APPENDIX F:

NJMC/MERI DATABASE REPORT

Development of a database with web-based geospatial interface for sediment chemistry of the Hackensack Meadowlands

Kirk Barrett, Francisco Artigas, and Pedro Azevedo
Meadowlands Environmental Research Institute
Rutgers University CIMIC, Newark, NJ
http://cimic.rutgers.edu/meri; meri@cimic.rutgers.edu

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To support ecological risk assessment, a database was developed containing data on sediment chemistry that was collected at eight sites during previous studies in the Meadowlands. The sites, full report citations and data summary are listed in the Table 1.

Digital copies (i. e., electronic spreadsheet files) of the sediment chemistry data were obtained for Oritani Marsh, Kearny Marsh, Secaucus High School Marsh, Riverbend Wetlands Preserve, Mill Creek Marsh, and Eight Day Swamp. Digital copies were not available for Harrier Meadows and Skeetkill Creek Marsh. For these two sites, the data from the hardcopy report was entered into an electronic spreadsheet.

Latitude and longitude coordinates of sampling locations were only available for Kearny Marsh. The coordinates for the remainder of the sampling locations were determined by comparing the location of the points on maps included in the reports to georectified digital aerial photos that had defined coordinates.

The spreadsheet files and maps of sampling locations (created either by ArcView or Adobe Photoshop) are posted on the Internet at http://cimic.rutgers.edu/ecorisk.

A master spreadsheet was created that contains all data from all sites, and computes the maximum, minimum, and median concentrations and frequency of detection of each chemical for each site, as well for all sites combined.

Web-based Geospatial Interface

A web-based geospatial interface was developed for the database using ESRI's ArcIMS. The data spreadsheets were converted into a format that could be read by ArcIMS. Each record/row corresponded to a sample with the x,y coordinates as the first two columns in the record. Concentrations below detection limit were denoted with "-1" and "-2" used to denote that the sample was not analyzed for the corresponding chemical at that depth. After formatting the data, each spreadsheet was saved as a "DBF"-format file and then converted to "Shapefile" format using ArcView. The shapefiles were then added to a new project in ArcIMS and put online. A screen-shot of the interface is presented in Figure 1. The interface can also be accessed via http://cimic.rutgers.edu/ecorisk.

Table 1: Sites and Studies included in the Meadowlands Sediment Chemistry Database

Site	Year sampled	Number of sampling locations	Maximum sampling depth, ft	Number of samples	Number of different analytes	Report Citation
Overall	1997-2001	116	7	446	220	
Eight Day Swamp	2001	17	1	250	8	Benthic Communities and Metal Contaminations in Eight-Day Swamp, A brackish Marsh in the Hackensack Meadowlands of New Jersey, Judith S. Weis & Peddrick Weis.
Harrier Meadow	1997	5	surface	5	13	Harrier Meadows, Assessment of Subsurface Soil Contamination , Environmental Connection, Inc., August 1997.
Kearny Marsh	1999	21	3	52	46	Sediment and Water Sampling Report: Kearny Marsh, Kearny, New Jersey, Langan Engineering and Environmental Services, Inc., 1999.
Mill Creek Marsh	1997	29	surface	31	135	Mill Creek Wetlands Mitigation Site Baseline Monitoring Program, Soil and Sediment Analysis, Hackensack Meadowlands Development Commision, June 1997.
Oritani Marsh	2000	16	7	58	125	Oritani Marsh Mitigation Site - Baseline Studies, The Louis Berger Group, Inc., February 2001
Riverbend Marsh	2001	15	2	28	158	Riverbend Wetland Preserve: Sampling and Analyses of Sediment, TAMS Consultants, Inc, June 2001.
Secaucus High School Marsh	2000	8	3	17	193	Secaucus High School Wetlands Mitigation Site Baseline Studies: Sampling Analyses of Surface water and Sediment, TAMS Consultants, Inc, March 2001.
Skeetkill Creek Marsh	1997	5	surface	5	21	Skeetkill Creek Marsh: Preliminary Assessment of Soil Contaminants , Environmental Connection, Inc., March 1997.

Figure 1: Web-based Geospatial Database Interface