

**CHESAPEAKE BAY WATER QUALITY
MONITORING PROGRAM**

**LONG-TERM BENTHIC MONITORING AND
ASSESSMENT COMPONENT**

LEVEL I COMPREHENSIVE REPORT

JULY 1984—DECEMBER 1999

VOLUME 2

Prepared for

Maryland Department of Natural Resources
Resource Assessment Service
Tidewater Ecosystem Assessments
Annapolis, Maryland

Prepared by

Roberto J. Llansó
Lisa C. Scott
Frederick S. Kelley

Versar, Inc.
9200 Rumsey Road
Columbia, Maryland 21045

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APPENDIX D

**BENTHIC ENVIRONMENT AND COMMUNITY
COMPOSITION AT FIXED SITES:
SPRING 1999**

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | | | |
|-----------------------------------|--|---------------------------|-------------------------------|--|-------|------------------------|---------|-----|------|-------|--|
| ===== | | | | | | | | | | | |
| Station: 001 | | | | | | | | | | | |
| Watershed: Mainstem | | | Habitat: High Mesohaline Sand | | | Date: May 11, 1999 | | | | | |
| Gear: Modified Box Corer | | | Sampled Area: 0.025 sq.m | | | Time: 12:44 | | | | | |
| ===== | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| Depth (m): 1.89 | | | Salinity (ppt): 14.44 | | | Temperature (C): 23.73 | | | | | |
| Dissolved Oxygen (mg/l): 7.83 | | | Sediment Silt-Clay (%): 0.38 | | | Total Carbon (%): 0.12 | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 0 | | | | | |
| | | Value | Score | | Value | Score | | | | | |
| Shannon-Weiner Index | | 1.45 | | Pollution Indicative Species Abundance (%) | | 0.00 | | | | | |
| Abundance (#/m2) | | 1600 | | Pollution Indicative Species Biomass (%) | | 0.00 | | | | | |
| Biomass (g/m2) | | 1.22 | | Pollution Sensitive Species Abundance (%) | | 1.82 | | | | | |
| Carnivore-Omnivore Abundance (%) | | 6.42 | | Pollution Sensitive Species Biomass (%) | | 3.07 | | | | | |
| Deep Deposit Feeder Abundance (%) | | 1.78 | | | | | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | | Mean | Std.Dev | Min | Max | Cum % | |
| Ameroculodes species complex | | 1080 | 1240 | 480 | | 933.3 | 400.67 | 480 | 1240 | 58.3 | |
| Lepidactylus dytiscus | | 560 | 360 | 560 | | 493.3 | 115.47 | 360 | 560 | 89.2 | |
| Micrura leidyi | | 80 | | 160 | | 80.0 | 80.00 | 0 | 160 | 94.2 | |
| Paraonis fulgens | | 40 | 40 | | | 26.7 | 23.09 | 0 | 40 | 95.8 | |

| | | | | | | | | | | |
|-------------------------|--|----|--|------|-------|-------|----|------|------|--|
| Leitoscoloplos robustus | | 40 | | 13.3 | 23.09 | 0 | 40 | 96.7 | | |
| Leitoscoloplos spp. | | | | 40 | 13.3 | 23.09 | 0 | 40 | 97.5 | |
| Marenzelleria viridis | | | | 40 | 13.3 | 23.09 | 0 | 40 | 98.3 | |
| Nemertea | | | | 40 | 13.3 | 23.09 | 0 | 40 | 99.2 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 001 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Phoronis architecta | | 40 | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 1800 | 1720 | 1280 | 1600.0 | 280.00 | 1280 | 1800 | | |
| Total Abundance w/o Epifauna | 1800 | 1720 | 1280 | 1600.0 | 280.00 | 1280 | 1800 | | |
| Number of Taxa w/ Epifauna | 5 | 5 | 5 | 5.0 | 0.00 | 5 | 5 | | |
| Number of Taxa w/o Epifauna | 5 | 5 | 5 | 5.0 | 0.00 | 5 | 5 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Leitoscoloplos spp. | 1.9160 | | 0.1040 | 0.6733 | 1.0774 | 0.0000 | 1.9160 | 55.3 | |
| Lepidactylus dytiscus | 0.3200 | 0.1920 | 0.4160 | 0.3093 | 0.1124 | 0.1920 | 0.4160 | 80.8 | |
| Amerocolodes species complex | 0.1480 | 0.0840 | 0.0600 | 0.0973 | 0.0455 | 0.0600 | 0.1480 | 88.8 | |
| Micrura leidyi | 0.0200 | | 0.2720 | 0.0973 | 0.1516 | 0.0000 | 0.2720 | 96.8 | |
| Marenzelleria viridis | | | 0.0800 | 0.0267 | 0.0462 | 0.0000 | 0.0800 | 99.0 | |
| Nemertea | | 0.0320 | | 0.0107 | 0.0185 | 0.0000 | 0.0320 | 99.8 | |
| Paraonis fulgens | 0.0020 | 0.0020 | | 0.0013 | 0.0012 | 0.0000 | 0.0020 | 99.9 | |
| Phoronis architecta | | 0.0020 | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Total Biomass w/ Epifauna | 2.4060 | 0.3120 | 0.9320 | 1.2167 | 1.0756 | 0.3120 | 2.4060 | | |
| Total Biomass w/o Epifauna | 2.4060 | 0.3120 | 0.9320 | 1.2167 | 1.0756 | 0.3120 | 2.4060 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | | | | |
|-------------------------------------|--|---------------------------|-------------------------------|--|-------|------------------------|---------|--------|-----|-------|------|--|
| ===== | | | | | | | | | | | | |
| Station: 006 | | | | | | | | | | | | |
| Watershed: Calvert Cliffs Discharge | | | Habitat: High Mesohaline Sand | | | Date: May 11, 1999 | | | | | | |
| Gear: Modified Box Corer | | | Sampled Area: 0.025 sq.m | | | Time: 9:39 | | | | | | |
| ===== | | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| Depth (m): 2.23 | | | Salinity (ppt): 14.4 | | | Temperature (C): 24.3 | | | | | | |
| Dissolved Oxygen (mg/l): 6.61 | | | Sediment Silt-Clay (%): 0.50 | | | Total Carbon (%): 0.06 | | | | | | |
| ===== | | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 0 | | | | | | |
| | | Value | Score | | Value | Score | | | | | | |
| Shannon-Weiner Index | | 2.13 | | Pollution Indicative Species Abundance (%) | | 1.92 | | | | | | |
| Abundance (#/m2) | | 1440 | | Pollution Indicative Species Biomass (%) | | 24.62 | | | | | | |
| Biomass (g/m2) | | 1.68 | | Pollution Sensitive Species Abundance (%) | | 7.47 | | | | | | |
| Carnivore-Omnivore Abundance (%) | | 35.14 | | Pollution Sensitive Species Biomass (%) | | 18.93 | | | | | | |
| Deep Deposit Feeder Abundance (%) | | 1.62 | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | | Mean | Std.Dev | Min | Max | Cum % | | |
| ----- | | | | | | | | | | | | |
| Ameroculodes species complex | | | 920 | 600 | 80 | | 533.3 | 423.95 | 80 | 920 | 37.0 | |
| Nemertea | | | 320 | 280 | 160 | | 253.3 | 83.27 | 160 | 320 | 54.6 | |
| Lepidactylus dytiscus | | | 200 | 80 | 320 | | 200.0 | 120.00 | 80 | 320 | 68.5 | |
| Micrura leidyi | | | 120 | 40 | 160 | | 106.7 | 61.10 | 40 | 160 | 75.9 | |

| | | | | | | | | | | | | |
|-----------------------|--|-----|----|-----|--|------|-------|-------|-----|------|------|--|
| Amphiporus bioculatus | | 40 | 40 | 120 | | 66.7 | 46.19 | 40 | 120 | 80.6 | | |
| Gemma gemma | | 120 | | | | 40 | 53.3 | 61.10 | 0 | 120 | 84.3 | |
| Mulinia lateralis | | 120 | | | | 40.0 | 69.28 | 0 | 120 | 87.0 | | |
| Macoma mitchelli | | | 80 | | | 26.7 | 46.19 | 0 | 80 | 88.9 | | |
| Marenzelleria viridis | | 40 | 40 | | | 26.7 | 23.09 | 0 | 40 | 90.7 | | |
| Phoronis architecta | | 40 | 40 | | | 26.7 | 23.09 | 0 | 40 | 92.6 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 006 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Spiophanes bombyx | 80 | | | 26.7 | 46.19 | 0 | 80 | 94.4 | |
| Acteocina canaliculata | | 40 | | 13.3 | 23.09 | 0 | 40 | 95.4 | |
| Cyathura polita | | 40 | | 13.3 | 23.09 | 0 | 40 | 96.3 | |
| Heteromastus filiformis | | 40 | | 13.3 | 23.09 | 0 | 40 | 97.2 | |
| Leitoscoloplos spp. | 40 | | | 13.3 | 23.09 | 0 | 40 | 98.1 | |
| Macoma balthica | | 40 | | 13.3 | 23.09 | 0 | 40 | 99.1 | |
| Tellinidae | 40 | | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 2080 | 1360 | 880 | 1440.0 | 603.99 | 880 | 2080 | | |
| Total Abundance w/o Epifauna | 2080 | 1360 | 880 | 1440.0 | 603.99 | 880 | 2080 | | |
| Number of Taxa w/ Epifauna | 12 | 12 | 6 | 10.0 | 3.46 | 6 | 12 | | |
| Number of Taxa w/o Epifauna | 12 | 12 | 6 | 10.0 | 3.46 | 6 | 12 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Mulinia lateralis | 2.3960 | | | 0.7987 | 1.3833 | 0.0000 | 2.3960 | 47.7 | |
| Micrura leidyi | 0.4320 | 0.0120 | 0.2160 | 0.2200 | 0.2100 | 0.0120 | 0.4320 | 60.8 | |
| Lepidactylus dytiscus | 0.1160 | 0.1320 | 0.3880 | 0.2120 | 0.1526 | 0.1160 | 0.3880 | 73.5 | |
| Amerocolodes species complex | 0.1600 | 0.2040 | 0.0200 | 0.1280 | 0.0961 | 0.0200 | 0.2040 | 81.1 | |
| Macoma balthica | | 0.3760 | | 0.1253 | 0.2171 | 0.0000 | 0.3760 | 88.6 | |
| Macoma mitchelli | | 0.1320 | | 0.0440 | 0.0762 | 0.0000 | 0.1320 | 91.2 | |

| | | | | | | | | | | | | |
|--|-----------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|------|--|
| | Cyathura polita | | 0.1160 | | 0.0387 | 0.0670 | 0.0000 | 0.1160 | 93.5 | | | |
| | Phoronis architecta | | 0.0240 | 0.0840 | | 0.0360 | 0.0433 | 0.0000 | 0.0840 | 95.7 | | |
| | Gemma gemma | | 0.0240 | 0.0240 | | 0.0160 | 0.0139 | 0.0000 | 0.0240 | 96.6 | | |
| | Nemertea | | 0.0200 | 0.0080 | 0.0080 | | 0.0120 | 0.0069 | 0.0080 | 0.0200 | 97.3 | |
| | Spiophanes bombyx | | 0.0360 | | | 0.0120 | 0.0208 | 0.0000 | 0.0360 | 98.1 | | |
| | Marenzelleria viridis | | 0.0160 | 0.0160 | | 0.0107 | 0.0092 | 0.0000 | 0.0160 | 98.7 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 006 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Amphiporus bioculatus | 0.0080 | 0.0120 | 0.0020 | 0.0073 | 0.0050 | 0.0020 | 0.0120 | 99.1 | |
| Acteocina canaliculata | | 0.0200 | | 0.0067 | 0.0115 | 0.0000 | 0.0200 | 99.5 | |
| Heteromastus filiformis | | 0.0120 | | 0.0040 | 0.0069 | 0.0000 | 0.0120 | 99.8 | |
| Tellinidae | 0.0080 | | | 0.0027 | 0.0046 | 0.0000 | 0.0080 | 99.9 | |
| Leitoscoloplos spp. | 0.0040 | | | 0.0013 | 0.0023 | 0.0000 | 0.0040 | 100.0 | |
| Total Biomass w/ Epifauna | 3.2440 | 1.1240 | 0.6580 | 1.6753 | 1.3783 | 0.6580 | 3.2440 | | |
| Total Biomass w/o Epifauna | 3.2440 | 1.1240 | 0.6580 | 1.6753 | 1.3783 | 0.6580 | 3.2440 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | | | | |
|-----------------------------------|--|---------------------------|-------------------------------|--|-------|------------------------|---------|---------|------|-------|------|--|
| ===== | | | | | | | | | | | | |
| Station: 015 | | | | | | | | | | | | |
| Watershed: Mainstem | | | Habitat: High Mesohaline Sand | | | Date: May 11, 1999 | | | | | | |
| Gear: Modified Box Corer | | | Sampled Area: 0.025 sq.m | | | Time: 14:35 | | | | | | |
| ===== | | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| Depth (m): 2.97 | | | Salinity (ppt): 13.0 | | | Temperature (C): 23.77 | | | | | | |
| Dissolved Oxygen (mg/l): 7.35 | | | Sediment Silt-Clay (%): 1.61 | | | Total Carbon (%):0.10 | | | | | | |
| ===== | | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 0 | | | | | | |
| | | Value | Score | | Value | Score | | | | | | |
| Shannon-Weiner Index | | 2.08 | | Pollution Indicative Species Abundance (%) | | 5.11 | | | | | | |
| Abundance (#/m2) | | 4347 | | Pollution Indicative Species Biomass (%) | | 0.56 | | | | | | |
| Biomass (g/m2) | | 1.71 | | Pollution Sensitive Species Abundance (%) | | 51.81 | | | | | | |
| Carnivore-Omnivore Abundance (%) | | 3.13 | | Pollution Sensitive Species Biomass (%) | | 28.38 | | | | | | |
| Deep Deposit Feeder Abundance (%) | | 20.12 | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | | Mean | Std.Dev | Min | Max | Cum % | | |
| ----- | | | | | | | | | | | | |
| Marenzelleria viridis | | | 1560 | 3600 | 1520 | | 2226.7 | 1189.51 | 1520 | 3600 | 51.2 | |
| Heteromastus filiformis | | | 600 | 800 | 920 | | 773.3 | 161.66 | 600 | 920 | 69.0 | |
| Macoma mitchelli | | | 120 | 480 | 560 | | 386.7 | 234.38 | 120 | 560 | 77.9 | |
| Amerocolodes species complex | | | 40 | 440 | 360 | | 280.0 | 211.66 | 40 | 440 | 84.4 | |

| | | | | | | | | | | |
|-------------------------|--|-----|-----|-------|--------|-------|-----|------|------|--|
| Leptocheirus plumulosus | | 800 | 40 | 280.0 | 450.78 | 0 | 800 | 90.8 | | |
| Streblospio benedicti | | 240 | 240 | 80 | 186.7 | 92.38 | 80 | 240 | 95.1 | |
| Lepidactylus dytiscus | | 160 | 40 | 66.7 | 83.27 | 0 | 160 | 96.6 | | |
| Micrura leidyi | | 40 | 120 | 53.3 | 61.10 | 0 | 120 | 97.9 | | |
| Carinoma tremaphoros | | 80 | | 26.7 | 46.19 | 0 | 80 | 98.5 | | |
| Cyathura polita | | | 40 | 13.3 | 23.09 | 0 | 40 | 98.8 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 015 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Hypereteone foliosa | | 40 | | 13.3 | 23.09 | 0 | 40 | 99.1 | |
| Imm. Tubificid w/o Cap. Chaete | | 40 | | 13.3 | 23.09 | 0 | 40 | 99.4 | |
| Macoma balthica | | | 40 | 13.3 | 23.09 | 0 | 40 | 99.7 | |
| Tubificoides spp. | | 40 | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 2680 | 6640 | 3720 | 4346.7 | 2053.03 | 2680 | 6640 | | |
| Total Abundance w/o Epifauna | 2680 | 6640 | 3720 | 4346.7 | 2053.03 | 2680 | 6640 | | |
| Number of Taxa w/ Epifauna | 7 | 10 | 10 | 9.0 | 1.73 | 7 | 10 | | |
| Number of Taxa w/o Epifauna | 7 | 10 | 10 | 9.0 | 1.73 | 7 | 10 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma mitchelli | 0.3520 | 0.7120 | 0.7680 | 0.6107 | 0.2258 | 0.3520 | 0.7680 | 35.8 | |
| Marenzelleria viridis | 0.2920 | 0.6440 | 0.3320 | 0.4227 | 0.1927 | 0.2920 | 0.6440 | 60.5 | |
| Micrura leidyi | 0.1560 | | 1.1000 | 0.4187 | 0.5952 | 0.0000 | 1.1000 | 85.0 | |
| Heteromastus filiformis | 0.0560 | 0.0720 | 0.0960 | 0.0747 | 0.0201 | 0.0560 | 0.0960 | 89.4 | |
| Amerocolodes species complex | 0.0120 | 0.0720 | 0.1080 | 0.0640 | 0.0485 | 0.0120 | 0.1080 | 93.1 | |
| Leptocheirus plumulosus | | 0.0880 | 0.0480 | 0.0453 | 0.0441 | 0.0000 | 0.0880 | 95.8 | |
| Lepidactylus dytiscus | | 0.0800 | 0.0240 | 0.0347 | 0.0411 | 0.0000 | 0.0800 | 97.8 | |
| Cyathura polita | | | 0.0400 | 0.0133 | 0.0231 | 0.0000 | 0.0400 | 98.6 | |
| Hypereteone foliosa | | 0.0240 | | 0.0080 | 0.0139 | 0.0000 | 0.0240 | 99.1 | |

| | | | | | | | | | | | | |
|-------|----------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|-------|--|
| | Streblospio benedicti | | 0.0080 | 0.0120 | 0.0020 | | 0.0073 | 0.0050 | 0.0020 | 0.0120 | 99.5 | |
| | Carinoma tremaphoros | | 0.0200 | | | | 0.0067 | 0.0115 | 0.0000 | 0.0200 | 99.9 | |
| | Macoma balthica | | | | 0.0020 | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 99.9 | |
| | Oligochaeta | | | 0.0020 | | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| | Tubificoides spp. | | | 0.0020 | | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| ----- | | | | | | | | | | | | |
| | Total Biomass w/ Epifauna | | 0.8960 | 1.7080 | 2.5200 | | 1.7080 | 0.8120 | 0.8960 | 2.5200 | | |
| | Total Biomass w/o Epifauna | | 0.8960 | 1.7080 | 2.5200 | | 1.7080 | 0.8120 | 0.8960 | 2.5200 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|--|---------------------------|--|-------|------------------------|---------|-------|------|-------|
| ===== | | | | | | | | | |
| Station: 022 | | | | | | | | | |
| Watershed: Patapsco & Back Rivers | | | Habitat: Low Mesohaline | | Date: May 10, 1999 | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | Time: | | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 4.53 | | | Salinity (ppt): 10.8 | | Temperature (C): 25.46 | | | | |
| Dissolved Oxygen (mg/l): 3.56 | | | Sediment Silt-Clay (%): 83.80 | | Total Carbon (%): 3.4 | | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | # Attributes Scored: 0 | | | | |
| | | Value | Score | | | Value | Score | | |
| Shannon-Weiner Index | | 2.48 | Pollution Indicative Species Abundance (%) | | 2.27 | | | | |
| Abundance (#/m2) | | 4773 | Pollution Indicative Species Biomass (%) | | 0.10 | | | | |
| Biomass (g/m2) | | 12.17 | Pollution Sensitive Species Abundance (%) | | 31.41 | | | | |
| Carnivore-Omnivore Abundance (%) | | 25.44 | Pollution Sensitive Species Biomass (%) | | 64.31 | | | | |
| Deep Deposit Feeder Abundance (%) | | 4.71 | | | | | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| ----- | | | | | | | | | |
| Littoridinops tenuipes (Epi) | | 2636 | 2182 | 2045 | 2287.9 | 309.40 | 2045 | 2636 | 32.4 |
| Leptocheirus plumulosus | | 3045 | 1182 | 727 | 1651.5 | 1228.39 | 727 | 3045 | 55.8 |
| Marenzelleria viridis | | 1091 | 1091 | 1091 | 1090.9 | 0.00 | 1091 | 1091 | 71.2 |
| Neanthes succinea | | 1000 | 1091 | 1045 | 1045.5 | 45.45 | 1000 | 1091 | 86.1 |

| | | | | | | | | | | | |
|-------------------------------------|--|-----|-----|-----|--|-------|-------|-----|-----|------|--|
| <i>Macoma balthica</i> | | 273 | 364 | 364 | | 333.3 | 52.49 | 273 | 364 | 90.8 | |
| <i>Amerocolodes</i> species complex | | 182 | 182 | 136 | | 166.7 | 26.24 | 136 | 182 | 93.1 | |
| <i>Tubificoides</i> spp. | | 182 | 91 | 91 | | 121.2 | 52.49 | 91 | 182 | 94.8 | |
| <i>Heteromastus filiformis</i> | | 136 | 91 | 91 | | 106.1 | 26.24 | 91 | 136 | 96.4 | |
| <i>Carinoma tremaphoros</i> | | 136 | | 91 | | 75.8 | 69.43 | 0 | 136 | 97.4 | |
| <i>Streblospio benedicti</i> | | 91 | 45 | 91 | | 75.8 | 26.24 | 45 | 91 | 98.5 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 022 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|---------|--------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Hypereteone heteropoda | 45 | | 45 | 30.3 | 26.24 | 0 | 45 | 98.9 | |
| Macoma mitchelli | | 91 | | 30.3 | 52.49 | 0 | 91 | 99.4 | |
| Tellinidae | 45 | | 45 | 30.3 | 26.24 | 0 | 45 | 99.8 | |
| Edwardsia elegans | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 8909 | 6409 | 5864 | 7060.6 | 1623.90 | 5864 | 8909 | | |
| Total Abundance w/o Epifauna | 6273 | 4227 | 3818 | 4772.7 | 1315.04 | 3818 | 6273 | | |
| Number of Taxa w/ Epifauna | 13 | 10 | 12 | 11.7 | 1.53 | 10 | 13 | | |
| Number of Taxa w/o Epifauna | 12 | 9 | 11 | 10.7 | 1.53 | 9 | 12 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 8.3227 | 4.2045 | 11.0227 | 7.8500 | 3.4336 | 4.2045 | 11.0227 | 64.2 | |
| Neanthes succinea | 3.5318 | 3.1455 | 4.3864 | 3.6879 | 0.6350 | 3.1455 | 4.3864 | 94.3 | |
| Leptocheirus plumulosus | 0.5455 | 0.1636 | 0.0909 | 0.2667 | 0.2442 | 0.0909 | 0.5455 | 96.5 | |
| Marenzelleria viridis | 0.2455 | 0.1727 | 0.1409 | 0.1864 | 0.0536 | 0.1409 | 0.2455 | 98.0 | |
| Littoridinops tenuipes (Epi) | 0.0636 | 0.0727 | 0.0455 | 0.0606 | 0.0139 | 0.0455 | 0.0727 | 98.5 | |
| Heteromastus filiformis | 0.1273 | 0.0227 | 0.0136 | 0.0545 | 0.0631 | 0.0136 | 0.1273 | 99.0 | |
| Macoma mitchelli | | 0.1591 | | 0.0530 | 0.0919 | 0.0000 | 0.1591 | 99.4 | |
| Carinoma tremaphoros | 0.0500 | | 0.0455 | 0.0318 | 0.0276 | 0.0000 | 0.0500 | 99.7 | |
| Amerocolodes species complex | 0.0136 | 0.0182 | 0.0091 | 0.0136 | 0.0045 | 0.0091 | 0.0182 | 99.8 | |

| | | | | | | | | | | | | |
|-------|----------------------------|--|---------|--------|---------|--|---------|--------|--------|---------|-------|--|
| | Streblospio benedicti | | 0.0023 | 0.0045 | 0.0136 | | 0.0068 | 0.0060 | 0.0023 | 0.0136 | 99.8 | |
| | Hypereteone heteropoda | | 0.0136 | | 0.0045 | | 0.0061 | 0.0069 | 0.0000 | 0.0136 | 99.9 | |
| | Tubificoides spp. | | 0.0045 | 0.0023 | 0.0091 | | 0.0053 | 0.0035 | 0.0023 | 0.0091 | 99.9 | |
| | Tellinidae | | 0.0091 | | 0.0045 | | 0.0045 | 0.0045 | 0.0000 | 0.0091 | 100.0 | |
| | Edwardsia elegans | | 0.0091 | | | | 0.0030 | 0.0052 | 0.0000 | 0.0091 | 100.0 | |
| ----- | | | | | | | | | | | | |
| | Total Biomass w/ Epifauna | | 12.9386 | 7.9659 | 15.7863 | | 12.2303 | 3.9580 | 7.9659 | 15.7863 | | |
| | Total Biomass w/o Epifauna | | 12.8750 | 7.8932 | 15.7409 | | 12.1697 | 3.9711 | 7.8932 | 15.7409 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | | | |
|-----------------------------------|-------|--|-------------------------------|-------|--|------------------------|---------|--------|------|-------|------|
| ===== | | | | | | | | | | | |
| Station: 023 | | | | | | | | | | | |
| Watershed: Patapsco & Back Rivers | | | Habitat: Low Mesohaline | | | Date: May 10, 1999 | | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 14:58 | | | | | |
| ===== | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| Depth (m): 6.08 | | | Salinity (ppt): 10.3 | | | Temperature (C): 25.35 | | | | | |
| Dissolved Oxygen (mg/l): 6.81 | | | Sediment Silt-Clay (%): 86.15 | | | Total Carbon (%):3.11 | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| B-IBI Score: | | | Condition: Not Applicable | | | # Attributes Scored: 0 | | | | | |
| | Value | | Score | | | Value | | Score | | | |
| Shannon-Weiner Index | | | 1.37 | | Pollution Indicative Species Abundance (%) | | | 5.90 | | | |
| Abundance (#/m2) | | | 10212 | | Pollution Indicative Species Biomass (%) | | | 1.01 | | | |
| Biomass (g/m2) | | | 12.12 | | Pollution Sensitive Species Abundance (%) | | | 6.29 | | | |
| Carnivore-Omnivore Abundance (%) | | | 4.61 | | Pollution Sensitive Species Biomass (%) | | | 52.44 | | | |
| Deep Deposit Feeder Abundance (%) | | | 5.24 | | | | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| | | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | | |
| Leptocheirus plumulosus | | | | 7364 | 8818 | 7909 | 8030.3 | 734.81 | 7364 | 8818 | 75.7 |
| Marenzelleria viridis | | | | 636 | 182 | 364 | 393.9 | 228.78 | 182 | 636 | 79.4 |
| Littoridinops tenuipes (Epi) | | | | 273 | | 864 | 378.8 | 441.48 | 0 | 864 | 83.0 |
| Heteromastus filiformis | | | | 227 | 227 | 591 | 348.5 | 209.95 | 227 | 591 | 86.3 |

| | | | | | | | | | | | | |
|--|------------------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| | Streblospio benedicti | | 364 | 545 | 136 | | 348.5 | 204.97 | 136 | 545 | 89.6 | |
| | Hypereteone heteropoda | | 364 | 273 | 136 | | 257.6 | 114.39 | 136 | 364 | 92.0 | |
| | Macoma balthica | | 227 | 227 | 227 | | 227.3 | 0.00 | 227 | 227 | 94.1 | |
| | Neanthes succinea | | 182 | 182 | 273 | | 212.1 | 52.49 | 182 | 273 | 96.1 | |
| | Tubificoides spp. | | 227 | 136 | 182 | | 181.8 | 45.45 | 136 | 227 | 97.9 | |
| | Ameroculodes species complex | | 227 | 136 | | | 121.2 | 114.39 | 0 | 227 | 99.0 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 023 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|---------|--------|---------|---------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma mitchelli | 45 | | 182 | 75.8 | 94.62 | 0 | 182 | 99.7 | |
| Rangia cuneata | | 45 | | 15.2 | 26.24 | 0 | 45 | 99.9 | |
| Turbellaria (Epi) | | | 45 | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 10136 | 10773 | 10909 | 10606.1 | 412.44 | 10136 | 10909 | | |
| Total Abundance w/o Epifauna | 9864 | 10773 | 10000 | 10212.1 | 490.26 | 9864 | 10773 | | |
| Number of Taxa w/ Epifauna | 11 | 10 | 11 | 10.7 | 0.58 | 10 | 11 | | |
| Number of Taxa w/o Epifauna | 10 | 10 | 9 | 9.7 | 0.58 | 9 | 10 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 12.1636 | 0.0409 | 10.3636 | 7.5227 | 6.5416 | 0.0409 | 12.1636 | 62.0 | |
| Leptocheirus plumulosus | 2.6000 | 1.5727 | 2.0227 | 2.0651 | 0.5149 | 1.5727 | 2.6000 | 79.0 | |
| Neanthes succinea | 0.7364 | 1.1364 | 2.2227 | 1.3652 | 0.7691 | 0.7364 | 2.2227 | 90.3 | |
| Heteromastus filiformis | 0.4136 | 0.0591 | 1.0227 | 0.4985 | 0.4874 | 0.0591 | 1.0227 | 94.4 | |
| Macoma mitchelli | 0.4091 | | 0.3864 | 0.2652 | 0.2299 | 0.0000 | 0.4091 | 96.6 | |
| Rangia cuneata | | 0.5727 | | 0.1909 | 0.3307 | 0.0000 | 0.5727 | 98.2 | |
| Marenzelleria viridis | 0.2182 | 0.0364 | 0.0773 | 0.1106 | 0.0954 | 0.0364 | 0.2182 | 99.1 | |
| Hypereteone heteropoda | 0.0818 | 0.0455 | 0.0318 | 0.0530 | 0.0258 | 0.0318 | 0.0818 | 99.5 | |
| Streblospio benedicti | 0.0182 | 0.0318 | 0.0091 | 0.0197 | 0.0114 | 0.0091 | 0.0318 | 99.7 | |
| Amerocolodes species complex | 0.0227 | 0.0318 | | 0.0182 | 0.0164 | 0.0000 | 0.0318 | 99.8 | |

| | | | | | | | | | | | | | |
|-------|----------------------------|-------|--|---------|--------|---------|--|---------|--------|--------|---------|-------|--|
| | Littoridinops tenuipes | (Epi) | | 0.0091 | | 0.0273 | | 0.0121 | 0.0139 | 0.0000 | 0.0273 | 99.9 | |
| | Tubificoides spp. | | | 0.0045 | 0.0045 | 0.0182 | | 0.0091 | 0.0079 | 0.0045 | 0.0182 | 100.0 | |
| | Turbellaria | (Epi) | | | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| ----- | | | | | | | | | | | | | |
| | Total Biomass w/ Epifauna | | | 16.6773 | 3.5318 | 16.1841 | | 12.1310 | 7.4512 | 3.5318 | 16.6773 | | |
| | Total Biomass w/o Epifauna | | | 16.6682 | 3.5318 | 16.1545 | | 12.1182 | 7.4404 | 3.5318 | 16.6682 | | |

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 * Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | |
|------------------------|------------------------------|--------------------|
| ===== | | |
| Station: 024 | | |
| Watershed: Mainstem | Habitat: High Mesohaline Mud | Date: May 10, 1999 |
| Gear: Wildco Box Corer | Sampled Area: 0.022 sq.m | Time: 7:50 |
| ===== | | |

| | | |
|-------------------------------|-------------------------------|------------------------|
| ===== | | |
| BOTTOM ENVIRONMENT | | |
| ===== | | |
| Depth (m): 7.57 | Salinity (ppt): 10.9 | Temperature (C): 22.97 |
| Dissolved Oxygen (mg/l): 6.12 | Sediment Silt-Clay (%): 94.48 | Total Carbon (%): 3.17 |
| ===== | | |

| | | |
|-----------------------------------|---------------------------|--|
| ===== | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | |
| ===== | | |
| B-IBI Score: | Condition: Not Applicable | # Attributes Scored: 0 |
| | Value Score | Value Score |
| Shannon-Weiner Index | 2.07 | Pollution Indicative Species Abundance (%) 27.30 |
| Abundance (#/m2) | 8818 | Pollution Indicative Species Biomass (%) 2.10 |
| Biomass (g/m2) | 12.85 | Pollution Sensitive Species Abundance (%) 7.12 |
| Carnivore-Omnivore Abundance (%) | 7.20 | Pollution Sensitive Species Biomass (%) 30.58 |
| Deep Deposit Feeder Abundance (%) | 9.60 | |
| ===== | | |

| | | | | | | | | |
|-----------------------------------|-------|-------|-------|--------|---------|------|------|-------|
| ===== | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | |
| ===== | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| Leptocheirus plumulosus | 5864 | 5091 | 2364 | 4439.4 | 1838.71 | 2364 | 5864 | 50.2 |
| Streblospio benedicti | 2682 | 2545 | 1545 | 2257.6 | 620.47 | 1545 | 2682 | 75.7 |
| Tubificoides spp. | 591 | 818 | 591 | 666.7 | 131.22 | 591 | 818 | 83.2 |
| Macoma balthica | 591 | 727 | 318 | 545.5 | 208.30 | 318 | 727 | 89.4 |
| ===== | | | | | | | | |

| | | | | | | | | | | | |
|------------------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| Neanthes succinea | | 500 | 318 | 500 | | 439.4 | 104.97 | 318 | 500 | 94.3 | |
| Hypereteone heteropoda | | 136 | 273 | | | 136.4 | 136.36 | 0 | 273 | 95.9 | |
| Ameroculodes species complex | | 227 | 91 | | | 106.1 | 114.39 | 0 | 227 | 97.1 | |
| Heteromastus filiformis | | 136 | | 182 | | 106.1 | 94.62 | 0 | 182 | 98.3 | |
| Marenzelleria viridis | | 136 | 45 | 45 | | 75.8 | 52.49 | 45 | 136 | 99.1 | |
| Amphiporus bioculatus | | 45 | | | | 15.2 | 26.24 | 0 | 45 | 99.3 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 024 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|---------|--------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Apocorophium lacustre (Epi) | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.5 | |
| Bivalvia | | 45 | | 15.2 | 26.24 | 0 | 45 | 99.7 | |
| Cyathura polita | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.8 | |
| Littoridinops tenuipes (Epi) | | 45 | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 11000 | 10000 | 5545 | 8848.5 | 2903.88 | 5545 | 11000 | | |
| Total Abundance w/o Epifauna | 10955 | 9955 | 5545 | 8818.2 | 2878.03 | 5545 | 10955 | | |
| Number of Taxa w/ Epifauna | 12 | 10 | 7 | 9.7 | 2.52 | 7 | 12 | | |
| Number of Taxa w/o Epifauna | 11 | 9 | 7 | 9.0 | 2.00 | 7 | 11 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 0.0682 | 0.1727 | 24.4636 | 8.2348 | 14.0546 | 0.0682 | 24.4636 | 64.1 | |
| Leptocheirus plumulosus | 3.4591 | 3.2682 | 1.8864 | 2.8712 | 0.8582 | 1.8864 | 3.4591 | 86.4 | |
| Neanthes succinea | 0.7591 | 1.1364 | 2.3000 | 1.3985 | 0.8032 | 0.7591 | 2.3000 | 97.3 | |
| Heteromastus filiformis | 0.1909 | | 0.1091 | 0.1000 | 0.0958 | 0.0000 | 0.1909 | 98.0 | |
| Streblospio benedicti | 0.1182 | 0.1045 | 0.0773 | 0.1000 | 0.0208 | 0.0773 | 0.1182 | 98.8 | |
| Bivalvia | | 0.1182 | | 0.0394 | 0.0682 | 0.0000 | 0.1182 | 99.1 | |
| Marenzelleria viridis | 0.0409 | 0.0136 | 0.0364 | 0.0303 | 0.0146 | 0.0136 | 0.0409 | 99.4 | |
| Tubificoides spp. | 0.0227 | 0.0273 | 0.0273 | 0.0258 | 0.0026 | 0.0227 | 0.0273 | 99.6 | |
| Hypereteone heteropoda | 0.0455 | 0.0227 | | 0.0227 | 0.0227 | 0.0000 | 0.0455 | 99.7 | |

| | | | | | | | | | | | |
|-------|------------------------------|--|--------|--------|---------|---------|---------|--------|---------|-------|--|
| | Cyathura polita | | 0.0409 | | | 0.0136 | 0.0236 | 0.0000 | 0.0409 | 99.8 | |
| | Amerocolodes species complex | | 0.0227 | 0.0023 | | 0.0083 | 0.0125 | 0.0000 | 0.0227 | 99.9 | |
| | Apocorophium lacustre (Epi) | | 0.0182 | | | 0.0061 | 0.0105 | 0.0000 | 0.0182 | 100.0 | |
| | Amphiporus bioculatus | | 0.0136 | | | 0.0045 | 0.0079 | 0.0000 | 0.0136 | 100.0 | |
| | Littoridinops tenuipes (Epi) | | | 0.0045 | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| ----- | | | | | | | | | | | |
| | Total Biomass w/ Epifauna | | 4.8000 | 4.8704 | 28.9000 | 12.8568 | 13.8938 | 4.8000 | 28.9000 | | |
| | Total Biomass w/o Epifauna | | 4.7818 | 4.8659 | 28.9000 | 12.8492 | 13.9004 | 4.7818 | 28.9000 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | |
|--------------------------------|--------------------------|--------------------|--|
| ===== | | | |
| Station: 026 | | | |
| Watershed: Upper Western Shore | Habitat: Low Mesohaline | Date: May 10, 1999 | |
| Gear: Wildco Box Corer | Sampled Area: 0.022 sq.m | Time: 8:17 | |
| ===== | | | |

| | | | |
|-------------------------------|-------------------------------|------------------------|--|
| BOTTOM ENVIRONMENT | | | |
| ===== | | | |
| Depth (m): 4.45 | Salinity (ppt): 7.80 | Temperature (C): 23.26 | |
| Dissolved Oxygen (mg/l): 7.20 | Sediment Silt-Clay (%): 93.08 | Total Carbon (%): | |
| ===== | | | |

| | | | |
|-----------------------------------|---------------------------|--|------------------------|
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | |
| ===== | | | |
| B-IBI Score: | Condition: Not Applicable | | # Attributes Scored: 0 |
| | Value | Score | Value Score |
| Shannon-Weiner Index | 2.63 | Pollution Indicative Species Abundance (%) | 4.44 |
| Abundance (#/m2) | 3568 | Pollution Indicative Species Biomass (%) | 0.44 |
| Biomass (g/m2) | 14.13 | Pollution Sensitive Species Abundance (%) | 49.60 |
| Carnivore-Omnivore Abundance (%) | 7.48 | Pollution Sensitive Species Biomass (%) | 91.24 |
| Deep Deposit Feeder Abundance (%) | 4.92 | | |
| ===== | | | |

| | | | |
|-----------------------------------|-------|-------|------------------------------|
| BENTHIC ABUNDANCE (per sq. meter) | | | |
| ===== | | | |
| | Rep 1 | Rep 2 | Mean Std.Dev Min Max Cum % |
| Marenzelleria viridis | 1591 | 1273 | 1431.8 224.99 1273 1591 38.9 |
| Leptocheirus plumulosus | 727 | 773 | 750.0 32.14 727 773 59.3 |
| Ameroculodes species complex | 318 | 500 | 409.1 128.56 318 500 70.4 |
| Rangia cuneata | 227 | 273 | 250.0 32.14 227 273 77.2 |

| | | | | | | | | | | | |
|--|----------------------|--|-----|----|--|-------|--------|----|-----|------|--|
| | Macoma mitchelli | | 273 | 91 | | 181.8 | 128.56 | 91 | 273 | 82.1 | |
| | Tubificoides spp. | | 227 | 91 | | 159.1 | 96.42 | 91 | 227 | 86.4 | |
| | Coelotanypus spp. | | 182 | 45 | | 113.6 | 96.42 | 45 | 182 | 89.5 | |
| | Macoma balthica | | 91 | 45 | | 68.2 | 32.14 | 45 | 91 | 91.4 | |
| | Carinoma tremaphoros | | 45 | 45 | | 45.5 | 0.00 | 45 | 45 | 92.6 | |
| | Edotea triloba (Epi) | | | 91 | | 45.5 | 64.28 | 0 | 91 | 93.8 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 026 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | |
|--|--------|---------|---------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Mean | Std.Dev | Min | Max | Cum % | |
| Gammarus daiberi (Epi) | | 91 | 45.5 | 64.28 | 0 | 91 | 95.1 | |
| Procladius spp. | 91 | | 45.5 | 64.28 | 0 | 91 | 96.3 | |
| Cryptochironomus spp. | | 45 | 22.7 | 32.14 | 0 | 45 | 96.9 | |
| Cyathura polita | 45 | | 22.7 | 32.14 | 0 | 45 | 97.5 | |
| Heteromastus filiformis | 45 | | 22.7 | 32.14 | 0 | 45 | 98.1 | |
| Neanthes succinea | | 45 | 22.7 | 32.14 | 0 | 45 | 98.8 | |
| Streblospio benedicti | | 45 | 22.7 | 32.14 | 0 | 45 | 99.4 | |
| Turbellaria (Epi) | | 45 | 22.7 | 32.14 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 3864 | 3500 | 3681.8 | 257.13 | 3500 | 3864 | | |
| Total Abundance w/o Epifauna | 3864 | 3273 | 3568.2 | 417.84 | 3273 | 3864 | | |
| Number of Taxa w/ Epifauna | 12 | 15 | 13.5 | 2.12 | 12 | 15 | | |
| Number of Taxa w/o Epifauna | 12 | 12 | 12.0 | 0.00 | 12 | 12 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | |
| | Rep 1 | Rep 2 | Mean | Std.Dev | Min | Max | Cum % | |
| Rangia cuneata | 6.2227 | 18.4773 | 12.3500 | 8.6653 | 6.2227 | 18.4773 | 87.2 | |
| Marenzelleria viridis | 0.9091 | 0.7909 | 0.8500 | 0.0836 | 0.7909 | 0.9091 | 93.2 | |
| Leptocheirus plumulosus | 0.3409 | 0.4045 | 0.3727 | 0.0450 | 0.3409 | 0.4045 | 95.8 | |
| Macoma mitchelli | 0.4909 | 0.0091 | 0.2500 | 0.3407 | 0.0091 | 0.4909 | 97.6 | |
| Amerocolodes species complex | 0.2545 | 0.0545 | 0.1545 | 0.1414 | 0.0545 | 0.2545 | 98.7 | |

| | | | | | | | | |
|----------------------|--------|--------|--------|--------|--------|--------|------|--|
| Carinoma tremaphoros | 0.0409 | 0.1091 | 0.0750 | 0.0482 | 0.0409 | 0.1091 | 99.2 | |
| Coelotanypus spp. | 0.0636 | 0.0136 | 0.0386 | 0.0354 | 0.0136 | 0.0636 | 99.5 | |
| Edotea triloba (Epi) | | 0.0364 | 0.0182 | 0.0257 | 0.0000 | 0.0364 | 99.6 | |
| Gammarus spp. (Epi) | | 0.0273 | 0.0136 | 0.0193 | 0.0000 | 0.0273 | 99.7 | |
| Cyathura polita | 0.0227 | | 0.0114 | 0.0161 | 0.0000 | 0.0227 | 99.8 | |
| Macoma balthica | 0.0045 | 0.0091 | 0.0068 | 0.0032 | 0.0045 | 0.0091 | 99.8 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 026 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | |
|--|--------|---------|---------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Mean | Std.Dev | Min | Max | Cum % | |
| Heteromastus filiformis | 0.0091 | | 0.0045 | 0.0064 | 0.0000 | 0.0091 | 99.9 | |
| Neanthes succinea | | 0.0091 | 0.0045 | 0.0064 | 0.0000 | 0.0091 | 99.9 | |
| Streblospio benedicti | | 0.0091 | 0.0045 | 0.0064 | 0.0000 | 0.0091 | 99.9 | |
| Tubificoides spp. | 0.0045 | 0.0045 | 0.0045 | 0.0000 | 0.0045 | 0.0045 | 100.0 | |
| Turbellaria (Epi) | | 0.0045 | 0.0023 | 0.0032 | 0.0000 | 0.0045 | 100.0 | |
| Chironomidae larvae | 0.0023 | 0.0023 | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 8.3659 | 19.9613 | 14.1636 | 8.1992 | 8.3659 | 19.9613 | | |
| Total Biomass w/o Epifauna | 8.3659 | 19.8932 | 14.1295 | 8.1510 | 8.3659 | 19.8932 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

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=====
|                               Station: 043                               |
| Watershed: Potomac River      Habitat: Low Mesohaline      Date: May 12, 1999      |
| Gear: Modified Box Corer     Sampled Area: 0.025 sq.m      Time: 13:31            |
=====

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=====
|                               BOTTOM ENVIRONMENT                               |
=====

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| Depth (m): 2.43              Salinity (ppt): 7.80              Temperature (C): 27.24  |
| Dissolved Oxygen (mg/l): 5.16  Sediment Silt-Clay (%): 3.23      Total Carbon (%): 0.18  |
=====

```

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=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
=====

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| B-IBI Score:                Condition: Not Applicable                # Attributes Scored: 0  |
|                               Value   Score                               Value   Score |
| Shannon-Weiner Index        1.60                Pollution Indicative Species Abundance (%)  0.19  |
| Abundance (#/m2)            27800                Pollution Indicative Species Biomass (%)    0.01  |
| Biomass (g/m2)              94.84                Pollution Sensitive Species Abundance (%)   40.02  |
| Carnivore-Omnivore Abundance (%)  1.13                Pollution Sensitive Species Biomass (%)    96.25  |
| Deep Deposit Feeder Abundance (%)  0.60                |
=====

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=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====

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|                               | Rep 1   Rep 2   Rep 3 | Mean  Std.Dev  Min   Max   Cum % |
-----
| Leptocheirus plumulosus     | 16880  12800  18480 | 16053.3  2928.85  12800  18480  52.9 |
| Marenzelleria viridis       | 7680   8120   7360 | 7720.0   381.58   7360   8120   78.3 |
| Rangia cuneata              | 2760   1960   3880 | 2866.7   964.43   1960   3880   87.8 |
| Apocorophium lacustre (Epi) | 2360   1720   2160 | 2080.0   327.41   1720   2360   94.6 |

```


| | | | | | | | | | | | | |
|--|------------------------------|-------|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| | Macoma balthica | | 560 | 240 | 480 | | 426.7 | 166.53 | 240 | 560 | 96.0 | |
| | Littoridinops tenuipes | (Epi) | 640 | | 400 | | 346.7 | 323.32 | 0 | 640 | 97.2 | |
| | Macoma mitchelli | | 200 | 160 | 160 | | 173.3 | 23.09 | 160 | 200 | 97.8 | |
| | Heteromastus filiformis | | 200 | 200 | 40 | | 146.7 | 92.38 | 40 | 200 | 98.2 | |
| | Neanthes succinea | | 160 | 80 | 160 | | 133.3 | 46.19 | 80 | 160 | 98.7 | |
| | Ameroculodes species complex | | 120 | 40 | 40 | | 66.7 | 46.19 | 40 | 120 | 98.9 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 043 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|-------|-------|-------|---------|---------|-------|-------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Gammarus daiberi (Epi) | 120 | 40 | 40 | 66.7 | 46.19 | 40 | 120 | 99.1 | |
| Edwardsia elegans | | | 160 | 53.3 | 92.38 | 0 | 160 | 99.3 | |
| Chiridotea almyra | | 40 | 80 | 40.0 | 40.00 | 0 | 80 | 99.4 | |
| Cyathura polita | 120 | | | 40.0 | 69.28 | 0 | 120 | 99.6 | |
| Hypereteone heteropoda | 40 | 40 | | 26.7 | 23.09 | 0 | 40 | 99.6 | |
| Cryptochironomus spp. | 40 | | | 13.3 | 23.09 | 0 | 40 | 99.7 | |
| Edotea triloba (Epi) | 40 | | | 13.3 | 23.09 | 0 | 40 | 99.7 | |
| Geukensia demissa (Epi) | | | 40 | 13.3 | 23.09 | 0 | 40 | 99.8 | |
| Nemertea | | 40 | | 13.3 | 23.09 | 0 | 40 | 99.8 | |
| Neomysis americana (Epi) | 40 | | | 13.3 | 23.09 | 0 | 40 | 99.9 | |
| Streblospio benedicti | 40 | | | 13.3 | 23.09 | 0 | 40 | 99.9 | |
| Stylochus ellipticus (Epi) | | | 40 | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Tubificoides spp. | 40 | | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 32040 | 25480 | 33520 | 30346.7 | 4279.13 | 25480 | 33520 | | |
| Total Abundance w/o Epifauna | 28840 | 23720 | 30840 | 27800.0 | 3672.17 | 23720 | 30840 | | |
| Number of Taxa w/ Epifauna | 18 | 13 | 15 | 15.3 | 2.52 | 13 | 18 | | |
| Number of Taxa w/o Epifauna | 13 | 11 | 10 | 11.3 | 1.53 | 10 | 13 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |

| | | | | | | | | | |
|-------------------------|----------|---------|----------|---------|---------|---------|----------|------|--|
| Rangia cuneata | 123.7120 | 38.6280 | 104.6880 | 89.0093 | 44.6563 | 38.6280 | 123.7120 | 93.6 | |
| Marenzelleria viridis | 3.0000 | 3.0680 | 2.6400 | 2.9027 | 0.2300 | 2.6400 | 3.0680 | 96.6 | |
| Leptocheirus plumulosus | 0.9960 | 1.0440 | 1.5040 | 1.1813 | 0.2805 | 0.9960 | 1.5040 | 97.9 | |
| Neanthes succinea | 0.5320 | 0.7440 | 0.6400 | 0.6387 | 0.1060 | 0.5320 | 0.7440 | 98.6 | |
| Macoma mitchelli | 0.8280 | 0.7400 | 0.0640 | 0.5440 | 0.4180 | 0.0640 | 0.8280 | 99.1 | |
| Heteromastus filiformis | 0.6680 | 0.4280 | 0.1680 | 0.4213 | 0.2501 | 0.1680 | 0.6680 | 99.6 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 043 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|----------|---------|----------|---------|---------|---------|----------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Apocorophium lacustre (Epi) | 0.1960 | 0.1200 | 0.3160 | 0.2107 | 0.0988 | 0.1200 | 0.3160 | 99.8 | |
| Macoma balthica | 0.1200 | 0.0280 | 0.0400 | 0.0627 | 0.0500 | 0.0280 | 0.1200 | 99.9 | |
| Cyathura polita | 0.1080 | | | 0.0360 | 0.0624 | 0.0000 | 0.1080 | 99.9 | |
| Gammarus spp. (Epi) | 0.0240 | 0.0080 | 0.0120 | 0.0147 | 0.0083 | 0.0080 | 0.0240 | 99.9 | |
| Neomysis americana (Epi) | 0.0440 | | | 0.0147 | 0.0254 | 0.0000 | 0.0440 | 99.9 | |
| Ameroculodes species complex | 0.0240 | 0.0020 | 0.0120 | 0.0127 | 0.0110 | 0.0020 | 0.0240 | 99.9 | |
| Edotea triloba (Epi) | 0.0360 | | | 0.0120 | 0.0208 | 0.0000 | 0.0360 | 99.9 | |
| Littoridinops tenuipes (Epi) | 0.0200 | | 0.0120 | 0.0107 | 0.0101 | 0.0000 | 0.0200 | 100.0 | |
| Edwardsia elegans | | | 0.0320 | 0.0107 | 0.0185 | 0.0000 | 0.0320 | 100.0 | |
| Hypereteone heteropoda | 0.0160 | 0.0120 | | 0.0093 | 0.0083 | 0.0000 | 0.0160 | 100.0 | |
| Chiridotea almyra | | 0.0080 | 0.0120 | 0.0067 | 0.0061 | 0.0000 | 0.0120 | 100.0 | |
| Geukensia demissa (Epi) | | | 0.0120 | 0.0040 | 0.0069 | 0.0000 | 0.0120 | 100.0 | |
| Stylochus ellipticus (Epi) | | | 0.0120 | 0.0040 | 0.0069 | 0.0000 | 0.0120 | 100.0 | |
| Tubificoides spp. | 0.0040 | | | 0.0013 | 0.0023 | 0.0000 | 0.0040 | 100.0 | |
| Streblospio benedicti | 0.0040 | | | 0.0013 | 0.0023 | 0.0000 | 0.0040 | 100.0 | |
| Chironomidae larvae | 0.0020 | | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Nemertea | | 0.0020 | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Total Biomass w/ Epifauna | 130.3340 | 44.8320 | 110.1640 | 95.1100 | 44.6947 | 44.8320 | 130.3340 | | |
| Total Biomass w/o Epifauna | 130.0140 | 44.7040 | 109.8000 | 94.8393 | 44.5793 | 44.7040 | 130.0140 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | |
|--------------------------|--------------------------|--------------------|--|
| ===== | | | |
| Station: 044 | | | |
| Watershed: Potomac River | Habitat: Low Mesohaline | Date: May 12, 1999 | |
| Gear: Wildco Box Corer | Sampled Area: 0.022 sq.m | Time: 8:48 | |
| ===== | | | |

| | | | |
|-------------------------------|-------------------------------|------------------------|--|
| BOTTOM ENVIRONMENT | | | |
| ===== | | | |
| Depth (m): 16.28 | Salinity (ppt): 9.30 | Temperature (C): 27.31 | |
| Dissolved Oxygen (mg/l): 3.38 | Sediment Silt-Clay (%): 87.37 | Total Carbon (%): 2.25 | |
| ===== | | | |

| | | | |
|-----------------------------------|---------------------------|--|------------------------|
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | |
| ===== | | | |
| B-IBI Score: | Condition: Not Applicable | | # Attributes Scored: 0 |
| | Value | Score | Value Score |
| Shannon-Weiner Index | 1.35 | Pollution Indicative Species Abundance (%) | 5.40 |
| Abundance (#/m2) | 18030 | Pollution Indicative Species Biomass (%) | 0.40 |
| Biomass (g/m2) | 25.79 | Pollution Sensitive Species Abundance (%) | 9.70 |
| Carnivore-Omnivore Abundance (%) | 1.84 | Pollution Sensitive Species Biomass (%) | 87.85 |
| Deep Deposit Feeder Abundance (%) | 8.82 | | |
| ===== | | | |

| | | | |
|-----------------------------------|-------|-------|---|
| BENTHIC ABUNDANCE (per sq. meter) | | | |
| ===== | | | |
| | Rep 1 | Rep 2 | Rep 3 Mean Std.Dev Min Max Cum % |
| Leptocheirus plumulosus | 12682 | 13273 | 14455 13469.7 902.63 12682 14455 70.9 |
| Macoma balthica | 1591 | 2227 | 1182 1666.7 526.83 1182 2227 79.7 |
| Tubificoides spp. | 1545 | 1227 | 1818 1530.3 295.75 1227 1818 87.7 |
| Streblospio benedicti | 1091 | 455 | 909 818.2 327.78 455 1091 92.0 |

| | | | | | | | | | |
|--------------------------|--|-----|-----|-----|-------|--------|-----|-----|------|
| Melita nitida (Epi) | | 91 | 91 | 818 | 333.3 | 419.89 | 91 | 818 | 93.8 |
| Neomysis americana (Epi) | | 182 | 227 | 455 | 287.9 | 146.12 | 182 | 455 | 95.3 |
| Gammarus daiberi (Epi) | | 273 | 318 | 91 | 227.3 | 120.26 | 91 | 318 | 96.5 |
| Hypereteone heteropoda | | 45 | 318 | 91 | 151.5 | 146.12 | 45 | 318 | 97.3 |
| Carinoma tremaphoros | | 45 | 91 | 91 | 75.8 | 26.24 | 45 | 91 | 97.7 |
| Marenzelleria viridis | | | 91 | 136 | 75.8 | 69.43 | 0 | 136 | 98.1 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 044 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|---------|---------|---------|---------|---------|---------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Ameroculodes species complex | | 136 | 45 | 60.6 | 69.43 | 0 | 136 | 98.4 | |
| Neanthes succinea | 45 | | 136 | 60.6 | 69.43 | 0 | 136 | 98.7 | |
| Littoridinops tenuipes (Epi) | | | 182 | 60.6 | 104.97 | 0 | 182 | 99.0 | |
| Turbellaria (Epi) | 91 | | 91 | 60.6 | 52.49 | 0 | 91 | 99.4 | |
| Edwardsia elegans | 45 | 91 | | 45.5 | 45.45 | 0 | 91 | 99.6 | |
| Heteromastus filiformis | 91 | 45 | | 45.5 | 45.45 | 0 | 91 | 99.8 | |
| Macoma mitchelli | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.9 | |
| Pectinaria gouldii | | 45 | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 17864 | 18636 | 20500 | 19000.0 | 1355.28 | 17864 | 20500 | | |
| Total Abundance w/o Epifauna | 17227 | 18000 | 18864 | 18030.3 | 818.60 | 17227 | 18864 | | |
| Number of Taxa w/ Epifauna | 14 | 14 | 14 | 14.0 | 0.00 | 14 | 14 | | |
| Number of Taxa w/o Epifauna | 10 | 11 | 9 | 10.0 | 1.00 | 9 | 11 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 11.9273 | 48.1681 | 11.0136 | 23.7030 | 21.1923 | 11.0136 | 48.1681 | 91.0 | |
| Leptocheirus plumulosus | 0.6000 | 1.1636 | 1.5227 | 1.0955 | 0.4651 | 0.6000 | 1.5227 | 95.2 | |
| Neanthes succinea | 0.0318 | | 1.5409 | 0.5242 | 0.8806 | 0.0000 | 1.5409 | 97.2 | |
| Neomysis americana (Epi) | 0.1727 | 0.1364 | 0.2591 | 0.1894 | 0.0630 | 0.1364 | 0.2591 | 97.9 | |
| Macoma mitchelli | 0.4818 | | | 0.1606 | 0.2782 | 0.0000 | 0.4818 | 98.6 | |

| | | | | | | | | | | | |
|-------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|------|--|
| Carinoma tremaphoros | | 0.0864 | 0.0591 | 0.1773 | | 0.1076 | 0.0619 | 0.0591 | 0.1773 | 99.0 | |
| Marenzelleria viridis | | | 0.0545 | 0.1045 | | 0.0530 | 0.0523 | 0.0000 | 0.1045 | 99.2 | |
| Heteromastus filiformis | | 0.1045 | 0.0364 | | | 0.0470 | 0.0531 | 0.0000 | 0.1045 | 99.4 | |
| Streblospio benedicti | | 0.0591 | 0.0136 | 0.0500 | | 0.0409 | 0.0241 | 0.0136 | 0.0591 | 99.5 | |
| Melita nitida (Epi) | | 0.0227 | 0.0091 | 0.0636 | | 0.0318 | 0.0284 | 0.0091 | 0.0636 | 99.6 | |
| Hypereteone heteropoda | | 0.0182 | 0.0545 | 0.0182 | | 0.0303 | 0.0210 | 0.0182 | 0.0545 | 99.8 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 044 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|---------|---------|---------|---------|---------|---------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Tubificoides spp. | 0.0318 | 0.0182 | 0.0273 | 0.0258 | 0.0069 | 0.0182 | 0.0318 | 99.9 | |
| Gammarus spp. (Epi) | 0.0318 | 0.0136 | 0.0091 | 0.0182 | 0.0120 | 0.0091 | 0.0318 | 99.9 | |
| Turbellaria (Epi) | 0.0182 | | 0.0091 | 0.0091 | 0.0091 | 0.0000 | 0.0182 | 100.0 | |
| Littoridinops tenuipes (Epi) | | | 0.0136 | 0.0045 | 0.0079 | 0.0000 | 0.0136 | 100.0 | |
| Edwardsia elegans | 0.0045 | 0.0045 | | 0.0030 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| Ameroculodes species complex | | 0.0023 | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Pectinaria gouldii | | 0.0045 | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| Total Biomass w/ Epifauna | 13.5909 | 49.7386 | 14.8113 | 26.0469 | 20.5266 | 13.5909 | 49.7386 | | |
| Total Biomass w/o Epifauna | 13.3454 | 49.5795 | 14.4568 | 25.7939 | 20.6064 | 13.3454 | 49.5795 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | | | |
|-----------------------------------|--|---------------------------|------------------------------|--|--|------------------------|---------|-------|-------|-------|--|
| ===== | | | | | | | | | | | |
| Station: 047 | | | | | | | | | | | |
| Watershed: Morgantown Discharge | | | Habitat: Low Mesohaline | | | Date: May 12, 1999 | | | | | |
| Gear: Modified Box Corer | | | Sampled Area: 0.025 sq.m | | | Time: | | | | | |
| ===== | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| Depth (m): 1.41 | | | Salinity (ppt): 7.80 | | | Temperature (C): 27.12 | | | | | |
| Dissolved Oxygen (mg/l): 5.70 | | | Sediment Silt-Clay (%): 8.10 | | | Total Carbon (%): 0.30 | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 0 | | | | | |
| | | Value | Score | | | Value | Score | | | | |
| Shannon-Weiner Index | | 1.75 | | Pollution Indicative Species Abundance (%) | | 0.76 | | | | | |
| Abundance (#/m2) | | 35373 | | Pollution Indicative Species Biomass (%) | | 0.01 | | | | | |
| Biomass (g/m2) | | 161.24 | | Pollution Sensitive Species Abundance (%) | | 30.90 | | | | | |
| Carnivore-Omnivore Abundance (%) | | 2.78 | | Pollution Sensitive Species Biomass (%) | | 95.22 | | | | | |
| Deep Deposit Feeder Abundance (%) | | 3.24 | | | | | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | | |
| Leptocheirus plumulosus | | 25920 | 16520 | 23280 | | 21906.7 | 4848.15 | 16520 | 25920 | 60.0 | |
| Marenzelleria viridis | | 8920 | 6520 | 9000 | | 8146.7 | 1409.30 | 6520 | 9000 | 82.3 | |
| Macoma balthica | | 2440 | 1360 | 1800 | | 1866.7 | 543.08 | 1360 | 2440 | 87.4 | |
| Rangia cuneata | | 880 | 280 | 1160 | | 773.3 | 449.59 | 280 | 1160 | 89.5 | |

| | | | | | | | | | | | | |
|-------------------------|-------|--|------|-----|-----|--|-------|--------|-----|------|------|--|
| Apocorophium lacustre | (Epi) | | 560 | 840 | 520 | | 640.0 | 174.36 | 520 | 840 | 91.2 | |
| Heteromastus filiformis | | | 520 | 520 | 800 | | 613.3 | 161.66 | 520 | 800 | 92.9 | |
| Neanthes succinea | | | 800 | 400 | 520 | | 573.3 | 205.26 | 400 | 800 | 94.5 | |
| Tubificoides spp. | | | 1080 | 200 | 400 | | 560.0 | 461.30 | 200 | 1080 | 96.0 | |
| Gammarus daiberi | (Epi) | | 280 | 160 | 320 | | 253.3 | 83.27 | 160 | 320 | 96.7 | |
| Macoma mitchelli | | | 320 | 200 | 200 | | 240.0 | 69.28 | 200 | 320 | 97.4 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 047 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|-------|-------|-------|---------|---------|-------|-------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Streblospio benedicti | 440 | 120 | 40 | 200.0 | 211.66 | 40 | 440 | 97.9 | |
| Balanus improvisus (Epi) | 360 | 40 | | 133.3 | 197.32 | 0 | 360 | 98.3 | |
| Carinoma tremaphoros | 120 | 160 | 40 | 106.7 | 61.10 | 40 | 160 | 98.6 | |
| Cyathura polita | 40 | 200 | 80 | 106.7 | 83.27 | 40 | 200 | 98.9 | |
| Littoridinops tenuipes (Epi) | 200 | 40 | 40 | 93.3 | 92.38 | 40 | 200 | 99.1 | |
| Hypereteone heteropoda | 40 | 40 | 160 | 80.0 | 69.28 | 40 | 160 | 99.3 | |
| Edwardsia elegans | | 80 | 120 | 66.7 | 61.10 | 0 | 120 | 99.5 | |
| Ameroculodes species complex | 80 | 40 | 40 | 53.3 | 23.09 | 40 | 80 | 99.7 | |
| Polydora cornuta | 80 | 40 | | 40.0 | 40.00 | 0 | 80 | 99.8 | |
| Laeonereis culveri | 40 | | 40 | 26.7 | 23.09 | 0 | 40 | 99.9 | |
| Melita nitida (Epi) | | | 80 | 26.7 | 46.19 | 0 | 80 | 99.9 | |
| Hargeria rapax | | | 40 | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Turbellaria (Epi) | 40 | | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 43160 | 27760 | 38680 | 36533.3 | 7921.25 | 27760 | 43160 | | |
| Total Abundance w/o Epifauna | 41720 | 26680 | 37720 | 35373.3 | 7789.77 | 26680 | 41720 | | |
| Number of Taxa w/ Epifauna | 20 | 19 | 20 | 19.7 | 0.58 | 19 | 20 | | |
| Number of Taxa w/o Epifauna | 15 | 15 | 16 | 15.3 | 0.58 | 15 | 16 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |

| | | | | | | | | | |
|-------------------------|----------|---------|---------|----------|---------|---------|----------|------|--|
| Rangia cuneata | 262.9760 | 91.8240 | 97.9480 | 150.9160 | 97.0951 | 91.8240 | 262.9760 | 93.5 | |
| Marenzelleria viridis | 3.3880 | 2.0960 | 2.1880 | 2.5573 | 0.7208 | 2.0960 | 3.3880 | 95.1 | |
| Neanthes succinea | 2.8560 | 2.1680 | 1.1120 | 2.0453 | 0.8784 | 1.1120 | 2.8560 | 96.4 | |
| Heteromastus filiformis | 1.3600 | 1.7800 | 2.2600 | 1.8000 | 0.4503 | 1.3600 | 2.2600 | 97.5 | |
| Leptocheirus plumulosus | 2.0520 | 1.2560 | 1.5960 | 1.6347 | 0.3994 | 1.2560 | 2.0520 | 98.5 | |
| Macoma balthica | 1.2480 | 0.7840 | 0.5320 | 0.8547 | 0.3632 | 0.5320 | 1.2480 | 99.1 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 047 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|----------|----------|----------|----------|---------|----------|----------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma mitchelli | 1.2800 | 0.5040 | 0.6200 | 0.8013 | 0.4186 | 0.5040 | 1.2800 | 99.6 | |
| Cyathura polita | 0.1520 | 0.6080 | 0.2200 | 0.3267 | 0.2460 | 0.1520 | 0.6080 | 99.8 | |
| Carinoma tremaphoros | 0.1400 | 0.4680 | 0.0400 | 0.2160 | 0.2239 | 0.0400 | 0.4680 | 99.9 | |
| Apocorophium lacustre (Epi) | 0.0400 | 0.1120 | 0.0400 | 0.0640 | 0.0416 | 0.0400 | 0.1120 | 99.9 | |
| Laeonereis culveri | 0.0240 | | 0.0560 | 0.0267 | 0.0281 | 0.0000 | 0.0560 | 100.0 | |
| Hypereteone heteropoda | 0.0320 | 0.0020 | 0.0200 | 0.0180 | 0.0151 | 0.0020 | 0.0320 | 100.0 | |
| Tubificoides spp. | 0.0240 | 0.0020 | 0.0040 | 0.0100 | 0.0122 | 0.0020 | 0.0240 | 100.0 | |
| Edwardsia elegans | | 0.0160 | 0.0120 | 0.0093 | 0.0083 | 0.0000 | 0.0160 | 100.0 | |
| Ameroculodes species complex | 0.0120 | 0.0120 | 0.0020 | 0.0087 | 0.0058 | 0.0020 | 0.0120 | 100.0 | |
| Streblospio benedicti | 0.0160 | 0.0040 | 0.0020 | 0.0073 | 0.0076 | 0.0020 | 0.0160 | 100.0 | |
| Gammarus spp. (Epi) | 0.0080 | 0.0080 | 0.0040 | 0.0067 | 0.0023 | 0.0040 | 0.0080 | 100.0 | |
| Littoridinops tenuipes (Epi) | 0.0120 | 0.0020 | 0.0020 | 0.0053 | 0.0058 | 0.0020 | 0.0120 | 100.0 | |
| Polydora cornuta | 0.0080 | 0.0040 | | 0.0040 | 0.0040 | 0.0000 | 0.0080 | 100.0 | |
| Balanus improvisus (Epi) | 0.0080 | 0.0040 | | 0.0040 | 0.0040 | 0.0000 | 0.0080 | 100.0 | |
| Hargeria rapax | | | 0.0080 | 0.0027 | 0.0046 | 0.0000 | 0.0080 | 100.0 | |
| Turbellaria (Epi) | 0.0080 | | | 0.0027 | 0.0046 | 0.0000 | 0.0080 | 100.0 | |
| Melita nitida (Epi) | | | 0.0020 | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Total Biomass w/ Epifauna | 275.6440 | 101.6540 | 106.6680 | 161.3220 | 99.0375 | 101.6540 | 275.6440 | | |
| Total Biomass w/o Epifauna | 275.5680 | 101.5280 | 106.6200 | 161.2387 | 99.0448 | 101.5280 | 275.5680 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | | | | |
|-----------------------------------|--|---------------------------|-------------------------------|--|-------|------------------------|---------|---------|------|-------|------|--|
| ===== | | | | | | | | | | | | |
| Station: 051 | | | | | | | | | | | | |
| Watershed: Potomac River | | | Habitat: High Mesohaline Sand | | | Date: May 12, 1999 | | | | | | |
| Gear: Modified Box Corer | | | Sampled Area: 0.025 sq.m | | | Time: 14:54 | | | | | | |
| ===== | | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| Depth (m): 2.29 | | | Salinity (ppt): 10.1 | | | Temperature (C): 27.77 | | | | | | |
| Dissolved Oxygen (mg/l): 9.21 | | | Sediment Silt-Clay (%): 1.95 | | | Total Carbon (%): 0.11 | | | | | | |
| ===== | | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 0 | | | | | | |
| | | Value | Score | | Value | Score | | | | | | |
| Shannon-Weiner Index | | 2.12 | | Pollution Indicative Species Abundance (%) | | 3.10 | | | | | | |
| Abundance (#/m2) | | 8213 | | Pollution Indicative Species Biomass (%) | | 4.83 | | | | | | |
| Biomass (g/m2) | | 4.83 | | Pollution Sensitive Species Abundance (%) | | 8.40 | | | | | | |
| Carnivore-Omnivore Abundance (%) | | 11.60 | | Pollution Sensitive Species Biomass (%) | | 1.42 | | | | | | |
| Deep Deposit Feeder Abundance (%) | | 7.81 | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | | Mean | Std.Dev | Min | Max | Cum % | | |
| ----- | | | | | | | | | | | | |
| Macoma mitchelli | | | 4240 | 5160 | 6600 | | 5333.3 | 1189.51 | 4240 | 6600 | 64.2 | |
| Marenzelleria viridis | | | 480 | 400 | 760 | | 546.7 | 189.03 | 400 | 760 | 70.8 | |
| Heteromastus filiformis | | | 520 | 200 | 720 | | 480.0 | 262.30 | 200 | 720 | 76.6 | |
| Micrura leidyi | | | 440 | 240 | 280 | | 320.0 | 105.83 | 240 | 440 | 80.4 | |

