July 1, 1993
LCMR FINAL STATUS REPORT

I. TITLE: Waterwatch - Citizen Monitoring and Protection Program

Program Manager: David Christopherson
MN Pollution Control Agency (MPCA)
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St. Paul, MN 55155
(612) 296-7241

A. M.L. 91 Ch. 254, Art. 1, Sec. 14, Subd: 4 (d)
Appropriation: $272,000
Balance: 6/30/93 $ 0

Waterwatch - Citizen Monitoring and Protection Program: This appropriation is to the Commissioner of the Pollution Control Agency to encourage and coordinate citizen and student volunteer monitoring of water quality and biological indicators for Minnesota's lakes and streams.

B. Compatible Data: During the biennium ending June 30, 1993, the data collected by projects funded under this section that have common value for natural resource planning and management must conform to information architecture as defined in 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 Requirement: None

II. NARRATIVE

A. Several groups have approached the MPCA with requests for assistance in establishing water monitoring, analysis, and protection programs for lakes and rivers in their areas. "Waterwatch" will provide technical assistance and funding for these programs to insure that the information collected is analyzed correctly and is computerized so it is compatible with the STORET and LMIC systems.

B. The establishment of Waterwatch pilot programs affords a unique and innovative chance to develop a partnership between local interests and state agencies with the involvement of citizen volunteers, teachers and students.

C. Local people want to help monitor and protect their lakes and rivers. These pilot programs will provide a model to accomplish that, while also insuring that usable information is collected, analyzed, computerized, and made available for everyone's use. The model can then be used throughout the state where local groups and schools want to collect water resource information with technical assistance from state agencies. The pilots will also help coordinate monitoring efforts to meet the needs of local water planning and the recommendations of the State Water Management Plan.

III. OBJECTIVES

A. Provide coordination and technical assistance for the development of a River Watch/Citizen Monitoring and Protection Program for the Upper Mississippi River.

A1. Narrative - The Mississippi Headwaters Board plans to begin a River Watch program on the Upper Mississippi River. MPCA will provide technical assistance in the design of the monitoring and data storage. Funding will be provided for the publication of a comprehensive, multidisciplinary inventory and establishment of a data base and maps of outstanding resources of the river corridor in north central Minnesota.

A2. Procedures - MPCA staff will participate in River Watch planning and training sessions to provide the required technical assistance. The publication and computerization of the Mississippi Headwaters Resources Inventory will include the natural, scientific, cultural and historic values of the first 400 miles of the Mississippi River. Training sessions will be offered in eight north central Minnesota counties for members of county boards, planning commissions and zoning officials on use of the data base and maps for land planning and decision-making. Informational

meetings will also be held for property owners, schools, resorters and other interested parties. The impact of land use practices will be stressed.

A3. Budget

		LCMR Funds
a.	Amount budgeted:	$40,000
b.	Balance 6/30/93	$ 0

A4. Timeline for Products/Tasks

	July 1991	Jan 92	July 92	Jan 93	June 93
Resources Inventory	*********				
Data Base and Maps		**********			
Training for local officials		****		****	
Informational meetings and interpretive sessions			********		********

A5. Status - The inventory of natural, cultural, scenic, scientific, and recreational values of the first 400 miles of the Mississippi River has been completed by the Upper Mississippi Headwaters Board. The report will be published in two formats: as an annotated bibliography of research and information for local officials working on the river, and as a guide to the Mississippi Headwaters for property owners and users. A database and maps (EPPL7 and ArcInfo GIS formats) have been created for the river corridor resources. Training sessions have been offered for local government officials on using land-use regulations to protect water quality, and three in-school sessions have been conducted on using water quality results to inform local regulators about water quality concerns. A mailing list and database of river property owners has been established for the eight counties of the Mississippi Headwaters.

The Upper Mississippi Headwaters River Watch program has involved students from nine schools in the monitoring of the river and has added to the state water quality database. The MPCA provided technical feedback for the River Watch program and presented information regarding managing and reporting of results for a water quality monitoring plan at the "Importing River Watch" conference sponsored by the Headwaters Board.

A6. Benefits - The establishment of an inventory and the training sessions will enhance local government land use planning and management. It will provide educational and information services to the region by combining water quality and related land resource issues in a single data source, as well as promoting the ethic of land and water stewardship.

B. Provide technical assistance for the development and implementation of a county lake monitoring program.

B1. Narrative - Itasca County identified the need for a county-wide lake monitoring and protection program in the County's Local Water Management Plan. The MPCA will provide coordination and assistance in the design of the monitoring program and in the computerization of the collected information.

B2. Procedures - The MPCA will work with the county's established Advisory Committee to design a monitoring program. Technical assistance will be provided to determine protection activities within the county. MPCA will help design laboratory and field sheets which can be used for data computerization. The MPCA will coordinate all data storage in STORET.

