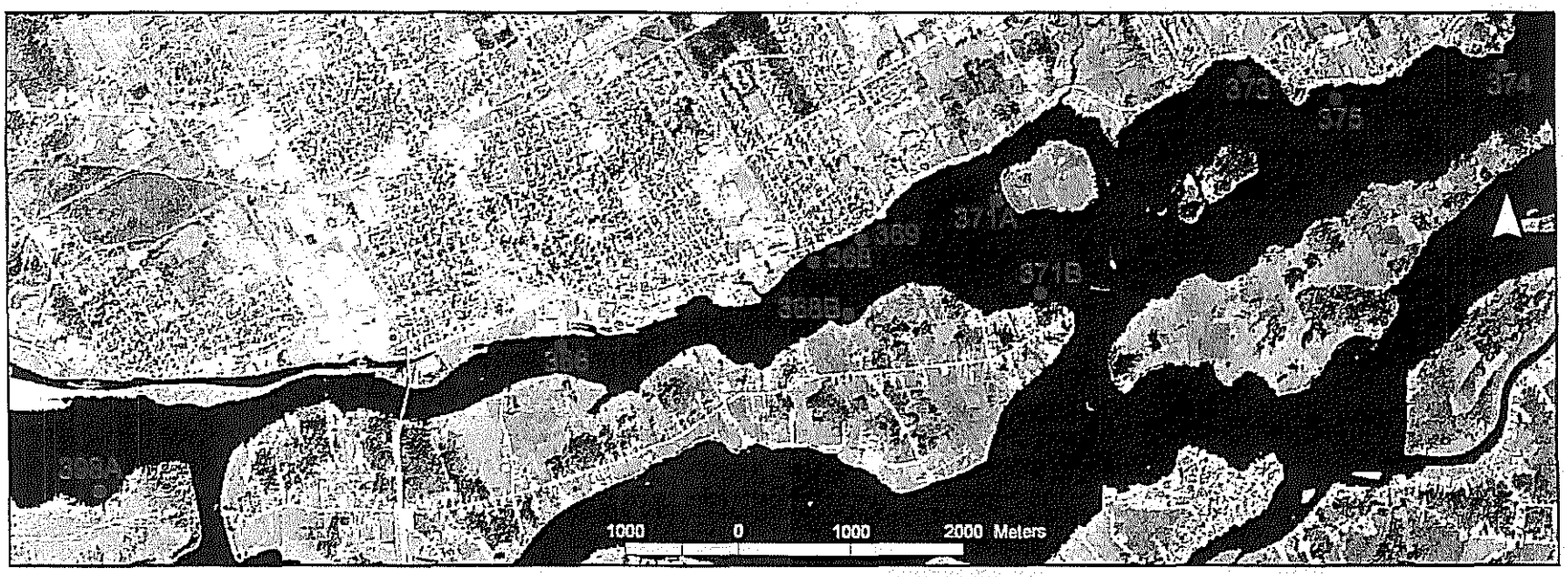


Figure 104. 1986 benthic invertebrate sampling locations (Jaagumagi 1987).

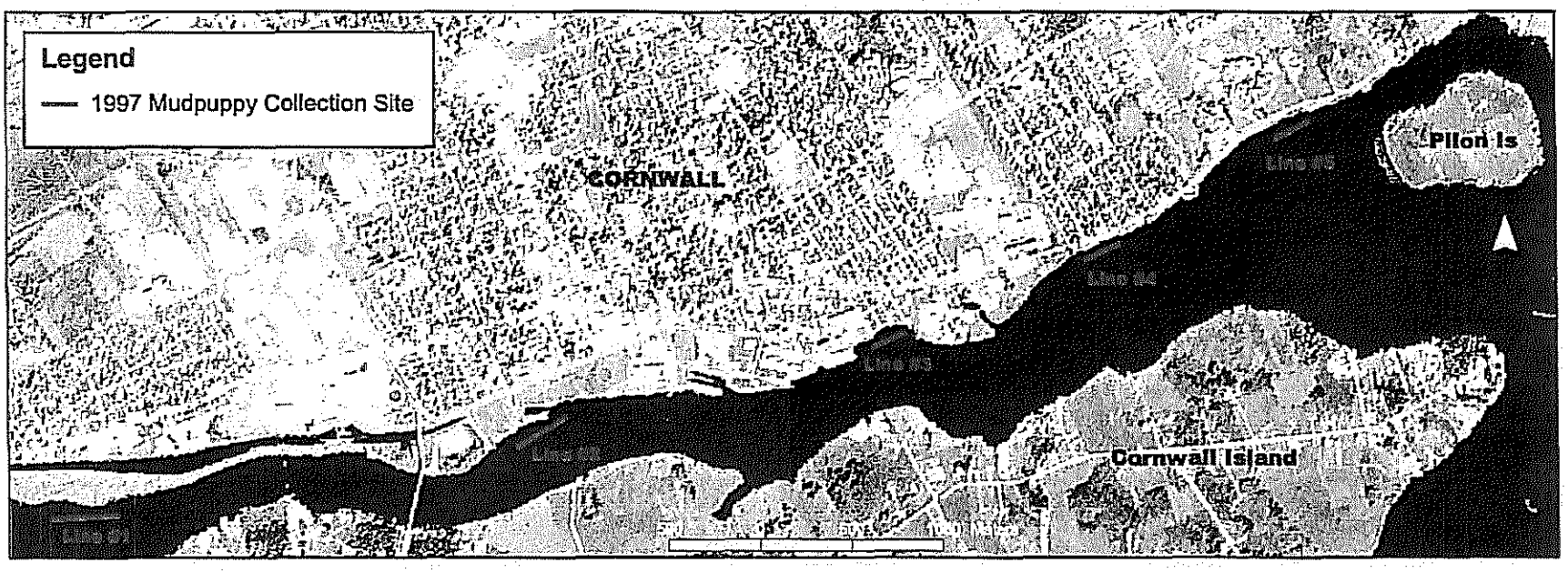


Figure 105. 1997 mudpuppy sampling locations (Bishop 1997).

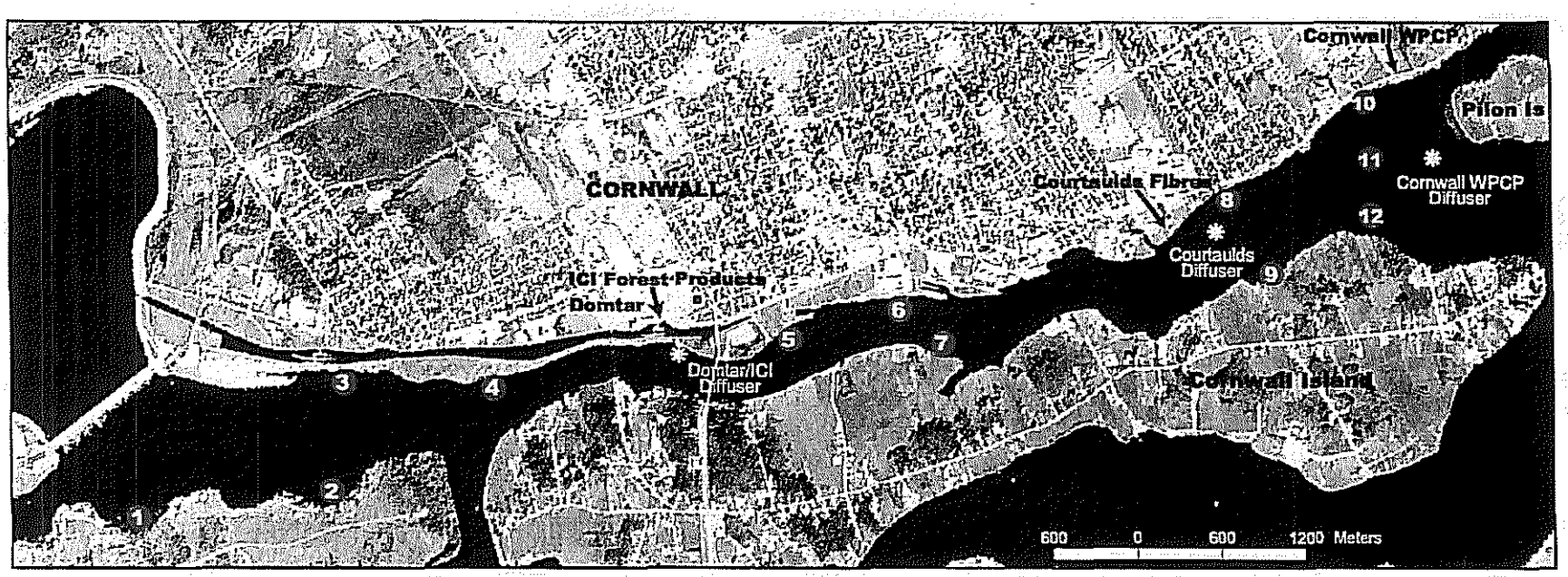


Figure 102. Benthos collection sites for 1993 Environmental Effects Monitoring, Domtar, Cornwall (Ecological Services for Planning 1996).

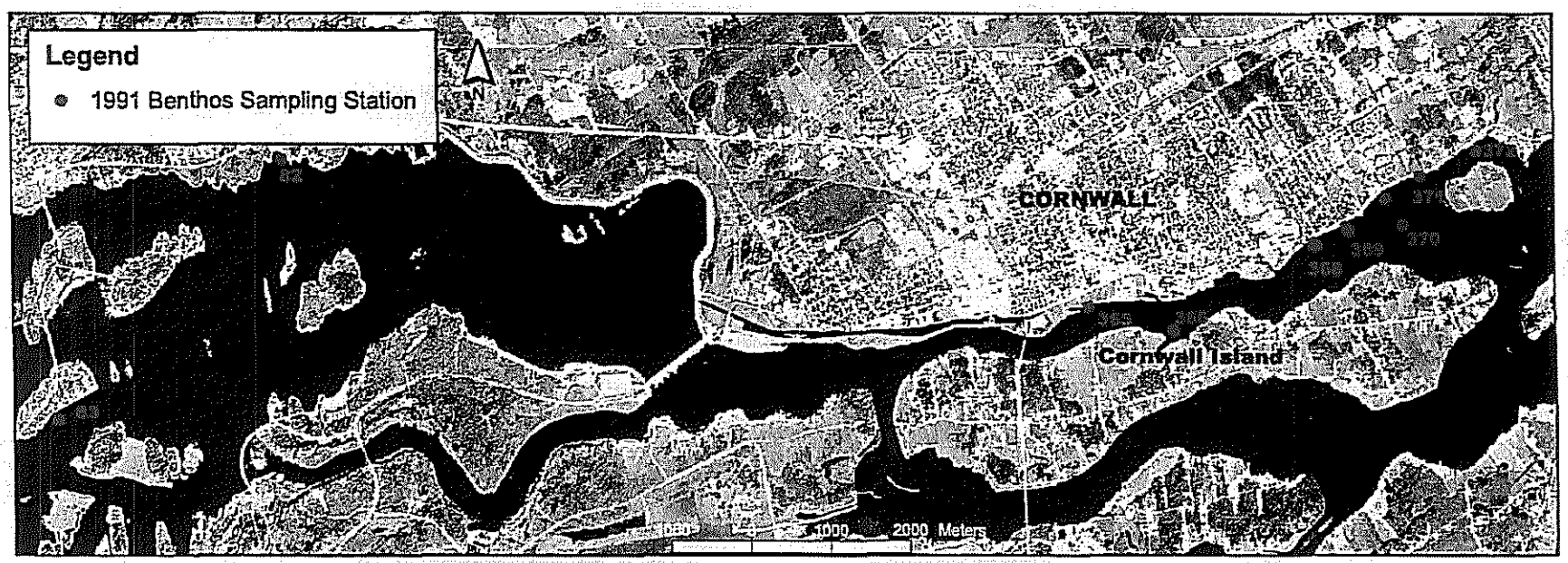


Figure 103. 1991 benthic invertebrate sampling locations (Richman 1994)

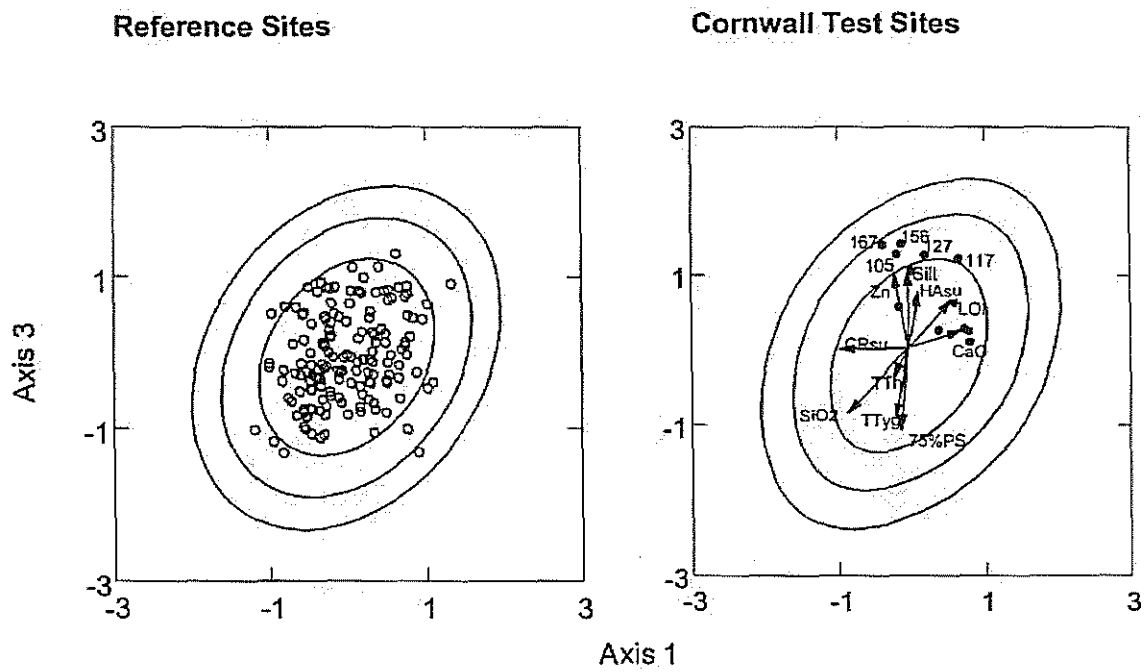


Figure 101. Assessment of Cornwall sites using HMDS ordination of 10 sediment toxicity endpoints, showing 90, 99 and 99.9% ellipses around reference sites (open circles) and 12 test sites (solid circles) sampled at Cornwall. The contributions of the endpoints and environmental variables are shown by arrows (for clarity the test sites and reference sites are shown on separate figures).
TTyg - T. tubifex young, TTht - T. tubifex hatch rate, CRsu - C. riparius survival, HAsu - H. azteca survival)
Source: Reynoldson (in prep.).

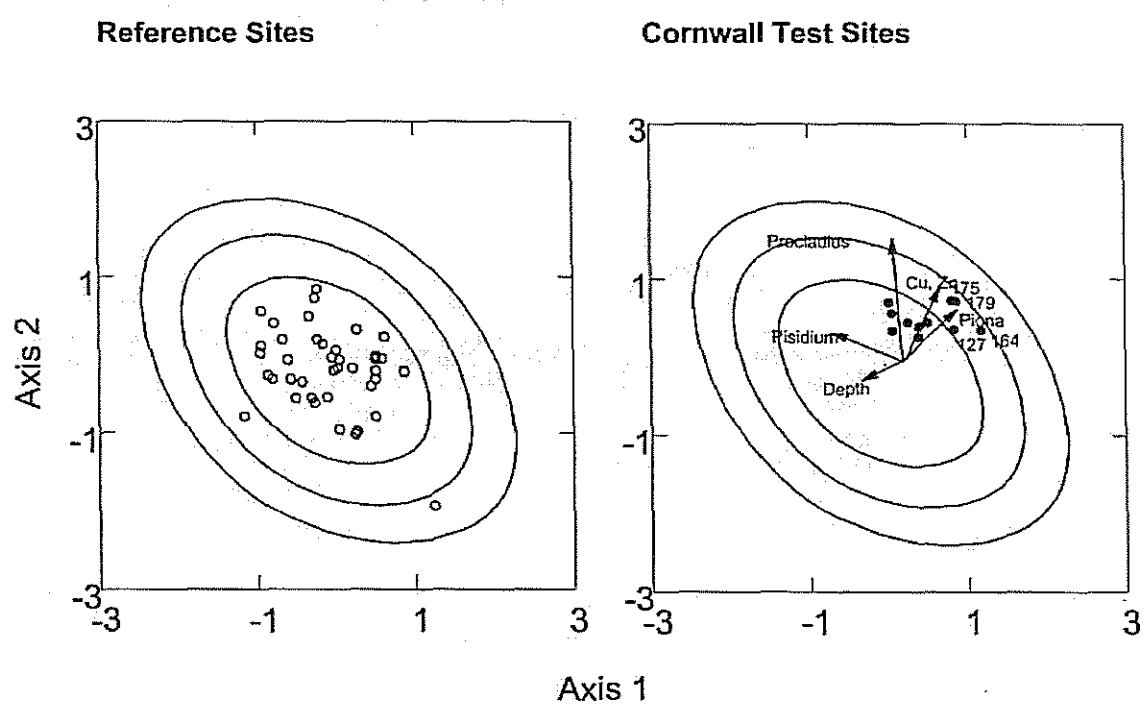


Figure 100. Assessment of Cornwall sites using HMDS (stress=0.1910) ordination at the genus level, showing 90, 99 and 99.9% ellipses around reference sites (open circles) and 12 test sites (solid circles) sampled at Cornwall. The contributions of the taxa and environmental variables are shown by arrows (for clarity test sites and reference sites are shown on separate figures). Source: Reynoldson, (in prep.)

