003	0047	2	7200020104	Golfingia pugettensis	4
SED19003	0047	2	812903019999	Amphiodia urtica/periercta	21
SED19003	0047	2	8129030999	Amphioplus strongyloplax	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0047

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0047	2	8401	Ascidacea	10
SED19003	0047	3	3759010102	Edwardsia sipunculoides	45
SED19003	0047	3	43	Nemertea	4
SED19003	0047	3	5001020810	Harmothoe lunulata	1
SED19003	0047	3	5001040101	Pholoides aspera	4
SED19003	0047	3	5001060301	Sthenelais berkeleyi	1
SED19003	0047	3	5001130308	Eulalia (Eumida) bilineata	1
SED19003	0047	3	5001131101	Eulalia (Eumida) sanguinea	4
SED19003	0047	3	500121	Hesionidae	1
SED19003	0047	3	5001210102	Gyptis brevipalpa	1
SED19003	0047	3	5001220301	Pilargis berkeleyi	1
SED19003	0047	3	5001230512	Syllis variegata	2
SED19003	0047	3	5001230703	Exogone lourei	2
SED19003	0047	3	5001231002	Syllis heterochaeta	8
SED19003	0047	3	5001240201	Cheilonereis cyclurus	1
SED19003	0047	3	5001240404	Nereis procera	1
SED19003	0047	3	5001240406	Nereis zonata	4
SED19003	0047	3	5001270101	Glycera capitata	2
SED19003	0047	3	5001270104	Glycera americana	1
SED19003	0047	3	500128	Goniadidae	1
SED19003	0047	3	5001280203	Goniada brunnea	2
SED19003	0047	3	500129	Onuphidae	1
SED19003	0047	3	5001290111	Onuphis elegans	1
SED19003	0047	3	5001290202	Diopatra ornata	3
SED19003	0047	3	5001310101	Lumbrineris bicirrata	1
SED19003	0047	3	5001310109	Lumbrineris luti	17
SED19003	0047	3	5001310118	Lumbrineris cruzensis	5
SED19003	0047	3	5001310195	Lumbrineris sp. gr. 3	6
SED19003	0047	3	5001310197	Lumbrineris sp. gr. 1	2
SED19003	0047	3	5001330302	Notocirrus californiensis	2
SED19003	0047	3	5001400102	Leitoscoloplos pugettensis	17
SED19003	0047	3	5001410801	Levinsenia gracilis	2
SED19003	0047	3	5001411306	Acmira catherinae	3
SED19003	0047	3	5001430201	Laonice cirrata	1
SED19003	0047	3	50014304	Polydora spp.	1
SED19003	0047	3	5001430506	Prionospio steenstrupi	20

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0047

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0047	3	5001431004	Spiophanes berkelyorum	5
SED19003	0047	3	5001431701	Paraprionospio pinnata	1
SED19003	0047	3	5001440105	Magelona longicornis	63
SED19003	0047	3	5001490202	Phyllochaetopterus prolifica	2
SED19003	0047	3	5001490302	Spiochaetopterus costarum	12
SED19003	0047	3	500150	Cirratulidae	4
SED19003	0047	3	50015002	Caulleriella spp.	2
SED19003	0047	3	5001500302	Tharyx multifilis	3
SED19003	0047	3	5001600302	Notomastus tenuis	2
SED19003	0047	3	5001600303	Notomastus lineatus	1
SED19003	0047	3	5001600402	Mediomastus californiensis	29
SED19003	0047	3	500163	Maldanidae	2
SED19003	0047	3	5001630302	Maldane glebifex	5
SED19003	0047	3	5001631001	Rhodine bitorquata	1
SED19003	0047	3	5001650201	Sabellaria cementarium	2
SED19003	0047	3	5001660303	Pectinaria granulata	1
SED19003	0047	3	5001660304	Pectinaria californiensis	1
SED19003	0047	3	500167	Ampharetidae	1
SED19003	0047	3	5001670101	Amage anops	21
SED19003	0047	3	5001670208	Ampharete acutifrons	1
SED19003	0047	3	5001670503	Melinna elisabethae	1
SED19003	0047	3	5001670701	Anobothrus gracilis	2
SED19003	0047	3	5001681803	Scionella estevanica	1
SED19003	0047	3	5001682502	Streblosoma bairdi	1
SED19003	0047	3	50017021	Sabellastarte spp.	1
SED19003	0047	3	51032001	Alvania spp.	5
SED19003	0047	3	5103640301	Crepipatella lingulata	1
SED19003	0047	3	5105030247	Mitrella gausapata	25
SED19003	0047	3	5105080101	Nassarius mendicus	3
SED19003	0047	3	5106021107	Kurtziella plumbea	9
SED19003	0047	3	510801019999	Odostomia (Odostomia) spp.	5
SED19003	0047	3	51080102	Turbonilla spp.	2
SED19003	0047	3	5108011134	Turbonilla aurantia	1
SED19003	0047	3	5507010201	Crenella decussata	2
SED19003	0047	3	5515010101	Parvilucina tenuisculpta	11
SED19003	0047	3	5515010201	Lucinoma acutilineata	6

Benthic Abundance Report

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Survey : SED19003 Station : 0047

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A	ABUN-
								DANCE
SED19003	0047	3	5515020301	Thyasira flexuosa				1
SED19003	0047	3	5515100102	Mysella tumida				1
SED19003	0047	3	5515310111	Macoma yoldiformis				5
SED19003	0047	3	5515310112	Macoma carlottensis				1
SED19003	0047	3	5515470501	Psephidia lordi				1
SED19003	0047	3	55200502	Lyonsia spp.				1
SED19003	0047	3	5520100108	Cardiomya californica				1
SED19003	0047	3	6111070301	Euphilomedes carcharodonta				9
SED19003	0047	3	6134020104	Balanus crenatus				25
SED19003	0047	3	6157020202	Leptognathia gracilis				1
SED19003	0047	3	6169020114	Ampelisca pugettica				1
SED19003	0047	3	6169020208	Byblis millsi				6
SED19003	0047	3	6169211008	Melita desdichada				1
SED19003	0047	3	61693401	Acidostoma sp.				1
SED19003	0047	3	6169371502	Westwoodilla caecula				2
SED19003	0047	3	6169420301	Heterophoxus oculatus				1
SED19003	0047	3	6179220102	Crangon alaskensis				1
SED19003	0047	3	61830602	Pagurus spp.				3
SED19003	0047	3	6183060208	Pagurus caurinus				4
SED19003	0047	3	6189060404	Pinnixa schmitti				2
SED19003	0047	3	7200020104	Golfingia pugettensis				6
SED19003	0047	3	812903019999	Amphiodia urtica/periercta				33
SED19003	0047	3	8129030999	Amphioplus strongyloplax				18
SED19003	0047	3	8401	Ascidacea				3

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0048

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0048	1	3754010103	Stylatula elongata	1
SED19003	0048	1	43	Nemertea	3
SED19003	0048	1	47	Nematoda	108
SED19003	0048	1	5001022301	Tenonia kitsapensis	1
SED19003	0048	1	5001210102	Gyptis brevipalpa	1
SED19003	0048	1	5001220201	Sigambra tentaculata	3
SED19003	0048	1	5001220204	Sigambra bassi	2
SED19003	0048	1	5001220301	Pilargis berkeleyi	2
SED19003	0048	1	500125010401	Nephtys cornuta franciscana	5
SED19003	0048	1	5001270101	Glycera capitata	3
SED19003	0048	1	50013101	Lumbrineris spp.	1
SED19003	0048	1	5001310109	Lumbrineris luti	1
SED19003	0048	1	5001310118	Lumbrineris cruzensis	2
SED19003	0048	1	5001310194	Lumbrineris sp. gr. 4	1
SED19003	0048	1	5001310197	Lumbrineris sp. gr. 1	6
SED19003	0048	1	5001410801	Levinsenia gracilis	1
SED19003	0048	1	5001411306	Acmira catherinae	10
SED19003	0048	1	50014304	Polydora spp.	1
SED19003	0048	1	5001430521	Prionospio lighti	7
SED19003	0048	1	5001431004	Spiophanes berkelyorum	9
SED19003	0048	1	5001431701	Paraprionospio pinnata	7
SED19003	0048	1	5001490302	Spiochaetopterus costarum	1
SED19003	0048	1	50015003	Tharyx spp.	2
SED19003	0048	1	50015201	Cossura spp.	1
SED19003	0048	1	5004	Oligochaeta	1
SED19003	0048	1	5105030247	Mitrella gausapata	1
SED19003	0048	1	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0048	1	51080102	Turbonilla spp.	1
SED19003	0048	1	5110040205	Cylichna attonsa	7
SED19003	0048	1	5515010101	Parvilucina tenuisculpta	12
SED19003	0048	1	5515100102	Mysella tumida	10
SED19003	0048	1	5515310112	Macoma carlottensis	1
SED19003	0048	1	6154040202	Eudorella pacifica	132
SED19003	0048	1	6169020135	Ampelisca careyi	7
SED19003	0048	1	6169420301	Heterophoxus oculatus	7
SED19003	0048	1	6189060404	Pinnixa schmitti	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0048

