Figure 5. Lower Shannock Dam and Sampling Locations

Appendix VI. Contaminant Levels in Sediments at the Lower Shannock Dam, Rhode Island.

| Analyte *(1)* | Sediment Concentrations at Lower Shannock Dam | | | | | Freshwater Criteria *(1)* | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | McDonald et al. *(2000)* | | 1999 NOAA SQUIRTs, 1999 | | | | |
| | LSD1 | LSD2 | LSD3 | LSD4 | LSD5 | TEC | PEC | TEL | TEL | PEL | UET | |
| | | | | | | Threshold Effect Concentr. | Probable Effect Concentr. | Lowest ARCs *H.azteca* | Threshold Effects Level | Probable Effects Level | Upper Effects Threshold | |
| **Selected Metals (mg/kg dry weight)** | | | | | | | | | | | | |
| Arsenic | 1.5 | 1.5 | 1.8 | 2.9 | 0.8 | 9.79 | 33 | 10.8 | 5.9 | 17 | 17 | M |
| Cadmium | 0.3 | 0.5 | **0.7** | **0.6** | 0.5 | 0.99 | 4.98 | 0.58 | 0.60 | 3.53 | 3 | I |
| Chromium | 4.5 | 12.0 | 16.0 | **40.0** | 21.0 | 43.4 | 111 | 36.3 | 37.3 | 90 | 95 | H |
| Copper | 9.6 | 16.0 | 13.0 | 26.0 | 9.2 | 31.6 | 149 | 28.0 | 35.7 | 197 | 86 | I |
| Lead | **49.0** | **76.0** | 25.0 | **80.0** | 34.0 | 35.8 | 128 | 37 | 35 | 91.3 | 127 | H |
| Mercury | 0.1 | **0.5** | **0.3** | **0.5** | 0.1 | 0.18 | 1.06 | | 0.17 | 0.49 | 0.56 | M |
| Nickel | 2.2 | 4.4 | 3.2 | 5.0 | 2.8 | 22.7 | 48.6 | 19.5 | 18 | 35.9 | 43 | H |
| Zinc | 78.0 | 68.0 | 55.0 | 78.0 | 41.0 | 121 | 459 | 98 | 123.1 | 315 | 520 | M |
| **Inorganics (%)** | | | | | | | | | | | | |
| Total Organic Carbon | **0.4** | **1.3** | **2.5** | **2.3** | **1.5** | | | | | | | |
| **Grain Size Analysis (%)** | | | | | | | | | | | | |
| % Sand | **85.0** | **82.4** | **36.6** | **55.5** | **57.2** | | | | | | | |
| % Silt | **4.7** | **14.9** | **49.9** | **37.0** | **35.9** | | | | | | | |
| % Clay | **0.8** | **2.8** | **13.3** | **7.4** | **6.6** | | | | | | | |
| **Percent Moisture (%)** | **30.1** | **48.2** | **71.6** | **60.5** | **64.3** | | | | | | | |

**Notes:**

*(1)* Analysis from all samples presented on this table were conducted based on composite samples.

**11.1** A detected concentration exceeded the TEC/TEL

**11.1** A detected concentration exceeded the PEC/PEL

BDL Below Detection Limit

Appendix VI (continued). Contaminant Levels in Sediments at the Lower Shannock Dam, Rhode Island.

| Analyte *(1)* | Sediment Concentrations at Lower Shannock Dam | | | | | Freshwater Criteria *(1)* | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | McDonald et al. *(2000)* | | 1999 NOAA SQUIRTs, 1999 | | | | |
| | LSD1 | LSD2 | LSD3 | LSD4 | LSD5 | TEC | PEC | TEL | TEL | PEL | UET | |
| | | | | | | Threshold Effect Concentr. | Probable Effect Concentr. | Lowest ARCs *H.azteca* | Threshold Effects Level | Probable Effects Level | Upper Effects Threshold | |
| **Selected Polycyclic Aromatic Hydrocarbons (PAHs) (ug/kg dry weight)** | | | | | | | | | | | | |
| Naphthalene | 36 | 110 | 22 | 1100 | 10 | 176 | 561 | 15 | | | 600 | I |
| 2-Methylnaphthalene | 28 | 110 | 27 | 1400 | 10 | | | | | | | |
| Acenaphthalene | 100 | 34 | 28 | 150 | 42 | | | | | | 160 | M |
| Acenaphthene | 68 | 180 | 10 | 1900 | 7 | | | | | | 290 | M |
| Fluorene | 120 | 340 | 22 | 1500 | 21 | 77.4 | 536 | 10 | | | 300 | M |
| Phenanthrene | 920 | 2400 | 190 | 2800 | 160 | 204 | 1,170 | 19 | 42 | 515 | 800 | I |
| Anthracene | 190 | 560 | 47 | 640 | 42 | 57 | 845 | 10 | | | 260 | M |
| Fluoranthene | 1200 | 2800 | 260 | 1200 | 270 | 423 | 2,230 | 31 | 111 | 2,355 | 1,500 | M |
| Pyrene | 1100 | 2700 | 330 | 1700 | 270 | 195 | 1,520 | 44 | 53 | 875 | 1,000 | I |
| Benz[a]anthracene | 940 | 1800 | 210 | 1100 | 220 | 108 | 1,050 | 16 | 32 | 385 | 500 | I |
| Chrysene | 890 | 2100 | 180 | 860 | 250 | 166 | 1,290 | 27 | 57 | 862 | 800 | I |
| Benzo[b]fluoranthene | 1100 | 2600 | 240 | 1700 | 770 | 27 | 13,400 | | | | | |
| Benzo[k]fluoranthene | 1100 | 2400 | 170 | 970 | 610 | | | 27 | | | 13,400 | B |
| Benzo[a]pyrene | 1200 | 2300 | 140 | 1100 | 540 | 150 | 1,450 | 32 | 32 | 782 | 700 | I |
| Benzo[e]pyrene | 830 | 1900 | 190 | 1600 | 610 | | | | | | | |
| Indeno[1,2,3-cd]pyrene | 670 | 2000 | 230 | 290 | 640 | | | 17 | | | 330 | M |
| Dibenz[a,h]anthracene | 200 | 1400 | 95 | 820 | 180 | 33 | | 10 | | | 100 | M |
| **Total Selected PAHs** | 10692.0 | 25734.0 | 2391.0 | 20830.0 | 4652.0 | **1,610** | **22,800** | **264** | | | **12,000** | **M** |

