CHAPTER 23

MANAGEMENT ACTIVITIES: HABITAT REHABILITATION

Changes are often made to lakes and streams in an effort to improve, rehabilitate, or alter aquatic habitat. Water quality or physical characteristics of a lake or stream may be affected by the addition or removal of a substance or structure. Fisheries managers strive to use habitat rehabilitation techniques in an efficient, effective and responsible way to improve the existing habitat of an aquatic ecosystem for fish and/or other aquatic organisms. The following describes the various types of habitat rehabilitation included in this data set.

- **Chemical Applications** - Water quality characteristics of lakes or streams modified to improve aquatic habitat for fish. e.g., superphosphate (0-48-0) to increase dissolved nutrient concentrations or hydrated lime to improve buffering capacity.

- **Physical Habitat Improvement** - Physical characteristics of lakes or streams modified to improve aquatic habitat for fish.

In the future, this data set may also contain Watercourse Alteration Permits. A temporary or permanent change made at, near or to a watercourse or to water flow in a watercourse requires a Watercourse Alteration Permit issued by the New Brunswick Department of the Environment (Dept. of Environment 1997). The purpose of these applications may not necessarily be to improve aquatic habitat

DATA SOURCES

Habitat rehabilitation data from Bowater Pulp and Paper Canada Inc. has been incorporated into the Data Warehouse.

POSITIONAL ACCURACY

Stream habitat rehabilitation sites were determined based on textual descriptions of locations. Liming and fertilizing area polygons were estimated in the field and transferred to paper maps, then digitized from the field maps. The positional accuracy of the hydrographic spatial data is ±1.5m to ±2.5m. Please refer to **SNB's Land and Water Standards Manual** for further details.

DATA FILES

Tabular Data
There are two data tables within habitat rehabilitation Each provides dates and details of various habitat alteration activities.

- **Chemical Applications** - Contains dates of applications and amounts of chemicals used

- **Physical Habitat Improvement** - contains dates and descriptions of physical habitat alterations

Spatial Data

ArcView shape files were created to reference locations of habitat rehabilitation activities. Polygon themes display areas of liming and fertilizing applications in lakes, while point coverages display physical habitat alteration sites in streams.

References:

New Brunswick Department of the Environment. 1997. Watercourse Alterations Technical Guidelines. Fredericton, New Brunswick. 128pp.

TABULAR DATA FILES

CHEMICAL APPLICATIONS

The ***Chemical Applications*** table (chem-app.dbf) maintains data on chemical applications to surface waters such as liming, fertilization and reclamation, including products used, dosage rates and amounts applied.

Field of Information	Description	Dbase Field Name	Field Type (Length . Decimals)	Comments
Application Zone ID	Unique number representing an individual chemical application zone. Assigned by the Data Warehouse	ChemApp_ID	Numeric (6)	
Application Type	Identifies the type of chemical application (e.g., liming, fertilization, reclamation)	Chem_Type	Character (20)	
Water Body ID	Unique identifier of lake or stream treated	Water_ID	Numeric (8)	
Water Body Name	Name of lake or stream treated	Water_Name	Character (40)	
Drainage Codes	Drainage system codes indicating the drainage unit of lake or stream treated	Drainge_Cd	Character (17)	Appendix A
Agency Code	Code for agency or group performing the application	Agency_Cd	Character (4)	Code Table 6
Personnel	Initials or names of individuals performing the application	Personnel	Character (20)	
Application Date	Date of chemical application - format is YYYY.MM.DD	Chem_Date	Character (10)	
Area	Area of chemical application polygon (in m^2)	Area_m2	Numeric (12.3)	
Perimeter	Perimeter of chemical application polygon (in m)	Perimeter	Numeric (12.3)	
Chemical Product	Description of chemical used (e.g., Superphosphate (0-48-0), Hydrated Lime, Noxfish (5% Rotenone))	Product	Character (30)	
Dosage of Chemical	Dosage of chemical (in pounds per acre-foot for lime, rotenone; in pounds per littoral acre for superphosphate)	Dosage	Numeric (3)	
Amount - lbs.	Amount of chemical applied in pounds	Amount_lb	Numeric (6.1)	
Amount - kgs.	Amount of chemical applied in kilograms	Amount_kg	Numeric (6.1)	
Comments	General comments	Comments	Character (150)	

PHYSICAL HABITAT IMPROVEMENTS

The ***Physical Habitat Improvements*** table (improvmt.dbf) maintains data on lake and stream rehabilitation activities to physical habitat characteristics.

