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Fisheries Long-Range Plan for Trout Stream Resource Management in Southeast Minnesota 2010-2015 and Progress Report

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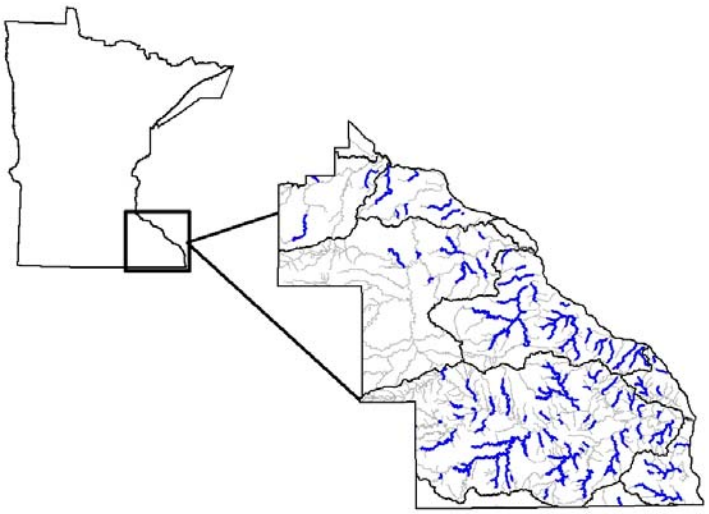


Minnesota Department of Natural Resources (MNDNR) Mission Statement:

To work with citizens to conserve and manage the State's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.

MNDNR Section of Fisheries Mission Statement:

To conserve and manage Minnesota's aquatic resources and associated fish communities for their intrinsic values and long-term ecological, commercial, and recreational benefits to the people of Minnesota.

Broad Goals:

1. To make recreational fishing as good as it can be in the State of Minnesota for the present and future.
2. To maintain, enhance, or restore the health of Minnesota ecosystems so that they can continue to serve environmental, social, and economic purposes.
3. To foster an ethic of natural resource stewardship among all Minnesotans.

MNDNR Lanesboro Area Fisheries Mission Statement:

To conserve, enhance, and restore self-sustaining trout populations and their habitats for anglers and the people of Minnesota.

Executive Summary

1. This long-range plan was developed to further the work from the previous long-range plan (MNDNR 2003a) and to implement goals documented in the "Fisheries Strategic Plan for Coldwater Resources Management in Southeast Minnesota 2004-2015" (MNDNR 2003b). The strategic plan provides a vision for trout managers to protect and maintain southeast Minnesota's rich trout heritage, provide diverse angling opportunities, and increase the public's awareness and appreciation of this valuable coldwater stream resource for the next 12 years.

   Definition: Southeast Minnesota, as discussed in this document, is that area managed by the MNDNR Lanesboro and Lake City Fisheries offices (Olmsted, Fillmore, Houston, Winona, Wabasha, and Goodhue counties).

2. The process of developing a 12-year strategic plan and the previous long-range plan included a public input process that included five public meetings conducted in the spring 2003, and input from trout angling groups, local, state, and federal agency staff, and many citizens of Minnesota.

3. This new plan provides a means to effectively and efficiently allocate staff resources and funds to manage southeast Minnesota's coldwater resources for the next 6 years.

4. The overall long-term goal for trout management in southeast Minnesota is to conserve, enhance, and restore self-sustaining trout populations and their habitats for anglers and the people of Minnesota.

5. Annual work plans and budgets have been developed to enact the actions in this plan. A new 6-year long-range plan guiding activities for the period 2016-2021 will be prepared by January 1, 2016. A final report on the 2010-2015 accomplishments will be included in the above document.

6. The Fisheries Long-Range Plan for Trout Stream Resource Management in Southeast Minnesota (LRP) presents 25 action items that address four goals and various key issues:

   Goal 1: Provide diverse angling opportunities so that a broad range of experiences are available to anglers. *(Reflects the MNDNR Strategic Conservation Agenda (2009):"Minnesota's fish and wildlife populations will be healthy and provide great recreation opportunities.")*

   1.1 Wild trout management
   1.2 Angler access
   1.3 Fishing regulations
   1.4 Hatcheries

Goal 2: Provide for the protection, improvement, and restoration of coldwater aquatic habitats and fish communities so that this unique resource is available for future generations. *(Reflects the MNDNR Strategic Conservation Agenda (2009):"Minnesota's water resources and watersheds will be conserved and enhanced.")*

2.1 Instream habitat rehabilitation
2.2 Riparian corridor management
2.3 Watershed management

Goal 3: Evaluate management through fisheries monitoring and conducting research. *(Reflects the MNDNR Strategic Conservation Agenda (2009):"Minnesota's water resources and watersheds will be conserved and enhanced.")*

3.1 Stream monitoring and management evaluations
3.2 Angler use and angler attitudes

Goal 4: Increase communication efforts so that information is readily available to both constituents and fisheries professionals. *(Reflects the MNDNR Strategic Conservation Agenda (2009): "DNR will effectively and efficiently deliver services to meet our mission.")*

4.1 Public information

Four goals with 25 Action Items included in this document:

1.1 Wild Trout Management

Action Item 1. Increase brook trout management in southeast Minnesota (page 6) – 5 approaches

Action Item 2. Enhance wild brown trout stocks by discontinuing brown trout fingerling stocking in streams where stocking is no longer required (page 9) – 3 approaches and 1 new approach

Action Item 3. Ensure that catchable trout stocking does not conflict with wild trout management but enhances angling opportunities where appropriate (page 12) – 3 approaches

Action Item 4. Rehabilitate sculpin populations in southeast Minnesota streams through reintroductions (page 15) – 4 approaches

