

Seney National Wildlife Refuge Water Quality Data (1989-2004) Methods

Seney National Wildlife Refuge (Refuge) staff and volunteers began collecting long-term water quality data in 1989 to assist with future water management recommendations. The water quality tests were conducted using a Hach Drel water quality kit that consisted of a conductivity meter, pH meter, digital titrator, and spectrophotometer. Crystal Legault and Shawn Lixey conducted the original tests at twenty-seven locations (Appendix A). The tests measured conductivity, total dissolved solids, pH, alkalinity, turbidity, total hardness, calcium, magnesium, carbon dioxide, sulfate, tannin and lignin, nitrogen ammonia, nitrate high range, and nitrate low range. A detailed methods section and equipment list is included in the .pdf “1991 Water Quality Survey”.

In 1995, Everett J. Collier, a long-time Refuge volunteer, began conducting water quality tests across the Refuge at thirty-nine locations (Appendix B). Water quality tests were conducted annually from 1995-2004 at a wide assortment of locations at the Refuge, ranging from pool spillways to stream channels. The water quality tests measured the pH, silica, dissolved oxygen, nitrates, phosphates, conductivity, alkalinity, turbidity, iron, total hardness, tannins, and manganese levels at sampling areas throughout the Refuge. The methods for collecting the water quality data were based upon recommendations from the Hach Drel water quality kit handbook. Collier’s methods and notes for each round of data collection are included within the appendix of each report. Also included in his reports are detailed discussion sections and suggestions for future tests and management activities.

A Microsoft Excel file titled “SNWR_Water_Quality_Data_1989-2004” was created with separate spreadsheets for each sample location. Each sampling location spreadsheet within the Excel file contains water quality data collected from 1995-2004. The water quality data were manually entered into the appropriate Excel spreadsheets. There are separate spreadsheets for data collected in 1989 and 1990, as the sampled locations were listed in a different format. It should be noted that a number of locations were not measured as frequently as the others, so the available data varies from location to location.

Two additional Excel files were created; one contains data collected for the whooping crane invertebrate study and the other contains data regarding stream flow measurements from locations in the Driggs River, Marsh Creek, and Walsh Creek. The available water quality data and methods were organized by year and then scanned and saved as .pdfs. There were two floppy discs included with the data, but a floppy drive was unavailable and it is unknown whether additional information is contained within the floppies.

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Appendix A. Seney National Wildlife Refuge Water Quality Sampling Locations 1989-1991. Pools denoted with a * were considered priority pools.

Sampling Location
A-1*
B-1
C-1*
D-1*
E-1
F-1*
G-1
H-1
I-1
J-1*
Upper Goose Pen
Lower Goose Pen
T-2 East
T-2 West
M-2*
C-2
A-2*
Delta Creek Pool
Marsh Creek Pool
Stagnant Pool
Spur Pool 1
Spur Pool 2
Spur Pool 3
Spur Pool 4
C-3*
Driggs River
Diversion Ditch

Appendix B. Seney National Wildlife Refuge Water Quality Sampling Locations 1995-2004.

Sampling Location
J-1 Inlet
J1-I1
J1-G1
I1-F1
F1-E1
E1-C1
C1-B1
B1-A1
A1
H1-E1
G1-D1
E1-D1
D1
A-2
C-2
M-2
T-2
T-2-West
C-3 Sweeney
C-3 Walsh
C-3 Marsh
C-3 Spur
N. Big Spur
Big Spur
N. Mid Spur
S. Mid Spur
Upper S. Spur
Lower S. Spur
Marsh Creek Pool
Marsh Creek Pool Spillway
Ducy Creek
Delta Creek
Driggs River
Driggs River M-2 Bridge
Driggs River Chicago Farm
Clark Ditch M-28
Holland Ditch M-28
Driggs River Ditch M-28
Walsh Creek Ditch M-28