December 29, 1995

LCMR Work Program 1993 (FINAL REPORT)

I. RIM Statewide Fisheries Habitat Development

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A. Legal Citation: M.L. 93 Chpt.172, Sect.14, Subd. 12c

Total Biennial LCMR Budget: $687,000 Remaining: $12,000

A balance of $77,000 has been identified from projects costing less than estimated. Additional aeration systems (3) are proposed for purchase under Objective C with this $77,000. See each objective for details on surpluses from specific projects.

Actual surplus funds were $57,000 for Objective A and $8000 for Objective B for a total of $65,000. Of this total, $53,000 was used to purchase three (3) additional aeration systems under Objective C. This results in a remaining unexpended balance of $12,000.

This appropriation is from the trust fund to the Commissioner of Natural Resources to accelerate the Reinvest In Minnesota program through the development of trout, walleye, and smallmouth bass habitat in streams, removal of the Flandrau Dam on the Cottonwood River to allow migration of fish, and installation of aeration systems on winterkill-prone lakes.

II. Narrative

Develop projects for the restoration, improvement and development of fisheries habitat to provide additional angling opportunities. Primary approaches to improve angling opportunities will be through development of trout, walleye and smallmouth bass habitat in streams, removal of the Flandrau Dam on the Cottonwood River to allow migration of five sport fish species, and installation of aeration systems on winterkill-prone lakes.

III. Statement of Objectives

A. Improve 25 miles of stream habitat for trout, walleye and smallmouth bass ($387,000).

B. Remove Flandrau Dam, Cottonwood River, Brown County ($200,000).

C. Purchase and install 4 lake aeration systems ($100,000).

IV. Objectives:

A. Improve 25 miles of stream habitat for trout, walleye, and smallmouth bass.

A1. Narrative: Install structures in streams to improve fish habitat for trout, walleye and smallmouth bass. The proposed stream list is:

Stream	County	Estimated Cost	Type
Clearwater R.	Beltrami	$ 25,000	Trout
Borden Cr.	Crow Wing	4,000	Trout
Camp Cr.	Fillmore	10,000	Trout
Mill Cr.	Fillmore	10,000	Trout
W. Beaver Cr.	Houston	32,000	Trout
Daley Cr.	Houston	5,000	Trout
Pine Cr.	Winona	60,000	Trout
Junco Cr.	Cook	24,000	Trout
Stoney Br.	Cass	32,000	Trout
Hay Cr.	Goodhue	88,000	Trout
E. Beaver Cr.	Houston	29,000	Trout
S. Fk. Root R.	Fillmore	13,000	Trout
Blackduck R.	Beltrami	25,000	Walleye/Bass
Ripple R.	Aitkin	30,000	Walleye/Bass
	TOTAL	$ 387,000	

Daley Creek was added with LCMR staff approval. The estimated cost of East Beaver Creek was adjusted from $34,000 to $29,0000.

A2. Procedures: Improvements to stream habitat will be accomplished by installing overhead bank cover for trout, placement of spawning substrates for walleye and management of woody debris to improve walleye and smallmouth bass habitat. Development activities will be done by State crews or by contract.

A3. Budget

a. Amount Budgeted: $387,000
b. Expended: 330,000
c. Balance: $ 57,000

Projected budget surpluses will accrue from the following projects: Blackduck and Clearwater Rivers ($14,000), Ripple River ($5,000), and Stoney Brook ($19,000). These surplus funds will be used to fund additional aeration systems under Objective C.

Actual budget surpluses resulted in a total of $57,000. These funds were applied to Objective C to purchase three (3) additional aeration systems.