| | | | | | | | | | | | |
|------------------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| Amerocolodes species complex | | 360 | 160 | 360 | | 293.3 | 115.47 | 160 | 360 | 83.9 | |
| Edwardsia elegans | | 400 | 120 | 200 | | 240.0 | 144.22 | 120 | 400 | 86.8 | |
| Mulinia lateralis | | 160 | 80 | 320 | | 186.7 | 122.20 | 80 | 320 | 89.1 | |
| Leitoscoloplos spp. | | 200 | 120 | 80 | | 133.3 | 61.10 | 80 | 200 | 90.7 | |
| Laeonereis culveri | | 160 | 160 | 40 | | 120.0 | 69.28 | 40 | 160 | 92.1 | |
| Macoma balthica | | 40 | 200 | 80 | | 106.7 | 83.27 | 40 | 200 | 93.4 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 051 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|-------|-------|-------|--------|---------|------|-------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Haminoea solitaria | 160 | 40 | 40 | 80.0 | 69.28 | 40 | 160 | 94.4 | |
| Streblospio benedicti | 80 | 40 | 120 | 80.0 | 40.00 | 40 | 120 | 95.3 | |
| Amphiporus bioculatus | 80 | 80 | | 53.3 | 46.19 | 0 | 80 | 96.0 | |
| Hirudinea (Epi) | 160 | | | 53.3 | 92.38 | 0 | 160 | 96.6 | |
| Edotea triloba (Epi) | | 40 | 80 | 40.0 | 40.00 | 0 | 80 | 97.1 | |
| Tubificoides spp. | 40 | | 80 | 40.0 | 40.00 | 0 | 80 | 97.6 | |
| Acteon punctostriatus | | 40 | 40 | 26.7 | 23.09 | 0 | 40 | 97.9 | |
| Cyathura polita | 40 | 40 | | 26.7 | 23.09 | 0 | 40 | 98.2 | |
| Hypereteone foliosa | 40 | | 40 | 26.7 | 23.09 | 0 | 40 | 98.6 | |
| Lepidactylus dytiscus | 80 | | | 26.7 | 46.19 | 0 | 80 | 98.9 | |
| Polydora cornuta | | 80 | | 26.7 | 46.19 | 0 | 80 | 99.2 | |
| Carinoma tremaphoros | | | 40 | 13.3 | 23.09 | 0 | 40 | 99.4 | |
| Cyclaspis varians | | | 40 | 13.3 | 23.09 | 0 | 40 | 99.5 | |
| Glycinde solitaria | | | 40 | 13.3 | 23.09 | 0 | 40 | 99.7 | |
| Hargeria rapax | | | 40 | 13.3 | 23.09 | 0 | 40 | 99.8 | |
| Leptocheirus plumulosus | | 40 | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 7680 | 7240 | 10000 | 8306.7 | 1482.88 | 7240 | 10000 | | |
| Total Abundance w/o Epifauna | 7520 | 7200 | 9920 | 8213.3 | 1486.65 | 7200 | 9920 | | |
| Number of Taxa w/ Epifauna | 18 | 18 | 20 | 18.7 | 1.15 | 18 | 20 | | |
| Number of Taxa w/o Epifauna | 17 | 17 | 19 | 17.7 | 1.15 | 17 | 19 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |

| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
|--------------------|--------|--------|--------|--------|---------|--------|--------|-------|
| Macoma mitchelli | 4.0920 | 2.9040 | 3.1840 | 3.3933 | 0.6210 | 2.9040 | 4.0920 | 69.6 |
| Laeonereis culveri | 0.6080 | 0.7640 | 0.0120 | 0.4613 | 0.3969 | 0.0120 | 0.7640 | 79.1 |
| Micrura leidyi | 0.2360 | 0.1320 | 0.5040 | 0.2907 | 0.1919 | 0.1320 | 0.5040 | 85.1 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 051 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Mulinia lateralis | 0.2200 | 0.0800 | 0.4000 | 0.2333 | 0.1604 | 0.0800 | 0.4000 | 89.9 | |
| Heteromastus filiformis | 0.0760 | 0.0400 | 0.3920 | 0.1693 | 0.1937 | 0.0400 | 0.3920 | 93.3 | |
| Hypereteone foliosa | 0.1480 | | 0.1080 | 0.0853 | 0.0766 | 0.0000 | 0.1480 | 95.1 | |
| Haminoea solitaria | 0.1000 | 0.0200 | 0.0160 | 0.0453 | 0.0474 | 0.0160 | 0.1000 | 96.0 | |
| Marenzelleria viridis | 0.0020 | 0.0240 | 0.0840 | 0.0367 | 0.0424 | 0.0020 | 0.0840 | 96.8 | |
| Hirudinea (Epi) | 0.0840 | | | 0.0280 | 0.0485 | 0.0000 | 0.0840 | 97.3 | |
| Cyathura polita | 0.0640 | 0.0120 | | 0.0253 | 0.0340 | 0.0000 | 0.0640 | 97.9 | |
| Leitoscoloplos spp. | 0.0400 | 0.0240 | 0.0020 | 0.0220 | 0.0191 | 0.0020 | 0.0400 | 98.3 | |
| Ameroculodes species complex | 0.0200 | 0.0400 | 0.0020 | 0.0207 | 0.0190 | 0.0020 | 0.0400 | 98.7 | |
| Edotea triloba (Epi) | | 0.0280 | 0.0160 | 0.0147 | 0.0140 | 0.0000 | 0.0280 | 99.0 | |
| Edwardsia elegans | 0.0120 | 0.0040 | 0.0240 | 0.0133 | 0.0101 | 0.0040 | 0.0240 | 99.3 | |
| Acteon punctostriatus | | 0.0320 | 0.0020 | 0.0113 | 0.0179 | 0.0000 | 0.0320 | 99.5 | |
| Amphiporus bioculatus | 0.0020 | 0.0160 | | 0.0060 | 0.0087 | 0.0000 | 0.0160 | 99.7 | |
| Macoma balthica | 0.0020 | 0.0080 | 0.0080 | 0.0060 | 0.0035 | 0.0020 | 0.0080 | 99.8 | |
| Streblospio benedicti | 0.0020 | 0.0040 | 0.0040 | 0.0033 | 0.0012 | 0.0020 | 0.0040 | 99.9 | |
| Carinoma tremaphoros | | | 0.0040 | 0.0013 | 0.0023 | 0.0000 | 0.0040 | 99.9 | |
| Tubificoides spp. | 0.0020 | | 0.0020 | 0.0013 | 0.0012 | 0.0000 | 0.0020 | 99.9 | |
| Cyclaspis varians | | | 0.0020 | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 99.9 | |
| Glycinde solitaria | | | 0.0020 | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 99.9 | |
| Hargeria rapax | | | 0.0020 | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Lepidactylus dytiscus | 0.0020 | | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Leptocheirus plumulosus | | 0.0020 | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Polydora cornuta | | 0.0020 | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |

| | | | | | | | | | | | |
|-------|----------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|--|
| ----- | | | | | | | | | | | |
| | Total Biomass w/ Epifauna | | 5.7120 | 4.1360 | 4.7700 | | 4.8727 | 0.7930 | 4.1360 | 5.7120 | |
| | Total Biomass w/o Epifauna | | 5.6280 | 4.1080 | 4.7540 | | 4.8300 | 0.7628 | 4.1080 | 5.6280 | |
| ===== | | | | | | | | | | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | | |
|-----------------------------------|-------------------------|--|-------------------------------|-------|--|------------------------|---------|-------|------|-------|
| ===== | | | | | | | | | | |
| Station: 052 | | | | | | | | | | |
| Watershed: Potomac River | | | Habitat: High Mesohaline Mud | | | Date: May 12, 1999 | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 15:15 | | | | |
| ===== | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | |
| ===== | | | | | | | | | | |
| Depth (m): 11.15 | | | Salinity (ppt): 13.70 | | | Temperature (C): 26.30 | | | | |
| Dissolved Oxygen (mg/l): 0.46 | | | Sediment Silt-Clay (%): 94.90 | | | Total Carbon (%): 2.80 | | | | |
| ===== | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | |
| ===== | | | | | | | | | | |
| B-IBI Score: | | | Condition: Not Applicable | | | # Attributes Scored: 0 | | | | |
| | Value | | Score | | | Value | | Score | | |
| Shannon-Weiner Index | | | 1.77 | | Pollution Indicative Species Abundance (%) | | | 43.21 | | |
| Abundance (#/m2) | | | 1955 | | Pollution Indicative Species Biomass (%) | | | 16.35 | | |
| Biomass (g/m2) | | | 1.16 | | Pollution Sensitive Species Abundance (%) | | | 41.81 | | |
| Carnivore-Omnivore Abundance (%) | | | 4.73 | | Pollution Sensitive Species Biomass (%) | | | 54.49 | | |
| Deep Deposit Feeder Abundance (%) | | | 1.26 | | | | | | | |
| ===== | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | |
| ===== | | | | | | | | | | |
| | | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| | Macoma balthica | | 864 | 500 | 1091 | 818.2 | 298.07 | 500 | 1091 | 40.9 |
| | Streblospio benedicti | | 682 | 682 | 1000 | 787.9 | 183.70 | 682 | 1000 | 80.3 |
| | Polydora cornuta | | 91 | 136 | 182 | 136.4 | 45.45 | 91 | 182 | 87.1 |
| | Leptocheirus plumulosus | | 182 | | | 60.6 | 104.97 | 0 | 182 | 90.2 |

| | | | | | | | | | | |
|------------------------------|--|-----|----|--|------|-------|---|-----|------|--|
| Micrura leidy | | 136 | | | 45.5 | 78.73 | 0 | 136 | 92.4 | |
| Hypereteone heteropoda | | 45 | 45 | | 30.3 | 26.24 | 0 | 45 | 93.9 | |
| Mysidae (Epi) | | | 91 | | 30.3 | 52.49 | 0 | 91 | 95.5 | |
| Tubificoides spp. | | | 91 | | 30.3 | 52.49 | 0 | 91 | 97.0 | |
| Ameroculodes species complex | | 45 | | | 15.2 | 26.24 | 0 | 45 | 97.7 | |
| Glycinde solitaria | | 45 | | | 15.2 | 26.24 | 0 | 45 | 98.5 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 052 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma mitchelli | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.2 | |
| Turbellaria (Epi) | | | 45 | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 2091 | 1455 | 2455 | 2000.0 | 506.16 | 1455 | 2455 | | |
| Total Abundance w/o Epifauna | 2091 | 1364 | 2409 | 1954.5 | 535.90 | 1364 | 2409 | | |
| Number of Taxa w/ Epifauna | 8 | 5 | 6 | 6.3 | 1.53 | 5 | 8 | | |
| Number of Taxa w/o Epifauna | 8 | 4 | 5 | 5.7 | 2.08 | 4 | 8 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 1.9091 | 0.2318 | 0.1045 | 0.7485 | 1.0071 | 0.1045 | 1.9091 | 64.1 | |
| Macoma mitchelli | | | 0.7818 | 0.2606 | 0.4514 | 0.0000 | 0.7818 | 86.4 | |
| Streblospio benedicti | 0.0727 | 0.0818 | 0.0864 | 0.0803 | 0.0069 | 0.0727 | 0.0864 | 93.3 | |
| Hypereteone heteropoda | 0.0318 | 0.0500 | | 0.0273 | 0.0253 | 0.0000 | 0.0500 | 95.7 | |
| Micrura leidyi | 0.0727 | | | 0.0242 | 0.0420 | 0.0000 | 0.0727 | 97.7 | |
| Polydora cornuta | 0.0023 | 0.0091 | 0.0091 | 0.0068 | 0.0039 | 0.0023 | 0.0091 | 98.3 | |
| Glycinde solitaria | 0.0136 | | | 0.0045 | 0.0079 | 0.0000 | 0.0136 | 98.7 | |
| Ameroculodes species complex | 0.0136 | | | 0.0045 | 0.0079 | 0.0000 | 0.0136 | 99.1 | |
| Turbellaria (Epi) | | | 0.0136 | 0.0045 | 0.0079 | 0.0000 | 0.0136 | 99.5 | |
| Mysidae (Epi) | | 0.0091 | | 0.0030 | 0.0052 | 0.0000 | 0.0091 | 99.7 | |
| Leptocheirus plumulosus | 0.0045 | | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 99.9 | |

| | | | | | | | | | | | |
|----------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|-------|--|
| Tubificoides spp. | | | | 0.0045 | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| ----- | | | | | | | | | | | |
| Total Biomass w/ Epifauna | | 2.1205 | 0.3818 | 1.0000 | | 1.1674 | 0.8813 | 0.3818 | 2.1205 | | |
| Total Biomass w/o Epifauna | | 2.1205 | 0.3727 | 0.9864 | | 1.1598 | 0.8867 | 0.3727 | 2.1205 | | |

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* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

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=====
|                               Station: 062                               |
| Watershed: Lower Eastern Shore      Habitat: Low Mesohaline      Date: May 13, 1999      |
| Gear: Petite Ponar                 Sampled Area: 0.025 sq.m      Time: 12:11            |
=====

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=====
|                               BOTTOM ENVIRONMENT                               |
=====

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```

| Depth (m): 9.32                    Salinity (ppt): 8.3                    Temperature (C): 26.82    |
| Dissolved Oxygen (mg/l): 5.37      Sediment Silt-Clay (%): 79.68          Total Carbon (%): 4.22    |
=====

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=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
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| B-IBI Score:                       Condition: Not Applicable          # Attributes Scored: 0    |
| Value   Score                       Value   Score |
| Shannon-Weiner Index                2.28           Pollution Indicative Species Abundance (%)  0.00    |
| Abundance (#/m2)                    5493           Pollution Indicative Species Biomass (%)    0.00    |
| Biomass (g/m2)                      1.60           Pollution Sensitive Species Abundance (%)  34.25   |
| Carnivore-Omnivore Abundance (%)    10.35          Pollution Sensitive Species Biomass (%)    74.83   |
| Deep Deposit Feeder Abundance (%)   38.13
=====

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=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====

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```

|                               | Rep 1   Rep 2   Rep 3 | Mean  Std.Dev  Min   Max   Cum % |
-----
| Tubificoides spp.           | 2160   1960   2000 | 2040.0 105.83  1960  2160  33.6 |
| Macoma balthica             | 1800   1520   1840 | 1720.0 174.36  1520  1840  62.0 |
| Leptocheirus plumulosus     | 440    200    1080 | 573.3  454.90  200   1080  71.4 |
| Gammarus daiberi (Epi)      | 320    320    520  | 386.7  115.47  320   520   77.8 |

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| | | | | | | | | | | | |
|------------------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| Chiridotea almyra | | 360 | 80 | 680 | | 373.3 | 300.22 | 80 | 680 | 84.0 | |
| Ameroculodes species complex | | 320 | 360 | 400 | | 360.0 | 40.00 | 320 | 400 | 89.9 | |
| Carinoma tremaphoros | | 200 | 120 | 160 | | 160.0 | 40.00 | 120 | 200 | 92.5 | |
| Marenzelleria viridis | | 200 | 40 | 80 | | 106.7 | 83.27 | 40 | 200 | 94.3 | |
| Macoma mitchelli | | 40 | 200 | | | 80.0 | 105.83 | 0 | 200 | 95.6 | |
| Neomysis americana (Epi) | | 40 | 80 | 120 | | 80.0 | 40.00 | 40 | 120 | 96.9 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 062 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Littoridinops tenuipes (Epi) | 200 | | | 66.7 | 115.47 | 0 | 200 | 98.0 | |
| Cyathura polita | | 120 | | 40.0 | 69.28 | 0 | 120 | 98.7 | |
| Heteromastus filiformis | 80 | | | 26.7 | 46.19 | 0 | 80 | 99.1 | |
| Melita nitida (Epi) | | | 80 | 26.7 | 46.19 | 0 | 80 | 99.6 | |
| Chaoborus spp. | 40 | | | 13.3 | 23.09 | 0 | 40 | 99.8 | |
| Mytilidae (Epi) | | 40 | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 6200 | 5040 | 6960 | 6066.7 | 966.92 | 5040 | 6960 | | |
| Total Abundance w/o Epifauna | 5640 | 4600 | 6240 | 5493.3 | 829.78 | 4600 | 6240 | | |
| Number of Taxa w/ Epifauna | 13 | 12 | 10 | 11.7 | 1.53 | 10 | 13 | | |
| Number of Taxa w/o Epifauna | 10 | 9 | 7 | 8.7 | 1.53 | 7 | 10 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 1.3160 | 0.9400 | 1.0440 | 1.1000 | 0.1942 | 0.9400 | 1.3160 | 65.2 | |
| Macoma mitchelli | 0.1200 | 0.5440 | | 0.2213 | 0.2858 | 0.0000 | 0.5440 | 78.3 | |
| Marenzelleria viridis | 0.1200 | 0.0240 | 0.0640 | 0.0693 | 0.0482 | 0.0240 | 0.1200 | 82.4 | |
| Gammarus spp. (Epi) | 0.0520 | 0.0320 | 0.1240 | 0.0693 | 0.0484 | 0.0320 | 0.1240 | 86.5 | |
| Leptocheirus plumulosus | 0.0240 | 0.0320 | 0.0840 | 0.0467 | 0.0326 | 0.0240 | 0.0840 | 89.3 | |
| Carinoma tremaphoros | 0.0600 | 0.0240 | 0.0480 | 0.0440 | 0.0183 | 0.0240 | 0.0600 | 91.9 | |
| Amerocolodes species complex | 0.0320 | 0.0400 | 0.0600 | 0.0440 | 0.0144 | 0.0320 | 0.0600 | 94.5 | |

| | | | | | | | | | | | |
|--------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|------|--|
| Tubificoides spp. | | 0.0240 | 0.0320 | 0.0360 | | 0.0307 | 0.0061 | 0.0240 | 0.0360 | 96.3 | |
| Cyathura polita | | | 0.0720 | | | 0.0240 | 0.0416 | 0.0000 | 0.0720 | 97.7 | |
| Chiridotea almyra | | 0.0200 | 0.0020 | 0.0400 | | 0.0207 | 0.0190 | 0.0020 | 0.0400 | 98.9 | |
| Neomysis americana (Epi) | | 0.0120 | 0.0020 | 0.0280 | | 0.0140 | 0.0131 | 0.0020 | 0.0280 | 99.8 | |
| Chaoborus spp. | | 0.0040 | | | | 0.0013 | 0.0023 | 0.0000 | 0.0040 | 99.8 | |
| Heteromastus filiformis | | 0.0020 | | | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 99.9 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 062 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Littoridinops tenuipes (Epi) | 0.0020 | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 99.9 | | |
| Melita nitida (Epi) | | | 0.0020 | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Mytilidae (Epi) | | 0.0020 | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Total Biomass w/ Epifauna | 1.7880 | 1.7460 | 1.5300 | 1.6880 | 0.1384 | 1.5300 | 1.7880 | | |
| Total Biomass w/o Epifauna | 1.7220 | 1.7100 | 1.3760 | 1.6027 | 0.1964 | 1.3760 | 1.7220 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

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=====
|                               Station: 064                               |
| Watershed: Choptank River      Habitat: High Mesohaline Mud      Date: May 13, 1999      |
| Gear: Wildco Box Corer        Sampled Area: 0.022 sq.m      Time: 17:15            |
=====

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=====
|                               BOTTOM ENVIRONMENT                               |
=====

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| Depth (m): 10.48              Salinity (ppt): 10.70              Temperature (C): 22.83  |
| Dissolved Oxygen (mg/l): 7.72  Sediment Silt-Clay (%): 90.28      Total Carbon (%): 2.10  |
=====

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=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
=====

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| B-IBI Score:                  Condition: Not Applicable              # Attributes Scored: 0  |
|                               Value   Score                               Value   Score |
| Shannon-Weiner Index         1.56                Pollution Indicative Species Abundance (%)  8.90  |
| Abundance (#/m2)             12303              Pollution Indicative Species Biomass (%)    14.83 |
| Biomass (g/m2)               8.00                Pollution Sensitive Species Abundance (%)   9.61  |
| Carnivore-Omnivore Abundance (%) 2.78              Pollution Sensitive Species Biomass (%)    70.35 |
| Deep Deposit Feeder Abundance (%) 6.96                |
=====

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=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====

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```

|                               | Rep 1   Rep 2   Rep 3 | Mean  Std.Dev  Min   Max   Cum % |
-----
| Leptocheirus plumulosus     | 8273   9773   9045 | 9030.3 750.11  8273  9773  72.9 |
| Macoma balthica             | 955    818    1364 | 1045.5 283.86  818   1364  81.4 |
| Tubificoides spp.          | 500    273    1091 | 621.2  422.34  273   1091  86.4 |
| Mulinia lateralis           | 318    545    818  | 560.6  250.34  318   818   90.9 |

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| | | | | | | | | | | | | |
|--|--------------------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| | Streblospio benedicti | | 273 | 455 | 273 | | 333.3 | 104.97 | 273 | 455 | 93.6 | |
| | Heteromastus filiformis | | 273 | 182 | 45 | | 166.7 | 114.39 | 45 | 273 | 95.0 | |
| | Hypereteone heteropoda | | 182 | 91 | 136 | | 136.4 | 45.45 | 91 | 182 | 96.1 | |
| | Ameroculodes species complex | | 136 | 91 | 45 | | 90.9 | 45.45 | 45 | 136 | 96.8 | |
| | Glycinde solitaria | | 91 | 45 | 91 | | 75.8 | 26.24 | 45 | 91 | 97.4 | |
| | Imm. Tubificid w/o Cap. Chaete | | | 45 | 182 | | 75.8 | 94.62 | 0 | 182 | 98.0 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 064 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|---------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Carinoma tremaphoros | 136 | | | 45.5 | 78.73 | 0 | 136 | 98.4 | |
| Neanthes succinea | 45 | 91 | | 45.5 | 45.45 | 0 | 91 | 98.8 | |
| Neomysis americana (Epi) | 136 | | | 45.5 | 78.73 | 0 | 136 | 99.1 | |
| Cyathura polita | 91 | | | 30.3 | 52.49 | 0 | 91 | 99.4 | |
| Marenzelleria viridis | 91 | | | 30.3 | 52.49 | 0 | 91 | 99.6 | |
| Crangon septemspinosa (Epi) | | 45 | | 15.2 | 26.24 | 0 | 45 | 99.8 | |
| Macoma mitchelli | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.9 | |
| Mysidae (Epi) | | | 45 | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 11545 | 12455 | 13136 | 12378.8 | 798.15 | 11545 | 13136 | | |
| Total Abundance w/o Epifauna | 11409 | 12409 | 13091 | 12303.0 | 845.91 | 11409 | 13091 | | |
| Number of Taxa w/ Epifauna | 15 | 12 | 11 | 12.7 | 2.08 | 11 | 15 | | |
| Number of Taxa w/o Epifauna | 14 | 11 | 10 | 11.7 | 2.08 | 10 | 14 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 5.7636 | 2.5545 | 8.2500 | 5.5227 | 2.8554 | 2.5545 | 8.2500 | 68.5 | |
| Mulinia lateralis | 0.4909 | 1.0227 | 1.6864 | 1.0667 | 0.5989 | 0.4909 | 1.6864 | 81.8 | |
| Leptocheirus plumulosus | 0.8364 | 0.8591 | 0.4000 | 0.6985 | 0.2587 | 0.4000 | 0.8591 | 90.4 | |
| Cyathura polita | 0.5182 | | | 0.1727 | 0.2992 | 0.0000 | 0.5182 | 92.6 | |
| Neanthes succinea | 0.2545 | 0.2409 | | 0.1652 | 0.1432 | 0.0000 | 0.2545 | 94.6 | |

| | | | | | | | | | | | | |
|--|-------------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|------|--|
| | Marenzelleria viridis | | 0.3636 | | | 0.1212 | 0.2099 | 0.0000 | 0.3636 | 96.1 | | |
| | Macoma mitchelli | | 0.1909 | | | 0.0636 | 0.1102 | 0.0000 | 0.1909 | 96.9 | | |
| | Glycinde solitaria | | 0.0500 | 0.1364 | 0.0023 | | 0.0629 | 0.0680 | 0.0023 | 0.1364 | 97.7 | |
| | Crangon septemspinosa | (Epi) | | 0.1636 | | | 0.0545 | 0.0945 | 0.0000 | 0.1636 | 98.4 | |
| | Carinoma tremaphoros | | 0.1182 | | | 0.0394 | 0.0682 | 0.0000 | 0.1182 | 98.9 | | |
| | Heteromastus filiformis | | 0.0909 | 0.0091 | 0.0023 | | 0.0341 | 0.0493 | 0.0023 | 0.0909 | 99.3 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 064 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|---------|--------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Hypereteone heteropoda | 0.0318 | 0.0364 | 0.0136 | 0.0273 | 0.0120 | 0.0136 | 0.0364 | 99.6 | |
| Streblospio benedicti | 0.0023 | 0.0227 | 0.0091 | 0.0114 | 0.0104 | 0.0023 | 0.0227 | 99.8 | |
| Ameroculodes species complex | 0.0045 | 0.0182 | 0.0023 | 0.0083 | 0.0086 | 0.0023 | 0.0182 | 99.9 | |
| Tubificoides spp. | 0.0023 | 0.0182 | 0.0045 | 0.0083 | 0.0086 | 0.0023 | 0.0182 | 100.0 | |
| Oligochaeta | | 0.0023 | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Mysidae (Epi) | | | 0.0023 | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Neomysis americana (Epi) | 0.0023 | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 8.7204 | 5.0841 | 10.3750 | 8.0598 | 2.7066 | 5.0841 | 10.3750 | | |
| Total Biomass w/o Epifauna | 8.7182 | 4.9204 | 10.3727 | 8.0038 | 2.7955 | 4.9204 | 10.3727 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| ===== | | | | | | | | | | | |
|-----------------------------------|--|---------------------------|-------------------------------|--|--|------------------------|---------|------|------|-------|--|
| Station: 068 | | | | | | | | | | | |
| Watershed: Upper Eastern Shore | | | Habitat: Low Mesohaline | | | Date: May 14, 1999 | | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 9:09 | | | | | |
| ===== | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| Depth (m): 2.68 | | | Salinity (ppt): 9.10 | | | Temperature (C): 26.99 | | | | | |
| Dissolved Oxygen (mg/l): 4.98 | | | Sediment Silt-Clay (%): 89.39 | | | Total Carbon (%): 2.68 | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 0 | | | | | |
| | | Value | Score | | | Value | Score | | | | |
| Shannon-Weiner Index | | 1.53 | | Pollution Indicative Species Abundance (%) | | 3.43 | | | | | |
| Abundance (#/m2) | | 9894 | | Pollution Indicative Species Biomass (%) | | 0.31 | | | | | |
| Biomass (g/m2) | | 7.92 | | Pollution Sensitive Species Abundance (%) | | 8.20 | | | | | |
| Carnivore-Omnivore Abundance (%) | | 6.76 | | Pollution Sensitive Species Biomass (%) | | 85.12 | | | | | |
| Deep Deposit Feeder Abundance (%) | | 9.91 | | | | | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | | |
| Leptocheirus plumulosus | | 7864 | 8773 | 5682 | | 7439.4 | 1588.52 | 5682 | 8773 | 67.3 | |
| Littoridinops tenuipes (Epi) | | 909 | 1682 | 227 | | 939.4 | 727.75 | 227 | 1682 | 75.8 | |
| Tubificoides spp. | | 1045 | 45 | 1273 | | 787.9 | 652.92 | 45 | 1273 | 82.9 | |
| Macoma balthica | | 227 | 136 | 409 | | 257.6 | 138.87 | 136 | 409 | 85.2 | |

| | | | | | | | | | | | | |
|--|-----------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| | Marenzelleria viridis | | 136 | 318 | 136 | | 197.0 | 104.97 | 136 | 318 | 87.0 | |
| | Edwardsia elegans | | 182 | 364 | | | 181.8 | 181.82 | 0 | 364 | 88.6 | |
| | Rangia cuneata | | 182 | 182 | 182 | | 181.8 | 0.00 | 182 | 182 | 90.3 | |
| | Streblospio benedicti | | 136 | 273 | 91 | | 166.7 | 94.62 | 91 | 273 | 91.8 | |
| | Cyathura polita | | 227 | | 227 | | 151.5 | 131.22 | 0 | 227 | 93.2 | |
| | Neanthes succinea | | 182 | 136 | 136 | | 151.5 | 26.24 | 136 | 182 | 94.5 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 068 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|---------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Imm. Tubificid w/o Cap. Chaete | 182 | 227 | | 136.4 | 120.26 | 0 | 227 | 95.8 | |
| Melita nitida (Epi) | 45 | 273 | | 106.1 | 146.12 | 0 | 273 | 96.7 | |
| Edotea triloba (Epi) | 45 | 136 | 91 | 90.9 | 45.45 | 45 | 136 | 97.5 | |
| Carinoma tremaphoros | 91 | | 136 | 75.8 | 69.43 | 0 | 136 | 98.2 | |
| Chiridotea almyra | 91 | 91 | | 60.6 | 52.49 | 0 | 91 | 98.8 | |
| Macoma mitchelli | 91 | 45 | | 45.5 | 45.45 | 0 | 91 | 99.2 | |
| Coelotanypus spp. | 45 | | 45 | 30.3 | 26.24 | 0 | 45 | 99.5 | |
| Balanus improvisus (Epi) | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.6 | |
| Gammarus daiberi (Epi) | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.7 | |
| Heteromastus filiformis | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.9 | |
| Hypereteone heteropoda | | | 45 | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 11773 | 12682 | 8727 | 11060.6 | 2071.22 | 8727 | 12682 | | |
| Total Abundance w/o Epifauna | 10682 | 10591 | 8409 | 9893.9 | 1286.72 | 8409 | 10682 | | |
| Number of Taxa w/ Epifauna | 19 | 14 | 14 | 15.7 | 2.89 | 14 | 19 | | |
| Number of Taxa w/o Epifauna | 14 | 11 | 12 | 12.3 | 1.53 | 11 | 14 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 6.3273 | 2.4909 | 7.8409 | 5.5530 | 2.7578 | 2.4909 | 7.8409 | 69.6 | |
| Cyathura polita | 0.7455 | | 0.9000 | 0.5485 | 0.4812 | 0.0000 | 0.9000 | 76.5 | |

| | | | | | | | | | | | |
|-------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|------|--|
| Rangia cuneata | | 0.0045 | 1.3636 | 0.0023 | | 0.4568 | 0.7853 | 0.0023 | 1.3636 | 82.2 | |
| Neanthes succinea | | 0.3409 | 0.3591 | 0.6409 | | 0.4470 | 0.1682 | 0.3409 | 0.6409 | 87.8 | |
| Leptocheirus plumulosus | | 0.3364 | 0.5636 | 0.3545 | | 0.4182 | 0.1263 | 0.3364 | 0.5636 | 93.0 | |
| Marenzelleria viridis | | 0.0682 | 0.3455 | 0.3045 | | 0.2394 | 0.1497 | 0.0682 | 0.3455 | 96.0 | |
| Macoma mitchelli | | 0.3045 | 0.0045 | | | 0.1030 | 0.1745 | 0.0000 | 0.3045 | 97.3 | |
| Heteromastus filiformis | | | | 0.1773 | | 0.0591 | 0.1023 | 0.0000 | 0.1773 | 98.1 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 068 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|---------|--------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Carinoma tremaphoros | 0.0909 | | 0.0636 | 0.0515 | 0.0467 | 0.0000 | 0.0909 | 98.7 | |
| Balanus improvisus (Epi) | 0.0773 | | | 0.0258 | 0.0446 | 0.0000 | 0.0773 | 99.1 | |
| Edotea triloba (Epi) | 0.0091 | 0.0182 | 0.0182 | 0.0152 | 0.0052 | 0.0091 | 0.0182 | 99.2 | |
| Tubificoides spp. | 0.0091 | 0.0091 | 0.0182 | 0.0121 | 0.0052 | 0.0091 | 0.0182 | 99.4 | |
| Coelotanypus spp. | 0.0182 | | 0.0136 | 0.0106 | 0.0095 | 0.0000 | 0.0182 | 99.5 | |
| Streblospio benedicti | 0.0091 | 0.0182 | 0.0023 | 0.0098 | 0.0080 | 0.0023 | 0.0182 | 99.6 | |
| Melita nitida (Epi) | 0.0023 | 0.0273 | | 0.0098 | 0.0151 | 0.0000 | 0.0273 | 99.8 | |
| Littoridinops tenuipes (Epi) | 0.0091 | 0.0045 | 0.0091 | 0.0076 | 0.0026 | 0.0045 | 0.0091 | 99.9 | |
| Edwardsia elegans | 0.0023 | 0.0091 | | 0.0038 | 0.0047 | 0.0000 | 0.0091 | 99.9 | |
| Hypereteone heteropoda | | | 0.0091 | 0.0030 | 0.0052 | 0.0000 | 0.0091 | 100.0 | |
| Chiridotea almyra | 0.0023 | 0.0023 | | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Oligochaeta | 0.0023 | 0.0023 | | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Gammarus spp. (Epi) | 0.0023 | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 8.3614 | 5.2182 | 10.3545 | 7.9780 | 2.5895 | 5.2182 | 10.3545 | | |
| Total Biomass w/o Epifauna | 8.2614 | 5.1682 | 10.3273 | 7.9189 | 2.5965 | 5.1682 | 10.3273 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | | | |
|-----------------------------------|--|---------------------------|-------------------------------|--|--|------------------------|---------|-----|------|-------|--|
| ===== | | | | | | | | | | | |
| Station: 071 | | | | | | | | | | | |
| Watershed: Patuxent River | | | Habitat: High Mesohaline Mud | | | Date: May 11, 1999 | | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 9:37 | | | | | |
| ===== | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| Depth (m): 16.62 | | | Salinity (ppt): 13.00 | | | Temperature (C): 26.82 | | | | | |
| Dissolved Oxygen (mg/l): 2.21 | | | Sediment Silt-Clay (%): 90.37 | | | Total Carbon (%): 2.77 | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 0 | | | | | |
| | | Value | Score | | | Value | Score | | | | |
| Shannon-Weiner Index | | 2.50 | | Pollution Indicative Species Abundance (%) | | 61.42 | | | | | |
| Abundance (#/m2) | | 3167 | | Pollution Indicative Species Biomass (%) | | 24.57 | | | | | |
| Biomass (g/m2) | | 12.27 | | Pollution Sensitive Species Abundance (%) | | 19.79 | | | | | |
| Carnivore-Omnivore Abundance (%) | | 10.58 | | Pollution Sensitive Species Biomass (%) | | 68.43 | | | | | |
| Deep Deposit Feeder Abundance (%) | | 2.42 | | | | | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | | |
| Streblospio benedicti | | 773 | 2182 | 1773 | | 1575.8 | 724.90 | 773 | 2182 | 49.3 | |
| Macoma balthica | | 364 | 500 | 273 | | 378.8 | 114.39 | 273 | 500 | 61.1 | |
| Mulinia lateralis | | 182 | 409 | 227 | | 272.7 | 120.26 | 182 | 409 | 69.7 | |
| Glycinde solitaria | | 136 | 182 | 364 | | 227.3 | 120.26 | 136 | 364 | 76.8 | |

| | | | | | | | | | |
|-------------------------|--|-----|-----|-----|-------|--------|----|-----|------|
| Leptocheirus plumulosus | | 318 | 136 | 91 | 181.8 | 120.26 | 91 | 318 | 82.5 |
| Leucon americanus | | 91 | 45 | 273 | 136.4 | 120.26 | 45 | 273 | 86.7 |
| Paraprionospio pinnata | | 45 | 182 | 136 | 121.2 | 69.43 | 45 | 182 | 90.5 |
| Tubificoides spp. | | | 182 | 91 | 90.9 | 90.91 | 0 | 182 | 93.4 |
| Macoma mitchelli | | 91 | 91 | 45 | 75.8 | 26.24 | 45 | 91 | 95.7 |
| Hypereteone heteropoda | | 45 | 45 | 45 | 45.5 | 0.00 | 45 | 45 | 97.2 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 071 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|---------|--------|--------|--------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Neanthes succinea | 45 | 45 | | 30.3 | 26.24 | 0 | 45 | 98.1 | |
| Ameroculodes species complex | | | 45 | 15.2 | 26.24 | 0 | 45 | 98.6 | |
| Micrura leidyi | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.1 | |
| Mysidae (Epi) | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.5 | |
| Turbellaria (Epi) | | | 45 | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 2136 | 4000 | 3455 | 3197.0 | 958.15 | 2136 | 4000 | | |
| Total Abundance w/o Epifauna | 2136 | 4000 | 3364 | 3166.7 | 947.30 | 2136 | 4000 | | |
| Number of Taxa w/ Epifauna | 11 | 11 | 13 | 11.7 | 1.15 | 11 | 13 | | |
| Number of Taxa w/o Epifauna | 11 | 11 | 11 | 11.0 | 0.00 | 11 | 11 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 10.9636 | 5.8954 | 6.5000 | 7.7864 | 2.7681 | 5.8954 | 10.9636 | 63.3 | |
| Mulinia lateralis | 0.3000 | 8.0500 | 0.9091 | 3.0864 | 4.3094 | 0.3000 | 8.0500 | 88.4 | |
| Macoma mitchelli | 1.2409 | 0.0023 | 0.4000 | 0.5477 | 0.6324 | 0.0023 | 1.2409 | 92.8 | |
| Neanthes succinea | 0.0227 | 0.8273 | | 0.2833 | 0.4712 | 0.0000 | 0.8273 | 95.1 | |
| Paraprionospio pinnata | 0.1773 | 0.4136 | 0.1227 | 0.2379 | 0.1546 | 0.1227 | 0.4136 | 97.1 | |
| Glycinde solitaria | 0.1045 | 0.1227 | 0.2591 | 0.1621 | 0.0845 | 0.1045 | 0.2591 | 98.4 | |
| Streblospio benedicti | 0.0409 | 0.1636 | 0.1273 | 0.1106 | 0.0630 | 0.0409 | 0.1636 | 99.3 | |
| Mysidae (Epi) | | | 0.0955 | 0.0318 | 0.0551 | 0.0000 | 0.0955 | 99.5 | |

| | | | | | | | | | |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|-------|--|
| Micrura leidy | 0.0591 | | 0.0197 | 0.0341 | 0.0000 | 0.0591 | 99.7 | | |
| Hypereteone heteropoda | 0.0091 | 0.0227 | 0.0045 | 0.0121 | 0.0095 | 0.0045 | 0.0227 | 99.8 | |
| Leucon americanus | 0.0045 | 0.0091 | 0.0182 | 0.0106 | 0.0069 | 0.0045 | 0.0182 | 99.9 | |
| Leptocheirus plumulosus | 0.0091 | 0.0182 | 0.0023 | 0.0098 | 0.0080 | 0.0023 | 0.0182 | 100.0 | |
| Tubificoides spp. | | 0.0091 | 0.0023 | 0.0038 | 0.0047 | 0.0000 | 0.0091 | 100.0 | |
| Turbellaria (Epi) | | | 0.0045 | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 071 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|---------|---------|--------|---------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Ameroculodes species complex | | | 0.0023 | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 12.9318 | 15.5341 | 8.4477 | 12.3045 | 3.5846 | 8.4477 | 15.5341 | | |
| Total Biomass w/o Epifauna | 12.9318 | 15.5341 | 8.3477 | 12.2712 | 3.6384 | 8.3477 | 15.5341 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| ===== | | | | | | | | | | |
|-----------------------------------|--|---------------------------|-------------------------------|--|---------|------------------------|-------|-------|-------|--|
| Station: 074 | | | | | | | | | | |
| Watershed: Chalk Point Discharge | | | Habitat: Low Mesohaline | | | Date: May 11, 1999 | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 13:33 | | | | |
| ===== | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | |
| ===== | | | | | | | | | | |
| Depth (m): 3.85 | | | Salinity (ppt): 10.40 | | | Temperature (C): 28.26 | | | | |
| Dissolved Oxygen (mg/l): 4.14 | | | Sediment Silt-Clay (%): 92.31 | | | Total Carbon (%): 2.58 | | | | |
| ===== | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | |
| ===== | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 0 | | | | |
| | | Value | Score | | | Value | Score | | | |
| Shannon-Weiner Index | | 1.48 | | Pollution Indicative Species Abundance (%) | | 4.69 | | | | |
| Abundance (#/m2) | | 25151 | | Pollution Indicative Species Biomass (%) | | 0.18 | | | | |
| Biomass (g/m2) | | 71.26 | | Pollution Sensitive Species Abundance (%) | | 7.90 | | | | |
| Carnivore-Omnivore Abundance (%) | | 2.03 | | Pollution Sensitive Species Biomass (%) | | 95.87 | | | | |
| Deep Deposit Feeder Abundance (%) | | 19.40 | | | | | | | | |
| ===== | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | |
| ===== | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | |
| Leptocheirus plumulosus | | 21818 | 16091 | 12636 | 16848.5 | 4637.55 | 12636 | 21818 | 63.9 | |
| Tubificoides spp. | | 4864 | 7773 | 2091 | 4909.1 | 2841.18 | 2091 | 7773 | 82.6 | |
| Macoma balthica | | 2091 | 1864 | 1318 | 1757.6 | 397.13 | 1318 | 2091 | 89.2 | |
| Streblospio benedicti | | 955 | 1227 | 455 | 878.8 | 391.89 | 455 | 1227 | 92.6 | |

| | | | | | | | | | | | |
|--------------------------------|--|------|-----|-----|--|-------|--------|-----|------|------|--|
| Gammarus daiberi (Epi) | | 1136 | 864 | 591 | | 863.6 | 272.73 | 591 | 1136 | 95.9 | |
| Melita nitida (Epi) | | 227 | 273 | 273 | | 257.6 | 26.24 | 227 | 273 | 96.8 | |
| Hypereteone heteropoda | | 227 | 182 | 45 | | 151.5 | 94.62 | 45 | 227 | 97.4 | |
| Imm. Tubificid w/o Cap. Chaete | | | 273 | 136 | | 136.4 | 136.36 | 0 | 273 | 97.9 | |
| Carinoma tremaphoros | | 182 | 45 | 91 | | 106.1 | 69.43 | 45 | 182 | 98.3 | |
| Cyathura polita | | 91 | 136 | 91 | | 106.1 | 26.24 | 91 | 136 | 98.7 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 074 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|---------|---------|---------|---------|---------|---------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Ameroculodes species complex | 136 | 45 | | 60.6 | 69.43 | 0 | 136 | 99.0 | |
| Glycinde solitaria | 45 | | 136 | 60.6 | 69.43 | 0 | 136 | 99.2 | |
| Neanthes succinea | 136 | | | 45.5 | 78.73 | 0 | 136 | 99.4 | |
| Coelotanypus spp. | 45 | | 45 | 30.3 | 26.24 | 0 | 45 | 99.5 | |
| Edotea triloba (Epi) | 45 | 45 | | 30.3 | 26.24 | 0 | 45 | 99.6 | |
| Geukensia demissa (Epi) | | | 91 | 30.3 | 52.49 | 0 | 91 | 99.7 | |
| Heteromastus filiformis | | 91 | | 30.3 | 52.49 | 0 | 91 | 99.8 | |
| Apocorophium lacustre (Epi) | | 45 | | 15.2 | 26.24 | 0 | 45 | 99.9 | |
| Macoma mitchelli | | 45 | | 15.2 | 26.24 | 0 | 45 | 99.9 | |
| Marenzelleria viridis | | 45 | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 32000 | 29045 | 18000 | 26348.5 | 7379.37 | 18000 | 32000 | | |
| Total Abundance w/o Epifauna | 30591 | 27818 | 17045 | 25151.5 | 7155.63 | 17045 | 30591 | | |
| Number of Taxa w/ Epifauna | 14 | 16 | 13 | 14.3 | 1.53 | 13 | 16 | | |
| Number of Taxa w/o Epifauna | 11 | 12 | 10 | 11.0 | 1.00 | 10 | 12 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 87.3954 | 55.7318 | 59.9090 | 67.6787 | 17.2024 | 55.7318 | 87.3954 | 94.7 | |
| Leptocheirus plumulosus | 2.3091 | 1.5000 | 1.7727 | 1.8606 | 0.4116 | 1.5000 | 2.3091 | 97.4 | |
| Neanthes succinea | 2.4500 | | | 0.8167 | 1.4145 | 0.0000 | 2.4500 | 98.5 | |

| | | | | | | | | | | | | |
|--|------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|------|--|
| | Cyathura polita | | 0.0227 | 1.0591 | 0.2955 | | 0.4591 | 0.5372 | 0.0227 | 1.0591 | 99.1 | |
| | Carinoma tremaphoros | | 0.2500 | 0.0864 | 0.1727 | | 0.1697 | 0.0819 | 0.0864 | 0.2500 | 99.4 | |
| | Gammarus spp. (Epi) | | 0.1364 | 0.1091 | 0.1318 | | 0.1258 | 0.0146 | 0.1091 | 0.1364 | 99.6 | |
| | Tubificoides spp. | | 0.0682 | 0.1182 | 0.0818 | | 0.0894 | 0.0258 | 0.0682 | 0.1182 | 99.7 | |
| | Streblospio benedicti | | 0.0591 | 0.0636 | 0.0364 | | 0.0530 | 0.0146 | 0.0364 | 0.0636 | 99.8 | |
| | Hypereteone heteropoda | | 0.0682 | 0.0636 | 0.0227 | | 0.0515 | 0.0250 | 0.0227 | 0.0682 | 99.8 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 074 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|---------|---------|---------|---------|---------|---------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Melita nitida (Epi) | 0.0364 | 0.0364 | 0.0318 | 0.0348 | 0.0026 | 0.0318 | 0.0364 | 99.9 | |
| Coelotanypus spp. | 0.0364 | | 0.0318 | 0.0227 | 0.0198 | 0.0000 | 0.0364 | 99.9 | |
| Heteromastus filiformis | | 0.0591 | | 0.0197 | 0.0341 | 0.0000 | 0.0591 | 99.9 | |
| Macoma mitchelli | | 0.0545 | | 0.0182 | 0.0315 | 0.0000 | 0.0545 | 100.0 | |
| Glycinde solitaria | 0.0091 | | 0.0227 | 0.0106 | 0.0114 | 0.0000 | 0.0227 | 100.0 | |
| Edotea triloba (Epi) | 0.0227 | 0.0045 | | 0.0091 | 0.0120 | 0.0000 | 0.0227 | 100.0 | |
| Ameroculodes species complex | 0.0136 | 0.0045 | | 0.0061 | 0.0069 | 0.0000 | 0.0136 | 100.0 | |
| Geukensia demissa (Epi) | | | 0.0045 | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| Oligochaeta | | 0.0023 | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Apocorophium lacustre (Epi) | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Marenzelleria viridis | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 92.8772 | 58.8977 | 62.5158 | 71.4302 | 18.6615 | 58.8977 | 92.8772 | | |
| Total Biomass w/o Epifauna | 92.6817 | 58.7454 | 62.3477 | 71.2583 | 18.6405 | 58.7454 | 92.6817 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | |
|-----------------------------------|--|-------|--|--------|------------------------|-------|-------|-------|
| ===== | | | | | | | | |
| Station: 077 | | | | | | | | |
| Watershed: Patuxent River | | | Habitat: Low Mesohaline | | Date: May 11, 1999 | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | Time: 12:57 | | | |
| ===== | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | |
| ===== | | | | | | | | |
| Depth (m): 2.70 | | | Salinity (ppt): 7.30 | | Temperature (C): 29.32 | | | |
| Dissolved Oxygen (mg/l): 5.24 | | | Sediment Silt-Clay (%): 94.20 | | Total Carbon (%): 2.12 | | | |
| ===== | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | |
| ===== | | | | | | | | |
| B-IBI Score: | | | Condition: Not Applicable | | # Attributes Scored: 0 | | | |
| | | Value | Score | | | Value | Score | |
| Shannon-Weiner Index | | 1.76 | Pollution Indicative Species Abundance (%) | | 15.23 | | | |
| Abundance (#/m2) | | 7000 | Pollution Indicative Species Biomass (%) | | 7.56 | | | |
| Biomass (g/m2) | | 1.89 | Pollution Sensitive Species Abundance (%) | | 8.25 | | | |
| Carnivore-Omnivore Abundance (%) | | 6.09 | Pollution Sensitive Species Biomass (%) | | 26.54 | | | |
| Deep Deposit Feeder Abundance (%) | | 3.58 | | | | | | |
| ===== | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | |
| ===== | | | | | | | | |
| | | Rep 1 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| Leptocheirus plumulosus | | 2636 | 7045 | 4840.9 | 3117.69 | 2636 | 7045 | 61.7 |
| Streblospio benedicti | | 455 | 1273 | 863.6 | 578.54 | 455 | 1273 | 72.8 |
| Gammarus daiberi (Epi) | | 682 | 773 | 727.3 | 64.28 | 682 | 773 | 82.0 |
| Tubificoides spp. | | 45 | 591 | 318.2 | 385.69 | 45 | 591 | 86.1 |

| | | | | | | | | | | |
|-------------------------------------|--|-----|-----|--|-------|--------|-----|-----|------|--|
| <i>Macoma balthica</i> | | 409 | 182 | | 295.5 | 160.71 | 182 | 409 | 89.9 | |
| <i>Coelotanypus</i> spp. | | 273 | 45 | | 159.1 | 160.71 | 45 | 273 | 91.9 | |
| <i>Carinoma tremaphoros</i> | | 45 | 227 | | 136.4 | 128.56 | 45 | 227 | 93.6 | |
| <i>Macoma mitchelli</i> | | 136 | 91 | | 113.6 | 32.14 | 91 | 136 | 95.1 | |
| <i>Marenzelleria viridis</i> | | 91 | 91 | | 90.9 | 0.00 | 91 | 91 | 96.2 | |
| <i>Ameroculodes</i> species complex | | 136 | | | 68.2 | 96.42 | 0 | 136 | 97.1 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 077 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | |
|--|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Apocorophium lacustre (Epi) | | 91 | 45.5 | 64.28 | 0 | 91 | 97.7 | |
| Edotea triloba (Epi) | | 91 | 45.5 | 64.28 | 0 | 91 | 98.3 | |
| Procladius spp. | | 91 | 45.5 | 64.28 | 0 | 91 | 98.8 | |
| Cyathura polita | 45 | | 22.7 | 32.14 | 0 | 45 | 99.1 | |
| Hobsonia florida | | 45 | 22.7 | 32.14 | 0 | 45 | 99.4 | |
| Melita nitida (Epi) | | 45 | 22.7 | 32.14 | 0 | 45 | 99.7 | |
| Rangia cuneata | 45 | | 22.7 | 32.14 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 5000 | 10682 | 7840.9 | 4017.65 | 5000 | 10682 | | |
| Total Abundance w/o Epifauna | 4318 | 9682 | 7000.0 | 3792.66 | 4318 | 9682 | | |
| Number of Taxa w/ Epifauna | 12 | 14 | 13.0 | 1.41 | 12 | 14 | | |
| Number of Taxa w/o Epifauna | 11 | 10 | 10.5 | 0.71 | 10 | 11 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | |
| | Rep 1 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Leptocheirus plumulosus | 0.3273 | 1.1136 | 0.7205 | 0.5560 | 0.3273 | 1.1136 | 35.7 | |
| Macoma balthica | 0.4227 | 0.1727 | 0.2977 | 0.1768 | 0.1727 | 0.4227 | 50.4 | |
| Macoma mitchelli | 0.3500 | 0.1500 | 0.2500 | 0.1414 | 0.1500 | 0.3500 | 62.8 | |
| Tubificoides spp. | 0.0136 | 0.4091 | 0.2114 | 0.2796 | 0.0136 | 0.4091 | 73.3 | |
| Gammarus spp. (Epi) | 0.0909 | 0.1227 | 0.1068 | 0.0225 | 0.0909 | 0.1227 | 78.6 | |
| Carinoma tremaphoros | 0.0591 | 0.1409 | 0.1000 | 0.0579 | 0.0591 | 0.1409 | 83.5 | |

| | | | | | | | | |
|-----------------------|--------|--------|--------|--------|--------|--------|------|--|
| Coelotanypus spp. | 0.1545 | 0.0227 | 0.0886 | 0.0932 | 0.0227 | 0.1545 | 87.9 | |
| Rangia cuneata | 0.1273 | | 0.0636 | 0.0900 | 0.0000 | 0.1273 | 91.1 | |
| Marenzelleria viridis | 0.0727 | 0.0500 | 0.0614 | 0.0161 | 0.0500 | 0.0727 | 94.1 | |
| Streblospio benedicti | 0.0318 | 0.0591 | 0.0455 | 0.0193 | 0.0318 | 0.0591 | 96.3 | |
| Cyathura polita | 0.0818 | | 0.0409 | 0.0579 | 0.0000 | 0.0818 | 98.4 | |
| Edotea triloba (Epi) | | 0.0364 | 0.0182 | 0.0257 | 0.0000 | 0.0364 | 99.3 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 077 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | |
|--|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Ameroculodes species complex | 0.0136 | | 0.0068 | 0.0096 | 0.0000 | 0.0136 | 99.6 | |
| Melita nitida (Epi) | | 0.0091 | 0.0045 | 0.0064 | 0.0000 | 0.0091 | 99.8 | |
| Apocorophium lacustre (Epi) | | 0.0023 | 0.0011 | 0.0016 | 0.0000 | 0.0023 | 99.9 | |
| Chironomidae larvae | | 0.0023 | 0.0011 | 0.0016 | 0.0000 | 0.0023 | 99.9 | |
| Hobsonia florida | | 0.0023 | 0.0011 | 0.0016 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 1.7455 | 2.2932 | 2.0193 | 0.3873 | 1.7455 | 2.2932 | | |
| Total Biomass w/o Epifauna | 1.6545 | 2.1227 | 1.8886 | 0.3311 | 1.6545 | 2.1227 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | |
| | Rep 1 | | Mean | Std.Dev | Min | Max | Cum % | |
| Leptocheirus plumulosus | 0.8280 | | 0.8280 | | 0.8280 | 0.8280 | 49.1 | |
| Macoma balthica | 0.6750 | | 0.6750 | | 0.6750 | 0.6750 | 89.1 | |
| Gammarus spp. (Epi) | 0.0540 | | 0.0540 | | 0.0540 | 0.0540 | 92.3 | |
| Coelotanypus spp. | 0.0495 | | 0.0495 | | 0.0495 | 0.0495 | 95.2 | |
| Streblospio benedicti | 0.0270 | | 0.0270 | | 0.0270 | 0.0270 | 96.8 | |
| Melita nitida (Epi) | 0.0225 | | 0.0225 | | 0.0225 | 0.0225 | 98.1 | |
| Rangia cuneata | 0.0180 | | 0.0180 | | 0.0180 | 0.0180 | 99.2 | |
| Ameroculodes species complex | 0.0090 | | 0.0090 | | 0.0090 | 0.0090 | 99.7 | |
| Tubificoides spp. | 0.0045 | | 0.0045 | | 0.0045 | 0.0045 | 100.0 | |

| | | | | | | | | |
|--|----------------------------|--|--------|--|--------|--------|--------|--|
| | Total Biomass w/ Epifauna | | 1.6875 | | 1.6875 | 1.6875 | 1.6875 | |
| | Total Biomass w/o Epifauna | | 1.6110 | | 1.6110 | 1.6110 | 1.6110 | |

=====

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | | | | |
|-----------------------------------|------------------------|---------------------------|-------------------------------|--|-------|------------------------|---------|-------|-----|-------|------|--|
| ===== | | | | | | | | | | | | |
| Station: 201 | | | | | | | | | | | | |
| Watershed: Patapsco & Back Rivers | | | Habitat: Low Mesohaline | | | Date: May 10, 1999 | | | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 15:20 | | | | | | |
| ===== | | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| Depth (m): 3.28 | | | Salinity (ppt): 9.70 | | | Temperature (C): 25.85 | | | | | | |
| Dissolved Oxygen (mg/l): 5.44 | | | Sediment Silt-Clay (%): 92.18 | | | Total Carbon (%):6.47 | | | | | | |
| ===== | | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 0 | | | | | | |
| | | Value | Score | | Value | Score | | | | | | |
| Shannon-Weiner Index | | 1.62 | | Pollution Indicative Species Abundance (%) | | 13.50 | | | | | | |
| Abundance (#/m2) | | 1091 | | Pollution Indicative Species Biomass (%) | | 17.28 | | | | | | |
| Biomass (g/m2) | | 0.53 | | Pollution Sensitive Species Abundance (%) | | 70.11 | | | | | | |
| Carnivore-Omnivore Abundance (%) | | 9.42 | | Pollution Sensitive Species Biomass (%) | | 52.35 | | | | | | |
| Deep Deposit Feeder Abundance (%) | | 8.25 | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | | Mean | Std.Dev | Min | Max | Cum % | | |
| | Macoma balthica | | 818 | 727 | 682 | | 742.4 | 69.43 | 682 | 818 | 66.2 | |
| | Hypereteone heteropoda | | 45 | 45 | 182 | | 90.9 | 78.73 | 45 | 182 | 74.3 | |
| | Tubificoides spp. | | 45 | 91 | 91 | | 75.8 | 26.24 | 45 | 91 | 81.1 | |
| | Streblospio benedicti | | 45 | 45 | 91 | | 60.6 | 26.24 | 45 | 91 | 86.5 | |

| | | | | | | | |
|------------------------------|----|----|------|-------|-------|----|---------|
| Littoridinops tenuipes (Epi) | 45 | 45 | 30.3 | 26.24 | 0 | 45 | 89.2 |
| Amerocolodes species complex | | | 45 | 15.2 | 26.24 | 0 | 45 90.5 |
| Gemma gemma | 45 | | 15.2 | 26.24 | 0 | 45 | 91.9 |
| Heteromastus filiformis | | 45 | 15.2 | 26.24 | 0 | 45 | 93.2 |
| Macoma mitchelli | | | 45 | 15.2 | 26.24 | 0 | 45 94.6 |
| Marenzelleria viridis | | 45 | 15.2 | 26.24 | 0 | 45 | 95.9 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 201 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Mya arenaria | | | 45 | 15.2 | 26.24 | 0 | 45 | 97.3 | |
| Neanthes succinea | | 45 | | 15.2 | 26.24 | 0 | 45 | 98.6 | |
| Polydora cornuta | | 45 | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 1045 | 1136 | 1182 | 1121.2 | 69.43 | 1045 | 1182 | | |
| Total Abundance w/o Epifauna | 1000 | 1091 | 1182 | 1090.9 | 90.91 | 1000 | 1182 | | |
| Number of Taxa w/ Epifauna | 6 | 9 | 7 | 7.3 | 1.53 | 6 | 9 | | |
| Number of Taxa w/o Epifauna | 5 | 8 | 7 | 6.7 | 1.53 | 5 | 8 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Neanthes succinea | | 0.9409 | | 0.3136 | 0.5432 | 0.0000 | 0.9409 | 58.5 | |
| Macoma balthica | 0.2000 | 0.1500 | 0.1182 | 0.1561 | 0.0412 | 0.1182 | 0.2000 | 87.6 | |
| Hypereteone heteropoda | 0.0182 | 0.0023 | 0.0864 | 0.0356 | 0.0447 | 0.0023 | 0.0864 | 94.2 | |
| Marenzelleria viridis | | 0.0273 | | 0.0091 | 0.0157 | 0.0000 | 0.0273 | 95.9 | |
| Tubificoides spp. | 0.0023 | 0.0091 | 0.0023 | 0.0045 | 0.0039 | 0.0023 | 0.0091 | 96.8 | |
| Streblospio benedicti | 0.0045 | 0.0045 | 0.0045 | 0.0045 | 0.0000 | 0.0045 | 0.0045 | 97.6 | |
| Littoridinops tenuipes (Epi) | 0.0045 | 0.0091 | | 0.0045 | 0.0045 | 0.0000 | 0.0091 | 98.4 | |
| Heteromastus filiformis | | 0.0091 | | 0.0030 | 0.0052 | 0.0000 | 0.0091 | 99.0 | |
| Macoma mitchelli | | | 0.0045 | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 99.3 | |
| Polydora cornuta | | 0.0045 | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 99.6 | |

| | | | | | | | | | | | |
|------------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|-------|--|
| Ameroculodes species complex | | | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.7 | |
| Gemma gemma | | 0.0023 | | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.9 | |
| Mya arenaria | | | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| ----- | | | | | | | | | | | |
| Total Biomass w/ Epifauna | | 0.2318 | 1.1568 | 0.2205 | | 0.5364 | 0.5374 | 0.2205 | 1.1568 | | |
| Total Biomass w/o Epifauna | | 0.2273 | 1.1477 | 0.2205 | | 0.5318 | 0.5334 | 0.2205 | 1.1477 | | |
| ===== | | | | | | | | | | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)
FIXED SITES

| | | | | | | | | | | |
|-----------------------------------|--|---------------------------|-------------------------------|--|-------|------------------------|-------|------|-------|--|
| ===== | | | | | | | | | | |
| Station: 202 | | | | | | | | | | |
| Watershed: Patapsco & Back Rivers | | | Habitat: Low Mesohaline | | | Date: May 10, 1999 | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 15:44 | | | | |
| ===== | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | |
| ===== | | | | | | | | | | |
| Depth (m): 4.32 | | | Salinity (ppt): 10.1 | | | Temperature (C): 25.27 | | | | |
| Dissolved Oxygen (mg/l): 6.75 | | | Sediment Silt-Clay (%): 92.79 | | | Total Carbon (%): 3.51 | | | | |
| ===== | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | |
| ===== | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 0 | | | | |
| | | Value | Score | | | Value | Score | | | |
| Shannon-Weiner Index | | 2.21 | | Pollution Indicative Species Abundance (%) | | 21.41 | | | | |
| Abundance (#/m2) | | 1242 | | Pollution Indicative Species Biomass (%) | | 16.65 | | | | |
| Biomass (g/m2) | | 0.49 | | Pollution Sensitive Species Abundance (%) | | 22.28 | | | | |
| Carnivore-Omnivore Abundance (%) | | 19.18 | | Pollution Sensitive Species Biomass (%) | | 13.37 | | | | |
| Deep Deposit Feeder Abundance (%) | | 2.93 | | | | | | | | |
| ===== | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | |
| ===== | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | |
| Leptocheirus plumulosus | | 1136 | 227 | 182 | 515.2 | 538.46 | 182 | 1136 | 39.1 | |
| Macoma balthica | | 318 | 364 | 91 | 257.6 | 146.12 | 91 | 364 | 58.6 | |
| Hypereteone heteropoda | | 91 | 136 | 227 | 151.5 | 69.43 | 91 | 227 | 70.1 | |
| Macoma mitchelli | | 227 | 136 | 91 | 151.5 | 69.43 | 91 | 227 | 81.6 | |

| | | | | | | | | | | | | | |
|--|------------------------------|-------|--|-----|----|----|--|------|-------|----|-----|------|--|
| | Littoridinops tenuipes | (Epi) | | 136 | 45 | 45 | | 75.8 | 52.49 | 45 | 136 | 87.4 | |
| | Streblospio benedicti | | | 136 | | | | 45.5 | 78.73 | 0 | 136 | 90.8 | |
| | Tubificoides spp. | | | 91 | 45 | | | 45.5 | 45.45 | 0 | 91 | 94.3 | |
| | Ameroculodes species complex | | | | 91 | | | 30.3 | 52.49 | 0 | 91 | 96.6 | |
| | Chironomus spp. | | | | 45 | | | 15.2 | 26.24 | 0 | 45 | 97.7 | |
| | Leucon americanus | | | | | 45 | | 15.2 | 26.24 | 0 | 45 | 98.9 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 202 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Marenzelleria viridis | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 2182 | 1091 | 682 | 1318.2 | 775.40 | 682 | 2182 | | |
| Total Abundance w/o Epifauna | 2045 | 1045 | 636 | 1242.4 | 724.90 | 636 | 2045 | | |
| Number of Taxa w/ Epifauna | 8 | 8 | 6 | 7.3 | 1.15 | 6 | 8 | | |
| Number of Taxa w/o Epifauna | 7 | 7 | 5 | 6.3 | 1.15 | 5 | 7 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Leptocheirus plumulosus | 0.4182 | 0.0636 | 0.1727 | 0.2182 | 0.1816 | 0.0636 | 0.4182 | 43.8 | |
| Macoma mitchelli | 0.4591 | 0.0136 | 0.0273 | 0.1667 | 0.2533 | 0.0136 | 0.4591 | 77.2 | |
| Macoma balthica | 0.0773 | 0.0409 | 0.0227 | 0.0470 | 0.0278 | 0.0227 | 0.0773 | 86.6 | |
| Hypereteone heteropoda | 0.0273 | 0.0364 | 0.0727 | 0.0455 | 0.0241 | 0.0273 | 0.0727 | 95.7 | |
| Streblospio benedicti | 0.0182 | | | 0.0061 | 0.0105 | 0.0000 | 0.0182 | 97.0 | |
| Leucon americanus | | | 0.0136 | 0.0045 | 0.0079 | 0.0000 | 0.0136 | 97.9 | |
| Littoridinops tenuipes (Epi) | 0.0023 | 0.0045 | 0.0045 | 0.0038 | 0.0013 | 0.0023 | 0.0045 | 98.6 | |
| Tubificoides spp. | 0.0045 | 0.0045 | | 0.0030 | 0.0026 | 0.0000 | 0.0045 | 99.2 | |
| Ameroculodes species complex | | 0.0045 | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 99.5 | |
| Marenzelleria viridis | 0.0045 | | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 99.8 | |
| Chironomidae larvae | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |

| | | | | | | | | | | | |
|--|----------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|--|
| | Total Biomass w/ Epifauna | | 1.0114 | 0.1705 | 0.3136 | | 0.4985 | 0.4499 | 0.1705 | 1.0114 | |
| | Total Biomass w/o Epifauna | | 1.0091 | 0.1659 | 0.3091 | | 0.4947 | 0.4512 | 0.1659 | 1.0091 | |

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* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

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=====
|                               Station: 204                               |
| Watershed: Lower Western Shore   Habitat: High Mesohaline Mud   Date: May 13, 1999   |
| Gear: Young Grab                 Sampled Area: 0.044 sq.m       Time: 10:50         |
=====

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=====
|                               BOTTOM ENVIRONMENT                               |
=====

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```

| Depth (m): 4.97                 Salinity (ppt): 11.20           Temperature (C): 26.46   |
| Dissolved Oxygen (mg/l): 2.33   Sediment Silt-Clay (%): 57.30   Total Carbon (%): 1.58   |
=====

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=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
=====

```

```

| B-IBI Score:                    Condition: Not Applicable           # Attributes Scored: 0   |
|                               Value   Score                               Value   Score |
| Shannon-Weiner Index           2.12           Pollution Indicative Species Abundance (%)  44.64   |
| Abundance (#/m2)               15644         Pollution Indicative Species Biomass (%)    4.42   |
| Biomass (g/m2)                 15.10         Pollution Sensitive Species Abundance (%)   3.37   |
| Carnivore-Omnivore Abundance (%) 4.06         Pollution Sensitive Species Biomass (%)    40.76   |
| Deep Deposit Feeder Abundance (%) 18.56                                     |
=====

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=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====

```