1.2 Angler Access

Action Item 5. Increase angler access to trout streams through corridor easement acquisition and other programs (page 17) – 5 approaches and 2 new approaches

1.3 Fishing Regulations

Action Item 6. Propose and implement a tiered trout fishing regulation system (page 19) – 1 approach and 2 new approaches

Action Item 7. Implement catch-and-release only brown trout angling on select coolwater stream reaches (page 21) – 1 approach

1.4 Hatcheries

Action Item 8. Maintain healthy stocks of brown, rainbow, and brook trout for use in reintroductions and maintenance stocking in the southeast (page 22) – 2 approaches and 1 new approach

2.1 Instream habitat rehabilitation

Action Item 9. Develop MNDNR Fisheries "Trout Habitat Improvement Guidelines for Southeast Minnesota" (page 23) – 2 approaches and 1 new approach

Action Item 10. Restructure the southeast Minnesota DNR Fisheries Trout Stream Habitat Rehabilitation Crew (page 26) – Remove Action Item

Action Item 11. Improve the design and quality of trout stream habitat projects (page 27) – 8 approaches with 2 new approaches

Action Item 12. Increase trout stream habitat rehabilitation project inspections and maintenance (page 30) – 3 approaches and 1 new approach

Action Item 13. Use the MNDNR Division of Waters General Permitting system for MNDNR Fisheries stream habitat projects (page 30) – 2 approaches

2.2 Riparian Corridor Management

Action Item 14. Increase inspections and habitat protection on MNDNR Fisheries managed trout stream easements (page 31) – 3 approaches and 2 new approaches

Action Item 15. Assist riparian landowners to protect trout habitat on trout streams (page 32) – 3 approaches

Action Item 16. Increase trout stream habitat maintenance using the Minnesota Conservation Corps (MCC), Sentence to Serve (STS) crews, and volunteers (page 33) – 1 approach and 1 new approach

2.3 Watershed Management

Action Item 17. Enhance stream watershed protection and management through cooperative partnerships with other agencies and the public (page 34) – 3 approaches

Action Item 18. Participate in local watershed projects to improve trout stream habitat and trout populations (page 35) – 4 approaches

3.1 Stream Monitoring and Management Evaluations

Action Item 19. Continue monitoring trout streams including fish populations, physical and biological characteristics, and factors limiting trout abundance (page 36) – 4 approaches and 1 new approach

Action Item 20. Improve the quantity and quality of evaluations on new trout stream habitat rehabilitation projects (page 39) – 5 approaches

Action Item 21. Continue development of a southeast MNDNR Fisheries Geographical Information System (GIS) and stream survey database (page 40) – 4 approaches

3.2 Angler Use and Anglers Attitudes

Action Item 22. Obtain an unbiased estimate of fishing pressure and angling success for the entire southeast trout stream resource (page 41) – 3 approaches and 1 new approach

Action Item 23. Conduct periodic mail surveys of southeast Minnesota trout anglers to answer specific management questions and document trends over time in angler characteristics and preferences (page 42) – 2 approaches

4.1 Public Information

Action Item 24. Increase efforts to educate and inform anglers and other clientele on current trout management programs in southeast Minnesota (page 43) – 5 approaches and 2 new approaches

Action Item 25. Distribute an annual status report of fisheries management activities to measure progress in implementing strategic and long range plan objectives (page 45) – 1 approach

Progress and outcome on each Action Item is reported below. New approaches for each Action Item for the LRP conclude each Action Item discussion.

1.1 WILD TROUT MANAGEMENT

Action Item 1. Increase brook trout management in southeast Minnesota.

Approaches from 2004-2009:

1) Introduce brook trout and monitor success
2) Identify remnant stocks
3) Protect potential remnant native brook trout stocks if found
4) Evaluate the use of special regulations and habitat rehabilitation in brook trout management in the southeast
5) Evaluate the potential of brown trout removal in brook trout management

Progress and outcome:

Specific tasks and their outcome/progress include:

- Development of a plan for the reintroduction stocking of the Minnesota Wild Strain (MNW) of brook trout into suitable streams has been completed (Weiss 2006).

- Development of a plan to begin an additional stock of brook trout in the hatchery system for reintroductions has begun. Four streams have been sampled as potential sources for a new MNW strain. Disease certification has begun and two more samples are needed before spawning of adult brook trout can take place.

- Development of a brook trout conservation plan has been completed (Weiss and Snook 2009). This plan examines the history of brook trout management, factors limiting to brook trout survival, options for addressing limiting factors, and identifies future informational needs.

- Identification of possible remnant native brook trout populations through genetic testing is ongoing and includes testing additional populations. Genetic analysis has been completed on 60 streams in southeast Minnesota.

- Protection of known remnant native stocks of brook trout is a high priority. Protection plans for these streams will be identified in the stream management plans.

- In 2005, the brook trout regulation was removed from Cold Spring Brook because the population structure did not improve. The remaining regulation in southeast Minnesota for brook trout (12 inch minimum for brook trout, bag limit of 1, artificial lures and flies only) is for protection of a small brook trout population on Trout Valley Creek.

- Development of a plan to evaluate the response of brook trout to traditional habitat improvements in several streams is proposed if staff time and funding become available. Due to staff shortage and increased workloads, this plan has not been completed.

- Implementation of a plan to evaluate brown trout removal in Coolridge Creek, as a means of increasing brook trout abundance, is ongoing. A fish barrier was installed to prevent movement of brown trout above the barrier. Brown trout in Coolridge Creek were relocated downstream to Pine Creek. Additional streams may be prioritized upon completion of the study.

There are 233 miles of brook trout managed trout streams in southeast Minnesota (111 miles of 'brook trout only' managed trout water). Brook trout reintroductions have taken place in 17 southeast Minnesota streams in 2004 – 2009 totaling 31.8 miles of stream. All stockings were completed using Minnesota Wild (MNW) Strain brook trout fingerlings (Table 1).