A4. Timeline: July 93 Jan 94 June 94 Jan 95 June 95

A5. Status: The following projects were completed:

Stream	County	Project Cost	Type	Miles improved
Clearwater R.	Beltrami	$ 18,000	Trout	0.3
Mill Cr.	Fillmore	103,000	Trout	0.7
Daley Cr.	Houston	5,000	Trout	0.5
Pine Cr.	Winona	41,000	Trout	1.7
Iunco Cr.	Cook	24,000	Trout	0.8
Stoney Br.	Cass	19,000	Trout	0.2
Hay Cr.	Goodhue	62,000	Trout	2.4
E. Beaver Cr.	Houston	12,000	Trout	1.0
S. Fk. Root R.	Fillmore	25,000	Trout	1.3
Blackduck R.	Beltrami	12,000	Walleye/Bass	2.0
Ripple R.	Aitkin	9,000	Walleye/Bass	1.5
	TOTALS	$ 330,000		12.4

Borden Creek (Crow Wing County), Camp Creek (Fillmore County), and West Beaver Creek (Houston County) were not done because of land control issues.

A6. Benefits: Angling opportunities for larger fish will result on selected streams. Water quality benefits and improvements in stream productivity will occur as result of the habitat structures.

B. Remove Flandrau Dam, Cottonwood River, Brown County (Located at City of New Ulm).

B1. Narrative: Remove the Flandrau Dam.

B2. Procedure: Engineering plans will be developed and bids will be requested to select a contractor.

B3. Budget:

a. Amount Budgeted: $200,000
b. Expended: 192,000
c. Balance: $ 8,000

The Flandrau Dam removal project will have a budget surplus of $27,000. This surplus will be used for additional aeration systems identified under Objective C.

The actual budget surplus was $8,000. This balance was applied to purchase three (3) additional aeration systems under Objective C.

B4. Timeline: July 93 Jan 94 June 94 Jan 95 June 95

Develop contract

Remove Dam

B5. Status: The dam has been removed benefiting 60 miles of river for fish passage and habitat use.

B6. Benefits: Removal of this dam will allow the migration of walleye, sauger, channel catfish, flathead catfish, and white bass to 60 miles of river and provide additional angling opportunities. Removal will also eliminate a public safety hazard.

C. Purchase and install 4 lake aeration systems.

C1. Narrative: Purchase and install lake aeration devices in winterkill-prone lakes to provide additional angling opportunity.

C2. Procedures: Local units of government or sportsman's clubs sponsor the installation of aeration equipment in a winterkill lake through Project CORE (Cooperative Opportunities for Resource Enhancement). The Fisheries Section purchases and installs equipment to qualified sponsor. Sponsor assumes maintenance and operating expenses.

C3. Budget:

a. Amount budgeted: $100,000
b. Expended: 153,000
c. Balance: -53,000

Actual budget surpluses accrued under Objective A ($57,000) and Objective B ($8,000). Of this balance, $53,000 was used to purchase three (3) additional aeration systems under Objective C. This results in an unexpended remaining balance of $12,000

The lakes proposed for aeration are:

Lake	County	Estimated Cost
Knife L.	Kanabec	$ 25,000
Hyland L.	Hennepin	15,000
Susan L.	Carver	25,000
Cottonwood L.	Lyon	35,000
	TOTAL	$ 100,000

The Cottonwood Lake aeration system had a budget surplus of $12,000. This surplus will be used to fund additional aeration systems identified under Objective C.

Additional projects proposed for surplus funds ($77,000):

Lake	County	Estimated Cost
Goose L.	Washington	$30,000
Hanska L.	Brown	32,000
Shield's L.	Washington	15,000
	TOTAL	$77,000

C4. Timeline: July 93 Jan 94 June 94 Jan 95 June 95

C5. Status: The following aeration systems were installed. For Goose Lake and Shield's Lakes the equipment has been purchased and is scheduled for installation.

Lake	County	Project Cost	Acres Benefitted
Knife	Kanabec	$ 38,000	1,266
Hyland	Hennepin	$ 15,000	84
Susan	Carver	$ 25,000	93
Cottonwood	Lyon	$ 22,000	323
Goose	Washington	$ 15,000	66
Hanska	Brown	$ 25,000	1,773
Shield's	Washington	$ 13,000	26
	TOTALS	$ 153,000	3,631

C6. Benefits: Aeration of winterkill-prone lakes will provide additional angling opportunities.