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0048	2	3743010303	Pachycerianthus fimbriatus	1
SED19003	0048	2	3754010103	Stylatula elongata	1
SED19003	0048	2	43	Nemertea	5
SED19003	0048	2	47	Nematoda	49
SED19003	0048	2	5001022301	Tenonia kitsapensis	1
SED19003	0048	2	5001060101	Pholoe minuta	1
SED19003	0048	2	5001210102	Gyptis brevipalpa	1
SED19003	0048	2	5001220201	Sigambra tentaculata	5
SED19003	0048	2	5001220204	Sigambra bassi	6
SED19003	0048	2	5001220301	Pilargis berkeleyi	3
SED19003	0048	2	500125010401	Nephtys cornuta franciscana	3
SED19003	0048	2	5001310118	Lumbrineris cruzensis	4
SED19003	0048	2	5001410801	Levinsenia gracilis	2
SED19003	0048	2	5001411306	Acmira catherinae	6
SED19003	0048	2	5001430201	Laonice cirrata	2
SED19003	0048	2	5001430429	Polydora brachycephala	1
SED19003	0048	2	5001430521	Prionospio lighti	1
SED19003	0048	2	5001431004	Spiophanes berkelyorum	16
SED19003	0048	2	5001431701	Paraprionospio pinnata	1
SED19003	0048	2	5001500303	Tharyx parvus	1
SED19003	0048	2	5004	Oligochaeta	1
SED19003	0048	2	5105030247	Mitrella gausapata	1
SED19003	0048	2	5105080101	Nassaricus mendicus	3
SED19003	0048	2	510801019999	Odostomia (Odostomia) spp.	2
SED19003	0048	2	5110040205	Cylichna attonsa	7
SED19003	0048	2	511006999999	Melanochlamys dimedeia	1
SED19003	0048	2	5502020201	Nucula tenuis	1
SED19003	0048	2	5515010101	Parvilucina tenuisculpta	16
SED19003	0048	2	5515100102	Mysella tumida	13
SED19003	0048	2	5515310101	Macoma calcarea	4
SED19003	0048	2	5515310111	Macoma yoldiformis	1
SED19003	0048	2	5515310112	Macoma carlottensis	1
SED19003	0048	2	5515470501	Psephidia lordi	1
SED19003	0048	2	6154040202	Eudorella pacifica	121
SED19003	0048	2	6169020135	Ampelisca careyi	8
SED19003	0048	2	6169420301	Heterophoxus oculatus	10

Benthic Abundance Report

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Survey : SED19003 Station : 0048

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0048	2	6189060404	Pinnixa schmitti	11
SED19003	0048	2	7200020104	Golfingia pugettensis	3
SED19003	0048	2	812903019999	Amphiodia urtica/periercta	1
SED19003	0048	3	3743010303	Pachycerianthus fimbriatus	1
SED19003	0048	3	3754010103	Stylatula elongata	1
SED19003	0048	3	43	Nemertea	3
SED19003	0048	3	47	Nematoda	4
SED19003	0048	3	5001060101	Pholoe minuta	1
SED19003	0048	3	5001210102	Gyptis brevipalpa	1
SED19003	0048	3	5001220201	Sigambra tentaculata	2
SED19003	0048	3	5001220204	Sigambra bassi	5
SED19003	0048	3	500125010401	Nephtys cornuta franciscana	8
SED19003	0048	3	5001310109	Lumbrineris luti	1
SED19003	0048	3	5001310118	Lumbrineris cruzensis	5
SED19003	0048	3	5001310197	Lumbrineris sp. gr. 1	1
SED19003	0048	3	5001411306	Acmira catherinae	8
SED19003	0048	3	5001430201	Laonice cirrata	1
SED19003	0048	3	5001430429	Polydora brachycephala	51
SED19003	0048	3	5001431004	Spiophanes berkelyorum	27
SED19003	0048	3	5001431701	Paraprionospio pinnata	1
SED19003	0048	3	5105080101	Nassarius mendicus	2
SED19003	0048	3	510801019999	Odostomia (Odostomia) spp.	2
SED19003	0048	3	51080102	Turbonilla spp.	1
SED19003	0048	3	5110040205	Cylichna attonsa	3
SED19003	0048	3	511006999999	Melanochlamys dimedea	1
SED19003	0048	3	5142	Aeolidacea	1
SED19003	0048	3	5515010101	Parvilucina tenuisculpta	21
SED19003	0048	3	5515020201	Axinopsida serricata	1
SED19003	0048	3	5515100102	Mysella tumida	16
SED19003	0048	3	5515310101	Macoma calcarea	2
SED19003	0048	3	5515310111	Macoma yoldiformis	1
SED19003	0048	3	5515310112	Macoma carlottensis	4
SED19003	0048	3	6154040202	Eudorella pacifica	187
SED19003	0048	3	6169020135	Ampelisca careyi	10
SED19003	0048	3	6169420301	Heterophoxus oculatus	12
SED19003	0048	3	6188030105	Cancer gracilis	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0048

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0048	3	6189060404	Pinnixa schmitti	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0049

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0049	1	43	Nemertea	3
SED19003	0049	1	5001060101	Pholoe minuta	2
SED19003	0049	1	5001210102	Gyptis brevipalpa	5
SED19003	0049	1	5001220204	Sigambra bassi	5
SED19003	0049	1	500125010401	Nephtys cornuta franciscana	1
SED19003	0049	1	5001280101	Glycinde picta	1
SED19003	0049	1	5001430521	Prionospio lighti	1
SED19003	0049	1	5001431004	Spiophanes berkelyorum	11
SED19003	0049	1	5001431701	Paraprionospio pinnata	8
SED19003	0049	1	5105080101	Nassarius mendicus	3
SED19003	0049	1	510801019999	Odostomia (Odostomia) spp.	4
SED19003	0049	1	5110040205	Cylichna attonsa	1
SED19003	0049	1	5515310114	Macoma nasuta	2
SED19003	0049	1	5515470501	Psephidia lordi	1
SED19003	0049	1	6153011504	Neomysis kadiakensis	1
SED19003	0049	1	6154040202	Eudorella pacifica	1
SED19003	0049	1	61710107	Caprella spp.	1
SED19003	0049	1	6189060404	Pinnixa schmitti	48
SED19003	0049	1	812903019999	Amphiodia urtica/periercta	3
SED19003	0049	2	43	Nemertea	3
SED19003	0049	2	5001060101	Pholoe minuta	1
SED19003	0049	2	5001130205	Eteone longa	1
SED19003	0049	2	5001210102	Gyptis brevipalpa	5
SED19003	0049	2	5001220204	Sigambra bassi	7
SED19003	0049	2	500125010401	Nephtys cornuta franciscana	1
SED19003	0049	2	5001430521	Prionospio lighti	1
SED19003	0049	2	5001431004	Spiophanes berkelyorum	13
SED19003	0049	2	5001431701	Paraprionospio pinnata	19
SED19003	0049	2	5001500303	Tharyx parvus	2
SED19003	0049	2	5105080101	Nassarius mendicus	2
SED19003	0049	2	5110040205	Cylichna attonsa	1
SED19003	0049	2	5515100102	Mysella tumida	2
SED19003	0049	2	5515310114	Macoma nasuta	5
SED19003	0049	2	5515470501	Psephidia lordi	1
SED19003	0049	2	6153011504	Neomysis kadiakensis	1
SED19003	0049	2	6179220102	Crangon alaskensis	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0049