Table 1. Seventeen trout streams stocked with Minnesota Wild (MNW) strain brook trout fingerlings in 2004-2009 in southeast Minnesota.

Stream	2004	2005	2006	2007	2008	2009
Big Springs Creek					X	X
Crooked Creek, South Fork	X		X			
Crystal Creek					X	X
Daley Creek					X	X
Duschee Creek			X	X	X	
Eitzen Creek					X	X

Continued – next page

Table 1. Continued

Stream	2004	2005	2006	2007	2008	2009
Etna Creek, South Branch					X	X
Gilbert Creek		X	X			
Gorman Creek	X	X				
Little Jordan Creek				X	X	X
Lynch Creek				X	X	X
Pickwick Creek					X	X
Root River, South Branch					X	X
Rupprecht Creek		X	X			
Torkelson Creek					X	X
Unnamed Trib (T-4 Mill Creek)					X	X
Unnamed Trib (T-2 Watson Creek)					X	X

Lynch Creek and Little Jordan Creek both received three consecutive years of brook trout fingerling stockings from 1993 – 1995. Brook trout survived to harvestable size in both streams (Weiss 1996); however no brook trout reproduction was documented in either stream during subsequent assessments (Weiss 2000a). The reintroduction in 2008 in these streams was completed with optimism that these populations would be successful.

Brook trout reintroduction into nine new streams (15 total stream miles) will require increasing brook trout fingerling stockings by 42,000 fish annually from 2008-2010. The brook trout maintenance stocking for the 3 remaining streams (6.55 stream miles) will require an annual increase of 32,500 fish and began in 2008. The upper stream reaches of Pine Creek (4.81 miles), Hemmingway Creek (2.19 miles), and Coolridge Creek (1.23 miles) are currently part of a fisheries research project and will provide information regarding the feasibility of removing brown trout to facilitate brook trout restoration.

Another fisheries research project was initiated in 2007 to examine the spatial distribution of stream reaches inhabited by brook trout in southeast Minnesota (Hoxmeier 2006). The study results are expected to identify brook trout populations that could potentially benefit from additional fisheries management activities such as acquisition of riparian corridors, habitat restoration, and protective harvest regulations. The field sampling for this project is complete and a formal report will be completed by 2011.

Approaches for 2010-2015:

1) Introduce brook trout and monitor success
2) Identify remnant stocks
3) Protect potential remnant native brook trout stocks if found
4) Evaluate the use of special regulations and habitat rehabilitation in brook trout management in the southeast
5) Evaluate the potential of brown trout removal in brook trout management

No new additional approaches are anticipated at this time. Completion of the current five approaches to this Action Item, above, will continue.

Action Item 2. Enhance wild brown trout stocks by discontinuing brown trout fingerling stocking in streams where stocking is no longer needed.

Approaches from 2004-2009:

1) Discontinue brown trout fingerling stocking in streams with sufficient brown trout natural reproduction and evaluate
2) Stock, every other year, those streams with little or no natural reproduction and continue evaluations
3) Evaluate effectiveness of fingerling stocking using marked fingerlings and control streams. Evaluate and complete the report in 2009.

Progress and outcome:

Brown trout fingerling stocking has been discontinued on nine southeast Minnesota streams along with portions of two others (specific discussion below). Consistent brown trout natural reproduction has been documented on nine of these streams during 1997 – 2006 using summer natural reproduction checks completed prior to stocking (Schultz 2006). The natural reproduction check program includes two streams (Bee Creek, I-006, and Lost Creek, M-009-033-002) that were sampled for eight consecutive years with the remaining seven streams being sampled for five consecutive years.

Brown trout fingerling stockings have been discontinued in five streams to promote brook trout recovery, as it is suspected that competition is limiting the brook trout population. One of these streams, Pine Creek (M-009-017-005), is part of an extensive fisheries research project, which is focusing mainly on brook trout in the upper reaches of Pine Creek, Coolridge Creek (M-009-017-005-005), and Hemmingway Creek (M-009-017-005-006). These five streams include (year discontinued):

- Crooked Creek, South Fork (M-004-009)(2005) - 10,400 brown trout fingerlings
- Etna Creek, South Branch (M-009-025-014)(2008) - 1,100 brown trout fingerlings
- Little Jordan Creek (M-009-033-005)(2008) - 5,000 brown trout fingerlings
- Pine Creek (M-009-017-005) (2008) - 41,000 brown trout fingerlings
- Spring Creek (M-047)(2008) - 7,000 brown trout fingerlings

Rush Creek (M-009-017) and Pine Creek (M-009-017-005) were evaluated via contribution of adipose clipped brown trout fingerlings to the resident trout population. Rush Creek received a single stocking of adipose clipped fish in 1992, while Pine Creek was stocked annually with clipped fish from 1992 – 1995. Population assessments will be completed on all streams not covered by annual

assessments (long-term monitoring streams) in 2010 to evaluate discontinuation of stocking.