Field of Information	Description	Dbase Field Name	Field Type (Length . Decimals)	Comments
Physical Habitat Alteration Site ID	Unique number representing an individual habitat alteration site. Assigned by the Data Warehouse	Impsite_ID	Numeric (6)	
Water Body ID	Unique identifier of lake or stream	Water_ID	Numeric (8)	
Water Body Name	Name of lake or stream	Water_Name	Character (40)	
Drainage Codes	Drainage system codes indicating the drainage unit of lake or stream	Drainge_Cd	Character (17)	Appendix A
Agency Code	Code for agency or group performing the habitat alteration	Agency_Cd	Character (4)	Code Table 6
Agency's Site No.	Site identifier used by the agency	Ag_Site_ID	Character (6)	
Site Description	Description of where the habitat alteration site is located	Site_Des	Character (150)	
Date of Habitat Alteration	Date of habitat alteration activity - format is YYYY.MM.DD	Work_Date	Character (10)	
Habitat Alteration Activity	Description of habitat alteration activity (e.g., rock riffle construction, small substrate removal, dam removal)	Activity	Character (150)	

SPATIAL DATA FILES

LIMING ZONES

The ***Liming Zones*** spatial file (lime-zones.shp) is a polygon coverage representing lime application areas.

Field of Information	Description	Dbase Field Name	Field Type (Length . Decimals)	Comments
Area	Area of liming polygon	Area	Numeric (12.3)	
Perimeter	Perimeter of liming polygon	Perimeter	Numeric (12.3)	
Liming Area ID	Identifier for liming areas assigned by the Data Warehouse	Liming_ID	Numeric (6)	
Water Body ID	Unique number of the lake receiving lime	Water_ID	Numeric (8)	
Water Name	Name of lake receiving lime	Water_Name	Character (40)	
Drainage Codes	Drainage system codes representing the drainage unit in which the lake belongs	Drainge_Cd	Character (17)	Appendix A

FERTILIZING ZONES

The ***Fertilizing Zones*** spatial file (fert-zones.shp) is a polygon coverage representing fertilizer application areas.

Field of Information	Description	Dbase Field Name	Field Type (Length . Decimals)	Comments
Area	Area of fertilizing polygon	Area	Numeric (12.3)	
Perimeter	Perimeter of fertilizing polygon	Perimeter	Numeric (12.3)	
Fertilizing Area ID	Identifier for fertilizing areas assigned by the Data Warehouse	Fertliz_ID	Numeric (6)	
Agency Code	Code representing the agency carrying out the fertilization	Agency_Cd	Character (4)	
Water Body ID	Unique number of lake receiving fertilizer	Water_ID	Numeric (8)	
Water Name	Name of lake receiving fertilizer	Water_Name	Character (40)	
Drainage Codes	Drainage system codes representing the drainage unit in which the lake belongs	Drainge_Cd	Character (17)	Appendix A

HABITAT IMPROVEMENT POINTS

The ***Habitat Improvement Points*** spatial file (improvmt-sites.shp) is a point coverage representing habitat alteration locations.

Field of Information	Description	Dbase Field Name	Field Type (Length . Decimals)	Comments
Internal ID	Internal ID generated by GIS to uniquely identify each point	ID	Numeric (8)	
Habitat Alteration Site ID	Unique number representing a habitat alteration site. Assigned by the Data Warehouse	ImpSite_ID	Numeric (6)	
Agency's Site No.	Site identifier used by the agency	Ag_Site_ID	Character (4)	
Water Body ID	Unique number of lake or stream	Water_ID	Numeric (8)	
Water Name	Name of lake or stream	Water_Name	Character (40)	
Drainage Codes	Drainage system codes representing the drainage unit of the lake or stream	Drainge_Cd	Character (17)	Appendix A