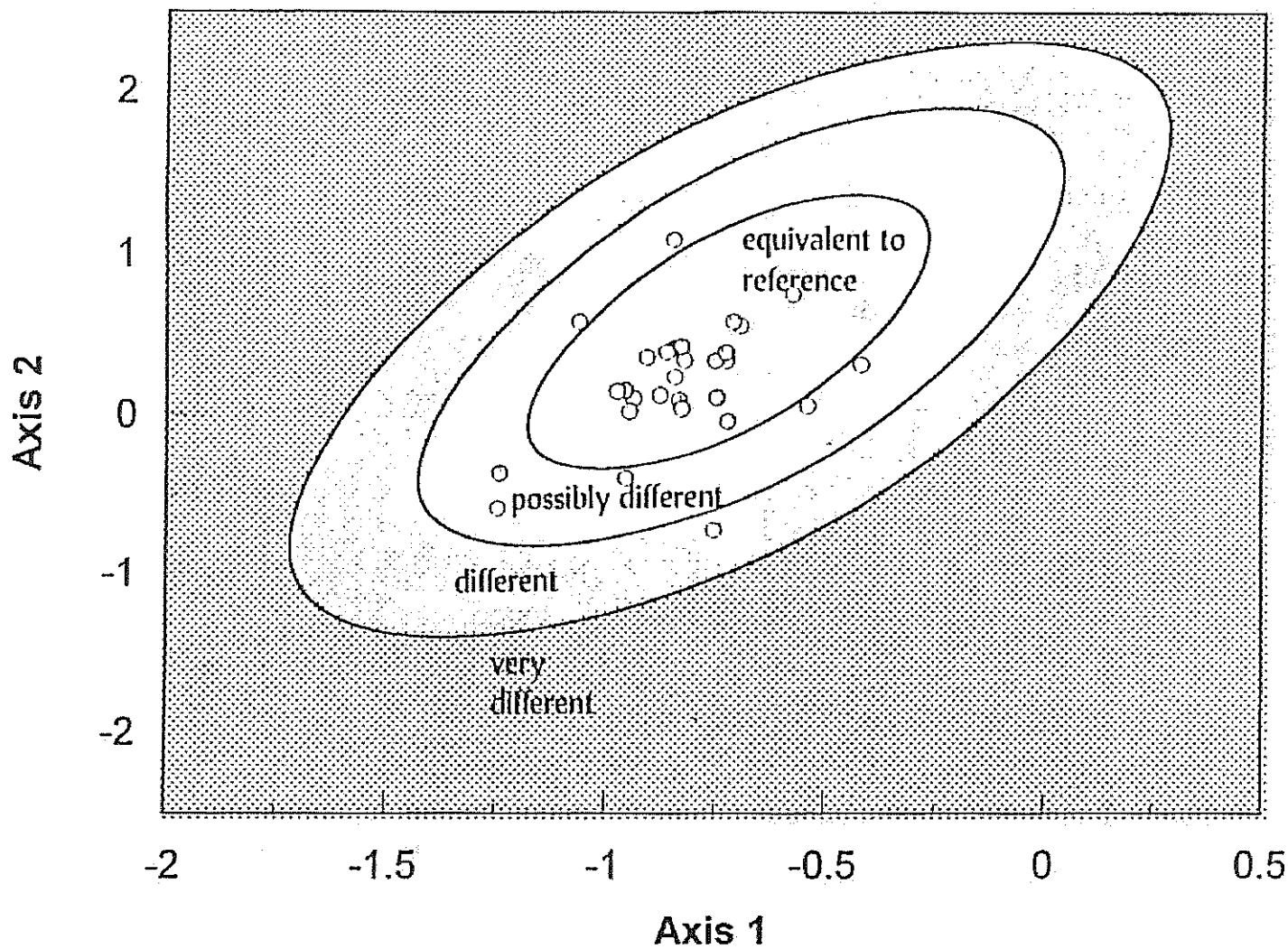


Figure 99. Impairment stress levels derived for reference sites in ordination space. Bands, based on 90,99 and 99.9% probability ellipses, are identified as equivalent to reference, possibly different, different and very different from reference. Source: Reynoldson and Day (1998).

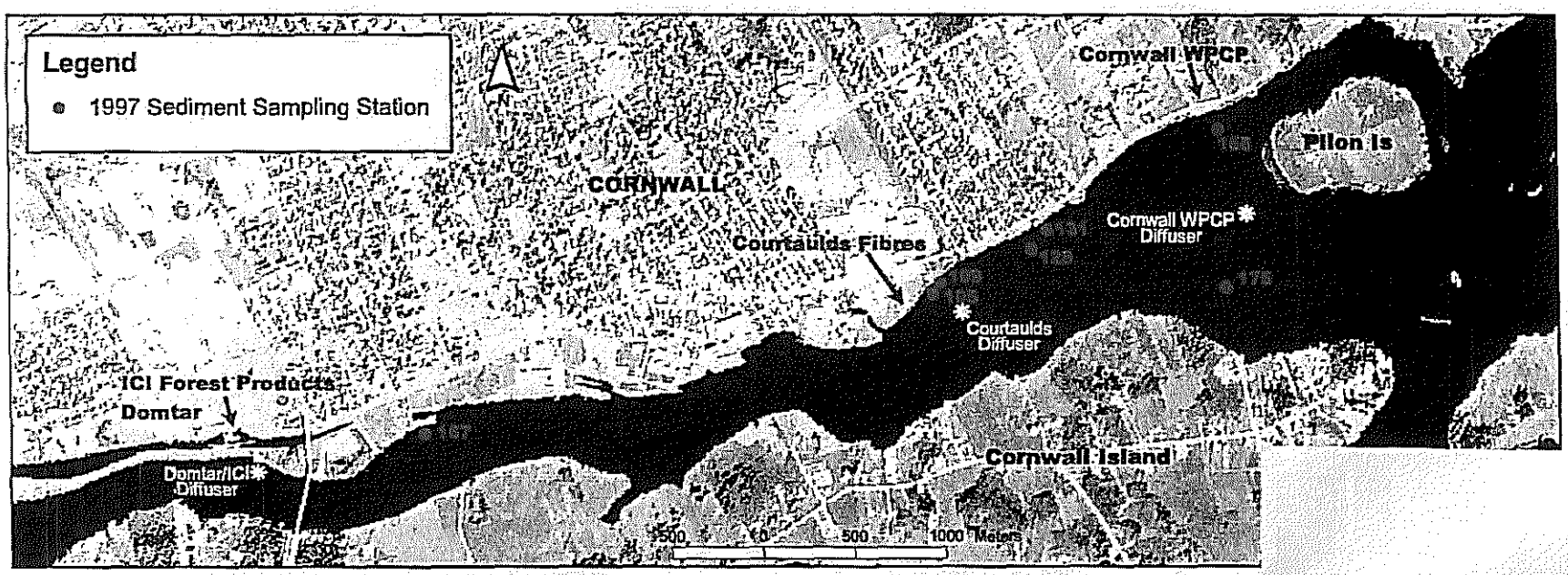


Figure 97. 1997 station locations for sediment bioassessment (Bedard 1999).

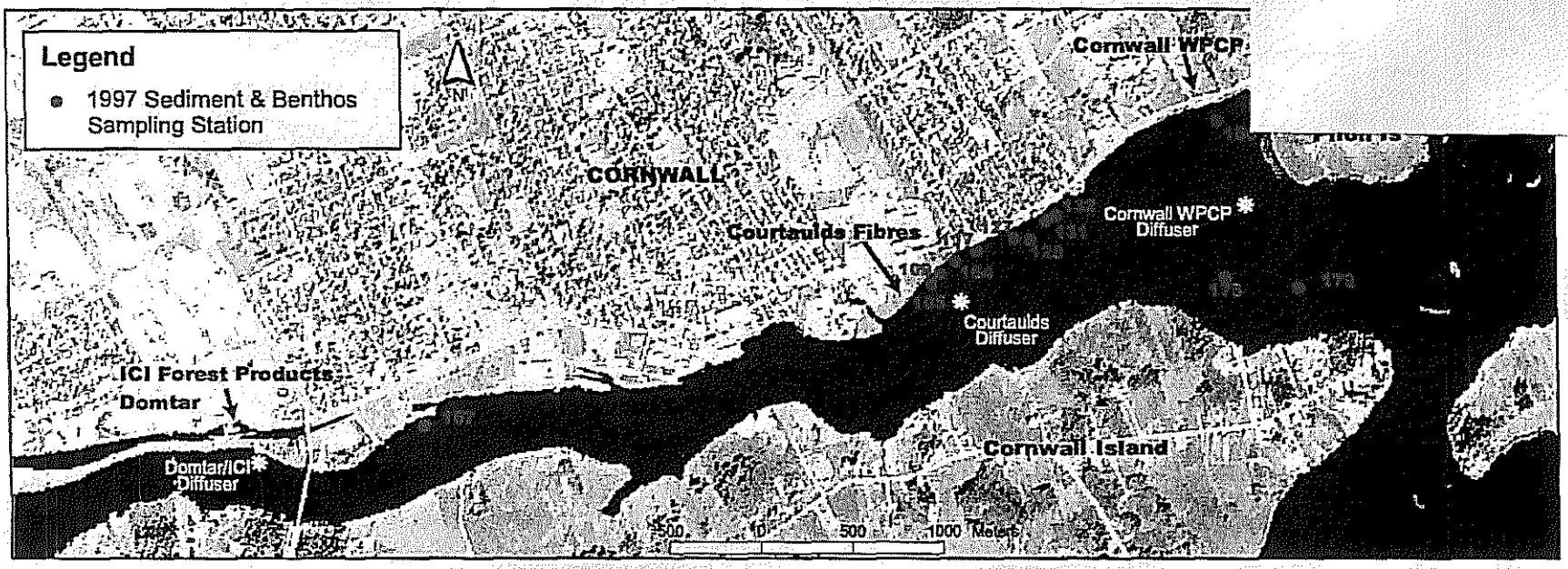


Figure 98. 1997 station locations for sediment bioassessment (Reynoldson, in prep.).

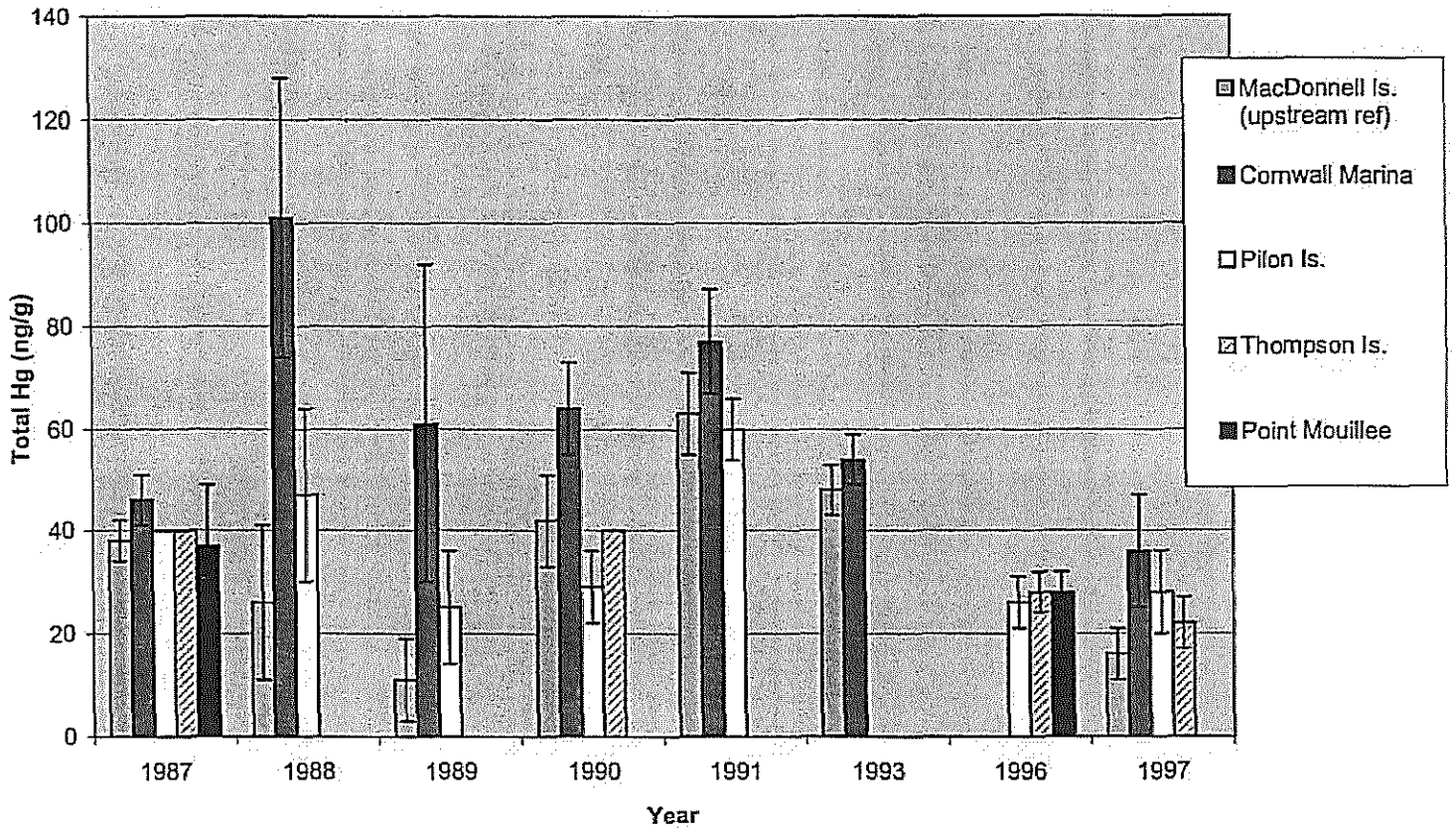


Figure 96A. Total mercury (ng/g wet weight) in spottail shiners, St. Lawrence River, 1987-1997. Source: L. Richman, MOE Environmental Monitoring & Reporting Branch data files.

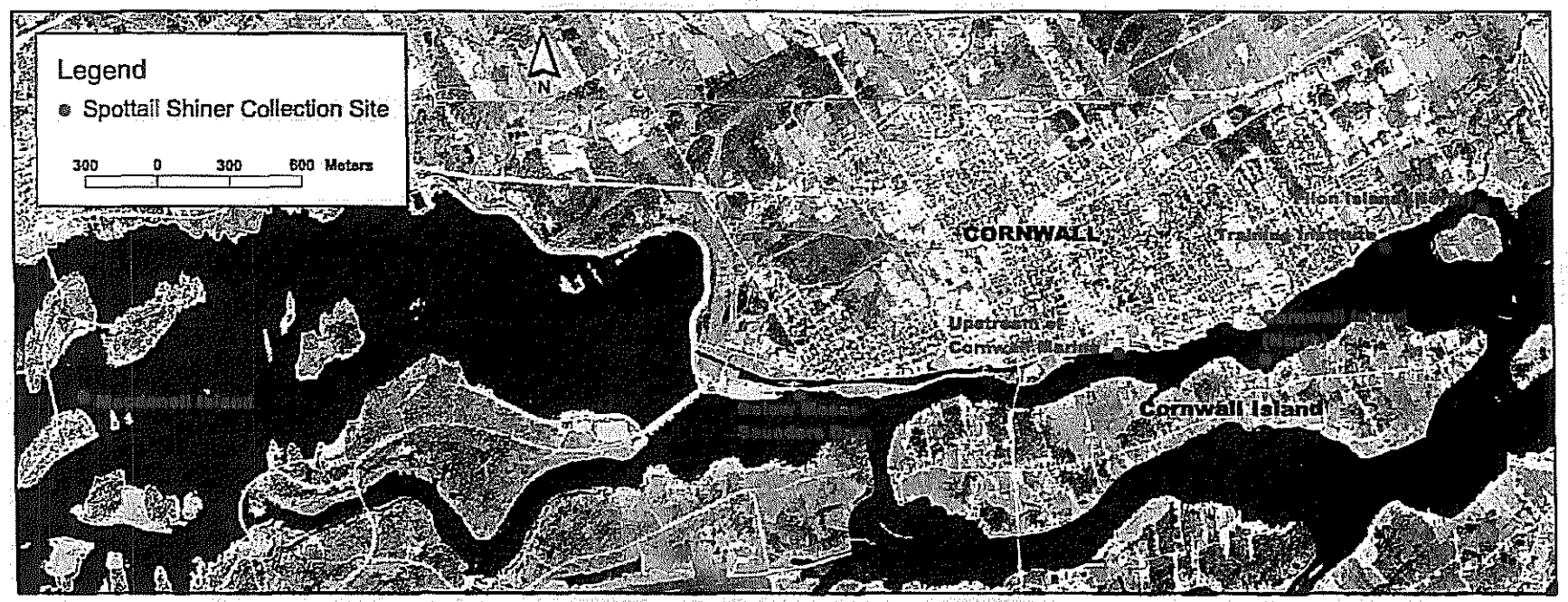


Figure 96. Young-of-the-year spottail shiner sampling sites in the north channel of the St. Lawrence River at Cornwall, Ontario (MOE data files).

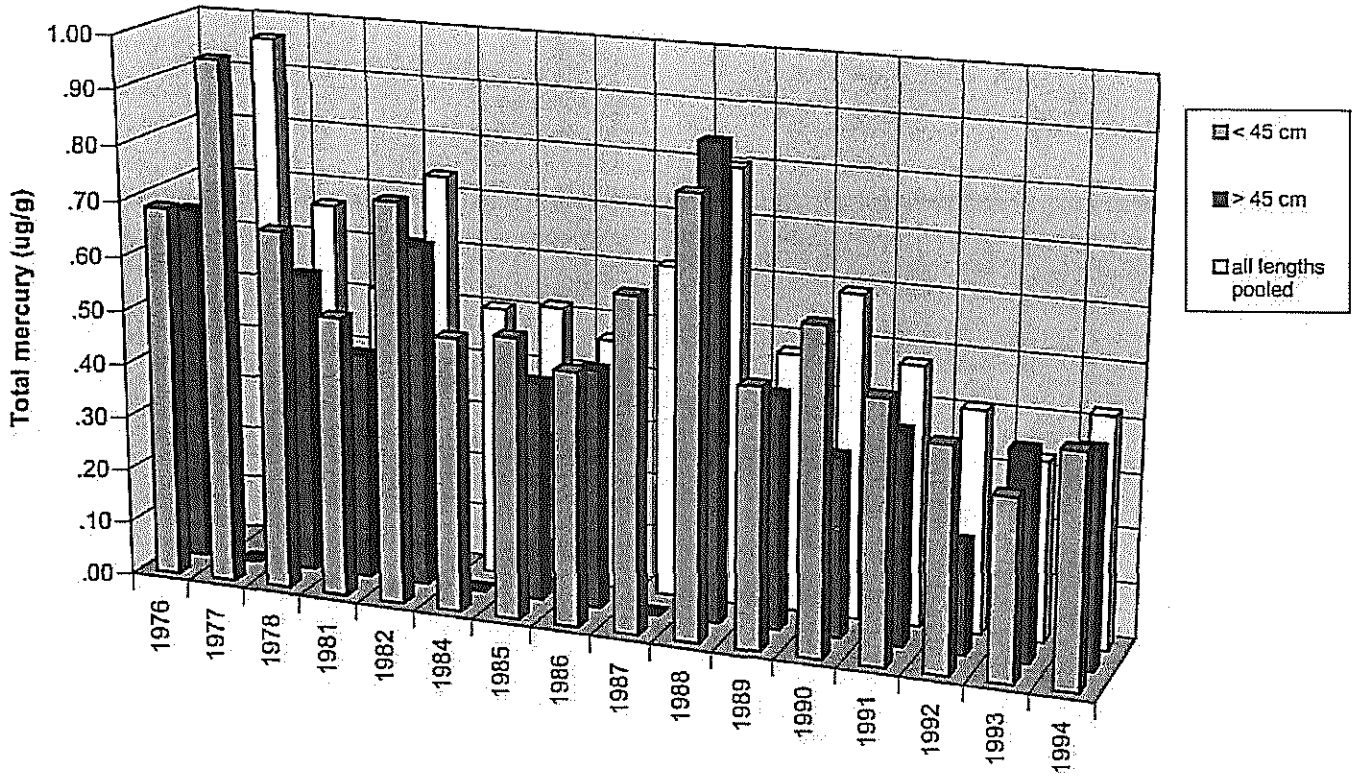


Figure 95D. Cohort analysis of total mercury in Lake St. Francis walleye by size category (<45 cm long; > 45 cm; all lengths). Values shown are total mercury (ug/g) standardized to 45 cm length. Source: A. Hayton, MOE.