Table 2. Streams in the MNDNR Lanesboro Fisheries Management Area with discontinued brown trout fingerling stockings

Stream	Kittle Number	Year Discontinued	Numbers of fingerlings previously stocked	Total stream miles affected
Beaver Creek, West	M-009-010-003-009	2003	15,000	3.70
Bee Creek	I-006	2005	10,000	2.36
Lost Creek	M-009-033-002	2005	5,000	0.98
Money Creek, West Branch	M-009-011-	2005	5,500	2.40
Pine Creek	M-009-017-005	2008	41,000	5.60
Pine Creek	M-011	2005	14,000	5.78
Riceford Creek	M-009-010-005	2005	12,000	8.60
Root River, South Branch[1]	M-009-025	2005	92,000	13.65
Rush Creek[2]	M-009-017	2005	7,000	2.10
Spring Valley Creek	M-009-033-010	2005	46,000	11.20
Watson Creek	M-009-025-002	2005	10,000	3.74
		Total	257,500	60.11

[1] Carimona Bridge upstream
[2] Interstate 90 Bridge upstream

Brown trout fingerling stocking in portions of four area streams (South Fork Root River (M-009-010), South Branch Root River (M-009-025) downstream of Carimona Bridge, Rush Creek (M-009-017), and Winnebago Creek (M-001)) were changed in 2005 from annual stockings to biennial stockings to facilitate natural reproduction evaluations. The South Fork Root River (M-009-010), South Branch Root River (M-009-025) and Winnebago Creek (M-001) will be evaluated using the information currently collected by annual electrofishing assessments as part of the trout stream Long-Term Monitoring program. Rush Creek (M-009-017) will be evaluated in 2012 in conjunction with the habitat improvement evaluation. A summary of this change is as follows:

- Root River, South Fork (3.98 stream miles) - 17,000 fingerlings to be stocked during odd-numbered years.
- Root River, South Branch - Carimona Bridge to US 52 Bridge (8.47 stream miles) – 58,000 fingerlings to be stocked during even-numbered years.
- Rush Creek - Interstate 90 Bridge to Ferguson Creek mouth (6.60 stream miles) – 43,000 fingerlings to be stocked during odd-numbered years.
- Winnebago Creek (8.5 stream miles) – 15,750 fingerlings to be stocked during odd-numbered years.

The Wells Creek (M-043) Stream Management Plan was revised in 2001 with a quota of 11,000 brown trout fingerlings to be stocked during even-numbered years. The revised management plan (2003) for the Middle Branch Whitewater River (M-031-019) also prescribed a biennial stocking schedule of 18,000 brown trout fingerlings in the odd-numbered years only. Both streams were evaluated

during 2008 or 2009 with population assessments to determine the source of brown trout production and if further amendments to the stocking schedule are needed.

- Wells Creek (6.10 stream miles) - 11,000 fingerlings to be stocked during even-numbered years.
- Whitewater River, Middle Branch (8.20 stream miles) – 18,000 fingerlings to be stocked during odd-numbered years.

In summary, 11 southeast Minnesota brown trout streams (or sections of streams) totaling 60.11 stream miles have been converted from class 1-C (semi-wild trout) to class 1-A (wild trout) streams (MNDNR 1993). This represents a 23% increase in miles of wild brown trout waters in southeast Minnesota since 2004. As a result, the number of brown trout fingerlings stocked in southeast Minnesota has decreased from 768,000 fingerlings in 2004 to 394,150 fingerlings in 2009.

Future brown trout fingerling stockings will vary (based on uneven numbers of biennially stocked fish) between approximately 378,000 - 450,000 fish/year. The future of trout management on these waters will be decided as electrofishing evaluations are completed on each of the stream reaches. In addition to the eleven streams where stocking was discontinued, the stocking schedules for six southeast Minnesota brown trout streams (41.85 total stream miles) were amended from annual to biennial. Pending assessments could further upgrade associated fisheries status from semi-wild brown trout populations to wild brown trout populations. Such an improvement would further increase the miles of wild brown trout water in southeast Minnesota by an additional 16% and decrease annual stockings demands by approximately 69,000 - 93,750 fish/year.

<u>Approaches for 2010-2015</u>:

1) Discontinue brown trout fingerling stocking in streams with sufficient brown trout natural reproduction and evaluate
2) Stock, every other year, those streams with little or no natural reproduction and continue evaluations
3) Evaluate effectiveness of fingerling stocking using marked fingerlings and control streams. Evaluate and complete the report in 2011.

One new additional approach will be undertaken with this Action Item:

4) Continue to assess brown trout populations as changing environmental conditions dictate (climate change, flooding, etc.).

Completion of the three original approaches with the addition of this fourth approach will continue.

Action Item 3. Ensure that catchable trout stocking does not conflict with wild trout management but enhances angling opportunities where appropriate.

Approaches from 2004-2009:

1) Rainbow trout are the primary species of trout used for catchable trout management
2) Limit catchable trout to urban fisheries (*e.g.*, Lanesboro Park Ponds) and high-use areas with good angler access (areas where they provide maximum return to anglers)
3) Avoid stocking catchable trout where there are abundant naturally reproduced trout populations

Progress and outcome:

Numerous changes have been made in the catchable rainbow trout yearling program since 2005 to accommodate the new management strategies for several area streams. Rainbow yearling stocking was discontinued in two streams due to changes in the harvest regulations requiring release of all trout (South Fork Root River, M-009-010) or all trout between 12 – 16 inches (Wisel Creek, M-009-010-010) from the general southeast Minnesota trout stream regulation of 5 trout in the daily limit with only one of those ≥16 inches. The status of the Riceford Creek (M-009-010-005) fishery was upgraded from class 1-C (semi-wild trout) and 1-D (marginal trout) to class 1-A (wild trout). With the cessation of stocking activities, fish quotas previously stocked in Wisel Creek (M-009-010-010), the South Fork Root River, and Riceford Creek were moved to other area streams previously identified as "high angler use areas" to increase angling opportunities. Rainbow yearling stocking has also been discontinued in the Leroy Trout Pond due to poor water conditions; these fish are currently stocked into Spring Valley Creek (M-009-033-010).

Table 3. Rainbow yearling stocking changes for MNDNR Lanesboro Fisheries Office to accommodate new management strategies since 2005.