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0049	2	618906	Pinnotheridae	1
SED19003	0049	2	6189060404	Pinnixa schmitti	28
SED19003	0049	2	812903019999	Amphiodia urtica/periercta	2
SED19003	0049	3	43	Nemertea	7
SED19003	0049	3	5001060101	Pholoe minuta	14
SED19003	0049	3	5001210102	Gyptis brevipalpa	11
SED19003	0049	3	5001220201	Sigambra tentaculata	2
SED19003	0049	3	5001220204	Sigambra bassi	6
SED19003	0049	3	500125010401	Nephtys cornuta franciscana	2
SED19003	0049	3	5001280101	Glycinde picta	1
SED19003	0049	3	5001280103	Glycinde armigera	1
SED19003	0049	3	5001310109	Lumbrineris luti	3
SED19003	0049	3	5001430521	Prionospio lighti	1
SED19003	0049	3	5001431004	Spiophanes berkelyorum	30
SED19003	0049	3	5001431701	Paraprionospio pinnata	15
SED19003	0049	3	5001490302	Spiochaetopterus costarum	2
SED19003	0049	3	5001500303	Tharyx parvus	1
SED19003	0049	3	50016004	Mediomastus spp.	1
SED19003	0049	3	5105030247	Mitrella gausapata	2
SED19003	0049	3	5105080101	Nassarius mendicus	2
SED19003	0049	3	510801019999	Odostomia (Odostomia) spp.	9
SED19003	0049	3	5515310114	Macoma nasuta	4
SED19003	0049	3	5515470301	Compsomyax subdiaphana	1
SED19003	0049	3	5515470501	Psephidia lordi	13
SED19003	0049	3	6154040202	Eudorella pacifica	1
SED19003	0049	3	6169020114	Ampelisca pugettica	3
SED19003	0049	3	6189060404	Pinnixa schmitti	62
SED19003	0049	3	812903019999	Amphiodia urtica/periercta	13

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0069

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0069	1	5001022301	Tenonia kitsapensis	3
SED19003	0069	1	5001130202	Eteone spetsbergensis	2
SED19003	0069	1	5001131101	Eulalia (Eumida) sanguinea	4
SED19003	0069	1	5001230201	Pionosyllis gigantea	1
SED19003	0069	1	5001250111	Nephtys ferruginea	4
SED19003	0069	1	5001260103	Sphaerodoropsis sphaerulifer	2
SED19003	0069	1	5001280101	Glycinde picta	2
SED19003	0069	1	500129	Onuphidae	2
SED19003	0069	1	5001290111	Onuphis elegans	1
SED19003	0069	1	5001290202	Diopatra ornata	18
SED19003	0069	1	5001310195	Lumbrineris sp. gr. 3	3
SED19003	0069	1	5001411306	Acmira catherinae	1
SED19003	0069	1	5001430506	Prionospio steenstrupi	34
SED19003	0069	1	5001431701	Paraprionospio pinnata	1
SED19003	0069	1	5001440105	Magelona longicornis	1
SED19003	0069	1	5001490302	Spiochaetopterus costarum	1
SED19003	0069	1	5001500407	Chaetozone spinosa	5
SED19003	0069	1	5001600402	Mediomastus californiensis	10
SED19003	0069	1	500163099999	Praxillella sp. A	2
SED19003	0069	1	5001640102	Owenia fusiformis	1
SED19003	0069	1	500167	Ampharetidae	3
SED19003	0069	1	5001670101	Amage anops	2
SED19003	0069	1	5001670701	Anobothrus gracilis	1
SED19003	0069	1	5001670804	Asabellides lineata	2
SED19003	0069	1	500168	Terebellidae	22
SED19003	0069	1	5001680710	Pista brevibranchiata	1
SED19003	0069	1	5001680810	Polycirrus californicus	26
SED19003	0069	1	500168130201	Lanassa venusta venusta	15
SED19003	0069	1	5001690101	Terebellides stroemi	2
SED19003	0069	1	51032001	Alvania spp.	2
SED19003	0069	1	51034601	Bittium spp.	2
SED19003	0069	1	510801019999	Odostomia (Odostomia) spp.	2
SED19003	0069	1	5502020101	Acila castrensis	2
SED19003	0069	1	5502020201	Nucula tenuis	3
SED19003	0069	1	5515010101	Parvilucina tenuisculpta	4
SED19003	0069	1	5515020201	Axinopsida serricata	14

Benthic Abundance Report

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Survey : SED19003 Station : 0069

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0069	1	5515100102	<i>Mysella tumida</i>	5
SED19003	0069	1	5515220301	<i>Nemocardium centifilosum</i>	1
SED19003	0069	1	55153101	<i>Macoma</i> spp.	2
SED19003	0069	1	5515310111	<i>Macoma yoldiformis</i>	6
SED19003	0069	1	5515310112	<i>Macoma carlottensis</i>	13
SED19003	0069	1	5515470301	<i>Compsomyax subdiaphana</i>	2
SED19003	0069	1	5515470501	<i>Psephidia lordi</i>	11
SED19003	0069	1	5520050205	<i>Lyonsia pugetensis</i>	2
SED19003	0069	1	6111070301	<i>Euphilomedes carcharodonta</i>	44
SED19003	0069	1	6111070303	<i>Euphilomedes producta</i>	42
SED19003	0069	1	6154040202	<i>Eudorella pacifica</i>	2
SED19003	0069	1	61570101	<i>Tanais</i> spp.	1
SED19003	0069	1	6157020101	<i>Leptocheilia savignyi</i>	5
SED19003	0069	1	6157020202	<i>Leptognathia gracilis</i>	6
SED19003	0069	1	6157020204	<i>Leptognathia brevimana</i>	5
SED19003	0069	1	6160011601	<i>Haliophasma geminata</i>	1
SED19003	0069	1	61690201	<i>Ampelisca</i> spp.	1
SED19003	0069	1	6169020208	<i>Byblis millsii</i>	1
SED19003	0069	1	61692603	<i>Protomedeia</i> spp.	1
SED19003	0069	1	6169341411	<i>Hippomedon coecus</i>	1
SED19003	0069	1	6169371402	<i>Synchelidium shoemakeri</i>	3
SED19003	0069	1	6169420926	<i>Rhepoxynius variatus</i>	24
SED19003	0069	1	6169421504	<i>Rhepoxynius abronius</i>	3
SED19003	0069	1	7200020104	<i>Golfingia pugettensis</i>	2
SED19003	0069	2	5001022301	<i>Tenonia kitsapensis</i>	2
SED19003	0069	2	5001060101	<i>Pholoe minuta</i>	3
SED19003	0069	2	5001060305	<i>Sthenelais tertiaglabra</i>	1
SED19003	0069	2	5001131101	<i>Eulalia (Eumida) sanguinea</i>	6
SED19003	0069	2	5001210401	<i>Ophiodromus pugettensis</i>	2
SED19003	0069	2	5001230312	<i>Syllis hyalina</i>	1
SED19003	0069	2	5001231303	<i>Odontosyllis phosphorea</i>	1
SED19003	0069	2	5001250103	<i>Nephtys caeca</i>	1
SED19003	0069	2	5001250111	<i>Nephtys ferruginea</i>	5
SED19003	0069	2	5001260103	<i>Sphaerodoropsis sphaerulifer</i>	2
SED19003	0069	2	5001280101	<i>Glycinde picta</i>	1
SED19003	0069	2	5001280203	<i>Goniada brunnea</i>	1

Benthic Abundance Report

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Survey : SED19003 Station : 0069