B3. Budget

		LCMR Funds
a.	Amount budgeted	$65,000
b.	Balance 6/30/93	$ 0

B4. Timeline for Products/Tasks

	July 1991	Jan 92	July 92	Jan 93	June 93
Monitoring Plan	**********				
Monitoring and Protection activities		**********	**********	**********	
Data Storage and Analysis		**********	**********	**********	
Report Preparation				**********	*********

B5. Status - After assembling and summarizing the available existing data on Itasca lakes (from various governmental agencies, consultants and private citizens), a monitoring plan, quality assurance program, and lake ranking system were put together and lakes comprising about one-third of the county's lake acreage were selected for monitoring for water quality indicators.

Sampling began in February 1992 and is continuing. The information provided by this baseline monitoring will serve as the basis for the development of lake management plans for the lakes involved. These plans will be prepared as a joint effort with the various stakeholders, including lake associations and local land users.

Other projects are also under way as a result of the project's findings. Splithand and Little Splithand Lakes are being monitored again to determine whether there are any differences in this year's findings as compared to the previous year. The Splithand Lakes are extremely eutrophic as compared to the surrounding lakes, and a watershed study may be needed to understand where the nutrients are originating.

The Itasca County Soil and Water Conservation District (SWCD) is participating in a multi-agency study on Round Lake and its watershed in the northwestern part of the county. The goal of the project is to better understand the effect of eutrophication on walleye spawning habitat in the lake.

Lake associations and school groups have assisted the SWCD in sampling and information gathering. Lake cleanup projects have been implemented and a secchi disc monitoring program will begin with Itasca County schools in 1994. The efforts of lake associations and school groups have been important in focusing the public's attention on the benefits of good water quality.

As a result of the Waterwatch project, the amount of scientifically sound lake monitoring in the county has increased dramatically. Technical expertise at the county level has been well established, and lake associations, individuals, and schools are conducting ambitious lake and river protection programs.

The major obstacle to continuation of the program is funding. Local, state, and private sources are being investigated to supplement the current local water plan funding.

B6. Benefits - A lake monitoring and protection program will provide the county with a comprehensive look at a very valuable resource. It will provide information on where water quality problems currently exist and suggest possible remedial action. Computerization of the information will make the data available to other state agencies where it can be used to establish regional characteristics and long term trends.

C. Provide technical assistance for the development and implementation of a River Watch/Citizen Monitoring and Protection Program for the St. Louis River.

C1. Narrative - The St. Louis River Remedial Action Plan Citizen's Advisory Committee has recommended the establishment of a River Watch project in conjunction with the Remedial Action Plan.

C2. Procedures - Funding will be provided to the Citizen's Advisory Committee to establish a River Watch project in conjunction with the national River Watch Program. The funding will be used to establish a citizen/student volunteer monitoring program on the lower St. Louis River. MPCA will provide technical assistance in the design of the monitoring program and in the computerization of the collected data.

C3. Budget

	LCMR Funds
a. Amount budgeted:	$167,000
b. Balance 6/30/93	$ 0

C4. Timeline for Products/Tasks

	July 1991	Jan 92	July 92	Jan 93	June 93
Establish Advisory Council	**********				
Monitoring Plan	**********				
Volunteer Network	**********				
School Curriculum and teacher training	**********				
Citizen Volunteer training	*********				
Monitoring and Protection activities			**********	**********	
Data Storage and Analysis			**********	**********	

C5. Status - The backbone of the St. Louis River Watch program has been the 16 schools involved with water quality monitoring activities. This effort has provided needed data on the river and, even more importantly, has proven a very effective way of giving local students an opportunity both to learn firsthand about water quality issues and to take part in the protection of their local water resources. Monitoring equipment has been purchased and distributed to all schools involved. Teachers have undergone extensive training (offered three times during the project period) in water chemistry and benthic macronvertebrate surveys. A comprehensive monitoring plan was put together, providing historical information on the water quality of the St. Louis River and outlining the methodology for conducting various monitoring activities. Students have participated in river monitoring four times in the project period and have collected valuable data, especially with the benthic surveys.

A nine-member advisory committee (including one student) has met bimonthly to provide direction and input to the many aspects of the program. Students from the Marshall School have worked with KUMD Public Radio to produce a radio mini-series about the St. Louis River. Over 200 students attended seminars about the river during a River Congress held in March 1993. Other programs have been designed to attract the general public and special audiences. St. Louis Frog Watch participants learn frog calls from a tape recording and then identify and quantify frog populations. This is the first time that an anuran survey has been conducted in the St. Louis Watershed and will provide a baseline of information on frog populations. The Keepers of the Waters program was created to bring scientist and artists together in order to create artwork around community water quality concerns. Numerous interviews have been conducted with the media (radio, TV, newspaper, magazine, newsletters) focusing mainly on student monitoring activities, the River Congress, and the Frog Watch program.

C6. Benefits - The program would provide valuable information about current and potential water quality problems on the St. Louis River. It would enable interested citizens to evaluate water quality and act to improve it, as well as providing an enriching educational experience for students, teachers and volunteers.