Discontinued from…	Number of rainbow trout	Moved to…
Leroy Trout Pond	500	Spring Valley Creek
Riceford Creek	750	South Branch Root River
South Fork Root River	1,500	Rush Creek
Wisel Creek	1,100	Rush, Camp, Spring Valley Creek

The Middle Branch Whitewater River (M-031-019, Reach 2) had been stocked with 4,500 rainbow yearlings annually from Quincy Bridges downstream to the upstream Whitewater State Park Boundary. Beginning in 2005, the stocking area for these fish was moved to the lower 2.5 miles of Reach 2 (Whitewater State Park Group Camp down to the Whitewater State Park Headquarters Building). Changes to the harvest regulation (currently catch-and release, artificial lures and flies only) on the portion of the stream above the group camp combined with reducing competition for wild brown trout present in that vicinity were the primary

justifications for the change. Moving the stocking location downstream will also increase opportunities for put-and-take fishing due to the relatively high angler use in the Whitewater State Park area.

Five southeast Minnesota streams (and one lake) have received increases in the annual number of put-and-take rainbow yearlings and are described below. These areas have all been defined as “high angler use” areas and provide urban opportunities for anglers of all ages and abilities.

An additional 500 rainbow trout will be stocked annually into the lower 0.8 miles of Camp Creek (M-009-025-003). Historically, 500 rainbow trout yearlings have been stocked in Camp Creek annually as part of the Preston Trout Days Kid’s Fishing Contest. These fish were only stocked in the upstream portion of the stream where the contest is held on the third Saturday of May each year. The additional 500 fish will all be stocked in the downstream portion of the stream where two handicapped-fishing accesses are located.

The area of Duschee Creek (M-009-025-001) near the Lanesboro State Fish Hatchery and associated interpretive nature trail has become a very popular fishing location. Three wheelchair-fishing accesses are located along the trail downstream of the hatchery. Rainbow trout yearlings are stocked in this area on regular (2- 3 times per month) intervals throughout the harvest season. Due to perceived increases in angler use, the annual quota was increased by 1,600 fish/year to 3,200 fish/year.

Annual stocking quotas in Reach 2 of the South Branch Root River (M-009-025) that flows through Preston, MN will be increased from 2,550 rainbow trout yearlings to 3,300 trout/year to enhance local put-and-take fishing opportunities.

A new urban fishing area was established on Spring Valley Creek (M-009-033-010) in 2005 on the stretch of stream that flows through the City of Spring Valley, MN. This area will receive 1,000 rainbow trout yearlings on an annual basis.

A new urban fishing area was also established in the lower reaches of Rush Creek (M-009-017) in 2005. Rainbow yearling stocking was discontinued in Reaches 2 (stream mile 7.4 to 11.9) & 3 (stream mile 11.9 to 20.5) of Rush Creek (an area that contains a very healthy brown trout population) during the 2005-stocking season. The previous quota of 1,500 rainbow trout yearlings/year for Reaches 2 & 3 was moved to Reach 1 of Rush Creek (stream mile 0.0 to 7.4), which flows through the City of Rushford, MN. In addition to the 1,500 fish from Reach 2 & 3, an increase of an additional 1,600 rainbow trout yearlings/year will be stocked in Reach 1 of Rush Creek.

Foster-Arends Lake, located within the city limits of Rochester, MN and managed by the MNDNR Lake City Fisheries office, has been stocked with approximately 7,000 rainbow yearlings annually since 1994 and also received additional inputs

of trout brood-stock from Crystal Springs Hatchery. Special regulations facilitating a continuous trout season were placed on Foster-Arends in 1997. The stocking quota, however, had not been adjusted to account for potential increases in annual harvest. In 2008, the stocking quota of rainbow yearlings was increased from 7,000 to 10,000/year. . Additional inputs of post-spawning brood-stock will continue to be stocked as they become available.

Lanesboro Area Fisheries is currently evaluating the stocking of additional catchable-size rainbow trout in two spring ponds in Hokah, Minnesota as part of a city park enhancement program.

Table 4. Increases in rainbow trout yearling stocking in MNDNR Lanesboro Fisheries Management Area.

Water body	Increases in rainbow trout stocked annually
Camp Creek	500
Duschee Creek	1,600
Foster-Arends Lake	3,000
South Branch Root River	750
Rush Creek	1,600
Spring Valley Creek	1,000

In summary, stocking of yearling rainbow trout has been removed from three streams (18.78 total stream miles) that are currently managed as wild or semi-wild brown trout fisheries. The 3,350 rainbow trout previously stocked in these waters have been moved to other area streams that have demonstrated higher angler use by providing urban fishing opportunities. Furthermore, Rush Creek and the Middle Branch Whitewater River have had their respective stocking quotas of rainbow trout moved from the upper reaches to the lower reaches to minimize possible competition with local brown trout populations. Overall, rainbow trout stocking has been increased in six urban fishing locations throughout southeast Minnesota by 8,450 fish/year. A net increase of 4,600 rainbow trout yearlings annually has been requested for future stockings (8,450 minus the 3,850 from discontinued areas) in southeast Minnesota.

Approaches for 2010-2015:

1) Rainbow trout are the primary species of trout used for catchable trout management
2) Limit catchable trout to urban fisheries (*e.g.*, Lanesboro Park Ponds) and high-use areas with good angler access (areas where they provide maximum return to anglers)
3) Avoid stocking catchable trout where there are abundant naturally reproduced trout populations

No new additional approaches are anticipated at this time. Completion of the three approaches to the Action Item, listed above, will continue.

Action Item 4. Rehabilitate sculpin populations in southeast Minnesota streams through reintroductions.