```

|                               | Rep 1   Rep 2   Rep 3 | Mean  Std.Dev  Min   Max   Cum % |
-----
| Streblospio benedicti       | 9932   5955   4977 | 6954.5 2624.28 4977  9932  44.3 |
| Leptocheirus plumulosus    | 5023   3568   5159 | 4583.3  881.78  3568  5159  73.4 |
| Heteromastus filiformis    | 1614   1386   1477 | 1492.4  114.39  1386  1614  82.9 |
| Tubificoides spp.          | 1455   1023   1409 | 1295.5  237.28  1023  1455  91.2 |

```


| | | | | | | | | | | | | |
|--|--------------------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| | <i>Neanthes succinea</i> | | 614 | 545 | 523 | | 560.6 | 47.31 | 523 | 614 | 94.7 | |
| | <i>Macoma balthica</i> | | 591 | 341 | 500 | | 477.3 | 126.54 | 341 | 591 | 97.8 | |
| | Imm. Tubificid w/o Cap. Chaete | | 136 | | 91 | | 75.8 | 69.43 | 0 | 136 | 98.3 | |
| | <i>Hypereteone heteropoda</i> | | 68 | 45 | | | 37.9 | 34.72 | 0 | 68 | 98.5 | |
| | <i>Marenzelleria viridis</i> | | 45 | 45 | 23 | | 37.9 | 13.12 | 23 | 45 | 98.7 | |
| | <i>Mulinia lateralis</i> | | 45 | 23 | 45 | | 37.9 | 13.12 | 23 | 45 | 99.0 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 204 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|---------|--------|---------|---------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma mitchelli | | 68 | 23 | 30.3 | 34.72 | 0 | 68 | 99.2 | |
| Mya arenaria | 45 | | 45 | 30.3 | 26.24 | 0 | 45 | 99.4 | |
| Stylochus ellipticus (Epi) | 68 | | | 22.7 | 39.36 | 0 | 68 | 99.5 | |
| Apocorophium lacustre (Epi) | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.6 | |
| Carinoma tremaphoros | 23 | 23 | | 15.2 | 13.12 | 0 | 23 | 99.7 | |
| Cyathura polita | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.8 | |
| Diadumene leucolena (Epi) | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.9 | |
| Gammarus daiberi (Epi) | | | 23 | 7.6 | 13.12 | 0 | 23 | 100.0 | |
| Melita nitida (Epi) | 23 | | | 7.6 | 13.12 | 0 | 23 | 100.0 | |
| Total Abundance w/ Epifauna | 19818 | 13023 | 14295 | 15712.1 | 3612.43 | 13023 | 19818 | | |
| Total Abundance w/o Epifauna | 19636 | 13023 | 14273 | 15643.9 | 3513.56 | 13023 | 19636 | | |
| Number of Taxa w/ Epifauna | 17 | 11 | 12 | 13.3 | 3.21 | 11 | 17 | | |
| Number of Taxa w/o Epifauna | 13 | 11 | 11 | 11.7 | 1.15 | 11 | 13 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 3.9909 | 2.9432 | 10.2500 | 5.7280 | 3.9510 | 2.9432 | 10.2500 | 37.7 | |
| Carinoma tremaphoros | 10.5272 | 0.0523 | | 3.5265 | 6.0629 | 0.0000 | 10.5272 | 60.9 | |
| Neanthes succinea | 1.9704 | 1.3659 | 2.8568 | 2.0644 | 0.7499 | 1.3659 | 2.8568 | 74.4 | |
| Leptocheirus plumulosus | 1.6114 | 1.3841 | 1.8295 | 1.6083 | 0.2227 | 1.3841 | 1.8295 | 85.0 | |

| | | | | | | | | | | | | |
|--|-------------------------|-------|--------|--------|--------|--|--------|--------|--------|--------|------|--|
| | Mya arenaria | | 0.1432 | | 2.2273 | | 0.7901 | 1.2466 | 0.0000 | 2.2273 | 90.2 | |
| | Heteromastus filiformis | | 0.4795 | 0.3636 | 0.6591 | | 0.5008 | 0.1489 | 0.3636 | 0.6591 | 93.5 | |
| | Mulinia lateralis | | 0.5045 | 0.0909 | 0.5841 | | 0.3932 | 0.2648 | 0.0909 | 0.5841 | 96.1 | |
| | Streblospio benedicti | | 0.3864 | 0.1977 | 0.1977 | | 0.2606 | 0.1089 | 0.1977 | 0.3864 | 97.8 | |
| | Diadumene leucolena | (Epi) | | 0.2977 | | | 0.0992 | 0.1719 | 0.0000 | 0.2977 | 98.4 | |
| | Cyathura polita | | 0.2636 | | | | 0.0879 | 0.1522 | 0.0000 | 0.2636 | 99.0 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 204 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|---------|--------|---------|---------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma mitchelli | | 0.0091 | 0.1682 | 0.0591 | 0.0946 | 0.0000 | 0.1682 | 99.4 | |
| Marenzelleria viridis | 0.1568 | 0.0023 | 0.0011 | 0.0534 | 0.0896 | 0.0011 | 0.1568 | 99.8 | |
| Tubificoides spp. | 0.0250 | 0.0205 | 0.0205 | 0.0220 | 0.0026 | 0.0205 | 0.0250 | 99.9 | |
| Hypereteone heteropoda | 0.0114 | 0.0068 | | 0.0061 | 0.0057 | 0.0000 | 0.0114 | 99.9 | |
| Stylochus ellipticus (Epi) | 0.0159 | | | 0.0053 | 0.0092 | 0.0000 | 0.0159 | 100.0 | |
| Apocorophium lacustre (Epi) | 0.0045 | | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| Oligochaeta | 0.0011 | | 0.0011 | 0.0008 | 0.0007 | 0.0000 | 0.0011 | 100.0 | |
| Gammarus spp. (Epi) | | | 0.0011 | 0.0004 | 0.0007 | 0.0000 | 0.0011 | 100.0 | |
| Melita nitida (Epi) | 0.0011 | | | 0.0004 | 0.0007 | 0.0000 | 0.0011 | 100.0 | |
| Total Biomass w/ Epifauna | 20.3908 | 6.4363 | 18.7965 | 15.2079 | 7.6381 | 6.4363 | 20.3908 | | |
| Total Biomass w/o Epifauna | 20.0715 | 6.4363 | 18.7954 | 15.1011 | 7.5310 | 6.4363 | 20.0715 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|--|-------|-------------------------------|--|------------------------|---------|-------|------|-------|
| ===== | | | | | | | | | |
| Station: 029 | | | | | | | | | |
| Watershed: Upper Eastern Shore | | | Habitat: Oligohaline | | Date: May 14, 1999 | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | Time: 13:31 | | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 6.22 | | | Salinity (ppt): 2.20 | | Temperature (C): 23.82 | | | | |
| Dissolved Oxygen (mg/l): 7.19 | | | Sediment Silt-Clay (%): 64.41 | | Total Carbon (%): 2.20 | | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: | | | Condition: Not Applicable | | # Attributes Scored: 0 | | | | |
| | | Value | Score | | | Value | Score | | |
| Shannon-Weiner Index | | 2.41 | | Oligohaline Pollution Indicative Spp. Abund. | | 11.82 | | | |
| Abundance (#/m2) | | 7091 | | Tolerance Score | | 7.20 | | | |
| Deep Deposit Feeder Abundance (%) | | 8.31 | | Oligohaline Pollution Sensitive Spp. Abund. | | 0.00 | | | |
| Carnivore-Omnivore Abundance (%) | | 6.74 | | Tanypodinae/Chironomidae Abundance Ratio | | 46.67 | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| ----- | | | | | | | | | |
| Marenzelleria viridis | | 3091 | 1636 | 3409 | 2712.1 | 945.12 | 1636 | 3409 | 34.3 |
| Hobsonia florida | | 2045 | 1636 | 1136 | 1606.1 | 455.30 | 1136 | 2045 | 54.6 |
| Rangia cuneata | | 864 | 1818 | 1364 | 1348.5 | 477.45 | 864 | 1818 | 71.6 |
| Gammarus daiberi (Epi) | | 727 | 818 | 455 | 666.7 | 189.24 | 455 | 818 | 80.1 |
| Imm. Tubificid w/o Cap. Chaete | | * 636 | | 409 | 348.5 | 322.48 | 0 | 636 | 84.5 |

| | | | | | | | | | | | |
|--------------------------------|--|-----|-----|-------|--------|-------|--------|------|-----|------|--|
| Imm. Tubificid w/o Cap. Chaete | | 500 | | 166.7 | 288.67 | 0 | 500 | 86.6 | | | |
| Ameroculodes species complex | | 227 | 136 | 91 | | 151.5 | 69.43 | 91 | 227 | 88.5 | |
| Apocorophium lacustre (Epi) | | 136 | 182 | 91 | | 136.4 | 45.45 | 91 | 182 | 90.2 | |
| Dicotendipes spp. | | | | 409 | | 136.4 | 236.19 | 0 | 409 | 92.0 | |
| Polydora cornuta | | 45 | 227 | 136 | | 136.4 | 90.91 | 45 | 227 | 93.7 | |
| Polypedilum halterale | | | 136 | 227 | | 121.2 | 114.39 | 0 | 227 | 95.2 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 029 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|---------|--------|--------|---------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Coelotanypus spp. | 227 | 91 | | 106.1 | 114.39 | 0 | 227 | 96.6 | |
| Cyathura polita | 136 | 45 | 45 | 75.8 | 52.49 | 45 | 136 | 97.5 | |
| Limnodrilus hoffmeisteri | 91 | | 136 | 75.8 | 69.43 | 0 | 136 | 98.5 | |
| Nanocladius distinctus | 91 | | 91 | 60.6 | 52.49 | 0 | 91 | 99.2 | |
| Carinoma tremaphoros | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.4 | |
| Chironomidae pupae * | | 45 | | 15.2 | 26.24 | 0 | 45 | 99.6 | |
| Mytilopsis leucophaeata (Epi) | | 45 | | 15.2 | 26.24 | 0 | 45 | 99.8 | |
| Procladius spp. | | | 45 | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 8364 | 7318 | 8045 | 7909.1 | 535.90 | 7318 | 8364 | | |
| Total Abundance w/o Epifauna | 7500 | 6273 | 7500 | 7090.9 | 708.57 | 6273 | 7500 | | |
| Number of Taxa w/ Epifauna | 12 | 12 | 13 | 12.3 | 0.58 | 12 | 13 | | |
| Number of Taxa w/o Epifauna | 10 | 9 | 11 | 10.0 | 1.00 | 9 | 11 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Rangia cuneata | 34.7772 | 0.3364 | 0.2091 | 11.7742 | 19.9213 | 0.2091 | 34.7772 | 90.7 | |
| Marenzelleria viridis | 0.9136 | 0.5136 | 0.8773 | 0.7682 | 0.2212 | 0.5136 | 0.9136 | 96.7 | |
| Hobsonia florida | 0.2045 | 0.2591 | 0.0909 | 0.1848 | 0.0858 | 0.0909 | 0.2591 | 98.1 | |
| Cyathura polita | 0.2318 | 0.0045 | 0.0227 | 0.0864 | 0.1263 | 0.0045 | 0.2318 | 98.7 | |
| Gammarus spp. (Epi) | 0.0727 | 0.0545 | 0.0364 | 0.0545 | 0.0182 | 0.0364 | 0.0727 | 99.2 | |

| | | | | | | | | | | | |
|------------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|-------|--|
| Carinoma tremaphoros | | 0.0909 | | | | 0.0303 | 0.0525 | 0.0000 | 0.0909 | 99.4 | |
| Apocorophium lacustre (Epi) | | 0.0227 | 0.0182 | 0.0136 | | 0.0182 | 0.0045 | 0.0136 | 0.0227 | 99.5 | |
| Coelotanypus spp. | | 0.0455 | 0.0091 | | | 0.0182 | 0.0241 | 0.0000 | 0.0455 | 99.7 | |
| Ameroculodes species complex | | 0.0273 | 0.0091 | 0.0136 | | 0.0167 | 0.0095 | 0.0091 | 0.0273 | 99.8 | |
| Polydora cornuta | | 0.0182 | 0.0136 | 0.0182 | | 0.0167 | 0.0026 | 0.0136 | 0.0182 | 99.9 | |
| Chironomidae pupae * | | | 0.0091 | | | 0.0030 | 0.0052 | 0.0000 | 0.0091 | 100.0 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 029 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|---------|--------|--------|---------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Chironomidae larvae | 0.0023 | 0.0023 | 0.0023 | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 100.0 | |
| Oligochaeta | 0.0023 | 0.0023 | 0.0023 | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 100.0 | |
| Mytilopsis leucophaeata (Epi) | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 36.4091 | 1.2341 | 1.2864 | 12.9765 | 20.2932 | 1.2341 | 36.4091 | | |
| Total Biomass w/o Epifauna | 36.3136 | 1.1591 | 1.2364 | 12.9030 | 20.2742 | 1.1591 | 36.3136 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|--|---------------------------|-------------------------------|--|--------|------------------------|-----|-------|-------|
| ===== | | | | | | | | | |
| Station: 040 | | | | | | | | | |
| Watershed: Potomac River | | | Habitat: Oligohaline | | | Date: May 12, 1999 | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 9:57 | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 9.59 | | | Salinity (ppt): 4.00 | | | Temperature (C): 27.74 | | | |
| Dissolved Oxygen (mg/l): 5.85 | | | Sediment Silt-Clay (%): 96.01 | | | Total Carbon (%): 1.54 | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 0 | | | |
| | | Value | | Score | | Value | | Score | |
| Shannon-Weiner Index | | 1.94 | | Oligohaline Pollution Indicative Spp. Abund. 65.11 | | | | | |
| Abundance (#/m2) | | 2242 | | Tolerance Score | | | | 6.76 | |
| Deep Deposit Feeder Abundance (%) | | 14.63 | | Oligohaline Pollution Sensitive Spp. Abund. 0.00 | | | | | |
| Carnivore-Omnivore Abundance (%) | | 5.76 | | Tanypodinae/Chironomidae Abundance Ratio | | | | 66.67 | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| ----- | | | | | | | | | |
| Leptocheirus plumulosus | | 545 | 1000 | 1864 | 1136.4 | 669.59 | 545 | 1864 | 39.9 |
| Gammarus daiberi (Epi) | | 227 | 682 | 545 | 484.8 | 233.25 | 227 | 682 | 56.9 |
| Marenzelleria viridis | | 409 | 727 | 227 | 454.5 | 253.08 | 227 | 727 | 72.9 |
| Tubificoides spp. | | 136 | 273 | 682 | 363.6 | 283.86 | 136 | 682 | 85.6 |
| Neomysis americana (Epi) | | 45 | 136 | 91 | 90.9 | 45.45 | 45 | 136 | 88.8 |

| | | | | | | | | | | | |
|--|------------------------------|--|-----|----|--|------|------------|---|-----|------|--|
| | Macoma balthica | | 182 | | | 60.6 | 104.97 | 0 | 182 | 91.0 | |
| | Amerocolodes species complex | | | | | 136 | 45.5 78.73 | 0 | 136 | 92.6 | |
| | Rangia cuneata | | | | | 136 | 45.5 78.73 | 0 | 136 | 94.1 | |
| | Carinoma tremaphoros | | | 45 | | 45 | 30.3 26.24 | 0 | 45 | 95.2 | |
| | Coelotanypus spp. | | 45 | 45 | | | 30.3 26.24 | 0 | 45 | 96.3 | |
| | Cyathura polita | | | 45 | | 45 | 30.3 26.24 | 0 | 45 | 97.3 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 040 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Melita nitida (Epi) | | 91 | | 30.3 | 52.49 | 0 | 91 | 98.4 | |
| Cryptochironomus spp. | | | 45 | 15.2 | 26.24 | 0 | 45 | 98.9 | |
| Polydora cornuta | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.5 | |
| Procladius spp. | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 1636 | 3045 | 3864 | 2848.5 | 1126.62 | 1636 | 3864 | | |
| Total Abundance w/o Epifauna | 1364 | 2136 | 3227 | 2242.4 | 936.33 | 1364 | 3227 | | |
| Number of Taxa w/ Epifauna | 8 | 9 | 11 | 9.3 | 1.53 | 8 | 11 | | |
| Number of Taxa w/o Epifauna | 6 | 6 | 9 | 7.0 | 1.73 | 6 | 9 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Marenzelleria viridis | 0.8000 | 2.1500 | 0.9727 | 1.3076 | 0.7347 | 0.8000 | 2.1500 | 79.2 | |
| Leptocheirus plumulosus | 0.0500 | 0.0773 | 0.1955 | 0.1076 | 0.0773 | 0.0500 | 0.1955 | 85.7 | |
| Carinoma tremaphoros | | 0.0818 | 0.1455 | 0.0758 | 0.0729 | 0.0000 | 0.1455 | 90.3 | |
| Gammarus spp. (Epi) | 0.0273 | 0.0409 | 0.0500 | 0.0394 | 0.0114 | 0.0273 | 0.0500 | 92.7 | |
| Neomysis americana (Epi) | 0.0182 | 0.0545 | 0.0273 | 0.0333 | 0.0189 | 0.0182 | 0.0545 | 94.7 | |
| Tubificoides spp. | 0.0182 | 0.0136 | 0.0318 | 0.0212 | 0.0095 | 0.0136 | 0.0318 | 96.0 | |
| Coelotanypus spp. | 0.0273 | 0.0227 | | 0.0167 | 0.0146 | 0.0000 | 0.0273 | 97.0 | |
| Macoma balthica | 0.0455 | | | 0.0152 | 0.0262 | 0.0000 | 0.0455 | 97.9 | |
| Cyathura polita | | 0.0091 | 0.0227 | 0.0106 | 0.0114 | 0.0000 | 0.0227 | 98.5 | |

| | | | | | | | | | | |
|------------------------------|--|--------|--------|--------|--------|--------|--------|--------|-------|--|
| Ameroculodes species complex | | | | 0.0318 | 0.0106 | 0.0184 | 0.0000 | 0.0318 | 99.2 | |
| Polydora cornuta | | | | 0.0182 | 0.0061 | 0.0105 | 0.0000 | 0.0182 | 99.5 | |
| Rangia cuneata | | | | 0.0136 | 0.0045 | 0.0079 | 0.0000 | 0.0136 | 99.8 | |
| Chironomidae larvae | | 0.0023 | | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 99.9 | |
| Melita nitida (Epi) | | | 0.0045 | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| ----- | | | | | | | | | | |
| Total Biomass w/ Epifauna | | 0.9886 | 2.4545 | 1.5114 | 1.6515 | 0.7429 | 0.9886 | 2.4545 | | |
| Total Biomass w/o Epifauna | | 0.9432 | 2.3545 | 1.4341 | 1.5773 | 0.7165 | 0.9432 | 2.3545 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|--|--------|--|-------|--------|------------------------|-------|------|-------|
| ===== | | | | | | | | | |
| Station: 066 | | | | | | | | | |
| Watershed: Choptank River | | | Habitat: Oligohaline | | | Date: May 13, 1999 | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 12:40 | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 3.44 | | | Salinity (ppt): 2.60 | | | Temperature (C): 25.44 | | | |
| Dissolved Oxygen (mg/l): 7.61 | | | Sediment Silt-Clay (%): 83.12 | | | Total Carbon (%): 5.77 | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: | | | Condition: Not Applicable | | | # Attributes Scored: 0 | | | |
| | | Value | Score | | | Value | Score | | |
| Shannon-Weiner Index | | 2.38 | Oligohaline Pollution Indicative Spp. Abund. 39.28 | | | | | | |
| Abundance (#/m2) | | 3258 | Tolerance Score | | | 7.84 | | | |
| Deep Deposit Feeder Abundance (%) | | 34.27 | Oligohaline Pollution Sensitive Spp. Abund. 0.00 | | | | | | |
| Carnivore-Omnivore Abundance (%) | | 8.79 | Tanypodinae/Chironomidae Abundance Ratio | | | 86.67 | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| ----- | | | | | | | | | |
| Rangia cuneata | | 2364 | 227 | 773 | 1121.2 | 1110.00 | 227 | 2364 | 25.6 |
| Imm. Tubificid w/o Cap. Chaete | | * 1182 | 818 | 636 | 878.8 | 277.73 | 636 | 1182 | 45.7 |
| Littoridinops tenuipes (Epi) | | 1636 | 682 | 182 | 833.3 | 739.01 | 182 | 1636 | 64.7 |
| Marenzelleria viridis | | 909 | 591 | 682 | 727.3 | 163.89 | 591 | 909 | 81.3 |
| Gammarus daiberi (Epi) | | 182 | 136 | 136 | 151.5 | 26.24 | 136 | 182 | 84.8 |

| | | | | | | | | | | | |
|--------------------------|--|-----|-----|-----|--|-------|--------|----|-----|------|--|
| Coelotanypus spp. | | 91 | 136 | 182 | | 136.4 | 45.45 | 91 | 182 | 87.9 | |
| Turbellaria (Epi) | | 273 | | 136 | | 136.4 | 136.36 | 0 | 273 | 91.0 | |
| Limnodrilus hoffmeisteri | | 182 | 91 | 45 | | 106.1 | 69.43 | 45 | 182 | 93.4 | |
| Leptocheirus plumulosus | | 45 | | 136 | | 60.6 | 69.43 | 0 | 136 | 94.8 | |
| Arcteonais lomondi | | | 91 | 45 | | 45.5 | 45.45 | 0 | 91 | 95.8 | |
| Hobsonia florida | | 45 | | 91 | | 45.5 | 45.45 | 0 | 91 | 96.9 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 066 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Procladius spp. | 45 | | 45 | 30.3 | 26.24 | 0 | 45 | 97.6 | |
| Ameroculodes species complex | | 45 | | 15.2 | 26.24 | 0 | 45 | 97.9 | |
| Carinoma tremaphoros | | 45 | | 15.2 | 26.24 | 0 | 45 | 98.3 | |
| Chaoborus punctipennis | | | 45 | 15.2 | 26.24 | 0 | 45 | 98.6 | |
| Chiridotea almyra | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.0 | |
| Cryptochironomus spp. | | 45 | | 15.2 | 26.24 | 0 | 45 | 99.3 | |
| Polypedilum halterale | | 45 | | 15.2 | 26.24 | 0 | 45 | 99.7 | |
| Tubificoides spp. | | 45 | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 7000 | 3000 | 3136 | 4378.8 | 2271.06 | 3000 | 7000 | | |
| Total Abundance w/o Epifauna | 4909 | 2182 | 2682 | 3257.6 | 1451.94 | 2182 | 4909 | | |
| Number of Taxa w/ Epifauna | 11 | 12 | 12 | 11.7 | 0.58 | 11 | 12 | | |
| Number of Taxa w/o Epifauna | 8 | 10 | 9 | 9.0 | 1.00 | 8 | 10 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Rangia cuneata | 0.2227 | 0.1455 | 1.9091 | 0.7591 | 0.9967 | 0.1455 | 1.9091 | 56.3 | |
| Marenzelleria viridis | 0.4818 | 0.2091 | 0.3818 | 0.3576 | 0.1380 | 0.2091 | 0.4818 | 82.8 | |
| Oligochaeta | 0.1227 | 0.0727 | 0.0386 | 0.0780 | 0.0423 | 0.0386 | 0.1227 | 88.6 | |
| Coelotanypus spp. | 0.0227 | 0.0318 | 0.0409 | 0.0318 | 0.0091 | 0.0227 | 0.0409 | 91.0 | |
| Littoridinops tenuipes (Epi) | 0.0364 | 0.0364 | 0.0182 | 0.0303 | 0.0105 | 0.0182 | 0.0364 | 93.2 | |

| | | | | | | | | | |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|------|--|
| Gammarus spp. (Epi) | 0.0091 | 0.0273 | 0.0318 | 0.0227 | 0.0120 | 0.0091 | 0.0318 | 94.9 | |
| Turbellaria (Epi) | 0.0136 | | 0.0227 | 0.0121 | 0.0114 | 0.0000 | 0.0227 | 95.8 | |
| Carinoma tremaphoros | | 0.0318 | | 0.0106 | 0.0184 | 0.0000 | 0.0318 | 96.6 | |
| Hobsonia florida | 0.0023 | | 0.0273 | 0.0098 | 0.0151 | 0.0000 | 0.0273 | 97.3 | |
| Chaoborus punctipennis | | | 0.0273 | 0.0091 | 0.0157 | 0.0000 | 0.0273 | 98.0 | |
| Ameroculodes species complex | | 0.0227 | | 0.0076 | 0.0131 | 0.0000 | 0.0227 | 98.5 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 066 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Tubificoides spp. | | 0.0227 | | 0.0076 | 0.0131 | 0.0000 | 0.0227 | 99.1 | |
| Leptocheirus plumulosus | 0.0023 | | 0.0182 | 0.0068 | 0.0099 | 0.0000 | 0.0182 | 99.6 | |
| Chiridotea almyra | 0.0091 | | | 0.0030 | 0.0052 | 0.0000 | 0.0091 | 99.8 | |
| Chironomidae larvae | 0.0023 | 0.0023 | 0.0023 | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 0.9250 | 0.6023 | 2.5182 | 1.3485 | 1.0258 | 0.6023 | 2.5182 | | |
| Total Biomass w/o Epifauna | 0.8659 | 0.5386 | 2.4455 | 1.2833 | 1.0196 | 0.5386 | 2.4455 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|-------|-------------------------------|--|-------|------------------------|-------|-------|-------|--|
| ===== | | | | | | | | | |
| Station: 203 | | | | | | | | | |
| Watershed: Patapsco & Back Rivers | | | Habitat: Oligohaline | | Date: May 10, 1999 | | | | |
| Gear: Young Grab | | Sampled Area: 0.044 sq.m | | | Time: 12:27 | | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 1.92 | | Salinity (ppt): 3.40 | | | Temperature (C): 27.18 | | | | |
| Dissolved Oxygen (mg/l): 7.48 | | Sediment Silt-Clay (%): 97.30 | | | Total Carbon (%): 4.96 | | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | # Attributes Scored: 0 | | | | |
| | | Value | Score | | | Value | Score | | |
| Shannon-Weiner Index | | 1.42 | Oligohaline Pollution Indicative Spp. Abund. 29.14 | | | | | | |
| Abundance (#/m2) | | 1045 | Tolerance Score | | | 6.25 | | | |
| Deep Deposit Feeder Abundance (%) | | 18.00 | Oligohaline Pollution Sensitive Spp. Abund. | | | 0.00 | | | |
| Carnivore-Omnivore Abundance (%) | | 4.45 | Tanypodinae/Chironomidae Abundance Ratio | | | 38.89 | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | |
| Marenzelleria viridis | 568 | 818 | 591 | 659.1 | 138.24 | 568 | 818 | 63.0 | |
| Limnodrilus hoffmeisteri | | 273 | 159 | 143.9 | 136.99 | 0 | 273 | 76.8 | |
| Imm. Tubificid w/o Cap. Chaete | * | 136 | 114 | 83.3 | 73.06 | 0 | 136 | 84.8 | |
| Streblospio benedicti | 23 | 136 | 23 | 60.6 | 65.61 | 23 | 136 | 90.6 | |
| Coelotanypus spp. | | 91 | 23 | 37.9 | 47.31 | 0 | 91 | 94.2 | |

| | | | | | | | | |
|------------------|--|----|----|------|-------|---|----|------|
| Chironomus spp. | | 45 | 23 | 22.7 | 22.73 | 0 | 45 | 96.4 |
| Polydora cornuta | | 45 | 23 | 22.7 | 22.73 | 0 | 45 | 98.6 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 203 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | | 23 | 23 | 15.2 | 13.12 | 0 | 23 | 100.0 | |
| Total Abundance w/ Epifauna | 591 | 1568 | 977 | 1045.5 | 492.19 | 591 | 1568 | | |
| Total Abundance w/o Epifauna | 591 | 1568 | 977 | 1045.5 | 492.19 | 591 | 1568 | | |
| Number of Taxa w/ Epifauna | 2 | 7 | 7 | 5.3 | 2.89 | 2 | 7 | | |
| Number of Taxa w/o Epifauna | 2 | 7 | 7 | 5.3 | 2.89 | 2 | 7 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Marenzelleria viridis | 0.9545 | 1.1932 | 1.1591 | 1.1023 | 0.1291 | 0.9545 | 1.1932 | 94.9 | |
| Coelotanypus spp. | | 0.0659 | 0.0250 | 0.0303 | 0.0333 | 0.0000 | 0.0659 | 97.5 | |
| Macoma balthica | | 0.0091 | 0.0159 | 0.0083 | 0.0080 | 0.0000 | 0.0159 | 98.2 | |
| Polydora cornuta | | 0.0182 | 0.0068 | 0.0083 | 0.0092 | 0.0000 | 0.0182 | 99.0 | |
| Streblospio benedicti | 0.0068 | 0.0068 | 0.0045 | 0.0061 | 0.0013 | 0.0045 | 0.0068 | 99.5 | |
| Oligochaeta | | 0.0125 | 0.0045 | 0.0057 | 0.0063 | 0.0000 | 0.0125 | 100.0 | |
| Chironomidae larvae | | 0.0011 | | 0.0004 | 0.0007 | 0.0000 | 0.0011 | 100.0 | |
| Total Biomass w/ Epifauna | 0.9614 | 1.3068 | 1.2159 | 1.1614 | 0.1791 | 0.9614 | 1.3068 | | |
| Total Biomass w/o Epifauna | 0.9614 | 1.3068 | 1.2159 | 1.1614 | 0.1791 | 0.9614 | 1.3068 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| | | | | | | | | | | |
|-----------------------------------|--|---------------------------|-------------------------------|---|------|------------------------|-----|-------|-------|-------|
| ===== | | | | | | | | | | |
| Station: 036 | | | | | | | | | | |
| Watershed: Potomac River | | | Habitat: Tidal Freshwater | | | Date: May 12, 1999 | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 13:19 | | | | |
| ===== | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | |
| ===== | | | | | | | | | | |
| Depth (m): 1.98 | | | Salinity (ppt): 0.20 | | | Temperature (C): 28.34 | | | | |
| Dissolved Oxygen (mg/l): 6.03 | | | Sediment Silt-Clay (%): 86.03 | | | Total Carbon (%): 2.74 | | | | |
| ===== | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | |
| ===== | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 1 | | | | |
| | | Value | | Score | | | | Value | | Score |
| Shannon-Weiner Index | | 2.19 | | T.F. Pollution Indicative Spp. Abund. (%) | | 63.69 | | | | |
| Abundance (#/m2) | | 2152 | | Tolerance Score | | 8.14 | | | | |
| Deep Deposit Feeder Abundance (%) | | 49.29 | | Limnodrilus Abundance (%) | | 41.10 | | | | |
| Carnivore-Omnivore Abundance (%) | | 23.30 | | | | | | | | |
| ===== | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | |
| ===== | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | |
| Imm. Tubificid w/o Cap. Chaete | | 500 | 1636 | 681 | 939 | 610.31 | 500 | 1636 | 42.22 | |
| Corbicula fluminea | | 455 | 727 | 455 | 546 | 157.04 | 455 | 727 | 66.77 | |
| Stictochironomus spp. | | 227 | 227 | 45 | 166 | 105.08 | 45 | 227 | 74.24 | |

| | | | | | | | | | | | |
|-------------------------------|--|-----|-----|-----|--|-----|--------|----|-----|--------|--|
| Coelotanypus spp. | | 181 | 181 | 90 | | 151 | 52.54 | 90 | 181 | 81.03 | |
| Polypedilium halterale group | | | 318 | 136 | | 151 | 159.55 | 0 | 318 | 87.81 | |
| Branchiura sowerbi | | | 45 | 273 | | 106 | 146.37 | 0 | 273 | 92.58 | |
| Gammarus spp. (Epi.) | | 90 | 136 | | | 75 | 69.18 | 0 | 273 | 95.95 | |
| Imm. Tubificid w/ Cap. Chaete | | 45 | | 90 | | 45 | 45.00 | 0 | 90 | 97.98 | |
| Goniobasis virginica (Epi.) | | 45 | | | | 15 | 25.98 | 0 | 45 | 98.65 | |
| Pisidium spp. | | 45 | | | | 15 | 25.95 | 0 | 45 | 99.33 | |
| Chironomidae pupae * | | | 45 | | | 15 | 25.98 | 0 | 45 | 99.55 | |
| Chironomus spp. | | | | 45 | | 15 | 25.98 | 0 | 45 | 100.00 | |

=====

| | | | | | | | | | | | |
|------------------------------|--|------|------|------|--|--------|--------|------|------|--|--|
| Total Abundance w/ Epifauna | | 1588 | 3406 | 1815 | | 2269.7 | 990.62 | 1588 | 3406 | | |
| Total Abundance w/o Epifauna | | 1453 | 3270 | 1815 | | 2179.3 | 961.73 | 1815 | 3270 | | |
| Number of Taxa w/ Epifauna | | 8 | 8 | 8 | | 8.0 | 0.00 | 8 | 8 | | |
| Number of Taxa w/o Epifauna | | 6 | 7 | 8 | | 7.0 | 1.00 | 6 | 8 | | |

BENTHIC BIOMASS (Grams per sq. meter)

| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
|----------------------------|---------|----------|--------|---------|---------|--------|----------|-------|
| Corbicula fluminea | 64.3863 | 135.9317 | 7.9954 | 69.4378 | 64.1175 | 7.9954 | 135.9317 | 98.2 |
| Goniobasis virginica (Epi) | 2.2591 | | | 0.7530 | 1.3043 | 0.0000 | 2.2591 | 99.2 |
| Branchiura sowerbyi | | 0.1364 | 1.2500 | 0.4621 | 0.6857 | 0.0000 | 1.2500 | 99.9 |
| Coelotanypus spp. | 0.0318 | 0.0545 | 0.0318 | 0.0394 | 0.0131 | 0.0318 | 0.0545 | 99.9 |
| Oligochaeta | 0.0023 | 0.0818 | 0.0023 | 0.0288 | 0.0459 | 0.0023 | 0.0818 | 100.0 |
| Gammarus spp. (Epi) | 0.0136 | 0.0182 | | 0.0106 | 0.0095 | 0.0000 | 0.0182 | 100.0 |
| Pisidium spp. | 0.0182 | | | 0.0061 | 0.0105 | 0.0000 | 0.0182 | 100.0 |
| Chironomidae pupae | | 0.0136 | | 0.0045 | 0.0079 | 0.0000 | 0.0136 | 100.0 |
| Chironomidae larvae | 0.0023 | 0.0023 | 0.0023 | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 100.0 |
| Total Biomass w/ Epifauna | 66.7136 | 136.2385 | 9.2818 | 70.7446 | 63.5743 | 9.2818 | 136.2385 | |
| Total Biomass w/o Epifauna | 64.4408 | 136.2203 | 9.2818 | 69.9810 | 63.6503 | 9.2818 | 136.2203 | |

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

| ===== | | | | | | | | | | | |
|-----------------------------------|--|---------------------------|-------------------------------|---|------|------------------------|--------|-------|-------|------|--|
| Station: 079 | | | | | | | | | | | |
| Watershed: Patuxent River | | | Habitat: Tidal Freshwater | | | Date: May 11, 1999 | | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 8:43 | | | | | |
| ===== | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| Depth (m): 0.91 | | | Salinity (ppt): 1.00 | | | Temperature (C): 28.3 | | | | | |
| Dissolved Oxygen (mg/l): 6.45 | | | Sediment Silt-Clay (%): 78.86 | | | Total Carbon (%): 3.37 | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| B-IBI Score: | | Condition: Not Applicable | | | | # Attributes Scored: 1 | | | | | |
| | | Value | | Score | | Value | | Score | | | |
| Shannon-Weiner Index | | 2.17 | | T.F. Pollution Indicative Spp. Abund. (%) | | 94.07 | | | | | |
| Abundance (#/m2) | | 1712 | | Tolerance Score | | 9.13 | | | | | |
| Deep Deposit Feeder Abundance (%) | | 84.12 | | Limnodrilus Abundance (%) | | 69.55 | | | | | |
| Carnivore-Omnivore Abundance (%) | | 14.40 | | | | | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | | |
| ----- | | | | | | | | | | | |
| Imm. Tubificid w/o Cap. Chaete | | * | 545 | 909 | 364 | 606.1 | 277.73 | 364 | 909 | 35.4 | |
| Limnodrilus hoffmeisteri | | | 545 | 909 | 227 | 560.6 | 341.16 | 227 | 909 | 68.1 | |
| Coelotanypus spp. | | | 45 | 227 | 182 | 151.5 | 94.62 | 45 | 227 | 77.0 | |

| | | | | | | | | | | | |
|--|-------------------------------|---|-----|----|----|------|--------|---|-----|------|--|
| | Arcteonais lomondi | | 273 | | | 90.9 | 157.46 | 0 | 273 | 82.3 | |
| | Ilyodrilus templetoni | | 182 | 91 | | 90.9 | 90.91 | 0 | 182 | 87.6 | |
| | Imm. Tubificid w/ Cap. Chaete | * | 91 | 91 | | 60.6 | 52.49 | 0 | 91 | 91.2 | |
| | Quistadrilus multisetosus | | 182 | | | 60.6 | 104.97 | 0 | 182 | 94.7 | |
| | Harnischia spp. | | 45 | | 45 | 30.3 | 26.24 | 0 | 45 | 96.5 | |
| | Marenzelleria viridis | | 91 | | | 30.3 | 52.49 | 0 | 91 | 98.2 | |
| | Limnodrilus udekemianus | | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.1 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SPRING 1999 (CRUISE 2: 1998/1999)

FIXED SITES

(Station: 079 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Procladius spp. | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 2045 | 2227 | 864 | 1712.1 | 740.41 | 864 | 2227 | | |
| Total Abundance w/o Epifauna | 2045 | 2227 | 864 | 1712.1 | 740.41 | 864 | 2227 | | |
| Number of Taxa w/ Epifauna | 8 | 3 | 4 | 5.0 | 2.65 | 3 | 8 | | |
| Number of Taxa w/o Epifauna | 8 | 3 | 4 | 5.0 | 2.65 | 3 | 8 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Oligochaeta | 0.4818 | 0.5545 | 0.4455 | 0.4939 | 0.0555 | 0.4455 | 0.5545 | 86.0 | |
| Coelotanypus spp. | 0.0227 | 0.0727 | 0.0591 | 0.0515 | 0.0258 | 0.0227 | 0.0727 | 95.0 | |
| Marenzelleria viridis | 0.0818 | | 0.0273 | 0.0472 | 0.0000 | 0.0818 | 0.0818 | 99.7 | |
| Chironomidae larvae | 0.0023 | | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 0.5886 | 0.6273 | 0.5068 | 0.5742 | 0.0615 | 0.5068 | 0.6273 | | |
| Total Biomass w/o Epifauna | 0.5886 | 0.6273 | 0.5068 | 0.5742 | 0.0615 | 0.5068 | 0.6273 | | |

APPENDIX E

**BENTHIC ENVIRONMENT AND COMMUNITY
COMPOSITION AT FIXED SITES:
SUMMER 1999**

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

```

=====
|                               Station: 001                               |
| Watershed: Mainstem           Habitat: High Mesohaline Sand           Date: September 10, 1999 |
| Gear: Modified Box Corer      Sampled Area: 0.025 sq.m              Time: 12:50              |
=====
  
```

```

=====
|                               BOTTOM ENVIRONMENT                               |
=====
| Depth (m): 2.5                Salinity (ppt): 17.95                Temperature (C): 25.32    |
| Dissolved Oxygen (mg/l): 6.8  Sediment Silt-Clay (%): 0.98        Total Carbon (%): 0.10  |
=====
  
```

```

=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
=====
| B-IBI Score: 4.00             Condition: Meets Goal             # Attributes Scored: 6   |
|                               Value  Score                               Value  Score |
| Shannon-Weiner Index         2.84   3   Pollution Indicative Species Abundance (%)  0.00   5   |
| Abundance (#/m2)             1220   3   Pollution Indicative Species Biomass (%)    0.00   |
| Biomass (g/m2)               2.45   3   Pollution Sensitive Species Abundance (%)  70.25   5   |
| Carnivore-Omnivore Abundance (%) 68.54   5   Pollution Sensitive Species Biomass (%)    11.02   |
| Deep Deposit Feeder Abundance (%) 3.49                                     |
=====
  
```

```

=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====
|                               | Rep 2   Rep 3   | Mean  Std.Dev  Min   Max   Cum % |
-----
| Glycinde solitaria          | 400   480   | 440.0 56.57  400   480   35.5 |
| Acteocina canaliculata     | 160   240   | 200.0 56.57  160   240   51.6 |
  
```

| | | | | | | | | | | |
|---------------------------|--|----|-----|--|-------|--------|----|-----|------|--|
| Gemma gemma | | 40 | 280 | | 160.0 | 169.71 | 40 | 280 | 64.5 | |
| Laeonereis culveri | | 40 | 120 | | 80.0 | 56.57 | 40 | 120 | 71.0 | |
| Spiochaetopterus costarum | | 80 | 80 | | 80.0 | 0.00 | 80 | 80 | 77.4 | |
| Micrura leidyi | | 40 | 80 | | 60.0 | 28.28 | 40 | 80 | 82.3 | |
| Paraonis fulgens | | | 120 | | 60.0 | 84.85 | 0 | 120 | 87.1 | |
| Mediomastus ambiseta | | 40 | 40 | | 40.0 | 0.00 | 40 | 40 | 90.3 | |
| Spiophanes bombyx | | 40 | 40 | | 40.0 | 0.00 | 40 | 40 | 93.5 | |
| Amphiporus bioculatus | | 40 | | | 20.0 | 28.28 | 0 | 40 | 95.2 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 001 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | |
|--|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Haminoea solitaria | | 40 | 20.0 | 28.28 | 0 | 40 | 96.8 | |
| Phoronis architecta | 40 | | 20.0 | 28.28 | 0 | 40 | 98.4 | |
| Rhithropanopeus harrisi (Epi) | | 40 | 20.0 | 28.28 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 920 | 1560 | 1240.0 | 452.55 | 920 | 1560 | | |
| Total Abundance w/o Epifauna | 920 | 1520 | 1220.0 | 424.26 | 920 | 1520 | | |
| Number of Taxa w/ Epifauna | 10 | 11 | 10.5 | 0.71 | 10 | 11 | | |
| Number of Taxa w/o Epifauna | 10 | 10 | 10.0 | 0.00 | 10 | 10 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | |
| | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Laeonereis culveri | 0.5760 | 2.0400 | 1.3080 | 1.0352 | 0.5760 | 2.0400 | 53.3 | |
| Micrura leidyi | 0.3200 | 1.2080 | 0.7640 | 0.6279 | 0.3200 | 1.2080 | 84.4 | |
| Spiophanes bombyx | 0.1320 | 0.2160 | 0.1740 | 0.0594 | 0.1320 | 0.2160 | 91.5 | |
| Spiochaetopterus costarum | 0.0880 | 0.1040 | 0.0960 | 0.0113 | 0.0880 | 0.1040 | 95.4 | |
| Acteocina canaliculata | 0.0360 | 0.0560 | 0.0460 | 0.0141 | 0.0360 | 0.0560 | 97.3 | |
| Glycinde solitaria | 0.0160 | 0.0280 | 0.0220 | 0.0085 | 0.0160 | 0.0280 | 98.2 | |
| Phoronis architecta | 0.0240 | | 0.0120 | 0.0170 | 0.0000 | 0.0240 | 98.7 | |
| Haminoea solitaria | | 0.0200 | 0.0100 | 0.0141 | 0.0000 | 0.0200 | 99.1 | |
| Rhithropanopeus harrisi (Epi) | | 0.0120 | 0.0060 | 0.0085 | 0.0000 | 0.0120 | 99.3 | |

| | | | | | | | | |
|----------------------------|--------|--------|--------|--------|--------|--------|-------|--|
| Gemma gemma | 0.0020 | 0.0080 | 0.0050 | 0.0042 | 0.0020 | 0.0080 | 99.6 | |
| Amphiporus bioculatus | 0.0080 | | 0.0040 | 0.0057 | 0.0000 | 0.0080 | 99.7 | |
| Paraonis fulgens | | 0.0080 | 0.0040 | 0.0057 | 0.0000 | 0.0080 | 99.9 | |
| Mediomastus ambiseta | 0.0020 | 0.0040 | 0.0030 | 0.0014 | 0.0020 | 0.0040 | 100.0 | |
| ----- | | | | | | | | |
| Total Biomass w/ Epifauna | 1.2040 | 3.7040 | 2.4540 | 1.7678 | 1.2040 | 3.7040 | | |
| Total Biomass w/o Epifauna | 1.2040 | 3.6920 | 2.4480 | 1.7593 | 1.2040 | 3.6920 | | |

=====
 * Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | |
|-------------------------------------|-------|-------|-------------------------------|-------|--|------------------------|-----|-------|--|
| ===== | | | | | | | | | |
| Station: 006 | | | | | | | | | |
| Watershed: Calvert Cliffs Discharge | | | Habitat: High Mesohaline Sand | | Date: September 10, 1999 | | | | |
| Gear: Modified Box Corer | | | Sampled Area: 0.025 sq.m | | Time: 12:30 | | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 2.5 | | | Salinity (ppt): 17.89 | | Temperature (C): 25.24 | | | | |
| Dissolved Oxygen (mg/l): 7.2 | | | Sediment Silt-Clay (%): 0.47 | | Total Carbon (%): 0.04 | | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: 3.33 | | | Condition: Meets Goal | | | # Attributes Scored: 6 | | | |
| | Value | | Score | | | Value | | Score | |
| Shannon-Weiner Index | 2.37 | | 1 | | Pollution Indicative Species Abundance (%) | 0.00 | | 5 | |
| Abundance (#/m2) | 1173 | | 3 | | Pollution Indicative Species Biomass (%) | 0.00 | | | |
| Biomass (g/m2) | 0.66 | | 1 | | Pollution Sensitive Species Abundance (%) | 62.81 | | 5 | |
| Carnivore-Omnivore Abundance (%) | 67.84 | | 5 | | Pollution Sensitive Species Biomass (%) | 51.59 | | | |
| Deep Deposit Feeder Abundance (%) | 4.44 | | | | | | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Acteocina canaliculata | 400 | 640 | 680 | 573.3 | 151.44 | 400 | 680 | 48.9 | |
| Gemma gemma | 120 | 240 | 240 | 200.0 | 69.28 | 120 | 240 | 65.9 | |

| | | | | | | | | | | | |
|---------------------------|--|----|----|----|--|------|-------|----|----|------|--|
| Glycinde solitaria | | 80 | 40 | 80 | | 66.7 | 23.09 | 40 | 80 | 71.6 | |
| Micrura leidyi | | 40 | 80 | 80 | | 66.7 | 23.09 | 40 | 80 | 77.3 | |
| Spiochaetopterus costarum | | 40 | | 80 | | 40.0 | 40.00 | 0 | 80 | 80.7 | |
| Amphiporus bioculatus | | | | 80 | | 26.7 | 46.19 | 0 | 80 | 83.0 | |
| Branchiostoma virginiae | | 80 | | | | 26.7 | 46.19 | 0 | 80 | 85.2 | |
| Cyathura polita | | 40 | 40 | | | 26.7 | 23.09 | 0 | 40 | 87.5 | |
| Parahesion luteola | | | 40 | 40 | | 26.7 | 23.09 | 0 | 40 | 89.8 | |
| Americamysis almyra | | 40 | | | | 13.3 | 23.09 | 0 | 40 | 90.9 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 006 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Haminoea solitaria | | | 40 | 13.3 | 23.09 | 0 | 40 | 92.0 | |
| Heteromastus filiformis | 40 | | | 13.3 | 23.09 | 0 | 40 | 93.2 | |
| Laeonereis culveri | 40 | | | 13.3 | 23.09 | 0 | 40 | 94.3 | |
| Lepidactylus dytiscus | | | 40 | 13.3 | 23.09 | 0 | 40 | 95.5 | |
| Pectinaria gouldii | 40 | | | 13.3 | 23.09 | 0 | 40 | 96.6 | |
| Phoronis architecta | | 40 | | 13.3 | 23.09 | 0 | 40 | 97.7 | |
| Spiophanes bombyx | | 40 | | 13.3 | 23.09 | 0 | 40 | 98.9 | |
| Tubificoides spp. | | 40 | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 960 | 1200 | 1360 | 1173.3 | 201.33 | 960 | 1360 | | |
| Total Abundance w/o Epifauna | 960 | 1200 | 1360 | 1173.3 | 201.33 | 960 | 1360 | | |
| Number of Taxa w/ Epifauna | 11 | 9 | 9 | 9.7 | 1.15 | 9 | 11 | | |
| Number of Taxa w/o Epifauna | 11 | 9 | 9 | 9.7 | 1.15 | 9 | 11 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Laeonereis culveri | 0.4120 | | | 0.1373 | 0.2379 | 0.0000 | 0.4120 | 20.9 | |
| Branchiostoma virginiae | 0.3680 | | | 0.1227 | 0.2125 | 0.0000 | 0.3680 | 39.6 | |
| Acteocina canaliculata | 0.0720 | 0.0840 | 0.1000 | 0.0853 | 0.0140 | 0.0720 | 0.1000 | 52.6 | |

| | | | | | | | | | | | |
|----------------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|------|--|
| <i>Cyathura polita</i> | | 0.2360 | 0.0040 | | 0.0800 | 0.1351 | 0.0000 | 0.2360 | 64.8 | | |
| <i>Lepidactylus dytiscus</i> | | | | 0.1520 | | 0.0507 | 0.0878 | 0.0000 | 0.1520 | 72.5 | |
| <i>Spiophanes bombyx</i> | | | 0.1000 | | | 0.0333 | 0.0577 | 0.0000 | 0.1000 | 77.6 | |
| <i>Heteromastus filiformis</i> | | 0.0920 | | | | 0.0307 | 0.0531 | 0.0000 | 0.0920 | 82.2 | |
| <i>Phoronis architecta</i> | | | 0.0760 | | | 0.0253 | 0.0439 | 0.0000 | 0.0760 | 86.1 | |
| <i>Micrura leidyi</i> | | 0.0080 | 0.0240 | 0.0400 | | 0.0240 | 0.0160 | 0.0080 | 0.0400 | 89.7 | |
| <i>Spiochaetopterus costarum</i> | | 0.0020 | | 0.0680 | | 0.0233 | 0.0387 | 0.0000 | 0.0680 | 93.3 | |
| <i>Parahesionia luteola</i> | | | 0.0020 | 0.0360 | | 0.0127 | 0.0202 | 0.0000 | 0.0360 | 95.2 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 006 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Glycinde solitaria | 0.0020 | 0.0020 | 0.0200 | 0.0080 | 0.0104 | 0.0020 | 0.0200 | 96.4 | |
| Amphiporus bioculatus | | | 0.0200 | 0.0067 | 0.0115 | 0.0000 | 0.0200 | 97.5 | |
| Haminoea solitaria | | | 0.0160 | 0.0053 | 0.0092 | 0.0000 | 0.0160 | 98.3 | |
| Americamysis almyra | 0.0120 | | | 0.0040 | 0.0069 | 0.0000 | 0.0120 | 98.9 | |
| Gemma gemma | 0.0020 | 0.0020 | 0.0080 | 0.0040 | 0.0035 | 0.0020 | 0.0080 | 99.5 | |
| Tubificoides spp. | | 0.0080 | | 0.0027 | 0.0046 | 0.0000 | 0.0080 | 99.9 | |
| Pectinaria gouldii | 0.0020 | | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Total Biomass w/ Epifauna | 1.2080 | 0.3020 | 0.4600 | 0.6567 | 0.4840 | 0.3020 | 1.2080 | | |
| Total Biomass w/o Epifauna | 1.2080 | 0.3020 | 0.4600 | 0.6567 | 0.4840 | 0.3020 | 1.2080 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|--|-------|-------------------------------|--|------|--------------------------|-------|-----|-------|
| ===== | | | | | | | | | |
| Station: 015 | | | | | | | | | |
| Watershed: Mainstem | | | Habitat: High Mesohaline Sand | | | Date: September 10, 1999 | | | |
| Gear: Modified Box Corer | | | Sampled Area: 0.025 sq.m | | | Time: 10:49 | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 2.5 | | | Salinity (ppt): 16.76 | | | Temperature (C): 24.71 | | | |
| Dissolved Oxygen (mg/l): 5.9 | | | Sediment Silt-Clay (%): 0.92 | | | Total Carbon (%): 0.06 | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: 2.33 | | | Condition: Degraded | | | # Attributes Scored: 6 | | | |
| | | Value | Score | | | Value | Score | | |
| Shannon-Weiner Index | | 2.26 | 1 | Pollution Indicative Species Abundance (%) | | 4.17 | 5 | | |
| Abundance (#/m2) | | 253 | 1 | Pollution Indicative Species Biomass (%) | | 0.59 | | | |
| Biomass (g/m2) | | 0.38 | 1 | Pollution Sensitive Species Abundance (%) | | 8.93 | 1 | | |
| Carnivore-Omnivore Abundance (%) | | 38.69 | 5 | Pollution Sensitive Species Biomass (%) | | 0.29 | | | |
| Deep Deposit Feeder Abundance (%) | | 17.26 | | | | | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| ----- | | | | | | | | | |
| Macoma mitchelli | | 80 | 40 | 40 | 53.3 | 23.09 | 40 | 80 | 21.1 |
| Micrura leidyi | | 40 | 40 | 80 | 53.3 | 23.09 | 40 | 80 | 42.1 |

| | | | | | | | | | | | |
|------------------------------|--|----|----|----|------|-------|-------|----|------|------|--|
| Amerocolodes species complex | | 40 | 80 | | 40.0 | 40.00 | 0 | 80 | 57.9 | | |
| Glycinde solitaria | | 40 | 40 | | 26.7 | 23.09 | 0 | 40 | 68.4 | | |
| Heteromastus filiformis | | | 40 | 40 | | 26.7 | 23.09 | 0 | 40 | 78.9 | |
| Gemma gemma | | 40 | | | 13.3 | 23.09 | 0 | 40 | 84.2 | | |
| Mulinia lateralis | | | 40 | | 13.3 | 23.09 | 0 | 40 | 89.5 | | |
| Neanthes succinea | | | 40 | | 13.3 | 23.09 | 0 | 40 | 94.7 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 015 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Tubificoides spp. | 40 | | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 280 | 320 | 160 | 253.3 | 83.27 | 160 | 320 | | |
| Total Abundance w/o Epifauna | 280 | 320 | 160 | 253.3 | 83.27 | 160 | 320 | | |
| Number of Taxa w/ Epifauna | 6 | 7 | 3 | 5.3 | 2.08 | 3 | 7 | | |
| Number of Taxa w/o Epifauna | 6 | 7 | 3 | 5.3 | 2.08 | 3 | 7 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Micrura leidyi | 0.4600 | 0.4160 | 0.2120 | 0.3627 | 0.1323 | 0.2120 | 0.4600 | 95.4 | |
| Neanthes succinea | | 0.0160 | | 0.0053 | 0.0092 | 0.0000 | 0.0160 | 96.8 | |
| Mulinia lateralis | | 0.0080 | | 0.0027 | 0.0046 | 0.0000 | 0.0080 | 97.5 | |
| Macoma mitchelli | 0.0020 | 0.0040 | 0.0020 | 0.0027 | 0.0012 | 0.0020 | 0.0040 | 98.2 | |
| Heteromastus filiformis | | 0.0040 | 0.0020 | 0.0020 | 0.0020 | 0.0000 | 0.0040 | 98.8 | |
| Ameroculodes species complex | 0.0040 | 0.0020 | | 0.0020 | 0.0020 | 0.0000 | 0.0040 | 99.3 | |
| Glycinde solitaria | 0.0020 | 0.0020 | | 0.0013 | 0.0012 | 0.0000 | 0.0020 | 99.6 | |
| Gemma gemma | | 0.0020 | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 99.8 | |
| Tubificoides spp. | 0.0020 | | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |

| | | | | | | | | | | | |
|--|----------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|--|
| | Total Biomass w/ Epifauna | | 0.4720 | 0.4520 | 0.2160 | | 0.3800 | 0.1424 | 0.2160 | 0.4720 | |
| | Total Biomass w/o Epifauna | | 0.4720 | 0.4520 | 0.2160 | | 0.3800 | 0.1424 | 0.2160 | 0.4720 | |

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* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| ===== | | | | | | | | | |
|-----------------------------------|-------|-------|-------------------------------|-------|--|-------------------------|------|-------|-------|
| Station: 022 | | | | | | | | | |
| Watershed: Patapsco & Back Rivers | | | Habitat: Low Mesohaline | | | Date: September 8, 1999 | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 15:14 | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 6.0 | | | Salinity (ppt): 12.37 | | | Temperature (C): 24.18 | | | |
| Dissolved Oxygen (mg/l): 3.6 | | | Sediment Silt-Clay (%): 62.20 | | | Total Carbon (%): 2.94 | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: 1.80 | | | Condition: Severely Degraded | | | # Attributes Scored: 5 | | | |
| | Value | | Score | | | Value | | Score | |
| Shannon-Weiner Index | 1.34 | | 1 | | Pollution Indicative Species Abundance (%) | 75.66 | | 1 | |
| Abundance (#/m2) | 1773 | | 5 | | Pollution Indicative Species Biomass (%) | 61.26 | | | |
| Biomass (g/m2) | 0.12 | | 1 | | Pollution Sensitive Species Abundance (%) | 1.59 | | | |
| Carnivore-Omnivore Abundance (%) | 12.01 | | | | Pollution Sensitive Species Biomass (%) | 1.00 | | 1 | |
| Deep Deposit Feeder Abundance (%) | 13.07 | | | | | | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| ----- | | | | | | | | | |
| Streblospio benedicti | | 1682 | 1000 | 1182 | 1287.9 | 353.07 | 1000 | 1682 | 68.0 |
| Tubificoides spp. | | 91 | 227 | 364 | 227.3 | 136.36 | 91 | 364 | 80.0 |
| Neanthes succinea | | 136 | 45 | 364 | 181.8 | 163.89 | 45 | 364 | 89.6 |

| | | | | | | | | | | | |
|-------------------------------|--|----|----|-----|--|------|-------|----|-----|------|--|
| Hypereteone heteropoda | | 91 | 45 | 91 | | 75.8 | 26.24 | 45 | 91 | 93.6 | |
| Mytilopsis leucophaeata (Epi) | | | | 136 | | 45.5 | 78.73 | 0 | 136 | 96.0 | |
| Glycinde solitaria | | 91 | | | | 30.3 | 52.49 | 0 | 91 | 97.6 | |
| Balanus improvisus (Epi) | | | | 45 | | 15.2 | 26.24 | 0 | 45 | 98.4 | |
| Leptocheirus plumulosus | | | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.2 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 022 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Polydora cornuta | | | 45 | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 2091 | 1364 | 2227 | 1893.9 | 464.29 | 1364 | 2227 | | |
| Total Abundance w/o Epifauna | 2091 | 1364 | 2045 | 1833.3 | 407.40 | 1364 | 2091 | | |
| Number of Taxa w/ Epifauna | 5 | 5 | 7 | 5.7 | 1.15 | 5 | 7 | | |
| Number of Taxa w/o Epifauna | 5 | 5 | 5 | 5.0 | 0.00 | 5 | 5 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Balanus improvisus (Epi) | | | 0.1500 | 0.0500 | 0.0866 | 0.0000 | 0.1500 | 27.7 | |
| Streblospio benedicti | 0.0455 | 0.0364 | 0.0455 | 0.0424 | 0.0052 | 0.0364 | 0.0455 | 51.3 | |
| Hypereteone heteropoda | 0.0955 | 0.0023 | 0.0227 | 0.0402 | 0.0490 | 0.0023 | 0.0955 | 73.5 | |
| Neanthes succinea | 0.0023 | 0.0091 | 0.0636 | 0.0250 | 0.0336 | 0.0023 | 0.0636 | 87.4 | |
| Mytilopsis leucophaeata (Epi) | | | 0.0364 | 0.0121 | 0.0210 | 0.0000 | 0.0364 | 94.1 | |
| Polydora cornuta | | | 0.0136 | 0.0045 | 0.0079 | 0.0000 | 0.0136 | 96.6 | |
| Tubificoides spp. | 0.0045 | 0.0023 | 0.0023 | 0.0030 | 0.0013 | 0.0023 | 0.0045 | 98.3 | |
| Glycinde solitaria | 0.0045 | | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 99.2 | |
| Leptocheirus plumulosus | | 0.0045 | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| Total Biomass w/ Epifauna | 0.1523 | 0.0545 | 0.3341 | 0.1803 | 0.1419 | 0.0545 | 0.3341 | | |

| Total Biomass w/o Epifauna | 0.1523 0.0545 0.1477 | 0.1182 0.0552 0.0545 0.1523 |

=====

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|-------|-------|-------------------------------|-------|--|-------------------------|-----|-------|-------|
| ===== | | | | | | | | | |
| Station: 023 | | | | | | | | | |
| Watershed: Patapsco & Back Rivers | | | Habitat: Low Mesohaline | | | Date: September 8, 1999 | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 14:09 | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 6.0 | | | Salinity (ppt): 12.61 | | | Temperature (C): 24.40 | | | |
| Dissolved Oxygen (mg/l): 5.6 | | | Sediment Silt-Clay (%): 77.40 | | | Total Carbon (%): 1.88 | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: 1.80 | | | Condition: Severely Degraded | | | # Attributes Scored: 5 | | | |
| | Value | | Score | | | Value | | Score | |
| Shannon-Weiner Index | 2.21 | | 3 | | Pollution Indicative Species Abundance (%) | 35.42 | | 1 | |
| Abundance (#/m2) | 1136 | | 3 | | Pollution Indicative Species Biomass (%) | 30.26 | | | |
| Biomass (g/m2) | 0.29 | | 1 | | Pollution Sensitive Species Abundance (%) | 5.99 | | | |
| Carnivore-Omnivore Abundance (%) | 13.74 | | | | Pollution Sensitive Species Biomass (%) | 12.53 | | 1 | |
| Deep Deposit Feeder Abundance (%) | 28.26 | | | | | | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| Streblospio benedicti | | 636 | 455 | 91 | 393.9 | 277.73 | 91 | 636 | 34.7 |
| Tubificoides spp. | | 91 | 636 | | 242.4 | 344.18 | 0 | 636 | 56.0 |

| | | | | | | | | | | | |
|-------------------------|--|-----|----|-----|--|-------|--------|----|-----|------|--|
| Leptocheirus plumulosus | | 182 | 91 | 318 | | 197.0 | 114.39 | 91 | 318 | 73.3 | |
| Heteromastus filiformis | | 45 | 45 | 182 | | 90.9 | 78.73 | 45 | 182 | 81.3 | |
| Neanthes succinea | | 45 | 45 | 91 | | 60.6 | 26.24 | 45 | 91 | 86.7 | |
| Glycinde solitaria | | | 45 | 91 | | 45.5 | 45.45 | 0 | 91 | 90.7 | |
| Hypereteone heteropoda | | 91 | | 45 | | 45.5 | 45.45 | 0 | 91 | 94.7 | |
| Macoma mitchelli | | 45 | | 45 | | 30.3 | 26.24 | 0 | 45 | 97.3 | |
| Carinoma tremaphoros | | 45 | | | | 15.2 | 26.24 | 0 | 45 | 98.7 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 023 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 1227 | 1318 | 864 | 1136.4 | 240.52 | 864 | 1318 | | |
| Total Abundance w/o Epifauna | 1227 | 1318 | 864 | 1136.4 | 240.52 | 864 | 1318 | | |
| Number of Taxa w/ Epifauna | 9 | 6 | 7 | 7.3 | 1.53 | 6 | 9 | | |
| Number of Taxa w/o Epifauna | 9 | 6 | 7 | 7.3 | 1.53 | 6 | 9 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Leptocheirus plumulosus | 0.0636 | 0.0273 | 0.1045 | 0.0652 | 0.0387 | 0.0273 | 0.1045 | 22.8 | |
| Hypereteone heteropoda | 0.0227 | | 0.1409 | 0.0545 | 0.0757 | 0.0000 | 0.1409 | 41.8 | |
| Macoma balthica | 0.1409 | | | 0.0470 | 0.0814 | 0.0000 | 0.1409 | 58.2 | |
| Carinoma tremaphoros | 0.1364 | | | 0.0455 | 0.0787 | 0.0000 | 0.1364 | 74.1 | |
| Heteromastus filiformis | 0.0773 | 0.0227 | 0.0045 | 0.0348 | 0.0378 | 0.0045 | 0.0773 | 86.2 | |
| Streblospio benedicti | 0.0318 | 0.0227 | 0.0045 | 0.0197 | 0.0139 | 0.0045 | 0.0318 | 93.1 | |
| Glycinde solitaria | | 0.0023 | 0.0182 | 0.0068 | 0.0099 | 0.0000 | 0.0182 | 95.5 | |
| Tubificoides spp. | 0.0136 | 0.0045 | | 0.0061 | 0.0069 | 0.0000 | 0.0136 | 97.6 | |
| Neanthes succinea | 0.0091 | 0.0023 | 0.0045 | 0.0053 | 0.0035 | 0.0023 | 0.0091 | 99.5 | |
| Macoma mitchelli | 0.0023 | | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |

| | | | | | | | | | | | |
|-------|----------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|--|
| ----- | | | | | | | | | | | |
| | Total Biomass w/ Epifauna | | 0.4977 | 0.0818 | 0.2795 | | 0.2864 | 0.2080 | 0.0818 | 0.4977 | |
| | Total Biomass w/o Epifauna | | 0.4977 | 0.0818 | 0.2795 | | 0.2864 | 0.2080 | 0.0818 | 0.4977 | |
| ===== | | | | | | | | | | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

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=====
|                               Station: 024                               |
| Watershed: Mainstem           Habitat: High Mesohaline Mud           Date: September 8, 1999 |
| Gear: Wildco Box Corer        Sampled Area: 0.022 sq.m           Time: 11:38             |
=====

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=====
|                               BOTTOM ENVIRONMENT                               |
=====
| Depth (m): 6.5                 Salinity (ppt): 15.75           Temperature (C): 24.23 |
| Dissolved Oxygen (mg/l): 5.7   Sediment Silt-Clay (%): 98.93   Total Carbon (%): 2.85 |
=====

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=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
=====
| B-IBI Score: 2.66              Condition: Marginal              # Attributes Scored: 6 |
|                               Value  Score                               Value  Score |
| Shannon-Weiner Index           1.94    1    Pollution Indicative Species Abundance (%) 18.00 |
| Abundance (#/m2)                667    1    Pollution Indicative Species Biomass (%) 3.70 5 |
| Biomass (g/m2)                  0.76    3    Pollution Sensitive Species Abundance (%) 8.47 |
| Carnivore-Omnivore Abundance (%) 64.33  5    Pollution Sensitive Species Biomass (%) 11.42 1 |
| Deep Deposit Feeder Abundance (%) 18.27 |
=====

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=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====
|                               | Rep 1   Rep 2   Rep 3 | Mean  Std.Dev  Min   Max   Cum % |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Neanthes succinea           | 273    364    455 | 363.6  90.91   273   455   54.5 |
| Tubificoides spp.           | 182    45     91 | 106.1  69.43   45    182   70.5 |

```


| | | | | | | | | | | | | |
|--|-------------------------|--|----|----|----|--|------|-------|----|----|------|--|
| | Mulinia lateralis | | 45 | 45 | 45 | | 45.5 | 0.00 | 45 | 45 | 77.3 | |
| | Carinoma tremaphoros | | 45 | 45 | | | 30.3 | 26.24 | 0 | 45 | 81.8 | |
| | Glycinde solitaria | | | 45 | 45 | | 30.3 | 26.24 | 0 | 45 | 86.4 | |
| | Macoma balthica | | | 91 | | | 30.3 | 52.49 | 0 | 91 | 90.9 | |
| | Streblospio benedicti | | 45 | 45 | | | 30.3 | 26.24 | 0 | 45 | 95.5 | |
| | Heteromastus filiformis | | | | 45 | | 15.2 | 26.24 | 0 | 45 | 97.7 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 024 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Paraprionospio pinnata | | 45 | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 591 | 727 | 682 | 666.7 | 69.43 | 591 | 727 | | |
| Total Abundance w/o Epifauna | 591 | 727 | 682 | 666.7 | 69.43 | 591 | 727 | | |
| Number of Taxa w/ Epifauna | 5 | 8 | 5 | 6.0 | 1.73 | 5 | 8 | | |
| Number of Taxa w/o Epifauna | 5 | 8 | 5 | 6.0 | 1.73 | 5 | 8 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Neanthes succinea | 0.5273 | 0.4045 | 0.8682 | 0.6000 | 0.2402 | 0.4045 | 0.8682 | 79.0 | |
| Macoma balthica | | 0.2591 | | 0.0864 | 0.1496 | 0.0000 | 0.2591 | 90.4 | |
| Mulinia lateralis | 0.0091 | 0.0591 | 0.0023 | 0.0235 | 0.0310 | 0.0023 | 0.0591 | 93.5 | |
| Carinoma tremaphoros | 0.0318 | 0.0318 | | 0.0212 | 0.0184 | 0.0000 | 0.0318 | 96.3 | |
| Heteromastus filiformis | | | 0.0591 | 0.0197 | 0.0341 | 0.0000 | 0.0591 | 98.9 | |
| Tubificoides spp. | 0.0023 | 0.0023 | 0.0045 | 0.0030 | 0.0013 | 0.0023 | 0.0045 | 99.3 | |
| Streblospio benedicti | 0.0023 | 0.0045 | | 0.0023 | 0.0023 | 0.0000 | 0.0045 | 99.6 | |
| Paraprionospio pinnata | | 0.0045 | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 99.8 | |
| Glycinde solitaria | | 0.0023 | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 0.5727 | 0.7682 | 0.9364 | 0.7591 | 0.1820 | 0.5727 | 0.9364 | | |

| Total Biomass w/o Epifauna | 0.5727 0.7682 0.9364 | 0.7591 0.1820 0.5727 0.9364 |