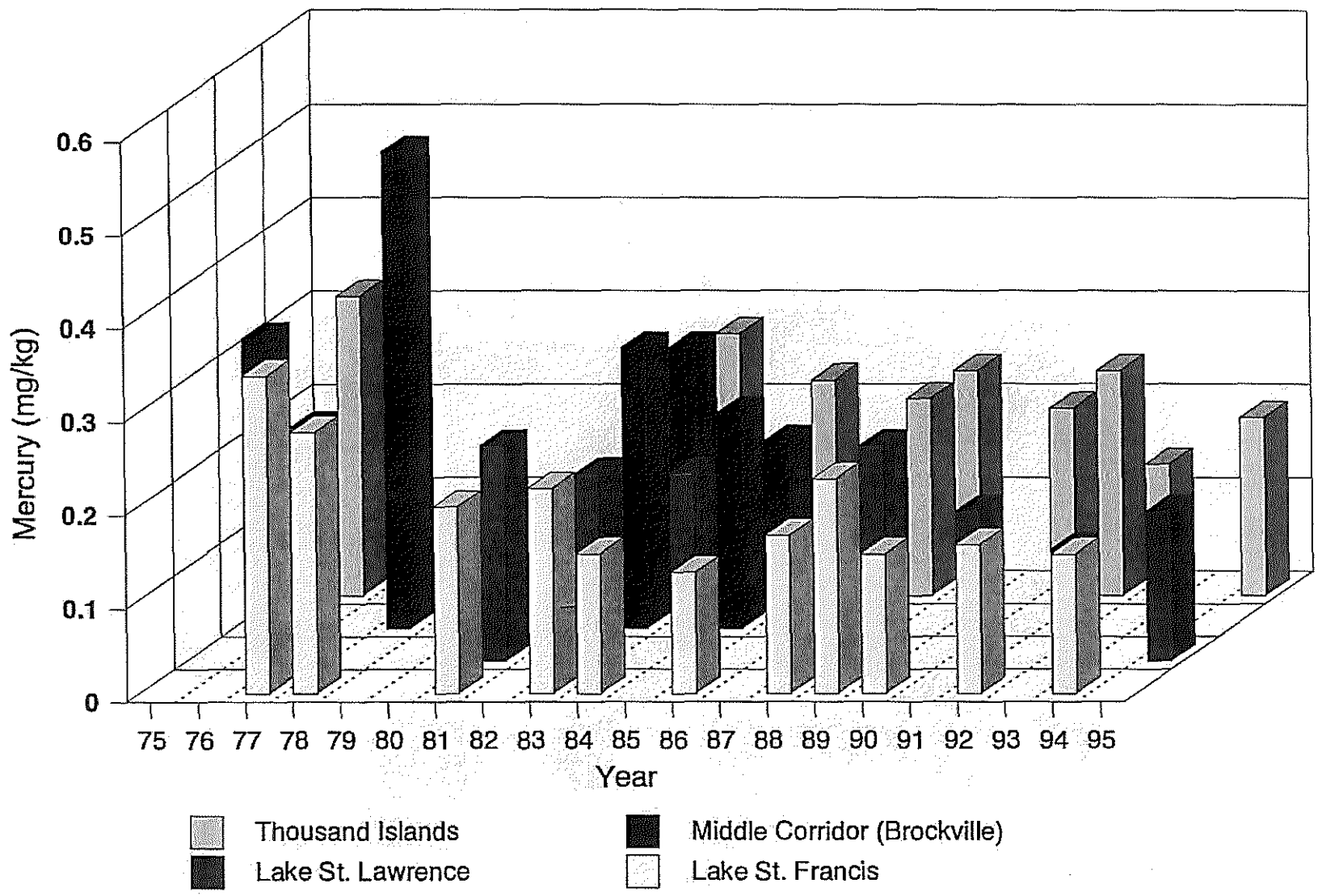


Figure 95C. Total mercury (mg/kg) in a standardized length (20 cm) yellow perch, St. Lawrence River, 1976-1995 (Source: A. Hayton, MOE, Environmental Monitoring & Reporting Branch, Sport Fish Contaminants Program). Concentrations shown were calculated from regressions of mercury concetration versus length. R^2 values, N (number of fish analyzed) and other data associated with the calculated concentrations shown are provided in Table 32.

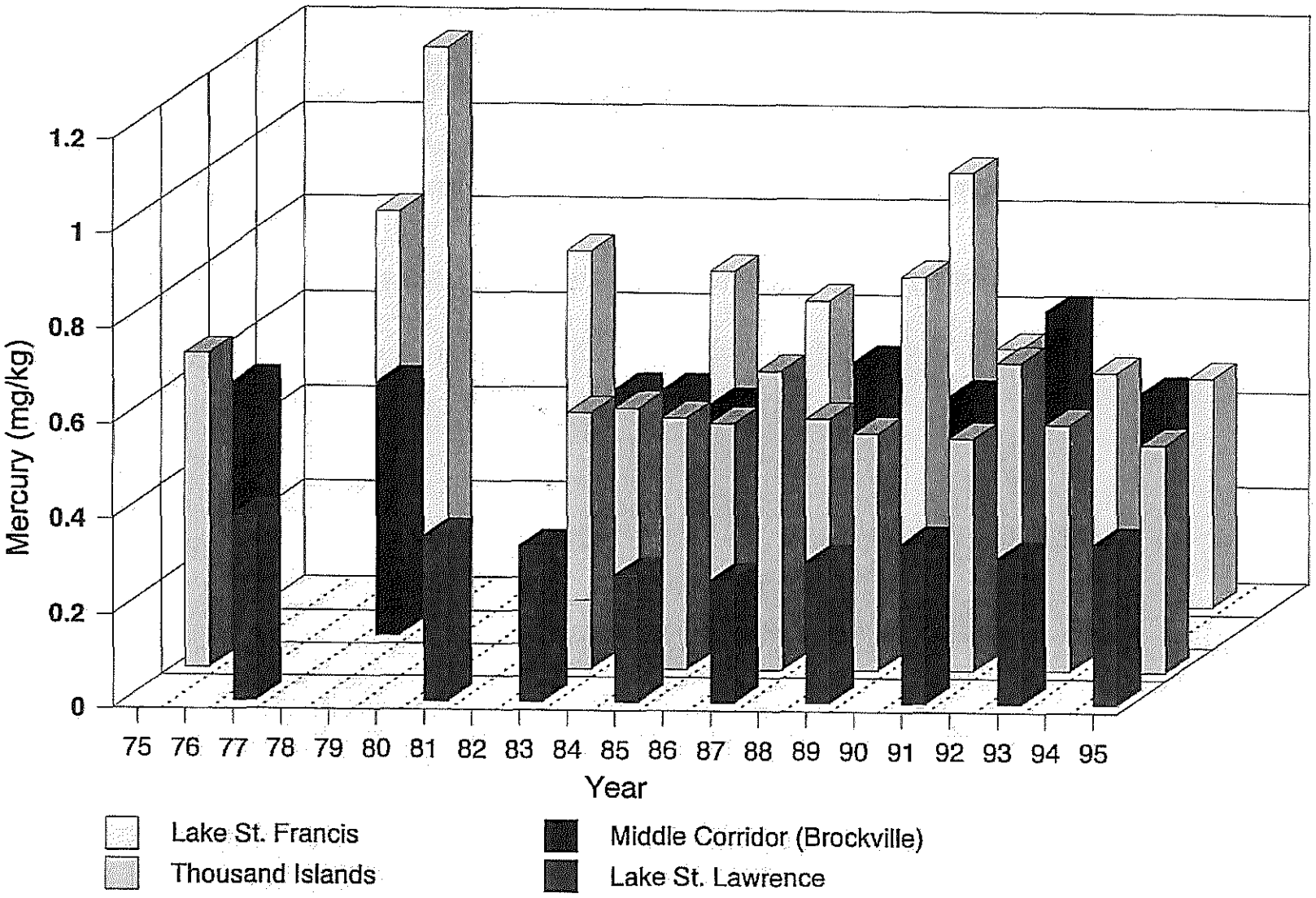


Figure 95B. Total mercury (mg/kg) in a standardized length (60 cm) northern pike, St. Lawrence River, 1975-1995 (Source: A. Hayton, MOE, Environmental Monitoring & Reporting Branch, Sport Fish Contaminants Program).Concentrations shown were calculated from regressions of mercury concetration versus length. R^2 values, N (number of fish analyzed) and other data associated with the calculated concentrations shown are provided in Table 32.

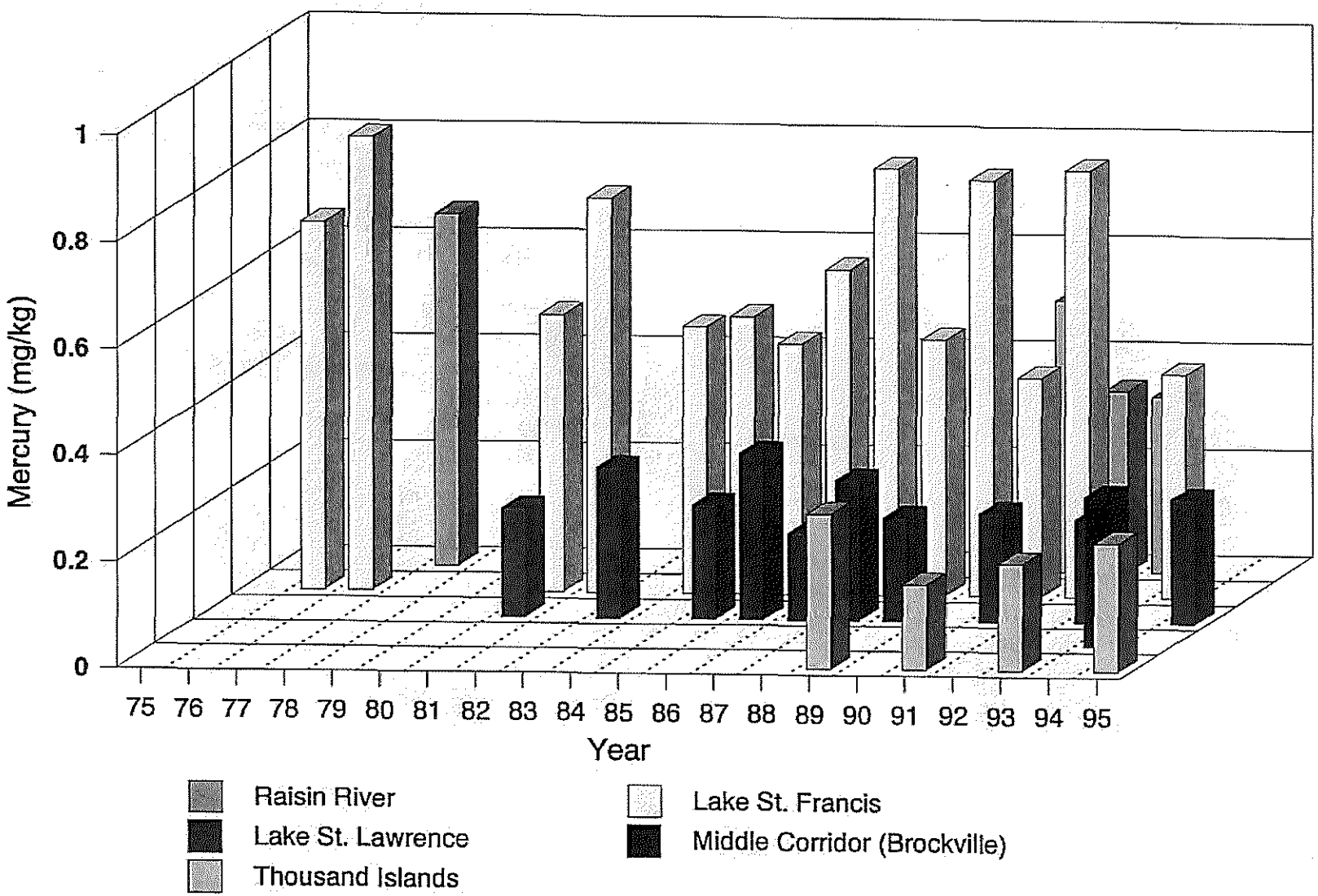


Figure 95A. Total mercury (mg/kg) in a standardized length (45 cm) walleye, St. Lawrence River, 1976-1995 (Source: A. Hayton, MOE, Environmental Monitoring & Reporting Branch, Sport Fish Contaminants Program). Concentrations shown were calculated from regressions of mercury concetration versus length. R^2 values, N (number of fish analyzed) and other data associated with the calculated concentrations shown are provided in Table 32.

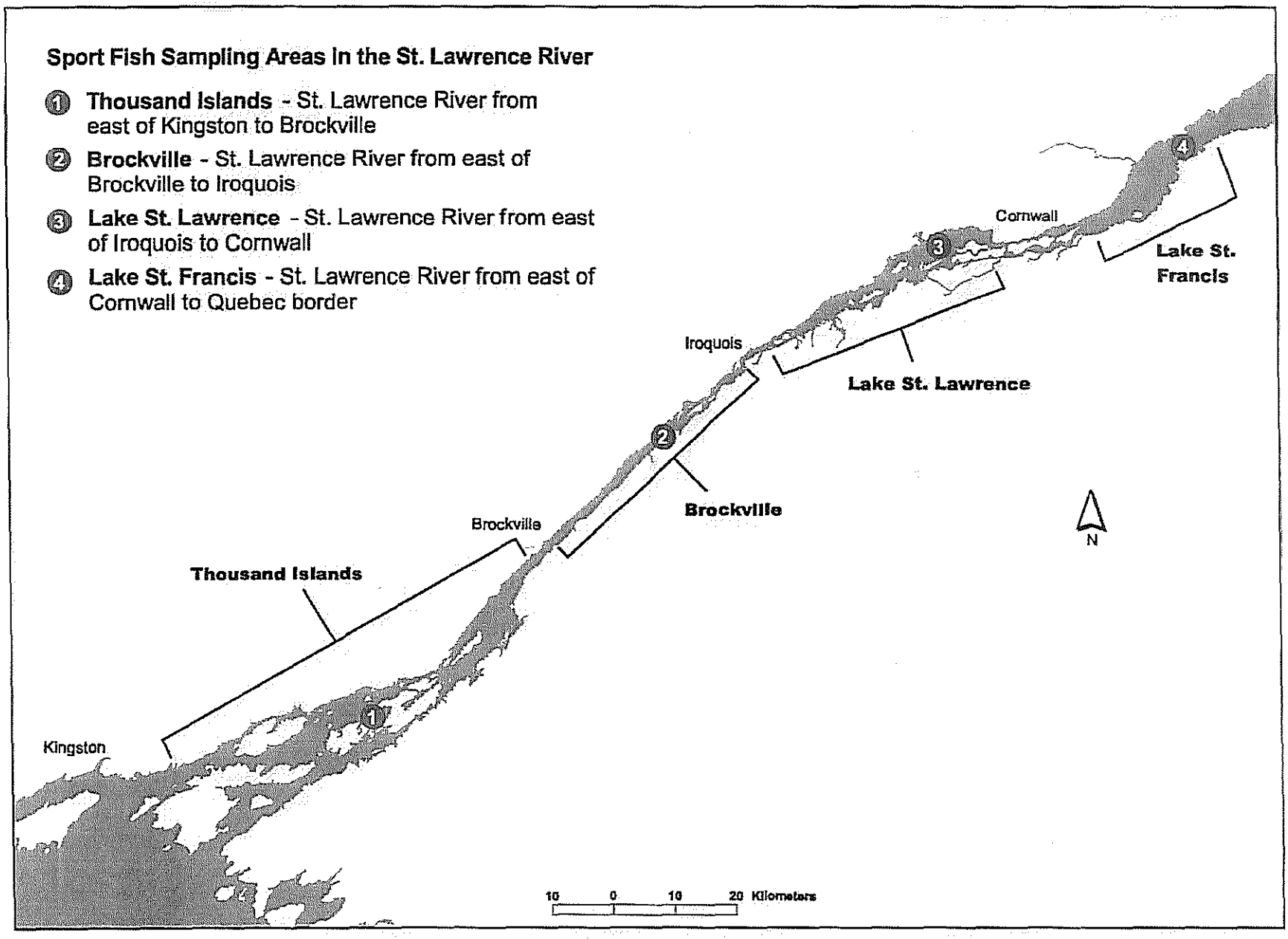


Figure 94. Sport fish sampling sites in the St. Lawrence River, MOE/MNR Sport Fish Contaminants Program. Source: Guide to Eating Ontario Sport Fish 1999-2000

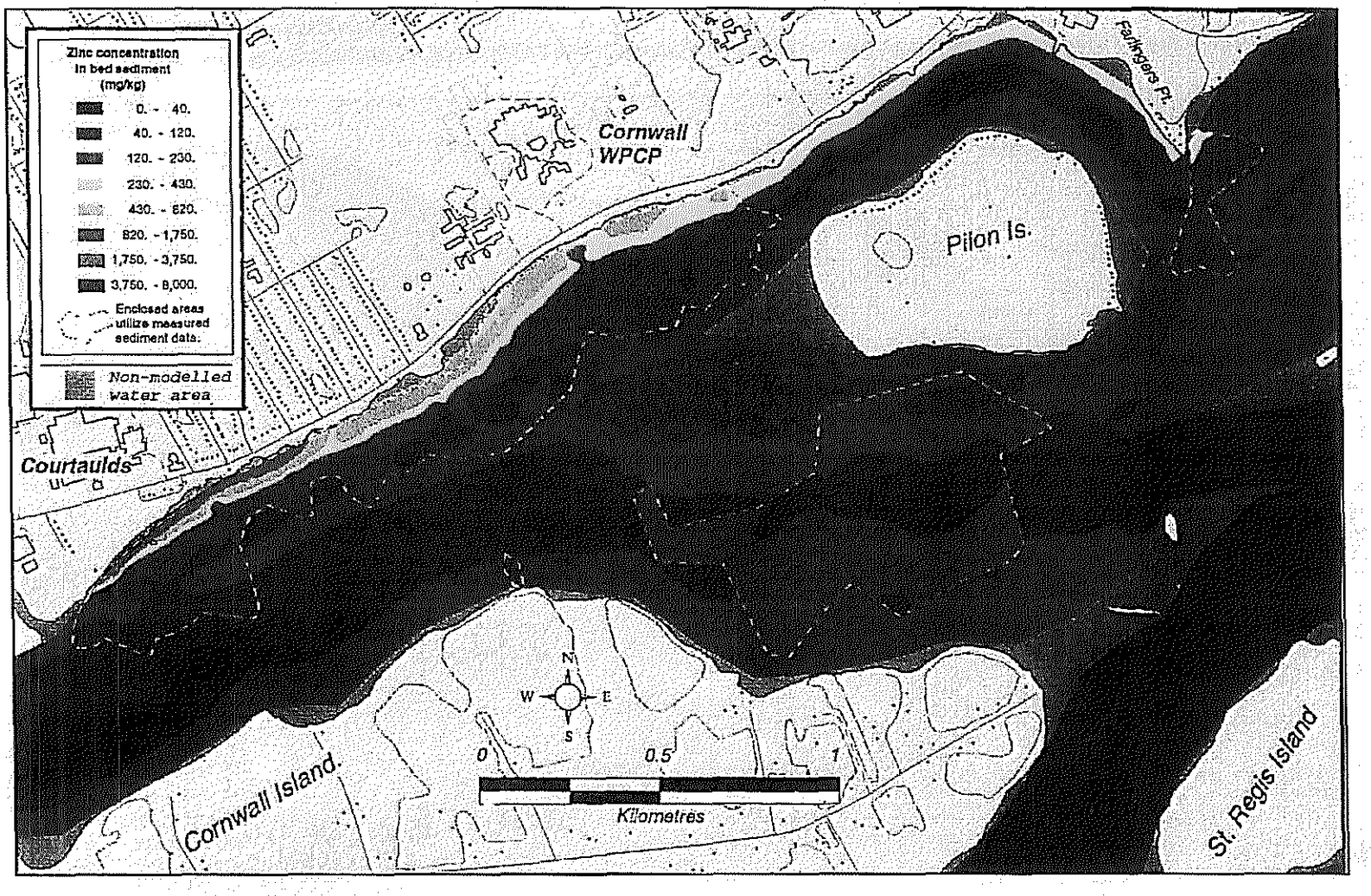


Figure 93. *Windmill Point to Farlingers Point.* Simulated long term zinc concentration within estimated "spatially-variable" bed sediment. Source: Nettleton (1999).