Approaches from 2004-2009:

1) Introduce sculpin and monitor success
2) Identify sculpin species and stocks that currently exist in southeast Minnesota trout streams
3) Protect existing sculpin stocks in southeast Minnesota trout streams
4) Evaluate the reintroductions and develop continued plan

Progress and outcome:

Watershed protection and restoration, including protection and management of native species, have become increasing concerns for fisheries managers and conservation groups. Regarding coldwater streams in southeast Minnesota, the goal of restoration is to encourage the persistence of native trout populations by restoring conditions toward those that favor native trout through physical manipulation of habitat and reintroduction of native taxa (Southeast Minnesota Sculpin Reintroduction Plan: 2006-2009). Slimy sculpin (*Cottus cognatus*) and mottled sculpin (*Cottus bairdi*) are native to southeast Minnesota and can bring us toward this goal of watershed restoration.

Originally, the Sculpin Reintroduction Plan called for disease testing in three donor streams (Cold Spring Brook, M-034-048, Garvin Brook, M-026-001, and Beaver Creek, M-031-006); however, the list has since been expanded to also include Forestville (M-009-025-009) and East Beaver (M-009-010-003-008) creeks because of the abundance of sculpin in these streams. Thirty to fifty sculpin are taken alive to the Ecological Resources Pathology Lab in St. Paul and examined by the bacteriologist. A report is produced that documents the condition of the samples.

Sculpin from all five donor streams have been reintroduced into ten southeast Minnesota coldwater streams from 2003 to 2005 with varying degrees of success. Donor and recipient streams include:

Table 5. Sculpin stocking recipient streams in southeast Minnesota

Stream	Tributary Number
Rock Creek	M-043-005
Clear Creek	M-043-006
Klaire Creek	M-043-009
Hay Creek	M-046
Latsch Creek	M-028
Gilbert Creek	M-042
Sugar Loaf Creek	M-042-001
Trout Brook (Goodhue County)	M-046-001
Pickwick Creek	M-017
Little Pickwick Creek	M-017-002

Table 6. Sculpin stocking donor streams in southeast Minnesota.

Stream	Tributary Number
Garvin Brook	M-026-001
Cold Spring Brook	M-034-048
Beaver Creek (Whitewater)	M-031-006
Forestville Creek	M-009-025-009
East Beaver Creek	M-009-010-003-008

Sculpin populations have been successfully established in all recipient streams. However, these populations are generally characterized as having highly variable recruitment, most likely caused by fluctuating watershed and stream conditions. Populations of sculpin in Rock Creek, Klaire Creek, Latsch Creek, Trout Brook, Sugar Loaf Creek, Hay Creek, and Little Pickwick Creek have been the most successful with the presence of several year classes and a population that is expanding its range based on reconnaissance surveys. Conversely, overall population growth in Little Pickwick Creek seems to be unusually slower than other reintroduction streams. We hypothesize that this stream is having problems associated with the entire fish community (perhaps problems with water temperature and quality) and this theory will be investigated during future assessments.

Sculpin reintroduction and reconnaissance will continue with the possible addition of several new recipient streams. Currently, two graduate students at the University of Minnesota are working on projects directly related to these sculpin reintroductions. Their work will provide excellent information on this important species and its management.

A summary of their (David Huff, Dr. Loren Miller, and Dr. Bruce Vondracek) work follows:

Slimy sculpin (*Cottus cognatus*) from three source populations were reintroduced into nine streams in Southeast Minnesota. We used microsatellite DNA markers to evaluate ancestry and genetic diversity in the reintroduced populations 1-2 generations after stocking. Ancestry analysis revealed that a single source, Beaver Creek, contributed more than the other two sources at most reintroduction sites. Garvin Brook ancestry was the greatest proportion at two streams, while Cold Spring Brook ancestry was the greatest proportion at only Hay Creek. The ancestry of the latter two sources persisted mostly in the form of hybrid individuals. Sculpins in reintroduced populations exhibited higher levels of heterozygosity and allelic richness than the sources, but only slightly higher than that in Beaver Creek, the most genetically diverse of the source populations. Simulations of a best-case-scenario for maximum genetic variation indicated only a modest possible increase over the most variable source. Our study indicates that using more than one source for reintroductions may not substantially enhance genetic diversity. Furthermore, the source populations had strong genetic differentiation, raising the possibility of important adaptive differences. Managers should consider the risks of outbreeding before intentionally hybridizing populations.

Sculpin reintroduction and monitoring will continue with the possible addition of several new recipient streams. The first priority for new streams will be East and West Burns Valley Creek (M-024-002 and M-024) and Snake Creek (M-032.5); all three of these streams were identified as candidate streams in the Sculpin Reintroduction Plan. Some new reintroductions may be considered experimental, wherein the choices of source populations and recipient sites are made to maximize learning about factors affecting reintroduction success.

Approaches for 2010-2015:

1) Introduce sculpin and monitor success
2) Identify sculpin species and stocks that currently exist in southeast Minnesota trout streams
3) Protect existing sculpin stocks in southeast Minnesota trout streams
4) Evaluate the reintroductions and develop continued plan

No new additional approaches are anticipated at this time. Sculpin reintroduction and reconnaissance will resume with the possible addition of several new recipient streams. Completion of this Action Item will continue.

1.2 ANGLER ACCESS

Action Item 5. Increase angler access to trout streams through corridor easement acquisition and other programs. Continue the fisheries trout stream corridor easement program, purchasing as many easements as available funds will allow. Develop partnerships with non-profit organizations to enhance acquisition effectiveness.

Approaches from 2004-2009:

1) Request funding for increased aquatic management area acquisition annually through the MNDNR Aquatic Habitat Program proposal to the Lessard-Sams Outdoor Heritage Council. Use acquisition goals in Minnesota's Aquatic Management Area Acquisition Plan 2008-2033 and MNDNR priority lists to select and purchase more easements.
2) Target acquisition on challenging parcels using private land trusts where the land trusts have the ability to quickly acquire property, attach easements, and resell property.
3) Investigate the feasibility of developing a voluntary, private-lands access program with no financial obligations to DNR. Pursue if there is enough landowner interest to develop a program.
4) Work with concerned groups to identify, acquire and develop special fishing areas designated for families and persons with limited mobility.
5) Use acquisition or other contacts with landowners as an opportunity to foster good landowner and Department relations.