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0069	2	500129	Onuphidae	19
SED19003	0069	2	5001290111	Onuphis elegans	2
SED19003	0069	2	5001290202	Diopatra ornata	12
SED19003	0069	2	5001310109	Lumbrineris luti	6
SED19003	0069	2	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0069	2	5001400102	Leitoscoloplos pugettensis	6
SED19003	0069	2	5001410801	Levinsenia gracilis	1
SED19003	0069	2	5001411306	Acmira catherinae	1
SED19003	0069	2	5001420102	Apistobranchnus ornatus	1
SED19003	0069	2	5001430506	Prionospio steenstrupi	12
SED19003	0069	2	5001431004	Spiophanes berkelyorum	2
SED19003	0069	2	5001431701	Paraprionospio pinnata	2
SED19003	0069	2	5001440105	Magelona longicornis	1
SED19003	0069	2	5001490302	Spiochaetopterus costarum	1
SED19003	0069	2	5001500407	Chaetozone spinosa	2
SED19003	0069	2	500160	Capitellidae	1
SED19003	0069	2	5001600302	Notomastus tenuis	7
SED19003	0069	2	5001600402	Mediomastus californiensis	11
SED19003	0069	2	500167	Ampharetidae	1
SED19003	0069	2	5001670101	Amage anops	2
SED19003	0069	2	5001670503	Melinna elisabethae	1
SED19003	0069	2	5001670804	Asabellides lineata	4
SED19003	0069	2	500168	Terebellidae	21
SED19003	0069	2	5001680810	Polycirrus californicus	10
SED19003	0069	2	500168130201	Lanassa venusta venusta	43
SED19003	0069	2	5001690101	Terebellides stroemi	9
SED19003	0069	2	51034601	Bittium spp.	3
SED19003	0069	2	5502020101	Acila castrensis	2
SED19003	0069	2	5502020201	Nucula tenuis	5
SED19003	0069	2	5515010101	Parvilucina tenuisculpta	1
SED19003	0069	2	5515010201	Lucinoma acutilineata	1
SED19003	0069	2	5515020201	Axinopsida serricata	10
SED19003	0069	2	5515100102	Mysella tumida	5
SED19003	0069	2	5515290201	Solen sicarius	2
SED19003	0069	2	5515310101	Macoma calcarea	4
SED19003	0069	2	5515310111	Macoma yoldiformis	4

Benthic Abundance Report

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Survey : SED19003 Station : 0069

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0069	2	5515310112	Macoma carlottensis	10
SED19003	0069	2	5515470501	Psephidia lordi	4
SED19003	0069	2	55200502	Lyonsia spp.	6
SED19003	0069	2	6111070301	Euphilomedes carcharodonta	35
SED19003	0069	2	6111070303	Euphilomedes producta	48
SED19003	0069	2	61450101	Nebalia spp.	1
SED19003	0069	2	6154040202	Eudorella pacifica	1
SED19003	0069	2	6154070111	Campylapsis crispa	1
SED19003	0069	2	6157020101	Leptocheilia savignyi	8
SED19003	0069	2	6157020202	Leptognathia gracilis	1
SED19003	0069	2	6157020204	Leptognathia brevimana	9
SED19003	0069	2	61690201	Ampelisca spp.	1
SED19003	0069	2	6169341411	Hippomedon coecus	1
SED19003	0069	2	6169371502	Westwoodilla caecula	1
SED19003	0069	2	6169420926	Rhepoxynius variatus	24
SED19003	0069	2	6169421503	Rhepoxynius bicuspidata	3
SED19003	0069	2	61890604	Pinnixa spp.	3
SED19003	0069	2	7200020104	Golfingia pugettensis	8
SED19003	0069	2	812903019999	Amphiodia urtica/periercta	3
SED19003	0069	2	8401	Ascidiacea	4
SED19003	0069	3	43	Nemertea	2
SED19003	0069	3	47	Nematoda	2
SED19003	0069	3	5001020810	Harmothoe lunulata	1
SED19003	0069	3	5001022301	Tenonia kitsapensis	1
SED19003	0069	3	5001130205	Eteone longa	1
SED19003	0069	3	5001130403	Notophyllum tectum	1
SED19003	0069	3	5001131101	Eulalia (Eumida) sanguinea	8
SED19003	0069	3	5001131402	Phyllodoce (Aponaitides) hartmanae	1
SED19003	0069	3	5001210401	Ophiodromus pugettensis	2
SED19003	0069	3	5001230512	Syllis variegata	1
SED19003	0069	3	5001230702	Exgone gemmifera	1
SED19003	0069	3	5001231002	Syllis heterochaeta	1
SED19003	0069	3	5001240501	Platynereis bicanaliculata	1
SED19003	0069	3	5001250111	Nephtys ferruginea	3
SED19003	0069	3	5001260103	Sphaerodoropsis sphaerulifer	1
SED19003	0069	3	500129	Onuphidae	7

Benthic Abundance Report

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Survey : SED19003 Station : 0069

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q
					U
					A ABUN-
					L DANCE
SED19003	0069	3	5001290103	Onuphis iridescens	2
SED19003	0069	3	5001290111	Onuphis elegans	2
SED19003	0069	3	5001290202	Diopatra ornata	8
SED19003	0069	3	5001310109	Lumbrineris luti	5
SED19003	0069	3	5001310195	Lumbrineris sp. gr. 3	1
SED19003	0069	3	5001400102	Leitoscoloplos pugettensis	4
SED19003	0069	3	5001410801	Levinsenia gracilis	1
SED19003	0069	3	5001430506	Prionospio steenstrupi	9
SED19003	0069	3	5001431004	Spiophanes berkelyorum	3
SED19003	0069	3	5001431701	Paraprionospio pinnata	1
SED19003	0069	3	5001500401	Chaetozone setosa	3
SED19003	0069	3	5001500407	Chaetozone spinosa	1
SED19003	0069	3	5001600101	Capitella capitata	1
SED19003	0069	3	5001600302	Notomastus tenuis	2
SED19003	0069	3	5001600402	Mediomastus californiensis	4
SED19003	0069	3	500163090301	Praxillella affinis pacifica	1
SED19003	0069	3	500163099999	Praxillella sp. A	4
SED19003	0069	3	5001660304	Pectinaria californiensis	4
SED19003	0069	3	500167	Ampharetidae	3
SED19003	0069	3	5001670101	Amage anops	1
SED19003	0069	3	5001670208	Ampharete acutifrons	1
SED19003	0069	3	5001670503	Melinna elisabethae	1
SED19003	0069	3	5001670701	Anobothrus gracilis	1
SED19003	0069	3	500168	Terebellidae	6
SED19003	0069	3	5001680810	Polycirrus californicus	9
SED19003	0069	3	500168130201	Lanassa venusta venusta	15
SED19003	0069	3	5001681803	Scionella estevanica	2
SED19003	0069	3	5001682502	Streblosoma bairdi	2
SED19003	0069	3	5001690101	Terebellides stroemi	1
SED19003	0069	3	51032001	Alvania spp.	2
SED19003	0069	3	51034601	Bittium spp.	7
SED19003	0069	3	5502020101	Acila castrensis	2
SED19003	0069	3	5502020201	Nucula tenuis	6
SED19003	0069	3	5507010301	Megacrenella columbiana	1
SED19003	0069	3	5515010101	Parvilucina tenuisculpta	6
SED19003	0069	3	5515010201	Lucinoma acutilineata	1

Benthic Abundance Report

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Survey : SED19003 Station : 0069

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0069	3	5515020201	Axinopsida serricata	16
SED19003	0069	3	55153101	Macoma spp.	1
SED19003	0069	3	5515310101	Macoma calcarea	3
SED19003	0069	3	5515310111	Macoma yoldiformis	1
SED19003	0069	3	5515310112	Macoma carlottensis	8
SED19003	0069	3	5515310204	Tellina modesta	1
SED19003	0069	3	5515470301	Compsomyax subdiaphana	1
SED19003	0069	3	5515470501	Psephidia lordi	14
SED19003	0069	3	55200502	Lyonsia spp.	2
SED19003	0069	3	6111070301	Euphilomedes carcharodonta	38
SED19003	0069	3	6111070303	Euphilomedes producta	37
SED19003	0069	3	6157020101	Leptochelia savignyi	13
SED19003	0069	3	6157020202	Leptognathia gracilis	6
SED19003	0069	3	6157020204	Leptognathia brevimana	5
SED19003	0069	3	6169020208	Byblis millsi	2
SED19003	0069	3	6169420601	Metaphoxus frequens	2
SED19003	0069	3	6169420926	Rhepoxynius variatus	15
SED19003	0069	3	61890604	Pinnixa spp.	3
SED19003	0069	3	7200020104	Golfingia pugettensis	3
SED19003	0069	3	77	Phoronida	1
SED19003	0069	3	812903019999	Amphiodia urtica/periercta	8
SED19003	0069	3	81720601	Cucumaria spp.	1