IV. EVALUATION

For the FY92-93 biennium, Waterwatch can be evaluated by how successful each of the individual projects has been in meeting its goals: 1) the establishment of Upper Mississippi River Watch Program with volunteers collecting usable data, as well as the computerization of the Mississippi Headwaters Resources Inventory; 2) the creation of lake monitoring program in Itasca County that provides water quality information and helps to protect the resource; 3) and the establishment of the Lower St. Louis River Water Watch Program in cooperation with the Remedial Action Plan.

In the long-term, the true value of Waterwatch will be the creation of a state-local partnership to monitor Minnesota's water quality and protect the resource through the understanding and concern of students and citizen volunteers.

V. CONTEXT: RELATED CURRENT AND PREVIOUS WORK

A. Currently, little coordination or cooperation exists between local monitoring activities and state agencies involved in water quality monitoring. This project provides this coordination, as well as delivering technical assistance so the data collected will be computerized and usable by everyone who is interested in obtaining it.

B. All of the individual projects included in Waterwatch address monitoring needs identified at the local level. Local people want more information than state agencies can afford to provide, and they are willing to learn how to collect that information so that it is meaningful and accurate.

C. Several successful volunteer monitoring programs related to water quantity and quality have been established by state agencies. The MPCA coordinates the Citizen Lake-Monitoring Program without LCMR funding. In this program, citizen volunteers collect lake water transparency readings and return the data to MPCA where it is computerized and used for a variety of reports and indicators. Waterwatch will provide additional water quality information to further expand the data base. It is anticipated that once the current Waterwatch projects are operational, other citizen groups will also ask the MPCA for technical and financial aid to set up cooperative monitoring programs. MPCA, in turn, will request additional funding from LCMR.

D. Biennial Budget System Program Title and budget for this project for FY 92-93. Waterwatch - Citizen Monitoring. $272,000.

VI. QUALIFICATIONS

1. Program Manager

David Christopherson, Unit Supervisor
Monitoring and Data Management Unit
Assessment and Planning Section
Water Quality Division, Pollution Control Agency

2. Major Cooperators

A) Molly MacGregor, Administrator
Mississippi Headwaters Board

B) Art Norton, District Manager
Itasca County Soil and Water Conservation District

C) St. Louis River Remedial Action Plan
Citizens Advisory Committee

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 submitted by June 30, 1993.

1991 RESEARCH PROJECT ABSTRACT
FOR THE PERIOD ENDING JUNE 30, 1993
This project was supported by MN Future Resources Fund (M.S.116.13)

TITLE:	Waterwatch - Citizen Monitoring and Protection Program
PROGRAM MANAGER:	David Christopherson
ORGANIZATION:	Minnesota Pollution Control Agency
LEGAL CITATION:	M.L.91, Ch. 254, Art. 1, Sec. 14, Subd.4(d)
APPROP. AMOUNT:	$272,000

STATEMENT OF OBJECTIVES

To encourage and coordinate citizen and student volunteer monitoring of water quality and biological indicators for Minnesota's lakes and streams and to ensure that the information collected is analyzed correctly. To establish unique and innovative partnerships between local interests and state agencies while involving citizens, teachers, and students in water quality monitoring efforts.

OVERALL PROJECT RESULTS

The Mississippi Headwaters Board (MHB) River Watch has involved students from nine schools in water quality monitoring on the upper Mississippi. The MHB conducted an inventory of natural, cultural, scenic, scientific, and recreational values for the first 400 miles of the river, with the information put into a GIS format. Training sessions were organized for local government officials on using land-use regulations to protect water quality and a data base of river property owners in eight counties established.

Itasca County has undertaken an extensive monitoring program of the water quality of its lakes; this information will serve as the basis for development of lake management plans as a joint effort between the various stakeholders. Lake and school groups have assisted the Conservation District in sampling; lake cleanup projects have been implemented; the level of local technical expertise and available data have increased greatly; and the project has focused public attention on the benefits of water quality.

St. Louis River Watch has involved 16 schools in a water quality monitoring program that includes chemical and biological parameters and the first comprehensive survey of benthic macroinvertebrates on the St. Louis. The Frog Watch program coordinates the effort of 65 volunteers to survey frog populations by learning and monitoring their breeding calls. Other program components included a radio show produced by students, a river congress attended by 200 students, Keepers of the Waters which brings scientists and artists together over water quality concerns, and media outreach.

PROJECT RESULTS USE AND DISSEMINATION

MHB training sessions for local government officials utilized water quality data gathered by students in the River Watch Program. The MHB resource inventory data will be published as a guide to the Mississippi Headwaters for property owners and as an annotated bibliography of research and information for local officials. Itasca County lake information will be published as both a comprehensive and a summary report. St. Louis River Watch program results will be disseminated via a newsletter and Frog Watch data will be incorporated into a state-wide survey. Water quality data from the monitoring efforts has also been entered into and is available through the national STORET database.