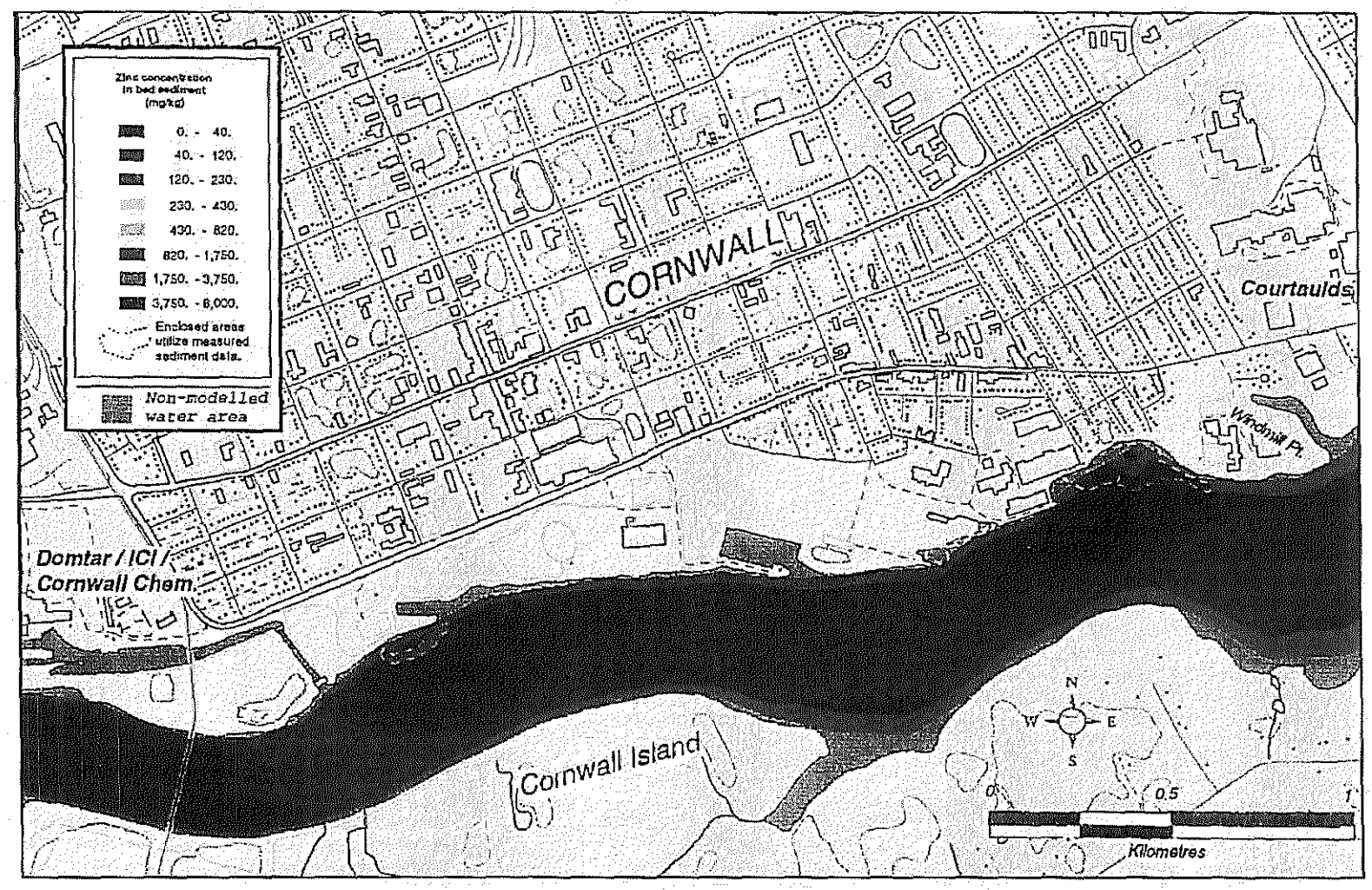


Figure 92. *Domtar/ICI to Windmill Point:* Simulated long term zinc concentration within estimated "spatially-variable" bed sediment. Source: Nettleton (1999).

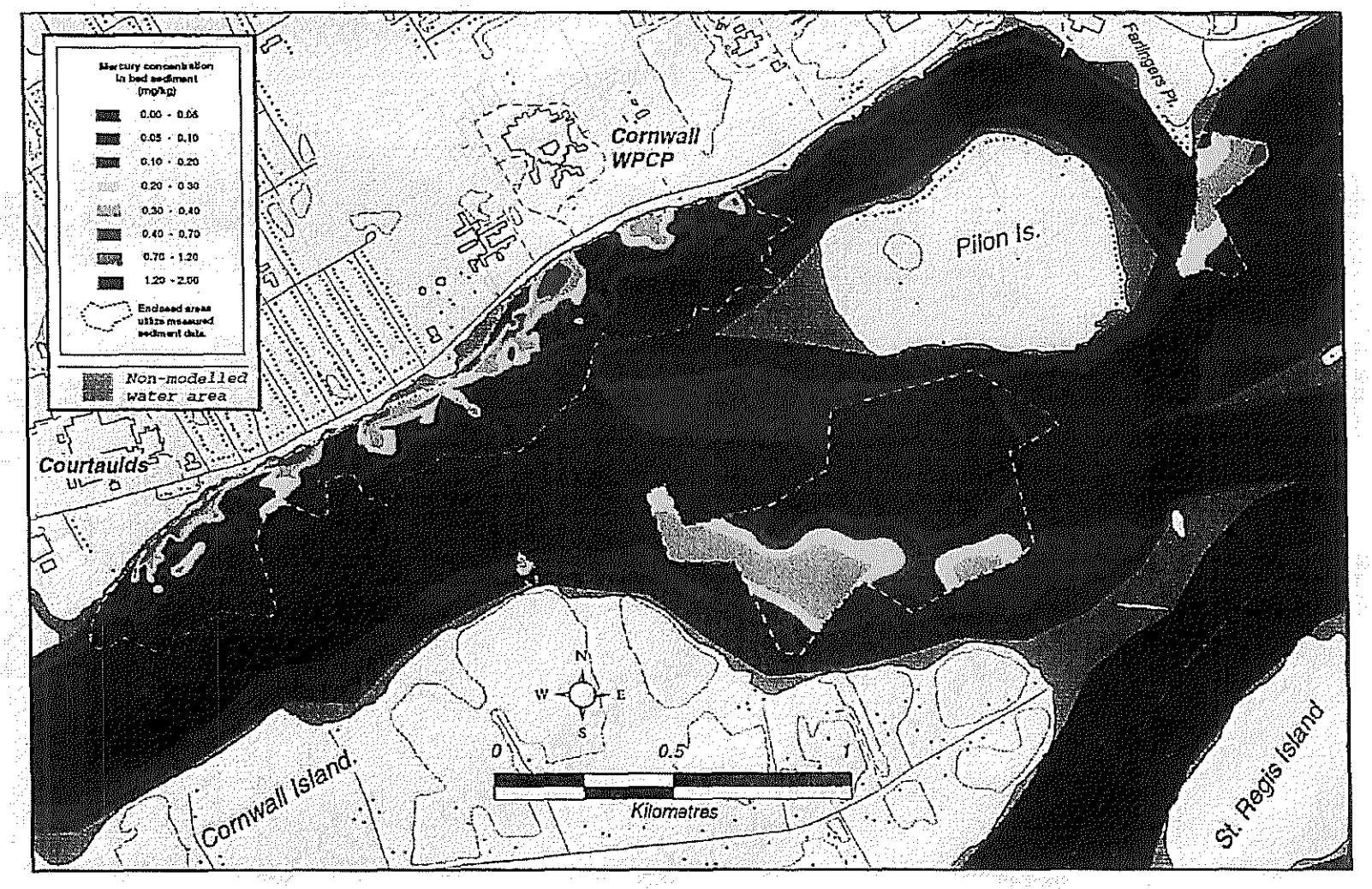


Figure 91. *Windmill Point to Farlingers Point.* Simulated long term mercury concentration within estimated "spatially-variable" bed sediment. Source: Nettleton (1999).

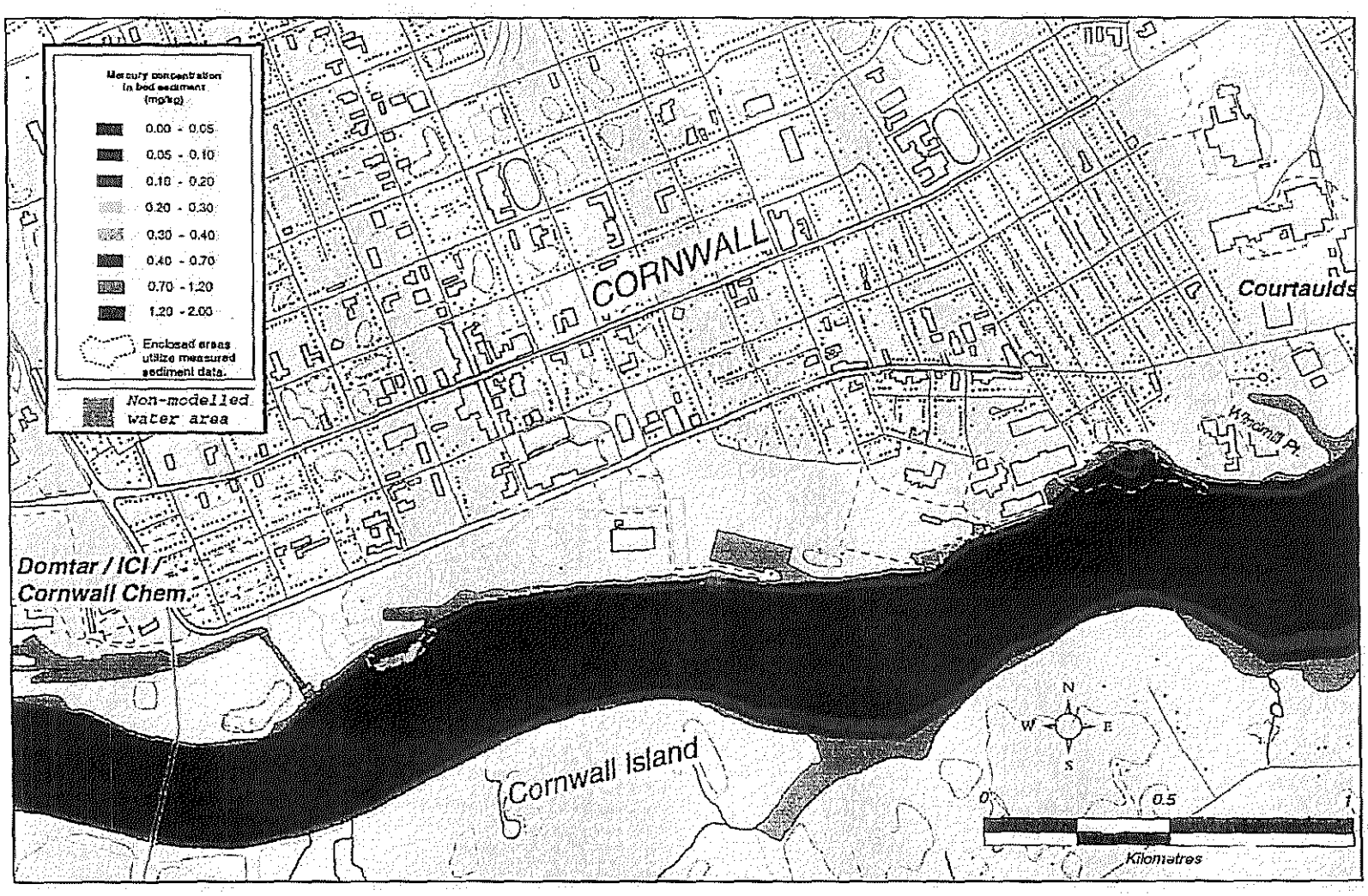


Figure 90. *Domtar/ICI to Windmill Point.* Simulated long term mercury concentration within estimated "spatially-variable" bed sediment. Source: Nettleton (1999).

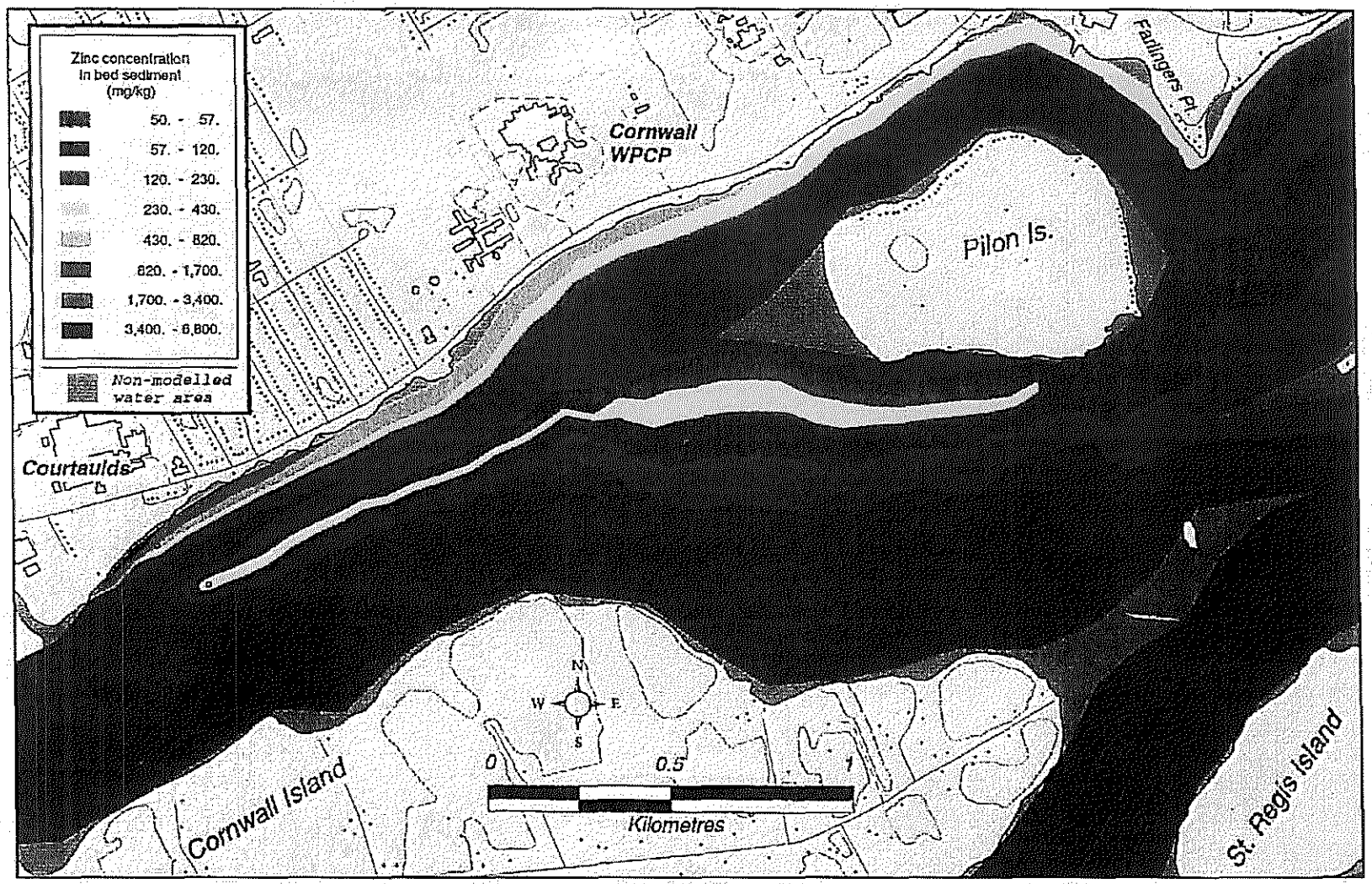


Figure 89. *Windmill Point to Farlingers Point*: Simulated long term zinc concentration in "average" bed sediment, contributed by 1989-90 MISA loading from Courtaulds only. Source: Nettleton (1999).

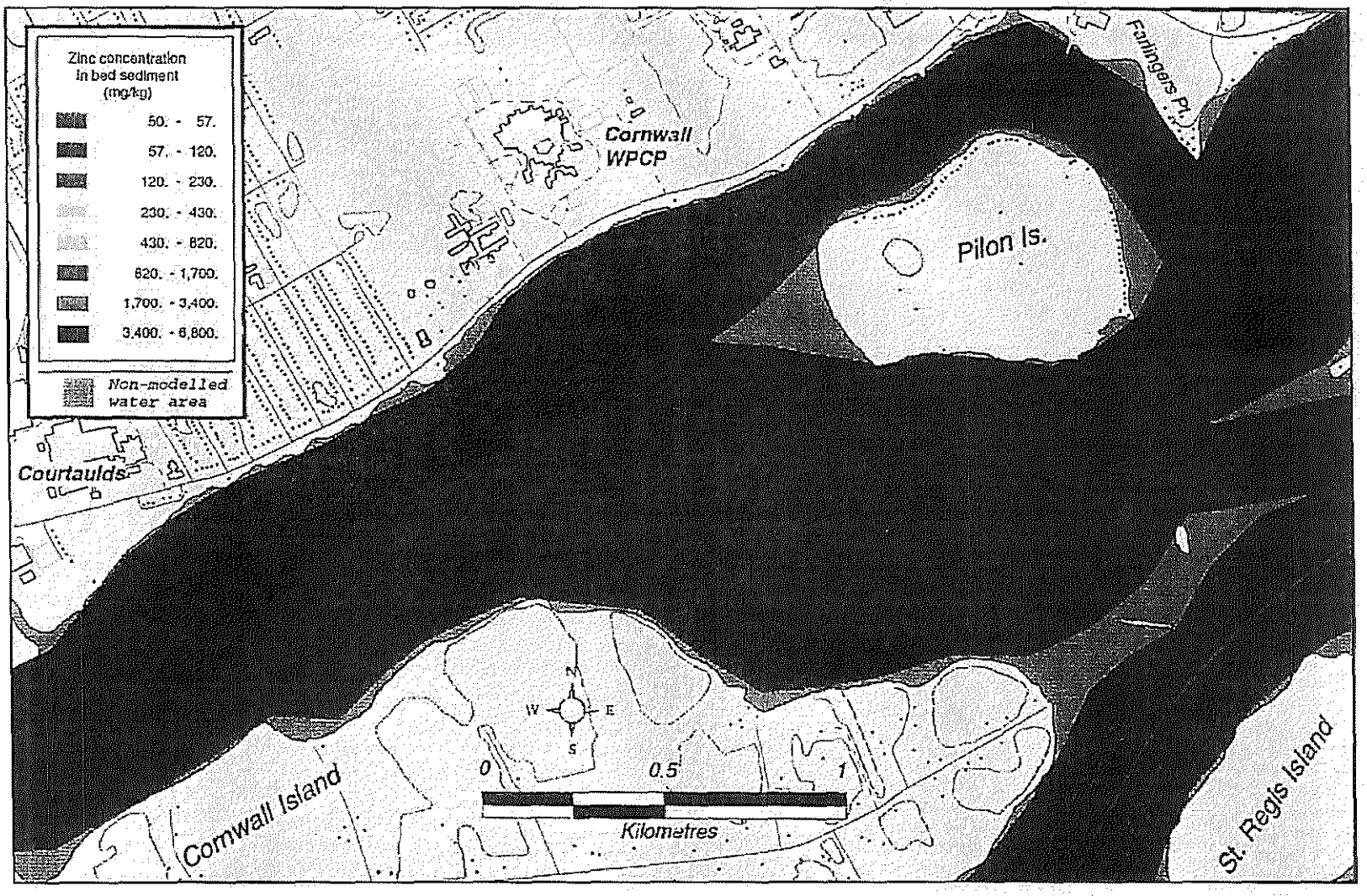


Figure 88. *Windmill Point to Farlingers Point*: Simulated long term zinc concentration in "average" bed sediment, contributed by 1989-90 MISA loading from Domtar/ICI/Cornwall Chemicals only. Source: Nettleton (1999).