**Notes:**

*(1)* Analysis from all samples presented on this table were conducted based on composite samples.

11.1 A detected concentration exceeded the TEC/TEL

11.1 A detected concentration exceeded the PEC/PEL/UET

BDL Below Detection Limit

Appendix VI (continued). Contaminant Levels in Sediments at the Lower Shannock Dam, Rhode Island.

| Analyte *(1)* | Sediment Concentrations at Lower Shannock Dam | | | | | Freshwater Criteria *(1)* | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | McDonald et al. *(2000)* | | 1999 NOAA SQUIRTs, 1999 | | | | |
| | LSD1 | LSD2 | LSD3 | LSD4 | LSD5 | TEC | PEC | TEL | TEL | PEL | UET | |
| | | | | | | Threshold Effect Concentr. | Probable Effect Concentr. | Lowest ARCs *H.azteca* | Threshold Effects Level | Probable Effects Level | Upper Effects Threshold | |
| **Pesticides (ug/kg dry weight)** | | | | | | | | | | | | |
| p,p-DDD | **5.0** | **14.0** | 2.0 | **23.0** | 3.0 | | | | 3.54 | 8.51 | 60 | I |
| Sum-DDD | 5.0 | **18.0** | 2.0 | **23.0** | 3.00 | 4.88 | 28 | | | | | I |
| p,p-DDE | 2.0 | 7.0 | 5.0 | 6.0 | 4.00 | | | | 1.42 | 6.75 | 50 | I |
| Sum-DDE | 2.0 | **7.0** | **5.0** | **6.0** | **4.00** | 3.16 | 31.3 | | | | | I |
| p,p-DDT | BDL | BDL | BDL | BDL | 2 | | | | | | <50 | I |
| Sum-DDT | BDL | BDL | BDL | BDL | BDL | 4.16 | 62.9 | | | | | I |
| Aldrin | - | - | - | - | - | | | | | | 40 | I |
| alpha-BHC | BDL | BDL | BDL | BDL | BDL | | | | | | | |
| beta-BHC | BDL | BDL | BDL | BDL | BDL | | | | | | | |
| delta-BHC | BDL | BDL | BDL | BDL | BDL | | | | | | | |
| gamma-BHC (Lindane) | BDL | BDL | BDL | BDL | BDL | 2.37 | 4.99 | | 0.94 | 1.38 | 9 | I |
| gamma Chlordane | BDL | BDL | BDL | BDL | BDL | 3.24 | 17.6 | | 4.5 | 8.9 | 30 | I |
| Chlorpyrifos | - | - | - | - | - | | | | | | | |
| Dieldrin | BDL | BDL | BDL | BDL | BDL | 1.9 | 61.8 | | 2.85 | 6.67 | 300 | I |
| Endosulfan II | - | - | - | - | - | | | | | | | |
| Endrin | BDL | 3.0 | BDL | BDL | BDL | 2.22 | 207 | | 2.67 | 62.4 | 500 | I |
| HCB | BDL | BDL | BDL | BDL | BDL | | | | | | 100 | |
| Heptachlor | - | - | - | - | - | | | | | | 10 | I |
| Heptachlor epoxide | BDL | BDL | BDL | BDL | BDL | 2.47 | 16 | | 0.6 | 2.74 | 30 | I |
| Mirex | BDL | BDL | BDL | BDL | BDL | | | | | | | |
| cis-Nonachlor | BDL | BDL | BDL | BDL | BDL | | | | | | | |
| trans-Nonachlor | BDL | BDL | BDL | BDL | BDL | | | | | | | |
| Oxychlordane | BDL | BDL | BDL | BDL | BDL | | | | | | | |
| Toxaphene | BDL | BDL | BDL | BDL | BDL | | | | | | | |
| **Polychlorinated Biphenyls (PCBs) (ug/kg dry weight)** | | | | | | | | | | | | |
| Total PCBs | BDL | **150.0** | **49.0** | **360** | 19 | 59.8 | 676 | 31.6 | 34.1 | 277 | 26 | M |

*(1) B*ased on composite samples.

**11.1** A detected concentration exceeded the TEC/TEL

**11.1** A detected concentration exceeded the PEC/PEL

BDL Below Detection Limit