Progress and outcome:

Information needs include a priority list of streams and parcels desired for corridor easement purchase and a list of non-profit organizations willing to assist in parcel acquisition. It is also important to document the use and demand for special fishing areas when angler studies are conducted.

During the previous long-range plan (2004-2009), 20.26 miles of angling easements were purchased on 20 streams (Table 6).

Table 7. New angling easement acquisitions (aquatic management areas) that have been or are being obtained in the MNDNR Lanesboro Area Fisheries Management Area.

Stream	Type	Stream length or acres	Number of spring tributaries and length	Status
Bear Creek	Stream corridor	400 ft	-	Completed 2007
Bear Creek	Stream corridor	900 ft	-	Completed 2007
Bullard Creek	Stream corridor	3,150 ft	-	In progress
Bullard Creek	Stream corridor	3,200 ft	-	In progress
Etna Creek	Aquatic Management Area	64.3 acres	-	Completed 2006
Garvin Brook	Stream corridor	2,600 ft	3 - 665 ft	In progress
Lost Creek	Stream corridor	3,100 ft	-	Completed 2005
Lost Creek	Stream corridor	3,800 ft	-	Completed 2005
Lynch Creek	Stream corridor	7,385 ft	-	Completed 2005
Maple Creek	Stream corridor	4,360 ft	-	Completed 2004
Maple Creek	Stream corridor	3,450 ft	-	Completed 2003
Maple Creek	Stream corridor	2,635 ft	-	In progress
Mill Creek	Stream corridor	4,825 ft	-	Completed 2004
N. Br. Root River	Stream corridor	5,730 ft	-	Completed 2007
N. Br. Whitewater River	Stream corridor	1,725 ft	-	Completed 2009
Pleasant Valley Trib	Stream corridor	4,549 ft	1 - 1,440 ft	Completed 2009
Rush Creek	Stream corridor	2,550 ft	-	Completed 2003
S. Br. Root River	Stream corridor	9,225 ft	-	Completed 2003
S. Br. Root River	Stream corridor	7,600 ft	-	Completed 2003
S. Br. Root River	Stream corridor	9,140 ft	-	Completed 2003
S. Br. Root River	Stream corridor	6,100 ft	-	Completed 2003
S. Fork Root River	Stream corridor	5,485 ft	-	Completed 2004
Spring Creek	Stream corridor	4,150 ft	-	Completed 2003
Storer Creek	Stream corridor	1,475 ft	-	In progress
Trout Run Creek	Stream corridor	1,550 ft	-	Completed 2004
West Albany Creek	Stream corridor	2,575 ft	-	Completed 2007
West Beaver Creek	Stream corridor	1,855 ft	-	Completed 2003
West Beaver Creek	Stream corridor	2,500 ft	-	In progress
West Indian Creek	Stream corridor	4,225 ft	-	Completed 2009
Willow Creek	Stream corridor	2,900 ft	-	Completed 2008

Approaches for 2010-2015:

1) Request funding for increased aquatic management area acquisition annually through the MNDNR Aquatic Habitat Program proposal to the Lessard-Sams Outdoor Heritage Council. Use acquisition goals in

Minnesota's Aquatic Management Area Acquisition Plan 2008-2033 and MNDNR priority lists to select and purchase more easements.

2) Target acquisition on challenging parcels using private land trusts where the land trusts have the ability to quickly acquire property, attach easements, and resell property.
3) ~~Investigate the feasibility of developing a voluntary, private lands access program with no financial obligations to DNR. Pursue if there is enough landowner interest to develop a program.~~
4) Work with concerned groups to identify, acquire and develop special fishing areas designated for families and persons with limited mobility.
5) Use acquisition or other contacts with landowners as an opportunity to foster good landowner and Department relations.

Two new additional approaches will be undertaken within this Action Item:

6) Secure funding for a position upgrade at the Area Fisheries Office. The position would include Aquatic Management Area acquisition duties. This position would provide staff support for accelerated acquisition activities to help MNDNR reach the goals as described in "Minnesota's AMA Acquisition Plan, 2008-2033".
7) Remove Approach 3

Completion of four of the five original approaches, with the addition of these two new approaches, will continue.

1.3 FISHING REGULATIONS

Action Item 6. Propose and implement a tiered trout fishing regulation system.

Approach from 2004-2009:

1) Restrictive regulations shall be limited to no more than 20 to 25% of 680 miles of trout streams, or 136 to 170 miles. An evaluation plan will be developed to determine the success of tiered regulations. This Approach is completed and two new approaches below will be implemented.

Progress and outcome:

During the summer and fall of 2004, new trout fishing regulations were proposed on several streams in southeast Minnesota to potentially increase angler catch-rates of medium (12-16 inch) and large (16 inches and larger) brown trout. Following a series of public comment meetings, 52.7 miles of the 181.4 miles proposed for regulation were excluded from the regulation. Therefore, the following regulations became effective on 128.7 total stream miles on 16 April 2005:

Table 8. Angling regulations in effect on April 16, 2005 on 128.7 total stream miles in the MNDNR Lanesboro Fisheries Management Area.