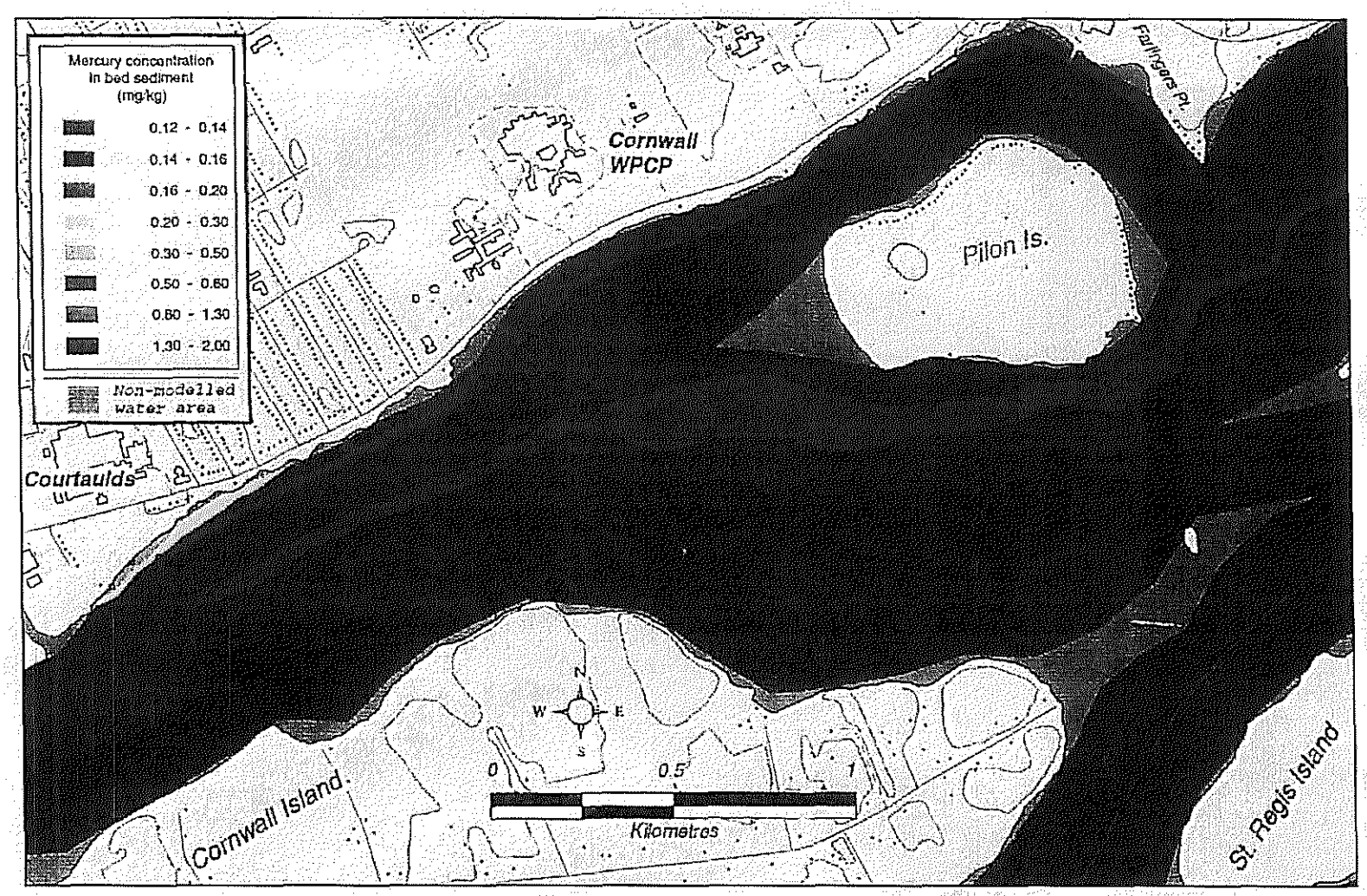


Figure 87. *Windmill Point to Farlingers Point*: Simulated long term mercury concentration in "average" bed sediment, contributed by 1989-90 MISA loading from Courtaulds only. Source: Nettleton (1999).

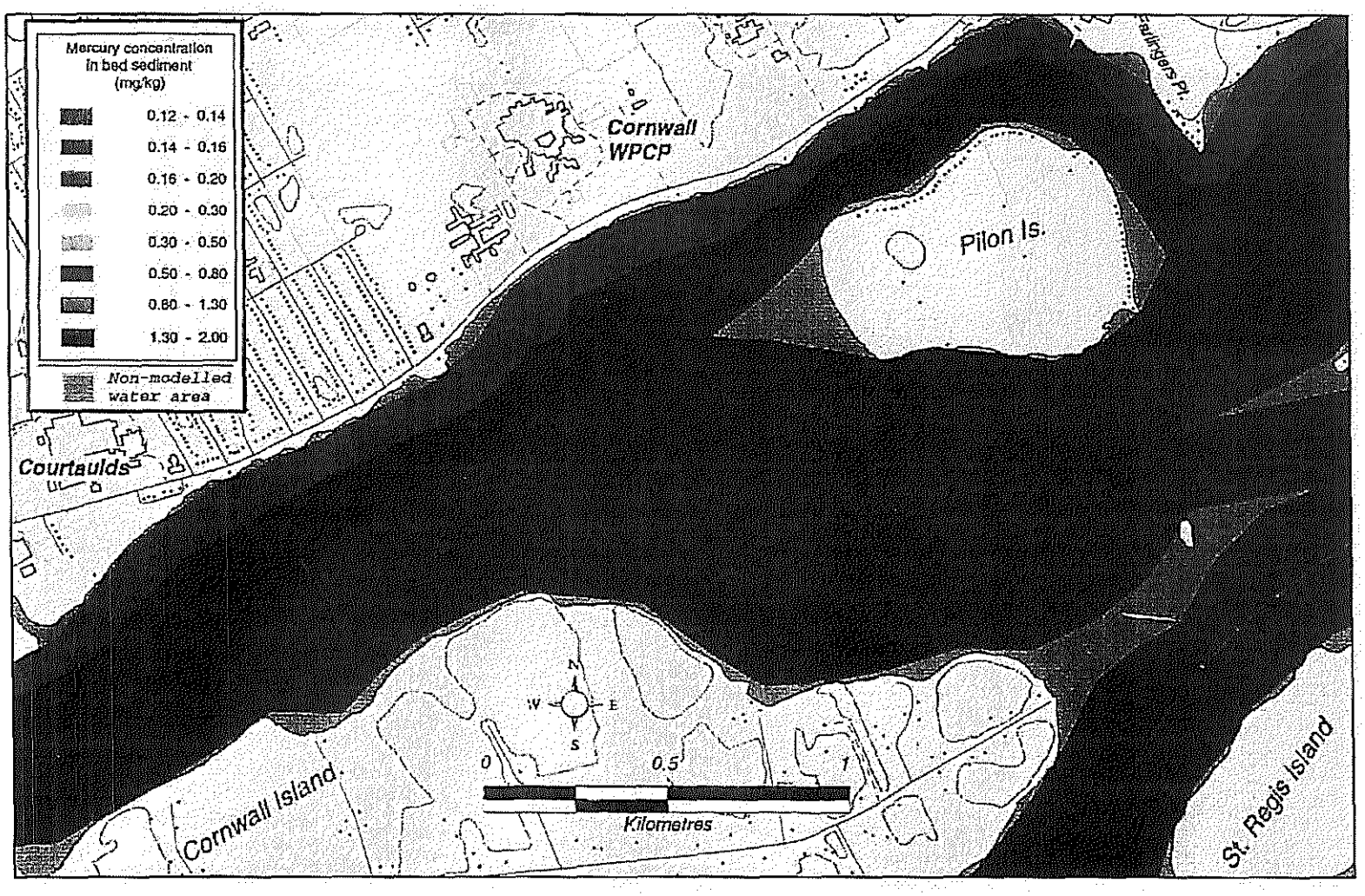


Figure 86. *Windmill Point to Farlingers Point*: Simulated long term mercury concentration in "average" bed sediment, contributed by 1989-90 MISA loading from Domtar/ICI/Cornwall Chemicals only. Source: Nettleton (1999).

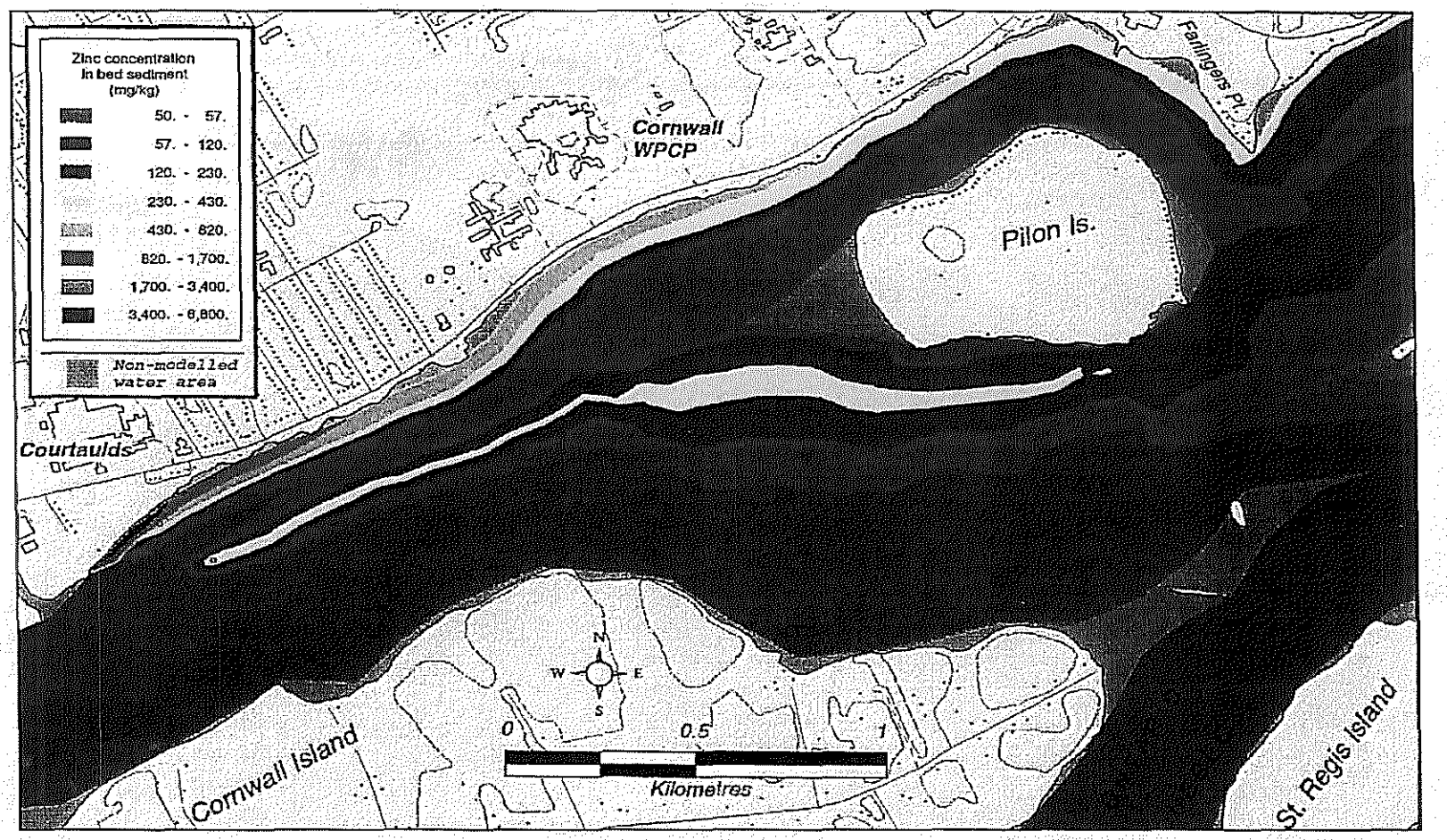


Figure 85. *Windmill Point to Farlingers Point:* Simulated long term zinc concentration in "average" bed sediment, under 1989-90 MISA loads from all sources. Source: Nettleton (1999).

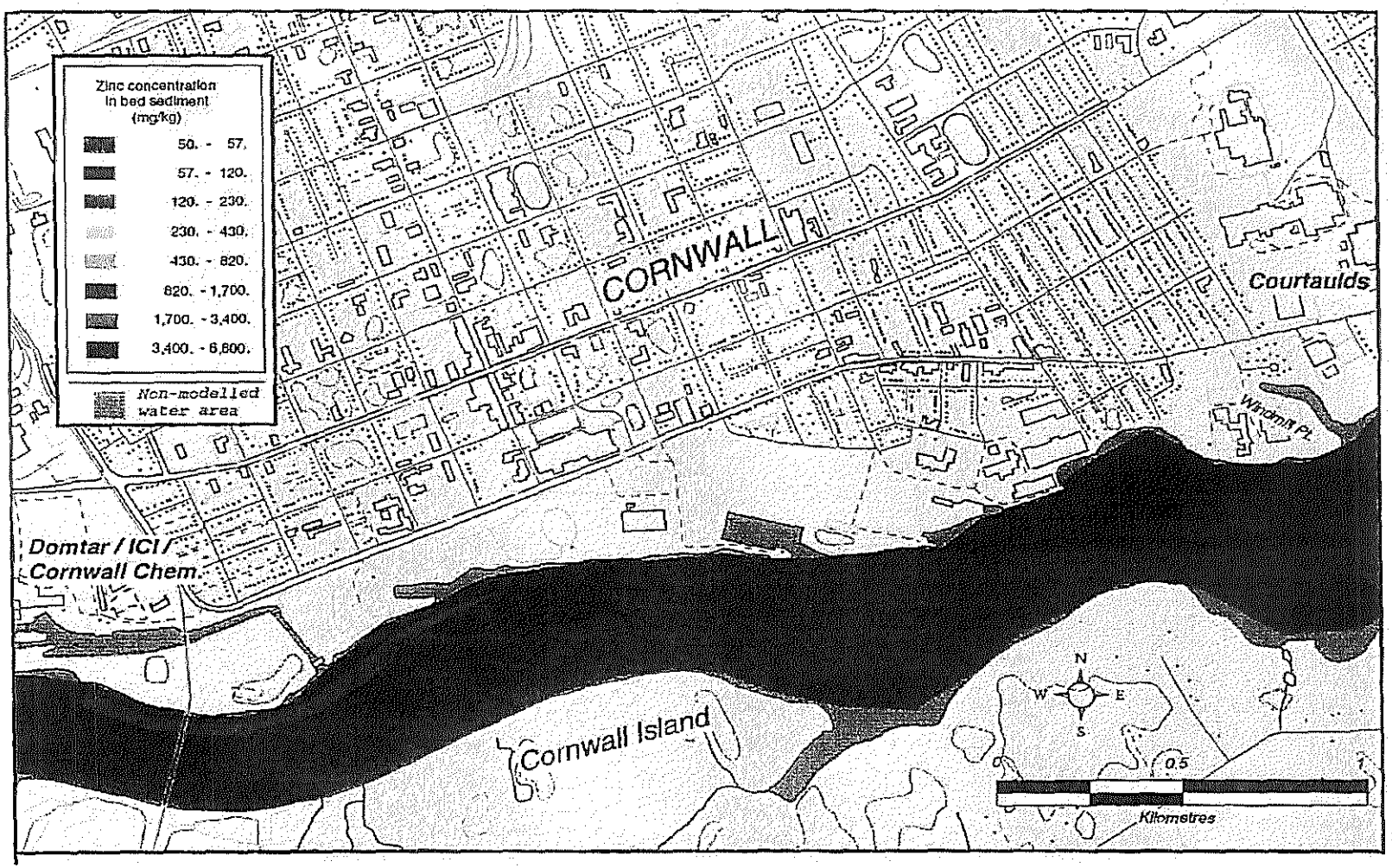


Figure 84. *Domtar/ICI to Windmill Point.* Simulated long term zinc concentration in "average" bed sediment, under 1989-90 MISA loads from all sources. Source: Nettleton (1999).

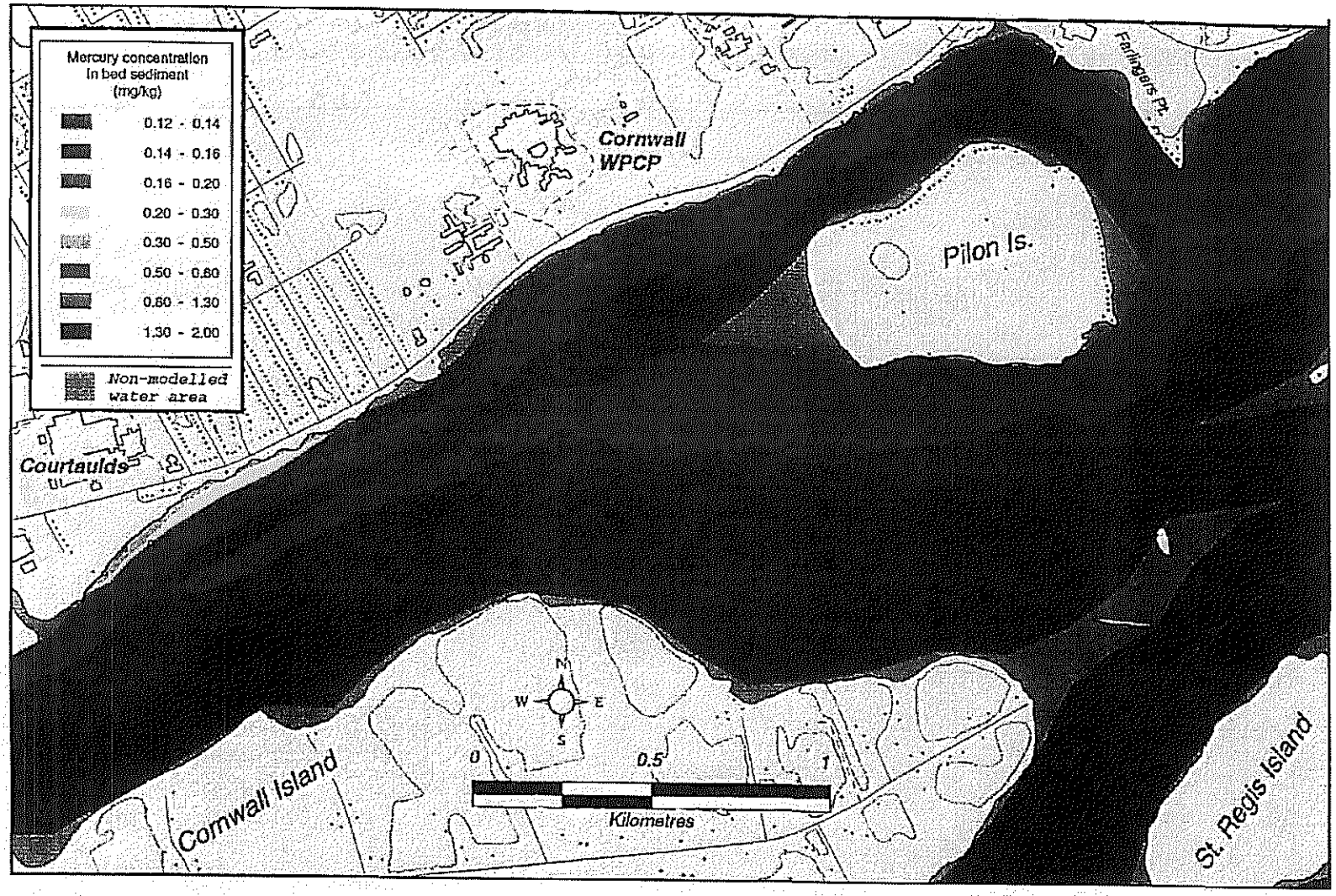


Figure 83. *Windmill Point to Farlingers Point*: Simulated long term mercury concentration in "average" bed sediment, under 1989-90 MISA loads from all sources. Source: Nettleton (1999).