=====

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

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=====
|                               Station: 026                               |
| Watershed: Upper Western Shore      Habitat: Low Mesohaline      Date: September 9, 1999 |
| Gear: Wildco Box Corer             Sampled Area: 0.022 sq.m      Time: 7:56                |
=====

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=====
|                               BOTTOM ENVIRONMENT                               |
=====
| Depth (m): 4.0                      Salinity (ppt): 11.08          Temperature (C): 24.74   |
| Dissolved Oxygen (mg/l): 6.2        Sediment Silt-Clay (%): 94.80  Total Carbon (%): 3.82   |
=====

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=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
=====
| B-IBI Score: 3.80                    Condition: Meets Goal          # Attributes Scored: 5   |
|                                     Value  Score                    Value  Score |
| Shannon-Weiner Index                 2.59   5      Pollution Indicative Species Abundance (%)  9.21   5 |
| Abundance (#/m2)                     1349   3      Pollution Indicative Species Biomass (%)    0.06   |
| Biomass (g/m2)                       54.31  1      Pollution Sensitive Species Abundance (%)  59.68   |
| Carnivore-Omnivore Abundance (%)     16.67          Pollution Sensitive Species Biomass (%)  99.32   5 |
| Deep Deposit Feeder Abundance (%)     7.94          |
=====

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=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====
|                                     | Rep 1   Rep 2   Rep 3 | Mean  Std.Dev  Min   Max   Cum % |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Rangia cuneata                       |   500   364   545 | 469.7  94.62   364   545   34.8 |
| Cyathura polita                       |   182   182   91  | 151.5  52.49   91    182   46.1 |

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| | | | | | | | | | | | |
|------------------------------|--|-----|-----|----|--|-------|--------|----|-----|------|--|
| Leptocheirus plumulosus | | 136 | 227 | 91 | | 151.5 | 69.43 | 91 | 227 | 57.3 | |
| Streblospio benedicti | | 182 | 227 | | | 136.4 | 120.26 | 0 | 227 | 67.4 | |
| Marenzelleria viridis | | 182 | 182 | | | 121.2 | 104.97 | 0 | 182 | 76.4 | |
| Tubificoides spp. | | | 227 | 91 | | 106.1 | 114.39 | 0 | 227 | 84.3 | |
| Neanthes succinea | | 136 | | 91 | | 75.8 | 69.43 | 0 | 136 | 89.9 | |
| Macoma mitchelli | | 45 | 91 | 45 | | 60.6 | 26.24 | 45 | 91 | 94.4 | |
| Ameroculodes species complex | | 45 | 45 | | | 30.3 | 26.24 | 0 | 45 | 96.6 | |
| Carinoma tremaphoros | | 45 | 45 | | | 30.3 | 26.24 | 0 | 45 | 98.9 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 026 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|---------|---------|---------|---------|---------|---------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 1500 | 1591 | 955 | 1348.5 | 344.18 | 955 | 1591 | | |
| Total Abundance w/o Epifauna | 1500 | 1591 | 955 | 1348.5 | 344.18 | 955 | 1591 | | |
| Number of Taxa w/ Epifauna | 10 | 9 | 6 | 8.3 | 2.08 | 6 | 10 | | |
| Number of Taxa w/o Epifauna | 10 | 9 | 6 | 8.3 | 2.08 | 6 | 10 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Rangia cuneata | 69.7863 | 20.7045 | 70.3090 | 53.5999 | 28.4895 | 20.7045 | 70.3090 | 98.7 | |
| Marenzelleria viridis | 0.6227 | 0.5545 | | 0.3924 | 0.3416 | 0.0000 | 0.6227 | 99.4 | |
| Leptocheirus plumulosus | 0.0545 | 0.1591 | 0.0182 | 0.0773 | 0.0732 | 0.0182 | 0.1591 | 99.6 | |
| Cyathura polita | 0.0318 | 0.0909 | 0.0818 | 0.0682 | 0.0318 | 0.0318 | 0.0909 | 99.7 | |
| Neanthes succinea | 0.0500 | | 0.0773 | 0.0424 | 0.0392 | 0.0000 | 0.0773 | 99.8 | |
| Carinoma tremaphoros | 0.0727 | 0.0409 | | 0.0379 | 0.0365 | 0.0000 | 0.0727 | 99.8 | |
| Macoma balthica | 0.0682 | | | 0.0227 | 0.0394 | 0.0000 | 0.0682 | 99.9 | |
| Tubificoides spp. | | 0.0318 | 0.0273 | 0.0197 | 0.0172 | 0.0000 | 0.0318 | 99.9 | |
| Macoma mitchelli | 0.0091 | 0.0364 | 0.0091 | 0.0182 | 0.0157 | 0.0091 | 0.0364 | 99.9 | |
| Streblospio benedicti | 0.0091 | 0.0364 | | 0.0152 | 0.0189 | 0.0000 | 0.0364 | 100.0 | |

| | | | | | | | | | | |
|------------------------------|--|--------|--------|--|--------|--------|--------|--------|-------|--|
| Ameroculodes species complex | | 0.0045 | 0.0364 | | 0.0136 | 0.0198 | 0.0000 | 0.0364 | 100.0 | |
|------------------------------|--|--------|--------|--|--------|--------|--------|--------|-------|--|

| | | | | | | | | | | |
|---------------------------|--|---------|---------|---------|--|---------|---------|---------|---------|--|
| Total Biomass w/ Epifauna | | 70.7090 | 21.6909 | 70.5227 | | 54.3075 | 28.2470 | 21.6909 | 70.7090 | |
|---------------------------|--|---------|---------|---------|--|---------|---------|---------|---------|--|

| | | | | | | | | | | |
|----------------------------|--|---------|---------|---------|--|---------|---------|---------|---------|--|
| Total Biomass w/o Epifauna | | 70.7090 | 21.6909 | 70.5227 | | 54.3075 | 28.2470 | 21.6909 | 70.7090 | |
|----------------------------|--|---------|---------|---------|--|---------|---------|---------|---------|--|

=====

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | |
|--|--|--|------------------------------|--|--|--------------------------|---------|---------|------|
| ===== | | | | | | | | | |
| Station: 043 | | | | | | | | | |
| Watershed: Potomac River | | | Habitat: Low Mesohaline | | | Date: September 21, 1999 | | | |
| Gear: Modified Box Corer | | | Sampled Area: 0.025 sq.m | | | Time: 9:36 | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 2.5 | | | Salinity (ppt): 9.51 | | | Temperature (C): 22.83 | | | |
| Dissolved Oxygen (mg/l): 7.7 | | | Sediment Silt-Clay (%): 2.63 | | | Total Carbon (%): 0.15 | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: 3.40 | | | Condition: Meets Goal | | | # Attributes Scored: 5 | | | |
| Value Score Value Score | | | | | | | | | |
| Shannon-Weiner Index | | | 2.59 5 | | Pollution Indicative Species Abundance (%) | | | 13.41 3 | |
| Abundance (#/m2) | | | 1293 3 | | Pollution Indicative Species Biomass (%) | | | 0.10 | |
| Biomass (g/m2) | | | 88.86 1 | | Pollution Sensitive Species Abundance (%) | | | 40.54 | |
| Carnivore-Omnivore Abundance (%) | | | 29.23 | | Pollution Sensitive Species Biomass (%) | | | 98.99 5 | |
| Deep Deposit Feeder Abundance (%) | | | 28.95 | | | | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| Rep 1 Rep 2 Rep 3 Mean Std.Dev Min Max Cum % | | | | | | | | | |
| ----- | | | | | | | | | |
| Heteromastus filiformis | | | 320 320 | | 360 333.3 23.09 | | 320 360 | | 25.8 |
| Neanthes succinea | | | 280 440 | | 80 266.7 180.37 | | 80 440 | | 46.4 |
| Marenzelleria viridis | | | 400 120 | | 80 200.0 174.36 | | 80 400 | | 61.9 |

| | | | | | | | | | | | |
|-----------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| Glycinde solitaria | | 120 | 320 | 120 | | 186.7 | 115.47 | 120 | 320 | 76.3 | |
| Streblospio benedicti | | 200 | 160 | 80 | | 146.7 | 61.10 | 80 | 200 | 87.6 | |
| Rangia cuneata | | 80 | 120 | 80 | | 93.3 | 23.09 | 80 | 120 | 94.8 | |
| Macoma mitchelli | | 40 | | 40 | | 26.7 | 23.09 | 0 | 40 | 96.9 | |
| Macoma balthica | | | | 40 | | 13.3 | 23.09 | 0 | 40 | 97.9 | |
| Micrura leidyi | | | 40 | | | 13.3 | 23.09 | 0 | 40 | 99.0 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 043 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|----------|---------|---------|---------|---------|---------|----------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Mulinia lateralis | | | 40 | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 1440 | 1520 | 920 | 1293.3 | 325.78 | 920 | 1520 | | |
| Total Abundance w/o Epifauna | 1440 | 1520 | 920 | 1293.3 | 325.78 | 920 | 1520 | | |
| Number of Taxa w/ Epifauna | 7 | 7 | 9 | 7.7 | 1.15 | 7 | 9 | | |
| Number of Taxa w/o Epifauna | 7 | 7 | 9 | 7.7 | 1.15 | 7 | 9 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Rangia cuneata | 119.3000 | 90.5360 | 50.7880 | 86.8747 | 34.4024 | 50.7880 | 119.3000 | 97.8 | |
| Macoma balthica | | | 2.3560 | 0.7853 | 1.3602 | 0.0000 | 2.3560 | 98.6 | |
| Heteromastus filiformis | 0.4880 | 0.4320 | 0.5240 | 0.4813 | 0.0464 | 0.4320 | 0.5240 | 99.2 | |
| Marenzelleria viridis | 0.8160 | 0.0640 | 0.1600 | 0.3467 | 0.4093 | 0.0640 | 0.8160 | 99.6 | |
| Micrura leidyi | | 0.6760 | | 0.2253 | 0.3903 | 0.0000 | 0.6760 | 99.8 | |
| Streblospio benedicti | 0.0040 | 0.2400 | 0.0040 | 0.0827 | 0.1363 | 0.0040 | 0.2400 | 99.9 | |
| Neanthes succinea | 0.1000 | 0.0020 | 0.0040 | 0.0353 | 0.0560 | 0.0020 | 0.1000 | 100.0 | |
| Macoma mitchelli | 0.0600 | | 0.0040 | 0.0213 | 0.0335 | 0.0000 | 0.0600 | 100.0 | |
| Mulinia lateralis | | | 0.0160 | 0.0053 | 0.0092 | 0.0000 | 0.0160 | 100.0 | |
| Glycinde solitaria | 0.0020 | 0.0040 | 0.0080 | 0.0047 | 0.0031 | 0.0020 | 0.0080 | 100.0 | |

| | | | | | | | | | |
|-------|----------------------------|----------|---------|---------|---------|---------|---------|----------|--|
| ----- | | | | | | | | | |
| | Total Biomass w/ Epifauna | 120.7700 | 91.9540 | 53.8640 | 88.8627 | 33.5600 | 53.8640 | 120.7700 | |
| | Total Biomass w/o Epifauna | 120.7700 | 91.9540 | 53.8640 | 88.8627 | 33.5600 | 53.8640 | 120.7700 | |
| ===== | | | | | | | | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | | |
|-----------------------------------|--|-------|-------------------------------|-------|-------|--|-----|-------|-------|-------|
| ===== | | | | | | | | | | |
| Station: 044 | | | | | | | | | | |
| Watershed: Potomac River | | | Habitat: Low Mesohaline | | | Date: September 21, 1999 | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 9:16 | | | | |
| ===== | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | |
| ===== | | | | | | | | | | |
| Depth (m): 13.0 | | | Salinity (ppt): 12.87 | | | Temperature (C): 22.21 | | | | |
| Dissolved Oxygen (mg/l): 5.6 | | | Sediment Silt-Clay (%): 97.55 | | | Total Carbon (%): 2.23 | | | | |
| ===== | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | |
| ===== | | | | | | | | | | |
| B-IBI Score: 2.20 | | | Condition: Degraded | | | # Attributes Scored: 5 | | | | |
| | | Value | | Score | | | | Value | | Score |
| Shannon-Weiner Index | | 1.88 | | 3 | | Pollution Indicative Species Abundance (%) | | 8.33 | | 5 |
| Abundance (#/m2) | | 667 | | 1 | | Pollution Indicative Species Biomass (%) | | 0.65 | | |
| Biomass (g/m2) | | 0.21 | | 1 | | Pollution Sensitive Species Abundance (%) | | 25.88 | | |
| Carnivore-Omnivore Abundance (%) | | 48.40 | | | | Pollution Sensitive Species Biomass (%) | | 29.47 | | 1 |
| Deep Deposit Feeder Abundance (%) | | 39.85 | | | | | | | | |
| ===== | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | |
| ===== | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | |
| Tubificoides spp. | | 182 | 636 | 91 | 303.0 | 292.23 | 91 | 636 | 43.5 | |
| Glycinde solitaria | | 45 | 182 | 136 | 121.2 | 69.43 | 45 | 182 | 60.9 | |

| | | | | | | | | | | |
|--|--------------------------|--|----|-----|----|------|--------|----|-----|------|
| | Neanthes succinea | | 91 | 91 | 45 | 75.8 | 26.24 | 45 | 91 | 71.7 |
| | Streblospio benedicti | | | 227 | | 75.8 | 131.22 | 0 | 227 | 82.6 |
| | Carinoma tremaphoros | | | 45 | 45 | 30.3 | 26.24 | 0 | 45 | 87.0 |
| | Neomysis americana (Epi) | | | 91 | | 30.3 | 52.49 | 0 | 91 | 91.3 |
| | Paraprionospio pinnata | | | 91 | | 30.3 | 52.49 | 0 | 91 | 95.7 |
| | Americamysis bigelowi | | | | 45 | 15.2 | 26.24 | 0 | 45 | 97.8 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 044 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 364 | 1364 | 364 | 697.0 | 577.35 | 364 | 1364 | | |
| Total Abundance w/o Epifauna | 364 | 1273 | 364 | 666.7 | 524.86 | 364 | 1273 | | |
| Number of Taxa w/ Epifauna | 4 | 7 | 5 | 5.3 | 1.53 | 4 | 7 | | |
| Number of Taxa w/o Epifauna | 4 | 6 | 5 | 5.0 | 1.00 | 4 | 6 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Neanthes succinea | 0.0500 | 0.2591 | 0.0455 | 0.1182 | 0.1221 | 0.0455 | 0.2591 | 53.6 | |
| Macoma balthica | 0.1318 | | | 0.0439 | 0.0761 | 0.0000 | 0.1318 | 73.5 | |
| Glycinde solitaria | 0.0364 | 0.0318 | 0.0045 | 0.0242 | 0.0172 | 0.0045 | 0.0364 | 84.5 | |
| Neomysis americana (Epi) | | 0.0455 | | 0.0152 | 0.0262 | 0.0000 | 0.0455 | 91.4 | |
| Carinoma tremaphoros | | 0.0023 | 0.0227 | 0.0083 | 0.0125 | 0.0000 | 0.0227 | 95.2 | |
| Tubificoides spp. | 0.0091 | 0.0023 | 0.0045 | 0.0053 | 0.0035 | 0.0023 | 0.0091 | 97.6 | |
| Americamysis bigelowi | | | 0.0091 | 0.0030 | 0.0052 | 0.0000 | 0.0091 | 99.0 | |
| Streblospio benedicti | | 0.0045 | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 99.7 | |
| Paraprionospio pinnata | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |

| | | | | | | | | | | | |
|--|----------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|--|
| | Total Biomass w/ Epifauna | | 0.2273 | 0.3477 | 0.0864 | | 0.2205 | 0.1308 | 0.0864 | 0.3477 | |
| | Total Biomass w/o Epifauna | | 0.2273 | 0.3023 | 0.0864 | | 0.2053 | 0.1096 | 0.0864 | 0.3023 | |

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* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| ===== | | | | | | | | | | |
|-----------------------------------|--|--------|------------------------------|-------|-------|--|-----|-------|-------|-------|
| Station: 047 | | | | | | | | | | |
| Watershed: Morgantown Discharge | | | Habitat: Low Mesohaline | | | Date: September 21, 1999 | | | | |
| Gear: Modified Box Corer | | | Sampled Area: 0.025 sq.m | | | Time: 9:55 | | | | |
| ===== | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | |
| ===== | | | | | | | | | | |
| Depth (m): 2.5 | | | Salinity (ppt): 10.11 | | | Temperature (C): 22.70 | | | | |
| Dissolved Oxygen (mg/l): 7.9 | | | Sediment Silt-Clay (%): 6.33 | | | Total Carbon (%): 0.11 | | | | |
| ===== | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | |
| ===== | | | | | | | | | | |
| B-IBI Score: 4.20 | | | Condition: Meets Goal | | | # Attributes Scored: 5 | | | | |
| | | Value | | Score | | | | Value | | Score |
| Shannon-Weiner Index | | 2.69 | | 5 | | Pollution Indicative Species Abundance (%) | | 5.28 | | 5 |
| Abundance (#/m2) | | 1960 | | 5 | | Pollution Indicative Species Biomass (%) | | 0.01 | | |
| Biomass (g/m2) | | 118.57 | | 1 | | Pollution Sensitive Species Abundance (%) | | 62.50 | | |
| Carnivore-Omnivore Abundance (%) | | 35.00 | | | | Pollution Sensitive Species Biomass (%) | | 96.72 | | 5 |
| Deep Deposit Feeder Abundance (%) | | 21.39 | | | | | | | | |
| ===== | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | |
| ===== | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | |
| Marenzelleria viridis | | 360 | 600 | 800 | 586.7 | 220.30 | 360 | 800 | 29.7 | |
| Heteromastus filiformis | | 320 | 240 | 480 | 346.7 | 122.20 | 240 | 480 | 47.3 | |

| | | | | | | | | | | | |
|-----------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| Glycinde solitaria | | 600 | 280 | 120 | | 333.3 | 244.40 | 120 | 600 | 64.2 | |
| Neanthes succinea | | 280 | 200 | 320 | | 266.7 | 61.10 | 200 | 320 | 77.7 | |
| Rangia cuneata | | 40 | 120 | 200 | | 120.0 | 80.00 | 40 | 200 | 83.8 | |
| Streblospio benedicti | | 120 | 40 | 40 | | 66.7 | 46.19 | 40 | 120 | 87.2 | |
| Tubificoides spp. | | 40 | | 160 | | 66.7 | 83.27 | 0 | 160 | 90.5 | |
| Cyathura polita | | 40 | 40 | 80 | | 53.3 | 23.09 | 40 | 80 | 93.2 | |
| Macoma balthica | | 40 | | 120 | | 53.3 | 61.10 | 0 | 120 | 95.9 | |
| Carinoma tremaphoros | | | 40 | 40 | | 26.7 | 23.09 | 0 | 40 | 97.3 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 047 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|---------|----------|----------|----------|---------|---------|----------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Hypereteone heteropoda | | 40 | 40 | 26.7 | 23.09 | 0 | 40 | 98.6 | |
| Littoridinops tenuipes (Epi) | 40 | | | 13.3 | 23.09 | 0 | 40 | 99.3 | |
| Micrura leidyi | 40 | | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 1920 | 1600 | 2400 | 1973.3 | 402.66 | 1600 | 2400 | | |
| Total Abundance w/o Epifauna | 1880 | 1600 | 2400 | 1960.0 | 405.96 | 1600 | 2400 | | |
| Number of Taxa w/ Epifauna | 11 | 9 | 11 | 10.3 | 1.15 | 9 | 11 | | |
| Number of Taxa w/o Epifauna | 10 | 9 | 11 | 10.0 | 1.00 | 9 | 11 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Rangia cuneata | 12.8240 | 141.4600 | 193.1600 | 115.8147 | 92.8630 | 12.8240 | 193.1600 | 97.7 | |
| Marenzelleria viridis | 0.8680 | 1.1360 | 1.1680 | 1.0573 | 0.1647 | 0.8680 | 1.1680 | 98.6 | |
| Heteromastus filiformis | 0.9840 | 0.5920 | 1.1160 | 0.8973 | 0.2725 | 0.5920 | 1.1160 | 99.3 | |
| Macoma balthica | 0.3360 | | 1.0280 | 0.4547 | 0.5242 | 0.0000 | 1.0280 | 99.7 | |
| Neanthes succinea | 0.2400 | 0.0240 | 0.1880 | 0.1507 | 0.1127 | 0.0240 | 0.2400 | 99.8 | |
| Cyathura polita | 0.0400 | 0.1800 | 0.0020 | 0.0740 | 0.0937 | 0.0020 | 0.1800 | 99.9 | |
| Carinoma tremaphoros | | 0.0560 | 0.1320 | 0.0627 | 0.0663 | 0.0000 | 0.1320 | 99.9 | |
| Micrura leidyi | 0.1040 | | | 0.0347 | 0.0600 | 0.0000 | 0.1040 | 100.0 | |

| | | | | | | | | | | | |
|------------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|-------|--|
| Glycinde solitaria | | 0.0480 | 0.0120 | 0.0020 | | 0.0207 | 0.0242 | 0.0020 | 0.0480 | 100.0 | |
| Streblospio benedicti | | 0.0020 | 0.0020 | 0.0020 | | 0.0020 | 0.0000 | 0.0020 | 0.0020 | 100.0 | |
| Hypereteone heteropoda | | | 0.0020 | 0.0020 | | 0.0013 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Tubificoides spp. | | 0.0020 | | 0.0020 | | 0.0013 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Littoridinops tenuipes (Epi) | | 0.0040 | | | | 0.0013 | 0.0023 | 0.0000 | 0.0040 | 100.0 | |

| | | | | | | | | | | | |
|----------------------------|--|---------|----------|----------|--|----------|---------|---------|----------|--|--|
| Total Biomass w/ Epifauna | | 15.4520 | 143.4640 | 196.8020 | | 118.5727 | 93.2021 | 15.4520 | 196.8020 | | |
| Total Biomass w/o Epifauna | | 15.4480 | 143.4640 | 196.8020 | | 118.5713 | 93.2044 | 15.4480 | 196.8020 | | |

=====

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | | |
|-----------------------------------|--|-------|-------------------------------|-------|-------|--|-----|-------|-------|-------|
| ===== | | | | | | | | | | |
| Station: 051 | | | | | | | | | | |
| Watershed: Potomac River | | | Habitat: High Mesohaline Sand | | | Date: September 21, 1999 | | | | |
| Gear: Modified Box Corer | | | Sampled Area: 0.025 sq.m | | | Time: 11:26 | | | | |
| ===== | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | |
| ===== | | | | | | | | | | |
| Depth (m): 3.0 | | | Salinity (ppt): 14.96 | | | Temperature (C): 22.31 | | | | |
| Dissolved Oxygen (mg/l): 8.0 | | | Sediment Silt-Clay (%): 3.34 | | | Total Carbon (%): 0.08 | | | | |
| ===== | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | |
| ===== | | | | | | | | | | |
| B-IBI Score: 4.33 | | | Condition: Meets Goal | | | # Attributes Scored: 6 | | | | |
| | | Value | | Score | | | | Value | | Score |
| Shannon-Weiner Index | | 2.85 | | 3 | | Pollution Indicative Species Abundance (%) | | 5.83 | | 5 |
| Abundance (#/m2) | | 2027 | | 5 | | Pollution Indicative Species Biomass (%) | | 44.14 | | |
| Biomass (g/m2) | | 1.65 | | 3 | | Pollution Sensitive Species Abundance (%) | | 45.42 | | 5 |
| Carnivore-Omnivore Abundance (%) | | 61.61 | | 5 | | Pollution Sensitive Species Biomass (%) | | 28.33 | | |
| Deep Deposit Feeder Abundance (%) | | 2.54 | | | | | | | | |
| ===== | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | |
| ===== | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | |
| Macoma mitchelli | | 560 | 320 | 680 | 520.0 | 183.30 | 320 | 680 | 25.5 | |
| Acteocina canaliculata | | 520 | 480 | 480 | 493.3 | 23.09 | 480 | 520 | 49.7 | |

| | | | | | | | | | | | |
|-------------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| Glycinde solitaria | | 400 | 200 | 440 | | 346.7 | 128.58 | 200 | 440 | 66.7 | |
| Haminoea solitaria | | 120 | 360 | 80 | | 186.7 | 151.44 | 80 | 360 | 75.8 | |
| Micrura leidy | | 80 | 40 | 80 | | 66.7 | 23.09 | 40 | 80 | 79.1 | |
| Heteromastus filiformis | | 80 | 40 | 40 | | 53.3 | 23.09 | 40 | 80 | 81.7 | |
| Mulinia lateralis | | 40 | 120 | | | 53.3 | 61.10 | 0 | 120 | 84.3 | |
| Neanthes succinea | | 40 | 120 | | | 53.3 | 61.10 | 0 | 120 | 86.9 | |
| Phoronis architecta | | | 40 | 120 | | 53.3 | 61.10 | 0 | 120 | 89.5 | |
| Amphiporus bioculatus | | | 40 | 80 | | 40.0 | 40.00 | 0 | 80 | 91.5 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 051 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Streblospio benedicti | 40 | 40 | 40 | 40.0 | 0.00 | 40 | 40 | 93.5 | |
| Cyathura polita | 40 | | 40 | 26.7 | 23.09 | 0 | 40 | 94.8 | |
| Paraprionospio pinnata | 80 | | | 26.7 | 46.19 | 0 | 80 | 96.1 | |
| Ameroculodes species complex | | 40 | | 13.3 | 23.09 | 0 | 40 | 96.7 | |
| Gemma gemma | | | 40 | 13.3 | 23.09 | 0 | 40 | 97.4 | |
| Loimia medusa | | 40 | | 13.3 | 23.09 | 0 | 40 | 98.0 | |
| Marenzelleria viridis | | 40 | | 13.3 | 23.09 | 0 | 40 | 98.7 | |
| Podarkeopsis levifuscina | 40 | | | 13.3 | 23.09 | 0 | 40 | 99.3 | |
| Sayella chesapeakea (Epi) | 40 | | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 2080 | 1920 | 2120 | 2040.0 | 105.83 | 1920 | 2120 | | |
| Total Abundance w/o Epifauna | 2040 | 1920 | 2120 | 2026.7 | 100.66 | 1920 | 2120 | | |
| Number of Taxa w/ Epifauna | 13 | 14 | 11 | 12.7 | 1.53 | 11 | 14 | | |
| Number of Taxa w/o Epifauna | 12 | 14 | 11 | 12.3 | 1.53 | 11 | 14 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Mulinia lateralis | 1.0360 | 1.8440 | | 0.9600 | 0.9243 | 0.0000 | 1.8440 | 58.2 | |
| Phoronis architecta | | 0.1800 | 0.1880 | 0.1227 | 0.1063 | 0.0000 | 0.1880 | 65.6 | |
| Haminoea solitaria | 0.0960 | 0.2520 | 0.0080 | 0.1187 | 0.1236 | 0.0080 | 0.2520 | 72.8 | |

| | | | | | | | | | | | | |
|--|---------------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|------|--|
| | <i>Acteocina canaliculata</i> | | 0.0440 | 0.0960 | 0.1160 | | 0.0853 | 0.0372 | 0.0440 | 0.1160 | 78.0 | |
| | <i>Neanthes succinea</i> | | 0.0880 | 0.1640 | | | 0.0840 | 0.0821 | 0.0000 | 0.1640 | 83.1 | |
| | <i>Micrura leidyi</i> | | 0.0480 | 0.0200 | 0.1480 | | 0.0720 | 0.0673 | 0.0200 | 0.1480 | 87.4 | |
| | <i>Podarkeopsis levifuscina</i> | | 0.2160 | | | | 0.0720 | 0.1247 | 0.0000 | 0.2160 | 91.8 | |
| | <i>Heteromastus filiformis</i> | | 0.1280 | 0.0020 | 0.0040 | | 0.0447 | 0.0722 | 0.0020 | 0.1280 | 94.5 | |
| | <i>Cyathura polita</i> | | 0.0560 | | 0.0280 | | 0.0280 | 0.0280 | 0.0000 | 0.0560 | 96.2 | |
| | <i>Streblospio benedicti</i> | | 0.0520 | 0.0120 | 0.0040 | | 0.0227 | 0.0257 | 0.0040 | 0.0520 | 97.6 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 051 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Glycinde solitaria | 0.0160 | 0.0020 | 0.0280 | 0.0153 | 0.0130 | 0.0020 | 0.0280 | 98.5 | |
| Macoma mitchelli | 0.0160 | 0.0020 | 0.0080 | 0.0087 | 0.0070 | 0.0020 | 0.0160 | 99.0 | |
| Marenzelleria viridis | | 0.0240 | | 0.0080 | 0.0139 | 0.0000 | 0.0240 | 99.5 | |
| Sayella chesapeakea (Epi) | 0.0080 | | | 0.0027 | 0.0046 | 0.0000 | 0.0080 | 99.7 | |
| Amphiporus bioculatus | | 0.0020 | 0.0040 | 0.0020 | 0.0020 | 0.0000 | 0.0040 | 99.8 | |
| Paraprionospio pinnata | 0.0040 | | | 0.0013 | 0.0023 | 0.0000 | 0.0040 | 99.9 | |
| Ameroculodes species complex | | 0.0020 | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 99.9 | |
| Gemma gemma | | | 0.0020 | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Loimia medusa | | 0.0020 | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Total Biomass w/ Epifauna | 1.8080 | 2.6040 | 0.5380 | 1.6500 | 1.0420 | 0.5380 | 2.6040 | | |
| Total Biomass w/o Epifauna | 1.8000 | 2.6040 | 0.5380 | 1.6473 | 1.0414 | 0.5380 | 2.6040 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | | | | | |
|-----------------------------------|-------|--|-------------------------------|-------|--|--------------------------|------|---------|--------|-----|-------|------|--|
| ===== | | | | | | | | | | | | | |
| Station: 052 | | | | | | | | | | | | | |
| Watershed: Potomac River | | | Habitat: High Mesohaline Mud | | | Date: September 21, 1999 | | | | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 11:08 | | | | | | | |
| ===== | | | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | | |
| Depth (m): 12.0 | | | Salinity (ppt): 17.07 | | | Temperature (C): 22.75 | | | | | | | |
| Dissolved Oxygen (mg/l): 4.1 | | | Sediment Silt-Clay (%): 96.82 | | | Total Carbon (%): 2.88 | | | | | | | |
| ===== | | | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | | |
| B-IBI Score: 1.33 | | | Condition: Severely Degraded | | | # Attributes Scored: 6 | | | | | | | |
| | Value | | Score | | | Value | | Score | | | | | |
| Shannon-Weiner Index | | | 1.09 | 1 | Pollution Indicative Species Abundance (%) | | | 82.31 | | | | | |
| Abundance (#/m2) | | | 924 | 1 | Pollution Indicative Species Biomass (%) | | | 58.48 | 1 | | | | |
| Biomass (g/m2) | | | 0.18 | 1 | Pollution Sensitive Species Abundance (%) | | | 2.81 | | | | | |
| Carnivore-Omnivore Abundance (%) | | | 10.37 | 3 | Pollution Sensitive Species Biomass (%) | | | 1.42 | 1 | | | | |
| Deep Deposit Feeder Abundance (%) | | | 4.51 | | | | | | | | | | |
| ===== | | | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | | |
| | | | Rep 1 | Rep 2 | Rep 3 | | Mean | Std.Dev | Min | Max | Cum % | | |
| ----- | | | | | | | | | | | | | |
| Streblospio benedicti | | | | 864 | 545 | 682 | | 697.0 | 159.63 | 545 | 864 | 75.4 | |
| Americamysis bigelowi | | | | 91 | 45 | | | 45.5 | 45.45 | 0 | 91 | 80.3 | |

| | | | | | | | | |
|---------------------------|--|----|----|------|-------|-------|----|---------|
| Paraprionospio pinnata | | 45 | 91 | 45.5 | 45.45 | 0 | 91 | 85.2 |
| Tubificoides spp. | | 91 | 45 | | 45.5 | 45.45 | 0 | 91 90.2 |
| Mulinia lateralis | | 45 | 45 | | 30.3 | 26.24 | 0 | 45 93.4 |
| Spiochaetopterus costarum | | 45 | 45 | 30.3 | 26.24 | 0 | 45 | 96.7 |
| Neanthes succinea | | | 45 | 15.2 | 26.24 | 0 | 45 | 98.4 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 052 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Podarkeopsis levifuscina | | | 45 | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 1136 | 727 | 909 | 924.2 | 204.97 | 727 | 1136 | | |
| Total Abundance w/o Epifauna | 1136 | 727 | 909 | 924.2 | 204.97 | 727 | 1136 | | |
| Number of Taxa w/ Epifauna | 5 | 5 | 5 | 5.0 | 0.00 | 5 | 5 | | |
| Number of Taxa w/o Epifauna | 5 | 5 | 5 | 5.0 | 0.00 | 5 | 5 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Neanthes succinea | | | 0.3227 | 0.1076 | 0.1863 | 0.0000 | 0.3227 | 59.7 | |
| Streblospio benedicti | 0.0364 | 0.0591 | 0.0273 | 0.0409 | 0.0164 | 0.0273 | 0.0591 | 82.4 | |
| Paraprionospio pinnata | | 0.0136 | 0.0455 | 0.0197 | 0.0233 | 0.0000 | 0.0455 | 93.3 | |
| Tubificoides spp. | 0.0182 | 0.0023 | | 0.0068 | 0.0099 | 0.0000 | 0.0182 | 97.1 | |
| Americamysis bigelowi | 0.0023 | 0.0023 | | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 97.9 | |
| Mulinia lateralis | 0.0023 | 0.0023 | | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 98.7 | |
| Spiochaetopterus costarum | 0.0023 | | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 99.6 | |
| Podarkeopsis levifuscina | | | 0.0023 | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 0.0614 | 0.0795 | 0.4000 | 0.1803 | 0.1905 | 0.0614 | 0.4000 | | |

| Total Biomass w/o Epifauna | 0.0614 0.0795 0.4000 | 0.1803 0.1905 0.0614 0.4000 |

=====

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

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=====
|                               Station: 062                               |
| Watershed: Lower Eastern Shore      Habitat: Low Mesohaline      Date: September 20, 1999 |
| Gear: Petite Ponar                 Sampled Area: 0.025 sq.m      Time: 9:56                |
=====

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=====
|                               BOTTOM ENVIRONMENT                               |
=====
| Depth (m): 5.5                      Salinity (ppt): 3.12          Temperature (C): 21.08    |
| Dissolved Oxygen (mg/l): 6.4        Sediment Silt-Clay (%): 84.41  Total Carbon (%): 5.77   |
=====

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=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
=====
| B-IBI Score: 2.60                    Condition: Degraded                    # Attributes Scored: 5    |
| Value  Score                          Value  Score |
| Shannon-Weiner Index                  1.38  1      Pollution Indicative Species Abundance (%)  9.87  5 |
| Abundance (#/m2)                      6507  1      Pollution Indicative Species Biomass (%)    0.50  |
| Biomass (g/m2)                        1.44  3      Pollution Sensitive Species Abundance (%)   7.29  |
| Carnivore-Omnivore Abundance (%)      5.83          Pollution Sensitive Species Biomass (%)    68.88  3 |
| Deep Deposit Feeder Abundance (%)     84.44          |
=====

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=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====
|                               | Rep 1  Rep 2  Rep 3 | Mean  Std.Dev  Min  Max  Cum % |
-----
| Tubificoides spp.           | 3960  6600  4160 | 4906.7  1469.88  3960  6600  74.5 |
| Imm. Tubificid w/o Cap. Chaete | 240  1680  40 | 653.3  894.73  40  1680  84.4 |

```

| | | | | | | | | | | | |
|------------------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| Cyathura polita | | 120 | 120 | 400 | | 213.3 | 161.66 | 120 | 400 | 87.7 | |
| Amerocolodes species complex | | 200 | 160 | 200 | | 186.7 | 23.09 | 160 | 200 | 90.5 | |
| Marenzelleria viridis | | 40 | 40 | 320 | | 133.3 | 161.66 | 40 | 320 | 92.5 | |
| Streblospio benedicti | | 80 | 160 | 80 | | 106.7 | 46.19 | 80 | 160 | 94.1 | |
| Carinoma tremaphoros | | 80 | 80 | 80 | | 80.0 | 0.00 | 80 | 80 | 95.3 | |
| Gammarus daiberi (Epi) | | 160 | 40 | | | 66.7 | 83.27 | 0 | 160 | 96.4 | |
| Leptocheirus plumulosus | | 80 | 120 | | | 66.7 | 61.10 | 0 | 120 | 97.4 | |
| Macoma balthica | | 120 | 40 | | | 53.3 | 61.10 | 0 | 120 | 98.2 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 062 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma mitchelli | 40 | 40 | 40 | 40.0 | 0.00 | 40 | 40 | 98.8 | |
| Neanthes succinea | | 40 | 40 | 26.7 | 23.09 | 0 | 40 | 99.2 | |
| Harnischia spp. | | 40 | | 13.3 | 23.09 | 0 | 40 | 99.4 | |
| Hypereteone heteropoda | 40 | | | 13.3 | 23.09 | 0 | 40 | 99.6 | |
| Mediomastus ambiseta | | | 40 | 13.3 | 23.09 | 0 | 40 | 99.8 | |
| Neomysis americana (Epi) | 40 | | | 13.3 | 23.09 | 0 | 40 | 100.0 | |
| Total Abundance w/ Epifauna | 5200 | 9160 | 5400 | 6586.7 | 2230.81 | 5200 | 9160 | | |
| Total Abundance w/o Epifauna | 5000 | 9120 | 5400 | 6506.7 | 2272.03 | 5000 | 9120 | | |
| Number of Taxa w/ Epifauna | 13 | 13 | 10 | 12.0 | 1.73 | 10 | 13 | | |
| Number of Taxa w/o Epifauna | 11 | 12 | 10 | 11.0 | 1.00 | 10 | 12 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Marenzelleria viridis | 0.2160 | 0.1680 | 1.6600 | 0.6813 | 0.8479 | 0.1680 | 1.6600 | 46.3 | |
| Cyathura polita | 0.1040 | 0.0800 | 0.6120 | 0.2653 | 0.3005 | 0.0800 | 0.6120 | 64.3 | |
| Macoma balthica | 0.2280 | 0.2760 | | 0.1680 | 0.1475 | 0.0000 | 0.2760 | 75.7 | |
| Neanthes succinea | | 0.1840 | 0.1320 | 0.1053 | 0.0949 | 0.0000 | 0.1840 | 82.8 | |
| Macoma mitchelli | 0.1440 | 0.0020 | 0.1520 | 0.0993 | 0.0844 | 0.0020 | 0.1520 | 89.6 | |

| | | | | | | | | | | | |
|------------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|------|--|
| Tubificoides spp. | | 0.0400 | 0.0560 | 0.0360 | | 0.0440 | 0.0106 | 0.0360 | 0.0560 | 92.6 | |
| Carinoma tremaphoros | | 0.0240 | 0.0240 | 0.0200 | | 0.0227 | 0.0023 | 0.0200 | 0.0240 | 94.1 | |
| Oligochaeta | | 0.0020 | 0.0640 | 0.0020 | | 0.0227 | 0.0358 | 0.0020 | 0.0640 | 95.7 | |
| Gammarus spp. (Epi) | | 0.0560 | 0.0020 | | | 0.0193 | 0.0318 | 0.0000 | 0.0560 | 97.0 | |
| Leptocheirus plumulosus | | 0.0200 | 0.0280 | | | 0.0160 | 0.0144 | 0.0000 | 0.0280 | 98.1 | |
| Ameroculodes species complex | | 0.0200 | 0.0120 | 0.0040 | | 0.0120 | 0.0080 | 0.0040 | 0.0200 | 98.9 | |
| Neomysis americana (Epi) | | 0.0240 | | | | 0.0080 | 0.0139 | 0.0000 | 0.0240 | 99.4 | |
| Hypereteone heteropoda | | 0.0080 | | | | 0.0027 | 0.0046 | 0.0000 | 0.0080 | 99.6 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 062 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Mediomastus ambiseta | | | 0.0080 | 0.0027 | 0.0046 | 0.0000 | 0.0080 | 99.8 | |
| Streblospio benedicti | 0.0020 | 0.0020 | 0.0040 | 0.0027 | 0.0012 | 0.0020 | 0.0040 | 100.0 | |
| Chironomidae larvae | | 0.0020 | | 0.0007 | 0.0012 | 0.0000 | 0.0020 | 100.0 | |
| Total Biomass w/ Epifauna | 0.8880 | 0.9000 | 2.6300 | 1.4727 | 1.0023 | 0.8880 | 2.6300 | | |
| Total Biomass w/o Epifauna | 0.8080 | 0.8980 | 2.6300 | 1.4453 | 1.0269 | 0.8080 | 2.6300 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

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=====
|                               Station: 064                               |
| Watershed: Choptank River      Habitat: High Mesohaline Mud      Date: September 7, 1999  |
| Gear: Wildco Box Corer        Sampled Area: 0.022 sq.m          Time: 9:11              |
=====

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=====
|                               BOTTOM ENVIRONMENT                               |
=====
| Depth (m): 9.5                 Salinity (ppt): 16.40          Temperature (C): 23.67  |
| Dissolved Oxygen (mg/l): 6.0   Sediment Silt-Clay (%): 98.13  Total Carbon (%): 2.00  |
=====

```

```

=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
=====
| B-IBI Score: 3.33              Condition: Meets Goal          # Attributes Scored: 6  |
|                               Value  Score                               Value  Score |
| Shannon-Weiner Index          2.37  3  Pollution Indicative Species Abundance (%) 48.55  |
| Abundance (#/m2)              727   1  Pollution Indicative Species Biomass (%) 7.28  3 |
| Biomass (g/m2)                2.21  5  Pollution Sensitive Species Abundance (%) 27.11  |
| Carnivore-Omnivore Abundance (%) 36.10 5  Pollution Sensitive Species Biomass (%) 64.51  3 |
| Deep Deposit Feeder Abundance (%) 12.68                               |
=====

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=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====
|                               | Rep 1  Rep 2  Rep 3 | Mean  Std.Dev  Min  Max  Cum % |
-----
| Mulinia lateralis          | 364  455  91 | 303.0 189.24  91  455  41.7 |
| Cyathura polita            | 136   45  45 | 75.8  52.49  45  136  52.1 |

```

| | | | | | | | | | | | |
|--------------------------------|--|-----|----|----|--|------|-------|----|-----|------|--|
| Glycinde solitaria | | 91 | 91 | 45 | | 75.8 | 26.24 | 45 | 91 | 62.5 | |
| Tubificoides spp. | | 136 | 91 | | | 75.8 | 69.43 | 0 | 136 | 72.9 | |
| Macoma balthica | | 45 | 91 | | | 45.5 | 45.45 | 0 | 91 | 79.2 | |
| Parahesion luteola | | | | 91 | | 30.3 | 52.49 | 0 | 91 | 83.3 | |
| Streblospio benedicti | | | 91 | | | 30.3 | 52.49 | 0 | 91 | 87.5 | |
| Americamysis almyra | | | | 45 | | 15.2 | 26.24 | 0 | 45 | 89.6 | |
| Carinoma tremaphoros | | 45 | | | | 15.2 | 26.24 | 0 | 45 | 91.7 | |
| Imm. Tubificid w/o Cap. Chaete | | | | 45 | | 15.2 | 26.24 | 0 | 45 | 93.8 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 064 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma mitchelli | 45 | | | 15.2 | 26.24 | 0 | 45 | 95.8 | |
| Neanthes succinea | | | 45 | 15.2 | 26.24 | 0 | 45 | 97.9 | |
| Paraprionospio pinnata | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 909 | 864 | 409 | 727.3 | 276.49 | 409 | 909 | | |
| Total Abundance w/o Epifauna | 909 | 864 | 409 | 727.3 | 276.49 | 409 | 909 | | |
| Number of Taxa w/ Epifauna | 8 | 6 | 7 | 7.0 | 1.00 | 6 | 8 | | |
| Number of Taxa w/o Epifauna | 8 | 6 | 7 | 7.0 | 1.00 | 6 | 8 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 0.1318 | 5.6636 | | 1.9318 | 3.2325 | 0.0000 | 5.6636 | 87.3 | |
| Neanthes succinea | | | 0.2818 | 0.0939 | 0.1627 | 0.0000 | 0.2818 | 91.5 | |
| Cyathura polita | 0.1045 | 0.0727 | 0.0727 | 0.0833 | 0.0184 | 0.0727 | 0.1045 | 95.3 | |
| Mulinia lateralis | 0.0364 | 0.0773 | 0.0318 | 0.0485 | 0.0250 | 0.0318 | 0.0773 | 97.5 | |
| Americamysis almyra | | | 0.0455 | 0.0152 | 0.0262 | 0.0000 | 0.0455 | 98.2 | |
| Glycinde solitaria | 0.0023 | 0.0023 | 0.0318 | 0.0121 | 0.0171 | 0.0023 | 0.0318 | 98.7 | |
| Parahesione luteola | | | 0.0318 | 0.0106 | 0.0184 | 0.0000 | 0.0318 | 99.2 | |
| Carinoma tremaphoros | 0.0273 | | | 0.0091 | 0.0157 | 0.0000 | 0.0273 | 99.6 | |

| | | | | | | | | | | |
|----------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--|
| Tubificoides spp. | | 0.0091 | 0.0023 | | 0.0038 | 0.0047 | 0.0000 | 0.0091 | 99.8 | |
| Paraprionospio pinnata | | 0.0091 | | | 0.0030 | 0.0052 | 0.0000 | 0.0091 | 99.9 | |
| Macoma mitchelli | | 0.0023 | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.9 | |
| Oligochaeta | | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Streblospio benedicti | | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| ----- | | | | | | | | | | |
| Total Biomass w/ Epifauna | | 0.3227 | 5.8204 | 0.4977 | | 2.2136 | 3.1248 | 0.3227 | 5.8204 | |
| Total Biomass w/o Epifauna | | 0.3227 | 5.8204 | 0.4977 | | 2.2136 | 3.1248 | 0.3227 | 5.8204 | |

=====

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

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=====
|                               Station: 068                               |
| Watershed: Upper Eastern Shore      Habitat: Low Mesohaline      Date: September 15, 1999 |
| Gear: Wildco Box Corer             Sampled Area: 0.022 sq.m      Time: 9:11                |
=====

```

```

=====
|                               BOTTOM ENVIRONMENT                               |
=====
| Depth (m): 5.6                      Salinity (ppt): 12.63      Temperature (C): 25.25   |
| Dissolved Oxygen (mg/l): 6.2        Sediment Silt-Clay (%): 81.88  Total Carbon (%): 1.76   |
=====

```

```

=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
=====
| B-IBI Score: 3.40                    Condition: Meets Goal      # Attributes Scored: 5   |
| Value  Score                          Value  Score |
| Shannon-Weiner Index                 2.86   5   Pollution Indicative Species Abundance (%) 25.03  1 |
| Abundance (#/m2)                     1439   3   Pollution Indicative Species Biomass (%) 2.71   |
| Biomass (g/m2)                       11.81  3   Pollution Sensitive Species Abundance (%) 39.02  |
| Carnivore-Omnivore Abundance (%)     29.76                Pollution Sensitive Species Biomass (%) 94.36  5 |
| Deep Deposit Feeder Abundance (%)    21.74                |
=====

```

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=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====
|                               | Rep 1  Rep 2  Rep 3 | Mean  Std.Dev  Min  Max  Cum % |
-----
| Mulinia lateralis           | 591   91   136 | 272.7 276.49  91   591  18.9 |
| Tubificoides spp.           | 273   136  364 | 257.6 114.39  136  364  36.8 |

```


| | | | | | | | | | | | |
|--------------------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| <i>Macoma balthica</i> | | 182 | 182 | 182 | | 181.8 | 0.00 | 182 | 182 | 49.5 | |
| <i>Carinoma tremaphoros</i> | | 91 | 91 | 273 | | 151.5 | 104.97 | 91 | 273 | 60.0 | |
| <i>Marenzelleria viridis</i> | | 45 | 273 | 45 | | 121.2 | 131.22 | 45 | 273 | 68.4 | |
| <i>Cyathura polita</i> | | 91 | 182 | 91 | | 121.2 | 52.49 | 91 | 182 | 76.8 | |
| <i>Glycinde solitaria</i> | | 136 | 182 | | | 106.1 | 94.62 | 0 | 182 | 84.2 | |
| Imm. Tubificid w/o Cap. Chaete | | 91 | | 45 | | 45.5 | 45.45 | 0 | 91 | 87.4 | |
| <i>Macoma mitchelli</i> | | | 136 | | | 45.5 | 78.73 | 0 | 136 | 90.5 | |
| <i>Rangia cuneata</i> | | | 136 | | | 45.5 | 78.73 | 0 | 136 | 93.7 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 068 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|---------|---------|--------|---------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Edwardsia elegans | | | 91 | 30.3 | 52.49 | 0 | 91 | 95.8 | |
| Streblospio benedicti | | 91 | | 30.3 | 52.49 | 0 | 91 | 97.9 | |
| Amphiporus bioculatus | | 45 | | 15.2 | 26.24 | 0 | 45 | 98.9 | |
| Paraprionospio pinnata | | | 45 | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 1500 | 1545 | 1273 | 1439.4 | 146.12 | 1273 | 1545 | | |
| Total Abundance w/o Epifauna | 1500 | 1545 | 1273 | 1439.4 | 146.12 | 1273 | 1545 | | |
| Number of Taxa w/ Epifauna | 8 | 11 | 9 | 9.3 | 1.53 | 8 | 11 | | |
| Number of Taxa w/o Epifauna | 8 | 11 | 9 | 9.3 | 1.53 | 8 | 11 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 10.9454 | 11.0909 | 8.2954 | 10.1106 | 1.5736 | 8.2954 | 11.0909 | 85.6 | |
| Marenzelleria viridis | 0.3318 | 1.3591 | 0.2045 | 0.6318 | 0.6330 | 0.2045 | 1.3591 | 91.0 | |
| Cyathura polita | 0.2909 | 0.2455 | 0.7364 | 0.4242 | 0.2713 | 0.2455 | 0.7364 | 94.6 | |
| Carinoma tremaphoros | 0.0727 | 0.0273 | 0.8409 | 0.3136 | 0.4572 | 0.0273 | 0.8409 | 97.2 | |
| Paraprionospio pinnata | | | 0.8455 | 0.2818 | 0.4881 | 0.0000 | 0.8455 | 99.6 | |
| Glycinde solitaria | 0.0182 | 0.0273 | | 0.0152 | 0.0139 | 0.0000 | 0.0273 | 99.8 | |
| Mulinia lateralis | 0.0227 | 0.0023 | 0.0182 | 0.0144 | 0.0107 | 0.0023 | 0.0227 | 99.9 | |

| | | | | | | | | | | | |
|----------------------------|--|---------|---------|---------|--|---------|--------|---------|---------|-------|--|
| Tubificoides spp. | | 0.0045 | 0.0023 | 0.0091 | | 0.0053 | 0.0035 | 0.0023 | 0.0091 | 99.9 | |
| Edwardsia elegans | | | | 0.0045 | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 99.9 | |
| Streblospio benedicti | | | 0.0045 | | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| Oligochaeta | | 0.0023 | | 0.0023 | | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Amphiporus bioculatus | | | 0.0045 | | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| Rangia cuneata | | | 0.0045 | | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| Macoma mitchelli | | | 0.0023 | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| ----- | | | | | | | | | | | |
| Total Biomass w/ Epifauna | | 11.6886 | 12.7704 | 10.9568 | | 11.8053 | 0.9124 | 10.9568 | 12.7704 | | |
| Total Biomass w/o Epifauna | | 11.6886 | 12.7704 | 10.9568 | | 11.8053 | 0.9124 | 10.9568 | 12.7704 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|-------|-------|-------------------------------|-------|--|------------------------|-----|-------|-------|
| ===== | | | | | | | | | |
| Station: 071 | | | | | | | | | |
| Watershed: Patuxent River | | | Habitat: High Mesohaline Mud | | | Date: August 31, 1999 | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 10:43 | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 13.7 | | | Salinity (ppt): 16.60 | | | Temperature (C): 23.91 | | | |
| Dissolved Oxygen (mg/l): 7.6 | | | Sediment Silt-Clay (%): 96.18 | | | Total Carbon (%): 2.90 | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: 1.33 | | | Condition: Severely Degraded | | | # Attributes Scored: 6 | | | |
| | Value | | Score | | | Value | | Score | |
| Shannon-Weiner Index | 1.55 | | 1 | | Pollution Indicative Species Abundance (%) | 70.44 | | | |
| Abundance (#/m2) | 742 | | 1 | | Pollution Indicative Species Biomass (%) | 88.35 | | 1 | |
| Biomass (g/m2) | 0.30 | | 1 | | Pollution Sensitive Species Abundance (%) | 7.68 | | | |
| Carnivore-Omnivore Abundance (%) | 17.34 | | 3 | | Pollution Sensitive Species Biomass (%) | 2.17 | | 1 | |
| Deep Deposit Feeder Abundance (%) | 4.08 | | | | | | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| Paraprionospio pinnata | | 364 | 591 | 318 | 424.2 | 146.12 | 318 | 591 | 54.9 |
| Leucon americanus | | 227 | 45 | | 90.9 | 120.26 | 0 | 227 | 66.7 |

| | | | | | | | | | | | | |
|--|--------------------------------|--|----|----|-----|--|------|-------|---|-----|------|--|
| | Mulinia lateralis | | 45 | | 182 | | 75.8 | 94.62 | 0 | 182 | 76.5 | |
| | Acteocina canaliculata | | 91 | 45 | | | 45.5 | 45.45 | 0 | 91 | 82.4 | |
| | Americamysis almyra | | | 91 | | | 30.3 | 52.49 | 0 | 91 | 86.3 | |
| | Odostomia engonia (Epi) | | | | 91 | | 30.3 | 52.49 | 0 | 91 | 90.2 | |
| | Glycinde solitaria | | | | 45 | | 15.2 | 26.24 | 0 | 45 | 92.2 | |
| | Imm. Tubificid w/o Cap. Chaete | | 45 | | | | 15.2 | 26.24 | 0 | 45 | 94.1 | |
| | Micrura leidyi | | | 45 | | | 15.2 | 26.24 | 0 | 45 | 96.1 | |
| | Pectinaria gouldii | | | | 45 | | 15.2 | 26.24 | 0 | 45 | 98.0 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 071 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| <i>Podarkeopsis levifuscina</i> | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 818 | 818 | 682 | 772.7 | 78.73 | 682 | 818 | | |
| Total Abundance w/o Epifauna | 818 | 818 | 591 | 742.4 | 131.22 | 591 | 818 | | |
| Number of Taxa w/ Epifauna | 6 | 5 | 5 | 5.3 | 0.58 | 5 | 6 | | |
| Number of Taxa w/o Epifauna | 6 | 5 | 4 | 5.0 | 1.00 | 4 | 6 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| <i>Paraprionospio pinnata</i> | 0.1000 | 0.2409 | 0.1227 | 0.1545 | 0.0757 | 0.1000 | 0.2409 | 51.3 | |
| <i>Mulinia lateralis</i> | 0.0023 | | 0.3364 | 0.1129 | 0.1935 | 0.0000 | 0.3364 | 88.7 | |
| <i>Micrura leidyi</i> | | 0.0318 | | 0.0106 | 0.0184 | 0.0000 | 0.0318 | 92.2 | |
| <i>Glycinde solitaria</i> | | | 0.0182 | 0.0061 | 0.0105 | 0.0000 | 0.0182 | 94.2 | |
| <i>Americamysis almyra</i> | | 0.0182 | | 0.0061 | 0.0105 | 0.0000 | 0.0182 | 96.2 | |
| <i>Leucon americanus</i> | 0.0023 | 0.0091 | | 0.0038 | 0.0047 | 0.0000 | 0.0091 | 97.5 | |
| <i>Odostomia engonia</i> (Epi) | | | 0.0091 | 0.0030 | 0.0052 | 0.0000 | 0.0091 | 98.5 | |
| <i>Pectinaria gouldii</i> | | | 0.0045 | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 99.0 | |
| <i>Acteocina canaliculata</i> | 0.0023 | 0.0023 | | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 99.5 | |
| <i>Oligochaeta</i> | 0.0023 | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.7 | |

| | | | | | | | | | |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|-------|--|
| Podarkeopsis levifuscina | 0.0023 | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| ----- | | | | | | | | | |
| Total Biomass w/ Epifauna | 0.1114 | 0.3023 | 0.4909 | 0.3015 | 0.1898 | 0.1114 | 0.4909 | | |
| Total Biomass w/o Epifauna | 0.1114 | 0.3023 | 0.4818 | 0.2985 | 0.1853 | 0.1114 | 0.4818 | | |

=====

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|-------|-------|-------------------------------|--------|--|------------------------|------|-------|--|
| ===== | | | | | | | | | |
| Station: 074 | | | | | | | | | |
| Watershed: Chalk Point Discharge | | | Habitat: Low Mesohaline | | Date: August 31, 1999 | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | Time: 8:45 | | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 1.9 | | | Salinity (ppt): 12.80 | | Temperature (C): 23.63 | | | | |
| Dissolved Oxygen (mg/l): 7.8 | | | Sediment Silt-Clay (%): 95.70 | | Total Carbon (%): 2.68 | | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: 3.40 | | | Condition: Meets Goal | | | # Attributes Scored: 5 | | | |
| | Value | | Score | | | Value | | Score | |
| Shannon-Weiner Index | 2.12 | | 3 | | Pollution Indicative Species Abundance (%) | 13.53 | | 3 | |
| Abundance (#/m2) | 3833 | | 3 | | Pollution Indicative Species Biomass (%) | 0.67 | | | |
| Biomass (g/m2) | 20.58 | | 3 | | Pollution Sensitive Species Abundance (%) | 17.53 | | | |
| Carnivore-Omnivore Abundance (%) | 12.02 | | | | Pollution Sensitive Species Biomass (%) | 97.63 | | 5 | |
| Deep Deposit Feeder Abundance (%) | 64.48 | | | | | | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Tubificoides spp. | 1227 | 1955 | 3955 | 2378.8 | 1412.26 | 1227 | 3955 | 61.6 | |
| Macoma balthica | 273 | 318 | 318 | 303.0 | 26.24 | 273 | 318 | 69.4 | |

| | | | | | | | | | | | | |
|--|--------------------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| | Mulinia lateralis | | 227 | 318 | 364 | | 303.0 | 69.43 | 227 | 364 | 77.3 | |
| | Cyathura polita | | 91 | 227 | 227 | | 181.8 | 78.73 | 91 | 227 | 82.0 | |
| | Carinoma tremaphoros | | 136 | 136 | 136 | | 136.4 | 0.00 | 136 | 136 | 85.5 | |
| | Glycinde solitaria | | 45 | 91 | 227 | | 121.2 | 94.62 | 45 | 227 | 88.6 | |
| | Imm. Tubificid w/o Cap. Chaete | | | | 318 | | 106.1 | 183.70 | 0 | 318 | 91.4 | |
| | Streblospio benedicti | | 45 | 136 | 45 | | 75.8 | 52.49 | 45 | 136 | 93.3 | |
| | Leucon americanus | | 91 | | 91 | | 60.6 | 52.49 | 0 | 91 | 94.9 | |
| | Amphiporus bioculatus | | 45 | 45 | 45 | | 45.5 | 0.00 | 45 | 45 | 96.1 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 074 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|---------|--------|---------|---------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Edotea triloba (Epi) | | 45 | 45 | 30.3 | 26.24 | 0 | 45 | 96.9 | |
| Heteromastus filiformis | 45 | 45 | | 30.3 | 26.24 | 0 | 45 | 97.6 | |
| Amerocolodes species complex | | 45 | | 15.2 | 26.24 | 0 | 45 | 98.0 | |
| Coelotanypus spp. | | | 45 | 15.2 | 26.24 | 0 | 45 | 98.4 | |
| Neanthes succinea | | | 45 | 15.2 | 26.24 | 0 | 45 | 98.8 | |
| Parahesionia luteola | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.2 | |
| Paraprionospio pinnata | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.6 | |
| Rangia cuneata | | | 45 | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 2273 | 3364 | 5955 | 3863.6 | 1891.15 | 2273 | 5955 | | |
| Total Abundance w/o Epifauna | 2273 | 3318 | 5909 | 3833.3 | 1872.11 | 2273 | 5909 | | |
| Number of Taxa w/ Epifauna | 11 | 11 | 15 | 12.3 | 2.31 | 11 | 15 | | |
| Number of Taxa w/o Epifauna | 11 | 10 | 14 | 11.7 | 2.08 | 10 | 14 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | 23.6863 | 4.6364 | 24.4091 | 17.5773 | 11.2130 | 4.6364 | 24.4091 | 85.4 | |
| Rangia cuneata | | | 6.9909 | 2.3303 | 4.0362 | 0.0000 | 6.9909 | 96.7 | |
| Cyathura polita | 0.3227 | 0.2409 | 0.6545 | 0.4061 | 0.2190 | 0.2409 | 0.6545 | 98.7 | |

| | | | | | | | | | | | |
|--------------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|-------|--|
| Carinoma tremaphoros | | 0.1500 | 0.1045 | 0.1682 | | 0.1409 | 0.0328 | 0.1045 | 0.1682 | 99.4 | |
| <i>Mulinia lateralis</i> | | 0.0023 | 0.0864 | 0.0636 | | 0.0508 | 0.0435 | 0.0023 | 0.0864 | 99.7 | |
| <i>Heteromastus filiformis</i> | | 0.0023 | 0.0727 | | | 0.0250 | 0.0413 | 0.0000 | 0.0727 | 99.8 | |
| <i>Tubificoides</i> spp. | | 0.0091 | 0.0091 | 0.0318 | | 0.0167 | 0.0131 | 0.0091 | 0.0318 | 99.9 | |
| <i>Glycinde solitaria</i> | | 0.0023 | 0.0023 | 0.0227 | | 0.0091 | 0.0118 | 0.0023 | 0.0227 | 99.9 | |
| <i>Paraprionospio pinnata</i> | | | | 0.0182 | | 0.0061 | 0.0105 | 0.0000 | 0.0182 | 99.9 | |
| <i>Amphiporus bioculatus</i> | | 0.0023 | 0.0023 | 0.0045 | | 0.0030 | 0.0013 | 0.0023 | 0.0045 | 99.9 | |
| <i>Streblospio benedicti</i> | | 0.0023 | 0.0023 | 0.0045 | | 0.0030 | 0.0013 | 0.0023 | 0.0045 | 100.0 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 074 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|---------|--------|---------|---------|---------|--------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Coelotanypus spp. | | | 0.0045 | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| Neanthes succinea | | | 0.0045 | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| Edotea triloba (Epi) | | 0.0023 | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Leucon americanus | 0.0023 | | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Ameroculodes species complex | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Oligochaeta | | | 0.0023 | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Parahesionia luteola | 0.0023 | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 24.1841 | 5.1614 | 32.3841 | 20.5765 | 13.9653 | 5.1614 | 32.3841 | | |
| Total Biomass w/o Epifauna | 24.1841 | 5.1591 | 32.3818 | 20.5750 | 13.9656 | 5.1591 | 32.3818 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | | |
|-----------------------------------|--|-------|-------------------------------|-------|--------|--|-----|-------|-------|-------|
| ===== | | | | | | | | | | |
| Station: 077 | | | | | | | | | | |
| Watershed: Patuxent River | | | Habitat: Low Mesohaline | | | Date: August 30, 1999 | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 11:49 | | | | |
| ===== | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | |
| ===== | | | | | | | | | | |
| Depth (m): 2.2 | | | Salinity (ppt): 2.10 | | | Temperature (C): 25.09 | | | | |
| Dissolved Oxygen (mg/l): 6.2 | | | Sediment Silt-Clay (%): 95.81 | | | Total Carbon (%): 2.62 | | | | |
| ===== | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | |
| ===== | | | | | | | | | | |
| B-IBI Score: 3.00 | | | Condition: Meets Goal | | | # Attributes Scored: 5 | | | | |
| | | Value | | Score | | | | Value | | Score |
| Shannon-Weiner Index | | 2.27 | | 3 | | Pollution Indicative Species Abundance (%) | | 15.49 | | 3 |
| Abundance (#/m2) | | 2212 | | 5 | | Pollution Indicative Species Biomass (%) | | 7.85 | | |
| Biomass (g/m2) | | 0.38 | | 1 | | Pollution Sensitive Species Abundance (%) | | 22.19 | | |
| Carnivore-Omnivore Abundance (%) | | 29.26 | | | | Pollution Sensitive Species Biomass (%) | | 65.68 | | 3 |
| Deep Deposit Feeder Abundance (%) | | 51.99 | | | | | | | | |
| ===== | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | |
| ===== | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | |
| Tubificoides spp. | | 682 | 364 | 2818 | 1287.9 | 1334.79 | 364 | 2818 | 57.0 | |
| Cyathura polita | | 91 | 273 | 91 | 151.5 | 104.97 | 91 | 273 | 63.8 | |

| | | | | | | | | | | | |
|-------------------------|--|----|-----|-----|--|-------|--------|----|-----|------|--|
| Rangia cuneata | | 91 | 136 | 227 | | 151.5 | 69.43 | 91 | 227 | 70.5 | |
| Streblospio benedicti | | 45 | | 409 | | 151.5 | 224.22 | 0 | 409 | 77.2 | |
| Coelotanypus spp. | | 91 | 227 | 91 | | 136.4 | 78.73 | 91 | 227 | 83.2 | |
| Carinoma tremaphoros | | 91 | 45 | 91 | | 75.8 | 26.24 | 45 | 91 | 86.6 | |
| Macoma mitchelli | | | 91 | 136 | | 75.8 | 69.43 | 0 | 136 | 89.9 | |
| Hypereteone heteropoda | | 45 | 45 | 45 | | 45.5 | 0.00 | 45 | 45 | 91.9 | |
| Glycinde solitaria | | 45 | | 45 | | 30.3 | 26.24 | 0 | 45 | 93.3 | |
| Leptocheirus plumulosus | | | | 91 | | 30.3 | 52.49 | 0 | 91 | 94.6 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 077 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | | 45 | 45 | 30.3 | 26.24 | 0 | 45 | 96.0 | |
| Melita nitida (Epi) | | | 91 | 30.3 | 52.49 | 0 | 91 | 97.3 | |
| Edwardsia elegans | | | 45 | 15.2 | 26.24 | 0 | 45 | 98.0 | |
| Littoridinops tenuipes (Epi) | | 45 | | 15.2 | 26.24 | 0 | 45 | 98.7 | |
| Marenzelleria viridis | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.3 | |
| Neanthes succinea | | 45 | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 1182 | 1318 | 4273 | 2257.6 | 1746.50 | 1182 | 4273 | | |
| Total Abundance w/o Epifauna | 1182 | 1273 | 4182 | 2212.1 | 1706.41 | 1182 | 4182 | | |
| Number of Taxa w/ Epifauna | 8 | 10 | 14 | 10.7 | 3.06 | 8 | 14 | | |
| Number of Taxa w/o Epifauna | 8 | 9 | 13 | 10.0 | 2.65 | 8 | 13 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Macoma balthica | | 0.2545 | 0.2727 | 0.1758 | 0.1525 | 0.0000 | 0.2727 | 45.7 | |
| Macoma mitchelli | | 0.0023 | 0.2273 | 0.0765 | 0.1306 | 0.0000 | 0.2273 | 65.6 | |
| Cyathura polita | 0.0182 | 0.1864 | 0.0227 | 0.0758 | 0.0958 | 0.0182 | 0.1864 | 85.2 | |
| Coelotanypus spp. | 0.0045 | 0.0227 | 0.0136 | 0.0136 | 0.0091 | 0.0045 | 0.0227 | 88.8 | |
| Marenzelleria viridis | | | 0.0364 | 0.0121 | 0.0210 | 0.0000 | 0.0364 | 91.9 | |
| Carinoma tremaphoros | 0.0182 | 0.0023 | 0.0091 | 0.0098 | 0.0080 | 0.0023 | 0.0182 | 94.5 | |

| | | | | | | | | |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|------|
| Tubificoides spp. | 0.0023 | 0.0023 | 0.0136 | 0.0061 | 0.0066 | 0.0023 | 0.0136 | 96.1 |
| Rangia cuneata | 0.0091 | 0.0023 | 0.0023 | 0.0045 | 0.0039 | 0.0023 | 0.0091 | 97.2 |
| Hypereteone heteropoda | 0.0023 | 0.0023 | 0.0023 | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 97.8 |
| Glycinde solitaria | 0.0023 | | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 98.2 |
| Streblospio benedicti | 0.0023 | | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 98.6 |
| Leptocheirus plumulosus | | | 0.0045 | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 99.0 |
| Edwardsia elegans | | | 0.0023 | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.2 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 077 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Littoridinops tenuipes (Epi) | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.4 | | |
| Melita nitida (Epi) | | | 0.0023 | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.6 | |
| Neanthes succinea | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.8 | |
| Oligochaeta | | | 0.0023 | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 0.0591 | 0.4795 | 0.6159 | 0.3848 | 0.2902 | 0.0591 | 0.6159 | | |
| Total Biomass w/o Epifauna | 0.0591 | 0.4773 | 0.6136 | 0.3833 | 0.2890 | 0.0591 | 0.6136 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|-------|-------|-------------------------------|-------|--|-------------------------|-----|-------|-------|
| ===== | | | | | | | | | |
| Station: 201 | | | | | | | | | |
| Watershed: Patapsco & Back Rivers | | | Habitat: Low Mesohaline | | | Date: September 8, 1999 | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 13:22 | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 3.5 | | | Salinity (ppt): 12.24 | | | Temperature (C): 24.64 | | | |
| Dissolved Oxygen (mg/l): 2.8 | | | Sediment Silt-Clay (%): 97.16 | | | Total Carbon (%): 6.71 | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: 1.40 | | | Condition: Severely Degraded | | | # Attributes Scored: 5 | | | |
| | Value | | Score | | | Value | | Score | |
| Shannon-Weiner Index | 0.68 | | 1 | | Pollution Indicative Species Abundance (%) | 92.36 | | 1 | |
| Abundance (#/m2) | 515 | | 3 | | Pollution Indicative Species Biomass (%) | 37.67 | | | |
| Biomass (g/m2) | 0.28 | | 1 | | Pollution Sensitive Species Abundance (%) | 2.78 | | | |
| Carnivore-Omnivore Abundance (%) | 15.77 | | | | Pollution Sensitive Species Biomass (%) | 27.35 | | 1 | |
| Deep Deposit Feeder Abundance (%) | 2.78 | | | | | | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| ----- | | | | | | | | | |
| Streblospio benedicti | | 591 | 455 | 227 | 424.2 | 183.70 | 227 | 591 | 82.4 |
| Hypereteone heteropoda | | | | 91 | 30.3 | 52.49 | 0 | 91 | 88.2 |

| | | | | | | | | | | |
|------------------------------|--|-----|-----|-----|------|-------|--------|-----|-------|--|
| Americamysis bigelowi | | 45 | | | 15.2 | 26.24 | 0 | 45 | 91.2 | |
| Heteromastus filiformis | | | 45 | | 15.2 | 26.24 | 0 | 45 | 94.1 | |
| Macoma balthica | | | 45 | | 15.2 | 26.24 | 0 | 45 | 97.1 | |
| Neanthes succinea | | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| ----- | | | | | | | | | | |
| Total Abundance w/ Epifauna | | 682 | 545 | 318 | | 515.2 | 183.70 | 318 | 682 | |
| Total Abundance w/o Epifauna | | 682 | 545 | 318 | | 515.2 | 183.70 | 318 | 682 | |
| Number of Taxa w/ Epifauna | | 3 | 3 | 2 | | 2.7 | 0.58 | 2 | 3 | |
| Number of Taxa w/o Epifauna | | 3 | 3 | 2 | | 2.7 | 0.58 | 2 | 3 | |
| ===== | | | | | | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 201 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
|---------------------------------------|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| <i>Neanthes succinea</i> | 0.6364 | | | 0.2121 | 0.3674 | 0.0000 | 0.6364 | 74.5 | |
| <i>Macoma balthica</i> | | 0.1455 | | 0.0485 | 0.0840 | 0.0000 | 0.1455 | 91.5 | |
| <i>Streblospio benedicti</i> | 0.0182 | 0.0182 | 0.0182 | 0.0182 | 0.0000 | 0.0182 | 0.0182 | 97.9 | |
| <i>Heteromastus filiformis</i> | | 0.0136 | | 0.0045 | 0.0079 | 0.0000 | 0.0136 | 99.5 | |
| <i>Americamysis bigelowi</i> | 0.0023 | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.7 | |
| <i>Hypereteone heteropoda</i> | | | 0.0023 | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 0.6568 | 0.1773 | 0.0205 | 0.2848 | 0.3315 | 0.0205 | 0.6568 | | |
| Total Biomass w/o Epifauna | 0.6568 | 0.1773 | 0.0205 | 0.2848 | 0.3315 | 0.0205 | 0.6568 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|-------|-------|-------------------------------|-------|--|-------------------------|-----|-------|-------|
| ===== | | | | | | | | | |
| Station: 202 | | | | | | | | | |
| Watershed: Patapsco & Back Rivers | | | Habitat: Low Mesohaline | | | Date: September 8, 1999 | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 14:41 | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 6.0 | | | Salinity (ppt): 12.63 | | | Temperature (C): 24.33 | | | |
| Dissolved Oxygen (mg/l): 4.7 | | | Sediment Silt-Clay (%): 92.98 | | | Total Carbon (%): 3.46 | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: 1.40 | | | Condition: Severely Degraded | | | # Attributes Scored: 5 | | | |
| | Value | | Score | | | Value | | Score | |
| Shannon-Weiner Index | 0.46 | | 1 | | Pollution Indicative Species Abundance (%) | 83.59 | | 1 | |
| Abundance (#/m2) | 697 | | 3 | | Pollution Indicative Species Biomass (%) | 97.53 | | | |
| Biomass (g/m2) | 0.04 | | 1 | | Pollution Sensitive Species Abundance (%) | 0.00 | | | |
| Carnivore-Omnivore Abundance (%) | 14.31 | | | | Pollution Sensitive Species Biomass (%) | 0.00 | | 1 | |
| Deep Deposit Feeder Abundance (%) | 6.41 | | | | | | | | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| Streblospio benedicti | | 318 | 909 | 455 | 560.6 | 309.40 | 318 | 909 | 80.4 |
| Tubificoides spp. | | | 227 | | 75.8 | 131.22 | 0 | 227 | 91.3 |

| | | | | | | | | | | |
|------------------------------|--|-----|------|------|-------|-------|--------|------|-------|--|
| Americamysis bigelowi | | 91 | | 30.3 | 52.49 | 0 | 91 | 95.7 | | |
| Hypereteone heteropoda | | 45 | 45 | | 30.3 | 26.24 | 0 | 45 | 100.0 | |
| ----- | | | | | | | | | | |
| Total Abundance w/ Epifauna | | 318 | 1273 | 500 | | 697.0 | 506.84 | 318 | 1273 | |
| Total Abundance w/o Epifauna | | 318 | 1273 | 500 | | 697.0 | 506.84 | 318 | 1273 | |
| Number of Taxa w/ Epifauna | | 1 | 4 | 2 | | 2.3 | 1.53 | 1 | 4 | |
| Number of Taxa w/o Epifauna | | 1 | 4 | 2 | | 2.3 | 1.53 | 1 | 4 | |