V. Use of Classified Employees

A. Type and Amount of Classified Salaries

Project	# Staff	Classification	Hours	Amount
Clearwater R.	2	Area Fisheries Supervisor	8	200
		N.R. Specialist	40	1,000
				1,200
Blackduck R.	1	Area Fisheries Supervisor	16	400
	1	N.R. Specialist	90	2,300
	1	Heavy Equipment Operator	120	2,400
	1	Laborer	120	2,200
	1	Building Maintenance Supervisor	90	1,900
				9,200
Junco Cr.	1	N.R. Specialist	381	6,300
	2	N.R. Technician	406	7,400
				13,700
Stoney Brook	1	N.R. Specialist	400	7,200
	1	N.R. Technician	400	7,600
				14,800
Ripple R.	1	Area Supervisor	50	1,300

	1	N.R. Spec. 7I	160	3,600
	2	N.R. Spec. 5I	100	1,900
	1	N.R. Tech.	50	900
	1	Laborer	160	2,900
	1	Building Maintenance Supervisor	90	1,900
				12,500
So. Fk. Root	1	N.R. Spec. 10I	150	3,300
	2	N.R. Spec. 5I	80	1,500
	2	N.R. Tech.	100	1,500
				6,300
Hay Cr.	1	N.R. Spec. 10I	350	7,700
	4	N.R. Spec. 5I	1,400	26,600
	3	N.R. Tech.	500	7,600
				41,900
Mill Cr.	1	N.R. Spec. 10I	200	4,300
	2	N.R. Spec. 5I	40	700
	3	N.R. Tech.	100	1,500
				6,500
Pine Cr.	1	N.R. Spec. 10I	300	6,600
	2	N.R. Spec. 5I	400	7,600
	3	N.R. Tech.	500	7,700
				21,900
		Total Cost		128,000

B. Unique Qualifications

Stream habitat improvement work is a combination of art and science. Projects typically have a design phase where the project is mapped out and an implementation phase where the work is accomplished. Required skills include knowledge of hydrology, geomorphology, and stream fish biology as well as operation of heavy equipment and other construction skills. It is the combination of scientific/technical skills and heavy equipment/construction skills which make the job requirements for a stream habitat improvement crew unique. Accomplished crews have a good mix of technical training and proactive experience working on a variety of streams. It is imperative that stream habitat improvement work be done properly, or damage to the stream can result.

The Section of Fisheries has been doing stream habitat improvement work for over 50 years and has a number of classified employees with the necessary skills. Formal and on-the-job training is provided periodically to improve the skills of these employees.

C. Expense to the State

Hiring temporary unclassified employees and contracting are alternatives which have been considered and used for stream habitat improvement work. However, for the projects involved in this request, use of classified employees is considered to be the best option for reasons that follow.

Using classified employees insures that people with the necessary training and skills are doing the work. Once a project is completed there is good continuity because the crew can be involved in project evaluation and any future maintenance work that may be necessary. For the projects in this request, classified employees represent the least expensive and most efficient option.

Temporary unclassified employees usually have little or no training and experience with stream habitat improvement work. As a result, these employees typically require extensive on-the-job training and close supervision from one or more classified employees. Temporary employees also tend to have a high turnover rate which results in a lack of continuity from year to year and a need to continually train new employees. A crew may be able to function efficiently with a limited number of unskilled people; however, skilled people must predominate or efficiency and quality will suffer.

Contracting for professional services is usually not preferred because there is no pool of contractors in the state experienced at stream habitat improvement work. While contractors usually have excellent skills associated with heavy equipment operation and construction, their lack of experience in applying those skills to stream habitat improvement means that they must be closely supervised by classified employees. Contractors have been used on stream habitat improvement projects in the past. When comparing costs per unit (i.e. mile of access road, feet of riprap banks, stream crossings, number of structures, etc), contractors' costs were greater than similar projects completed by DNR crews. The total costs of projects involving contractors was even greater when the cost of a classified employee providing on site supervision is included.

Contracting may be preferable for unique projects where classified employees' experience is limited, large scale projects where specialized equipment and operators are required, or when sufficient classified employees are not available to do the work. However, it is generally preferable to use experienced classified employees if they are available.