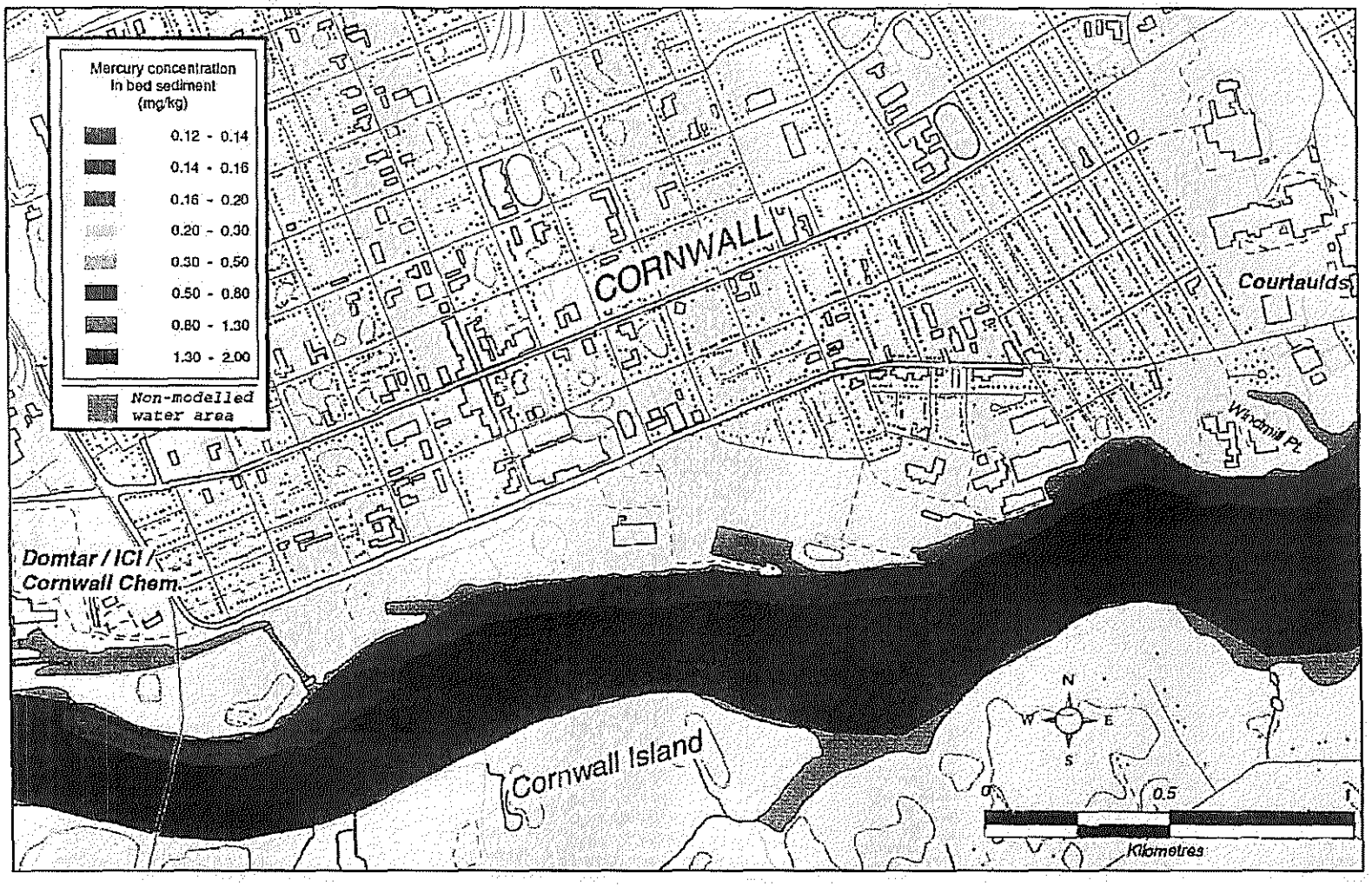


Figure 82. *Domtar/ICI to Windmill Point.* Simulated long term mercury concentration in "average" bed sediment, under 1989-90 MISA loads from all sources. Source: Nettleton (1999).

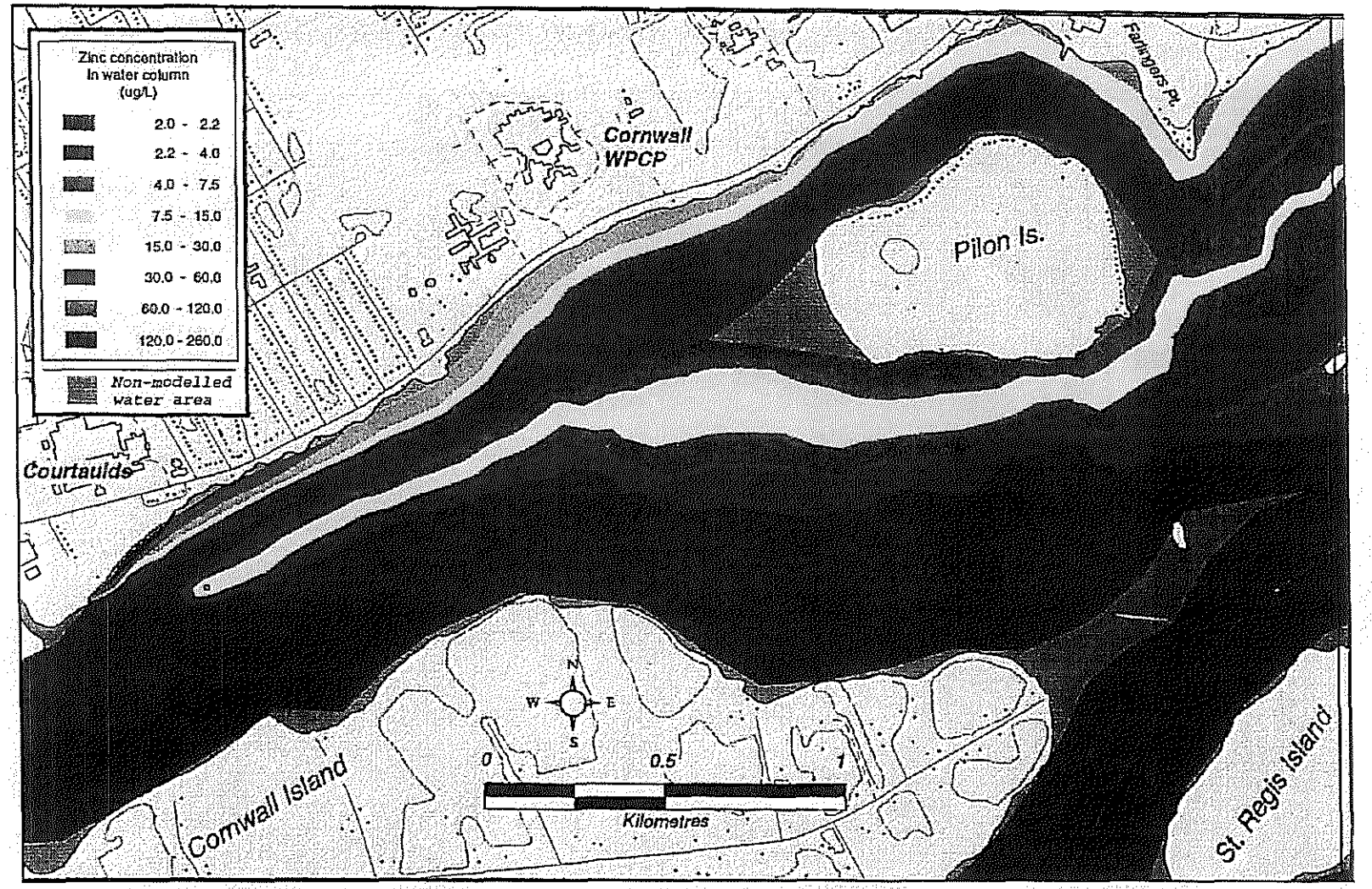


Figure 81. *Windmill Point to Farlingers Point*: Simulated long term zinc concentration in the water column, under 1989-90 MISA loads from all sources. Source: Nettleton (1999).

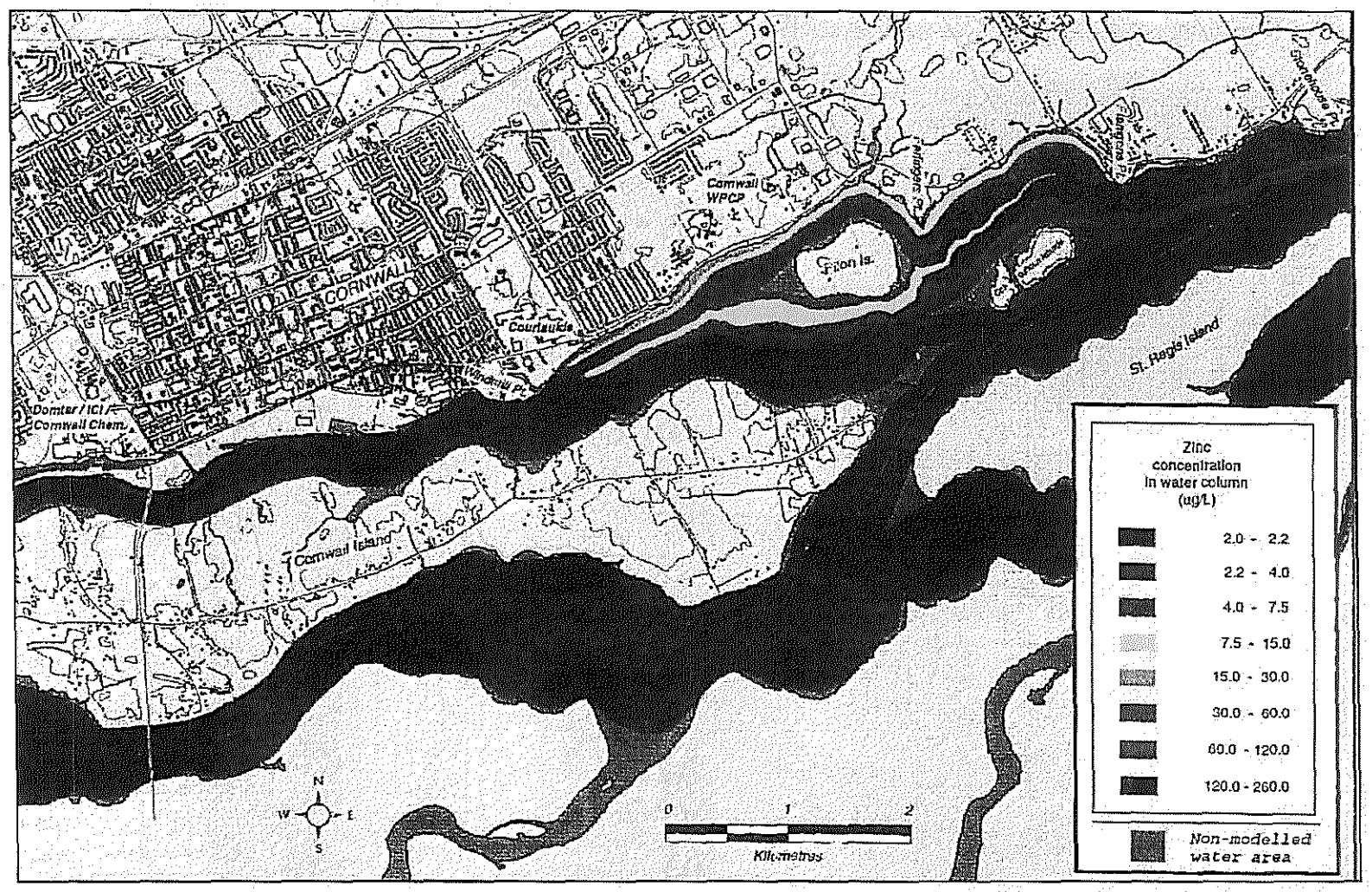


Figure 80. Simulated long term zinc concentration in the water column, under 1989-90 MISA loads from all sources. Source: Nettleton (1999).

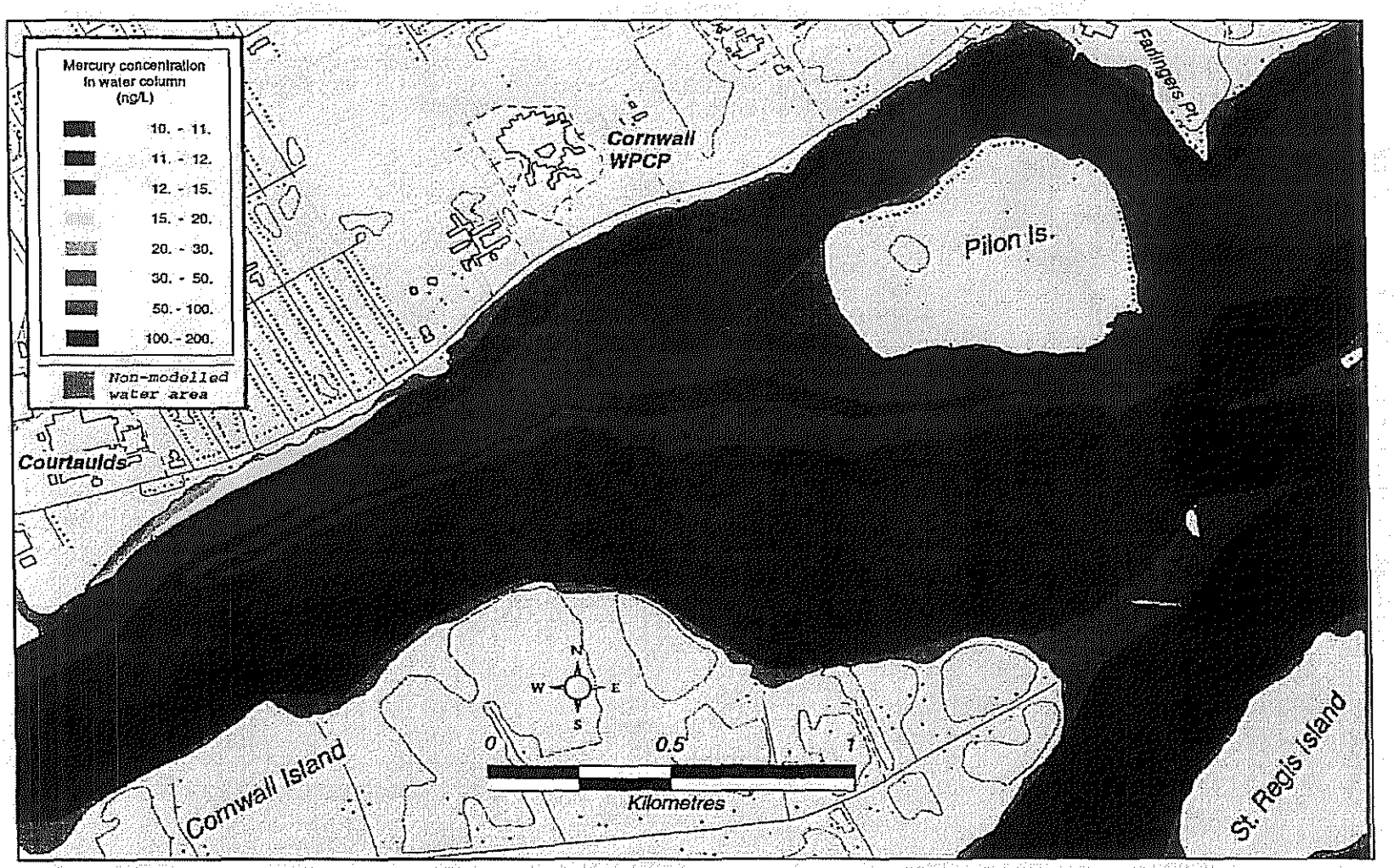


Figure 79. *Windmill Point to Farlingers Point.* Simulated long term mercury concentration in the water column, under 1989-90 MISA loads from all sources. Source: Nettleton (1999).