Benthic Abundance Report

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Survey : SED19003 Station : 0070

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0070	1	43	Nemertea	2
SED19003	0070	1	5001220201	Sigambra tentaculata	1
SED19003	0070	1	5001220204	Sigambra bassi	1
SED19003	0070	1	5001240404	Nereis procera	1
SED19003	0070	1	500125010401	Nephtys cornuta franciscana	30
SED19003	0070	1	5001280101	Glycinde picta	2
SED19003	0070	1	5001430521	Prionospio lighti	2
SED19003	0070	1	5001430599	Prionospio multibranchiata	1
SED19003	0070	1	5001431004	Spiophanes berkelyorum	1
SED19003	0070	1	5001431701	Paraprionospio pinnata	2
SED19003	0070	1	50015003	Tharyx spp.	3
SED19003	0070	1	5105030247	Mitrella gausapata	5
SED19003	0070	1	5105080101	Nassaricus mendicus	1
SED19003	0070	1	5502040504	Yoldia scissurata	1
SED19003	0070	1	5515310114	Macoma nasuta	16
SED19003	0070	1	5515470501	Psephidia lordi	58
SED19003	0070	1	6111070301	Euphilomedes carcharodonta	3
SED19003	0070	1	6169020113	Ampelisca hancocki	2
SED19003	0070	1	6179220102	Crangon alaskensis	1
SED19003	0070	1	618906	Pinnotheridae	1
SED19003	0070	1	8172060202	Eupentacta quinquesemita	1
SED19003	0070	2	43	Nemertea	5
SED19003	0070	2	5001210102	Gyptis brevipalpa	2
SED19003	0070	2	5001220201	Sigambra tentaculata	1
SED19003	0070	2	500125010401	Nephtys cornuta franciscana	28
SED19003	0070	2	5001280101	Glycinde picta	5
SED19003	0070	2	50014305	Prionospio spp.	1
SED19003	0070	2	5001430521	Prionospio lighti	15
SED19003	0070	2	5001431701	Paraprionospio pinnata	4
SED19003	0070	2	50015003	Tharyx spp.	1
SED19003	0070	2	5001500303	Tharyx parvus	1
SED19003	0070	2	5001690101	Terebellides stroemi	2
SED19003	0070	2	5105080101	Nassaricus mendicus	3
SED19003	0070	2	55	Bivalvia	1
SED19003	0070	2	55070104	Musculus spp.	1
SED19003	0070	2	5515100102	Mysella tumida	1

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0070

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0070	2	5515310114	Macoma nasuta	20
SED19003	0070	2	5515470501	Psephidia lordi	11
SED19003	0070	2	6154040202	Eudorella pacifica	2
SED19003	0070	2	6169020113	Ampelisca hancocki	1
SED19003	0070	2	6188030105	Cancer gracilis	1
SED19003	0070	2	61890604	Pinnixa spp.	6
SED19003	0070	2	8120	Ophiuroidea	1
SED19003	0070	2	812903019999	Amphiodia urtica/periercta	1
SED19003	0070	3	5001210102	Gyptis brevipalpa	4
SED19003	0070	3	5001220201	Sigambra tentaculata	1
SED19003	0070	3	500125010401	Nephtys cornuta franciscana	14
SED19003	0070	3	5001250111	Nephtys ferruginea	2
SED19003	0070	3	5001280101	Glycinde picta	1
SED19003	0070	3	5001360101	Dorvillea pseudorubrovittata	1
SED19003	0070	3	5001430521	Prionospio lighti	4
SED19003	0070	3	5001431701	Paraprionospio pinnata	2
SED19003	0070	3	5001490302	Spiochaetopterus costarum	1
SED19003	0070	3	5001500303	Tharyx parvus	2
SED19003	0070	3	5105080101	Nassaricus mendicus	5
SED19003	0070	3	51080102	Turbonilla spp.	2
SED19003	0070	3	55070101	Mytilus spp.	2
SED19003	0070	3	5515100102	Mysella tumida	1
SED19003	0070	3	5515310114	Macoma nasuta	13
SED19003	0070	3	5515470501	Psephidia lordi	24
SED19003	0070	3	6111070301	Euphilomedes carcharodonta	1
SED19003	0070	3	6154040202	Eudorella pacifica	2
SED19003	0070	3	8120	Ophiuroidea	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0071

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0071	1	39	Platyhelminthes	3
SED19003	0071	1	43	Nemertea	15
SED19003	0071	1	5001020810	Harmothoe lunulata	1
SED19003	0071	1	5001022301	Tenonia kitsapensis	2
SED19003	0071	1	5001060101	Pholoe minuta	10
SED19003	0071	1	5001130202	Eteone spetsbergensis	1
SED19003	0071	1	5001130205	Eteone longa	1
SED19003	0071	1	5001210102	Gyptis brevipalpa	3
SED19003	0071	1	5001230501	Syllis alternata	2
SED19003	0071	1	5001240406	Nereis zonata	1
SED19003	0071	1	500125010401	Nephtys cornuta franciscana	9
SED19003	0071	1	5001250111	Nephtys ferruginea	2
SED19003	0071	1	5001260103	Sphaerodoropsis sphaerulifer	1
SED19003	0071	1	5001270104	Glycera americana	1
SED19003	0071	1	500128	Goniadidae	1
SED19003	0071	1	5001280101	Glycinde picta	10
SED19003	0071	1	50013101	Lumbrineris spp.	1
SED19003	0071	1	5001310109	Lumbrineris luti	51
SED19003	0071	1	5001310118	Lumbrineris cruzensis	1
SED19003	0071	1	5001310195	Lumbrineris sp. gr. 3	3
SED19003	0071	1	5001310197	Lumbrineris sp. gr. 1	3
SED19003	0071	1	5001400102	Leitoscoloplos pugettensis	4
SED19003	0071	1	5001400301	Scoloplos armiger	1
SED19003	0071	1	5001410801	Levinsenia gracilis	4
SED19003	0071	1	5001411306	Acmira catherinae	14
SED19003	0071	1	5001430506	Prionospio steenstrupi	38
SED19003	0071	1	5001430521	Prionospio lighti	1
SED19003	0071	1	5001440105	Magelona longicornis	7
SED19003	0071	1	5001500302	Tharyx multifilis	5
SED19003	0071	1	5001500309	Tharyx secundus	51
SED19003	0071	1	5001500407	Chaetozone spinosa	1
SED19003	0071	1	5001520101	Cossura longocirrata	1
SED19003	0071	1	5001580202	Armandia brevis	13
SED19003	0071	1	5001590101	Sternaspis scutata	14
SED19003	0071	1	5001600402	Mediomastus californiensis	24
SED19003	0071	1	500163	Maldanidae	2

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0071

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0071	1	5001630901	Praxillella gracilis	6
SED19003	0071	1	500163090301	Praxillella affinis pacifica	1
SED19003	0071	1	5001631103	Euclymene zonalis	12
SED19003	0071	1	5001640102	Owenia fusiformis	6
SED19003	0071	1	5001640201	Myriochele heeri	1
SED19003	0071	1	5001670208	Ampharete acutifrons	3
SED19003	0071	1	5001680810	Polycirrus californicus	1
SED19003	0071	1	500168130201	Lanassa venusta venusta	2
SED19003	0071	1	5001690101	Terebellides stroemi	2
SED19003	0071	1	5009020706	Limnodriloides victoriensis	2
SED19003	0071	1	51032001	Alvania spp.	1
SED19003	0071	1	5105030247	Mitrella gausapata	1
SED19003	0071	1	510801019999	Odostomia (Odostomia) spp.	3
SED19003	0071	1	5108011134	Turbonilla aurantia	1
SED19003	0071	1	5402	Chaetodermatida	1
SED19003	0071	1	55	Bivalvia	1
SED19003	0071	1	5502020101	Acila castrensis	17
SED19003	0071	1	5502020201	Nucula tenuis	21
SED19003	0071	1	5502040202	Nuculana minuta	2
SED19003	0071	1	5502040504	Yoldia scissurata	5
SED19003	0071	1	5515010101	Parvilucina tenuisculpta	4
SED19003	0071	1	5515020201	Axinopsida serricata	15
SED19003	0071	1	5515100102	Mysella tumida	8
SED19003	0071	1	5515220102	Clinocardium nuttali	7
SED19003	0071	1	55153101	Macoma spp.	1
SED19003	0071	1	5515310204	Tellina modesta	3
SED19003	0071	1	5515470501	Psephidia lordi	5
SED19003	0071	1	5515470701	Protothaca staminea	16
SED19003	0071	1	55200502	Lyonsia spp.	1
SED19003	0071	1	6111070301	Euphilomedes carcharodonta	6
SED19003	0071	1	6111070303	Euphilomedes producta	3
SED19003	0071	1	6154040202	Eudorella pacifica	27
SED19003	0071	1	6154050101	Diastylis alaskensis	2
SED19003	0071	1	616926039999	Protomedeia penates/prudens	4
SED19003	0071	1	6169342904	Orchomene pinquis	1
SED19003	0071	1	6169420204	Harpiniopsis fulgens	1