=====

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 202 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
|---------------------------------------|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Streblospio benedicti | 0.0136 | 0.0545 | 0.0364 | 0.0348 | 0.0205 | 0.0136 | 0.0545 | 92.0 | |
| Hypereteone heteropoda | | 0.0023 | 0.0023 | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 96.0 | |
| Americamysis bigelowi | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 98.0 | |
| Tubificoides spp. | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 0.0136 | 0.0614 | 0.0386 | 0.0379 | 0.0239 | 0.0136 | 0.0614 | | |
| Total Biomass w/o Epifauna | 0.0136 | 0.0614 | 0.0386 | 0.0379 | 0.0239 | 0.0136 | 0.0614 | | |

* Indicates species is skipped in species counts

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

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=====
|                               Station: 204                               |
| Watershed: Lower Western Shore   Habitat: High Mesohaline Mud   Date: September 10, 1999 |
| Gear: Young Grab                 Sampled Area: 0.044 sq.m       Time: 7:06                 |
=====

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=====
|                               BOTTOM ENVIRONMENT                               |
=====
| Depth (m): 7.0                   Salinity (ppt): 14.41           Temperature (C): 25.14   |
| Dissolved Oxygen (mg/l): 6.1     Sediment Silt-Clay (%): 53.61  Total Carbon (%): 1.57   |
=====

```

```

=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
=====
| B-IBI Score: 3.67                Condition: Meets Goal                # Attributes Scored: 6   |
|                               Value  Score                               Value  Score |
| Shannon-Weiner Index             2.56  3   Pollution Indicative Species Abundance (%)  19.69   |
| Abundance (#/m2)                 2288  5   Pollution Indicative Species Biomass (%)    2.34   5 |
| Biomass (g/m2)                   1.02  3   Pollution Sensitive Species Abundance (%)  14.25   |
| Carnivore-Omnivore Abundance (%) 30.81  5   Pollution Sensitive Species Biomass (%)    29.57  1 |
| Deep Deposit Feeder Abundance (%) 53.63                                     |
=====

```

```

=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====
|                               | Rep 1   Rep 2   Rep 3 | Mean  Std.Dev  Min   Max   Cum % |
-----
| Tubificoides spp.           | 1568   727   455 | 916.7  580.47  455   1568  40.1 |
| Neanthes succinea           | 205    477   364 | 348.5  136.99  205   477   55.3 |

```

| | | | | | | | | | | | |
|--------------------------------|--|-----|-----|-----|--|-------|--------|-----|-----|------|--|
| Glycinde solitaria | | 250 | 205 | 318 | | 257.6 | 57.20 | 205 | 318 | 66.6 | |
| Streblospio benedicti | | 409 | 205 | 136 | | 250.0 | 141.93 | 136 | 409 | 77.5 | |
| Heteromastus filiformis | | 136 | 318 | 114 | | 189.4 | 112.11 | 114 | 318 | 85.8 | |
| Imm. Tubificid w/o Cap. Chaete | | 45 | 205 | 227 | | 159.1 | 99.07 | 45 | 227 | 92.7 | |
| Macoma mitchelli | | 68 | 23 | 45 | | 45.5 | 22.73 | 23 | 68 | 94.7 | |
| Macoma balthica | | 45 | 45 | | | 30.3 | 26.24 | 0 | 45 | 96.0 | |
| Mulinia lateralis | | | | 91 | | 30.3 | 52.49 | 0 | 91 | 97.4 | |
| Carinoma tremaphoros | | 23 | 45 | | | 22.7 | 22.73 | 0 | 45 | 98.3 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 204 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Amphiporus bioculatus | | 23 | 23 | 15.2 | 13.12 | 0 | 23 | 99.0 | |
| Cyathura polita | | 23 | | 7.6 | 13.12 | 0 | 23 | 99.3 | |
| Leptocheirus plumulosus | | | 23 | 7.6 | 13.12 | 0 | 23 | 99.7 | |
| Pectinaria gouldii | 23 | | | 7.6 | 13.12 | 0 | 23 | 100.0 | |
| Total Abundance w/ Epifauna | 2773 | 2295 | 1795 | 2287.9 | 488.68 | 1795 | 2773 | | |
| Total Abundance w/o Epifauna | 2773 | 2295 | 1795 | 2287.9 | 488.68 | 1795 | 2773 | | |
| Number of Taxa w/ Epifauna | 10 | 11 | 10 | 10.3 | 0.58 | 10 | 11 | | |
| Number of Taxa w/o Epifauna | 10 | 11 | 10 | 10.3 | 0.58 | 10 | 11 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Neanthes succinea | 0.2318 | 0.8636 | 0.5818 | 0.5591 | 0.3165 | 0.2318 | 0.8636 | 54.8 | |
| Macoma balthica | 0.0614 | 0.8977 | | 0.3197 | 0.5015 | 0.0000 | 0.8977 | 86.2 | |
| Glycinde solitaria | 0.0750 | 0.0545 | 0.0636 | 0.0644 | 0.0102 | 0.0545 | 0.0750 | 92.5 | |
| Heteromastus filiformis | 0.0318 | 0.0455 | 0.0182 | 0.0318 | 0.0136 | 0.0182 | 0.0455 | 95.7 | |
| Tubificoides spp. | 0.0205 | 0.0045 | 0.0011 | 0.0087 | 0.0103 | 0.0011 | 0.0205 | 96.5 | |
| Macoma mitchelli | 0.0114 | 0.0011 | 0.0114 | 0.0080 | 0.0059 | 0.0011 | 0.0114 | 97.3 | |
| Mulinia lateralis | | | 0.0205 | 0.0068 | 0.0118 | 0.0000 | 0.0205 | 98.0 | |

| | | | | | | | | | | | | |
|-------|----------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|-------|--|
| | Streblospio benedicti | | 0.0182 | 0.0011 | 0.0011 | | 0.0068 | 0.0098 | 0.0011 | 0.0182 | 98.6 | |
| | Carinoma tremaphoros | | 0.0011 | 0.0159 | | | 0.0057 | 0.0089 | 0.0000 | 0.0159 | 99.2 | |
| | Pectinaria gouldii | | 0.0159 | | | | 0.0053 | 0.0092 | 0.0000 | 0.0159 | 99.7 | |
| | Oligochaeta | | 0.0011 | 0.0011 | 0.0011 | | 0.0011 | 0.0000 | 0.0011 | 0.0011 | 99.8 | |
| | Amphiporus bioculatus | | | 0.0011 | 0.0023 | | 0.0011 | 0.0011 | 0.0000 | 0.0023 | 99.9 | |
| | Cyathura polita | | | 0.0011 | | | 0.0004 | 0.0007 | 0.0000 | 0.0011 | 100.0 | |
| | Leptocheirus plumulosus | | | | 0.0011 | | 0.0004 | 0.0007 | 0.0000 | 0.0011 | 100.0 | |
| ----- | | | | | | | | | | | | |
| | Total Biomass w/ Epifauna | | 0.4682 | 1.8875 | 0.7023 | | 1.0193 | 0.7609 | 0.4682 | 1.8875 | | |
| | Total Biomass w/o Epifauna | | 0.4682 | 1.8875 | 0.7023 | | 1.0193 | 0.7609 | 0.4682 | 1.8875 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| ===== | | | | | | | | | | | | | |
|-----------------------------------|-------|--|-------------------------------|-------|--|-------------------------|------|---------|--------|------|-------|------|--|
| Station: 029 | | | | | | | | | | | | | |
| Watershed: Upper Eastern Shore | | | Habitat: Oligohaline | | | Date: September 9, 1999 | | | | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 14:57 | | | | | | | |
| ===== | | | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | | |
| Depth (m): 5.0 | | | Salinity (ppt): 7.83 | | | Temperature (C): 25.67 | | | | | | | |
| Dissolved Oxygen (mg/l): 6.5 | | | Sediment Silt-Clay (%): 70.84 | | | Total Carbon (%): 1.85 | | | | | | | |
| ===== | | | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | | |
| B-IBI Score: 3.00 | | | Condition: Meets Goal | | | # Attributes Scored: 5 | | | | | | | |
| | Value | | Score | | | Value | | Score | | | | | |
| Shannon-Weiner Index | | | 2.51 | | Oligohaline Pollution Indicative Spp. Abund. 26.22 | | | 5 | | | | | |
| Abundance (#/m2) | | | 4561 | | Tolerance Score | | | 6.51 3 | | | | | |
| Deep Deposit Feeder Abundance (%) | | | 5.26 | | Oligohaline Pollution Sensitive Spp. Abund. 0.64 | | | 3 | | | | | |
| Carnivore-Omnivore Abundance (%) | | | 5.25 1 | | Tanypodinae/Chironomidae Abundance Ratio | | | 33.33 3 | | | | | |
| ===== | | | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | | | |
| ===== | | | | | | | | | | | | | |
| | | | Rep 1 | Rep 2 | Rep 3 | | Mean | Std.Dev | Min | Max | Cum % | | |
| ----- | | | | | | | | | | | | | |
| Rangia cuneata | | | | 1455 | 1045 | 1864 | | 1454.5 | 409.09 | 1045 | 1864 | 31.7 | |
| Hobsonia florida | | | | 1091 | 1000 | 1136 | | 1075.8 | 69.43 | 1000 | 1136 | 55.1 | |
| Streblospio benedicti | | | | 727 | 909 | 818 | | 818.2 | 90.91 | 727 | 909 | 72.9 | |
| Marenzelleria viridis | | | | 227 | 682 | 864 | | 590.9 | 327.78 | 227 | 864 | 85.8 | |

| | | | | | | | | | | | |
|--------------------------------|--|-----|-----|-----|--|-------|-------|-----|-----|------|--|
| Imm. Tubificid w/o Cap. Chaete | | 182 | 182 | 318 | | 227.3 | 78.73 | 182 | 318 | 90.8 | |
| Cyathura polita | | 182 | 91 | 227 | | 166.7 | 69.43 | 91 | 227 | 94.4 | |
| Polydora cornuta | | 45 | 45 | 136 | | 75.8 | 52.49 | 45 | 136 | 96.0 | |
| Ameroculodes species complex | | | 45 | 45 | | 30.3 | 26.24 | 0 | 45 | 96.7 | |
| Carinoma tremaphoros | | 45 | | 45 | | 30.3 | 26.24 | 0 | 45 | 97.4 | |
| Edotea triloba (Epi) | | | | 91 | | 30.3 | 52.49 | 0 | 91 | 98.0 | |
| Boccardiella ligerica | | | | 45 | | 15.2 | 26.24 | 0 | 45 | 98.3 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 029 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|---------|---------|---------|---------|---------|---------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Coelotanypus spp. | 45 | | | 15.2 | 26.24 | 0 | 45 | 98.7 | |
| Leptocheirus plumulosus | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.0 | |
| Neanthes succinea | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.3 | |
| Polypedilum halterale | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.7 | |
| Tubificoides spp. | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 4091 | 4000 | 5682 | 4590.9 | 945.85 | 4000 | 5682 | | |
| Total Abundance w/o Epifauna | 4091 | 4000 | 5591 | 4560.6 | 893.42 | 4000 | 5591 | | |
| Number of Taxa w/ Epifauna | 11 | 8 | 13 | 10.7 | 2.52 | 8 | 13 | | |
| Number of Taxa w/o Epifauna | 11 | 8 | 12 | 10.3 | 2.08 | 8 | 12 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Rangia cuneata | 68.7817 | 53.6590 | 67.8818 | 63.4408 | 8.4832 | 53.6590 | 68.7817 | 97.5 | |
| Marenzelleria viridis | 0.4636 | 1.5409 | 2.4318 | 1.4788 | 0.9856 | 0.4636 | 2.4318 | 99.8 | |
| Carinoma tremaphoros | 0.0045 | | 0.1045 | 0.0364 | 0.0591 | 0.0000 | 0.1045 | 99.9 | |
| Hobsonia florida | 0.0227 | 0.0364 | 0.0318 | 0.0303 | 0.0069 | 0.0227 | 0.0364 | 99.9 | |
| Cyathura polita | 0.0273 | 0.0091 | 0.0364 | 0.0242 | 0.0139 | 0.0091 | 0.0364 | 100.0 | |
| Streblospio benedicti | 0.0045 | 0.0091 | 0.0136 | 0.0091 | 0.0045 | 0.0045 | 0.0136 | 100.0 | |

| | | | | | | | | | | | | | |
|--|------------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|--|
| | Boccardiella ligerica | | | 0.0136 | | 0.0045 | 0.0079 | 0.0000 | 0.0136 | 100.0 | | | |
| | Ameroculodes species complex | | | 0.0023 | | 0.0045 | | 0.0023 | 0.0023 | 0.0000 | 0.0045 | 100.0 | |
| | Oligochaeta | | 0.0023 | 0.0023 | 0.0023 | | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 100.0 | | |
| | Polydora cornuta | | 0.0023 | 0.0023 | 0.0023 | | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 100.0 | | |
| | Edotea triloba (Epi) | | | | 0.0045 | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | | |
| | Chironomidae larvae | | | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | | |
| | Coelotanypus spp. | | 0.0023 | | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | | |
| | Leptocheirus plumulosus | | | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 029 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|---------|---------|---------|---------|---------|---------|---------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Neanthes succinea | 0.0023 | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Tubificoides spp. | 0.0023 | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 69.3158 | 55.2613 | 70.5317 | 65.0363 | 8.4872 | 55.2613 | 70.5317 | | |
| Total Biomass w/o Epifauna | 69.3158 | 55.2613 | 70.5272 | 65.0348 | 8.4857 | 55.2613 | 70.5272 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | | |
|-----------------------------------|--|-------|-------------------------------|--|-------|--|-----|--------|-------|-------|
| ===== | | | | | | | | | | |
| Station: 040 | | | | | | | | | | |
| Watershed: Potomac River | | | Habitat: Oligohaline | | | Date: September 13, 1999 | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 16:34 | | | | |
| ===== | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | |
| ===== | | | | | | | | | | |
| Depth (m): 7.5 | | | Salinity (ppt): 5.17 | | | Temperature (C): 24.77 | | | | |
| Dissolved Oxygen (mg/l): 5.8 | | | Sediment Silt-Clay (%): 91.90 | | | Total Carbon (%): 2.14 | | | | |
| ===== | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | |
| ===== | | | | | | | | | | |
| B-IBI Score: 3.00 | | | Condition: Marginal | | | # Attributes Scored: 5 | | | | |
| | | Value | | Score | | | | Value | | Score |
| Shannon-Weiner Index | | 1.62 | | Oligohaline Pollution Indicative Spp. Abund. | | 79.53 | | 3 | | |
| Abundance (#/m2) | | 1136 | | Tolerance Score | | 6.74 | | 3 | | |
| Deep Deposit Feeder Abundance (%) | | 1.96 | | Oligohaline Pollution Sensitive Spp. Abund. | | 68.78 | | 5 | | |
| Carnivore-Omnivore Abundance (%) | | 15.38 | | 3 | | Tanypodinae/Chironomidae Abundance Ratio | | 100.00 | | 1 |
| ===== | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | |
| ===== | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | |
| Leptocheirus plumulosus | | 955 | 500 | 864 | 772.7 | 240.52 | 500 | 955 | 63.0 | |
| Coelotanypus spp. | | 136 | 45 | 91 | 90.9 | 45.45 | 45 | 136 | 70.4 | |
| Macoma balthica | | 91 | 91 | 45 | 75.8 | 26.24 | 45 | 91 | 76.5 | |

| | | | | | | | | | | | |
|--------------------------------|--|-----|----|----|--|------|-------|----|-----|------|--|
| Rangia cuneata | | 136 | | 45 | | 60.6 | 69.43 | 0 | 136 | 81.5 | |
| Cyathura polita | | 45 | 91 | 45 | | 60.6 | 26.24 | 45 | 91 | 86.4 | |
| Neomysis americana (Epi) | | 91 | | 91 | | 60.6 | 52.49 | 0 | 91 | 91.4 | |
| Melita nitida (Epi) | | 45 | | 45 | | 30.3 | 26.24 | 0 | 45 | 93.8 | |
| Carinoma tremaphoros | | | | 45 | | 15.2 | 26.24 | 0 | 45 | 95.1 | |
| Hypereteone heteropoda | | 45 | | | | 15.2 | 26.24 | 0 | 45 | 96.3 | |
| Imm. Tubificid w/o Cap. Chaete | | | 45 | | | 15.2 | 26.24 | 0 | 45 | 97.5 | |
| Marenzelleria viridis | | 45 | | | | 15.2 | 26.24 | 0 | 45 | 98.8 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 040 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Streblospio benedicti | 45 | | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 1636 | 773 | 1273 | 1227.3 | 433.61 | 773 | 1636 | | |
| Total Abundance w/o Epifauna | 1500 | 773 | 1136 | 1136.4 | 363.64 | 773 | 1500 | | |
| Number of Taxa w/ Epifauna | 10 | 5 | 8 | 7.7 | 2.52 | 5 | 10 | | |
| Number of Taxa w/o Epifauna | 8 | 5 | 6 | 6.3 | 1.53 | 5 | 8 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Rangia cuneata | 1.3773 | | 5.0182 | 2.1318 | 2.5928 | 0.0000 | 5.0182 | 82.8 | |
| Macoma balthica | 0.2773 | 0.2955 | 0.2318 | 0.2682 | 0.0328 | 0.2318 | 0.2955 | 93.2 | |
| Leptocheirus plumulosus | 0.0636 | 0.0591 | 0.0591 | 0.0606 | 0.0026 | 0.0591 | 0.0636 | 95.6 | |
| Carinoma tremaphoros | | | 0.0955 | 0.0318 | 0.0551 | 0.0000 | 0.0955 | 96.8 | |
| Neomysis americana (Epi) | 0.0023 | | 0.0727 | 0.0250 | 0.0413 | 0.0000 | 0.0727 | 97.8 | |
| Cyathura polita | 0.0227 | 0.0136 | 0.0318 | 0.0227 | 0.0091 | 0.0136 | 0.0318 | 98.6 | |
| Coelotanypus spp. | 0.0182 | 0.0045 | 0.0182 | 0.0136 | 0.0079 | 0.0045 | 0.0182 | 99.2 | |
| Marenzelleria viridis | 0.0409 | | | 0.0136 | 0.0236 | 0.0000 | 0.0409 | 99.7 | |
| Melita nitida (Epi) | 0.0023 | | 0.0136 | 0.0053 | 0.0073 | 0.0000 | 0.0136 | 99.9 | |
| Hypereteone heteropoda | 0.0023 | | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.9 | |

| | | | | | | | | | | |
|----------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--|
| Oligochaeta | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | | |
| Streblospio benedicti | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | | |
| ----- | | | | | | | | | | |
| Total Biomass w/ Epifauna | | 1.8091 | 0.3750 | 5.5409 | | 2.5750 | 2.6668 | 0.3750 | 5.5409 | |
| Total Biomass w/o Epifauna | | 1.8045 | 0.3750 | 5.4545 | | 2.5447 | 2.6194 | 0.3750 | 5.4545 | |
| ===== | | | | | | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | | |
|-----------------------------------|--|-------|-------------------------------|--|-------|--|-----|-------|-------|-------|
| ===== | | | | | | | | | | |
| Station: 066 | | | | | | | | | | |
| Watershed: Choptank River | | | Habitat: Oligohaline | | | Date: September 23, 1999 | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 7:40 | | | | |
| ===== | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | |
| ===== | | | | | | | | | | |
| Depth (m): 3.5 | | | Salinity (ppt): 0.08 | | | Temperature (C): 18.22 | | | | |
| Dissolved Oxygen (mg/l): 5.1 | | | Sediment Silt-Clay (%): 88.95 | | | Total Carbon (%): 5.52 | | | | |
| ===== | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | |
| ===== | | | | | | | | | | |
| B-IBI Score: 2.60 | | | Condition: Degraded | | | # Attributes Scored: 5 | | | | |
| | | Value | | Score | | | | Value | | Score |
| Shannon-Weiner Index | | 2.15 | | Oligohaline Pollution Indicative Spp. Abund. | | 62.86 | | 3 | | |
| Abundance (#/m2) | | 1030 | | Tolerance Score | | 7.61 | | 3 | | |
| Deep Deposit Feeder Abundance (%) | | 7.19 | | Oligohaline Pollution Sensitive Spp. Abund. | | 22.69 | | 3 | | |
| Carnivore-Omnivore Abundance (%) | | 20.80 | | 3 | | Tanypodinae/Chironomidae Abundance Ratio | | 66.67 | | 5 |
| ===== | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | |
| ===== | | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | |
| Streblospio benedicti | | 45 | 364 | 500 | 303.0 | 233.25 | 45 | 500 | 23.5 | |
| Leptocheirus plumulosus | | 682 | 45 | | 242.4 | 381.20 | 0 | 682 | 42.4 | |
| Cyathura polita | | 45 | 91 | 318 | 151.5 | 146.12 | 45 | 318 | 54.1 | |

| | | | | | | | | | | | |
|--------------------------------|--|-----|-----|--|-------|--------|-------|-----|------|------|--|
| Apocorophium lacustre | | 318 | 91 | | 136.4 | 163.89 | 0 | 318 | 64.7 | | |
| Marenzelleria viridis | | 136 | 136 | | 90.9 | 78.73 | 0 | 136 | 71.8 | | |
| Gammarus daiberi (Epi) | | 91 | 136 | | 75.8 | 69.43 | 0 | 136 | 77.6 | | |
| Rangia cuneata | | 91 | 91 | | 45 | 75.8 | 26.24 | 45 | 91 | 83.5 | |
| Imm. Tubificid w/o Cap. Chaete | | 91 | | | 91 | 60.6 | 52.49 | 0 | 91 | 88.2 | |
| Carinoma tremaphoros | | 91 | | | 45 | 45.5 | 45.45 | 0 | 91 | 91.8 | |
| Rhithropanopeus harrisi (Epi) | | | 136 | | 45.5 | 78.73 | 0 | 136 | 95.3 | | |
| Coelotanypus spp. | | 45 | | | 45 | 30.3 | 26.24 | 0 | 45 | 97.6 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 066 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Hobsonia florida | | 45 | | 15.2 | 26.24 | 0 | 45 | 98.8 | |
| Quistadrilus multisetosus | | 45 | | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 1182 | 1409 | 1273 | 1287.9 | 114.39 | 1182 | 1409 | | |
| Total Abundance w/o Epifauna | 1091 | 1136 | 1273 | 1166.7 | 94.62 | 1091 | 1273 | | |
| Number of Taxa w/ Epifauna | 8 | 10 | 8 | 8.7 | 1.15 | 8 | 10 | | |
| Number of Taxa w/o Epifauna | 7 | 8 | 8 | 7.7 | 0.58 | 7 | 8 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Marenzelleria viridis | | 0.7636 | 0.6182 | 0.4606 | 0.4055 | 0.0000 | 0.7636 | 57.4 | |
| Cyathura polita | 0.0023 | 0.0318 | 0.3182 | 0.1174 | 0.1745 | 0.0023 | 0.3182 | 72.0 | |
| Rhithropanopeus harrisi (Epi) | | 0.2818 | | 0.0939 | 0.1627 | 0.0000 | 0.2818 | 83.7 | |
| Rangia cuneata | 0.0023 | 0.0091 | 0.2455 | 0.0856 | 0.1385 | 0.0023 | 0.2455 | 94.3 | |
| Leptocheirus plumulosus | 0.0500 | 0.0023 | | 0.0174 | 0.0282 | 0.0000 | 0.0500 | 96.5 | |
| Gammarus spp. (Epi) | 0.0023 | 0.0227 | | 0.0083 | 0.0125 | 0.0000 | 0.0227 | 97.5 | |
| Apocorophium lacustre | | 0.0182 | 0.0023 | 0.0068 | 0.0099 | 0.0000 | 0.0182 | 98.4 | |
| Streblospio benedicti | 0.0023 | 0.0136 | 0.0023 | 0.0061 | 0.0066 | 0.0023 | 0.0136 | 99.2 | |
| Oligochaeta | 0.0023 | 0.0023 | 0.0023 | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 99.4 | |

| | | | | | | | | | | | |
|----------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|-------|--|
| Carinoma tremaphoros | | 0.0023 | | 0.0023 | | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 99.6 | |
| Coelotanypus spp. | | 0.0023 | | 0.0023 | | 0.0015 | 0.0013 | 0.0000 | 0.0023 | 99.8 | |
| Hobsonia florida | | | 0.0045 | | | 0.0015 | 0.0026 | 0.0000 | 0.0045 | 100.0 | |
| ----- | | | | | | | | | | | |
| Total Biomass w/ Epifauna | | 0.0659 | 1.1500 | 1.1932 | | 0.8030 | 0.6387 | 0.0659 | 1.1932 | | |
| Total Biomass w/o Epifauna | | 0.0636 | 0.8455 | 1.1932 | | 0.7008 | 0.5785 | 0.0636 | 1.1932 | | |

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BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | |
|-----------------------------------|--|-------------------------------|----------------------|-------|-------------------------|--|-----|---------|-------|
| ===== | | | | | | | | | |
| Station: 203 | | | | | | | | | |
| Watershed: Patapsco & Back Rivers | | | Habitat: Oligohaline | | Date: September 9, 1999 | | | | |
| Gear: Young Grab | | Sampled Area: 0.044 sq.m | | | Time: 9:09 | | | | |
| ===== | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | |
| ===== | | | | | | | | | |
| Depth (m): 2.0 | | Salinity (ppt): 6.19 | | | Temperature (C): 26.01 | | | | |
| Dissolved Oxygen (mg/l): 4.7 | | Sediment Silt-Clay (%): 98.78 | | | Total Carbon (%): 4.90 | | | | |
| ===== | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | |
| ===== | | | | | | | | | |
| B-IBI Score: 1.80 | | Condition: Severely Degraded | | | # Attributes Scored: 5 | | | | |
| | | Value | | Score | | Value | | Score | |
| Shannon-Weiner Index | | 1.39 | | | | Oligohaline Pollution Indicative Spp. Abund. 98.24 | | 1 | |
| Abundance (#/m2) | | 1114 | | | | Tolerance Score | | 9.74 1 | |
| Deep Deposit Feeder Abundance (%) | | 60.22 | | | | Oligohaline Pollution Sensitive Spp. Abund. 4.35 | | 3 | |
| Carnivore-Omnivore Abundance (%) | | 7.10 1 | | | | Tanypodinae/Chironomidae Abundance Ratio | | 33.33 3 | |
| ===== | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | |
| ===== | | | | | | | | | |
| | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
| ----- | | | | | | | | | |
| Imm. Tubificid w/o Cap. Chaete | | 636 | 455 | 818 | 636.4 | 181.82 | 455 | 818 | 57.1 |
| Streblospio benedicti | | 659 | 114 | 295 | 356.1 | 277.73 | 114 | 659 | 89.1 |
| Leptocheirus plumulosus | | 114 | 23 | | 45.5 | 60.13 | 0 | 114 | 93.2 |

| | | | | | | | | | | | | |
|-------|------------------------------|--|------|-----|------|------|--------|--------|-----|------|-------|--|
| | Neanthes succinea | | 45 | 45 | | 30.3 | 26.24 | 0 | 45 | 95.9 | | |
| | Marenzelleria viridis | | 23 | | 45 | | 22.7 | 22.73 | 0 | 45 | 98.0 | |
| | Tubificoides spp. | | 45 | | | | 15.2 | 26.24 | 0 | 45 | 99.3 | |
| | Coelotanypus spp. | | | 23 | | | 7.6 | 13.12 | 0 | 23 | 100.0 | |
| ----- | | | | | | | | | | | | |
| | Total Abundance w/ Epifauna | | 1523 | 659 | 1159 | | 1113.6 | 433.61 | 659 | 1523 | | |
| | Total Abundance w/o Epifauna | | 1523 | 659 | 1159 | | 1113.6 | 433.61 | 659 | 1523 | | |
| | Number of Taxa w/ Epifauna | | 6 | 5 | 3 | | 4.7 | 1.53 | 3 | 6 | | |
| | Number of Taxa w/o Epifauna | | 6 | 5 | 3 | | 4.7 | 1.53 | 3 | 6 | | |

=====

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 203 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
|---------------------------------------|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Neanthes succinea | | 0.2091 | | 0.0697 | 0.1207 | 0.0000 | 0.2091 | 46.7 | |
| Oligochaeta | | 0.0364 | 0.1091 | 0.0485 | 0.0555 | 0.0000 | 0.1091 | 79.2 | |
| Marenzelleria viridis | | | 0.0864 | 0.0288 | 0.0499 | 0.0000 | 0.0864 | 98.5 | |
| Streblospio benedicti | | 0.0011 | 0.0023 | 0.0011 | 0.0011 | 0.0000 | 0.0023 | 99.2 | |
| Leptocheirus plumulosus | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.7 | |
| Coelotanypus spp. | | 0.0011 | | 0.0004 | 0.0007 | 0.0000 | 0.0011 | 100.0 | |
| Total Biomass w/ Epifauna | 0.0000 | 0.2500 | 0.1977 | 0.1492 | 0.1319 | 0.0000 | 0.2500 | | |
| Total Biomass w/o Epifauna | 0.0000 | 0.2500 | 0.1977 | 0.1492 | 0.1319 | 0.0000 | 0.2500 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

```

=====
|                               Station: 036                               |
| Watershed: Potomac River      Habitat: Tidal Freshwater      Date: September 13, 1999 |
| Gear: Wildco Box Corer       Sampled Area: 0.022 sq.m       Time: 9:33              |
=====

```

```

=====
|                               BOTTOM ENVIRONMENT                               |
=====
| Depth (m): 3.2                Salinity (ppt): 0.18                Temperature (C): 25.49   |
| Dissolved Oxygen (mg/l): 6.1  Sediment Silt-Clay (%): 81.75      Total Carbon (%): 2.10   |
=====

```

```

=====
|                               BENTHIC INDEX OF BIOTIC INTEGRITY                               |
=====
| B-IBI Score: 3.80             Condition: Meets Goal             # Attributes Scored: 5   |
|                               Value  Score                               Value  Score |
| Shannon-Weiner Index         2.36                T.F. Pollution Indicative Spp. Abund. (%)  87.95  3 |
| Abundance (#/m2)             1682                5          Tolerance Score                7.85  5 |
| Deep Deposit Feeder Abundance (%) 59.10            1          Limnodrilus Abundance (%)      23.25  5 |
| Carnivore-Omnivore Abundance (%) 31.23                |
=====

```

