

LCMR Final Status Report.

I. Statewide National Wetlands Inventory, Protected Waters Inventory, Watershed Map Digitization (Wetlands GIS)

Program Manager: John Linc Stine, Administrator
Permits and Land Use Section
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A. M.L. 91 Ch 254, Art.1, Sec. 14, Subd: 10 (c)

Appropriation: \$750,000

Balance: \$0

Funding for this project was approved by the Minnesota Legislature Chapter 254, Art. 1, Sec. 14, Subd. 10(c) as recommended by the Legislative Commission on Minnesota Resources from the Minnesota Environment and Natural Resources Trust Fund. This appropriation is to the commissioner of natural resources to complete the digitization of the national wetlands inventory, the protected waters inventory, and watershed boundaries.

B. Compatible Data:

During the biennium ending June 30, 1993, the data collected by funding under this section must conform to information architecture as defined by guidelines and standards adopted by the Information Policy Office. In addition, the data must be provided to and integrated with the Minnesota Land Management Information Center's geographic data bases with the integration costs borne by the activity receiving funding under this section.

C. Match Requirements: None

II. Narrative

In the past legislative session a comprehensive wetland protection law was passed. A critical factor for the successful implementation of this legislation will be the completion and availability of a comprehensive inventory of wetlands and the ability to relate these wetlands to Protected Waters and to their watersheds.

III. Objectives

A. Complete the digitization of wetlands and deepwater habitats from National Wetland Inventory final maps.

A.1. Narrative:

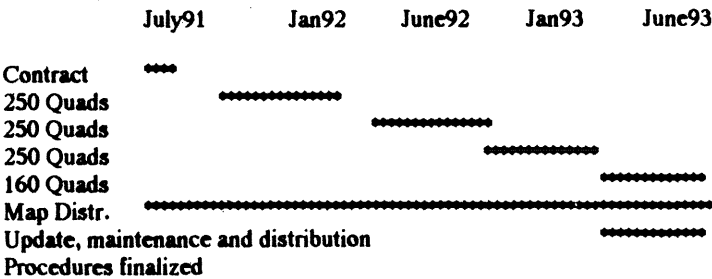
In 1980, less than 3.5 million acres of wetlands remain of the estimated 12.5 million acres that existed at state settlement. These wetlands are identified in the National Wetland Inventory (NWI) but statewide digitized files that are needed in the Minnesota Geographic Information System (MNGIS) do not exist. This proposal would complete the NWI mapping and digitization of this information that was initially funded with a \$300,000 contingency fund allocation from the Legislative Commission on Minnesota Resources in FY 1991.

A.2. Process:

Digitization of the remaining National Wetland Inventory maps will be accomplished through the continuation of the contract between the Department of Natural Resources and the United States Fish and Wildlife Service. Contract specifications provide for the delivery of compatible digital data products to the Minnesota Land Management Information Center.

A.3. Budget: Amount Budgeted: \$320,500
Balance: \$0

A.4. Timeline for Products/Tasks:



A.5. Status:

In all, 1486 NWI quads have been processed and are available for use by the public and governmental agencies in managing Minnesota wetlands. One hundred and sixty (160) of the NWI quads have been digitized but have not yet arrived at LMIC for processing. This leaves 64 remaining quads to be digitized out of a total of 1710 quads.

After field checking wetland delineations in April of this year U.S Fish & Wildlife and DNR determined that data for 64 1:24,000 quads of the NWI data should be redelineated. This redelineation will better reflect the wetlands in those areas but means the digitizing schedule for these areas has been delayed. On June 4, 1993 a contract extension was signed by U.S. Fish & Wildlife for digitizing the remaining NWI digital data. It will be digitized by October 31, 1993 with no additional cost to the state above the original contract. Of the \$320,494.00 encumbered in the current contract \$162,461.82 has been paid. The remaining amount will be spent for unbilled digitizing for fy93 and for the remaining 64 quads yet to be digitized.

Wetlands applications for use in EPPL7 have been developed as part of a cooperative effort between DNR, BOWSR and LMIC. NWI data can now be accessed from PC computers in both map and report forms. Data are also accessible from ArcView which uses Arc data files directly. A plan for storing, distributing and updating this very large (estimated 2,500 Megabytes) data set has been developed and implementation has begun.

A.6. Benefits:

Successful statewide implementation of proposed wetlands legislation will depend on the use of automated data files that accurately describe the wetland base. The same information is needed to implement the North American Waterfowl Management Plan, long range wetland plan, and county comprehensive water plans.

B. Digitize the Protected Water Inventory (PWI).

B.1. Narrative:

The PWI identifies the waters of the State subject to the Protected Waters Permit Program administered by the Division of Waters. This information will be digitized and added to the files in the Minnesota Geographic Information Center.

B.2. Procedures:

The area of coverage is 1710 1:24,000 scale quad sheets. The PWI final maps currently exist and the data would be transferred to the NWI maps using NWI polygons annotated with an additional label to describe the protected waters and then entered into the files at the Minnesota Geographic Information Center.