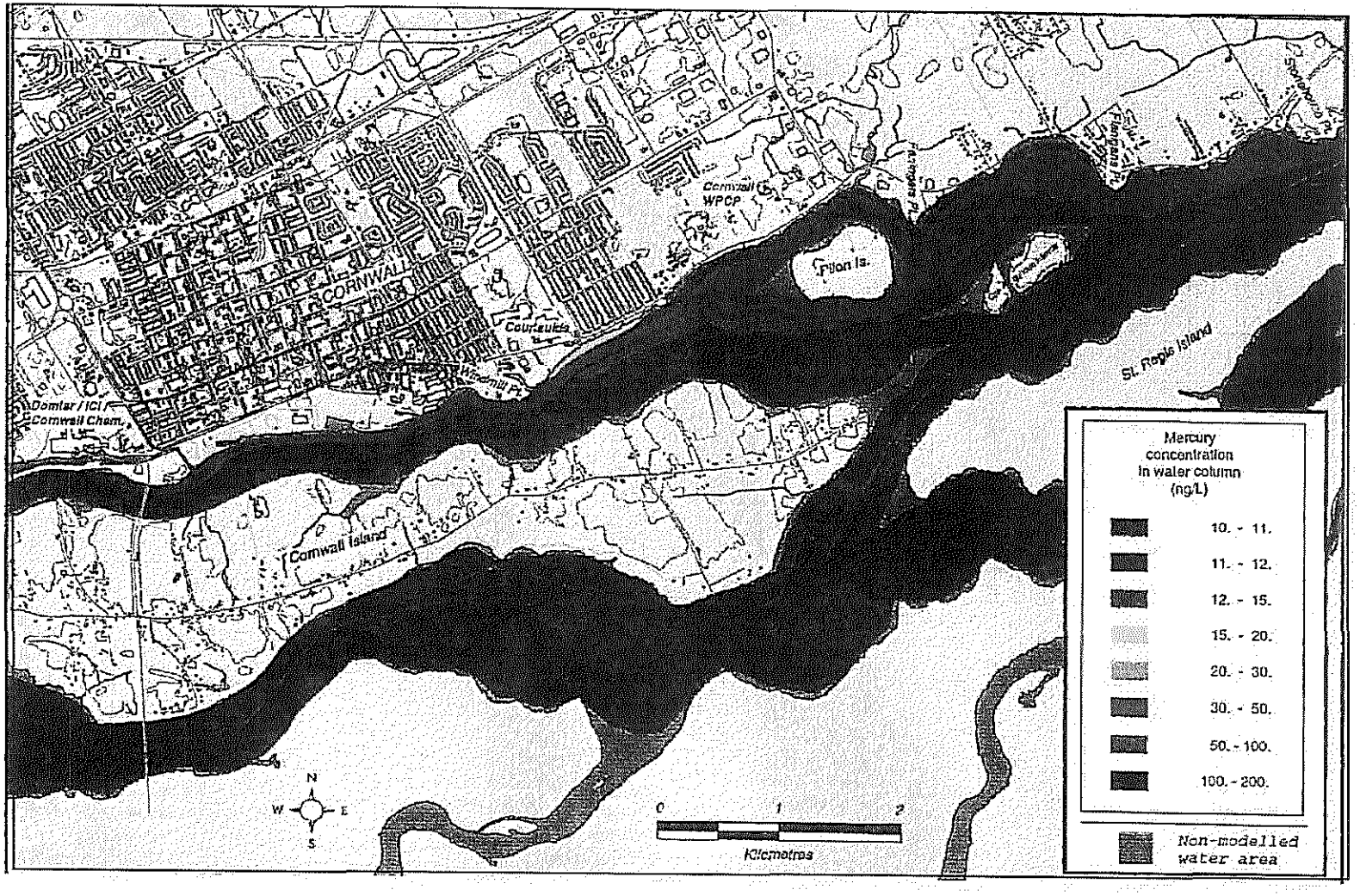
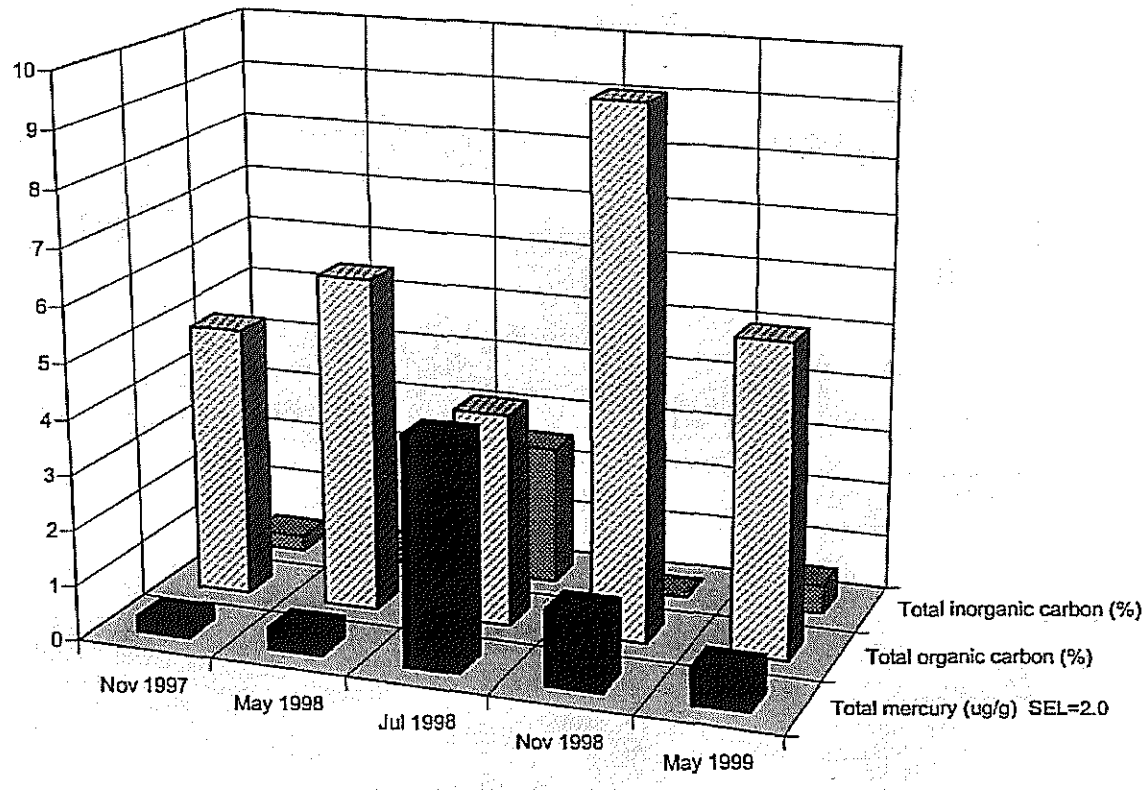
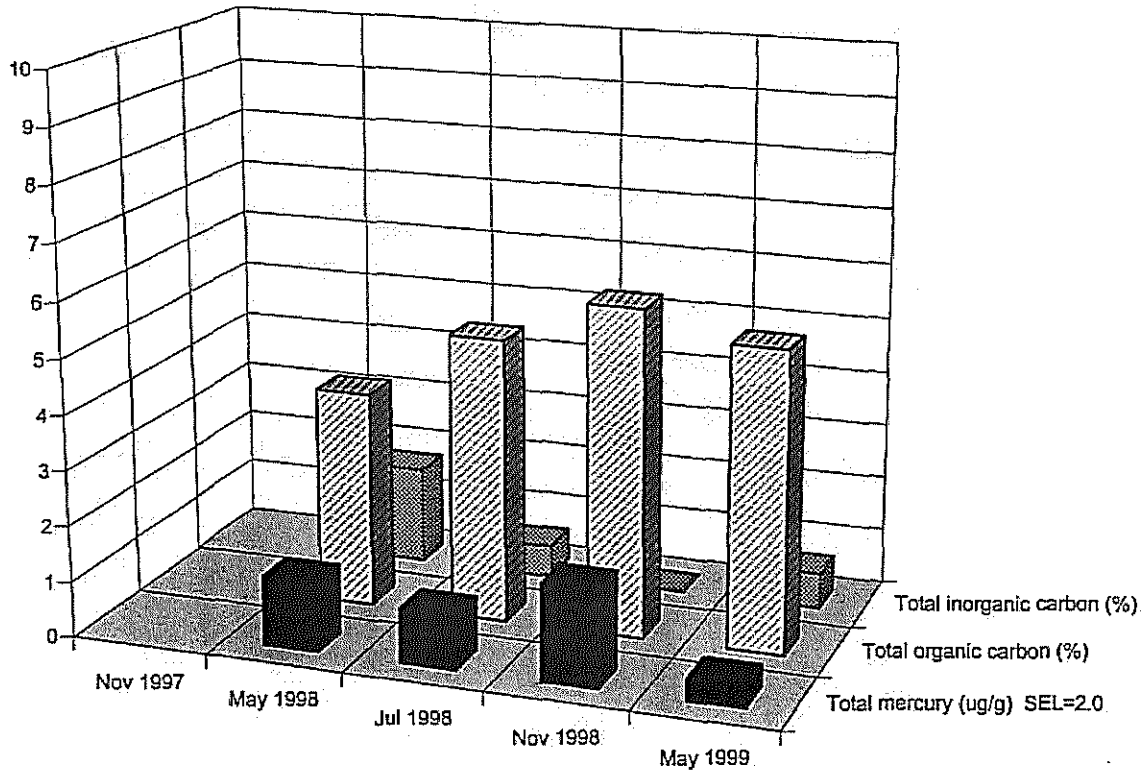


Figure 78. Simulated long term mercury concentration in the water column, under 1989-90 MISA loads from all sources. Source: Nettleton (1999).



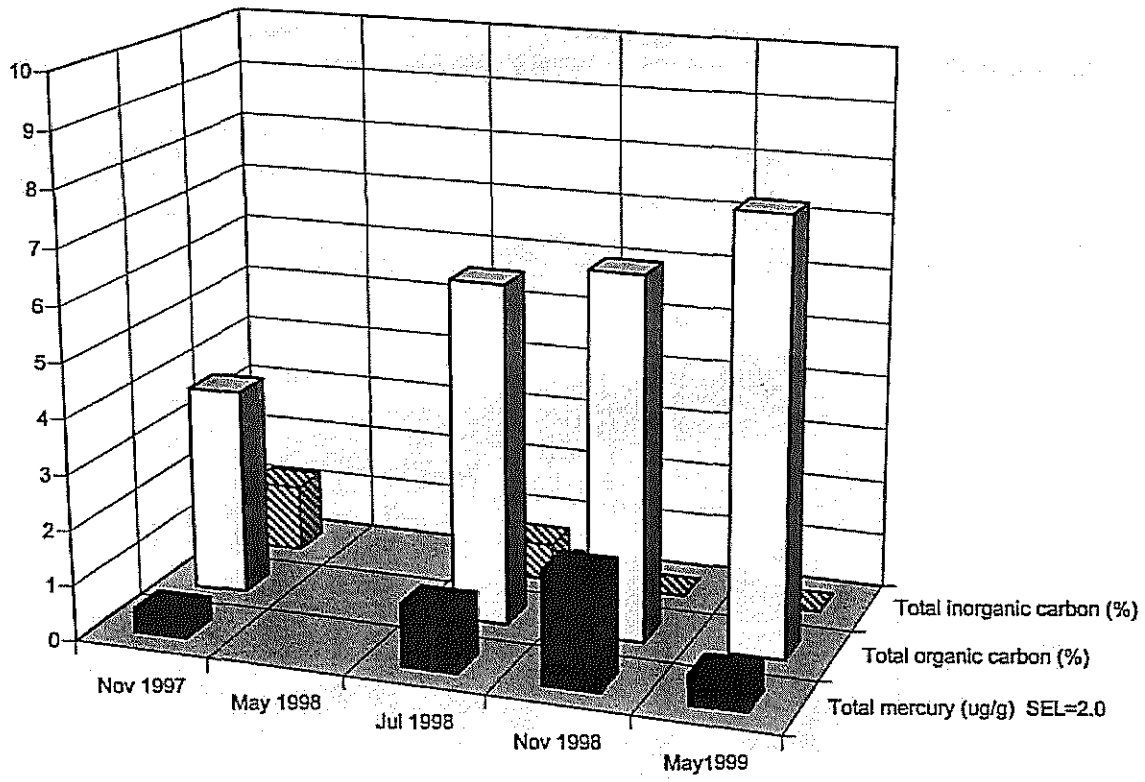
	Nov 1997	May 1998	Jul 1998	Nov 1998	May 1999
Total mercury (ug/g) SEL=2.0	0.29	0.39	4.14	1.36	0.67
Total organic carbon (%)	4.93	6.08	3.88	9.51	5.65
Total inorganic carbon (%)	0.27	0.25	2.54	0.01	0.52

Figure 77F. Sampling results for GovDock LTSS site (BOTTOM trap, 1 m above river bottom). N=2 Nov 1997; N=1 all other dates. Blank table cell=no data. Data source: H. Biberhofer and S. Lepage, Environment Canada, 2000.



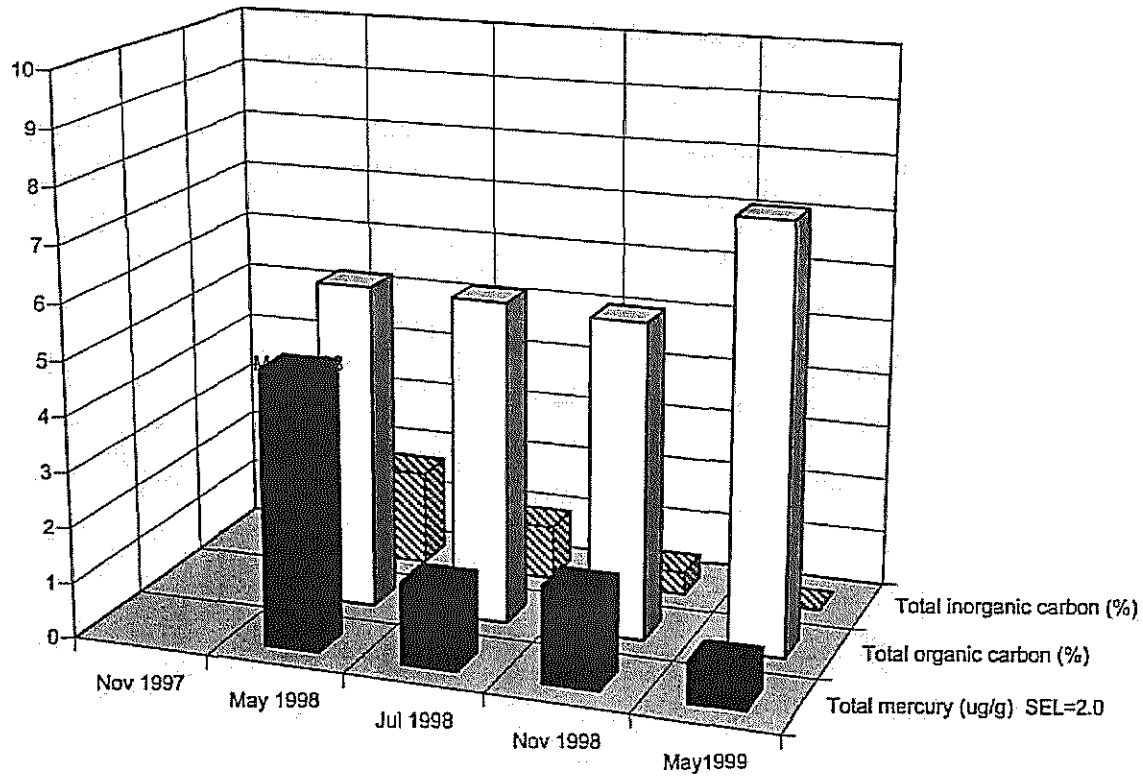
	Nov 1997	May 1998	Jul 1998	Nov 1998	May 1999
Total mercury (ug/g) SEL=2.0		1.25	0.98	1.75	0.40
Total organic carbon (%)		3.92	5.13	5.92	5.43
Total inorganic carbon (%)		1.76	0.57	0.01	0.65

Figure 77E. Sampling results for GovDock LTSS site (TOP trap, 5 m above river bottom). N=1 for all sampling dates. Blank table cell=no data. Data source: H. Biberhofer and S. Lepage, Environment Canada, 2000.



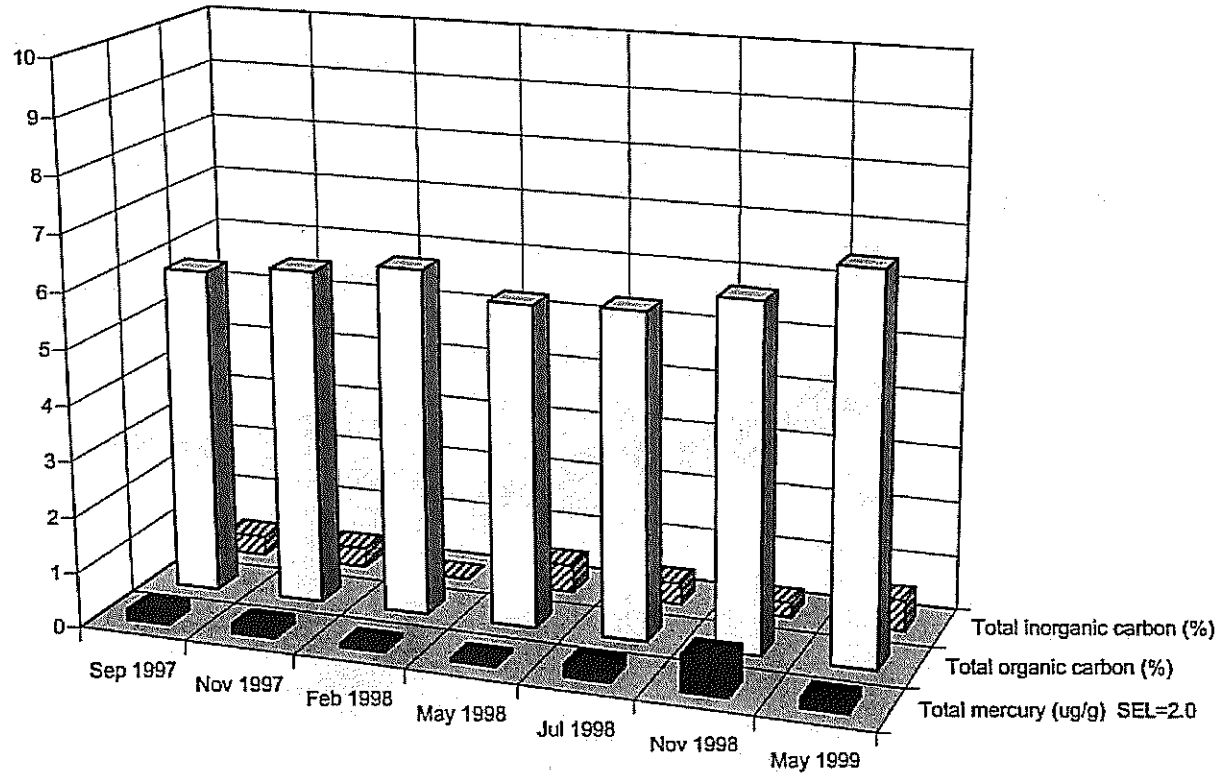
	Nov 1997	May 1998	Jul 1998	Nov 1998	May1999
Total mercury (ug/g) SEL=2.0	0.42		1.12	2.05	0.55
Total organic carbon (%)	3.76		6.20	6.59	7.81
Total inorganic carbon (%)	1.21		0.68	0	0.01

Figure 77D. Sampling results for RAPReef LTSS site (BOTTOM trap, 1 m above river bottom). N=1 for all sampling dates. Blank table cell=no data. Data source: H. Biberhofer and S. Lepage, Environment Canada, 2000.



	Nov 1997	May 1998	Jul 1998	Nov 1998	May1999
Total mercury (ug/g) SEL=2.0		4.97	1.47	1.73	0.74
Total organic carbon (%)		5.89	5.83	5.72	7.65
Total inorganic carbon (%)		1.71	0.97	0.41	0.01

Figure 77C. Sampling results for RAPReef LTSS site (TOP trap, 5 m above river bottom). N=1 for all sampling dates. Blank table cell=no data. Data source: H. Biberhofer and S. Lepage, Environment Canada, 2000.



	Sep 1997	Nov 1997	Feb 1998	May 1998	Jul 1998	Nov 1998	May 1999
Total mercury (ug/g) SEL=2.0	0.19	0.17	0.06	0.05	0.22	0.65	0.17
Total organic carbon (%)	5.87	6.04	6.24	5.81	5.88	6.24	6.94
Total inorganic carbon (%)	0.35	0.35	0.01	0.50	0.40	0.27	0.56

Figure 77B. Sampling results for LSL site (upstream reference LTSS site). Only TOP trap samples (5 m above river bottom) were taken on dates shown. Data source: H. Biberhofer and S. Lepage, Environment Canada, 2000.