```

=====
|                               BENTHIC ABUNDANCE (per sq. meter)                               |
=====
|                               | Rep 1   Rep 2   Rep 3 | Mean  Std.Dev  Min   Max   Cum % |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Branchiura sowerbi          | 500    727    455 | 561   146    455   727   32.2 |
| Coeletanypus spp.          | 409    136    545 | 363   208    136   545   53.1 |
| Tubificidae w/o capiform chaete* | 136    500    91  | 242   224    91    500   66.9 |
| Limnodrilus hoffmeisteri   | 45     136    318 | 166   139    45    318   76.5 |

```

| | | | | | | | | | | | | |
|--------|--------------------|------|----|-----|-----|------|-----|----|------|-----|-------|--|
| | Corbicula fluminea | | 45 | 182 | 227 | | 151 | 95 | 45 | 227 | 85.2 | |
| | Aulodrilus pugueti | | | 136 | | | 45 | 79 | 0 | 136 | 87.8 | |
| | Chironomous spp. | | | 136 | | | 45 | 79 | 0 | 136 | 90.3 | |
| (Epi.) | | | 91 | 30 | 53 | | 0 | 91 | 92.1 | | | |
| 91 | | 30 | 53 | 0 | 91 | 93.8 | | | | | | |
| 0 | 45 | 95.7 | | | | | | | | | | |
| | Procladius spp. | | | | 45 | | 15 | 26 | 0 | 45 | 96.1 | |
| | Unionidae | | 45 | | | | 15 | 26 | 0 | 45 | 100.0 | |

| Amicola limosa

| Goniobasis virginica (Epi.)

| Hydracarina

| 45 | 15 | 26

Continued...

2

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 036 Contd.)

BENTHIC ABUNDANCE (Grams per sq. meter) - Contd.

| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
|------------------------------|-------|-------|-------|------|---------|------|------|-------|
| Total Abundance w/ Epifauna | 1316 | 1998 | 1908 | 1741 | 371 | 1316 | 1998 | |
| Total Abundance w/o Epifauna | 1316 | 1998 | 1726 | 1682 | 343 | 1316 | 1998 | |
| Number of Taxa w/ Epifauna | 6 | 7 | 8 | 7 | 1 | 6 | 8 | |
| Number of Taxa w/o Epifauna | 6 | 7 | 6 | 6.3 | 0.58 | 6 | 7 | |

BENTHIC BIOMASS (Grams per sq. meter)

| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % |
|--------------------|--------|---------|---------|---------|---------|--------|---------|-------|
| Corbicula fluminea | 2.6045 | 30.4636 | 25.0954 | 19.3879 | 14.7805 | 2.6045 | 30.4636 | 81.1 |
| Unionidae | 7.6273 | | | 2.5424 | 4.4036 | 0.0000 | 7.6273 | 91.7 |

| | | | | | | | | | |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|-------|--|
| Goniobasis virginica (Epi) | | | 3.3364 | 1.1121 | 1.9262 | 0.0000 | 3.3364 | 96.4 | |
| Branchiura sowerbyi | 0.3591 | 1.3045 | 0.7636 | 0.8091 | 0.4744 | 0.3591 | 1.3045 | 99.7 | |
| Coelotanypus spp. | 0.0500 | 0.0091 | 0.0636 | 0.0409 | 0.0284 | 0.0091 | 0.0636 | 99.9 | |
| Amnicola limosa (Epi) | | | 0.0364 | 0.0121 | 0.0210 | 0.0000 | 0.0364 | 100.0 | |
| Oligochaeta | 0.0023 | 0.0068 | 0.0045 | 0.0045 | 0.0023 | 0.0023 | 0.0068 | 100.0 | |
| Chironomidae larvae | 0.0023 | 0.0023 | 0.0023 | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 100.0 | |
| Hydracarina | | | 0.0023 | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |

| | | | | | | | | | |
|----------------------------|---------|---------|---------|---------|---------|---------|---------|--|--|
| Total Biomass w/ Epifauna | 10.6454 | 31.7863 | 29.3045 | 23.9121 | 11.5561 | 10.6454 | 31.7863 | | |
| Total Biomass w/o Epifauna | 10.6454 | 31.7863 | 25.9318 | 22.7879 | 10.9155 | 10.6454 | 31.7863 | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

| | | | | | | | | | | | |
|-----------------------------------|-------|--|-------------------------------|---|---------------------------|------------------------|---------|---------|------|-------|------|
| ===== | | | | | | | | | | | |
| Station: 079 | | | | | | | | | | | |
| Watershed: Patuxent River | | | Habitat: Tidal Freshwater | | | Date: August 30, 1999 | | | | | |
| Gear: Wildco Box Corer | | | Sampled Area: 0.022 sq.m | | | Time: 10:36 | | | | | |
| ===== | | | | | | | | | | | |
| BOTTOM ENVIRONMENT | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| Depth (m): 2.3 | | | Salinity (ppt): 0.20 | | | Temperature (C): 22.67 | | | | | |
| Dissolved Oxygen (mg/l): 5.2 | | | Sediment Silt-Clay (%): 94.23 | | | Total Carbon (%): 4.00 | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| B-IBI Score: 2.20 | | | Condition: Degraded | | | # Attributes Scored: 5 | | | | | |
| | Value | | Score | | | Value | | Score | | | |
| Shannon-Weiner Index | | | 1.58 | T.F. Pollution Indicative Spp. Abund. (%) | | | 95.52 | 1 | | | |
| Abundance (#/m2) | | | 9258 | 1 | Tolerance Score | | | 9.31 | 1 | | |
| Deep Deposit Feeder Abundance (%) | | | 28.93 | 5 | Limnodrilus Abundance (%) | | | 26.75 | 3 | | |
| Carnivore-Omnivore Abundance (%) | | | 2.26 | | | | | | | | |
| ===== | | | | | | | | | | | |
| BENTHIC ABUNDANCE (per sq. meter) | | | | | | | | | | | |
| ===== | | | | | | | | | | | |
| | | | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| ----- | | | | | | | | | | | |
| Streblospio benedicti | | | | 7636 | 5364 | 5227 | 6075.8 | 1353.24 | 5227 | 7636 | 65.2 |
| Imm. Tubificid w/o Cap. Chaete | | | * | 2273 | 1909 | 2000 | 2060.6 | 189.24 | 1909 | 2273 | 87.3 |
| Limnodrilus hoffmeisteri | | | | 364 | 455 | 364 | 393.9 | 52.49 | 364 | 455 | 91.5 |

| | | | | | | | | | | |
|-------------------------------|--|-----|-----|--|-------|--------|-------|-----|------|------|
| Rangia cuneata | | 318 | 227 | | 181.8 | 163.89 | 0 | 318 | 93.5 | |
| Imm. Tubificid w/ Cap. Chaete | | 273 | 91 | | 121.2 | 138.87 | 0 | 273 | 94.8 | |
| Coelotanypus spp. | | 91 | 45 | | 75.8 | 26.24 | 45 | 91 | 95.6 | |
| Leptocheirus plumulosus | | 91 | 45 | | 75.8 | 26.24 | 45 | 91 | 96.4 | |
| Procladius spp. | | 45 | 45 | | 136 | 75.8 | 52.49 | 45 | 136 | 97.2 |
| Aulodrilus pigueti | | 91 | 91 | | 60.6 | 52.49 | 0 | 91 | 97.9 | |
| Dero spp. | | | 91 | | 30.3 | 52.49 | 0 | 91 | 98.2 | |
| Hobsonia florida | | 45 | 45 | | 30.3 | 26.24 | 0 | 45 | 98.5 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 079 Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Littoridinops tenuipes (Epi) | | 45 | 45 | 30.3 | 26.24 | 0 | 45 | 98.9 | |
| Ameroculodes species complex | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.0 | |
| Boccardiella ligERICA | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.2 | |
| Chironomus spp. | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.3 | |
| Cryptochironomus spp. | 45 | | | 15.2 | 26.24 | 0 | 45 | 99.5 | |
| Gammarus daiberi (Epi) | | 45 | | 15.2 | 26.24 | 0 | 45 | 99.7 | |
| Gammarus spp. (Epi) | | | 45 | 15.2 | 26.24 | 0 | 45 | 99.8 | |
| Tanytarsus spp. | | | 45 | 15.2 | 26.24 | 0 | 45 | 100.0 | |
| Total Abundance w/ Epifauna | 11000 | 8409 | 8545 | 9318.2 | 1458.09 | 8409 | 11000 | | |
| Total Abundance w/o Epifauna | 11000 | 8318 | 8455 | 9257.6 | 1510.52 | 8318 | 11000 | | |
| Number of Taxa w/ Epifauna | 10 | 10 | 13 | 11.0 | 1.73 | 10 | 13 | | |
| Number of Taxa w/o Epifauna | 10 | 8 | 11 | 9.7 | 1.53 | 8 | 11 | | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | | | | |
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Oligochaeta | 0.3727 | 0.7455 | 0.3364 | 0.4848 | 0.2264 | 0.3364 | 0.7455 | 62.3 | |
| Streblospio benedicti | 0.3227 | 0.1636 | 0.1182 | 0.2015 | 0.1074 | 0.1182 | 0.3227 | 88.1 | |
| Rangia cuneata | | 0.1364 | 0.0023 | 0.0462 | 0.0781 | 0.0000 | 0.1364 | 94.1 | |

| | | | | | | | | | | | |
|------------------------------|--|--------|--------|--------|--|--------|--------|--------|--------|------|--|
| Coelotanypus spp. | | 0.0023 | 0.0045 | 0.0818 | | 0.0295 | 0.0453 | 0.0023 | 0.0818 | 97.9 | |
| Leptocheirus plumulosus | | 0.0023 | 0.0023 | 0.0091 | | 0.0045 | 0.0039 | 0.0023 | 0.0091 | 98.4 | |
| Gammarus spp. (Epi) | | | 0.0091 | 0.0023 | | 0.0038 | 0.0047 | 0.0000 | 0.0091 | 98.9 | |
| Hobsonia florida | | 0.0023 | 0.0045 | | | 0.0023 | 0.0023 | 0.0000 | 0.0045 | 99.2 | |
| Littoridinops tenuipes (Epi) | | | 0.0045 | 0.0023 | | 0.0023 | 0.0023 | 0.0000 | 0.0045 | 99.5 | |
| Chironomidae larvae | | 0.0023 | 0.0023 | 0.0023 | | 0.0023 | 0.0000 | 0.0023 | 0.0023 | 99.8 | |
| Ameroculodes species complex | | | | 0.0023 | | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 99.9 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1: 1999/2000)

FIXED SITES

(Station: 079 Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | | | | |
|--|--------|--------|--------|--------|---------|--------|--------|-------|--|
| | Rep 1 | Rep 2 | Rep 3 | Mean | Std.Dev | Min | Max | Cum % | |
| Boccardiella ligerica | | | 0.0023 | 0.0008 | 0.0013 | 0.0000 | 0.0023 | 100.0 | |
| Total Biomass w/ Epifauna | 0.7045 | 1.0727 | 0.5591 | 0.7788 | 0.2647 | 0.5591 | 1.0727 | | |
| Total Biomass w/o Epifauna | 0.7045 | 1.0591 | 0.5545 | 0.7727 | 0.2591 | 0.5545 | 1.0591 | | |

APPENDIX F

**BENTHIC ENVIRONMENT AND COMMUNITY
COMPOSITION AT THE MARYLAND BAY
RANDOM SITES: SUMMER 1999**

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06401 | 06402 | 06403 | 06404 | 06405 |
|-----------------------------------|----------------|-----------------|-----------------|----------------|----------------|
| Watershed | Eastern Tribs | Eastern Tribs | Eastern Tribs | Eastern Tribs | Eastern Tribs |
| Habitat | Low Mesohaline | Polyhaline Sand | Polyhaline Sand | Polyhaline Mud | High Meso Sand |
| Date | 09/23/99 | 09/23/99 | 09/23/99 | 09/23/99 | 09/20/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 1.7 | 3.2 | 2.1 | 1.7 | 2.5 |
| Salinity (ppt) | 10.83 | 19.51 | 19.57 | 18.11 | 14.24 |
| Temperature (C) | 19.72 | 19.37 | 18.34 | 19.19 | 21.14 |
| Dissolved Oxygen (mg/L) | 10.7 | 7.9 | 8.7 | 8.7 | 8.7 |
| Sediment Silt-Clay (%) | 93.07 | 13.21 | 17.24 | 66.26 | 1.08 |
| Total Carbon (%) | 2.39 | 0.97 | 1.04 | 3.01 | 0.09 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 2.60 | 2.67 | 3.67 | 2.67 | 4.00 |
| Condition | Degraded | Degraded | Meets Goal | Degraded | Meets Goal |
| # Attributes Scored | 5 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 1.84 3 | 1.74 1 | 2.90 3 | 2.42 3 | 2.55 3 |
| Abundance (#/m2) | 6909 1 | 6273 3 | 5227 3 | 3773 3 | 1864 5 |
| Biomass (g/m2) | 0.70 1 | 1.42 3 | 1.12 3 | 0.49 3 | 0.21 1 |

| | | | | | | | | |
|------------------------------------|-------|---|-------|-------|-------|-------|---|--|
| Pollution Indicative Spp Abund (%) | 7.24 | 5 | 5.80 | 6.52 | 8.43 | 2.44 | 5 | |
| Pollution Indicative Spp Biom (%) | 7.88 | | 22.81 | 5.38 | 52.31 | 0.00 | | |
| Pollution Sensitive Spp Abund (%) | 10.53 | | 88.41 | 73.91 | 78.92 | 78.05 | 5 | |
| Pollution Sensitive Spp Biom (%) | 74.92 | 3 | 15.87 | 19.29 | 29.45 | 34.97 | | |
| Carnivore-Omnivore Abundance (%) | 7.89 | | 77.90 | 29.57 | 41.57 | 60.98 | 5 | |
| Deep Deposit Feeder Abundance (%) | 76.32 | | 11.23 | 57.39 | 44.58 | 37.80 | | |

=====

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|
| Site | 06401 | 06402 | 06403 | 06404 | 06405 |
| <i>Acteocina canaliculata</i> | 91 | 4455 | 977 | 1114 | 523 |
| <i>Mediomastus ambiseta</i> | 227 | 591 | 2318 | 1591 | 477 |
| <i>Tubificoides</i> spp. | 4659 | | 227 | 45 | |
| <i>Glycinde solitaria</i> | 182 | 250 | 386 | 273 | 432 |
| <i>Leucon americanus</i> | 841 | 23 | | | |
| <i>Paraprionospio pinnata</i> | 68 | 364 | 295 | 114 | |
| Imm. Tubificid w/o Cap. Chaete | 386 | | | | 45 |
| <i>Macoma mitchelli</i> | 114 | | 68 | 205 | |
| <i>Pectinaria gouldii</i> | | 68 | 182 | | 23 |
| <i>Heteromastus filiformis</i> | | | 91 | | 159 |
| <i>Edotea triloba</i> (Epi.) | 23 | 23 | 45 | 136 | |
| <i>Cyathura polita</i> | 205 | | | | |
| <i>Streblospio benedicti</i> | 23 | | | 182 | |
| <i>Neanthes succinea</i> | | | 23 | 45 | 114 |
| <i>Phoronis architecta</i> | | 159 | 23 | | |
| <i>Acteon punctostriatus</i> | 45 | 68 | 23 | 23 | |
| <i>Spiochaetopterus costarum</i> | | 45 | 91 | | 23 |
| <i>Leitoscoloplos robustus</i> | | 45 | 45 | 45 | |
| Maldanidae | | | 136 | | |
| <i>Loimia medusa</i> | | 45 | 68 | | |
| <i>Amphiporus bioculatus</i> | | | 45 | | 45 |

| | | | | | | |
|--|-----------------------------|--|----|----|----|--|
| | Edwardsia elegans | | 68 | 23 | | |
| | Haminoea solitaria | | 23 | | 68 | |
| | Mulinia lateralis | | 23 | 45 | 23 | |
| | Stylochus ellipticus (Epi.) | | | 68 | | |
| | Cymadusa compta (Epi.) | | | 23 | 23 | |
| | Hypereteone foliosa | | | 23 | 23 | |
| | Listriella barnardi | | 23 | 23 | | |
| | Nassarius vibex | | 23 | 23 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | |
|--|-------|-------|-------|-------|-------|
| Site | 06401 | 06402 | 06403 | 06404 | 06405 |
| Polydora cornuta | | | 45 | | |
| Ampelisca abdita | | 23 | | | |
| Carinoma tremaphoros | 23 | | | | |
| Cyclaspis varians | | | 23 | | |
| Macoma balthica | 23 | | | | |
| Microphthalmus sczelkowi | | | 23 | | |
| Mysidae (Epi.) | | | 23 | | |
| Mytilopsis leucophaeata (Epi.) | | | | 23 | |
| Parahesionia luteola | | | | 23 | |
| Podarkeopsis levifusca | | | | | 23 |
| Sayella chesapeakea (Epi.) | 23 | | | | |
| Turbonilla interrupta (Epi.) | | | 23 | | |
| Total Abundance w/ Epifauna | 6955 | 6295 | 5409 | 3955 | 1864 |
| Total Abundance w/o Epifauna | 6909 | 6273 | 5227 | 3773 | 1864 |
| Number of Taxa w/ Epifauna | 16 | 17 | 29 | 17 | 10 |
| Number of Taxa w/o Epifauna | 14 | 16 | 24 | 14 | 10 |

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
|---------------------------------------|-------|--------|--------|-------|-------|
| Site | 06401 | 06402 | 06403 | 06404 | 06405 |
| Nassarius vibex | | 0.7955 | 0.0011 | | |

| | | | | | | |
|------------------------|--|--------|--------|--------|--------|--------|
| Paraprionospio pinnata | | 0.0477 | 0.3250 | 0.0591 | 0.2682 | |
| Maldanidae | | | | 0.6205 | | |
| Cyathura polita | | 0.3659 | | | | |
| Acteocina canaliculata | | 0.0091 | 0.1705 | 0.0318 | 0.0341 | 0.0386 |
| Glycinde solitaria | | 0.0477 | 0.0182 | 0.0477 | 0.0750 | 0.0182 |
| Leitoscoloplos spp. | | | 0.0636 | 0.0864 | 0.0182 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | |
|--|--------|--------|--------|--------|--------|
| Site | 06401 | 06402 | 06403 | 06404 | 06405 |
| <i>Mediomastus ambiseta</i> | 0.0068 | 0.0091 | 0.0818 | 0.0432 | 0.0114 |
| <i>Heteromastus filiformis</i> | | | 0.0636 | | 0.0568 |
| <i>Macoma balthica</i> | 0.1000 | | | | |
| <i>Neanthes succinea</i> | | | 0.0011 | 0.0011 | 0.0682 |
| <i>Macoma mitchelli</i> | 0.0364 | | 0.0023 | 0.0227 | |
| <i>Hypereteone foliosa</i> | | | 0.0205 | 0.0250 | |
| <i>Tubificoides</i> spp. | 0.0295 | | 0.0068 | 0.0011 | |
| <i>Phoronis architecta</i> | | 0.0159 | 0.0205 | | |
| <i>Spiochaetopterus costarum</i> | | 0.0114 | 0.0114 | | 0.0045 |
| <i>Leucon americanus</i> | 0.0250 | 0.0011 | | | |
| <i>Loimia medusa</i> | | 0.0011 | 0.0227 | | |
| <i>Mytilopsis leucophaeata</i> (Epi.) | | | | 0.0205 | |
| <i>Turbonilla interrupta</i> (Epi.) | | | 0.0159 | | |
| <i>Carinoma tremaphoros</i> | 0.0136 | | | | |
| <i>Acteon punctostriatus</i> | 0.0091 | 0.0011 | 0.0011 | 0.0011 | |
| Mysidae (Epi.) | | | 0.0114 | | |
| <i>Mulinia lateralis</i> | 0.0068 | | 0.0011 | 0.0011 | |
| <i>Edotea triloba</i> (Epi.) | 0.0045 | 0.0011 | 0.0023 | 0.0011 | |
| <i>Amphiporus bioculatus</i> | | | 0.0011 | | 0.0068 |
| <i>Edwardsia elegans</i> | | 0.0068 | 0.0011 | | |
| <i>Pectinaria gouldii</i> | | 0.0011 | 0.0011 | | 0.0011 |
| <i>Cymadusa compta</i> (Epi.) | | | 0.0011 | 0.0011 | |

| | | | | | |
|----------------------------|--|--------|--------|--------|--------|
| Haminoea solitaria | | 0.0011 | | 0.0011 | |
| Listriella barnardi | | 0.0011 | 0.0011 | | |
| Oligochaeta | | 0.0011 | | | 0.0011 |
| Streblospio benedicti | | 0.0011 | | 0.0011 | |
| Sayella chesapeakea (Epi.) | | 0.0023 | | | |
| Ampelisca abdita | | | 0.0011 | | |
| Cyclops varians | | | | 0.0011 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
 BAY-WIDE RANDOM SITES (Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06401 | 06402 | 06403 | 06404 | 06405 | |
| Microphthalmus szcelkowi | | | 0.0011 | | | |
| Parahesionia luteola | | | | 0.0011 | | |
| Podarkeopsis levifusca | | | | | 0.0011 | |
| Polydora cornuta | | | 0.0011 | | | |
| Stylochus ellipticus (Epi.) | | | 0.0011 | | | |
| Total Biomass w/ Epifauna | 0.7068 | 1.4250 | 1.1193 | 0.5170 | 0.2080 | |
| Total Biomass w/o Epifauna | 0.7000 | 1.4239 | 1.0875 | 0.4943 | 0.2080 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06406 | 06407 | 06408 | 06409 | 06410 |
|-----------------------------------|----------------|---------------|----------------|----------------|----------------|
| Watershed | Eastern Tribs | Eastern Tribs | Eastern Tribs | Eastern Tribs | Eastern Tribs |
| Habitat | High Meso Sand | High Meso Mud | High Meso Sand | High Meso Mud | Low Mesohaline |
| Date | 09/20/99 | 09/20/99 | 09/20/99 | 09/20/99 | 09/20/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 2.5 | 2.5 | 2.0 | 5.0 | 6.0 |
| Salinity (ppt) | 14.19 | 14.66 | 13.46 | 13.62 | 10.63 |
| Temperature (C) | 21.03 | 21.20 | 21.24 | 21.43 | 21.45 |
| Dissolved Oxygen (mg/L) | 8.6 | 7.6 | 8.1 | 7.3 | 6.9 |
| Sediment Silt-Clay (%) | 2.69 | 91.19 | 5.73 | 96.76 | 52.41 |
| Total Carbon (%) | 0.08 | 1.37 | 0.33 | 3.40 | 2.05 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 4.00 | 2.67 | 4.00 | 2.00 | 2.60 |
| Condition | Meets Goal | Degraded | Meets Goal | Severely Degr. | Degraded |
| # Attributes Scored | 6 | 6 | 6 | 6 | 5 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.58 3 | 2.41 3 | 3.16 3 | 2.04 3 | 2.38 3 |
| Abundance (#/m2) | 1523 5 | 2227 5 | 2432 5 | 1136 3 | 2341 5 |
| Biomass (g/m2) | 0.28 1 | 0.53 3 | 1.09 3 | 0.16 1 | 0.22 1 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|--|
| Pollution Indicative Spp Abund (%) | 1.49 | 5 | 17.35 | | 15.89 | 3 | 32.00 | | 19.42 | 3 | |
| Pollution Indicative Spp Biom (%) | 4.51 | | 65.32 | 1 | 36.95 | | 64.83 | 1 | 25.64 | | |
| Pollution Sensitive Spp Abund (%) | 79.10 | 5 | 70.41 | | 61.68 | 5 | 14.00 | | 4.85 | | |
| Pollution Sensitive Spp Biom (%) | 18.80 | | 17.87 | 1 | 44.47 | | 6.90 | 1 | 34.87 | 1 | |
| Carnivore-Omnivore Abundance (%) | 41.79 | 5 | 24.49 | 3 | 44.86 | 5 | 14.00 | 3 | 6.80 | | |
| Deep Deposit Feeder Abundance (%) | 46.27 | | 47.96 | | 35.51 | | 6.00 | | 28.16 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|
| Site | 06406 | 06407 | 06408 | 06409 | 06410 |
| <i>Mediomastus ambiseta</i> | 682 | 1068 | 523 | 23 | 23 |
| <i>Leucon americanus</i> | | 182 | | 523 | 1114 |
| <i>Acteocina canaliculata</i> | 250 | 318 | 477 | 45 | |
| <i>Glycinde solitaria</i> | 250 | 159 | 386 | 91 | 68 |
| <i>Mulinia lateralis</i> | 23 | 45 | 91 | 364 | 227 |
| <i>Tubificoides</i> spp. | | | 182 | 45 | 455 |
| <i>Paraprionospio pinnata</i> | | 295 | 227 | | 23 |
| Imm. <i>Tubificid</i> w/o Cap. Chaete | | | 68 | | 182 |
| <i>Neanthes succinea</i> | 23 | | 227 | | |
| <i>Macoma mitchelli</i> | 23 | | 23 | 23 | 136 |
| <i>Sayella chesapeakea</i> (Epi.) | | | 114 | | |
| <i>Gemma gemma</i> | 91 | | | | |
| <i>Heteromastus filiformis</i> | | | 91 | | |
| <i>Loimia medusa</i> | | 23 | 68 | | |
| <i>Carinoma tremaphoros</i> | | | | 23 | 45 |
| <i>Edwardsia elegans</i> | 23 | 45 | | | |
| <i>Micrura leidyi</i> | 45 | 23 | | | |
| <i>Streblospio benedicti</i> | | 45 | | | 23 |
| <i>Stylochus ellipticus</i> (Epi.) | 45 | | | | 23 |
| <i>Marenzelleria viridis</i> | | | 45 | | |
| <i>Acteon punctostriatus</i> | 23 | | | | |
| <i>Ampelisca abdita</i> | | 23 | | | |

| | | | | | |
|-----------------------------|--|----|----|----|--|
| Amphiporus bioculatus | | | | 23 | |
| Cyathura polita | | | | 23 | |
| Cyclaspis varians | | | 23 | | |
| Epitonium rupicola (Epi.) | | 23 | | | |
| Geukensia demissa (Epi.) | | | 23 | | |
| Molgula manhattensis (Epi.) | | 23 | | | |
| Mysidae (Epi.) | | 23 | | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06406 | 06407 | 06408 | 06409 | 06410 | |
| Nassarius vibex | 23 | | | | | |
| Pectinaria gouldii | 23 | | | | | |
| Phoronis architecta | 23 | | | | | |
| Scolelepis texana | 23 | | | | | |
| Turbellaria (Epi.) | | | 23 | | | |
| Total Abundance w/ Epifauna | 1636 | 2227 | 2591 | 1136 | 2364 | |
| Total Abundance w/o Epifauna | 1523 | 2227 | 2432 | 1136 | 2341 | |
| Number of Taxa w/ Epifauna | 18 | 11 | 16 | 8 | 13 | |
| Number of Taxa w/o Epifauna | 14 | 11 | 13 | 8 | 12 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | |
| Site | 06406 | 06407 | 06408 | 06409 | 06410 | |
| Paraprionospio pinnata | | 0.3409 | 0.1886 | | 0.0091 | |
| Mulinia lateralis | 0.0136 | 0.0011 | 0.2250 | 0.1068 | 0.0386 | |
| Loimia medusa | | 0.0045 | 0.2659 | | | |
| Micrura leidyi | 0.1455 | 0.0773 | | | | |
| Marenzelleria viridis | | | 0.1955 | | | |
| Neanthes succinea | 0.0091 | | 0.1250 | | | |
| Mediomastus ambiseta | 0.0227 | 0.0409 | 0.0136 | 0.0011 | 0.0068 | |

| | | | | | | | |
|-------------------------|--|--------|--------|--------|--------|--------|--|
| Glycinde solitaria | | 0.0136 | 0.0182 | 0.0136 | 0.0091 | 0.0250 | |
| Carinoma tremaphoros | | | | | 0.0364 | 0.0273 | |
| Heteromastus filiformis | | | | 0.0500 | | | |
| Acteocina canaliculata | | 0.0068 | 0.0318 | 0.0091 | 0.0011 | | |
| Leucon americanus | | | 0.0045 | | 0.0068 | 0.0341 | |
| Cyathura polita | | | | | | 0.0455 | |
| Nassarius vibex | | 0.0318 | | | | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | |
|--|--------|--------|--------|--------|--------|
| Site | 06406 | 06407 | 06408 | 06409 | 06410 |
| Geukensia demissa (Epi.) | | | 0.0159 | | |
| Streblospio benedicti | | 0.0068 | | | 0.0091 |
| Macoma mitchelli | 0.0023 | | 0.0011 | 0.0011 | 0.0114 |
| Phoronis architecta | 0.0136 | | | | |
| Stylochus ellipticus (Epi.) | 0.0091 | | | | 0.0045 |
| Acteon punctostriatus | 0.0114 | | | | |
| Tubificoides spp. | | | 0.0045 | 0.0023 | 0.0045 |
| Ampelisca abdita | | 0.0068 | | | |
| Epitonium rupicola (Epi.) | 0.0068 | | | | |
| Amphiporus bioculatus | | | | | 0.0045 |
| Gemma gemma | 0.0045 | | | | |
| Mysidae (Epi.) | 0.0045 | | | | |
| Sayella chesapeakea (Epi.) | | | 0.0045 | | |
| Turbellaria (Epi.) | | | 0.0045 | | |
| Edwardsia elegans | 0.0023 | 0.0011 | | | |
| Pectinaria gouldii | 0.0023 | | | | |
| Oligochaeta | | | 0.0011 | | 0.0011 |
| Cyclaspis varians | | | 0.0011 | | |
| Molgula manhattensis (Epi.) | 0.0011 | | | | |
| Scolelepis texana | 0.0011 | | | | |
| Total Biomass w/ Epifauna | 0.3023 | 0.5341 | 1.1193 | 0.1648 | 0.2216 |

| | | | | | | | | |
|-------|----------------------------|--|--------|--------|--------|--------|--------|--|
| | Total Biomass w/o Epifauna | | 0.2807 | 0.5341 | 1.0943 | 0.1648 | 0.2170 | |
| ===== | | | | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06411 | 06413 | 06414 | 06415 | 06416 |
|-----------------------------------|----------------|----------------|---------------|----------------|---------------|
| Watershed | Eastern Tribs | Eastern Tribs | Eastern Tribs | Eastern Tribs | Eastern Tribs |
| Habitat | Low Mesohaline | High Meso Sand | High Meso Mud | Low Mesohaline | High Meso Mud |
| Date | 09/20/99 | 09/07/99 | 09/07/99 | 09/07/99 | 09/07/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 2.5 | 3.5 | 3.5 | 2.5 | 6.5 |
| Salinity (ppt) | 7.94 | 15.03 | 13.22 | 10.27 | 16.50 |
| Temperature (C) | 21.34 | 23.80 | 24.06 | 24.38 | 23.95 |
| Dissolved Oxygen (mg/L) | 6.8 | 6.1 | 6.9 | 6.3 | 4.8 |
| Sediment Silt-Clay (%) | 84.84 | 28.63 | 82.88 | 11.08 | 51.50 |
| Total Carbon (%) | 3.68 | 0.90 | 2.22 | 0.97 | 0.94 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 3.80 | 3.33 | 2.33 | 4.20 | 4.00 |
| Condition | Meets Goal | Meets Goal | Degraded | Meets Goal | Meets Goal |
| # Attributes Scored | 5 | 6 | 6 | 5 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.43 3 | 3.35 5 | 2.63 3 | 2.65 5 | 3.19 5 |
| Abundance (#/m2) | 1909 5 | 2682 5 | 773 1 | 1273 3 | 4682 3 |
| Biomass (g/m2) | 0.51 1 | 1.98 3 | 0.27 1 | 14.93 3 | 3.10 5 |

| | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|
| Pollution Indicative Spp Abund (%) | 4.76 | 5 | 37.29 | 1 | 32.35 | | 5.36 | 5 | 18.45 | |
| Pollution Indicative Spp Biom (%) | 0.22 | | 10.92 | | 9.40 | 3 | 0.02 | | 2.16 | 5 |
| Pollution Sensitive Spp Abund (%) | 50.00 | | 21.19 | 3 | 20.59 | | 66.07 | | 13.11 | |
| Pollution Sensitive Spp Biom (%) | 87.75 | 5 | 57.13 | | 80.34 | 3 | 98.87 | 5 | 15.48 | 1 |
| Carnivore-Omnivore Abundance (%) | 15.48 | | 31.36 | 3 | 23.53 | 3 | 57.14 | | 36.89 | 5 |
| Deep Deposit Feeder Abundance (%) | 40.48 | | 33.90 | | 47.06 | | 8.93 | | 40.78 | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|
| Site | 06411 | 06413 | 06414 | 06415 | 06416 |
| <i>Heteromastus filiformis</i> | | 295 | 136 | | 1500 |
| <i>Neanthes succinea</i> | 68 | 432 | | 45 | 909 |
| <i>Tubificoides</i> spp. | 705 | 295 | 205 | 114 | 136 |
| <i>Glycinde solitaria</i> | 91 | 273 | 136 | | 500 |
| <i>Rangia cuneata</i> | 682 | | | 273 | |
| <i>Streblospio benedicti</i> | | 318 | 182 | 45 | 295 |
| <i>Cyathura polita</i> | 68 | 91 | | 500 | |
| Imm. Tubificid w/o Cap. Chaete | 68 | 295 | 23 | | 227 |
| <i>Mulinia lateralis</i> | | 364 | 23 | | 227 |
| <i>Macoma balthica</i> | 91 | 159 | 23 | | 68 |
| <i>Carinoma tremaphoros</i> | 23 | | | 136 | 136 |
| <i>Macoma mitchelli</i> | | 45 | | 23 | 159 |
| <i>Marenzelleria viridis</i> | | 45 | | 68 | 45 |
| <i>Paraprionospio pinnata</i> | | | | | 114 |
| <i>Gemma gemma</i> | | | | | 91 |
| <i>Hypereteone heteropoda</i> | 23 | 23 | 23 | 23 | |
| <i>Parahesionia luteola</i> | | | 23 | | 68 |
| <i>Amphiporus bioculatus</i> | | | | | 68 |
| <i>Edwardsia elegans</i> | | 23 | | | 45 |
| <i>Pectinaria gouldii</i> | | 23 | | | 45 |
| <i>Cyclaspis varians</i> | | | | | 45 |
| <i>Leptocheirus plumulosus</i> | 45 | | | | |

| | | | |
|------------------------------|--|----|--|
| Acteocina canaliculata | | 23 | |
| Almyracuma proximoculi | | 23 | |
| Ameroculodes species complex | | 23 | |
| Chiridotea almyra | | 23 | |
| Edotea triloba (Epi.) | | 23 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES (Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|---------|--------|--|
| Site | 06411 | 06413 | 06414 | 06415 | 06416 | |
| Mysidae (Epi.) | | | | | 23 | |
| Total Abundance w/ Epifauna | 1932 | 2682 | 773 | 1273 | 4705 | |
| Total Abundance w/o Epifauna | 1909 | 2682 | 773 | 1273 | 4682 | |
| Number of Taxa w/ Epifauna | 13 | 14 | 9 | 11 | 19 | |
| Number of Taxa w/o Epifauna | 12 | 14 | 9 | 11 | 18 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | |
| Site | 06411 | 06413 | 06414 | 06415 | 06416 | |
| <i>Rangia cuneata</i> | 0.1091 | | | 14.3477 | | |
| <i>Neanthes succinea</i> | 0.0205 | 0.5795 | | 0.0011 | 2.0159 | |
| <i>Macoma balthica</i> | 0.2659 | 0.8091 | 0.0909 | | 0.2659 | |
| <i>Marenzelleria viridis</i> | | 0.0545 | | 0.3455 | 0.1250 | |
| <i>Heteromastus filiformis</i> | | 0.0011 | 0.0227 | | 0.4068 | |
| <i>Cyathura polita</i> | 0.0659 | 0.2273 | | 0.0682 | | |
| <i>Glycinde solitaria</i> | 0.0045 | 0.0386 | 0.1227 | | 0.0886 | |
| <i>Carinoma tremaphoros</i> | 0.0182 | | | 0.1614 | 0.0636 | |
| <i>Mulinia lateralis</i> | | 0.1864 | 0.0205 | | 0.0011 | |
| <i>Paraprionospio pinnata</i> | | | | | 0.0568 | |
| <i>Macoma mitchelli</i> | | 0.0159 | | 0.0011 | 0.0182 | |

| | | | | | | | | |
|--|-------------------------|--|--------|--------|--------|--------|--------|--|
| | Streblospio benedicti | | | 0.0205 | 0.0023 | 0.0011 | 0.0091 | |
| | Tubificoides spp. | | 0.0011 | 0.0136 | 0.0023 | 0.0011 | 0.0091 | |
| | Edwardsia elegans | | | 0.0091 | | | 0.0091 | |
| | Leptocheirus plumulosus | | 0.0182 | | | | | |
| | Pectinaria gouldii | | | 0.0114 | | | 0.0045 | |
| | Hypereteone heteropoda | | 0.0011 | 0.0091 | 0.0023 | 0.0011 | | |
| | Parahesione luteola | | | | 0.0011 | | 0.0114 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|---------|--------|--|
| Site | 06411 | 06413 | 06414 | 06415 | 06416 | |
| Amphiporus bioculatus | | | | | 0.0045 | |
| Gemma gemma | | | | | 0.0045 | |
| Oligochaeta | 0.0011 | 0.0011 | 0.0011 | | 0.0011 | |
| Acteocina canaliculata | 0.0023 | | | | | |
| Almyracuma proximoculi | 0.0011 | | | | | |
| Ameroculodes species complex | | | | 0.0011 | | |
| Chiridotea almyra | | | | 0.0011 | | |
| Cyclaspis varians | | | | | 0.0011 | |
| Edotea triloba (Epi.) | 0.0011 | | | | | |
| Mysidae (Epi.) | | | | | 0.0011 | |
| Total Biomass w/ Epifauna | 0.5102 | 1.9773 | 0.2659 | 14.9306 | 3.0977 | |
| Total Biomass w/o Epifauna | 0.5091 | 1.9773 | 0.2659 | 14.9306 | 3.0966 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06417 | 06418 | 06419 | 06420 | 06421 |
|-----------------------------------|----------------|---------------|---------------|----------------|----------------|
| Watershed | Eastern Tribs | Eastern Tribs | Eastern Tribs | Eastern Tribs | Eastern Tribs |
| Habitat | High Meso Sand | High Meso Mud | High Meso Mud | High Meso Sand | Low Mesohaline |
| Date | 09/07/99 | 09/07/99 | 09/07/99 | 09/07/99 | 09/15/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 8.0 | 4.5 | 9.5 | 2.5 | 1.4 |
| Salinity (ppt) | 17.23 | 13.75 | 13.99 | 13.33 | 5.37 |
| Temperature (C) | 24.01 | 24.73 | 23.81 | 24.72 | 25.03 |
| Dissolved Oxygen (mg/L) | 3.9 | 7.9 | 6.2 | 7.9 | 5.6 |
| Sediment Silt-Clay (%) | 12.36 | 81.06 | 99.72 | 17.77 | 90.94 |
| Total Carbon (%) | 0.40 | 1.86 | 3.09 | 0.53 | 3.08 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 2.67 | 4.67 | 3.33 | 3.00 | 1.40 |
| Condition | Degraded | Meets Goal | Meets Goal | Meets Goal | Severely Degr. |
| # Attributes Scored | 6 | 6 | 6 | 6 | 5 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 3.22 5 | 3.16 5 | 2.62 3 | 3.36 5 | 1.18 1 |
| Abundance (#/m2) | 5818 1 | 1455 3 | 545 1 | 3159 3 | 4295 3 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|--|
| Biomass (g/m2) | 3.54 | 5 | 5.16 | 5 | 1.31 | 3 | 1.56 | 3 | 0.17 | 1 | |
| Pollution Indicative Spp Abund (%) | 36.72 | 1 | 35.94 | | 8.33 | | 31.65 | 1 | 88.36 | 1 | |
| Pollution Indicative Spp Biom (%) | 23.43 | | 0.44 | 5 | 0.09 | 5 | 12.51 | | 58.67 | | |
| Pollution Sensitive Spp Abund (%) | 12.11 | 3 | 17.19 | | 20.83 | | 10.07 | 3 | 0.53 | | |
| Pollution Sensitive Spp Biom (%) | 33.64 | | 87.62 | 5 | 78.09 | 3 | 6.98 | | 2.67 | 1 | |
| Carnivore-Omnivore Abundance (%) | 14.06 | 1 | 29.69 | 5 | 41.67 | 5 | 23.02 | 3 | 1.06 | | |
| Deep Deposit Feeder Abundance (%) | 49.22 | | 15.63 | | 33.33 | | 29.50 | | 14.81 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|
| Site | 06417 | 06418 | 06419 | 06420 | 06421 |
| <i>Streblospio benedicti</i> | 795 | 341 | 45 | 591 | 3295 |
| <i>Heteromastus filiformis</i> | 1750 | 23 | 45 | 409 | |
| Imm. Tubificid w/o Cap. Chaete | 659 | 136 | | 91 | 477 |
| <i>Tubificoides</i> spp. | 432 | 68 | 136 | 432 | 159 |
| <i>Macoma mitchelli</i> | 205 | 68 | | 523 | |
| <i>Leptocheirus plumulosus</i> | | 273 | | | 318 |
| <i>Neanthes succinea</i> | 159 | 159 | 159 | 91 | |
| <i>Glycinde solitaria</i> | 545 | | | | |
| <i>Mulinia lateralis</i> | 273 | 23 | | 136 | |
| <i>Paraprionospio pinnata</i> | 386 | | | | |
| <i>Macoma balthica</i> | 159 | 91 | 91 | | |
| <i>Carinoma tremaphoros</i> | 45 | 68 | | 159 | |
| <i>Cyathura polita</i> | | 159 | 23 | 68 | 23 |
| <i>Gemma gemma</i> | 273 | | | | |
| <i>Melita nitida</i> (Epi.) | | 250 | | 23 | |
| <i>Hypereteone heteropoda</i> | 23 | 23 | | 182 | |
| <i>Laeonereis culveri</i> | | | | 159 | |
| <i>Rangia cuneata</i> | | | | 159 | |
| <i>Amphiporus bioculatus</i> | | 23 | 23 | 68 | |
| <i>Edotea triloba</i> (Epi.) | | | | 114 | |
| <i>Marenzelleria viridis</i> | | | | 91 | |

| | | | | | | |
|--|-----------------------|--|----|----|----|--|
| | Cyclaspis varians | | 45 | | | |
| | Parahesione luteola | | 23 | 23 | | |
| | Cryptochironomus spp. | | | | 23 | |
| | Micrura leidy | | 23 | | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06417 | 06418 | 06419 | 06420 | 06421 | |
| <i>Pectinaria gouldii</i> | 23 | | | | | |
| Total Abundance w/ Epifauna | 5818 | 1705 | 545 | 3295 | 4295 | |
| Total Abundance w/o Epifauna | 5818 | 1455 | 545 | 3159 | 4295 | |
| Number of Taxa w/ Epifauna | 17 | 14 | 8 | 16 | 6 | |
| Number of Taxa w/o Epifauna | 17 | 13 | 8 | 14 | 6 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | |
| Site | 06417 | 06418 | 06419 | 06420 | 06421 | |
| <i>Macoma balthica</i> | 1.1000 | 4.3409 | 0.9318 | | | |
| <i>Heteromastus filiformis</i> | 0.5295 | 0.0364 | 0.0295 | 0.8159 | | |
| <i>Neanthes succinea</i> | 0.2659 | 0.3932 | 0.2523 | 0.0318 | | |
| <i>Mulinia lateralis</i> | 0.4750 | 0.0068 | | 0.1636 | | |
| <i>Macoma mitchelli</i> | 0.1795 | 0.0773 | | 0.2023 | | |
| <i>Paraprionospio pinnata</i> | 0.3227 | | | | | |
| <i>Micrura leidyi</i> | 0.3045 | | | | | |
| <i>Cyathura polita</i> | | 0.1795 | 0.0886 | 0.0250 | 0.0045 | |
| <i>Streblospio benedicti</i> | 0.0273 | 0.0114 | 0.0011 | 0.0205 | 0.1000 | |
| <i>Carinoma tremaphoros</i> | 0.0011 | 0.0477 | | 0.0864 | | |

| | | | | | | | |
|-------------------------|--|--------|--------|--------|--------|--------|--|
| Gemma gemma | | 0.1227 | | | | | |
| Leptocheirus plumulosus | | | 0.0455 | | | 0.0591 | |
| Glycinde solitaria | | 0.0909 | | | | | |
| Laeonereis culveri | | | | | 0.0841 | | |
| Marenzelleria viridis | | | | | 0.0750 | | |
| Cyclaspis varians | | 0.0659 | | | | | |
| Oligochaeta | | 0.0273 | 0.0011 | | 0.0011 | 0.0045 | |
| Tubificoides spp. | | 0.0091 | 0.0011 | 0.0011 | 0.0114 | 0.0011 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06417 | 06418 | 06419 | 06420 | 06421 | |
| Amphiporus bioculatus | | 0.0068 | 0.0011 | 0.0136 | | |
| Hypereteone heteropoda | 0.0045 | 0.0045 | | 0.0114 | | |
| Melita nitida (Epi.) | | 0.0068 | | 0.0045 | | |
| Rangia cuneata | | | | 0.0091 | | |
| Parahesionia luteola | 0.0068 | | 0.0011 | | | |
| Edotea triloba (Epi.) | | | | 0.0068 | | |
| Pectinaria gouldii | 0.0068 | | | | | |
| Chironomidae larvae | | | | | 0.0011 | |
| Total Biomass w/ Epifauna | 3.5398 | 5.1591 | 1.3068 | 1.5625 | 0.1705 | |
| Total Biomass w/o Epifauna | 3.5398 | 5.1523 | 1.3068 | 1.5511 | 0.1705 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06422 | 06423 | 06424 | 06425 |
|-----------------------------------|----------------|----------------|----------------|----------------|
| Watershed | Eastern Tribs | Eastern Tribs | Eastern Tribs | Eastern Tribs |
| Habitat | Low Mesohaline | Low Mesohaline | Low Mesohaline | Low Mesohaline |
| Date | 09/09/99 | 09/09/99 | 09/09/99 | 09/09/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | |
| Depth (m) | 2.0 | 4.5 | 2.5 | 2.5 |
| Salinity (ppt) | 5.41 | 8.08 | 8.32 | 8.11 |
| Temperature (C) | 25.74 | 24.63 | 26.59 | 26.66 |
| Dissolved Oxygen (mg/L) | 7.1 | 5.1 | 8.0 | 8.2 |
| Sediment Silt-Clay (%) | 97.11 | 90.35 | 95.33 | 86.90 |
| Total Carbon (%) | 1.86 | 3.06 | 2.18 | 2.69 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | |
| B-IBI Score | 2.20 | 2.20 | 2.20 | 2.20 |
| Condition | Degraded | Degraded | Degraded | Degraded |
| # Attributes Scored | 5 | 5 | 5 | 5 |
| | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 1.72 3 | 1.83 3 | 1.84 3 | 2.28 3 |
| Abundance (#/m2) | 1705 5 | 2886 3 | 2500 5 | 2409 5 |
| Biomass (g/m2) | 0.28 1 | 0.75 1 | 0.42 1 | 0.26 1 |

| | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|--|
| Pollution Indicative Spp Abund (%) | 86.67 | 1 | 46.46 | 1 | 57.27 | 1 | 71.70 | 1 | |
| Pollution Indicative Spp Biom (%) | 17.34 | | 21.00 | | 32.62 | | 52.44 | | |
| Pollution Sensitive Spp Abund (%) | 1.33 | | 6.30 | | 0.00 | | 0.94 | | |
| Pollution Sensitive Spp Biom (%) | 0.81 | 1 | 40.49 | 3 | 0.00 | 1 | 4.44 | 1 | |
| Carnivore-Omnivore Abundance (%) | 77.33 | | 32.28 | | 14.55 | | 21.70 | | |
| Deep Deposit Feeder Abundance (%) | 5.33 | | 1.57 | | 13.64 | | 24.53 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | |
|---------------------------------------|-------|-------|-------|-------|
| Site | 06422 | 06423 | 06424 | 06425 |
| Leptocheirus plumulosus | 205 | 1364 | 1068 | 545 |
| Coelotanypus spp. | 273 | 886 | 364 | 477 |
| Streblospio benedicti | 68 | 409 | 727 | 750 |
| Chironomus spp. | 1045 | | | |
| Imm. Tubificid w/o Cap. Chaete | 91 | 45 | 341 | 500 |
| Melita nitida (Epi.) | | 182 | 45 | |
| Marenzelleria viridis | 23 | 136 | | |
| Cyathura polita | | 45 | | 23 |
| Gammarus daiberi (Epi.) | | | 68 | |
| Heteromastus filiformis | | | | 68 |
| Neanthes succinea | | | | 23 |
| Tubificoides spp. | | | | 23 |
| Total Abundance w/ Epifauna | 1705 | 3068 | 2614 | 2409 |
| Total Abundance w/o Epifauna | 1705 | 2886 | 2500 | 2409 |
| Number of Taxa w/ Epifauna | 6 | 7 | 6 | 8 |
| Number of Taxa w/o Epifauna | 6 | 6 | 4 | 8 |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | |
| Site | 06422 | 06423 | 06424 | 06425 |

| | | | | | | |
|-------------------------|--|--------|--------|--------|--------|--|
| Leptocheirus plumulosus | | 0.0159 | 0.2750 | 0.2795 | 0.0773 | |
| Coelotanypus spp. | | 0.0477 | 0.1477 | 0.1227 | 0.1250 | |
| Marenzelleria viridis | | 0.0023 | 0.2341 | | | |
| Chironomidae larvae | | 0.2136 | | | | |
| Cyathura polita | | | 0.0682 | | 0.0114 | |
| Streblospio benedicti | | 0.0011 | 0.0091 | 0.0159 | 0.0091 | |
| Oligochaeta | | 0.0011 | 0.0011 | 0.0011 | 0.0136 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| ===== | | | | | |
|--|--------|--------|--------|--------|--|
| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | |
| ===== | | | | | |
| Site | 06422 | 06423 | 06424 | 06425 | |
| ----- | | | | | |
| Melita nitida (Epi.) | | 0.0114 | 0.0011 | | |
| Neanthes succinea | | | | 0.0114 | |
| Heteromastus filiformis | | | | 0.0068 | |
| Gammarus spp. (Epi.) | | | 0.0045 | | |
| Tubificoides spp. | | | | 0.0011 | |
| ----- | | | | | |
| Total Biomass w/ Epifauna | 0.2818 | 0.7466 | 0.4250 | 0.2557 | |
| Total Biomass w/o Epifauna | 0.2818 | 0.7352 | 0.4193 | 0.2557 | |
| ===== | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06501 | 06502 | 06503 | 06505 | 06506 |
|-----------------------------------|-----------------|-----------------|----------------|-----------------|----------------|
| Watershed | Mainstem | Mainstem | Mainstem | Mainstem | Mainstem |
| Habitat | Polyhaline Sand | Polyhaline Sand | Polyhaline Mud | Polyhaline Sand | Polyhaline San |
| Date | 09/20/99 | 09/20/99 | 09/20/99 | 09/20/99 | 09/20/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 6.5 | 5.0 | 11.0 | 6.5 | 11.0 |
| Salinity (ppt) | 19.30 | 21.14 | 20.06 | 18.99 | 19.08 |
| Temperature (C) | 21.97 | 22.16 | 22.98 | 22.32 | 22.64 |
| Dissolved Oxygen (mg/L) | 8.8 | 7.7 | 5.8 | 7.9 | 7.6 |
| Sediment Silt-Clay (%) | 1.22 | 1.06 | 51.50 | 1.45 | 3.75 |
| Total Carbon (%) | 0.11 | 0.05 | 2.10 | 0.07 | 0.12 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 3.67 | 4.00 | 2.33 | 3.67 | 1.67 |
| Condition | Meets Goal | Meets Goal | Degraded | Meets Goal | Severely Degr. |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 3.24 3 | 3.27 3 | 2.86 3 | 3.27 3 | 2.50 1 |
| Abundance (#/m2) | 2182 3 | 3136 5 | 1364 3 | 1750 3 | 2000 3 |
| Biomass (g/m2) | 0.98 1 | 0.84 1 | 0.57 3 | 0.60 1 | 0.74 1 |

| | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|
| Pollution Indicative Spp Abund (%) | 0.00 | | 0.72 | | 43.33 | | 2.60 | | 39.77 | |
| Pollution Indicative Spp Biom (%) | 0.00 | 5 | 1.35 | 5 | 32.00 | 1 | 1.90 | 5 | 40.60 | 1 |
| Pollution Sensitive Spp Abund (%) | 63.54 | 5 | 54.35 | 5 | 5.00 | | 62.34 | 5 | 46.59 | 3 |
| Pollution Sensitive Spp Biom (%) | 29.81 | | 89.17 | | 3.60 | 1 | 38.33 | | 43.61 | |
| Carnivore-Omnivore Abundance (%) | 45.83 | | 42.75 | | 40.00 | 3 | 35.06 | | 50.00 | |
| Deep Deposit Feeder Abundance (%) | 38.54 | 5 | 43.48 | 5 | 8.33 | | 40.26 | 5 | 4.55 | 1 |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|
| Site | 06501 | 06502 | 06503 | 06505 | 06506 |
| <i>Acteocina canaliculata</i> | 773 | 750 | | 386 | 727 |
| <i>Mediomastus ambiseta</i> | 409 | 545 | | 432 | 23 |
| <i>Paraprionospio pinnata</i> | | 23 | 568 | 45 | 750 |
| <i>Tubificoides</i> spp. | 273 | 795 | | 227 | 23 |
| <i>Neanthes succinea</i> | 45 | 45 | 273 | 23 | 114 |
| <i>Glycinde solitaria</i> | 45 | 114 | 23 | 136 | 45 |
| <i>Phoronis architecta</i> | 68 | 91 | | 45 | 23 |
| <i>Edwardsia elegans</i> | 23 | 182 | | | |
| <i>Paraonis fulgens</i> | 45 | | | 159 | |
| <i>Loimia medusa</i> | | 68 | 23 | 23 | 68 |
| Gastropoda (Epi.) | | 114 | | | 45 |
| <i>Amphiporus bioculatus</i> | | 68 | 45 | | 23 |
| <i>Podarkeopsis levifuscina</i> | 23 | 23 | 68 | 23 | |
| <i>Spiophanes bombyx</i> | 68 | 45 | | 23 | |
| <i>Branchiostoma virginiae</i> | 68 | 23 | | 23 | |
| <i>Pectinaria gouldii</i> | | | 91 | | 23 |
| <i>Ampelisca verrilli</i> | | 91 | | | |
| <i>Scoloplos rubra</i> | 68 | 23 | | | |
| <i>Sigambra tentaculata</i> | | | 68 | | 23 |
| <i>Spiochaetopterus costarum</i> | 23 | | 23 | | 45 |
| <i>Ancistrosyllis hartmanae</i> | 23 | 45 | | | |
| Bivalvia | | 68 | | | |

| | | | | | | |
|-------------------------------|--|----|----|----|----|--|
| Gemma gemma | | 23 | | 45 | | |
| Heteromastus filiformis | | 68 | | | | |
| Leitoscoloplos robustus | | | | 45 | 23 | |
| Pseudeurythoe paucibranchiata | | | 45 | | 23 | |
| Saccoglossus kowalevskii | | | 45 | 23 | | |
| Acteon punctostriatus | | | 45 | | | |
| Cyathura polita | | | | 45 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES (Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | |
|--|-------|-------|-------|-------|-------|--|
| Site | 06501 | 06502 | 06503 | 06505 | 06506 | |
| Hypereteone heteropoda | | | | | 45 | |
| Leitoscoloplos spp. | 23 | | 23 | | | |
| Leptosynapta tenuis | | 45 | | | | |
| Parvilucina multilineata | | | | 45 | | |
| Phyllodoce arenae | | 45 | | | | |
| Stylochus ellipticus (Epi.) | | 45 | | | | |
| Ameroculodes species complex | | 23 | | | | |
| Ampelisca spp. | | | 23 | | | |
| Cirratulidae | 23 | | | | | |
| Glycera dibranchiata | | 23 | | | | |
| Hydrobia truncata (Epi.) | | | | | 23 | |
| Listriella barnardi | 23 | | | | | |
| Macoma mitchelli | | | | | 23 | |
| Nassarius vibex | 23 | | | | | |
| Nemertea | 23 | | | | | |
| Parahesionia luteola | | | 23 | | | |
| Ptilanthura tenuis | 23 | | | | | |
| Streblospio benedicti | | | 23 | | | |
| Total Abundance w/ Epifauna | 2182 | 3341 | 1364 | 1750 | 2068 | |
| Total Abundance w/o Epifauna | 2182 | 3182 | 1364 | 1750 | 2000 | |
| Number of Taxa w/ Epifauna | 22 | 26 | 15 | 17 | 18 | |

| Number of Taxa w/o Epifauna | 22 | 24 | 15 | 17 | 16 |
|---------------------------------------|-------|--------|--------|--------|--------|
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
| Site | 06501 | 06502 | 06503 | 06505 | 06506 |
| Loimia medusa | | 0.3432 | 0.0068 | 0.1182 | 0.2091 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | |
|--|--------|--------|--------|--------|--------|
| Site | 06501 | 06502 | 06503 | 06505 | 06506 |
| Branchiostoma virginiae | 0.4864 | 0.0011 | | 0.1295 | |
| Paraprionospio pinnata | | 0.0114 | 0.1795 | 0.0114 | 0.2977 |
| Acteocina canaliculata | 0.1500 | 0.0523 | | 0.0614 | 0.0727 |
| Spiophanes bombyx | 0.0886 | 0.2364 | | 0.0068 | |
| Neanthes succinea | 0.0011 | 0.0023 | 0.2545 | 0.0091 | 0.0205 |
| Leitoscoloplos spp. | 0.0011 | | 0.0068 | 0.1591 | 0.0273 |
| Glycinde solitaria | 0.0045 | 0.0795 | 0.0091 | 0.0159 | 0.0045 |
| Phoronis architecta | 0.0432 | 0.0227 | | 0.0114 | 0.0250 |
| Nassarius vibex | 0.0795 | | | | |
| Saccoglossus kowalevskii | | | 0.0523 | 0.0273 | |
| Edwardsia elegans | 0.0045 | 0.0341 | | | |
| Heteromastus filiformis | 0.0386 | | | | |
| Scoloplos rubra | 0.0364 | 0.0011 | | | |
| Amphiporus bioculatus | | 0.0011 | 0.0045 | | 0.0250 |
| Pectinaria gouldii | | | 0.0114 | | 0.0159 |
| Nemertea | 0.0250 | | | | |
| Mediomastus ambiseta | 0.0045 | 0.0011 | | 0.0114 | 0.0045 |
| Spiochaetopterus costarum | 0.0011 | | 0.0045 | | 0.0136 |
| Leptosynapta tenuis | | 0.0182 | | | |
| Podarkeopsis levifuscina | 0.0011 | 0.0011 | 0.0068 | 0.0045 | |
| Ampelisca verrilli | | 0.0136 | | | |
| Gemma gemma | 0.0011 | | | 0.0114 | |

| | | | | | |
|-------------------------------|--|--------|--------|--------|--------|
| Paraonis fulgens | | 0.0011 | | 0.0114 | |
| Sigambra tentaculata | | | 0.0091 | | 0.0023 |
| Macoma mitchelli | | | | | 0.0114 |
| Pseudeurythoe paucibranchiata | | | 0.0091 | | 0.0011 |
| Gastropoda (Epi.) | | | 0.0023 | | 0.0068 |
| Tubificoides spp. | | 0.0011 | 0.0011 | 0.0045 | 0.0023 |
| Hypereteone heteropoda | | | | | 0.0091 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES (Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06501 | 06502 | 06503 | 06505 | 06506 | |
| Hydrobia truncata (Epi.) | | | | | 0.0068 | |
| Glycera dibranchiata | | 0.0068 | | | | |
| Parahesionia luteola | | | 0.0068 | | | |
| Ptilanthura tenuis | 0.0068 | | | | | |
| Cyathura polita | | | | 0.0045 | | |
| Ampelisca spp. | | | 0.0045 | | | |
| Ancistrosyllis hartmanae | 0.0011 | 0.0023 | | | | |
| Bivalvia | | 0.0034 | | | | |
| Ameroculodes species complex | | 0.0023 | | | | |
| Streblospio benedicti | | | 0.0023 | | | |
| Phyllodoce arenae | | 0.0023 | | | | |
| Acteon punctostriatus | | 0.0011 | | | | |
| Cirratulidae | 0.0011 | | | | | |
| Listriella barnardi | 0.0011 | | | | | |
| Parvilucina multilineata | | | | 0.0011 | | |
| Stylochus ellipticus (Epi.) | | 0.0011 | | | | |
| Total Biomass w/ Epifauna | 0.9795 | 0.8420 | 0.5682 | 0.5989 | 0.7557 | |
| Total Biomass w/o Epifauna | 0.9795 | 0.8386 | 0.5682 | 0.5989 | 0.7420 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06507 | 06508 | 06509 | 06510 | 06511 |
|-----------------------------------|-----------------|----------------|----------------|----------------|-----------------|
| Watershed | Mainstem | Mainstem | Mainstem | Mainstem | Mainstem |
| Habitat | Polyhaline Sand | Polyhaline Mud | High Meso Sand | Polyhaline Mud | Polyhaline Sand |
| Date | 09/20/99 | 09/20/99 | 09/20/99 | 09/20/99 | 09/10/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 10.0 | 12.0 | 2.5 | 4.0 | 7.0 |
| Salinity (ppt) | 19.17 | 20.17 | 17.39 | 18.32 | 18.26 |
| Temperature (C) | 22.50 | 22.07 | 21.03 | 21.33 | 24.49 |
| Dissolved Oxygen (mg/L) | 7.8 | 5.8 | 8.5 | 7.1 | 5.9 |
| Sediment Silt-Clay (%) | 2.32 | 96.67 | 2.27 | 55.65 | 7.52 |
| Total Carbon (%) | 0.12 | 2.22 | 0.12 | 0.47 | 1.12 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 2.33 | 2.00 | 3.67 | 2.67 | 3.33 |
| Condition | Degraded | Severely Degr. | Meets Goal | Degraded | Meets Goal |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.63 1 | 2.27 1 | 1.92 1 | 2.29 1 | 2.94 3 |
| Abundance (#/m2) | 2568 3 | 4636 3 | 3727 3 | 3659 3 | 2659 3 |
| Biomass (g/m2) | 1.22 3 | 1.59 3 | 0.98 3 | 1.57 3 | 1.03 3 |

| | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|
| Pollution Indicative Spp Abund (%) | 7.96 | | 31.86 | | 5.49 | 5 | 19.25 | | 18.80 | |
| Pollution Indicative Spp Biom (%) | 26.78 | 1 | 45.17 | 1 | 52.38 | | 30.25 | 1 | 63.75 | 1 |
| Pollution Sensitive Spp Abund (%) | 76.11 | 5 | 60.78 | | 86.59 | 5 | 75.78 | | 60.68 | 5 |
| Pollution Sensitive Spp Biom (%) | 59.00 | | 50.99 | 3 | 35.60 | | 31.70 | 3 | 13.80 | |
| Carnivore-Omnivore Abundance (%) | 68.14 | | 12.25 | 1 | 72.56 | 5 | 49.69 | 5 | 48.72 | |
| Deep Deposit Feeder Abundance (%) | 8.85 | 1 | 46.57 | | 17.07 | | 27.95 | | 30.77 | 5 |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|------------------------------------|-------|-------|-------|-------|-------|
| Site | 06507 | 06508 | 06509 | 06510 | 06511 |
| <i>Acteocina canaliculata</i> | 1364 | 273 | 2409 | 1568 | 659 |
| <i>Mediomastus ambiseta</i> | 114 | 2159 | 545 | 977 | 659 |
| <i>Paraprionospio pinnata</i> | 182 | 1364 | 114 | 568 | 432 |
| <i>Glycinde solitaria</i> | 182 | 136 | 227 | 159 | 295 |
| <i>Loimia medusa</i> | 159 | 159 | 45 | 23 | |
| <i>Mulinia lateralis</i> | 23 | 23 | 91 | 114 | 23 |
| <i>Neanthes succinea</i> | 45 | 23 | | 68 | 136 |
| <i>Listriella barnardi</i> | | 182 | 23 | | |
| <i>Pectinaria gouldii</i> | 91 | | | | 114 |
| <i>Edwardsia elegans</i> | | 91 | 45 | 23 | |
| <i>Spiochaetopterus costarum</i> | 136 | | | 23 | |
| <i>Tubificoides</i> spp. | 23 | | 45 | 45 | 45 |
| <i>Acteon punctostriatus</i> | 23 | | | | 114 |
| <i>Amphiporus bioculatus</i> | 68 | 23 | 23 | | 23 |
| <i>Streblospio benedicti</i> | | 91 | | 23 | |
| <i>Macoma mitchelli</i> | | | 91 | | |
| <i>Phoronis architecta</i> | | 68 | | 23 | |
| <i>Lyonsia hyalina</i> | | | | | 68 |
| <i>Molgula manhattensis</i> (Epi.) | | | 23 | | 45 |
| <i>Podarkeopsis levifuscina</i> | 68 | | | | |
| <i>Saccoglossus kowalevskii</i> | 68 | | | | |
| <i>Edotea triloba</i> (Epi.) | | | 23 | | 23 |

| | | | |
|-----------------------------|----|----|----|
| Heteromastus filiformis | | 45 | |
| Hypereteone heteropoda | | | 45 |
| Leucon americanus | | | 45 |
| Mysidae (Epi.) | 23 | 23 | |
| Stylochus ellipticus (Epi.) | 23 | 23 | |
| Ampelisca abdita | | | 23 |
| Gastropoda (Epi.) | | | 23 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06507 | 06508 | 06509 | 06510 | 06511 | |
| Gemma gemma | | | 23 | | | |
| Macoma balthica | | 23 | | | | |
| Melita nitida (Epi.) | 23 | | | | | |
| Micrura leidyi | | | | | 23 | |
| Parahesionia luteola | | 23 | | | | |
| Parvilucina multilineata | 23 | | | | | |
| Polynoidae (Epi.) | | 23 | | | | |
| Total Abundance w/ Epifauna | 2636 | 4659 | 3818 | 3682 | 2727 | |
| Total Abundance w/o Epifauna | 2568 | 4636 | 3727 | 3659 | 2659 | |
| Number of Taxa w/ Epifauna | 18 | 15 | 17 | 14 | 16 | |
| Number of Taxa w/o Epifauna | 15 | 14 | 13 | 13 | 14 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | |
| Site | 06507 | 06508 | 06509 | 06510 | 06511 | |
| Paraprionospio pinnata | 0.0955 | 0.7159 | 0.1091 | 0.4341 | 0.5205 | |
| Loimia medusa | 0.5636 | 0.4636 | 0.2000 | 0.3500 | | |
| Mulinia lateralis | 0.2341 | 0.0023 | 0.4159 | 0.0409 | 0.1386 | |
| Neanthes succinea | 0.0011 | 0.0205 | | 0.5932 | 0.1045 | |
| Acteocina canaliculata | 0.1227 | 0.0159 | 0.1295 | 0.1023 | 0.0909 | |

| | | | | | | | | |
|--|--------------------------|--|--------|--------|--------|--------|--------|--|
| | Mediomastus ambiseta | | 0.0011 | 0.1227 | 0.0136 | 0.0273 | 0.0318 | |
| | Macoma balthica | | | 0.1636 | | | | |
| | Saccoglossus kowalevskii | | 0.1295 | | | | | |
| | Glycinde solitaria | | 0.0295 | 0.0455 | 0.0136 | 0.0159 | 0.0205 | |
| | Micrura leidy | | | | | | 0.1045 | |
| | Edwardsia elegans | | | 0.0273 | 0.0227 | 0.0011 | | |
| | Heteromastus filiformis | | | | 0.0295 | | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06507 | 06508 | 06509 | 06510 | 06511 | |
| <i>Pectinaria gouldii</i> | 0.0159 | | | | 0.0091 | |
| <i>Stylochus ellipticus</i> (Epi.) | 0.0068 | | 0.0091 | | | |
| <i>Tubificoides</i> spp. | 0.0011 | | 0.0114 | 0.0023 | 0.0011 | |
| <i>Amphiporus bioculatus</i> | 0.0011 | 0.0068 | 0.0045 | | 0.0011 | |
| <i>Gemma gemma</i> | | | 0.0136 | | | |
| <i>Podarkeopsis levifusca</i> | 0.0136 | | | | | |
| <i>Spiochaetopterus costarum</i> | 0.0091 | | | 0.0023 | | |
| <i>Listriella barnardi</i> | | 0.0045 | 0.0068 | | | |
| <i>Macoma mitchelli</i> | | | 0.0091 | | | |
| Mysidae (Epi.) | 0.0011 | | 0.0068 | | | |
| <i>Acteon punctostriatus</i> | 0.0023 | | | | 0.0045 | |
| <i>Phoronis architecta</i> | | 0.0045 | | 0.0011 | | |
| <i>Molgula manhattensis</i> (Epi.) | | | 0.0045 | | 0.0011 | |
| <i>Streblospio benedicti</i> | | 0.0045 | | 0.0011 | | |
| <i>Ampelisca abdita</i> | | | | | 0.0045 | |
| <i>Edotea triloba</i> (Epi.) | | | 0.0023 | | 0.0011 | |
| <i>Hypereteone heteropoda</i> | | | | | 0.0023 | |
| Gastropoda (Epi.) | | | | 0.0011 | | |
| <i>Leucon americanus</i> | | | | 0.0011 | | |
| <i>Lyonsia hyalina</i> | | | | | 0.0011 | |
| <i>Melita nitida</i> (Epi.) | 0.0011 | | | | | |
| <i>Parahesione luteola</i> | | 0.0011 | | | | |

| | | | | | | | |
|----------------------------|--|--------|--------|--------|--------|--------|--|
| Parvilucina multilineata | | 0.0011 | | | | | |
| Polynoidae (Epi.) | | | 0.0011 | | | | |
| ----- | | | | | | | |
| Total Biomass w/ Epifauna | | 1.2307 | 1.6000 | 1.0023 | 1.5739 | 1.0375 | |
| Total Biomass w/o Epifauna | | 1.2216 | 1.5989 | 0.9795 | 1.5727 | 1.0352 | |
| ===== | | | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06512 | 06513 | 06514 | 06515 | 06516 |
|-----------------------------------|----------------|----------------|-----------------|----------------|----------------|
| Watershed | Mainstem | Mainstem | Mainstem | Mainstem | Mainstem |
| Habitat | Low Mesohaline | High Meso Sand | Polyhaline Sand | High Meso Mud | High Meso Sand |
| Date | 09/23/99 | 09/10/99 | 09/07/99 | 09/10/99 | 09/10/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 2.0 | 4.0 | 4.0 | 11.0 | 2.5 |
| Salinity (ppt) | 5.81 | 17.99 | 18.39 | 17.50 | 17.34 |
| Temperature (C) | 16.85 | 24.94 | 23.99 | 24.24 | 24.98 |
| Dissolved Oxygen (mg/L) | 8.2 | 6.6 | 7.2 | 6.8 | 8.6 |
| Sediment Silt-Clay (%) | 94.13 | 1.33 | 2.66 | 98.14 | 0.79 |
| Total Carbon (%) | 2.88 | 0.08 | 0.34 | 0.08 | 2.55 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 2.20 | 3.00 | 2.33 | 1.67 | 1.67 |
| Condition | Degraded | Meets Goal | Degraded | Severely Degr. | Severely Degr. |
| # Attributes Scored | 5 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.90 5 | 2.43 1 | 0.51 1 | 1.61 1 | 0.69 1 |
| Abundance (#/m2) | 386 1 | 2545 5 | 42432 1 | 409 1 | 5455 1 |
| Biomass (g/m2) | 0.14 1 | 0.42 1 | 9.80 5 | 0.09 1 | 0.13 1 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|------|-------|-------|---|------|---|--|
| Pollution Indicative Spp Abund (%) | 35.29 | 1 | 0.00 | 5 | 0.27 | 66.67 | 0.42 | 5 | | | |
| Pollution Indicative Spp Biom (%) | 2.40 | | 0.00 | | 3.48 | 5 | 47.44 | 1 | 3.36 | | |
| Pollution Sensitive Spp Abund (%) | 35.29 | | 37.50 | 3 | 7.18 | 1 | 5.56 | | 0.83 | 1 | |
| Pollution Sensitive Spp Biom (%) | 82.40 | 3 | 24.10 | | 3.76 | | 10.26 | 1 | 1.68 | | |
| Carnivore-Omnivore Abundance (%) | 35.29 | | 30.36 | 3 | 7.71 | | 38.89 | 5 | 6.67 | 1 | |
| Deep Deposit Feeder Abundance (%) | 17.65 | | 2.68 | | 0.05 | 1 | 0.00 | | 2.08 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|
| Site | 06512 | 06513 | 06514 | 06515 | 06516 |
| Gemma gemma | | 1273 | 38909 | | 4909 |
| Hydrobia truncata (Epi.) | | | 14591 | | |
| Acteocina canaliculata | | 500 | 2864 | | |
| Glycinde solitaria | 68 | 182 | 159 | 23 | 45 |
| Carinoma tremaphoros | 45 | | | | 250 |
| Paraprionospio pinnata | 45 | | | 250 | |
| Haminoea solitaria | | | 227 | | 23 |
| Macoma mitchelli | | 45 | 91 | | 23 |
| Phoronis architecta | | 159 | | | |
| Mulinia lateralis | | | 114 | | 23 |
| Stylochus ellipticus (Epi.) | | | 136 | | |
| Branchiostoma virginiae | | 91 | | | |
| Mediomastus ambiseta | 45 | 45 | | | |
| Neanthes succinea | | | | 91 | |
| Heteromastus filiformis | | 23 | | | 45 |
| Leitoscoloplos spp. | | | | | 68 |
| Leucon americanus | 68 | | | | |
| Micrura leidyi | | 45 | | | 23 |
| Spiochaetopterus costarum | | 68 | | | |
| Streblospio benedicti | 68 | | | | |
| Amphiporus bioculatus | | 23 | | | 23 |
| Cyathura polita | 23 | | 23 | | |

| | | | | | | |
|--|--------------------------------|--|----|----|----|--|
| | Lepidactylus dytiscus | | 23 | | 23 | |
| | Lyonsia hyalina | | 45 | | | |
| | Parahesionia luteola | | 23 | | 23 | |
| | Ameroculodes species complex | | | 23 | | |
| | Hypereteone heteropoda | | | | 23 | |
| | Imm. Tubificid w/o Cap. Chaete | | 23 | | | |
| | Odostomia engonia (Epi.) | | | | 23 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES (Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06512 | 06513 | 06514 | 06515 | 06516 | |
| <i>Pectinaria gouldii</i> | | | 23 | | | |
| <i>Sayella chesapeakea</i> (Epi.) | | | | | 23 | |
| Total Abundance w/ Epifauna | 386 | 2545 | 57159 | 432 | 5477 | |
| Total Abundance w/o Epifauna | 386 | 2545 | 42432 | 409 | 5455 | |
| Number of Taxa w/ Epifauna | 8 | 14 | 11 | 6 | 12 | |
| Number of Taxa w/o Epifauna | 8 | 14 | 9 | 5 | 11 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | |
| Site | 06512 | 06513 | 06514 | 06515 | 06516 | |
| <i>Gemma gemma</i> | | 0.0091 | 8.9727 | | 0.0841 | |
| <i>Hydrobia truncata</i> (Epi.) | | | 0.7000 | | | |
| <i>Mulinia lateralis</i> | | | 0.3659 | | 0.0045 | |
| <i>Acteocina canaliculata</i> | | 0.0082 | 0.3614 | | | |
| <i>Branchiostoma virginiae</i> | | 0.2818 | | | | |
| <i>Cyathura polita</i> | 0.1068 | | 0.0182 | | | |
| <i>Glycinde solitaria</i> | 0.0091 | 0.0159 | 0.0159 | 0.0091 | 0.0023 | |
| <i>Paraprionospio pinnata</i> | 0.0023 | | | 0.0409 | | |
| <i>Phoronis architecta</i> | | 0.0409 | | | | |
| <i>Haminoea solitaria</i> | | | 0.0364 | | 0.0011 | |

| | | | | | | |
|--|-----------------------------|--|--------|--------|--------|--------|
| | Neanthes succinea | | | | 0.0341 | |
| | Spiochaetopterus costarum | | | 0.0341 | | |
| | Heteromastus filiformis | | | 0.0068 | | 0.0205 |
| | Carinoma tremaphoros | | 0.0159 | | | 0.0011 |
| | Micrura leidyi | | | 0.0091 | | 0.0068 |
| | Stylochus ellipticus (Epi.) | | | | 0.0136 | |
| | Macoma mitchelli | | | 0.0011 | 0.0091 | 0.0011 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| ===== | | | | | | |
|--|--------|--------|---------|--------|--------|--|
| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
| ===== | | | | | | |
| Site | 06512 | 06513 | 06514 | 06515 | 06516 | |
| ----- | | | | | | |
| Amerocolodes species complex | | | 0.0114 | | | |
| Pectinaria gouldii | | | 0.0091 | | | |
| Lyonsia hyalina | | 0.0068 | | | | |
| Amphiporus bioculatus | | 0.0011 | | | 0.0045 | |
| Leitoscoloplos spp. | | | | | 0.0045 | |
| Parahesionia luteola | | 0.0023 | | 0.0023 | | |
| Leucon americanus | 0.0045 | | | | | |
| Lepidactylus dytiscus | | 0.0011 | | | 0.0023 | |
| Mediomastus ambiseta | 0.0011 | 0.0023 | | | | |
| Sayella chesapeakea (Epi.) | | | | | 0.0023 | |
| Hypereteone heteropoda | | | | 0.0011 | | |
| Odostomia engonia (Epi.) | | | | 0.0011 | | |
| Oligochaeta | 0.0011 | | | | | |
| Streblospio benedicti | 0.0011 | | | | | |
| ----- | | | | | | |
| Total Biomass w/ Epifauna | 0.1420 | 0.4207 | 10.5136 | 0.0886 | 0.1352 | |
| Total Biomass w/o Epifauna | 0.1420 | 0.4207 | 9.8000 | 0.0875 | 0.1330 | |
| ===== | | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06517 | 06518 | 06519 | 06520 | 06521 |
|-----------------------------------|----------------|-----------------|---------------|---------------|---------------|
| Watershed | Mainstem | Mainstem | Mainstem | Mainstem | Mainstem |
| Habitat | High Meso Mud | Polyhaline Sand | High Meso Mud | High Meso Mud | High Meso Mud |
| Date | 09/07/99 | 09/07/99 | 09/07/99 | 09/07/99 | 09/10/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 14.5 | 5.5 | 7.0 | 6.0 | 8.5 |
| Salinity (ppt) | 17.48 | 18.25 | 16.41 | 17.13 | 16.73 |
| Temperature (C) | 24.02 | 24.10 | 23.85 | 23.94 | 24.80 |
| Dissolved Oxygen (mg/L) | 6.8 | 7.0 | 7.3 | 7.3 | 7.2 |
| Sediment Silt-Clay (%) | 83.72 | 3.38 | 84.77 | 87.36 | 90.77 |
| Total Carbon (%) | 2.55 | 0.32 | 1.33 | 1.06 | 2.65 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 1.00 | 2.00 | 3.00 | 2.33 | 3.00 |
| Condition | Severely Degr. | Severely Degr. | Meets Goal | Degraded | Meets Goal |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 1.47 1 | 0.21 1 | 2.90 3 | 2.95 3 | 1.99 1 |
| Abundance (#/m2) | 636 1 | 111091 1 | 568 1 | 727 1 | 2182 5 |