B.3. Budget: Amount Budgeted: \$50,000
Balance: \$0

B.4. Timeline for Products/Tasks:

OLD TIMETABLE:

	July91	Jan92	June92	Jan93	June93
Contract	*****				
435 Quads		*****			
425 Quads			*****		
425 Quads			*****		
425 Quads			*****		
Map Distr.			*****		
Application			*****		
Modules			*****		

PROPOSED CHANGES TO TIMETABLE:

	July91	Jan92	June92	Jan93	June93
32 Quads			*****		
1000 Quads				*****	
678 Quads				*****	
Map Distr.				*****	
Application		*****			
Modules		*****			

B.5. Status:

Labeling of PWI basins is complete for one third of the state, another third is in process with the remaining third yet to be labeled. Progress has been very good since February, but the overall process is more complex than originally estimated. Work will continue using existing DNR staff and resources.

The PWI basin data have been designed to closely tie to many existing tabular data sets. Applications have been developed in a way that now allows the use of any of this information to make maps and reports using ArcView GIS software. EPPL7 development work anticipates the use of PWI basin data as well.

B.6. Benefits:

In addition to the benefits described in A.6., the data files will enable the existing permit and water use data files to be used on a geographic basis.

C. Update and digitize the delineated major/minor watersheds from existing maps available at MNDNR, the United States Geological Survey (USGS) and from other sources.

C.1. Narrative:

Digitize and enter into the files of the Minnesota Geographic Information Center the watershed information available at the MNDNR and the USGS, according to specifications developed by the

MNDNR, USGS, United States Soil Conservation Service (SCS) and the Minnesota Geographic Information Center and to update the boundaries to reflect field verified corrections and changes.

C.2. Procedures:

The area of coverage is 1400 1:24,000 scale quad maps. The area of coverage is 1710 original 1:24,000 scale quad map watershed overlays. Watershed quad overlays will be photo-reduced to 1:100,000 scale, scanned at a high resolution and converted to digital vector data. Existing digital watershed data will be used to update the scanned data. Watershed boundary data would be digitized and entered into the MNGIS and a process developed to maintain, update and distribute these final maps.

C.3. Budget: Amount Budgeted: \$379,500
Balance: \$0

C.4. Timeline for Products/Tasks:

OLD TIMETABLE:

	July91	Jan92	June92	Jan93	June93
Contract	*****				
350 Quads		*****			
350 Quads			*****		
350 Quads			*****		
350 Quads			*****		
Map Distr. #			*****		
Application #			*****		
Modules			*****		

PROPOSED CHANGES TO TIMETABLE:

	July91	Jan92	June92	Jan93	June93
Contract		***			
1710 Quads			*****		
Update wshd.				*****	
Map Distr. #				*****	
Applications #			*****		

Map distribution and application modules may not be finalized due to funding limitations.

C.5. Status:

The digitization and labeling of Watersheds is complete. Applications for its use are available in ArcView and it can be used in EPPL7 applications such as the wetlands module. Watershed boundaries are important in the wetland mitigation process for the implementation of the Wetlands Conservation Act of 1991. It also is important in Integrated Resource Management as a basic management unit, water resource permit processing and for local water planning efforts.

In combination, these three GIS data sets are the foundation for geographic information needed to efficiently manage Minnesota wetlands. Already the Division of Waters, other DNR divisions and state agencies, as well as other governmental and private organizations are using this information. Refinements of the data sets will occur within the DNR both in terms of the attributes and the quality of the data. The wetland can also be used with other GIS and tabular data to improved management of other natural resources.

C.6. Benef

In addition to the benefits described in A.6., the data files will assist in the analysis of permit files and comprehensive local water plans.

IV. Evaluation:

Evaluation of the water resources of the State of Minnesota is dependent on the creation and maintenance of a dynamic data base that provides the ability to locate water resources by watershed, evaluate trends and is compatible with existing geographic data bases. Implementation of proposed wetlands legislation will require this information in a sound data base.

V. Context:

A. Initial work on this program was funded by a \$300,000 contingency fund allocation from the Legislative Commission on Minnesota Resources.

B. The USFW has completed the NWI in Minnesota on 1710 7.5 minute quad sheets, is producing final maps as resources allow, and has produced digital files on 200 quad sheets. USFW will have spent over \$1,000,000 on this project when all final maps are complete, but has no plans to spend money on additional digitization.

C. Wetland data on 1510 7.5 quad sheets remain to be digitized and managed through this proposal.

D. Indiana and Illinois have paid for the NWI and the production of digital files for wetland data in their states.

E. The Minnesota Chippewa Tribe has expressed interest in acquiring digital wetland files for part or all of the 1854 treaty area, approximately 330 quad sheets.

F. The SCS has indicated a willingness to participate in this study proposal by assisting in the field verification of problem watershed delineations.

G. The USGS has verified and digitized the watershed boundaries on 420 quads in the Minnesota River basin and will assist participating agencies through development of a comprehensive watershed mapping procedure manual that combines material from existing MNDNR and USGS sources.

VI. Qualifications:

1. Program Manager:

Paul Swenson, Acting Administrator

Permits and Land Use Section

Division of Waters - Minnesota Department of Natural Resources

VII. Reporting Requirements

Semiannual status reports will be submitted not later than January 1, 1992, July 1, 1992, January 1, 1993 and a final status report by June 30, 1993.

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