Benthic Abundance Report

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Survey : SED19003 Station : 0071

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Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0071	1	6169420301	Heterophoxus oculatus	31
SED19003	0071	1	6169420926	Rhepoxynius variatus	4
SED19003	0071	1	616942099999	Foxiphalus similis/cognatus	2
SED19003	0071	1	6179220102	Crangon alaskensis	1
SED19003	0071	1	6189060404	Pinnixa schmitti	52
SED19003	0071	1	7200020104	Golfingia pugettensis	1
SED19003	0071	1	8120	Ophiuroidea	2
SED19003	0071	1	812903019999	Amphiodia urtica/periercta	29
SED19003	0071	2	39	Platyhelminthes	1
SED19003	0071	2	43	Nemertea	11
SED19003	0071	2	5001020810	Harmothoe lunulata	1
SED19003	0071	2	5001022301	Tenonia kitsapensis	1
SED19003	0071	2	5001060101	Pholoe minuta	16
SED19003	0071	2	5001210102	Gyptis brevipalpa	3
SED19003	0071	2	5001230501	Syllis alternata	2
SED19003	0071	2	500125010401	Nephtys cornuta franciscana	15
SED19003	0071	2	5001250111	Nephtys ferruginea	3
SED19003	0071	2	5001280101	Glycinde picta	12
SED19003	0071	2	50013101	Lumbrineris spp.	2
SED19003	0071	2	5001310101	Lumbrineris bicirrata	5
SED19003	0071	2	5001310109	Lumbrineris luti	37
SED19003	0071	2	5001310195	Lumbrineris sp. gr. 3	5
SED19003	0071	2	5001400102	Leitoscoloplos pugettensis	1
SED19003	0071	2	5001410801	Levinsenia gracilis	11
SED19003	0071	2	5001411306	Acmira catherinae	11
SED19003	0071	2	5001430201	Laonice cirrata	1
SED19003	0071	2	5001430402	Polydora socialis	1
SED19003	0071	2	5001430506	Prionospio steenstrupi	43
SED19003	0071	2	5001430521	Prionospio lighti	2
SED19003	0071	2	5001431701	Paraprionospio pinnata	3
SED19003	0071	2	5001440105	Magelona longicornis	3
SED19003	0071	2	50015003	Tharyx spp.	7
SED19003	0071	2	5001500309	Tharyx secundus	36
SED19003	0071	2	5001520101	Cossura longocirrata	1
SED19003	0071	2	5001540199	Brada sachalina	1
SED19003	0071	2	5001580607	Ophelina acuminata	5

Benthic Abundance Report

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Survey : SED19003 Station : 0071

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0071	2	5001590101	Sternaspis scutata	26
SED19003	0071	2	50016002	Heteromastus spp.	1
SED19003	0071	2	5001600302	Notomastus tenuis	1
SED19003	0071	2	5001600401	Mediomastus ambiseta	2
SED19003	0071	2	5001600402	Mediomastus californiensis	12
SED19003	0071	2	50016309	Praxillella spp.	10
SED19003	0071	2	5001630901	Praxillella gracilis	4
SED19003	0071	2	5001640102	Owenia fusiformis	1
SED19003	0071	2	5001640202	Galathowenia nr. G. oculata	1
SED19003	0071	2	5001670208	Ampharete acutifrons	5
SED19003	0071	2	5001680701	Pista cristata	2
SED19003	0071	2	500168130201	Lanassa venusta venusta	2
SED19003	0071	2	5001690101	Terebellides stroemi	2
SED19003	0071	2	51032001	Alvania spp.	3
SED19003	0071	2	5105030247	Mitrella gausapata	1
SED19003	0071	2	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0071	2	5108011134	Turbonilla aurantia	1
SED19003	0071	2	55	Bivalvia	1
SED19003	0071	2	5502020101	Acila castrensis	6
SED19003	0071	2	5502020201	Nucula tenuis	18
SED19003	0071	2	5502040202	Nuculana minuta	1
SED19003	0071	2	5502040504	Yoldia scissurata	1
SED19003	0071	2	5515010101	Parvilucina tenuisculpta	3
SED19003	0071	2	5515020201	Axinopsida serricata	5
SED19003	0071	2	5515100102	Mysella tumida	4
SED19003	0071	2	5515220102	Clinocardium nuttali	8
SED19003	0071	2	55153101	Macoma spp.	2
SED19003	0071	2	5515310204	Tellina modesta	3
SED19003	0071	2	5515470501	Psephidia lordi	2
SED19003	0071	2	5515470701	Protothaca staminea	13
SED19003	0071	2	6111070301	Euphilomedes carcharodonta	1
SED19003	0071	2	6134020104	Balanus crenatus	16
SED19003	0071	2	6154040202	Eudorella pacifica	18
SED19003	0071	2	6169211008	Melita desdichada	2
SED19003	0071	2	616926039999	Protomedeia penates/prudens	1
SED19003	0071	2	6169420301	Heterophoxus oculatus	14

Benthic Abundance Report

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Survey : SED19003 Station : 0071

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q	U	A	ABUN-
					L	DANCE		
SED19003	0071	2	6169420926	Rhepoxynius variatus				7
SED19003	0071	2	6169420928	Eobrolgus spinosus				4
SED19003	0071	2	61694209999	Foxiphalus similis/cognatus				2
SED19003	0071	2	6169430501	Pleusymptes subglaber				2
SED19003	0071	2	6189060404	Pinnixa schmitti				67
SED19003	0071	2	8120	Ophiuroidea				2
SED19003	0071	2	81290301999	Amphiodia urtica/periercta				22
SED19003	0071	2	8129030999	Amphioplus strongyloplax				2
SED19003	0071	2	81720601	Cucumaria spp.				2
SED19003	0071	3	39	Platyhelminthes				2
SED19003	0071	3	43	Nemertea				12
SED19003	0071	3	5001022301	Tenonia kitsapensis				1
SED19003	0071	3	5001060101	Pholoe minuta				11
SED19003	0071	3	5001210102	Gyptis brevipalpa				1
SED19003	0071	3	5001230501	Syllis alternata				4
SED19003	0071	3	500125010401	Nephtys cornuta franciscana				4
SED19003	0071	3	50012801	Glycinde spp.				1
SED19003	0071	3	5001280101	Glycinde picta				10
SED19003	0071	3	5001310109	Lumbrineris luti				36
SED19003	0071	3	5001310118	Lumbrineris cruzensis				3
SED19003	0071	3	5001310195	Lumbrineris sp. gr. 3				5
SED19003	0071	3	5001310197	Lumbrineris sp. gr. 1				2
SED19003	0071	3	5001360101	Dorvillea pseudorubrovittata				1
SED19003	0071	3	5001400301	Scoloplos armiger				1
SED19003	0071	3	5001410801	Levinsenia gracilis				11
SED19003	0071	3	5001411306	Acmira catherinae				4
SED19003	0071	3	5001430506	Prionospio steenstrupi				24
SED19003	0071	3	5001430521	Prionospio lighti				4
SED19003	0071	3	5001440105	Magelona longicornis				3
SED19003	0071	3	50015003	Tharyx spp.				3
SED19003	0071	3	5001500302	Tharyx multifilis				3
SED19003	0071	3	5001500309	Tharyx secundus				31
SED19003	0071	3	5001500407	Chaetozone spinosa				1
SED19003	0071	3	5001520101	Cossura longocirrata				7
SED19003	0071	3	5001580202	Armandia brevis				11
SED19003	0071	3	5001590101	Sternaspis scutata				22

Benthic Abundance Report

Only Verified data.