| Biomass (g/m2) | 0.03 1 | 29.27 3 | 0.75 3 | 0.40 1 | 1.51 3 |

| | | | | | | | | | | |
|------------------------------------|-------|---|------|---|-------|---|-------|---|-------|---|
| Pollution Indicative Spp Abund (%) | 60.71 | | 0.23 | | 48.00 | | 40.63 | | 17.71 | |
| Pollution Indicative Spp Biom (%) | 78.26 | 1 | 1.12 | 5 | 9.56 | 3 | 26.40 | 3 | 12.68 | 3 |
| Pollution Sensitive Spp Abund (%) | 0.00 | | 0.49 | 1 | 16.00 | | 28.13 | | 8.33 | |
| Pollution Sensitive Spp Biom (%) | 4.35 | 1 | 0.42 | | 45.37 | 3 | 9.27 | 1 | 5.43 | 1 |
| Carnivore-Omnivore Abundance (%) | 3.57 | 1 | 0.98 | | 40.00 | 5 | 37.50 | 5 | 29.17 | 5 |
| Deep Deposit Feeder Abundance (%) | 3.57 | | 0.86 | 1 | 4.00 | | 15.63 | | 53.13 | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|-----------------------------------|-------|--------|-------|-------|-------|
| Site | 06517 | 06518 | 06519 | 06520 | 06521 |
| Gemma gemma | 182 | 108772 | | 23 | |
| Tubificoides spp. | 23 | 500 | | | 1159 |
| Paraprionospio pinnata | 386 | 45 | 159 | 205 | 273 |
| Neanthes succinea | 23 | 455 | 45 | 45 | 409 |
| Glycinde solitaria | | 250 | | 136 | 182 |
| Pectinaria gouldii | | 295 | 23 | 45 | |
| Acteocina canaliculata | | 205 | 45 | 68 | |
| Heteromastus filiformis | | 159 | | 68 | |
| Streblospio benedicti | | 45 | 91 | | 91 |
| Mulinia lateralis | | 68 | 23 | 91 | 23 |
| Hydrobia truncata (Epi.) | | 159 | | | |
| Parahesionia luteola | | | 91 | | 45 |
| Stylochus ellipticus (Epi.) | | 114 | | | |
| Hypereteone heteropoda | | 91 | | | |
| Littoridinops tenuipes (Epi.) | 91 | | | | |
| Micrura leidyi | | 68 | | 23 | |
| Macoma balthica | | 68 | | | |
| Macoma mitchelli | | | 45 | 23 | |
| Cyathura polita | | | 45 | | |
| Amphiporus bioculatus | | 23 | | | |
| Cyclotella spp. | 23 | | | | |
| Lyonsia hyalina | | 23 | | | |

| | | | | |
|--|--------------------------|--|----|--|
| | Odostomia engonia (Epi.) | | 23 | |
| | Phoronis architecta | | 23 | |

| | | | | | | | | |
|--|------------------------------|--|-----|--------|-----|-----|------|--|
| | Total Abundance w/ Epifauna | | 727 | 111386 | 568 | 727 | 2182 | |
| | Total Abundance w/o Epifauna | | 636 | 111091 | 568 | 727 | 2182 | |
| | Number of Taxa w/ Epifauna | | 6 | 19 | 9 | 10 | 7 | |
| | Number of Taxa w/o Epifauna | | 5 | 16 | 9 | 10 | 7 | |

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BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
|---------------------------------------|--------|---------|--------|--------|--------|
| Site | 06517 | 06518 | 06519 | 06520 | 06521 |
| <i>Gemma gemma</i> | 0.0011 | 28.3135 | | 0.0011 | |
| <i>Neanthes succinea</i> | 0.0011 | 0.3227 | 0.2591 | 0.1795 | 1.2250 |
| <i>Mulinia lateralis</i> | | 0.3250 | 0.0182 | 0.0568 | 0.0011 |
| <i>Cyathura polita</i> | | | 0.3386 | | |
| <i>Paraprionospio pinnata</i> | 0.0205 | 0.0011 | 0.0523 | 0.0500 | 0.1886 |
| <i>Glycinde solitaria</i> | | 0.0045 | | 0.0364 | 0.0818 |
| <i>Micrura leidyi</i> | | 0.0409 | | 0.0705 | |
| <i>Macoma balthica</i> | | 0.0955 | | | |
| <i>Pectinaria gouldii</i> | | 0.0909 | 0.0011 | 0.0023 | |
| <i>Macoma mitchelli</i> | | | 0.0636 | 0.0023 | |
| <i>Heteromastus filiformis</i> | | 0.0409 | | 0.0045 | |
| <i>Stylochus ellipticus</i> (Epi.) | | 0.0227 | | | |
| <i>Acteocina canaliculata</i> | 0.0011 | 0.0159 | 0.0011 | 0.0011 | |
| <i>Tubificoides</i> spp. | 0.0011 | 0.0068 | | | 0.0068 |
| <i>Parahesione luteola</i> | | | 0.0136 | | 0.0011 |
| <i>Hydrobia truncata</i> (Epi.) | | 0.0114 | | | |
| <i>Phoronis architecta</i> | | 0.0068 | | | |
| <i>Streblospio benedicti</i> | | 0.0023 | 0.0011 | | 0.0011 |
| <i>Amphiporus bioculatus</i> | | 0.0023 | | | |
| <i>Lyonsia hyalina</i> | | 0.0023 | | | |
| <i>Odostomia engonia</i> (Epi.) | | 0.0023 | | | |
| <i>Hypereteone heteropoda</i> | | 0.0011 | | | |

| | | | | | | | | |
|-------|-------------------------------|--|--------|---------|--------|--------|--------|--|
| | Littoridinops tenuipes (Epi.) | | 0.0011 | | | | | |
| ----- | | | | | | | | |
| | Total Biomass w/ Epifauna | | 0.0261 | 29.3090 | 0.7489 | 0.4045 | 1.5057 | |
| | Total Biomass w/o Epifauna | | 0.0250 | 29.2726 | 0.7489 | 0.4045 | 1.5057 | |
| ===== | | | | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06522 | 06523 | 06524 | 06525 | 06526 |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Watershed | Mainstem | Mainstem | Mainstem | Mainstem | Mainstem |
| Habitat | High Meso Sand | Polyhaline Mud | High Meso Sand | High Meso Sand | High Meso Sand |
| Date | 09/07/99 | 09/07/99 | 09/07/99 | 09/07/99 | 09/10/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 9.5 | 17.5 | 2.0 | 3.0 | 3.5 |
| Salinity (ppt) | 17.95 | 18.64 | 16.45 | 16.25 | 16.95 |
| Temperature (C) | 23.98 | 23.94 | 24.74 | 24.60 | 24.77 |
| Dissolved Oxygen (mg/L) | 6.6 | 5.3 | 8.2 | 8.0 | 6.4 |
| Sediment Silt-Clay (%) | 4.92 | 89.64 | 1.55 | 4.25 | 1.96 |
| Total Carbon (%) | 0.38 | 2.78 | 0.18 | 0.20 | 0.16 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 3.00 | 2.33 | 2.33 | 2.00 | 4.00 |
| Condition | Meets Goal | Degraded | Degraded | Severely Degr. | Meets Goal |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.38 1 | 0.00 1 | 0.17 1 | 1.84 1 | 2.82 3 |
| Abundance (#/m2) | 2477 5 | 23 1 | 113772 1 | 4523 3 | 2136 5 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|--------|---|------|---|------|---|-------|---|--|
| Biomass (g/m2) | 0.70 | 1 | 0.00 | 1 | 6.41 | 5 | 0.78 | 1 | 1.97 | 3 | |
| Pollution Indicative Spp Abund (%) | 31.19 | 1 | 0.00 | | 0.58 | 5 | 7.54 | 5 | 4.26 | 5 | |
| Pollution Indicative Spp Biom (%) | 39.31 | | 0.00 | 5 | 0.88 | | 8.62 | | 0.00 | | |
| Pollution Sensitive Spp Abund (%) | 53.21 | 5 | 0.00 | | 0.08 | 1 | 4.52 | 1 | 17.02 | 3 | |
| Pollution Sensitive Spp Biom (%) | 6.69 | | 0.00 | 1 | 2.23 | | 5.29 | | 1.04 | | |
| Carnivore-Omnivore Abundance (%) | 55.96 | 5 | 100.00 | 5 | 0.68 | 1 | 8.04 | 1 | 38.30 | 5 | |
| Deep Deposit Feeder Abundance (%) | 2.75 | | 0.00 | | 0.30 | | 5.03 | | 22.34 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|-----------------------------------|-------|-------|--------|-------|-------|
| Site | 06522 | 06523 | 06524 | 06525 | 06526 |
| <i>Gemma gemma</i> | 227 | | 111841 | 2977 | 227 |
| <i>Acteocina canaliculata</i> | 1159 | | | 45 | |
| <i>Macoma mitchelli</i> | | | 136 | 614 | 159 |
| <i>Streblospio benedicti</i> | 45 | | 636 | 205 | |
| <i>Haminoea solitaria</i> | | | 659 | 114 | |
| <i>Heteromastus filiformis</i> | | | 227 | 205 | 341 |
| <i>Glycinde solitaria</i> | 114 | | | 136 | 364 |
| <i>Paraprionospio pinnata</i> | 591 | | | | |
| <i>Sayella chesapeakea</i> (Epi.) | | | 45 | 455 | 45 |
| <i>Neanthes succinea</i> | 68 | 23 | | | 432 |
| <i>Polydora cornuta</i> | | | 23 | | 455 |
| <i>Balanus improvisus</i> (Epi.) | | | | | 341 |
| <i>Mulinia lateralis</i> | 114 | | | 136 | |
| <i>Polydora websteri</i> (Epi.) | | | | | 159 |
| <i>Diadumene leucolena</i> (Epi.) | | | | | 91 |
| Imm. Tubificid w/o Cap. Chaete | | | | | 91 |
| <i>Pectinaria gouldii</i> | 45 | | 23 | | 23 |
| <i>Carinoma tremaphoros</i> | | | | 45 | 23 |
| <i>Edotea triloba</i> (Epi.) | | | | | 68 |
| <i>Mediomastus ambiseta</i> | | | 68 | | |
| <i>Acteon punctostriatus</i> | | | 45 | | |
| <i>Americamysis almyra</i> | 23 | | | 23 | |

| | | | | | | |
|--|-----------------------------|--|----|----|----|--|
| | Geukensia demissa (Epi.) | | | 45 | | |
| | Hypereteone heteropoda | | 23 | 23 | | |
| | Leitoscoloplos spp. | | | 23 | 23 | |
| | Phoronis architecta | | 45 | | | |
| | Stylochus ellipticus (Epi.) | | 45 | | | |
| | Cyathura polita | | | | 23 | |
| | Edwardsia elegans | | | 23 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | |
|--|--------|-------|--------|--------|--------|--|
| Site | 06522 | 06523 | 06524 | 06525 | 06526 | |
| <i>Hydrobia truncata</i> (Epi.) | | | 23 | | | |
| <i>Laeonereis culveri</i> | | | 23 | | | |
| <i>Leitoscoloplos robustus</i> | 23 | | | | | |
| <i>Loimia medusa</i> | | | 23 | | | |
| <i>Micrura leidyi</i> | 23 | | | | | |
| <i>Tubificoides</i> spp. | | | | 23 | | |
| Total Abundance w/ Epifauna | 2545 | 23 | 113886 | 5000 | 2841 | |
| Total Abundance w/o Epifauna | 2500 | 23 | 113772 | 4545 | 2136 | |
| Number of Taxa w/ Epifauna | 14 | 1 | 17 | 13 | 15 | |
| Number of Taxa w/o Epifauna | 13 | 1 | 14 | 12 | 10 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | |
| Site | 06522 | 06523 | 06524 | 06525 | 06526 | |
| <i>Gemma gemma</i> | 0.0011 | | 5.5932 | 0.3909 | 0.0273 | |
| <i>Balanus improvisus</i> (Epi.) | | | | | 1.0205 | |
| <i>Diadumene leucolena</i> (Epi.) | | | | | 0.5568 | |
| <i>Macoma mitchelli</i> | | | 0.2159 | 0.1182 | 0.0011 | |
| <i>Mulinia lateralis</i> | 0.2705 | | | 0.0591 | | |
| <i>Haminoea solitaria</i> | | | 0.2727 | 0.0273 | | |

| | | | | | | | |
|-------------------------|--|--------|--------|--------|--------|--------|--|
| Pectinaria gouldii | | 0.2750 | | 0.0045 | | 0.0068 | |
| Neanthes succinea | | 0.0455 | 0.0023 | | | 0.2250 | |
| Heteromastus filiformis | | | | 0.0750 | 0.0568 | 0.0545 | |
| Loimia medusa | | | | 0.1409 | | | |
| Leitoscoloplos spp. | | 0.0500 | | 0.0182 | | 0.0295 | |
| Streblospio benedicti | | 0.0011 | | 0.0523 | 0.0114 | | |
| Carinoma tremaphoros | | | | | 0.0500 | 0.0091 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|--------|-------|--------|--------|--------|--|
| Site | 06522 | 06523 | 06524 | 06525 | 06526 | |
| <i>Sayella chesapeakea</i> (Epi.) | | | 0.0091 | 0.0409 | 0.0068 | |
| <i>Glycinde solitaria</i> | 0.0045 | | | 0.0205 | 0.0205 | |
| <i>Acteocina canaliculata</i> | 0.0409 | | | 0.0045 | | |
| <i>Edwardsia elegans</i> | | | 0.0227 | | | |
| <i>Americamysis almyra</i> | 0.0011 | | | 0.0182 | | |
| <i>Cyathura polita</i> | | | | 0.0182 | | |
| <i>Hypereteone heteropoda</i> | 0.0011 | | 0.0045 | | | |
| <i>Polydora cornuta</i> | | | 0.0023 | | 0.0023 | |
| <i>Edotea triloba</i> (Epi.) | | | | | 0.0023 | |
| <i>Hydrobia truncata</i> (Epi.) | | | 0.0023 | | | |
| <i>Laeonereis culveri</i> | | | 0.0023 | | | |
| <i>Micrura leidyi</i> | 0.0023 | | | | | |
| <i>Oligochaeta</i> | | | 0.0011 | | 0.0011 | |
| <i>Polydora websteri</i> (Epi.) | | | | | 0.0023 | |
| <i>Mediomastus ambiseta</i> | | | 0.0023 | | | |
| <i>Acteon punctostriatus</i> | | | 0.0011 | | | |
| <i>Geukensia demissa</i> (Epi.) | | | 0.0011 | | | |
| <i>Paraprionospio pinnata</i> | 0.0011 | | | | | |
| <i>Phoronis architecta</i> | 0.0011 | | | | | |
| <i>Stylochus ellipticus</i> (Epi.) | 0.0011 | | | | | |
| <i>Tubificoides</i> spp. | | | | 0.0011 | | |

| | | | | | | | | |
|--|----------------------------|--|--------|--------|--------|--------|--------|--|
| | Total Biomass w/ Epifauna | | 0.6966 | 0.0023 | 6.4216 | 0.8170 | 1.9659 | |
| | Total Biomass w/o Epifauna | | 0.6955 | 0.0023 | 6.4091 | 0.7761 | 0.3773 | |

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BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06301 | 06302 | 06303 | 06304 | 06305 |
|-----------------------------------|---------------|---------------|---------------|---------------|----------------|
| Watershed | Western Tribs | Western Tribs | Western Tribs | Western Tribs | Western Tribs |
| Habitat | High Meso Mud | High Meso Mud | High Meso Mud | High Meso Mud | High Meso Sand |
| Date | 09/10/99 | 09/10/99 | 09/10/99 | 09/10/99 | 09/10/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 2.0 | 2.5 | 4.5 | 2.5 | 3.0 |
| Salinity (ppt) | 14.76 | 14.80 | 16.20 | 14.83 | 15.40 |
| Temperature (C) | 25.61 | 25.78 | 25.41 | 26.53 | 25.50 |
| Dissolved Oxygen (mg/L) | 6.4 | 6.0 | 7.0 | 5.8 | 7.2 |
| Sediment Silt-Clay (%) | 87.60 | 94.48 | 89.89 | 86.28 | 3.35 |
| Total Carbon (%) | 2.16 | 1.67 | 3.25 | 0.22 | 1.13 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 4.00 | 3.00 | 3.33 | 3.00 | 1.67 |
| Condition | Meets Goal | Meets Goal | Meets Goal | Meets Goal | Severely Degr. |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.30 3 | 1.69 1 | 2.42 3 | 2.17 3 | 1.99 1 |
| Abundance (#/m2) | 3386 3 | 2864 3 | 2795 3 | 1727 5 | 2818 5 |
| Biomass (g/m2) | 20.32 3 | 0.92 3 | 1.09 3 | 0.79 3 | 0.45 1 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|--|
| Pollution Indicative Spp Abund (%) | 6.04 | | 11.90 | | 13.01 | | 56.58 | | 37.10 | 1 | |
| Pollution Indicative Spp Biom (%) | 0.04 | 5 | 0.49 | 5 | 3.75 | 5 | 1.72 | 5 | 38.13 | | |
| Pollution Sensitive Spp Abund (%) | 48.99 | | 6.35 | | 11.38 | | 1.32 | | 6.45 | 1 | |
| Pollution Sensitive Spp Biom (%) | 98.01 | 5 | 74.97 | 5 | 40.25 | 3 | 8.88 | 1 | 37.88 | | |
| Carnivore-Omnivore Abundance (%) | 48.32 | 5 | 7.94 | 1 | 12.20 | 3 | 6.58 | 1 | 7.26 | 1 | |
| Deep Deposit Feeder Abundance (%) | 22.15 | | 74.60 | | 71.54 | | 61.84 | | 8.06 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|--|
| Site | 06301 | 06302 | 06303 | 06304 | 06305 | |
| Tubificoides spp. | 614 | 1977 | 886 | 545 | 91 | |
| Streblospio benedicti | 182 | 273 | 227 | 477 | 932 | |
| Cyathura polita | 1545 | 182 | 91 | 23 | 45 | |
| Macoma mitchelli | 91 | 68 | 68 | 68 | 1386 | |
| Heteromastus filiformis | 114 | 91 | 1091 | 23 | 91 | |
| Leptocheirus plumulosus | 636 | 159 | | | | |
| Imm. Tubificid w/o Cap. Chaete | 23 | 68 | 23 | 500 | | |
| Glycinde solitaria | 23 | | 182 | | 114 | |
| Carinoma tremaphoros | 68 | 45 | 23 | 23 | 23 | |
| Macoma balthica | 91 | | 45 | | | |
| Mulinia lateralis | | | 91 | | 45 | |
| Neanthes succinea | | | 45 | 68 | | |
| Leitoscoloplos fragilis | | | | | 45 | |
| Hypereteone heteropoda | | | | | 23 | |
| Marenzelleria viridis | | | | | 23 | |
| Mysidae (Epi.) | | | | | 23 | |
| Mytilopsis leucophaeata (Epi.) | | | | | 23 | |
| Paraprionospio pinnata | | | 23 | | | |
| Total Abundance w/ Epifauna | 3386 | 2864 | 2795 | 1727 | 2864 | |
| Total Abundance w/o Epifauna | 3386 | 2864 | 2795 | 1727 | 2818 | |
| Number of Taxa w/ Epifauna | 10 | 8 | 12 | 8 | 13 | |

| | | | | | |
|---------------------------------------|---------|--------|--------|--------|--------|
| Number of Taxa w/o Epifauna | 10 | 8 | 12 | 8 | 11 |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
| Site | 06301 | 06302 | 06303 | 06304 | 06305 |
| Cyathura polita | 19.7749 | 0.6909 | 0.2250 | 0.0705 | 0.1205 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|---------|--------|--------|--------|--------|--|
| Site | 06301 | 06302 | 06303 | 06304 | 06305 | |
| <i>Neanthes succinea</i> | | | 0.0818 | 0.5341 | | |
| <i>Heteromastus filiformis</i> | 0.0682 | 0.0500 | 0.4182 | 0.0295 | 0.0295 | |
| <i>Macoma mitchelli</i> | 0.0795 | 0.1114 | 0.0818 | 0.1068 | 0.0636 | |
| <i>Glycinde solitaria</i> | 0.0205 | | 0.2114 | | 0.0159 | |
| <i>Leptocheirus plumulosus</i> | 0.1455 | 0.0159 | | | | |
| <i>Carinoma tremaphoros</i> | 0.0977 | 0.0273 | 0.0114 | 0.0114 | 0.0045 | |
| <i>Leitoscoloplos fragilis</i> | | | | | 0.1227 | |
| <i>Macoma balthica</i> | 0.1205 | | 0.0023 | | | |
| <i>Streblospio benedicti</i> | 0.0091 | 0.0045 | 0.0136 | 0.0136 | 0.0455 | |
| <i>Tubificoides spp.</i> | 0.0023 | 0.0205 | 0.0159 | 0.0068 | 0.0068 | |
| <i>Marenzelleria viridis</i> | | | | | 0.0341 | |
| <i>Mulinia lateralis</i> | | | 0.0227 | | 0.0023 | |
| <i>Oligochaeta</i> | 0.0011 | 0.0011 | 0.0011 | 0.0205 | | |
| <i>Paraprionospio pinnata</i> | | | 0.0045 | | | |
| Mysidae (Epi.) | | | | | 0.0023 | |
| <i>Hypereteone heteropoda</i> | | | | | 0.0011 | |
| <i>Mytilopsis leucophaeata</i> (Epi.) | | | | | 0.0011 | |
| Total Biomass w/ Epifauna | 20.3193 | 0.9216 | 1.0898 | 0.7932 | 0.4500 | |
| Total Biomass w/o Epifauna | 20.3193 | 0.9216 | 1.0898 | 0.7932 | 0.4466 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06306 | 06307 | 06308 | 06309 | 06310 |
|-----------------------------------|---------------|---------------|---------------|----------------|----------------|
| Watershed | Western Tribs | Western Tribs | Western Tribs | Western Tribs | Western Tribs |
| Habitat | High Meso Mud | High Meso Mud | High Meso Mud | High Meso Mud | High Meso Sand |
| Date | 09/10/99 | 09/10/99 | 09/10/99 | 09/08/99 | 09/08/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 3.5 | 7.0 | 4.5 | 4.0 | 2.5 |
| Salinity (ppt) | 14.54 | 15.38 | 15.06 | 12.84 | 12.66 |
| Temperature (C) | 25.24 | 25.12 | 25.28 | 23.85 | 25.17 |
| Dissolved Oxygen (mg/L) | 5.8 | 7.8 | 8.3 | 5.7 | 8.6 |
| Sediment Silt-Clay (%) | 45.26 | 70.22 | 89.04 | 64.47 | 1.23 |
| Total Carbon (%) | 1.13 | 2.35 | 2.32 | 2.81 | 0.18 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 2.67 | 3.00 | 3.00 | 1.67 | 1.67 |
| Condition | Degraded | Meets Goal | Meets Goal | Severely Degr. | Severely Degr. |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.88 3 | 2.67 3 | 2.32 3 | 1.89 1 | 2.39 1 |
| Abundance (#/m2) | 3364 3 | 3205 3 | 2182 5 | 1068 3 | 1455 3 |
| Biomass (g/m2) | 1.73 3 | 1.52 3 | 0.46 1 | 0.24 1 | 0.30 1 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|--|
| Pollution Indicative Spp Abund (%) | 23.65 | | 20.57 | | 14.58 | | 57.45 | | 31.25 | 1 | |
| Pollution Indicative Spp Biom (%) | 28.50 | 3 | 1.79 | 5 | 2.99 | 5 | 14.88 | 3 | 3.80 | | |
| Pollution Sensitive Spp Abund (%) | 7.43 | | 4.96 | | 7.29 | | 0.00 | | 0.00 | 1 | |
| Pollution Sensitive Spp Biom (%) | 24.03 | 1 | 14.78 | 1 | 25.44 | 1 | 0.00 | 1 | 0.00 | | |
| Carnivore-Omnivore Abundance (%) | 20.95 | 3 | 21.99 | 3 | 14.58 | 3 | 4.26 | 1 | 21.88 | 3 | |
| Deep Deposit Feeder Abundance (%) | 43.24 | | 58.16 | | 69.79 | | 19.15 | | 17.19 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|--|
| Site | 06306 | 06307 | 06308 | 06309 | 06310 | |
| Heteromastus filiformis | 1068 | 773 | 705 | 23 | 250 | |
| Streblospio benedicti | 591 | 409 | 295 | 591 | 432 | |
| Tubificoides spp. | 227 | 909 | 795 | 182 | | |
| Macoma mitchelli | 500 | 136 | 45 | 45 | 409 | |
| Neanthes succinea | 432 | 545 | 91 | | 45 | |
| Glycinde solitaria | 159 | 136 | 114 | | | |
| Imm. Tubificid w/o Cap. Chaete | 159 | 182 | 23 | | | |
| Carinoma tremaphoros | 45 | | 45 | 23 | 227 | |
| Leptocheirus plumulosus | 45 | | | 182 | | |
| Cyathura polita | 45 | | 45 | | | |
| Mulinia lateralis | 23 | 68 | | | | |
| Amphiporus bioculatus | | 23 | 23 | | | |
| Hobsonia florida | | | | | 45 | |
| Hypereteone heteropoda | 23 | | | 23 | | |
| Macoma balthica | 23 | 23 | | | | |
| Melita nitida (Epi.) | | 23 | 23 | | | |
| Chironomus spp. | | | | | 23 | |
| Edotea triloba (Epi.) | | 23 | | | | |
| Edwardsia elegans | | | | | 23 | |
| Littoridinops tenuipes (Epi.) | | | | | 23 | |
| Marenzelleria viridis | 23 | | | | | |

| | | | | | | | |
|--|------------------------------|------|------|------|------|------|--|
| | Total Abundance w/ Epifauna | 3364 | 3250 | 2205 | 1068 | 1477 | |
| | Total Abundance w/o Epifauna | 3364 | 3205 | 2182 | 1068 | 1455 | |
| | Number of Taxa w/ Epifauna | 14 | 12 | 11 | 7 | 9 | |
| | Number of Taxa w/o Epifauna | 14 | 10 | 10 | 7 | 8 | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
|---------------------------------------|--------|--------|--------|--------|--------|
| Site | 06306 | 06307 | 06308 | 06309 | 06310 |
| <i>Neanthes succinea</i> | 0.7841 | 0.8841 | 0.0886 | | 0.0477 |
| <i>Heteromastus filiformis</i> | 0.0011 | 0.2000 | 0.1909 | 0.0136 | 0.1568 |
| <i>Hypereteone heteropoda</i> | 0.4568 | | | 0.0068 | |
| <i>Macoma mitchelli</i> | 0.0091 | 0.1750 | 0.0273 | 0.0750 | 0.0023 |
| <i>Macoma balthica</i> | 0.1659 | 0.1227 | | | |
| <i>Cyathura polita</i> | 0.1341 | | 0.0886 | | |
| <i>Carinoma tremaphoros</i> | 0.0136 | | 0.0136 | 0.0955 | 0.0750 |
| <i>Glycinde solitaria</i> | 0.0409 | 0.1023 | 0.0273 | | |
| <i>Streblospio benedicti</i> | 0.0250 | 0.0136 | 0.0136 | 0.0295 | 0.0114 |
| <i>Marenzelleria viridis</i> | 0.0750 | | | | |
| <i>Leptocheirus plumulosus</i> | 0.0068 | | | 0.0227 | |
| <i>Mulinia lateralis</i> | 0.0114 | 0.0136 | | | |
| <i>Tubificoides</i> spp. | 0.0045 | 0.0068 | 0.0023 | 0.0011 | |
| <i>Oligochaeta</i> | 0.0023 | 0.0011 | 0.0011 | | |
| <i>Hobsonia florida</i> | | | | | 0.0023 |
| <i>Amphiporus bioculatus</i> | | 0.0011 | 0.0011 | | |
| <i>Melita nitida</i> (Epi.) | | 0.0011 | 0.0011 | | |
| Chironomidae larvae | | | | | 0.0011 |
| <i>Edotea triloba</i> (Epi.) | | 0.0011 | | | |
| <i>Edwardsia elegans</i> | | | | | 0.0011 |
| <i>Littoridinops tenuipes</i> (Epi.) | | | | | 0.0011 |

| | | | | | | | | |
|--|----------------------------|--|--------|--------|--------|--------|--------|--|
| | Total Biomass w/ Epifauna | | 1.7307 | 1.5227 | 0.4557 | 0.2443 | 0.2989 | |
| | Total Biomass w/o Epifauna | | 1.7307 | 1.5204 | 0.4545 | 0.2443 | 0.2977 | |

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BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06311 | 06312 | 06313 | 06314 | 06315 |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Watershed | Western Tribs | Western Tribs | Western Tribs | Western Tribs | Western Tribs |
| Habitat | Low Mesohaline | High Meso Sand | High Meso Sand | High Meso Mud | Low Mesohaline |
| Date | 09/08/99 | 09/08/99 | 09/08/99 | 09/08/99 | 09/08/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 3.5 | 5.5 | 2.5 | 6.0 | 2.0 |
| Salinity (ppt) | 11.88 | 12.35 | 12.16 | 12.52 | 10.96 |
| Temperature (C) | 24.10 | 24.25 | 24.79 | 24.12 | 25.32 |
| Dissolved Oxygen (mg/L) | 2.2 | 4.9 | 5.4 | 3.5 | 5.6 |
| Sediment Silt-Clay (%) | 93.98 | 13.57 | 6.61 | 83.76 | 72.65 |
| Total Carbon (%) | 4.07 | 0.73 | 0.93 | 4.76 | 3.21 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 1.40 | 1.33 | 2.33 | 1.33 | 4.60 |
| Condition | Severely Degr. | Severely Degr. | Degraded | Severely Degr. | Meets Goal |
| # Attributes Scored | 5 | 6 | 6 | 6 | 5 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 1.16 1 | 2.10 1 | 2.99 3 | 1.87 1 | 2.96 5 |
| Abundance (#/m2) | 1227 3 | 5545 1 | 5591 1 | 1432 3 | 2455 5 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|--|
| Biomass (g/m2) | 0.26 | 1 | 2.12 | 3 | 12.15 | 5 | 0.31 | 1 | 2.74 | 3 | |
| Pollution Indicative Spp Abund (%) | 88.89 | 1 | 42.21 | 1 | 30.08 | 1 | 53.97 | | 6.48 | 5 | |
| Pollution Indicative Spp Biom (%) | 3.54 | | 3.75 | | 1.42 | | 45.05 | 1 | 0.21 | | |
| Pollution Sensitive Spp Abund (%) | 0.00 | | 3.69 | 1 | 11.38 | 3 | 0.00 | | 29.63 | | |
| Pollution Sensitive Spp Biom (%) | 0.00 | 1 | 16.16 | | 86.89 | | 0.00 | 1 | 83.73 | 5 | |
| Carnivore-Omnivore Abundance (%) | 81.48 | | 2.05 | 1 | 10.98 | 1 | 4.76 | 1 | 21.30 | | |
| Deep Deposit Feeder Abundance (%) | 3.70 | | 18.03 | | 33.74 | | 14.29 | | 16.67 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|--|
| Site | 06311 | 06312 | 06313 | 06314 | 06315 | |
| <i>Streblospio benedicti</i> | 136 | 2250 | 1227 | 727 | 136 | |
| <i>Leptocheirus plumulosus</i> | 45 | 1909 | 45 | 409 | 841 | |
| <i>Heteromastus filiformis</i> | | 773 | 1341 | 45 | 159 | |
| <i>Macoma mitchelli</i> | | 68 | 1364 | 23 | 68 | |
| <i>Chironomus</i> spp. | 955 | | | | | |
| <i>Tubificoides</i> spp. | 45 | 205 | 295 | 159 | 250 | |
| <i>Macoma balthica</i> | | | 227 | | 364 | |
| <i>Cyathura polita</i> | | | 159 | | 273 | |
| <i>Littoridinops tenuipes</i> (Epi.) | | | 409 | | | |
| <i>Marenzelleria viridis</i> | | 159 | 136 | | 91 | |
| <i>Neanthes succinea</i> | | 23 | 136 | | 159 | |
| Imm. Tubificid w/o Cap. Chaete | | 23 | 250 | | | |
| <i>Hypereteone heteropoda</i> | | 23 | 159 | 45 | 23 | |
| <i>Carinoma tremaphoros</i> | | | 68 | 23 | 68 | |
| <i>Edotea triloba</i> (Epi.) | | | 136 | | | |
| <i>Glycinde solitaria</i> | | 45 | 68 | | | |
| <i>Chironomidae</i> pupae * | 45 | | | | | |
| <i>Mulinia lateralis</i> | | | 45 | | | |
| <i>Mytilopsis leucophaeata</i> (Epi.) | | | 45 | | | |
| <i>Paraprionospio pinnata</i> | | 45 | | | | |
| <i>Rangia cuneata</i> | | | 45 | | | |
| <i>Amerocolodes</i> species complex | | | | | 23 | |

| | | | | | | | | |
|-------|------------------------------|--|------|------|------|------|------|--|
| | Laeonereis culveri | | | | 23 | | | |
| | Micrura leidyi | | | 23 | | | | |
| ----- | | | | | | | | |
| | Total Abundance w/ Epifauna | | 1227 | 5545 | 6182 | 1432 | 2455 | |
| | Total Abundance w/o Epifauna | | 1227 | 5545 | 5591 | 1432 | 2455 | |
| | Number of Taxa w/ Epifauna | | 4 | 12 | 19 | 7 | 12 | |
| | Number of Taxa w/o Epifauna | | 4 | 12 | 16 | 7 | 12 | |
| ===== | | | | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
|---------------------------------------|--------|--------|--------|--------|--------|
| Site | 06311 | 06312 | 06313 | 06314 | 06315 |
| <i>Macoma balthica</i> | | | 9.8886 | | 1.9000 |
| <i>Heteromastus filiformis</i> | | 0.4364 | 0.9409 | 0.0205 | 0.0750 |
| <i>Macoma mitchelli</i> | | 0.6455 | 0.2023 | 0.0659 | 0.0818 |
| <i>Marenzelleria viridis</i> | | 0.3023 | 0.2068 | | 0.0886 |
| <i>Leptocheirus plumulosus</i> | 0.0045 | 0.3227 | 0.0045 | 0.0011 | 0.1136 |
| <i>Rangia cuneata</i> | | | 0.4136 | | |
| <i>Cyathura polita</i> | | | 0.0636 | | 0.3091 |
| <i>Neanthes succinea</i> | | 0.0023 | 0.1659 | | 0.1477 |
| <i>Micrura leidyi</i> | | 0.2909 | | | |
| Chironomidae larvae | 0.2091 | | | | |
| <i>Hypereteone heteropoda</i> | | 0.0045 | 0.0159 | 0.1386 | 0.0011 |
| <i>Carinoma tremaphoros</i> | | | 0.0432 | 0.0818 | 0.0205 |
| <i>Streblospio benedicti</i> | 0.0091 | 0.0705 | 0.0500 | 0.0011 | 0.0045 |
| <i>Mulinia lateralis</i> | | | 0.1068 | | |
| <i>Glycinde solitaria</i> | | 0.0409 | 0.0250 | | |
| <i>Littoridinops tenuipes</i> (Epi.) | | | 0.0341 | | |
| Chironomidae pupae * | 0.0273 | | | | |
| <i>Tubificoides</i> spp. | 0.0068 | 0.0023 | 0.0068 | 0.0011 | 0.0011 |
| <i>Laeonereis culveri</i> | | | 0.0114 | | |
| <i>Edotea triloba</i> (Epi.) | | | 0.0091 | | |
| <i>Mytilopsis leucophaeata</i> (Epi.) | | | 0.0068 | | |
| <i>Paraprionospio pinnata</i> | | 0.0045 | | | |

| | | | | | | |
|------------------------------|--|--------|--------|---------|--------|--------|
| Oligochaeta | | 0.0011 | 0.0011 | | | |
| Ameroculodes species complex | | | | | 0.0011 | |
| ----- | | | | | | |
| Total Biomass w/ Epifauna | | 0.2568 | 2.1239 | 12.1966 | 0.3102 | 2.7443 |
| Total Biomass w/o Epifauna | | 0.2568 | 2.1239 | 12.1466 | 0.3102 | 2.7443 |
| ===== | | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06316 | 06317 | 06318 | 06319 | 06320 |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Watershed | Western Tribs | Western Tribs | Western Tribs | Western Tribs | Western Tribs |
| Habitat | High Meso Mud | Low Mesohaline | Low Mesohaline | Low Mesohaline | High Meso Mud |
| Date | 09/08/99 | 09/08/99 | 09/08/99 | 09/09/99 | 09/08/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 16.0 | 2.5 | 2.0 | 3.5 | 12.0 |
| Salinity (ppt) | 16.51 | 11.63 | 11.70 | 9.36 | 15.75 |
| Temperature (C) | 24.19 | 24.95 | 25.33 | 25.05 | 24.25 |
| Dissolved Oxygen (mg/L) | 1.4 | 7.3 | 5.5 | 6.7 | 1.1 |
| Sediment Silt-Clay (%) | 95.55 | 85.83 | 88.03 | 94.18 | 94.88 |
| Total Carbon (%) | 1.39 | 2.91 | 4.99 | 3.61 | 3.38 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 1.67 | 3.40 | 2.60 | 3.40 | 1.00 |
| Condition | Severely Degr. | Meets Goal | Degraded | Meets Goal | Severely Degr. |
| # Attributes Scored | 6 | 5 | 5 | 5 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 0.00 1 | 1.59 1 | 1.49 1 | 2.01 3 | 0.72 1 |
| Abundance (#/m2) | 114 1 | 1841 5 | 3227 3 | 3773 3 | 114 1 |

| | | | | | | | | | | | | |
|------------------------------------|--|--------|---|-------|---|-------|---|-------|---|--------|---|--|
| Biomass (g/m2) | | 0.00 | 1 | 5.55 | 5 | 3.81 | 3 | 51.92 | 1 | 0.00 | 1 | |
| Pollution Indicative Spp Abund (%) | | 0.00 | | 72.84 | 1 | 76.06 | 1 | 9.64 | 5 | 100.00 | | |
| Pollution Indicative Spp Biom (%) | | 0.00 | 5 | 1.08 | | 3.16 | | 0.05 | | 100.00 | 1 | |
| Pollution Sensitive Spp Abund (%) | | 0.00 | | 7.41 | | 16.20 | | 4.22 | | 0.00 | | |
| Pollution Sensitive Spp Biom (%) | | 0.00 | 1 | 94.78 | 5 | 86.89 | 5 | 97.88 | 5 | 0.00 | 1 | |
| Carnivore-Omnivore Abundance (%) | | 0.00 | 1 | 8.64 | | 9.86 | | 12.05 | | 0.00 | 1 | |
| Deep Deposit Feeder Abundance (%) | | 100.00 | | 7.41 | | 4.23 | | 30.12 | | 0.00 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|
| Site | 06316 | 06317 | 06318 | 06319 | 06320 |
| <i>Streblospio benedicti</i> | | 1318 | 2227 | 205 | 91 |
| <i>Leptocheirus plumulosus</i> | | | | 1886 | |
| <i>Tubificoides</i> spp. | 114 | 114 | 68 | 1136 | |
| <i>Melita nitida</i> (Epi.) | | | | 1000 | |
| <i>Macoma balthica</i> | | 91 | 523 | 23 | |
| <i>Neanthes succinea</i> | | 136 | 91 | 136 | |
| <i>Hypereteone heteropoda</i> | | 23 | 227 | | |
| <i>Coelotanypus</i> spp. | | | | 159 | |
| <i>Macoma mitchelli</i> | | 91 | 23 | 23 | |
| <i>Cyathura polita</i> | | | | 91 | |
| <i>Heteromastus filiformis</i> | | 23 | 68 | | |
| <i>Rangia cuneata</i> | | 45 | | 45 | |
| <i>Carinoma tremaphoros</i> | | | | 68 | |
| <i>Littoridinops tenuipes</i> (Epi.) | | 23 | 23 | | |
| <i>Paraprionospio pinnata</i> | | | | | 23 |
| Total Abundance w/ Epifauna | 114 | 1864 | 3250 | 4773 | 114 |
| Total Abundance w/o Epifauna | 114 | 1841 | 3227 | 3773 | 114 |
| Number of Taxa w/ Epifauna | 1 | 9 | 8 | 11 | 2 |
| Number of Taxa w/o Epifauna | 1 | 8 | 7 | 10 | 2 |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |

| Site | 06316 | 06317 | 06318 | 06319 | 06320 |
|--------------------------------|-------|--------|--------|---------|-------|
| <i>Rangia cuneata</i> | | 4.9113 | | 50.3317 | |
| <i>Macoma balthica</i> | | 0.3500 | 3.3136 | 0.4773 | |
| <i>Neanthes succinea</i> | | 0.1386 | 0.0636 | 0.6023 | |
| <i>Leptocheirus plumulosus</i> | | | | 0.3886 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|---------|--------|--|
| Site | 06316 | 06317 | 06318 | 06319 | 06320 | |
| Macoma mitchelli | | 0.0818 | 0.1523 | 0.0091 | | |
| Heteromastus filiformis | | 0.0068 | 0.1614 | | | |
| Streblospio benedicti | | 0.0591 | 0.1000 | 0.0011 | 0.0011 | |
| Cyathura polita | | | | 0.0636 | | |
| Melita nitida (Epi.) | | | | 0.0523 | | |
| Coelotanypus spp. | | | | 0.0273 | | |
| Hypereteone heteropoda | | 0.0011 | 0.0205 | | | |
| Carinoma tremaphoros | | | | 0.0182 | | |
| Tubificoides spp. | 0.0023 | 0.0011 | 0.0011 | 0.0045 | | |
| Littoridinops tenuipes (Epi.) | | 0.0011 | 0.0011 | | | |
| Paraprionospio pinnata | | | | | 0.0011 | |
| Total Biomass w/ Epifauna | 0.0023 | 5.5511 | 3.8136 | 51.9760 | 0.0023 | |
| Total Biomass w/o Epifauna | 0.0023 | 5.5500 | 3.8125 | 51.9237 | 0.0023 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06321 | 06322 | 06324 | 06325 |
|-----------------------------------|----------------|----------------|----------------|----------------|
| Watershed | Western Tribs | Western Tribs | Western Tribs | Western Tribs |
| Habitat | Low Mesohaline | Low Mesohaline | Low Mesohaline | Low Mesohaline |
| Date | 09/08/99 | 09/09/99 | 09/09/99 | 09/09/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | |
| Depth (m) | 6.0 | 2.5 | 2.5 | 3.5 |
| Salinity (ppt) | 11.86 | 7.53 | 7.73 | 8.36 |
| Temperature (C) | 25.16 | 25.55 | 25.94 | 25.64 |
| Dissolved Oxygen (mg/L) | 3.6 | 5.9 | 7.8 | 6.4 |
| Sediment Silt-Clay (%) | 73.04 | 93.04 | 97.08 | 98.79 |
| Total Carbon (%) | 4.42 | 3.78 | 3.75 | 2.94 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | |
| B-IBI Score | 1.40 | 2.20 | 1.80 | 3.00 |
| Condition | Severely Degr. | Degraded | Severely Degr. | Meets Goal |
| # Attributes Scored | 5 | 5 | 5 | 5 |
| | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 0.55 1 | 1.86 3 | 1.75 3 | 0.97 1 |
| Abundance (#/m2) | 705 3 | 3091 3 | 182 1 | 591 3 |

| | | | | | | | | | |
|------------------------------------|--------|---|-------|---|-------|---|-------|---|--|
| Biomass (g/m2) | 0.06 | 1 | 0.85 | 1 | 0.08 | 1 | 70.94 | 1 | |
| Pollution Indicative Spp Abund (%) | 100.00 | 1 | 34.56 | 1 | 87.50 | 1 | 0.00 | 5 | |
| Pollution Indicative Spp Biom (%) | 98.25 | | 3.20 | | 16.90 | | 0.00 | | |
| Pollution Sensitive Spp Abund (%) | 0.00 | | 2.21 | | 12.50 | | 15.38 | | |
| Pollution Sensitive Spp Biom (%) | 0.00 | 1 | 48.53 | 3 | 81.69 | 3 | 99.98 | 5 | |
| Carnivore-Omnivore Abundance (%) | 6.45 | | 5.15 | | 25.00 | | 7.69 | | |
| Deep Deposit Feeder Abundance (%) | 3.23 | | 61.76 | | 12.50 | | 80.77 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | |
|---------------------------------------|-------|-------|-------|-------|
| Site | 06321 | 06322 | 06324 | 06325 |
| Tubificoides spp. | | 1636 | | 477 |
| Streblospio benedicti | 636 | 795 | 91 | |
| Imm. Tubificid w/o Cap. Chaete | 23 | 273 | 23 | |
| Leptocheirus plumulosus | | 159 | | |
| Neanthes succinea | | 159 | | |
| Marenzelleria viridis | | 68 | 23 | |
| Rangia cuneata | | | | 68 |
| Coelotanypus spp. | | | 45 | |
| Hypereteone heteropoda | 45 | | | |
| Cyathura polita | | | | 23 |
| Dicrotendipes spp. | | | | 23 |
| Melita nitida (Epi.) | | 23 | | |
| Total Abundance w/ Epifauna | 705 | 3114 | 182 | 591 |
| Total Abundance w/o Epifauna | 705 | 3091 | 182 | 591 |
| Number of Taxa w/ Epifauna | 3 | 7 | 4 | 4 |
| Number of Taxa w/o Epifauna | 3 | 6 | 4 | 4 |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | |
| Site | 06321 | 06322 | 06324 | 06325 |

| | | | | | |
|------------------------|--|--------|--------|---------|--|
| Rangia cuneata | | | | 70.9043 | |
| Marenzelleria viridis | | 0.4136 | 0.0659 | | |
| Neanthes succinea | | 0.3773 | | | |
| Streblospio benedicti | | 0.0364 | 0.0273 | 0.0068 | |
| Tubificoides spp. | | | 0.0159 | 0.0159 | |
| Hypereteone heteropoda | | 0.0273 | | | |
| Cyathura polita | | | | 0.0227 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | |
|--|--------|--------|--------|---------|--|
| Site | 06321 | 06322 | 06324 | 06325 | |
| Leptocheirus plumulosus | | 0.0159 | | | |
| Coelotanypus spp. | | | 0.0068 | | |
| Oligochaeta | 0.0011 | 0.0011 | 0.0011 | | |
| Chironomidae larvae | | | | 0.0011 | |
| Melita nitida (Epi.) | | 0.0011 | | | |
| Total Biomass w/ Epifauna | 0.0648 | 0.8523 | 0.0807 | 70.9441 | |
| Total Biomass w/o Epifauna | 0.0648 | 0.8511 | 0.0807 | 70.9441 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06101 | 06102 | 06103 | 06104 | 06105 |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Watershed | Potomac R | Potomac R | Potomac R | Potomac R | Potomac R |
| Habitat | Polyhaline Mud | Polyhaline Mud | Polyhaline Mud | High Meso Sand | High Meso Sand |
| Date | 09/20/99 | 09/20/99 | 09/20/99 | 09/20/99 | 09/20/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 12.0 | 16.5 | 12.0 | 6.5 | 3.5 |
| Salinity (ppt) | 18.86 | 19.43 | 18.61 | 17.93 | 17.62 |
| Temperature (C) | 22.65 | 22.84 | 22.65 | 22.56 | 22.73 |
| Dissolved Oxygen (mg/L) | 5.6 | 5.6 | 5.6 | 5.5 | 5.2 |
| Sediment Silt-Clay (%) | 96.16 | 85.19 | 96.91 | 5.15 | 2.89 |
| Total Carbon (%) | 3.70 | 3.08 | 3.76 | 0.22 | 0.11 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 1.33 | 1.33 | 2.00 | 3.00 | 3.33 |
| Condition | Severely Degr. | Severely Degr. | Severely Degr. | Meets Goal | Meets Goal |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.01 1 | 2.23 1 | 2.35 1 | 2.89 3 | 2.25 1 |
| Abundance (#/m2) | 545 1 | 523 1 | 364 1 | 3841 3 | 3682 3 |

| | | | | | | | | | | | | |
|------------------------------------|--|-------|---|-------|---|-------|---|-------|---|-------|---|--|
| Biomass (g/m2) | | 0.53 | 3 | 0.17 | 1 | 0.18 | 1 | 1.04 | 3 | 0.43 | 1 | |
| Pollution Indicative Spp Abund (%) | | 79.17 | | 69.57 | | 25.00 | | 28.40 | 1 | 0.00 | 5 | |
| Pollution Indicative Spp Biom (%) | | 20.30 | 1 | 36.84 | 1 | 1.27 | 5 | 58.08 | | 0.00 | | |
| Pollution Sensitive Spp Abund (%) | | 8.33 | | 8.70 | | 12.50 | | 56.80 | 5 | 43.21 | 5 | |
| Pollution Sensitive Spp Biom (%) | | 0.43 | 1 | 2.63 | 1 | 22.78 | 1 | 12.23 | | 24.27 | | |
| Carnivore-Omnivore Abundance (%) | | 16.67 | 1 | 26.09 | 3 | 31.25 | 3 | 31.36 | 3 | 93.83 | 5 | |
| Deep Deposit Feeder Abundance (%) | | 4.17 | | 0.00 | | 0.00 | | 34.91 | | 2.47 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|------------------------------------|-------|-------|-------|-------|-------|
| Site | 06101 | 06102 | 06103 | 06104 | 06105 |
| <i>Acteocina canaliculata</i> | 23 | | | 932 | 1273 |
| <i>Edwardsia elegans</i> | | | | | 1364 |
| <i>Paraprionospio pinnata</i> | 205 | 205 | | 795 | |
| <i>Mediomastus ambiseta</i> | 23 | | | 955 | |
| <i>Streblospio benedicti</i> | 227 | 136 | 91 | 273 | |
| Nemertea | | | | | 455 |
| <i>Pectinaria gouldii</i> | | | | 341 | 23 |
| <i>Glycinde solitaria</i> | | | | 136 | 205 |
| <i>Neanthes succinea</i> | 23 | 68 | 68 | 68 | 45 |
| <i>Phoronis architecta</i> | | | | 91 | 114 |
| <i>Stylochus ellipticus</i> (Epi.) | | | | 45 | 114 |
| <i>Loimia medusa</i> | | 45 | 45 | 23 | |
| <i>Paraonis fulgens</i> | | | 114 | | |
| <i>Acteon punctostriatus</i> | | | | 45 | 23 |
| <i>Parahesion luteola</i> | 23 | 45 | | | |
| <i>Podarkeopsis levifusca</i> | | | 23 | | 45 |
| <i>Heteromastus filiformis</i> | | | | 23 | 23 |
| <i>Macoma mitchelli</i> | | | | 45 | |
| <i>Sayella chesapeakea</i> (Epi.) | | | | | 45 |
| <i>Sigambra tentaculata</i> | 23 | | 23 | | |
| <i>Spiochaetopterus costarum</i> | | | | 45 | |
| <i>Tubificoides</i> spp. | | | | | 45 |

| | | | | | |
|-------------------------|--|----|----|----|--|
| Amphiporus bioculatus | | | | 23 | |
| Branchiostoma virginiae | | | | 23 | |
| Hypereteone heteropoda | | 23 | | | |
| Leitoscoloplos robustus | | | 23 | | |
| Micrura leidy | | | | 23 | |
| Mulinia lateralis | | | 23 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06101 | 06102 | 06103 | 06104 | 06105 | |
| Phyllodoce arenae | | | | 23 | | |
| Total Abundance w/ Epifauna | 545 | 523 | 364 | 3886 | 3841 | |
| Total Abundance w/o Epifauna | 545 | 523 | 364 | 3841 | 3682 | |
| Number of Taxa w/ Epifauna | 7 | 6 | 6 | 17 | 16 | |
| Number of Taxa w/o Epifauna | 7 | 6 | 6 | 16 | 14 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | |
| Site | 06101 | 06102 | 06103 | 06104 | 06105 | |
| Paraprionospio pinnata | 0.0636 | 0.0409 | | 0.4432 | | |
| Neanthes succinea | 0.1864 | 0.1000 | 0.1182 | 0.0250 | 0.0068 | |
| Leitoscoloplos spp. | | | | 0.2523 | | |
| Sigambra tentaculata | 0.2295 | | 0.0011 | | | |
| Branchiostoma virginiae | | | | | 0.1818 | |
| Mulinia lateralis | | | | 0.1591 | | |
| Acteocina canaliculata | 0.0011 | | | 0.0432 | 0.0864 | |
| Loimia medusa | | 0.0045 | 0.0409 | 0.0205 | | |
| Streblospio benedicti | 0.0432 | 0.0136 | 0.0023 | 0.0023 | | |
| Edwardsia elegans | | | | | 0.0455 | |
| Stylochus ellipticus (Epi.) | | | 0.0011 | 0.0409 | | |

| | | | | | |
|-------------------------|--|--------|--------|--------|--|
| Heteromastus filiformis | | | 0.0023 | 0.0386 | |
| Mediomastus ambiseta | | 0.0011 | 0.0364 | | |
| Pectinaria gouldii | | | 0.0250 | 0.0045 | |
| Phoronis architecta | | | 0.0159 | 0.0114 | |
| Glycinde solitaria | | | 0.0091 | 0.0159 | |
| Micrura leidyi | | | | 0.0227 | |
| Paraonis fulgens | | | 0.0159 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06101 | 06102 | 06103 | 06104 | 06105 | |
| Hypereteone heteropoda | | 0.0091 | | | | |
| Parahesionia luteola | 0.0011 | 0.0045 | | | | |
| Nemertea | | | | | 0.0045 | |
| Podarkeopsis levifuscina | | | 0.0011 | | 0.0023 | |
| Acteon punctostriatus | | | | 0.0011 | 0.0023 | |
| Amphiporus bioculatus | | | | | 0.0023 | |
| Spiochaetopterus costarum | | | | 0.0023 | | |
| Macoma mitchelli | | | | 0.0011 | | |
| Phyllodoce arenae | | | | 0.0011 | | |
| Sayella chesapeakea (Epi.) | | | | | 0.0011 | |
| Tubificoides spp. | | | | | 0.0011 | |
| Total Biomass w/ Epifauna | 0.5261 | 0.1727 | 0.1795 | 1.0409 | 0.4682 | |
| Total Biomass w/o Epifauna | 0.5261 | 0.1727 | 0.1795 | 1.0398 | 0.4261 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06106 | 06107 | 06108 | 06109 | 06110 |
|-----------------------------------|----------------|----------------|---------------|---------------|----------------|
| Watershed | Potomac R | Potomac R | Potomac R | Potomac R | Potomac R |
| Habitat | High Meso Mud | High Meso Sand | High Meso Mud | High Meso Mud | High Meso Mud |
| Date | 09/20/99 | 09/21/99 | 09/21/99 | 09/21/99 | 09/21/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 7.5 | 5.5 | 6.5 | 8.0 | 7.0 |
| Salinity (ppt) | 17.63 | 14.56 | 17.10 | 17.36 | 16.17 |
| Temperature (C) | 22.53 | 22.20 | 22.80 | 22.77 | 22.38 |
| Dissolved Oxygen (mg/L) | 5.3 | 7.9 | 4.2 | 4.2 | 4.2 |
| Sediment Silt-Clay (%) | 92.23 | 4.30 | 47.79 | 98.11 | 97.49 |
| Total Carbon (%) | 3.20 | 0.23 | 1.76 | 3.35 | 2.88 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 2.00 | 3.00 | 2.33 | 2.33 | 1.33 |
| Condition | Severely Degr. | Meets Goal | Degraded | Degraded | Severely Degr. |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.51 3 | 2.91 3 | 1.52 1 | 2.15 3 | 1.16 1 |
| Abundance (#/m2) | 705 1 | 2864 5 | 2023 5 | 795 1 | 227 1 |
| Biomass (g/m2) | 0.24 1 | 1.71 3 | 0.63 3 | 0.44 1 | 0.10 1 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|--------|---|--|
| Pollution Indicative Spp Abund (%) | 51.61 | | 54.76 | 1 | 84.27 | | 62.86 | | 100.00 | | |
| Pollution Indicative Spp Biom (%) | 35.41 | 1 | 60.94 | | 79.50 | 1 | 29.38 | 3 | 100.00 | 1 | |
| Pollution Sensitive Spp Abund (%) | 22.58 | | 19.84 | 3 | 8.99 | | 8.57 | | 0.00 | | |
| Pollution Sensitive Spp Biom (%) | 1.91 | 1 | 4.52 | | 10.07 | 1 | 15.46 | 1 | 0.00 | 1 | |
| Carnivore-Omnivore Abundance (%) | 32.26 | 5 | 23.81 | 3 | 11.24 | 3 | 34.29 | 5 | 10.00 | 3 | |
| Deep Deposit Feeder Abundance (%) | 9.68 | | 9.52 | | 1.12 | | 0.00 | | 0.00 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|--|
| Site | 06106 | 06107 | 06108 | 06109 | 06110 | |
| <i>Streblospio benedicti</i> | 227 | 1205 | 1409 | 341 | 45 | |
| <i>Paraprionospio pinnata</i> | 136 | 227 | 273 | 159 | 159 | |
| <i>Glycinde solitaria</i> | 23 | 386 | 182 | 45 | | |
| <i>Neanthes succinea</i> | 68 | 182 | 23 | 182 | | |
| <i>Macoma mitchelli</i> | 45 | 250 | 68 | | | |
| <i>Acteocina canaliculata</i> | 136 | 45 | | | | |
| <i>Heteromastus filiformis</i> | | 114 | | | | |
| <i>Mulinia lateralis</i> | | 91 | 23 | | | |
| <i>Tubificoides</i> spp. | | 91 | 23 | | | |
| <i>Pectinaria gouldii</i> | 68 | 23 | | | | |
| <i>Spiochaetopterus costarum</i> | | 91 | | | | |
| Imm. Tubificid w/o Cap. Chaete | | 45 | | | | |
| <i>Micrura leidyi</i> | | 45 | | | | |
| <i>Phoronis architecta</i> | | 45 | | | | |
| <i>Podarkeopsis levifusca</i> | | | 23 | 23 | | |
| <i>Apocorophium lacustre</i> | | 23 | | | | |
| <i>Edwardsia elegans</i> | | 23 | | | | |
| <i>Hypereteone heteropoda</i> | | | | | 23 | |
| <i>Loimia medusa</i> | | | | 23 | | |
| <i>Sayella chesapeakea</i> (Epi.) | | 23 | | | | |
| <i>Sigambra tentaculata</i> | | | | 23 | | |

| | | | | | | |
|------------------------------|-----|------|------|-----|-----|--|
| Stylochus ellipticus (Epi.) | | | | 23 | | |
| ----- | | | | | | |
| Total Abundance w/ Epifauna | 705 | 2909 | 2023 | 818 | 227 | |
| Total Abundance w/o Epifauna | 705 | 2886 | 2023 | 795 | 227 | |
| Number of Taxa w/ Epifauna | 7 | 17 | 8 | 8 | 3 | |
| Number of Taxa w/o Epifauna | 7 | 16 | 8 | 7 | 3 | |
| ===== | | | | | | |
| ----- | | | | | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
|---------------------------------------|--------|--------|--------|--------|--------|
| Site | 06106 | 06107 | 06108 | 06109 | 06110 |
| <i>Mulinia lateralis</i> | | 0.7455 | 0.2295 | | |
| <i>Paraprionospio pinnata</i> | 0.0659 | 0.2205 | 0.2091 | 0.1000 | 0.0864 |
| <i>Neanthes succinea</i> | 0.1432 | 0.1886 | 0.0614 | 0.2386 | |
| <i>Micrura leidyi</i> | | 0.2682 | | | |
| <i>Streblospio benedicti</i> | 0.0182 | 0.0750 | 0.0636 | 0.0295 | 0.0068 |
| <i>Glycinde solitaria</i> | 0.0023 | 0.0409 | 0.0636 | 0.0159 | |
| <i>Heteromastus filiformis</i> | | 0.0909 | | | |
| <i>Loimia medusa</i> | | | | 0.0523 | |
| <i>Phoronis architecta</i> | | 0.0227 | | | |
| <i>Pectinaria gouldii</i> | 0.0045 | 0.0068 | | | |
| <i>Tubificoides</i> spp. | | 0.0091 | 0.0011 | | |
| <i>Macoma mitchelli</i> | 0.0011 | 0.0068 | 0.0023 | | |
| <i>Spiochaetopterus costarum</i> | | 0.0091 | | | |
| <i>Sayella chesapeakea</i> (Epi.) | | 0.0068 | | | |
| <i>Acteocina canaliculata</i> | 0.0023 | 0.0045 | | | |
| <i>Edwardsia elegans</i> | | 0.0068 | | | |
| <i>Hypereteone heteropoda</i> | | | | | 0.0068 |
| <i>Apocorophium lacustre</i> | | 0.0045 | | | |
| <i>Podarkeopsis levifuscina</i> | | | 0.0011 | 0.0023 | |
| <i>Oligochaeta</i> | | 0.0011 | | | |
| <i>Sigambra tentaculata</i> | | | | 0.0011 | |
| <i>Stylochus ellipticus</i> (Epi.) | | | 0.0011 | | |

| | | | | | | | | |
|--|----------------------------|--|--------|--------|--------|--------|--------|--|
| | Total Biomass w/ Epifauna | | 0.2375 | 1.7079 | 0.6318 | 0.4409 | 0.1000 | |
| | Total Biomass w/o Epifauna | | 0.2375 | 1.7011 | 0.6318 | 0.4398 | 0.1000 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06111 | 06112 | 06113 | 06114 | 06115 |
|-----------------------------------|----------------|----------------|---------------|----------------|----------------|
| Watershed | Potomac R | Potomac R | Potomac R | Potomac R | Potomac R |
| Habitat | High Meso Mud | High Meso Sand | High Meso Mud | High Meso Mud | Low Mesohaline |
| Date | 09/21/99 | 09/21/99 | 09/21/99 | 09/21/99 | 09/21/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 11.0 | 2.0 | 6.0 | 8.0 | 4.5 |
| Salinity (ppt) | 17.18 | 14.62 | 14.56 | 16.43 | 10.43 |
| Temperature (C) | 22.74 | 22.30 | 21.98 | 22.50 | 22.14 |
| Dissolved Oxygen (mg/L) | 4.0 | 8.9 | 5.2 | 4.2 | 7.9 |
| Sediment Silt-Clay (%) | 84.90 | 1.91 | 98.73 | 96.56 | 83.40 |
| Total Carbon (%) | 2.98 | 0.16 | 1.76 | 3.13 | 1.84 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 1.33 | 3.33 | 2.67 | 1.67 | 4.20 |
| Condition | Severely Degr. | Meets Goal | Degraded | Severely Degr. | Meets Goal |
| # Attributes Scored | 6 | 6 | 6 | 6 | 5 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 0.88 1 | 2.63 3 | 2.37 3 | 1.58 1 | 2.57 5 |
| Abundance (#/m2) | 1273 3 | 1409 3 | 409 1 | 545 1 | 1682 5 |
| Biomass (g/m2) | 0.15 1 | 0.26 1 | 0.12 1 | 0.46 1 | 17.82 3 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|--|
| Pollution Indicative Spp Abund (%) | 96.43 | | 17.74 | 3 | 27.78 | | 70.83 | | 14.86 | 3 | |
| Pollution Indicative Spp Biom (%) | 76.69 | 1 | 2.63 | | 17.48 | 3 | 47.52 | 1 | 0.09 | | |
| Pollution Sensitive Spp Abund (%) | 0.00 | | 50.00 | 5 | 16.67 | | 0.00 | | 21.62 | | |
| Pollution Sensitive Spp Biom (%) | 0.00 | 1 | 32.46 | | 40.78 | 3 | 0.00 | 1 | 96.09 | 5 | |
| Carnivore-Omnivore Abundance (%) | 3.57 | 1 | 64.52 | 5 | 33.33 | 5 | 29.17 | 5 | 37.84 | | |
| Deep Deposit Feeder Abundance (%) | 0.00 | | 6.45 | | 44.44 | | 0.00 | | 47.30 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|------------------------------------|-------|-------|-------|-------|-------|
| Site | 06111 | 06112 | 06113 | 06114 | 06115 |
| <i>Streblospio benedicti</i> | 1023 | 250 | 91 | 341 | 136 |
| <i>Tubificoides</i> spp. | | 45 | 159 | | 682 |
| <i>Acteocina canaliculata</i> | | 545 | | | |
| <i>Neanthes succinea</i> | 23 | | 23 | 114 | 318 |
| <i>Glycinde solitaria</i> | | 114 | 68 | | 273 |
| <i>Paraprionospio pinnata</i> | 205 | | | 23 | |
| <i>Haminoea solitaria</i> | | 205 | | | |
| <i>Macoma mitchelli</i> | | 114 | | | 23 |
| Imm. Tubificid w/o Cap. Chaete | | | | | 91 |
| <i>Podarkeopsis levifuscina</i> | 23 | | | 45 | |
| <i>Heteromastus filiformis</i> | | 23 | 23 | | |
| <i>Macoma balthica</i> | | | | | 45 |
| <i>Micrura leidyi</i> | | 23 | 23 | | |
| <i>Mulinia lateralis</i> | | | | 23 | 23 |
| <i>Pectinaria gouldii</i> | | 23 | | | 23 |
| <i>Phoronis architecta</i> | | 45 | | | |
| <i>Amphiporus bioculatus</i> | | 23 | | | |
| <i>Carinoma tremaphoros</i> | | | | | 23 |
| <i>Cyathura polita</i> | | | | | 23 |
| <i>Hypereteone heteropoda</i> | | | 23 | | |
| <i>Rangia cuneata</i> | | | | | 23 |
| <i>Stylochus ellipticus</i> (Epi.) | | 23 | | | |

| | | | | | | | |
|--|------------------------------|------|------|-----|-----|------|--|
| | Total Abundance w/ Epifauna | 1273 | 1432 | 409 | 545 | 1682 | |
| | Total Abundance w/o Epifauna | 1273 | 1409 | 409 | 545 | 1682 | |
| | Number of Taxa w/ Epifauna | 4 | 12 | 7 | 5 | 12 | |
| | Number of Taxa w/o Epifauna | 4 | 11 | 7 | 5 | 12 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
|---------------------------------------|--------|--------|--------|--------|---------|
| Site | 06111 | 06112 | 06113 | 06114 | 06115 |
| <i>Rangia cuneata</i> | | | | | 16.8749 |
| <i>Neanthes succinea</i> | 0.0341 | | 0.0011 | 0.2364 | 0.6500 |
| <i>Mulinia lateralis</i> | | | | 0.1705 | 0.0114 |
| <i>Macoma balthica</i> | | | | | 0.1773 |
| <i>Streblospio benedicti</i> | 0.0455 | 0.0068 | 0.0136 | 0.0273 | 0.0045 |
| <i>Glycinde solitaria</i> | | 0.0205 | 0.0477 | | 0.0250 |
| <i>Paraprionospio pinnata</i> | 0.0705 | | | 0.0205 | |
| <i>Haminoea solitaria</i> | | 0.0818 | | | |
| <i>Pectinaria gouldii</i> | | 0.0523 | | | 0.0045 |
| <i>Acteocina canaliculata</i> | | 0.0545 | | | |
| <i>Cyathura polita</i> | | | | | 0.0432 |
| <i>Micrura leidyi</i> | | 0.0159 | 0.0182 | | |
| <i>Tubificoides</i> spp. | | 0.0011 | 0.0159 | | 0.0136 |
| <i>Heteromastus filiformis</i> | | 0.0091 | 0.0136 | | |
| <i>Phoronis architecta</i> | | 0.0091 | | | |
| <i>Macoma mitchelli</i> | | 0.0045 | | | 0.0045 |
| <i>Hypereteone heteropoda</i> | | | 0.0068 | | |
| <i>Carinoma tremaphoros</i> | | | | | 0.0068 |
| <i>Podarkeopsis levifusca</i> | 0.0011 | | | 0.0045 | |
| <i>Amphiporus bioculatus</i> | | 0.0023 | | | |
| <i>Oligochaeta</i> | | | | | 0.0011 |
| <i>Stylochus ellipticus</i> (Epi.) | | 0.0011 | | | |

| | | | | | | | | |
|--|----------------------------|--|--------|--------|--------|--------|---------|--|
| | Total Biomass w/ Epifauna | | 0.1511 | 0.2591 | 0.1170 | 0.4591 | 17.8170 | |
| | Total Biomass w/o Epifauna | | 0.1511 | 0.2580 | 0.1170 | 0.4591 | 17.8170 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06116 | 06117 | 06118 | 06120 | 06126 |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Watershed | Potomac R | Potomac R | Potomac R | Potomac R | Potomac R |
| Habitat | High Meso Mud | High Meso Mud | Low Mesohaline | Low Mesohaline | Low Mesohaline |
| Date | 09/21/99 | 09/21/99 | 09/21/99 | 09/13/99 | 09/21/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 3.5 | 12.0 | 3.5 | 10.6 | 3.5 |
| Salinity (ppt) | 14.64 | 14.87 | 9.78 | 10.85 | 10.26 |
| Temperature (C) | 21.96 | 22.01 | 22.41 | 25.01 | 22.39 |
| Dissolved Oxygen (mg/L) | 4.1 | 5.5 | 8.1 | 5.9 | 7.9 |
| Sediment Silt-Clay (%) | 92.78 | 99.92 | 86.63 | 94.31 | 87.96 |
| Total Carbon (%) | 3.27 | 2.74 | 1.20 | 2.15 | 2.14 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 1.33 | 1.33 | 3.00 | 2.20 | 3.80 |
| Condition | Severely Degr. | Severely Degr. | Meets Goal | Degraded | Meets Goal |
| # Attributes Scored | 6 | 6 | 5 | 5 | 5 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 0.15 1 | 1.12 1 | 2.33 3 | 1.50 1 | 2.81 5 |
| Abundance (#/m2) | 1091 3 | 886 1 | 1182 3 | 91 1 | 659 3 |

| | | | | | | | | | | | | |
|------------------------------------|--|--------|---|-------|---|-------|---|-------|---|-------|---|--|
| Biomass (g/m2) | | 0.07 | 1 | 0.07 | 1 | 0.83 | 1 | 0.01 | 1 | 1.28 | 3 | |
| Pollution Indicative Spp Abund (%) | | 100.00 | | 17.95 | | 5.77 | 5 | 0.00 | 5 | 3.45 | 5 | |
| Pollution Indicative Spp Biom (%) | | 98.36 | 1 | 12.90 | 3 | 2.46 | | 0.00 | | 4.97 | | |
| Pollution Sensitive Spp Abund (%) | | 0.00 | | 2.56 | | 48.08 | | 25.00 | | 27.59 | | |
| Pollution Sensitive Spp Biom (%) | | 0.00 | 1 | 16.13 | 1 | 77.60 | 3 | 40.00 | 3 | 79.04 | 3 | |
| Carnivore-Omnivore Abundance (%) | | 2.08 | 1 | 7.69 | 1 | 51.92 | | 50.00 | | 31.03 | | |
| Deep Deposit Feeder Abundance (%) | | 0.00 | | 74.36 | | 36.54 | | 50.00 | | 48.28 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|--|
| Site | 06116 | 06117 | 06118 | 06120 | 06126 | |
| Tubificoides spp. | | 659 | 409 | 45 | 182 | |
| Streblospio benedicti | 1068 | 159 | 45 | | | |
| Glycinde solitaria | | 23 | 455 | 23 | 23 | |
| Neanthes succinea | | 45 | 45 | | 91 | |
| Heteromastus filiformis | | | 23 | | 136 | |
| Cyathura polita | | | 91 | | 45 | |
| Macoma balthica | | | 23 | | 91 | |
| Carinoma tremaphoros | | | | | 45 | |
| Macoma mitchelli | | | 45 | | | |
| Mulinia lateralis | | | 23 | | 23 | |
| Amphiporus bioculatus | | | | 23 | | |
| Chironomus spp. | 23 | | | | | |
| Edwardsia elegans | | | 23 | | | |
| Rangia cuneata | | | | | 23 | |
| Total Abundance w/ Epifauna | 1091 | 886 | 1182 | 91 | 659 | |
| Total Abundance w/o Epifauna | 1091 | 886 | 1182 | 91 | 659 | |
| Number of Taxa w/ Epifauna | 2 | 4 | 10 | 3 | 9 | |
| Number of Taxa w/o Epifauna | 2 | 4 | 10 | 3 | 9 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | |

| Site | 06116 | 06117 | 06118 | 06120 | 06126 |
|-------------------------|--------|--------|--------|-------|--------|
| Macoma balthica | | | 0.2409 | | 0.8114 |
| Cyathura polita | | | 0.3455 | | 0.1864 |
| Heteromastus filiformis | | | 0.0295 | | 0.1295 |
| Neanthes succinea | | 0.0318 | 0.0500 | | 0.0250 |
| Streblospio benedicti | 0.0682 | 0.0091 | 0.0045 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06116 | 06117 | 06118 | 06120 | 06126 | |
| Glycinde solitaria | | 0.0114 | 0.0591 | 0.0023 | 0.0091 | |
| Mulinia lateralis | | | 0.0159 | | 0.0636 | |
| Macoma mitchelli | | | 0.0750 | | | |
| Carinoma tremaphoros | | | | | 0.0432 | |
| Tubificoides spp. | | 0.0182 | 0.0068 | 0.0011 | 0.0068 | |
| Edwardsia elegans | | | 0.0045 | | | |
| Rangia cuneata | | | | | 0.0045 | |
| Amphiporus bioculatus | | | | 0.0023 | | |
| Chironomidae larvae | 0.0011 | | | | | |
| Total Biomass w/ Epifauna | 0.0693 | 0.0705 | 0.8318 | 0.0057 | 1.2795 | |
| Total Biomass w/o Epifauna | 0.0693 | 0.0705 | 0.8318 | 0.0057 | 1.2795 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06201 | 06202 | 06203 | 06204 | 06205 |
|-----------------------------------|---------------|---------------|---------------|----------------|---------------|
| Watershed | Patuxent R | Patuxent R | Patuxent R | Patuxent R | Patuxent R |
| Habitat | High Meso Mud | High Meso Mud | High Meso Mud | High Meso Sand | High Meso Mud |
| Date | 09/10/99 | 08/31/99 | 08/31/99 | 08/31/99 | 08/31/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 10.0 | 2.5 | 3.4 | 1.6 | 5.1 |
| Salinity (ppt) | 17.74 | 16.90 | 16.80 | 14.90 | 16.40 |
| Temperature (C) | 24.60 | 23.38 | 23.88 | 22.13 | 24.25 |
| Dissolved Oxygen (mg/L) | 6.2 | 8.5 | 8.2 | 9.2 | 8.0 |
| Sediment Silt-Clay (%) | 75.76 | 60.17 | 72.69 | 4.80 | 97.36 |
| Total Carbon (%) | 2.30 | 2.02 | 1.99 | 0.37 | 3.64 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 3.00 | 3.00 | 3.33 | 2.67 | 3.00 |
| Condition | Meets Goal | Meets Goal | Meets Goal | Degraded | Meets Goal |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.57 3 | 3.19 5 | 2.80 3 | 3.27 5 | 2.90 3 |
| Abundance (#/m2) | 1773 5 | 818 1 | 750 1 | 1000 1 | 364 1 |
| Biomass (g/m2) | 0.74 3 | 1.36 3 | 0.86 3 | 0.19 1 | 0.16 1 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|--|
| Pollution Indicative Spp Abund (%) | 29.49 | | 36.11 | | 18.18 | | 18.18 | 3 | 25.00 | | |
| Pollution Indicative Spp Biom (%) | 43.76 | 1 | 6.52 | 3 | 0.53 | 5 | 47.24 | | 3.47 | 5 | |
| Pollution Sensitive Spp Abund (%) | 56.41 | | 16.67 | | 12.12 | | 15.91 | 3 | 18.75 | | |
| Pollution Sensitive Spp Biom (%) | 6.16 | 1 | 1.59 | 1 | 49.15 | 3 | 13.50 | | 44.44 | 3 | |
| Carnivore-Omnivore Abundance (%) | 34.62 | 5 | 44.44 | 5 | 39.39 | 5 | 29.55 | 3 | 56.25 | 5 | |
| Deep Deposit Feeder Abundance (%) | 35.90 | | 11.11 | | 42.42 | | 9.09 | | 6.25 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|
| Site | 06201 | 06202 | 06203 | 06204 | 06205 |
| <i>Paraprionospio pinnata</i> | 523 | 205 | | 68 | 45 |
| <i>Mediomastus ambiseta</i> | 545 | 68 | | | |
| <i>Glycinde solitaria</i> | 159 | 45 | 23 | 159 | 45 |
| <i>Parahesionia luteola</i> | 45 | 114 | 114 | | 114 |
| <i>Neanthes succinea</i> | 45 | 159 | 136 | | |
| <i>Acteocina canaliculata</i> | 295 | | | | |
| <i>Macoma mitchelli</i> | | 23 | | 250 | 23 |
| <i>Tubificoides</i> spp. | 23 | | 205 | | 23 |
| <i>Leucon americanus</i> | | 23 | | 114 | |
| <i>Streblospio benedicti</i> | | 68 | 23 | | 45 |
| <i>Heteromastus filiformis</i> | 23 | 23 | | 68 | |
| Imm. Tubificid w/o Cap. Chaete | | | 114 | | |
| <i>Mulinia lateralis</i> | | 23 | | 91 | |
| <i>Macoma balthica</i> | | | 68 | | 23 |
| <i>Amphiporus bioculatus</i> | | 23 | | 45 | |
| <i>Gemma gemma</i> | | | | 68 | |
| <i>Leptocheirus plumulosus</i> | | | 45 | 23 | |
| <i>Micrura leidyi</i> | 23 | | 23 | 23 | |
| <i>Pectinaria gouldii</i> | 45 | | | 23 | |
| <i>Podarkeopsis levifuscina</i> | 45 | | | | 23 |
| <i>Acteon punctostriatus</i> | | | | 23 | |
| <i>Carinoma tremaphoros</i> | | | | | 23 |

| | | | | |
|--|------------------------|--|----|--|
| | Cyathura polita | | 23 | |
| | Cyclaspis varians | | 23 | |
| | Haminoea solitaria | | 23 | |
| | Hypereteone heteropoda | | 23 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06201 | 06202 | 06203 | 06204 | 06205 | |
| <i>Odostomia engonia</i> (Epi.) | | | | 23 | | |
| Total Abundance w/ Epifauna | 1773 | 818 | 750 | 1023 | 364 | |
| Total Abundance w/o Epifauna | 1773 | 818 | 750 | 1000 | 364 | |
| Number of Taxa w/ Epifauna | 11 | 13 | 9 | 15 | 9 | |
| Number of Taxa w/o Epifauna | 11 | 13 | 9 | 14 | 9 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | |
| Site | 06201 | 06202 | 06203 | 06204 | 06205 | |
| <i>Neanthes succinea</i> | 0.2886 | 1.1432 | 0.3273 | | | |
| <i>Macoma balthica</i> | | | 0.3750 | | 0.0636 | |
| <i>Paraprionospio pinnata</i> | 0.3227 | 0.0591 | | 0.0182 | 0.0045 | |
| <i>Heteromastus filiformis</i> | 0.0227 | 0.0886 | | 0.0045 | | |
| <i>Glycinde solitaria</i> | 0.0136 | 0.0182 | 0.0500 | 0.0250 | 0.0091 | |
| <i>Mulinia lateralis</i> | | 0.0250 | | 0.0682 | | |
| <i>Micrura leidyi</i> | 0.0386 | | 0.0455 | 0.0011 | | |
| <i>Leptocheirus plumulosus</i> | | | 0.0455 | 0.0250 | | |
| <i>Carinoma tremaphoros</i> | | | | | 0.0568 | |
| <i>Macoma mitchelli</i> | | 0.0045 | | 0.0159 | 0.0136 | |
| <i>Parahesionia luteola</i> | 0.0023 | 0.0068 | 0.0091 | | 0.0114 | |

| | | | | | | |
|--------------------------|--|--------|--------|--------|--------|--|
| Mediomastus ambiseta | | 0.0159 | 0.0023 | | | |
| Acteocina canaliculata | | 0.0159 | | | | |
| Podarkeopsis levifuscina | | 0.0114 | | | 0.0023 | |
| Amphiporus bioculatus | | | 0.0011 | 0.0091 | | |
| Streblospio benedicti | | | 0.0045 | 0.0045 | 0.0011 | |
| Tubificoides spp. | | 0.0011 | | 0.0068 | 0.0011 | |
| Leucon americanus | | | 0.0045 | 0.0045 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06201 | 06202 | 06203 | 06204 | 06205 | |
| Gemma gemma | | | | 0.0068 | | |
| Pectinaria gouldii | 0.0045 | | | 0.0011 | | |
| Acteon punctostriatus | | | | 0.0023 | | |
| Cyathura polita | | 0.0011 | | | | |
| Cyclaspis varians | | 0.0011 | | | | |
| Haminoea solitaria | | | | 0.0011 | | |
| Hypereteone heteropoda | | | | 0.0011 | | |
| Odostomia engonia (Epi.) | | | | 0.0011 | | |
| Oligochaeta | | | 0.0011 | | | |
| Total Biomass w/ Epifauna | 0.7375 | 1.3602 | 0.8648 | 0.1852 | 0.1636 | |
| Total Biomass w/o Epifauna | 0.7375 | 1.3602 | 0.8648 | 0.1841 | 0.1636 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06207 | 06208 | 06209 | 06210 | 06211 |