D. Supplemental Nature of Appropriation

The money used for these projects is supplemental which means that the LCMR appropriation allows a greater amount of work to be done than would otherwise be accomplished. For example, while some stream habitat improvement projects may be funded through the Section of Fisheries' normal operating budget, the LCMR appropriation allows the habitat improvement program to be accelerated by providing money for additional projects.

The total number of classified and unclassified employees hired is determined by the funding available from our normal operating budget and special funding sources such as the LCMR. By approving LCMR funds for classified employees salaries, the Section of Fisheries can make the most efficient use of its work force. For example, classified employees can be used for LCMR funded stream improvement projects which frees unclassified employees to do projects which they are better suited for or for which it is easier to provide close supervision. It should again be stressed that, under this scenario, LCMR funds still allow the Section to do more projects than would otherwise be possible. Without LCMR funds, fewer unclassified employees would be hired and classified employees would do less stream improvement work and more of the other tasks that unclassified employees could do.

If approval to use LCMR funds for classified salaries is not granted, the Section will have to use people skilled in habitat improvement for non-habitat projects, while unclassified employees do habitat improvement work. Under such a scenario, it will still be necessary to commit some classified employee time to stream habitat improvement projects so that the necessary supervision occurs. This will result in a net loss in operating efficiency.

E. Amount Spent on Classified Salaries.

LCMR funds approved for classified personnel salaries were expended on the following projects.

Project	County	Hours	Amount Expended
Blackduck River	Beltrami	208	$ 4,000
Junco Creek	Cook	583	$10,000
Ripple River	Cass	318	$ 7,000
SE MN Streams		1,748	$19,000
Mill Cr.	Fillmore		
Pine Cr.	Winona		
Hay Cr.	Goodhue		
E. Beaver Cr.	Houston		
S. Fk. Root R.	Fillmore		
TOTALS		2,857	$40,000

VI. Evaluation: Improved fish populations can be measured as increases in population size, average size of fish, catch rates, or increased angler use of a lake or stream.

A. Streams are sampled with electrofishing gear or creel surveys to measure increases in sizes of fish, catch rates or angler use as a result of installing habitat improvement structures.

B. Partial restoration of ecosystem integrity of the Cottonwood River will be measured by the presence of species previously found only below the dam. Following dam removal, electrofishing surveys will determine if target species have moved upstream.

C. Survival of desirable fish species following the installation of aeration devices in proposed lakes will be measured by standard netting surveys or other techniques to establish fish presence.

VII. Context: The potential for increasing angling opportunities is often constrained by fish habitat limiting factors. Many lakes and streams have degraded fish habitat because of poor land use within their respective watersheds. Where land use practices have improved and riparian protection is secure, restoration of trout, walleye and smallmouth bass stream habitat is possible by stabilizing banks, removing barriers to movement and installing instream cover for adult fish. Winterkill of fish is a problem in shallow, eutrophic lakes in Minnesota. Approximately 300,000 acres of marginal lakes exist that are too shallow for winter fish survival. Prevention of winterkill with aeration systems insure angling opportunities for preferred sizes and species of game fish.

VIII. Qualifications:

Dirk Peterson,
Fisheries Program Coordinator
Minnesota Department of Natural Resources

B.S. Winona State University, 1976, Biology.
Fisheries Program Coordinator, Minnesota DNR, St. Paul, 1992 to present.
Federal Aid Coordinator, Minnesota DNR, St. Paul, 1989-1992.
Adjunct Faculty, Biology Department, Mankato State University, Mankato, 1988-1989.
Area Fisheries Supervisor, Minnesota DNR, Waterville, 1984-1989.
Fisheries Specialist, Minnesota DNR, Waterville, 1982-1984.

Aquatic Biologist, Minnesota DNR, Detroit Lakes, 1979-1982
Fisheries Specialist, Minnesota DNR, St. Paul, 1978-1979.
Fisheries Technician, U.S. Forest Service, Isabella, MN, 1978.

IX. Reporting Requirements: Semiannual status reports will be submitted not later than Jan. 1, 1994, Jan. 1, 1995 and a final status report by Jun. 30, 1995.