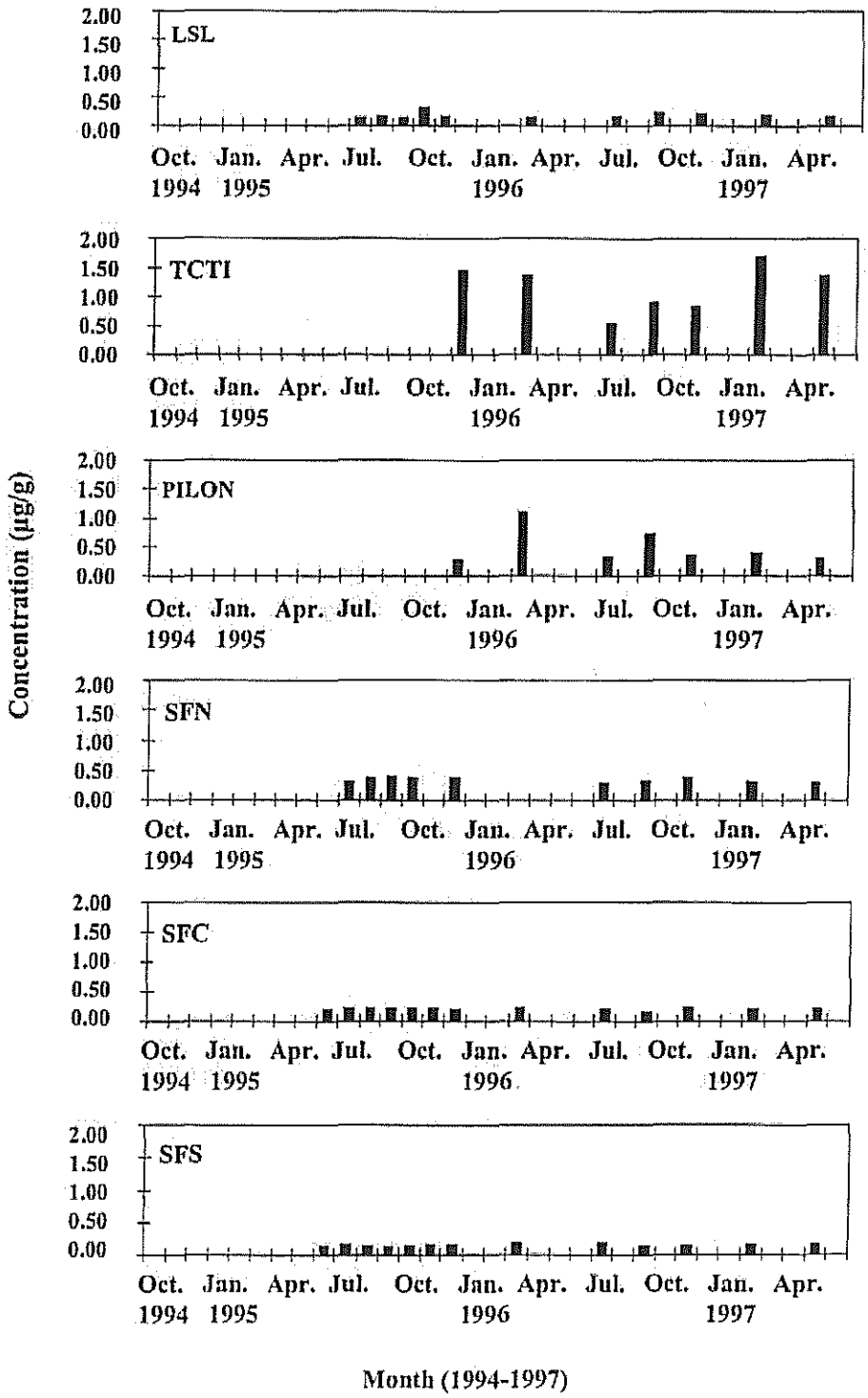


Figure 77A. Variation in total mercury (µg/g) in suspended matter of the St. Lawrence River between November 1994 and May 1997. Source: Lepage (1999).

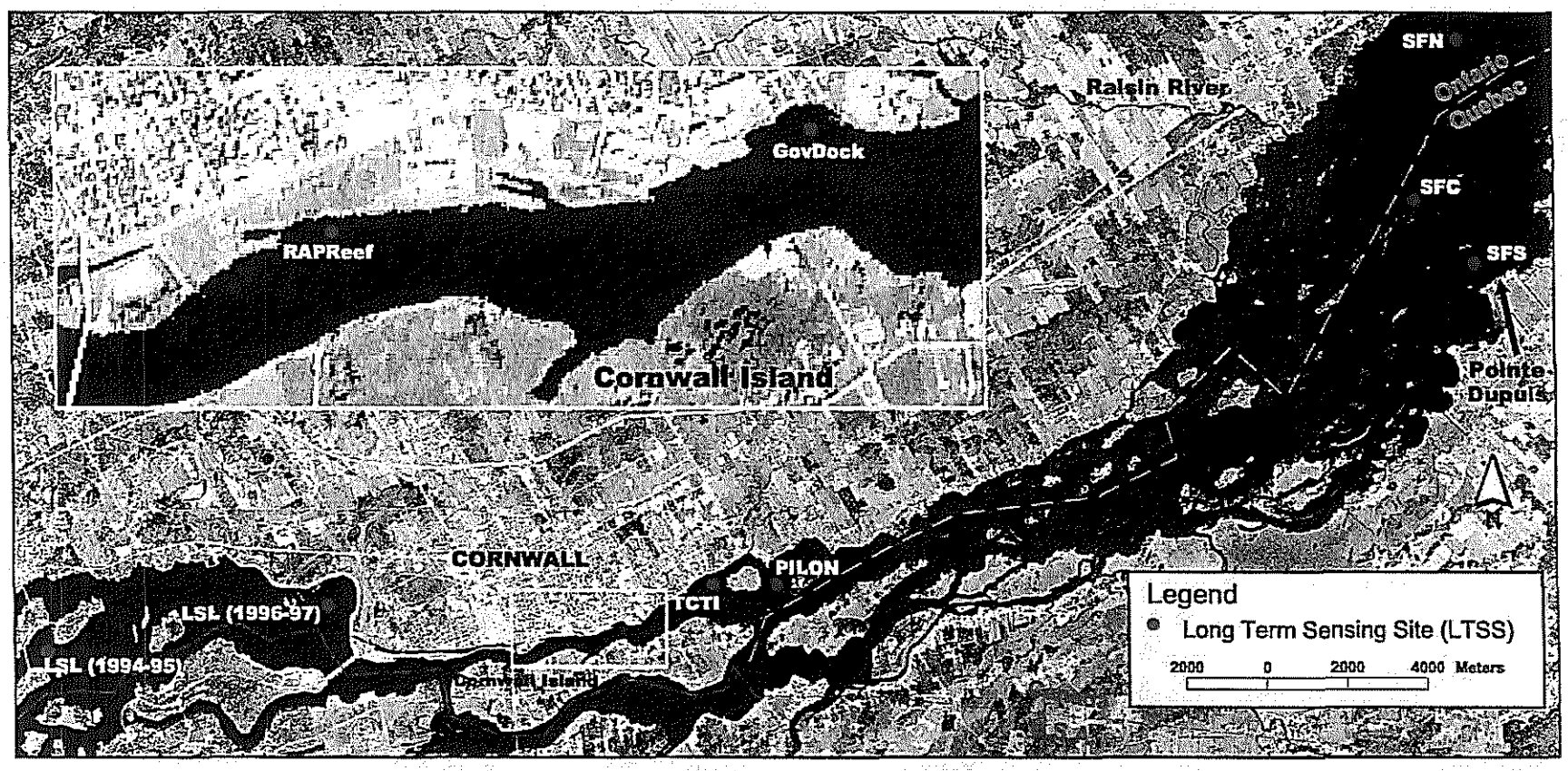


Figure 76. Long term sensing sites (LTSS) for suspended solids study. Source: Lepage (1999); H.Biberhofer (Environment Canada, pers.comm).

Figure 75. St. Lawrence River (Lake St. Francis).

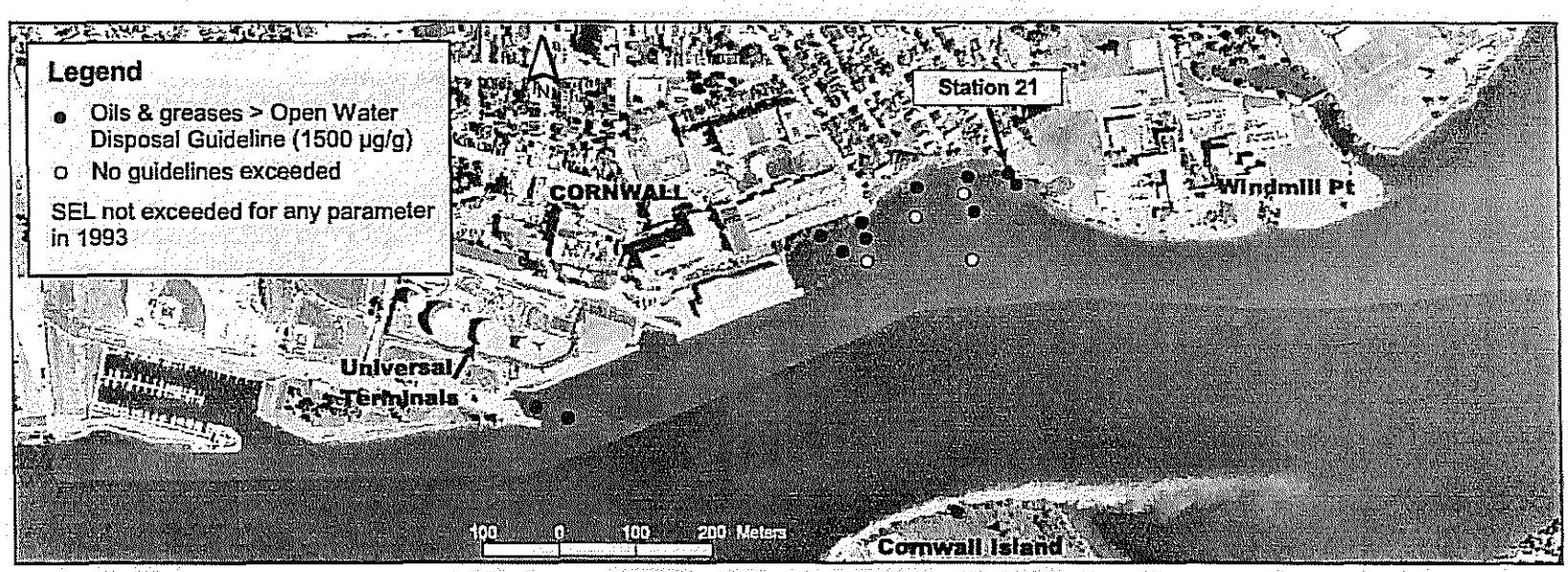


Figure 74A. Stations sampled and stations at which guidelines were exceeded in 1993 EC bottom sediment survey of oil tank storage area (Metcalfe-Smith et al. 1995). Surface grab samples were taken at all stations except for core sample taken at station 21 (marked with arrow).

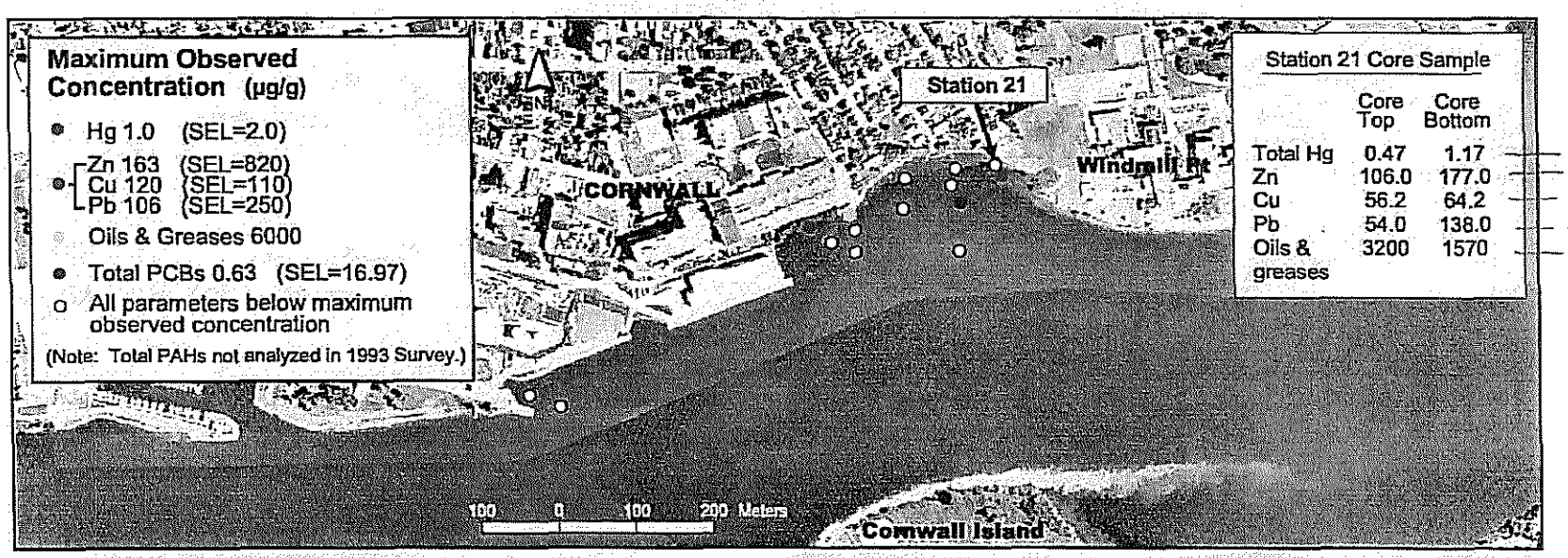


Figure 74B. Maximum observed concentrations of contaminants in 1993 EC bottom sediment survey of oil tank storage area (Metcalfe-Smith et al. 1995). Surface grab samples were taken at all stations except for core sample taken at station 21 (marked with arrow).

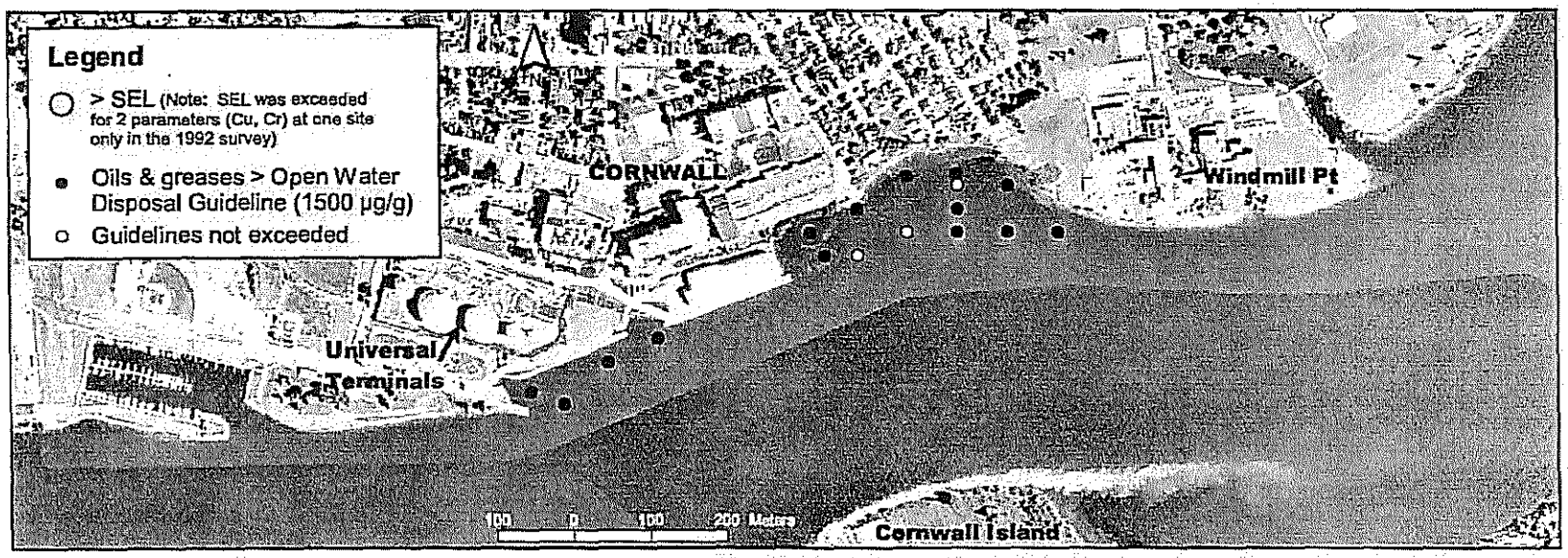


Figure 73A. Stations sampled and stations at which guidelines were exceeded in 1992 MOE bottom sediment survey of oil tank storage area (Metcalfe-Smith et al. 1995). Surface grab samples were taken at all stations.

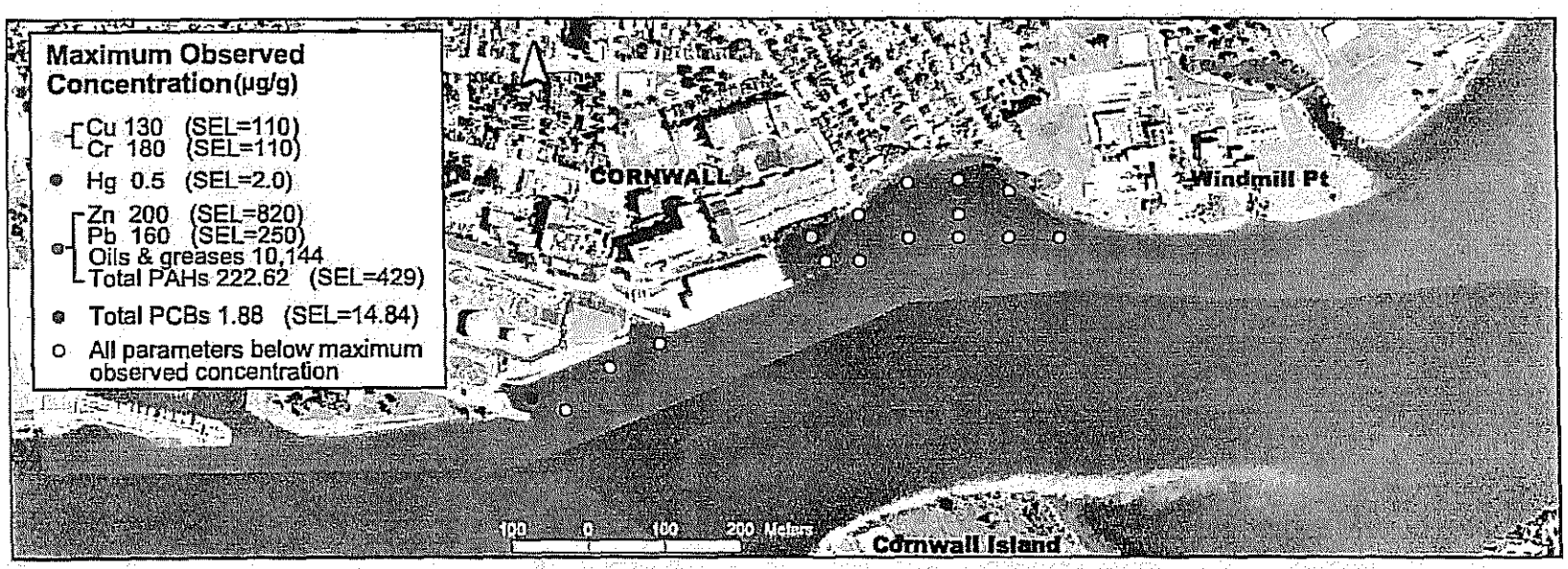


Figure 73B. Maximum observed concentrations of contaminants in 1992 MOE bottom sediment survey of oil tank storage area (Metcalfe-Smith et al. 1995). Surface grab samples were taken at all stations.