Survey : SED19003 Station : 0071

Data quality equals 1.

Values in number of organisms per sample.

SURVEY	STATION	SAMPLE	TAXON	NAME	Q U A ABUN- L DANCE
SED19003	0071	3	5001600402	Mediomastus californiensis	17
SED19003	0071	3	500163	Maldanidae	4
SED19003	0071	3	5001630901	Praxillella gracilis	5
SED19003	0071	3	500163090301	Praxillella affinis pacifica	3
SED19003	0071	3	5001631103	Euclymene zonalis	7
SED19003	0071	3	5001640102	Owenia fusiformis	8
SED19003	0071	3	5001670208	Ampharete acutifrons	5
SED19003	0071	3	50016808	Polycirrus spp.	1
SED19003	0071	3	5001690101	Terebellides stroemi	5
SED19003	0071	3	51032001	Alvania spp.	6
SED19003	0071	3	5105030247	Mitrella gausapata	1
SED19003	0071	3	510801019999	Odostomia (Odostomia) spp.	1
SED19003	0071	3	51080102	Turbonilla spp.	3
SED19003	0071	3	5108011134	Turbonilla aurantia	2
SED19003	0071	3	5502020101	Acila castrensis	5
SED19003	0071	3	5502020201	Nucula tenuis	9
SED19003	0071	3	5515010101	Parvilucina tenuisculpta	1
SED19003	0071	3	5515020201	Axinopsida serricata	10
SED19003	0071	3	5515100102	Mysella tumida	8
SED19003	0071	3	5515220102	Clinocardium nuttali	5
SED19003	0071	3	55153101	Macoma spp.	5
SED19003	0071	3	5515310204	Tellina modesta	3
SED19003	0071	3	5515470501	Psephidia lordi	2
SED19003	0071	3	5515470701	Protothaca staminea	16
SED19003	0071	3	6111070301	Euphilomedes carcharodonta	5
SED19003	0071	3	6154040202	Eudorella pacifica	13
SED19003	0071	3	6169211008	Melita desdichada	2
SED19003	0071	3	616926039999	Protomedeia penates/prudens	5
SED19003	0071	3	6169342904	Orchomene pinquis	1
SED19003	0071	3	6169420301	Heterophoxus oculatus	25
SED19003	0071	3	6169420926	Rhepoxynius variatus	10
SED19003	0071	3	616942099999	Foxiphalus similis/cognatus	2
SED19003	0071	3	6189060404	Pinnixa schmitti	48
SED19003	0071	3	7200020104	Golfingia pugettensis	1
SED19003	0071	3	812903019999	Amphiodia urtica/periercta	28

Sediment Benthic Statistic Report

Only Verified data.

Survey : SED19003

Data quality equals 1.

Values on a per sample basis.

SURVEY	STATION	SAMPLE	Arth- ro- pods	Oligo- chaet es	Total Sample Abund- ance	Nema- todes	Crus- ta- ceans	Poly- chaet es	Amphi- pods	Mol- luscs	Echino derms	Misc. ellan- eous Taxa
SED19003	0001	1	150	0	583	0	150	161	93	47	221	4
SED19003	0001	2	192	5	832	0	192	207	93	60	366	2
SED19003	0001	3	168	0	864	0	168	96	68	135	465	0
SED19003	0003	1	14	0	90	0	14	62	11	14	0	0
SED19003	0003	2	3	0	14	0	3	1	2	10	0	0
SED19003	0003	3	22	0	94	0	22	37	11	35	0	0
SED19003	0004	1	103	0	497	0	103	223	51	111	50	10
SED19003	0004	2	141	0	671	0	141	260	77	191	68	11
SED19003	0004	3	77	2	395	0	77	212	42	70	31	3
SED19003	0005	1	102	0	502	0	102	175	36	142	61	22
SED19003	0005	2	109	0	477	0	109	155	19	148	52	13
SED19003	0005	3	134	0	480	0	134	130	46	159	53	4
SED19003	0005	4	139	0	516	0	139	133	44	198	37	9
SED19003	0005	5	109	0	547	0	109	250	30	105	61	22
SED19003	0008	1	79	0	393	0	79	208	46	99	5	2
SED19003	0008	2	47	0	354	0	47	234	25	64	5	4
SED19003	0008	3	41	0	387	0	41	287	29	53	2	4
SED19003	0012	1	65	0	500	0	65	109	26	142	179	5
SED19003	0012	2	60	0	495	0	60	106	10	171	152	6
SED19003	0012	3	68	0	466	0	68	100	13	107	189	2
SED19003	0014	1	47	0	126	0	47	32	7	46	0	1
SED19003	0014	2	101	0	429	0	101	199	60	109	9	11
SED19003	0014	3	40	0	264	1	40	146	10	43	13	21
SED19003	0015	1	36	0	289	0	36	153	9	83	1	16
SED19003	0015	2	36	0	288	0	36	148	15	86	0	18
SED19003	0015	3	25	0	358	0	25	224	9	96	0	13
SED19003	0017	1	15	0	110	0	15	44	2	51	0	0
SED19003	0017	2	26	0	285	0	26	156	1	103	0	0
SED19003	0017	3	29	0	242	0	29	130	1	82	0	1
SED19003	0018	1	25	0	324	0	25	71	15	225	0	3
SED19003	0018	2	14	0	290	0	14	60	9	212	0	4
SED19003	0018	3	13	0	248	0	13	70	4	159	0	6
SED19003	0019	1	8	0	68	0	7	56	6	2	2	0
SED19003	0019	2	6	0	83	0	6	61	3	10	3	3
SED19003	0019	3	2	0	50	0	2	40	2	7	1	0
SED19003	0020	1	79	0	388	0	79	245	43	64	0	0
SED19003	0020	2	81	0	369	0	81	211	41	77	0	0
SED19003	0020	3	73	0	404	0	73	266	36	63	0	2

Sediment Benthic Statistic Report

Only Verified data.

Survey : SED19003

Data quality equals 1.

Values on a per sample basis.

SURVEY	STATION	SAMPLE	Total								Misc. ellan- eous Taxa	
			Arth- ro- pods	Oligo- chaet es	Sample Abund- ance	Nema- todes	Crus- ta- ceans	Poly- chaet es	Amphi- pods	Mol- luscs		Echino derms
SED19003	0021	1	232	0	839	0	232	183	13	423	0	1
SED19003	0021	2	347	0	935	0	347	145	4	440	0	3
SED19003	0021	3	140	0	520	0	140	127	10	250	0	3
SED19003	0022	1	167	0	397	0	167	51	25	179	0	0
SED19003	0022	2	239	0	370	0	239	58	3	73	0	0
SED19003	0022	3	172	0	447	0	172	52	14	223	0	0
SED19003	0026	1	67	0	234	0	67	111	40	52	0	4
SED19003	0026	2	82	0	271	0	82	114	36	67	0	8
SED19003	0026	3	100	0	287	0	100	123	71	62	0	2
SED19003	0029	1	35	0	254	0	35	47	7	168	1	3
SED19003	0029	2	68	0	340	0	68	40	22	227	5	0
SED19003	0029	3	51	0	265	0	51	19	14	190	3	2
SED19003	0030	1	82	0	514	0	82	345	4	86	0	1
SED19003	0030	2	112	0	500	0	112	333	1	47	0	8
SED19003	0030	3	124	0	422	0	124	249	5	49	0	0
SED19003	0032	1	146	0	783	0	144	518	38	45	27	47
SED19003	0032	2	111	0	696	0	111	501	32	53	7	24
SED19003	0032	3	116	0	768	0	116	535	34	41	27	49
SED19003	0033	1	98	0	509	0	98	230	4	176	3	2
SED19003	0033	2	145	0	498	0	145	230	12	118	4	1
SED19003	0033	3	111	0	335	0	111	151	7	62	7	4
SED19003	0034	1	144	0	604	0	144	405	32	48	3	4
SED19003	0034	2	98	0	398	0	98	271	11	25	2	2
SED19003	0034	3	83	0	341	0	83	230	18	26	2	0
SED19003	0035	1	293	0	611	0	293	250	3	23	42	3
SED19003	0035	2	250	0	962	0	250	585	27	90	35	2
SED19003	0035	3	280	0	894	0	280	528	3	34	45	7
SED19003	0038	1	26	0	72	0	26	28	14	11	7	0
SED19003	0038	2	49	0	86	0	49	27	27	9	1	0
SED19003	0038	3	51	0	93	0	51	34	39	6	2	0
SED19003	0039	1	61	0	160	0	61	55	27	42	1	1
SED19003	0039	2	126	0	293	0	126	93	27	69	1	4
SED19003	0039	3	69	0	235	0	69	107	17	55	0	4
SED19003	0040	1	129	0	356	0	129	162	2	62	1	2
SED19003	0040	2	97	0	406	0	97	243	6	57	4	5
SED19003	0040	3	82	0	297	0	82	142	5	64	4	5
SED19003	0041	1	112	0	2089	0	112	819	5	1149	5	4
SED19003	0041	2	98	0	2211	0	98	953	7	1150	2	8

Sediment Benthic Statistic Report

Only Verified data.