|-----------------------------------|----------------|---------------|---------------|----------------|----------------|
| Watershed | Patuxent R | Patuxent R | Patuxent R | Patuxent R | Patuxent R |
| Habitat | High Meso Mud | High Meso Mud | High Meso Mud | High Meso Sand | High Meso Sand |
| Date | 08/31/99 | 08/31/99 | 08/31/99 | 08/31/99 | 08/31/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 5.8 | 3.4 | 6.6 | 1.3 | 2.1 |
| Salinity (ppt) | 16.90 | 16.70 | 16.30 | 16.10 | 15.50 |
| Temperature (C) | 25.10 | 23.93 | 25.23 | 23.88 | 23.38 |
| Dissolved Oxygen (mg/L) | 7.1 | 7.9 | 6.5 | 8.3 | 7.9 |
| Sediment Silt-Clay (%) | 90.10 | 91.38 | 95.12 | 3.65 | 2.57 |
| Total Carbon (%) | 2.79 | 1.70 | 2.78 | 0.14 | 0.02 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 2.00 | 3.00 | 3.00 | 3.00 | 3.33 |
| Condition | Severely Degr. | Meets Goal | Meets Goal | Meets Goal | Meets Goal |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.10 3 | 2.56 3 | 2.86 3 | 2.95 3 | 2.84 3 |
| Abundance (#/m2) | 750 1 | 909 1 | 1182 3 | 1227 3 | 1818 5 |
| Biomass (g/m2) | 0.30 1 | 0.88 3 | 0.51 3 | 0.32 1 | 0.37 1 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|--|
| Pollution Indicative Spp Abund (%) | 45.45 | | 22.50 | | 42.31 | | 24.07 | 3 | 5.00 | 5 | |
| Pollution Indicative Spp Biom (%) | 20.00 | 3 | 6.99 | 3 | 16.67 | 3 | 79.29 | | 2.83 | | |
| Pollution Sensitive Spp Abund (%) | 3.03 | | 15.00 | | 3.85 | | 33.33 | 3 | 12.50 | 3 | |
| Pollution Sensitive Spp Biom (%) | 1.54 | 1 | 50.52 | 3 | 0.22 | 1 | 7.86 | | 1.98 | | |
| Carnivore-Omnivore Abundance (%) | 24.24 | 3 | 40.00 | 5 | 26.92 | 5 | 38.89 | 5 | 33.75 | 3 | |
| Deep Deposit Feeder Abundance (%) | 27.27 | | 32.50 | | 25.00 | | 16.67 | | 45.00 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|------------------------------------|-------|-------|-------|-------|-------|
| Site | 06207 | 06208 | 06209 | 06210 | 06211 |
| <i>Paraprionospio pinnata</i> | 341 | 182 | 364 | 45 | |
| <i>Tubificoides</i> spp. | 205 | 273 | 205 | 45 | 182 |
| <i>Heteromastus filiformis</i> | | 23 | 91 | 68 | 636 |
| <i>Glycinde solitaria</i> | 23 | 91 | 45 | 364 | 182 |
| <i>Neanthes succinea</i> | 45 | 205 | 68 | | 341 |
| <i>Parahesionia luteola</i> | 91 | 68 | 182 | 45 | |
| <i>Mulinia lateralis</i> | | | 23 | 250 | 91 |
| <i>Macoma mitchelli</i> | | | | 205 | 114 |
| <i>Sayella chesapeakea</i> (Epi.) | | | | 91 | 91 |
| <i>Streblospio benedicti</i> | | 23 | 114 | | |
| <i>Gemma gemma</i> | | | | | 114 |
| <i>Acteon punctostriatus</i> | | | | 45 | 45 |
| <i>Leucon americanus</i> | 23 | | 68 | | |
| <i>Pectinaria gouldii</i> | | | | 91 | |
| <i>Podarkeopsis levifusca</i> | 23 | | 23 | | 45 |
| <i>Americamysis almyra</i> | | | | 45 | |
| <i>Macoma balthica</i> | | 45 | | | |
| <i>Molgula manhattensis</i> (Epi.) | 23 | | | | 23 |
| <i>Tagelus plebeius</i> | | | | | 45 |
| <i>Acteocina canaliculata</i> | | | | 23 | |
| <i>Cratena pilata</i> (Epi.) | | | | | 23 |
| <i>Cyclaspis varians</i> | | | | 23 | |

| | | | | | | | |
|--|---------------------------|--|--|--|----|----|--|
| | Epitonium rupicola (Epi.) | | | | | 23 | |
| | Polydora cornuta | | | | | 23 | |
| | Spiochaetopterus costarum | | | | 23 | | |

| | | | | | | | | |
|--|------------------------------|--|-----|-----|------|------|------|--|
| | Total Abundance w/ Epifauna | | 773 | 909 | 1182 | 1364 | 1977 | |
| | Total Abundance w/o Epifauna | | 750 | 909 | 1182 | 1273 | 1818 | |
| | Number of Taxa w/ Epifauna | | 8 | 8 | 10 | 14 | 15 | |
| | Number of Taxa w/o Epifauna | | 7 | 8 | 10 | 13 | 11 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
|---------------------------------------|--------|--------|--------|--------|--------|
| Site | 06207 | 06208 | 06209 | 06210 | 06211 |
| <i>Neanthes succinea</i> | 0.2182 | 0.3364 | 0.3091 | | 0.1386 |
| <i>Macoma balthica</i> | | 0.3977 | | | |
| <i>Heteromastus filiformis</i> | | 0.0205 | 0.0955 | 0.0136 | 0.2000 |
| <i>Mulinia lateralis</i> | | | 0.0227 | 0.2364 | 0.0114 |
| <i>Paraprionospio pinnata</i> | 0.0591 | 0.0568 | 0.0614 | 0.0159 | |
| <i>Glycinde solitaria</i> | 0.0045 | 0.0455 | 0.0011 | 0.0227 | 0.0068 |
| <i>Parahesionia luteola</i> | 0.0091 | 0.0068 | 0.0136 | 0.0011 | |
| <i>Epitonium rupicola</i> (Epi.) | | | | | 0.0159 |
| <i>Americamysis almyra</i> | | | | 0.0159 | |
| <i>Tubificoides</i> spp. | 0.0011 | 0.0091 | 0.0011 | 0.0011 | 0.0023 |
| <i>Sayella chesapeakea</i> (Epi.) | | | | 0.0045 | 0.0068 |
| <i>Cratena pilata</i> (Epi.) | | | | | 0.0068 |
| <i>Leucon americanus</i> | 0.0011 | | 0.0045 | | |
| <i>Streblospio benedicti</i> | | 0.0045 | 0.0011 | | |
| <i>Gemma gemma</i> | | | | | 0.0045 |
| <i>Podarkeopsis levifuscina</i> | 0.0011 | | 0.0011 | | 0.0011 |
| <i>Acteon punctostriatus</i> | | | | 0.0011 | 0.0011 |
| <i>Macoma mitchelli</i> | | | | 0.0011 | 0.0011 |
| <i>Molgula manhattensis</i> (Epi.) | 0.0011 | | | | 0.0011 |
| <i>Polydora cornuta</i> | | | | | 0.0023 |
| <i>Acteocina canaliculata</i> | | | | 0.0011 | |
| <i>Cyclaspis varians</i> | | | | 0.0011 | |

| | | | | | | | | | |
|-------|----------------------------|--|--------|--------|--------|--------|--------|--|--|
| | Pectinaria gouldii | | | | | 0.0011 | | | |
| | Spiochaetopterus costarum | | | | | 0.0011 | | | |
| | Tagelus plebeius | | | | | | 0.0011 | | |
| ----- | | | | | | | | | |
| | Total Biomass w/ Epifauna | | 0.2955 | 0.8773 | 0.5114 | 0.3182 | 0.4011 | | |
| | Total Biomass w/o Epifauna | | 0.2943 | 0.8773 | 0.5114 | 0.3136 | 0.3705 | | |
| ===== | | | | | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06212 | 06213 | 06214 | 06215 | 06216 |
|-----------------------------------|---------------|---------------|---------------|----------------|---------------|
| Watershed | Patuxent R | Patuxent R | Patuxent R | Patuxent R | Patuxent R |
| Habitat | High Meso Mud | High Meso Mud | High Meso Mud | High Meso Mud | High Meso Mud |
| Date | 08/31/99 | 08/31/99 | 08/31/99 | 08/31/99 | 08/31/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 4.3 | 4.8 | 2.6 | 3.4 | 2.0 |
| Salinity (ppt) | 14.60 | 15.30 | 13.60 | 14.60 | 13.40 |
| Temperature (C) | 23.94 | 23.49 | 22.91 | 23.94 | 23.86 |
| Dissolved Oxygen (mg/L) | 7.9 | 8.2 | 8.7 | 7.5 | 7.6 |
| Sediment Silt-Clay (%) | 78.80 | 96.30 | 84.88 | 82.41 | 86.50 |
| Total Carbon (%) | 2.18 | 2.63 | 2.02 | 2.16 | 2.44 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 3.00 | 2.67 | 3.33 | 2.00 | 3.33 |
| Condition | Meets Goal | Degraded | Meets Goal | Severely Degr. | Meets Goal |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.56 3 | 1.60 1 | 2.34 3 | 1.58 1 | 1.48 1 |
| Abundance (#/m2) | 455 1 | 1977 5 | 341 1 | 273 1 | 1614 5 |
| Biomass (g/m2) | 0.35 1 | 0.52 3 | 0.85 3 | 0.16 1 | 1.74 3 |

| | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|
| Pollution Indicative Spp Abund (%) | 15.00 | | 32.18 | | 6.67 | | 8.33 | | 14.08 | |
| Pollution Indicative Spp Biom (%) | 1.29 | 5 | 3.06 | 5 | 0.00 | 5 | 25.00 | 3 | 0.26 | 5 |
| Pollution Sensitive Spp Abund (%) | 10.00 | | 1.15 | | 40.00 | | 8.33 | | 7.04 | |
| Pollution Sensitive Spp Biom (%) | 43.37 | 3 | 24.45 | 1 | 72.17 | 3 | 50.00 | 3 | 94.72 | 5 |
| Carnivore-Omnivore Abundance (%) | 30.00 | 5 | 9.20 | 1 | 46.67 | 5 | 16.67 | 3 | 8.45 | 1 |
| Deep Deposit Feeder Abundance (%) | 55.00 | | 57.47 | | 46.67 | | 66.67 | | 87.32 | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|
| Site | 06212 | 06213 | 06214 | 06215 | 06216 |
| Tubificoides spp. | 205 | 1091 | 136 | 182 | 1159 |
| Streblospio benedicti | | 636 | | | |
| Imm. Tubificid w/o Cap. Chaete | 23 | | 23 | | 205 |
| Cyathura polita | 23 | | 91 | 23 | 68 |
| Neanthes succinea | 45 | 114 | 23 | | |
| Parahesionia luteola | 68 | 68 | | 23 | |
| Heteromastus filiformis | 23 | 45 | | | 45 |
| Macoma balthica | 23 | 23 | 23 | | 45 |
| Carinoma tremaphoros | | | 23 | | 68 |
| Mulinia lateralis | 23 | | | 23 | 23 |
| Glycinde solitaria | | | 23 | | |
| Leucon americanus | | | | 23 | |
| Odostomia engonia (Epi.) | 23 | | | | |
| Paraprionospio pinnata | 23 | | | | |
| Sayella chesapeakea (Epi.) | | | | 23 | |
| Total Abundance w/ Epifauna | 477 | 1977 | 341 | 295 | 1614 |
| Total Abundance w/o Epifauna | 455 | 1977 | 341 | 273 | 1614 |
| Number of Taxa w/ Epifauna | 10 | 6 | 7 | 6 | 7 |
| Number of Taxa w/o Epifauna | 9 | 6 | 7 | 5 | 7 |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |

| Site | 06212 | 06213 | 06214 | 06215 | 06216 |
|-----------------------------|--------|--------|--------|--------|--------|
| <i>Macoma balthica</i> | 0.1318 | 0.1273 | 0.0455 | | 1.4864 |
| <i>Cyathura polita</i> | 0.0205 | | 0.5636 | 0.0864 | 0.1659 |
| <i>Neanthes succinea</i> | 0.1682 | 0.3318 | 0.2068 | | |
| <i>Carinoma tremaphoros</i> | | | 0.0227 | | 0.0727 |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|--------|--------|--------|--------|--------|--|
| Site | 06212 | 06213 | 06214 | 06215 | 06216 | |
| Mulinia lateralis | 0.0023 | | | 0.0432 | 0.0045 | |
| Tubificoides spp. | 0.0091 | 0.0136 | 0.0068 | 0.0068 | 0.0045 | |
| Heteromastus filiformis | 0.0045 | 0.0250 | | | 0.0091 | |
| Parahesionia luteola | 0.0068 | 0.0068 | | 0.0114 | | |
| Streblospio benedicti | | 0.0159 | | | | |
| Sayella chesapeakea (Epi.) | | | | 0.0136 | | |
| Leucon americanus | | | | 0.0114 | | |
| Glycinde solitaria | | | 0.0068 | | | |
| Odostomia engonia (Epi.) | 0.0045 | | | | | |
| Oligochaeta | 0.0011 | | 0.0011 | | 0.0011 | |
| Paraprionospio pinnata | 0.0023 | | | | | |
| Total Biomass w/ Epifauna | 0.3511 | 0.5205 | 0.8534 | 0.1727 | 1.7443 | |
| Total Biomass w/o Epifauna | 0.3466 | 0.5205 | 0.8534 | 0.1591 | 1.7443 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06217 | 06218 | 06226 |
|-----------------------------------|---------------|---------------|---------------|
| Watershed | Patuxent R | Patuxent R | Patuxent R |
| Habitat | High Meso Mud | High Meso Mud | High Meso Mud |
| Date | 08/31/99 | 08/31/99 | 08/31/99 |
| Gear | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | |
| Depth (m) | 1.6 | 1.3 | 8.5 |
| Salinity (ppt) | 13.60 | 13.50 | 16.80 |
| Temperature (C) | 24.03 | 23.86 | 24.88 |
| Dissolved Oxygen (mg/L) | 7.7 | 7.6 | 7.1 |
| Sediment Silt-Clay (%) | 94.05 | 97.20 | 51.63 |
| Total Carbon (%) | 2.85 | 2.85 | 1.77 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | |
| B-IBI Score | 3.33 | 2.33 | 3.00 |
| Condition | Meets Goal | Degraded | Meets Goal |
| # Attributes Scored | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 0.88 1 | 1.12 1 | 2.99 3 |
| Abundance (#/m2) | 2818 3 | 455 1 | 1955 5 |
| Biomass (g/m2) | 2.52 5 | 0.20 1 | 0.84 3 |

| | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|--|
| Pollution Indicative Spp Abund (%) | 5.65 | | 5.00 | | 40.70 | | |
| Pollution Indicative Spp Biom (%) | 0.00 | 5 | 0.00 | 5 | 41.08 | 1 | |
| Pollution Sensitive Spp Abund (%) | 6.45 | | 5.00 | | 27.91 | | |
| Pollution Sensitive Spp Biom (%) | 95.36 | 5 | 84.09 | 3 | 10.54 | 1 | |
| Carnivore-Omnivore Abundance (%) | 4.03 | 1 | 15.00 | 3 | 25.58 | 5 | |
| Deep Deposit Feeder Abundance (%) | 91.13 | | 85.00 | | 25.58 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | |
|-----------------------------------|-------|-------|-------|--|
| Site | 06217 | 06218 | 06226 | |
| Tubificoides spp. | 2409 | 364 | 159 | |
| Paraprionospio pinnata | | | 773 | |
| Mediomastus ambiseta | | | 250 | |
| Glycinde solitaria | 23 | | 159 | |
| Imm. Tubificid w/o Cap. Chaete | 159 | 23 | | |
| Macoma balthica | 136 | | | |
| Parahesion luteola | | 23 | 114 | |
| Leucon americanus | | | 114 | |
| Acteocina canaliculata | | | 91 | |
| Carinoma tremaphoros | 68 | 23 | | |
| Neanthes succinea | | | 91 | |
| Cyathura polita | 23 | 23 | | |
| Loimia medusa | | | 45 | |
| Pectinaria gouldii | | | 45 | |
| Podarkeopsis levifusca | | | 45 | |
| Americamysis bigelowi | | | 23 | |
| Heteromastus filiformis | | | 23 | |
| Leitoscoloplos robustus | | | 23 | |
| Mulinia lateralis | | | 23 | |
| Total Abundance w/ Epifauna | 2818 | 455 | 1977 | |
| Total Abundance w/o Epifauna | 2818 | 455 | 1977 | |

| | | | | | | |
|--|-----------------------------|--|---|---|----|--|
| | Number of Taxa w/ Epifauna | | 6 | 5 | 15 | |
| | Number of Taxa w/o Epifauna | | 6 | 5 | 15 | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | |
|---------------------------------------|--------|--------|--------|--|
| Site | 06217 | 06218 | 06226 | |
| <i>Macoma balthica</i> | 2.3500 | | | |
| <i>Paraprionospio pinnata</i> | | | 0.2818 | |
| <i>Neanthes succinea</i> | | | 0.2523 | |
| <i>Cyathura polita</i> | 0.0523 | 0.1682 | | |
| <i>Carinoma tremaphoros</i> | 0.0909 | 0.0227 | | |
| <i>Leitoscoloplos</i> spp. | | | 0.1023 | |
| <i>Mulinia lateralis</i> | | | 0.0636 | |
| <i>Loimia medusa</i> | | | 0.0386 | |
| <i>Glycinde solitaria</i> | 0.0045 | | 0.0295 | |
| <i>Tubificoides</i> spp. | 0.0250 | 0.0068 | 0.0011 | |
| <i>Heteromastus filiformis</i> | | | 0.0318 | |
| <i>Mediomastus ambiseta</i> | | | 0.0114 | |
| <i>Acteocina canaliculata</i> | | | 0.0091 | |
| <i>Leucon americanus</i> | | | 0.0068 | |
| <i>Parahesionia luteola</i> | | 0.0011 | 0.0045 | |
| <i>Pectinaria gouldii</i> | | | 0.0045 | |
| <i>Podarkeopsis levifuscina</i> | | | 0.0023 | |
| <i>Oligochaeta</i> | 0.0011 | 0.0011 | | |
| <i>Americamysis bigelowi</i> | | | 0.0011 | |
| Total Biomass w/ Epifauna | 2.5239 | 0.2000 | 0.8409 | |
| Total Biomass w/o Epifauna | 2.5239 | 0.2000 | 0.8409 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06601 | 06602 | 06603 | 06604 | 06605 |
|-----------------------------------|----------------|----------------|----------------|----------------|---------------|
| Watershed | Upper Bay | Upper Bay | Upper Bay | Upper Bay | Upper Bay |
| Habitat | High Meso Sand | High Meso Mud | High Meso Mud | High Meso Sand | High Meso Mud |
| Date | 09/08/99 | 09/08/99 | 09/08/99 | 09/08/99 | 09/08/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 2.5 | 14.0 | 9.0 | 4.5 | 6.5 |
| Salinity (ppt) | 15.57 | 17.46 | 16.95 | 13.19 | 13.86 |
| Temperature (C) | 24.06 | 24.16 | 24.14 | 24.07 | 23.96 |
| Dissolved Oxygen (mg/L) | 5.6 | 5.0 | 4.7 | 6.4 | 5.5 |
| Sediment Silt-Clay (%) | 0.95 | 95.92 | 99.59 | 9.48 | 64.10 |
| Total Carbon (%) | 0.05 | 3.24 | 2.91 | 0.25 | 2.58 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 2.67 | 1.33 | 1.33 | 2.67 | 4.00 |
| Condition | Degraded | Severely Degr. | Severely Degr. | Degraded | Meets Goal |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 3.21 5 | 1.70 1 | 1.50 1 | 2.84 3 | 2.74 3 |
| Abundance (#/m2) | 455 1 | 864 1 | 636 1 | 3705 3 | 2000 5 |
| Biomass (g/m2) | 0.24 1 | 0.07 1 | 0.35 1 | 3.63 5 | 2.06 5 |

| | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|
| Pollution Indicative Spp Abund (%) | 20.00 | 3 | 47.37 | | 82.14 | | 37.42 | 1 | 22.73 | |
| Pollution Indicative Spp Biom (%) | 29.52 | | 45.16 | 1 | 78.71 | 1 | 6.23 | | 1.77 | 5 |
| Pollution Sensitive Spp Abund (%) | 35.00 | 3 | 2.63 | | 3.57 | | 12.88 | 3 | 17.05 | |
| Pollution Sensitive Spp Biom (%) | 46.19 | | 3.23 | 1 | 3.23 | 1 | 60.03 | | 13.36 | 1 |
| Carnivore-Omnivore Abundance (%) | 25.00 | 3 | 10.53 | 3 | 10.71 | 3 | 19.63 | 1 | 53.41 | 5 |
| Deep Deposit Feeder Abundance (%) | 10.00 | | 42.11 | | 7.14 | | 34.97 | | 21.59 | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|-------------------------------------|-------|-------|-------|-------|-------|
| Site | 06601 | 06602 | 06603 | 06604 | 06605 |
| <i>Streblospio benedicti</i> | | 364 | 91 | 1182 | 182 |
| <i>Neanthes succinea</i> | | 68 | 45 | 386 | 795 |
| <i>Heteromastus filiformis</i> | 23 | | | 1023 | 68 |
| <i>Tubificoides</i> spp. | 23 | 364 | 45 | 250 | 273 |
| <i>Paraprionospio pinnata</i> | 23 | 45 | 432 | 45 | 159 |
| <i>Glycinde solitaria</i> | 91 | 23 | 23 | 227 | 205 |
| <i>Macoma balthica</i> | 23 | | | 68 | 136 |
| <i>Mulinia lateralis</i> | 68 | | | 114 | 23 |
| <i>Macoma mitchelli</i> | 68 | | | 91 | |
| <i>Marenzelleria viridis</i> | 23 | | | 114 | |
| Imm. Tubificid w/o Cap. Chaete | | | | 23 | 91 |
| <i>Americamysis almyra</i> | 91 | | | | |
| <i>Amphiporus bioculatus</i> | | | | 45 | 45 |
| <i>Carinoma tremaphoros</i> | | | | 45 | 23 |
| <i>Lepidactylus dytiscus</i> | 68 | | | | |
| <i>Rangia cuneata</i> | | | | 68 | |
| <i>Ameroculodes</i> species complex | 23 | | | | |
| <i>Cyathura polita</i> | 23 | | | | |
| <i>Hypereteone heteropoda</i> | | | | 23 | |
| Total Abundance w/ Epifauna | 545 | 864 | 636 | 3705 | 2000 |
| Total Abundance w/o Epifauna | 545 | 864 | 636 | 3705 | 2000 |

| | | | | | | | | |
|--|-----------------------------|--|----|---|---|----|----|--|
| | Number of Taxa w/ Epifauna | | 12 | 5 | 5 | 15 | 11 | |
| | Number of Taxa w/o Epifauna | | 12 | 5 | 5 | 15 | 11 | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
|---------------------------------------|--------|--------|--------|--------|--------|
| Site | 06601 | 06602 | 06603 | 06604 | 06605 |
| <i>Neanthes succinea</i> | | 0.0250 | 0.0614 | 0.6205 | 1.6909 |
| <i>Rangia cuneata</i> | | | | 1.3205 | |
| <i>Macoma balthica</i> | 0.0773 | | | 0.3432 | 0.2432 |
| <i>Heteromastus filiformis</i> | 0.0136 | | | 0.5432 | 0.0250 |
| <i>Marenzelleria viridis</i> | 0.0273 | | | 0.3705 | |
| <i>Paraprionospio pinnata</i> | 0.0091 | 0.0114 | 0.2750 | 0.0091 | 0.0159 |
| <i>Mulinia lateralis</i> | 0.0614 | | | 0.1500 | 0.0114 |
| <i>Glycinde solitaria</i> | 0.0045 | 0.0023 | 0.0114 | 0.1432 | 0.0318 |
| <i>Streblospio benedicti</i> | | 0.0205 | 0.0023 | 0.0659 | 0.0091 |
| <i>Carinoma tremaphoros</i> | | | | 0.0364 | 0.0227 |
| <i>Tubificoides</i> spp. | 0.0023 | 0.0114 | 0.0023 | 0.0091 | 0.0023 |
| <i>Lepidactylus dytiscus</i> | 0.0250 | | | | |
| <i>Macoma mitchelli</i> | 0.0068 | | | 0.0068 | |
| <i>Amphiporus bioculatus</i> | | | | 0.0068 | 0.0045 |
| <i>Ameroculodes</i> species complex | 0.0091 | | | | |
| Oligochaeta | | | | 0.0011 | 0.0023 |
| <i>Americamysis almyra</i> | 0.0011 | | | | |
| <i>Cyathura polita</i> | 0.0011 | | | | |
| <i>Hypereteone heteropoda</i> | | | | 0.0011 | |
| Total Biomass w/ Epifauna | 0.2386 | 0.0705 | 0.3523 | 3.6273 | 2.0591 |

| | | | | | | | | |
|-------|----------------------------|--|--------|--------|--------|--------|--------|--|
| | Total Biomass w/o Epifauna | | 0.2386 | 0.0705 | 0.3523 | 3.6273 | 2.0591 | |
| ===== | | | | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06608 | 06609 | 06610 | 06611 | 06612 |
|-----------------------------------|----------------|----------------|---------------|---------------|----------------|
| Watershed | Upper Bay | Upper Bay | Upper Bay | Upper Bay | Upper Bay |
| Habitat | High Meso Sand | High Meso Sand | High Meso Mud | High Meso Mud | High Meso Sand |
| Date | 09/08/99 | 09/09/99 | 09/09/99 | 09/09/99 | 09/09/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 5.5 | 6.0 | 6.5 | 8.0 | 5.0 |
| Salinity (ppt) | 13.06 | 14.71 | 13.36 | 13.63 | 12.47 |
| Temperature (C) | 24.04 | 25.66 | 24.83 | 24.89 | 24.67 |
| Dissolved Oxygen (mg/L) | 3.9 | 8.4 | 6.5 | 6.9 | 7.1 |
| Sediment Silt-Clay (%) | 26.11 | 2.15 | 92.77 | 95.56 | 18.87 |
| Total Carbon (%) | 0.72 | 0.14 | 4.03 | 1.94 | 0.53 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 3.33 | 2.00 | 3.33 | 4.33 | 2.33 |
| Condition | Meets Goal | Severely Degr. | Meets Goal | Meets Goal | Degraded |
| # Attributes Scored | 6 | 6 | 6 | 6 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.45 1 | 2.43 1 | 2.93 3 | 2.92 3 | 2.45 1 |
| Abundance (#/m2) | 1568 5 | 1591 5 | 3432 3 | 1750 5 | 1159 3 |

| | | | | | | | | | | | | |
|------------------------------------|--|-------|---|-------|---|--------|---|-------|---|-------|---|--|
| Biomass (g/m2) | | 2.15 | 3 | 0.85 | 1 | 157.56 | 1 | 1.94 | 3 | 0.53 | 1 | |
| Pollution Indicative Spp Abund (%) | | 15.94 | 3 | 15.71 | 3 | 7.95 | | 10.39 | | 39.22 | 1 | |
| Pollution Indicative Spp Biom (%) | | 8.19 | | 47.80 | | 0.02 | 5 | 3.11 | 5 | 3.20 | | |
| Pollution Sensitive Spp Abund (%) | | 11.59 | 3 | 8.57 | 1 | 31.13 | | 58.44 | | 41.18 | 5 | |
| Pollution Sensitive Spp Biom (%) | | 11.66 | | 29.51 | | 99.44 | 5 | 83.12 | 5 | 61.62 | | |
| Carnivore-Omnivore Abundance (%) | | 62.32 | 5 | 8.57 | 1 | 13.91 | 3 | 50.65 | 5 | 23.53 | 3 | |
| Deep Deposit Feeder Abundance (%) | | 11.59 | | 21.43 | | 54.30 | | 18.18 | | 1.96 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|--------------------------------------|-------|-------|-------|-------|-------|
| Site | 06608 | 06609 | 06610 | 06611 | 06612 |
| <i>Tubificoides</i> spp. | 91 | 68 | 1227 | 227 | |
| <i>Neanthes succinea</i> | 864 | 23 | 136 | 68 | 114 |
| <i>Heteromastus filiformis</i> | 91 | 273 | 545 | 91 | 23 |
| <i>Macoma mitchelli</i> | 45 | 795 | 23 | 23 | 45 |
| <i>Macoma balthica</i> | 68 | 23 | 455 | 295 | |
| <i>Cyathura polita</i> | | 23 | 91 | 614 | 23 |
| <i>Streblospio benedicti</i> | 91 | 45 | 91 | 23 | 386 |
| <i>Marenzelleria viridis</i> | 45 | 45 | 68 | 45 | 409 |
| <i>Mulinia lateralis</i> | 45 | 182 | 91 | 68 | 23 |
| <i>Carinoma tremaphoros</i> | 23 | 45 | 159 | 114 | 45 |
| <i>Rangia cuneata</i> | | | 364 | | |
| <i>Glycinde solitaria</i> | 68 | 45 | 91 | 68 | 45 |
| <i>Paraprionospio pinnata</i> | 114 | 23 | | 91 | |
| Imm. Tubificid w/o Cap. Chaete | | | 91 | | |
| <i>Edotea triloba</i> (Epi.) | | 45 | | | |
| <i>Hypereteone heteropoda</i> | | | | | 45 |
| <i>Sayella chesapeakea</i> (Epi.) | | 45 | | | |
| <i>Amphiporus bioculatus</i> | 23 | | | | |
| <i>Apocorophium lacustre</i> | | | 23 | | |
| <i>Littoridinops tenuipes</i> (Epi.) | 23 | | | | |
| <i>Micrura leidyi</i> | | | | 23 | |

| | | | | | | | |
|--|------------------------------|------|------|------|------|------|--|
| | Total Abundance w/ Epifauna | 1591 | 1682 | 3455 | 1750 | 1159 | |
| | Total Abundance w/o Epifauna | 1568 | 1591 | 3455 | 1750 | 1159 | |
| | Number of Taxa w/ Epifauna | 13 | 14 | 14 | 13 | 10 | |
| | Number of Taxa w/o Epifauna | 12 | 12 | 14 | 13 | 10 | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
|---------------------------------------|--------|--------|----------|--------|--------|
| Site | 06608 | 06609 | 06610 | 06611 | 06612 |
| <i>Rangia cuneata</i> | | | 148.4813 | | |
| <i>Macoma balthica</i> | 0.1250 | 0.1750 | 7.7022 | 1.0455 | |
| <i>Neanthes succinea</i> | 1.6364 | 0.0045 | 0.5614 | 0.1500 | 0.1159 |
| <i>Marenzelleria viridis</i> | 0.1136 | 0.0500 | 0.2932 | 0.2409 | 0.3159 |
| <i>Mulinia lateralis</i> | 0.1341 | 0.4045 | 0.0295 | 0.0386 | 0.0023 |
| <i>Cyathura polita</i> | | 0.0250 | 0.1773 | 0.3136 | 0.0011 |
| <i>Heteromastus filiformis</i> | 0.0455 | 0.1682 | 0.1727 | 0.0341 | 0.0068 |
| <i>Carinoma tremaphoros</i> | 0.0182 | 0.0068 | 0.0636 | 0.0455 | 0.0636 |
| <i>Macoma mitchelli</i> | 0.0068 | 0.0091 | 0.0227 | 0.0341 | 0.0011 |
| <i>Glycinde solitaria</i> | 0.0136 | 0.0011 | 0.0318 | 0.0114 | 0.0114 |
| <i>Paraprionospio pinnata</i> | 0.0295 | 0.0011 | | 0.0205 | |
| <i>Streblospio benedicti</i> | 0.0136 | 0.0011 | 0.0068 | 0.0011 | 0.0136 |
| <i>Tubificoides</i> spp. | 0.0091 | 0.0011 | 0.0182 | 0.0011 | |
| <i>Amphiporus bioculatus</i> | 0.0091 | | | | |
| <i>Littoridinops tenuipes</i> (Epi.) | 0.0091 | | | | |
| <i>Micrura leidyi</i> | | | | 0.0023 | |
| <i>Edotea triloba</i> (Epi.) | | 0.0023 | | | |
| <i>Apocorophium lacustre</i> | | | 0.0011 | | |
| <i>Hypereteone heteropoda</i> | | | | | 0.0011 |
| <i>Oligochaeta</i> | | | 0.0011 | | |
| <i>Sayella chesapeakea</i> (Epi.) | | 0.0011 | | | |

| | | | | | | | | |
|--|----------------------------|--|--------|--------|----------|--------|--------|--|
| | Total Biomass w/ Epifauna | | 2.1636 | 0.8511 | 157.5631 | 1.9386 | 0.5330 | |
| | Total Biomass w/o Epifauna | | 2.1545 | 0.8477 | 157.5631 | 1.9386 | 0.5330 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06613 | 06614 | 06615 | 06616 | 06617 |
|-----------------------------------|----------------|----------------|---------------|----------------|----------------|
| Watershed | Upper Bay | Upper Bay | Upper Bay | Upper Bay | Upper Bay |
| Habitat | Low Mesohaline | Low Mesohaline | High Meso Mud | Low Mesohaline | Low Mesohaline |
| Date | 09/09/99 | 09/09/99 | 09/09/99 | 09/09/99 | 09/09/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 5.0 | 5.5 | 5.5 | 4.5 | 4.0 |
| Salinity (ppt) | 10.13 | 10.46 | 12.18 | 11.47 | 10.35 |
| Temperature (C) | 24.82 | 24.75 | 24.72 | 24.79 | 24.80 |
| Dissolved Oxygen (mg/L) | 7.4 | 7.1 | 7.1 | 6.7 | 6.6 |
| Sediment Silt-Clay (%) | 84.66 | 77.94 | 96.04 | 96.50 | |
| Total Carbon (%) | 3.09 | 2.06 | 1.95 | 4.26 | 1.79 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 4.60 | 3.80 | 3.33 | 3.40 | 3.80 |
| Condition | Meets Goal | Meets Goal | Meets Goal | Meets Goal | Meets Goal |
| # Attributes Scored | 5 | 5 | 6 | 5 | 5 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.80 5 | 3.13 5 | 2.81 3 | 2.06 3 | 2.77 5 |
| Abundance (#/m2) | 1932 5 | 1273 3 | 3864 3 | 3386 3 | 1636 5 |
| Biomass (g/m2) | 9.94 3 | 17.55 3 | 204.31 1 | 220.58 1 | 42.73 1 |

| | | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|--|
| Pollution Indicative Spp Abund (%) | 8.24 | 5 | 14.29 | 3 | 18.24 | | 7.38 | 5 | 18.06 | 3 | |
| Pollution Indicative Spp Biom (%) | 0.01 | | 0.08 | | 0.01 | 5 | 0.00 | | 0.03 | | |
| Pollution Sensitive Spp Abund (%) | 24.71 | | 30.36 | | 48.82 | | 65.10 | | 47.22 | | |
| Pollution Sensitive Spp Biom (%) | 83.96 | 5 | 83.70 | 5 | 99.84 | 5 | 99.70 | 5 | 99.75 | 5 | |
| Carnivore-Omnivore Abundance (%) | 48.24 | | 55.36 | | 15.88 | 3 | 13.42 | | 31.94 | | |
| Deep Deposit Feeder Abundance (%) | 12.94 | | 10.71 | | 25.88 | | 16.11 | | 22.22 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|
| Site | 06613 | 06614 | 06615 | 06616 | 06617 |
| <i>Rangia cuneata</i> | 23 | 68 | 886 | 1955 | 500 |
| <i>Tubificoides</i> spp. | 227 | 91 | 977 | 523 | 341 |
| <i>Neanthes succinea</i> | 659 | 318 | 159 | 273 | 114 |
| <i>Streblospio benedicti</i> | 159 | 159 | 659 | 250 | 159 |
| <i>Cyathura polita</i> | 136 | 227 | 318 | 136 | 273 |
| <i>Marenzelleria viridis</i> | | 23 | 545 | | |
| <i>Balanus improvisus</i> (Epi.) | | 545 | | | |
| <i>Macoma balthica</i> | 295 | 23 | 114 | 114 | |
| <i>Leptocheirus plumulosus</i> | 250 | 136 | | 23 | 45 |
| <i>Carinoma tremaphoros</i> | 114 | 114 | 68 | 23 | |
| <i>Macoma mitchelli</i> | 23 | | 45 | 45 | 45 |
| <i>Heteromastus filiformis</i> | 23 | 45 | 23 | 23 | 23 |
| <i>Hypereteone heteropoda</i> | | | 23 | | 91 |
| <i>Geukensia demissa</i> (Epi.) | | 91 | | | |
| <i>Glycinde solitaria</i> | 23 | 45 | 23 | | |
| <i>Rhithropanopeus harrisi</i> (Epi.) | 45 | 45 | | | |
| <i>Coelotanypus</i> spp. | | | 23 | | 45 |
| <i>Apocorophium lacustre</i> | | | 45 | | |
| <i>Diadumene leucolena</i> (Epi.) | 45 | | | | |
| <i>Melita nitida</i> (Epi.) | | 45 | | | |
| <i>Amphiporus bioculatus</i> | | | | 23 | |
| <i>Paraprionospio pinnata</i> | | 23 | | | |

| | | | | | | | |
|--|------------------------------|------|------|------|------|------|--|
| | Total Abundance w/ Epifauna | 2023 | 2000 | 3909 | 3386 | 1636 | |
| | Total Abundance w/o Epifauna | 1932 | 1273 | 3909 | 3386 | 1636 | |
| | Number of Taxa w/ Epifauna | 13 | 16 | 14 | 11 | 10 | |
| | Number of Taxa w/o Epifauna | 11 | 12 | 14 | 11 | 10 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | |
|---------------------------------------|--------|---------|----------|----------|---------|
| Site | 06613 | 06614 | 06615 | 06616 | 06617 |
| <i>Rangia cuneata</i> | 7.7613 | 16.3863 | 201.1789 | 219.7038 | 42.5294 |
| <i>Neanthes succinea</i> | 1.1341 | 0.8818 | 0.0773 | 0.4795 | 0.0477 |
| <i>Marenzelleria viridis</i> | | 0.0568 | 2.3000 | | |
| <i>Balanus improvisus</i> (Epi.) | | 1.6364 | | | |
| <i>Macoma balthica</i> | 0.8523 | 0.0205 | 0.2727 | 0.2023 | |
| <i>Cyathura polita</i> | 0.1023 | 0.0864 | 0.2273 | 0.0250 | 0.0955 |
| <i>Geukensia demissa</i> (Epi.) | | 0.3932 | | | |
| <i>Rhithropanopeus harrisi</i> (Epi.) | 0.1705 | 0.2091 | | | |
| <i>Diadumene leucolena</i> (Epi.) | 0.2659 | | | | |
| <i>Carinoma tremaphoros</i> | 0.0455 | 0.0477 | 0.0773 | 0.0886 | |
| <i>Macoma mitchelli</i> | 0.0011 | | 0.1295 | 0.0432 | 0.0273 |
| <i>Heteromastus filiformis</i> | 0.0114 | 0.0205 | 0.0011 | 0.0159 | 0.0091 |
| <i>Streblospio benedicti</i> | 0.0011 | 0.0091 | 0.0273 | 0.0091 | 0.0091 |
| <i>Leptocheirus plumulosus</i> | 0.0341 | 0.0091 | | 0.0023 | 0.0068 |
| <i>Tubificoides</i> spp. | 0.0023 | 0.0068 | 0.0159 | 0.0114 | 0.0023 |
| <i>Glycinde solitaria</i> | 0.0011 | 0.0136 | 0.0011 | | |
| <i>Paraprionospio pinnata</i> | | 0.0068 | | | |
| <i>Melita nitida</i> (Epi.) | | 0.0045 | | | |
| <i>Coelotanypus</i> spp. | | | 0.0011 | | 0.0023 |
| <i>Hypereteone heteropoda</i> | | | 0.0011 | | 0.0023 |
| <i>Apocorophium lacustre</i> | | | 0.0023 | | |

| | | | | | | |
|----------------------------|--|---------|---------|----------|----------|---------|
| Amphiporus bioculatus | | | | | 0.0011 | |
| ----- | | | | | | |
| Total Biomass w/ Epifauna | | 10.3829 | 19.7886 | 204.3130 | 220.5822 | 42.7317 |
| Total Biomass w/o Epifauna | | 9.9466 | 17.5454 | 204.3130 | 220.5822 | 42.7317 |
| ===== | | | | | | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06618 | 06619 | 06620 | 06621 | 06626 |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Watershed | Upper Bay | Upper Bay | Upper Bay | Upper Bay | Upper Bay |
| Habitat | Low Mesohaline | Low Mesohaline | Low Mesohaline | Low Mesohaline | High Meso Mud |
| Date | 09/09/99 | 09/09/99 | 09/09/99 | 09/09/99 | 09/08/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 3.5 | 4.0 | 8.0 | 4.5 | 9.4 |
| Salinity (ppt) | 9.57 | 10.23 | 7.08 | 5.23 | 16.58 |
| Temperature (C) | 24.84 | 25.76 | 24.77 | 25.63 | 24.16 |
| Dissolved Oxygen (mg/L) | 6.9 | 7.9 | 6.1 | 7.2 | 4.9 |
| Sediment Silt-Clay (%) | 29.20 | 82.07 | 88.04 | 74.58 | 95.26 |
| Total Carbon (%) | 0.76 | 2.81 | 2.94 | 4.63 | 2.88 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 3.80 | 3.00 | 3.80 | 2.60 | 1.33 |
| Condition | Meets Goal | Meets Goal | Meets Goal | Degraded | Severely Degr. |
| # Attributes Scored | 5 | 5 | 5 | 5 | 6 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.78 5 | 1.97 3 | 2.35 3 | 2.08 3 | 1.43 1 |
| Abundance (#/m2) | 2114 5 | 3568 3 | 2045 5 | 8273 1 | 1000 1 |
| Biomass (g/m2) | 19.86 3 | 193.96 1 | 40.80 1 | 2.41 3 | 0.46 1 |

| | | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|-------|---|
| Pollution Indicative Spp Abund (%) | 31.18 | 1 | 12.74 | 3 | 5.56 | 5 | 71.43 | 1 | 72.73 | |
| Pollution Indicative Spp Biom (%) | 0.04 | | 0.00 | | 0.00 | | 5.98 | | 82.15 | 1 |
| Pollution Sensitive Spp Abund (%) | 25.81 | | 68.79 | | 65.56 | | 13.19 | | 20.45 | |
| Pollution Sensitive Spp Biom (%) | 99.11 | 5 | 99.73 | 5 | 98.98 | 5 | 80.84 | 5 | 5.62 | 1 |
| Carnivore-Omnivore Abundance (%) | 40.86 | | 12.74 | | 27.78 | | 2.75 | | 20.45 | 3 |
| Deep Deposit Feeder Abundance (%) | 15.05 | | 12.10 | | 1.11 | | 22.53 | | 2.27 | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|-------------------------------------|-------|-------|-------|-------|-------|
| Site | 06618 | 06619 | 06620 | 06621 | 06626 |
| <i>Streblospio benedicti</i> | 568 | 386 | 91 | 4000 | 23 |
| <i>Rangia cuneata</i> | 318 | 2227 | 1000 | 727 | 45 |
| Imm. Tubificid w/o Cap. Chaete * | | | | 1773 | |
| <i>Leptocheirus plumulosus</i> | 23 | | | 1250 | |
| <i>Neanthes succinea</i> | 500 | 159 | 295 | | 45 |
| <i>Paraprionospio pinnata</i> | | 23 | | | 705 |
| <i>Tubificoides</i> spp. | 295 | 409 | | | |
| <i>Cyathura polita</i> | 182 | 91 | 250 | 182 | |
| <i>Marenzelleria viridis</i> | 23 | 23 | 91 | 182 | |
| <i>Glycinde solitaria</i> | 23 | 114 | | | 159 |
| <i>Melita nitida</i> (Epi.) | | | 23 | 227 | |
| <i>Boccardiella ligerica</i> | | | 205 | | |
| <i>Coelotanypus</i> spp. | | 45 | | 45 | |
| <i>Edotea triloba</i> (Epi.) | 23 | | 68 | | |
| <i>Hypereteone heteropoda</i> | 91 | | | | |
| <i>Limnodrilus hoffmeisteri</i> | | | | 91 | |
| <i>Carinoma tremaphoros</i> | 23 | 23 | 23 | | |
| <i>Heteromastus filiformis</i> | 23 | 23 | | | 23 |
| <i>Polydora cornuta</i> | | | 45 | 23 | |
| <i>Laeonereis culveri</i> | 45 | | | | |
| <i>Ameroculodes</i> species complex | | 23 | | | |

| | | | |
|--------------------------------|--|----|--|
| Amphiporus bioculatus | | 23 | |
| Balanus improvisus (Epi.) | | 23 | |
| Hobsonia florida | | 23 | |
| Imm. Tubificid w/o Cap. Chaete | | 23 | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | | | |
|--|---------|----------|---------|--------|--------|--|
| Site | 06618 | 06619 | 06620 | 06621 | 06626 | |
| <i>Mytilopsis leucophaeata</i> (Epi.) | | | 23 | | | |
| Total Abundance w/ Epifauna | 2136 | 3568 | 2182 | 8500 | 1000 | |
| Total Abundance w/o Epifauna | 2114 | 3568 | 2045 | 8273 | 1000 | |
| Number of Taxa w/ Epifauna | 13 | 13 | 14 | 9 | 6 | |
| Number of Taxa w/o Epifauna | 12 | 13 | 10 | 8 | 6 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | |
| Site | 06618 | 06619 | 06620 | 06621 | 06626 | |
| <i>Rangia cuneata</i> | 19.5113 | 193.4085 | 40.2226 | 1.5864 | 0.0011 | |
| <i>Neanthes succinea</i> | 0.1477 | 0.4068 | 0.3909 | | 0.0364 | |
| <i>Cyathura polita</i> | 0.1591 | 0.0205 | 0.1273 | 0.1409 | | |
| <i>Paraprionospio pinnata</i> | | 0.0011 | | | 0.3795 | |
| <i>Marenzelleria viridis</i> | 0.0136 | 0.0091 | 0.0545 | 0.2386 | | |
| <i>Leptocheirus plumulosus</i> | 0.0011 | | | 0.1886 | | |
| <i>Streblospio benedicti</i> | 0.0068 | 0.0011 | 0.0011 | 0.1273 | 0.0023 | |
| <i>Carinoma tremaphoros</i> | 0.0068 | 0.0909 | 0.0011 | | | |
| <i>Oligochaeta</i> | | | 0.0011 | 0.0955 | | |
| <i>Heteromastus filiformis</i> | 0.0091 | 0.0136 | | | 0.0205 | |
| <i>Glycinde solitaria</i> | 0.0011 | 0.0011 | | | 0.0250 | |

| | | | | | |
|------------------------------|--|--------|--------|--------|--|
| Melita nitida (Epi.) | | | 0.0011 | 0.0205 | |
| Coelotanypus spp. | | 0.0011 | | 0.0182 | |
| Polydora cornuta | | | 0.0011 | 0.0159 | |
| Balanus improvisus (Epi.) | | | 0.0159 | | |
| Edotea triloba (Epi.) | | 0.0011 | 0.0011 | | |
| Tubificoides spp. | | 0.0011 | 0.0011 | | |
| Ameroculodes species complex | | | 0.0011 | | |

Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | | | |
|--|---------|----------|---------|--------|--------|--|
| Site | 06618 | 06619 | 06620 | 06621 | 06626 | |
| Amphiporus bioculatus | | 0.0011 | | | | |
| Boccardiella ligERICA | | | 0.0011 | | | |
| Hobsonia florida | | | 0.0011 | | | |
| Hypereteone heteropoda | 0.0011 | | | | | |
| Laeonereis culveri | 0.0011 | | | | | |
| Mytilopsis leucophaeata (Epi.) | | | 0.0011 | | | |
| Total Biomass w/ Epifauna | 19.8613 | 193.9573 | 40.8215 | 2.4318 | 0.4648 | |
| Total Biomass w/o Epifauna | 19.8602 | 193.9573 | 40.8021 | 2.4114 | 0.4648 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| | | |
|-----------------------------------|---------------|-------|
| Site | 06412 | |
| Watershed | Eastern Tribs | |
| Habitat | Oligohaline | |
| Date | 09/20/99 | |
| Gear | Young Grab | |
| Sampled Area (sq.m) | 0.044 | |
| BOTTOM ENVIRONMENT | | |
| Depth (m) | 2.0 | |
| Salinity (ppt) | 3.94 | |
| Temperature (C) | 21.01 | |
| Dissolved Oxygen (mg/L) | 7.3 | |
| Sediment Silt-Clay (%) | 23.97 | |
| Total Carbon (%) | 0.81 | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | |
| B-IBI Score | 4.20 | |
| Condition | Meets Goal | |
| # Attributes Scored | 5 | |
| | Value | Score |
| Shannon-Weiner Index | 3.13 | |
| Abundance (#/m2) | 955 | |
| Deep Deposit Feeder Abundance (%) | 4.76 | |
| Oligo. Poll. Ind. Spp. Abund. (%) | 42.86 | 3 |
| Tolerance Score | 6.00 | 5 |

| | | | |
|------------------------------------|-------|---|--|
| Oligo. Poll. Sens. Spp. Abund. (%) | 14.29 | 3 | |
| Tany./Chir. Abund. Ratio | 0.00 | 5 | |
| Carnivore-Omnivore Abundance (%) | 45.24 | 5 | |
| Deep Deposit Feeder Abundance (%) | 4.76 | | |

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Continued . . .

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | |
|---------------------------------------|--------|
| Site | 06412 |
| Cyathura polita | 205 |
| Glycinde solitaria | 159 |
| Marenzelleria viridis | 136 |
| Streblospio benedicti | 136 |
| Macoma mitchelli | 114 |
| Mulinia lateralis | 45 |
| Tubificoides spp. | 45 |
| Carinoma tremaphoros | 23 |
| Macoma balthica | 23 |
| Molgula manhattensis (Epi.) | 23 |
| Neanthes succinea | 23 |
| Parahesion luteola | 23 |
| Rangia cuneata | 23 |
| Total Abundance w/ Epifauna | 977 |
| Total Abundance w/o Epifauna | 955 |
| Number of Taxa w/ Epifauna | 13 |
| Number of Taxa w/o Epifauna | 12 |
| BENTHIC BIOMASS (Grams per sq. meter) | |
| Site | 06412 |
| Marenzelleria viridis | 0.4477 |
| Cyathura polita | 0.1091 |
| Macoma balthica | 0.0977 |

| | | | | |
|--|-----------------------|--|--------|--|
| | Neanthes succinea | | 0.0114 | |
| | Carinoma tremaphoros | | 0.0091 | |
| | Glycinde solitaria | | 0.0091 | |
| | Mulinia lateralis | | 0.0091 | |
| | Rangia cuneata | | 0.0068 | |
| | Streblospio benedicti | | 0.0023 | |
| | Tubificoides spp. | | 0.0023 | |
| | Macoma mitchelli | | 0.0011 | |

Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
 BAY-WIDE RANDOM SITES (Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | |
|--|--------|--|
| Site | 06412 | |
| Molgula manhattensis (Epi.) | 0.0011 | |
| Parahesionia luteola | 0.0011 | |
| Total Biomass | 0.7080 | |
| Total Biomass w/o Epifauna | 0.7068 | |

| | | | |
|-----------------------------------|-------|---|--|
| Tany./Chir. Abund. Ratio | 0.00 | 5 | |
| Carnivore-Omnivore Abundance (%) | 6.82 | 1 | |
| Deep Deposit Feeder Abundance (%) | 50.00 | | |

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Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | |
|---------------------------------------|--------|--|
| Site | 06323 | |
| Imm. Tubificid w/o Cap. Chaete | 500 | |
| Streblospio benedicti | 409 | |
| Neanthes succinea | 68 | |
| Marenzelleria viridis | 23 | |
| Total Abundance w/ Epifauna | 1000 | |
| Total Abundance w/o Epifauna | 1000 | |
| Number of Taxa w/ Epifauna | 4 | |
| Number of Taxa w/o Epifauna | 4 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | |
| Site | 06323 | |
| Neanthes succinea | 0.1023 | |
| Oligochaeta | 0.0682 | |
| Marenzelleria viridis | 0.0273 | |
| Streblospio benedicti | 0.0011 | |
| Total Biomass | 0.1989 | |
| Total Biomass w/o Epifauna | 0.1989 | |

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BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06121 | 06122 | 06123 | 06124 | 06125 |
|-----------------------------------|-------------|-------------|-------------|----------------|----------------|
| Watershed | Potomac R | Potomac R | Potomac R | Potomac R | Potomac R |
| Habitat | Oligohaline | Oligohaline | Oligohaline | Oligohaline | Oligohaline |
| Date | 09/13/99 | 09/13/99 | 09/13/99 | 09/13/99 | 09/13/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | | |
| Depth (m) | 5.0 | 3.5 | 9.3 | 5.3 | 5.6 |
| Salinity (ppt) | 3.96 | 2.72 | 2.65 | 1.60 | 1.13 |
| Temperature (C) | 25.28 | 25.15 | 24.86 | 24.72 | 24.83 |
| Dissolved Oxygen (mg/L) | 6.2 | 5.4 | 5.5 | 6.8 | 7.9 |
| Sediment Silt-Clay (%) | 97.81 | 96.03 | 93.59 | 97.19 | 97.76 |
| Total Carbon (%) | 2.24 | 1.94 | 2.78 | 3.05 | 2.58 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | | |
| B-IBI Score | 2.20 | 2.20 | 2.20 | 1.80 | 1.80 |
| Condition | Degraded | Degraded | Degraded | Severely Degr. | Severely Degr. |
| # Attributes Scored | 5 | 5 | 5 | 5 | 5 |
| | Value Score | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.64 | 2.07 | 1.38 | 1.73 | 1.76 |
| Abundance (#/m2) | 1773 | 10955 | 19091 | 14091 | 9114 |
| Deep Deposit Feeder Abundance (%) | 26.92 | 13.69 | 26.55 | 42.58 | 27.68 |
| Oligo. Poll. Ind. Spp. Abund. (%) | 60.26 3 | 87.76 3 | 97.98 1 | 97.90 1 | 96.26 1 |
| Tolerance Score | 7.76 3 | 8.32 3 | 9.66 1 | 9.72 1 | 9.06 3 |

| | | | | | | | | | | | |
|------------------------------------|--------|---|--------|---|-------|---|-------|---|-------|---|--|
| Oligo. Poll. Sens. Spp. Abund. (%) | 7.69 | 3 | 2.28 | 3 | 0.24 | 3 | 0.00 | 1 | 0.00 | 1 | |
| Tany./Chir. Abund. Ratio | 100.00 | 1 | 100.00 | 1 | 0.00 | 5 | 0.00 | 5 | 50.00 | 3 | |
| Carnivore-Omnivore Abundance (%) | 14.10 | 1 | 3.73 | 1 | 0.95 | 1 | 2.10 | 1 | 0.75 | 1 | |
| Deep Deposit Feeder Abundance (%) | 26.92 | | 13.69 | | 26.55 | | 42.58 | | 27.68 | | |

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Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|
| Site | 06121 | 06122 | 06123 | 06124 | 06125 |
| Streblospio benedicti | 318 | 5932 | 13250 | 7705 | 6432 |
| Imm. Tubificid w/o Cap. Chaete * | | 1227 | 3727 | 4182 | 864 |
| Limnodrilus hoffmeisteri | | 227 | 1318 | 1227 | 182 |
| Polydora cornuta | 136 | 2045 | 45 | | 23 |
| Rangia cuneata | 432 | 818 | 159 | | |
| Imm. Tubificid w/o Cap. Chaete | 477 | | | | |
| Leptocheirus plumulosus | | | 341 | 91 | 45 |
| Cyathura polita | 114 | 227 | 91 | | |
| Marenzelleria viridis | 136 | 250 | 45 | | |
| Imm. Tubificid w/ Cap. Chaete * | | | | | 409 |
| Chaoborus punctipennis | | | 68 | 250 | 23 |
| Ilyodrilus templetoni | | | | | 318 |
| Coelotanypus spp. | 136 | 136 | | | 23 |
| Branchiura sowerbyi | | | 23 | | 250 |
| Dero obtusa | | | | | 273 |
| Imm. Tubificid w/ Cap. Chaete | | | | 273 | |
| Limnodrilus cervix (typ) | | | | 273 | |
| Gammarus daiberi (Epi.) | | | 23 | 23 | 136 |
| Aulodrilus pigueti | | | | | 136 |
| Isochaetides freyi | | | | | 91 |
| Cryptochironomus spp. | | | | 45 | 23 |
| Limnodrilus claparedianus | | | | 45 | |
| Melita nitida (Epi.) | | | 45 | | |
| Procladius spp. | | 45 | | | |

| | | | | | | |
|------------------------------|------|-------|-------|-------|------|--|
| Tubificoides spp. | | 45 | | | | |
| Ameroculodes species complex | 23 | | | | | |
| Carinoma tremaphoros | | | 23 | | | |
| Musculium spp. | | | | | 23 | |
| ----- | | | | | | |
| Total Abundance w/ Epifauna | 1773 | 10955 | 19159 | 14114 | 9250 | |
| Total Abundance w/o Epifauna | 1773 | 10955 | 19091 | 14091 | 9114 | |
| Number of Taxa w/ Epifauna | 8 | 9 | 12 | 9 | 14 | |
| Number of Taxa w/o Epifauna | 8 | 9 | 10 | 8 | 13 | |

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Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES (Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) | | | | | | |
|---------------------------------------|---------|---------|---------|--------|--------|--|
| Site | 06121 | 06122 | 06123 | 06124 | 06125 | |
| Rangia cuneata | 99.2997 | 83.7747 | 19.7431 | | | |
| Oligochaeta | 0.0409 | 0.1886 | | 1.6841 | 0.4409 | |
| Streblospio benedicti | 0.0114 | 0.2045 | 0.6545 | 0.6364 | 0.6886 | |
| Marenzelleria viridis | 0.2159 | 0.4341 | 0.2341 | | | |
| Polydora cornuta | 0.0068 | 0.3136 | 0.0205 | | 0.0045 | |
| Cyathura polita | 0.1136 | 0.1205 | 0.0455 | | | |
| Leptocheirus plumulosus | | | 0.0659 | 0.0011 | 0.0182 | |
| Coelotanypus spp. | 0.0182 | 0.0227 | | | 0.0136 | |
| Chaoborus punctipennis | | | 0.0192 | 0.0250 | 0.0011 | |
| Branchiura sowerbyi | | | 0.0045 | | 0.0273 | |
| Gammarus spp. (Epi.) | | | 0.0023 | 0.0011 | 0.0182 | |
| Ameroculodes species complex | 0.0045 | | | | | |
| Carinoma tremaphoros | | | 0.0045 | | | |
| Melita nitida (Epi.) | | | 0.0045 | | | |
| Chironomidae larvae | | 0.0011 | | 0.0011 | 0.0011 | |
| Musculium spp. | | | | | 0.0011 | |
| Tubificoides spp. | | 0.0011 | | | | |
| Total Biomass | 99.7110 | 85.0611 | 20.7987 | 2.3489 | 1.2148 | |
| Total Biomass w/o Epifauna | 99.7110 | 85.0611 | 20.7918 | 2.3477 | 1.1966 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06219 | 06220 | 06221 | 06222 |
|-----------------------------------|-------------|-------------|-------------|-------------|
| Watershed | Patuxent R | Patuxent R | Patuxent R | Patuxent R |
| Habitat | Oligohaline | Oligohaline | Oligohaline | Oligohaline |
| Date | 08/30/99 | 08/30/99 | 08/30/99 | 08/30/99 |
| Gear | Young Grab | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | | |
| Depth (m) | 2.6 | 2.0 | 1.9 | 4.3 |
| Salinity (ppt) | 4.50 | 4.20 | 2.80 | 1.90 |
| Temperature (C) | 25.02 | 25.89 | 25.56 | 25.42 |
| Dissolved Oxygen (mg/L) | 6.8 | 6.5 | 5.9 | 5.2 |
| Sediment Silt-Clay (%) | 85.54 | 96.46 | 85.45 | 83.51 |
| Total Carbon (%) | | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | | |
| B-IBI Score | 4.20 | 4.20 | 3.80 | 2.20 |
| Condition | Meets Goal | Meets Goal | Meets Goal | Degraded |
| # Attributes Scored | 5 | 5 | 5 | 5 |
| | Value Score | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 1.89 | 2.61 | 3.06 | 1.13 |
| Abundance (#/m2) | 841 | 1477 | 1159 | 841 |
| Deep Deposit Feeder Abundance (%) | 0.00 | 30.77 | 3.92 | 86.49 |
| Oligo. Poll. Ind. Spp. Abund. (%) | 35.14 3 | 83.08 3 | 45.10 3 | 86.49 3 |
| Tolerance Score | 6.00 5 | 0.00 5 | 6.00 5 | 9.80 1 |

| | | | | | | | | | |
|------------------------------------|-------|---|-------|---|-------|---|-------|---|--|
| Oligo. Poll. Sens. Spp. Abund. (%) | 2.70 | 3 | 1.54 | 3 | 0.00 | 1 | 0.00 | 1 | |
| Tany./Chir. Abund. Ratio | 0.00 | 5 | 0.00 | 5 | 0.00 | 5 | 0.00 | 5 | |
| Carnivore-Omnivore Abundance (%) | 86.49 | 5 | 56.92 | 5 | 70.59 | 5 | 2.70 | 1 | |
| Deep Deposit Feeder Abundance (%) | 0.00 | | 30.77 | | 3.92 | | 86.49 | | |

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Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | |
|-----------------------------------|-------|-------|-------|-------|
| Site | 06219 | 06220 | 06221 | 06222 |
| Neanthes succinea | 250 | 614 | 182 | |
| Tubificoides spp. | | 318 | 23 | 659 |
| Cyathura polita | 432 | | 273 | |
| Carinoma tremaphoros | 45 | 114 | 159 | 23 |
| Hypereteone heteropoda | | 45 | 159 | |
| Heteromastus filiformis | | 136 | 23 | 23 |
| Rangia cuneata | 23 | | 136 | |
| Streblospio benedicti | 45 | 45 | 68 | |
| Macoma mitchelli | | 68 | 68 | |
| Macoma balthica | 23 | | | 91 |
| Rhithropanopeus harrisi (Epi.) | | 23 | 91 | |
| Edotea triloba (Epi.) | | 45 | 45 | |
| Glycinde solitaria | | 23 | 45 | |
| Polydora cornuta | | 45 | 23 | |
| Apocorophium lacustre | | 45 | | |
| Edwardsia elegans | | 45 | | |
| Imm. Tubificid w/o Cap. Chaete | | | | 45 |
| Marenzelleria viridis | 23 | 23 | | |
| Americamysis bigelowi | | | 23 | |
| Total Abundance w/ Epifauna | 841 | 1591 | 1318 | 841 |
| Total Abundance w/o Epifauna | 841 | 1523 | 1182 | 841 |
| Number of Taxa w/ Epifauna | 7 | 14 | 14 | 5 |
| Number of Taxa w/o Epifauna | 7 | 12 | 12 | 5 |

| BENTHIC BIOMASS (Grams per sq. meter) | | | | |
|---------------------------------------|--------|--------|---------|--------|
| Site | 06219 | 06220 | 06221 | 06222 |
| Rangia cuneata | 0.0227 | | 78.6725 | |
| Macoma balthica | 0.6432 | | | 1.3295 |
| Rhithropanopeus harrisi (Epi.) | | 0.1682 | 0.4136 | |
| Neanthes succinea | 0.0909 | 0.3727 | 0.0659 | |
| Cyathura polita | 0.2364 | | 0.1591 | |

Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES (Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | |
|--|---------------|---------------|----------------|---------------|
| Site | 06219 | 06220 | 06221 | 06222 |
| Carinoma tremaphoros | 0.0182 | 0.0250 | 0.1068 | 0.0091 |
| Heteromastus filiformis | | 0.0568 | 0.0011 | 0.0011 |
| Edwardsia elegans | | 0.0568 | | |
| Marenzelleria viridis | 0.0114 | 0.0409 | | |
| Tubificoides spp. | | 0.0068 | 0.0011 | 0.0045 |
| Streblospio benedicti | 0.0011 | 0.0045 | 0.0011 | |
| Macoma mitchelli | | 0.0023 | 0.0045 | |
| Edotea triloba (Epi.) | | 0.0011 | 0.0045 | |
| Hypereteone heteropoda | | 0.0011 | 0.0023 | |
| Americamysis bigelowi | | | 0.0023 | |
| Glycinde solitaria | | 0.0011 | 0.0011 | |
| Polydora cornuta | | 0.0011 | 0.0011 | |
| Apocorophium lacustre | | 0.0011 | | |
| Oligochaeta | | | | 0.0011 |
| Total Biomass | 1.0239 | 0.7398 | 79.4372 | 1.3455 |
| Total Biomass w/o Epifauna | 1.0239 | 0.5705 | 79.0191 | 1.3455 |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

| Site | 06623 | 06625 |
|------------------------------------|-------------|-------------|
| Watershed | Upper Bay | Upper Bay |
| Habitat | Oligohaline | Oligohaline |
| Date | 09/14/99 | 09/14/99 |
| Gear | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | |
| Depth (m) | 1.7 | 2.1 |
| Salinity (ppt) | 1.45 | 2.01 |
| Temperature (C) | 24.36 | 24.37 |
| Dissolved Oxygen (mg/L) | 10.1 | 9.3 |
| Sediment Silt-Clay (%) | 3.34 | 18.22 |
| Total Carbon (%) | 0.76 | 1.71 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | |
| B-IBI Score | 2.60 | 3.00 |
| Condition | Degraded | Meets Goal |
| # Attributes Scored | 5 | 5 |
| | Value Score | Value Score |
| Shannon-Weiner Index | 2.42 | 1.98 |
| Abundance (#/m2) | 5250 | 13091 |
| Deep Deposit Feeder Abundance (%) | 62.34 | 52.08 |
| Oligo. Poll. Ind. Spp. Abund. (%) | 87.01 3 | 90.28 3 |
| Tolerance Score | 9.30 3 | 9.27 3 |
| Oligo. Poll. Sens. Spp. Abund. (%) | 0.00 1 | 0.17 3 |

| | | | | | |
|-----------------------------------|-------|---|-------|---|--|
| Tany./Chir. Abund. Ratio | 0.00 | 5 | 0.00 | 5 | |
| Carnivore-Omnivore Abundance (%) | 10.82 | 1 | 9.72 | 1 | |
| Deep Deposit Feeder Abundance (%) | 62.34 | | 52.08 | | |

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Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | |
|---------------------------------------|-------|-------|--|
| Site | 06623 | 06625 | |
| Imm. Tubificid w/o Cap. Chaete * | 2455 | 6636 | |
| Streblospio benedicti | 591 | 3273 | |
| Rangia cuneata | 500 | 1227 | |
| Chironomus spp. | 227 | 1250 | |
| Limnodrilus hoffmeisteri | 818 | 136 | |
| Leptocheirus plumulosus | 295 | 159 | |
| Polydora cornuta | | 318 | |
| Cladotanytarsus mancus grp. | 182 | | |
| Cyathura polita | 114 | 23 | |
| Aulodrilus pigueti | | 45 | |
| Cryptochironomus spp. | 45 | | |
| Edotea triloba (Epi.) | | 45 | |
| Gammarus spp. (Epi.) | | 45 | |
| Ameroculodes species complex | 23 | | |
| Marenzelleria viridis | | 23 | |
| Total Abundance w/ Epifauna | 5250 | 13182 | |
| Total Abundance w/o Epifauna | 5250 | 13091 | |
| Number of Taxa w/ Epifauna | 9 | 11 | |
| Number of Taxa w/o Epifauna | 9 | 9 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | |
| Site | 06623 | 06625 | |

| | | | | |
|-------------------------|--|--------|--------|--|
| Rangia cuneata | | 7.5750 | 0.0432 | |
| Oligochaeta | | 0.3364 | 0.2273 | |
| Chironomidae larvae | | 0.0455 | 0.2909 | |
| Streblospio benedicti | | 0.0455 | 0.1682 | |
| Cyathura polita | | 0.1159 | 0.0068 | |
| Leptocheirus plumulosus | | 0.0386 | 0.0068 | |
| Marenzelleria viridis | | | 0.0114 | |
| Edotea triloba (Epi.) | | | 0.0068 | |
| Polydora cornuta | | | 0.0045 | |

Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
 BAY-WIDE RANDOM SITES (Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | |
|--|--------|--------|--|
| Site | 06623 | 06625 | |
| Gammarus spp. (Epi.) | | 0.0045 | |
| Ameroculodes species complex | 0.0011 | | |
| Total Biomass | 8.1579 | 0.7705 | |
| Total Biomass w/o Epifauna | 8.1579 | 0.7591 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06223 | 06224 | 06225 |
|-------------------------------------|-------------|----------------|-------------|
| Watershed | Patuxent R | Patuxent R | Patuxent R |
| Habitat | Freshwater | Freshwater | Freshwater |
| Date | 08/30/99 | 08/30/99 | 08/30/99 |
| Gear | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | |
| Depth (m) | 3.0 | 3.7 | 2.2 |
| Salinity (ppt) | 0.40 | 0.20 | 0.10 |
| Temperature (C) | 24.33 | 24.13 | 22.81 |
| Dissolved Oxygen (mg/L) | 4.8 | 5.0 | 5.2 |
| Sediment Silt-Clay (%) | 98.56 | 87.94 | 7.14 |
| Total Carbon (%) | 2.35 | 3.01 | 0.58 |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | |
| B-IBI Score | 3.80 | 1.40 | 2.20 |
| Condition | Meets Goal | Severely Degr. | Degraded |
| # Attributes Scored | 5 | 5 | 5 |
| | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 0.59 | 1.65 | 2.00 |
| Abundance (#/m2) | 2432 5 | 591 1 | 6432 1 |
| Deep Deposit Feeder Abundance (%) | 6.54 5 | 92.31 1 | 84.81 3 |
| T.F. Pollution Indicative Spp Abund | 97.20 1 | 88.46 3 | 89.05 3 |
| Tolerance Score | 8.96 3 | 9.28 1 | 9.50 1 |

| | | | | |
|----------------------------------|------|-------|-------|--|
| Limnodrilus Abundance (%) | 6.54 | 84.62 | 79.86 | |
| Carnivore-Omnivore Abundance (%) | 0.00 | 0.00 | 2.47 | |

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Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | |
|---------------------------------------|--------|--------|--------|--|
| Site | 06223 | 06224 | 06225 | |
| Imm. Tubificid w/o Cap. Chaete * | 136 | 182 | 3545 | |
| Streblospio benedicti | 2205 | 23 | 386 | |
| Limnodrilus hoffmeisteri | 23 | 318 | 1591 | |
| Rangia cuneata | 45 | 23 | 318 | |
| Nais pardalis | | | 182 | |
| Chironomus spp. | | | 114 | |
| Aulodrilus limnobius | | 45 | 45 | |
| Ilyodrilus templetoni | | | 91 | |
| Cyathura polita | | | 45 | |
| Hobsonia florida | | | 45 | |
| Leptocheirus plumulosus | | | 45 | |
| Boccardiella ligerica | | | 23 | |
| Littoridinops tenuipes (Epi.) | | | 23 | |
| Marenzelleria viridis | 23 | | | |
| Total Abundance w/ Epifauna | 2432 | 591 | 6455 | |
| Total Abundance w/o Epifauna | 2432 | 591 | 6432 | |
| Number of Taxa w/ Epifauna | 4 | 4 | 12 | |
| Number of Taxa w/o Epifauna | 4 | 4 | 11 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | |
| Site | 06223 | 06224 | 06225 | |
| Oligochaeta | 0.0159 | 0.0038 | 0.5727 | |

| | | | | | |
|-------------------------------|--|--------|--------|--------|--|
| Rangia cuneata | | 0.0045 | 0.0011 | 0.1295 | |
| Streblospio benedicti | | 0.0727 | 0.0011 | 0.0136 | |
| Marenzelleria viridis | | 0.0341 | | | |
| Cyathura polita | | | | 0.0159 | |
| Hobsonia florida | | | | 0.0114 | |
| Leptocheirus plumulosus | | | | 0.0091 | |
| Littoridinops tenuipes (Epi.) | | | | 0.0045 | |
| Boccardiella ligerica | | | | 0.0011 | |

Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES (Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | |
|--|--------|--------|--------|--|
| Site | 06223 | 06224 | 06225 | |
| Chironomidae larvae | | | 0.0011 | |
| Total Biomass | 0.1273 | 0.0060 | 0.7591 | |
| Total Biomass w/o Epifauna | 0.1273 | 0.0060 | 0.7545 | |

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| Site | 06622 | 06624 | 06627 |
|-------------------------------------|-------------|-------------|-------------|
| Watershed | Upper Bay | Upper Bay | Upper Bay |
| Habitat | Freshwater | Freshwater | Freshwater |
| Date | 09/14/99 | 09/14/99 | 09/14/99 |
| Gear | Young Grab | Young Grab | Young Grab |
| Sampled Area (sq.m) | 0.044 | 0.044 | 0.044 |
| BOTTOM ENVIRONMENT | | | |
| Depth (m) | 4.7 | 2.0 | 1.5 |
| Salinity (ppt) | 0.46 | 0.44 | 0.18 |
| Temperature (C) | 24.76 | 24.47 | 24.96 |
| Dissolved Oxygen (mg/L) | 8.4 | 9.8 | 9.1 |
| Sediment Silt-Clay (%) | 16.70 | 3.20 | 15.74 |
| Total Carbon (%) | | | |
| BENTHIC INDEX OF BIOTIC INTEGRITY | | | |
| B-IBI Score | 3.40 | 2.60 | 3.00 |
| Condition | Meets Goal | Degraded | Meets Goal |
| # Attributes Scored | 5 | 5 | 5 |
| | Value Score | Value Score | Value Score |
| Shannon-Weiner Index | 2.55 | 2.95 | 2.34 |
| Abundance (#/m2) | 2523 5 | 11250 1 | 9068 1 |
| Deep Deposit Feeder Abundance (%) | 59.46 5 | 71.11 3 | 86.72 3 |
| T.F. Pollution Indicative Spp Abund | 65.77 3 | 39.60 5 | 56.39 3 |
| Tolerance Score | 9.79 1 | 9.21 1 | 7.88 5 |
| Limnodrilus Abundance (%) | 52.25 | 28.69 | 50.13 |

| | | | | |
|----------------------------------|------|-------|-------|--|
| Carnivore-Omnivore Abundance (%) | 9.91 | 25.05 | 11.28 | |
|----------------------------------|------|-------|-------|--|

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Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES

| BENTHIC ABUNDANCE (per sq. meter) | | | | |
|-----------------------------------|-------|-------|-------|--|
| Site | 06622 | 06624 | 06627 | |
| Imm. Tubificid w/o Cap. Chaete * | 1227 | 2682 | 4364 | |
| Nais variabilis | | 4136 | | |
| Aulodrilus limnobius | | | 2182 | |
| Aulodrilus pigueti | | | 909 | |
| Limnodrilus hoffmeisteri | 91 | 545 | 182 | |
| Cyathura polita | 182 | 159 | 455 | |
| Cladotanytarsus mancus grp. | | 682 | | |
| Chironomus spp. | | 636 | | |
| Nais pardalis | | 636 | | |
| Glyptotendipes spp. | | 409 | 23 | |
| Polypedilum halterale | | 91 | 318 | |
| Rheotanytarsus spp. | | 364 | 23 | |
| Marenzelleria viridis | 273 | 23 | 23 | |
| Streblospio benedicti | 295 | | | |
| Chironomidae pupae * | | 250 | | |
| Polypedilum convictum | | 227 | | |
| Imm. Tubificid w/ Cap. Chaete | 45 | | 136 | |
| Cricotopus spp. | | 136 | | |
| Gammarus spp. (Epi.) | 45 | 45 | 45 | |
| Oligochaeta | 136 | | | |
| Turbellaria (Epi.) | | | 136 | |
| Nemertea | | | 114 | |
| Corbicula fluminea | | 45 | 45 | |
| Pisidium spp. | 91 | | | |
| Stylaria lacustris | | | 91 | |

| | | | | |
|------------------------------|--|----|----|--|
| Chiridotea almyra | | 68 | | |
| Leptocheirus plumulosus | | 68 | | |
| Manayunkia speciosa | | | 68 | |
| Almyracuma proximoculi | | | 45 | |
| Ameroculodes species complex | | 45 | | |
| Cryptochironomus spp. | | | 45 | |
| Dicrotendipes spp. | | | 45 | |
| Endochironomus spp. | | | 45 | |
| Musculium spp. | | | 45 | |

Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)

BAY-WIDE RANDOM SITES

(Contd.)

| BENTHIC ABUNDANCE (per sq. meter) - Contd. | | | | |
|--|--------|---------|--------|--|
| Site | 06622 | 06624 | 06627 | |
| Nanocladius distinctus | | 45 | | |
| Parachironomus spp. | | 45 | | |
| Thienemanniella spp. | | 45 | | |
| Apocorophium lacustre | 23 | | | |
| Coenagrionidae (Epi.) | | 23 | | |
| Hydracarina | | | 23 | |
| Total Abundance w/ Epifauna | 2591 | 11318 | 9273 | |
| Total Abundance w/o Epifauna | 2545 | 11250 | 9091 | |
| Number of Taxa w/ Epifauna | 12 | 20 | 19 | |
| Number of Taxa w/o Epifauna | 11 | 18 | 17 | |
| BENTHIC BIOMASS (Grams per sq. meter) | | | | |
| Site | 06622 | 06624 | 06627 | |
| Oligochaeta | 0.2273 | 31.4999 | 0.3955 | |
| Marenzelleria viridis | 0.3250 | 0.0114 | 0.0205 | |
| Cyathura polita | 0.1227 | 0.0409 | 0.1591 | |
| Chironomidae larvae | | 0.3045 | 0.0011 | |
| Corbicula fluminea | | 0.2000 | 0.0182 | |
| Gammarus spp. (Epi.) | 0.0011 | 0.0250 | 0.0011 | |
| Chiridotea almyra | 0.0182 | | | |
| Turbellaria (Epi.) | | | 0.0091 | |
| Streblospio benedicti | 0.0068 | | | |
| Coenagrionidae (Epi.) | | 0.0045 | | |

| | | | |
|------------------------------|--------|--------|--|
| Ameroculodes species complex | 0.0023 | | |
| Pisidium spp. | 0.0023 | | |
| Leptocheirus plumulosus | 0.0023 | | |
| Almyracuma proximoculi | | 0.0011 | |
| Apocorophium lacustre | 0.0011 | | |
| Chironomidae pupae * | | 0.0011 | |
| Hydracarina | | 0.0011 | |
| Manayunkia speciosa | | 0.0011 | |

Continued

BOTTOM ENVIRONMENT AND BENTHOS, SUMMER 1999 (CRUISE 1:1999/2000)
BAY-WIDE RANDOM SITES (Contd.)

| BENTHIC BIOMASS (Grams per sq. meter) - Contd. | | | | |
|--|--------|---------|--------|--|
| Site | 06622 | 06624 | 06627 | |
| Musculium spp. | | 0.0011 | | |
| Nemertea | | | 0.0011 | |
| Total Biomass | 0.7091 | 32.0885 | 0.6091 | |
| Total Biomass w/o Epifauna | 0.7080 | 32.0590 | 0.5989 | |