Survey : SED19003

Data quality equals 1.

Values on a per sample basis.

SURVEY	STATION	SAMPLE	Arth- ro- pods	Oligo- chaet es	Total Sample Abund- ance	Nema- todes	Crus- ta- ceans	Poly- chaet es	Amphi- pods	Mol- luscs	Echino- derms	Misc. ellan- eous Taxa
SED19003	0041	3	90	0	2256	0	90	1111	22	1050	0	5
SED19003	0043	1	247	0	754	0	247	153	63	63	287	4
SED19003	0043	2	238	0	630	0	238	178	71	90	123	1
SED19003	0043	3	175	0	634	0	175	163	43	63	227	6
SED19003	0044	1	95	0	994	0	95	796	45	61	14	28
SED19003	0044	2	94	0	759	0	94	566	47	55	13	31
SED19003	0044	3	105	0	624	0	105	449	55	41	13	16
SED19003	0045	1	50	0	229	0	50	143	6	16	13	7
SED19003	0045	2	43	0	242	0	43	171	5	14	5	9
SED19003	0045	3	58	0	304	0	58	222	10	8	6	10
SED19003	0046R	1	115	0	442	0	115	266	43	46	4	11
SED19003	0046R	2	112	0	514	0	112	317	43	35	39	11
SED19003	0046R	3	104	0	588	0	104	359	39	62	28	35
SED19003	0047	1	38	0	553	0	38	233	14	74	48	160
SED19003	0047	2	29	0	562	0	29	287	16	118	23	105
SED19003	0047	3	57	0	532	0	57	285	12	81	51	58
SED19003	0048	1	148	1	361	108	148	67	14	33	0	4
SED19003	0048	2	150	1	316	49	150	54	18	51	1	10
SED19003	0048	3	212	0	388	4	212	112	22	55	0	5
SED19003	0049	1	51	0	102	0	51	34	1	11	3	3
SED19003	0049	2	32	0	98	0	32	50	0	11	2	3
SED19003	0049	3	66	0	207	0	66	90	3	31	13	7
SED19003	0069	1	140	0	385	0	140	172	34	71	0	2
SED19003	0069	2	137	0	414	0	137	205	30	57	3	12
SED19003	0069	3	121	0	338	2	121	128	19	72	9	6
SED19003	0070	1	7	0	135	0	7	44	2	81	1	2
SED19003	0070	2	10	0	114	0	10	60	1	37	2	5
SED19003	0070	3	3	0	84	0	3	32	0	47	2	0
SED19003	0071	1	134	0	617	0	134	318	43	113	31	21
SED19003	0071	2	134	0	544	0	134	297	32	73	28	12
SED19003	0071	3	111	0	490	0	111	259	45	77	28	15

Qualifier Codes

Qualifiers Description

No qualifier - data is useable without qualification

Sediment Benthic Statistic Report

Only Verified data.

Survey : SED19003

Data quality equals 1.

Values on a per sample basis.

SURVEY	STATION	SAMPLE	Diver- sity	Even- ness	Poll- ution		# of Taxa
					Toler ant Taxa	Sensi tive Taxa	
SED19003	0001	1	0.943	0.627			32
SED19003	0001	2	0.885	0.594			31
SED19003	0001	3	0.759	0.537			26
SED19003	0003	1	0.961	0.781			17
SED19003	0003	2	0.786	0.930			7
SED19003	0003	3	1.009	0.789			19
SED19003	0004	1	1.286	0.743			54
SED19003	0004	2	1.218	0.706			53
SED19003	0004	3	1.255	0.735			51
SED19003	0005	1	1.296	0.771			48
SED19003	0005	2	1.343	0.779			53
SED19003	0005	3	1.236	0.772			40
SED19003	0005	4	1.239	0.764			42
SED19003	0005	5	1.250	0.739			49
SED19003	0008	1	1.515	0.836			65
SED19003	0008	2	1.542	0.841			68
SED19003	0008	3	1.475	0.810			66
SED19003	0012	1	1.100	0.635			54
SED19003	0012	2	1.039	0.615			49
SED19003	0012	3	1.076	0.633			50
SED19003	0014	1	1.272	0.805			38
SED19003	0014	2	1.568	0.813			85
SED19003	0014	3	1.728	0.903			82
SED19003	0015	1	1.614	0.869			72
SED19003	0015	2	1.502	0.835			63
SED19003	0015	3	1.613	0.855			77
SED19003	0017	1	1.000	0.745			22
SED19003	0017	2	0.934	0.677			24
SED19003	0017	3	0.972	0.672			28
SED19003	0018	1	0.902	0.567			39
SED19003	0018	2	0.770	0.538			27
SED19003	0018	3	0.841	0.609			24
SED19003	0019	1	0.860	0.650			21
SED19003	0019	2	0.849	0.642			21
SED19003	0019	3	0.979	0.729			22
SED19003	0020	1	1.235	0.813			33
SED19003	0020	2	1.305	0.820			39
SED19003	0020	3	1.316	0.787			47

Sediment Benthic Statistic Report

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Survey : SED19003

Data quality equals 1.

Values on a per sample basis.

SURVEY	STATION	SAMPLE	Diver- sity	Even- ness	Poll- ution Toler ant Taxa	Poll- ution Sensi tive Taxa	# of Taxa
SED19003	0021	1	1.087	0.643			49
SED19003	0021	2	1.017	0.595			51
SED19003	0021	3	1.107	0.678			43
SED19003	0022	1	1.013	0.632			40
SED19003	0022	2	1.007	0.609			45
SED19003	0022	3	1.029	0.626			44
SED19003	0026	1	1.566	0.870			63
SED19003	0026	2	1.546	0.835			71
SED19003	0026	3	1.553	0.867			62
SED19003	0029	1	0.836	0.546			34
SED19003	0029	2	0.874	0.535			43
SED19003	0029	3	0.730	0.489			31
SED19003	0030	1	1.209	0.680			60
SED19003	0030	2	1.182	0.679			55
SED19003	0030	3	1.080	0.666			42
SED19003	0032	1	1.429	0.728			92
SED19003	0032	2	1.330	0.684			88
SED19003	0032	3	1.389	0.716			87
SED19003	0033	1	1.402	0.745			76
SED19003	0033	2	1.487	0.779			81
SED19003	0033	3	1.364	0.753			65
SED19003	0034	1	1.298	0.757			52
SED19003	0034	2	1.234	0.738			47
SED19003	0034	3	1.200	0.721			46
SED19003	0035	1	0.902	0.563			40
SED19003	0035	2	1.017	0.599			50
SED19003	0035	3	0.911	0.577			38
SED19003	0038	1	1.264	0.893			26
SED19003	0038	2	1.203	0.850			26
SED19003	0038	3	1.182	0.826			27
SED19003	0039	1	1.213	0.792			34
SED19003	0039	2	1.189	0.689			53
SED19003	0039	3	1.258	0.756			46
SED19003	0040	1	1.257	0.765			44
SED19003	0040	2	1.372	0.749			68
SED19003	0040	3	1.390	0.803			54
SED19003	0041	1	0.632	0.382			45
SED19003	0041	2	0.676	0.392			53