Stream	Tributary Number	Regulation type
East Beaver Creek	M-009-010-003-008	12-16 inch protected slot (no gear restrictions)
South Branch Root River	M-009-010-003-008	12-16 inch protected slot (no gear restrictions)
Spring Valley Creek	M-009-033-010	12-16 inch protected slot (no gear restrictions)
Wisel Creek	M-009-010-010	12-16 inch protected slot (no gear restrictions)
West Indian Creek	M-034-017	12-16 inch protected slot (no gear restrictions)
Canfield Creek	M-009-025-010	12-16 inch protected slot (artificial lures and flies only)
Garvin Brook	M-026-001	12-16 inch protected slot (artificial lures and flies only)
Gribben Creek	M-009-024	12-16 inch protected slot (artificial lures and flies only)
Hay Creek	M-046	12-16 inch protected slot (artificial lures and flies only)
Trout Run Creek	M-009-029	12-16 inch protected slot (artificial lures and flies only)
North Branch Whitewater	M-031-018	12-16 inch protected slot (artificial lures and flies only)
Logan Creek	M-031-018-004	12-16 inch protected slot (artificial lures and flies only)
Camp Creek	M-009-025-003	Catch-and-Release (artificial lures and flies only)
Kedron Creek	M-009-033-008-004	Catch-and-Release (artificial lures and flies only)
South Fork Root River	M-009-010	Catch-and-Release (artificial lures and flies only)
Middle Branch Whitewater	M-031-019	Catch-and-Release (artificial lures and flies only)
Trout Valley Creek	M-031-001	All brook trout <12 inches must be released, bag limit 1 (artificial lures and flies only)

The Long-Range Plan suggests evaluation of regulation changes to determine if associated goals were achieved. However, logistical compromises during the 2006 field season limited our ability to initiate such an evaluation on all affected waters. In response, a subset of streams affected by the regulation is currently being assessed via the Long-Term Monitoring program (see Job 2.3, Action Item 17). Although comparisons will not be stream-specific, they should still provide applicable inferences for future regulation amendments. It will be noted that we believe the best way to evaluate this current set of tiered regulations is through a series of creel surveys which would examine the social implications on anglers throughout southeast Minnesota. Creels are relatively expensive and with the current state budget we are not able to instrument this type of evaluation now or anytime in the foreseeable future.

Approaches for 2010-2015:

1) ~~Restrictive regulations shall be limited to no more than 20 to 25% of 680 miles of trout streams, or 136 to 170 miles. An evaluation plan will be developed to determine the success of tiered regulations. This Approach is completed and two new approaches below will be implemented.~~

Two new approaches will be proposed within this Action Item:

2) Simplification of current regulations will be implemented with an additional objective to increase opportunities for trout angling in southeast Minnesota. Those specific items will be:
    a. Remove the barbless hook regulation on all trout streams, in all angling seasons, in southeast Minnesota (Fillmore, Houston, Winona, Olmsted, Wabasha, and Goodhue counties).

Scientific literature from around the country supports the concept that there is no significant difference in mortality of trout caught with barbed or barbless hooks. Several studies show differences of 0.3% in the two hook types. Natural mortality rates of wild trout range from 25-65% annually. Elimination of this requirement would simplify trout stream regulations.

Currently, barbless hooks are required for the winter season (January 1st to March 31st) in 32 trout streams in southeast Minnesota. The winter season consists of a catch-and-release regulation and is primarily used by fly anglers.

b. Extend the current fall catch-and-release season to October 15th from September 30th on all designated trout water in southeast Minnesota.

   This has been suggested by several anglers as a way to extend their time on stream during the fall season. The original reasoning behind the September 30th season closing was to protect trout while they were spawning. Brown and brook trout are both fall spawners. MNDNR Lanesboro Fisheries staff spends considerable time in the fall season electrofishing many of our long-term monitoring stations throughout southeast Minnesota. Spawning has been observed as early as the 3rd week of September but generally does not begin in earnest until late October or early November. Many anglers are not aware of this because they are typically not on the trout streams during this time.

c. Extend the current winter season to include <u>all</u> designated trout water in southeast Minnesota (Fillmore, Houston, Winona, Olmsted, Wabasha, and Goodhue counties).

   The winter season is currently limited to 32 trout streams in southeast Minnesota. This angling season has not negatively impacted the trout population in these streams and provides an excellent opportunity for anglers to enjoy the unique winter fishing experience. Allowing winter catch-and-release angling on all designated trout streams in southeast Minnesota will simply increase angling opportunities with no significant effect on the resident trout populations.

d. Require that stream reaches with gear restrictions during the regular season follow those gear restrictions in all other seasons.

   There has been confusion centered on the restriction of gear types in several streams in southeast Minnesota. This confusion hinders

law enforcement and reduces the effectiveness of a regulation objective (in this case, to increase numbers of large trout). Trout streams that currently limit angling gear to artificial lures and flies would remain that way through all seasons. This restates, in a defined manner, what is already the intention of the regulation and reduces any further confusion.

e. Instrument a new "State Parks Season" in southeast Minnesota where trout anglers could fish (catch-and-release) from October 15th to December 31st.

   Many anglers would like to continue to fish throughout the year. Brown and brook trout spawn in the fall but we know that most trout populations are not limited by disturbance at the egg stage but most vulnerable by flooding events (high current velocities, high stream turbidity) when they first leave the gravel (called swim-up fry) in late winter (Anderson 1983).

Table 9. Minnesota state parks where a special angling season (catch-and-release) is proposed between October 15th and December 31st.

State Park	Stream
Forestville State Park	Canfield Creek (all) Forestville Creek (section) South Branch Root River (section)
Beaver Creek Valley State Park	East Beaver Creek (all) West Beaver Creek (section) Main Beaver Creek (section)
Whitewater State Park	Middle Branch Whitewater River (section) Main Whitewater River (section) Trout Run Creek (all)
Carley State Park	North Branch Whitewater River (section)

3) Develop an evaluation plan using angler survey information and regional trout population biometrics (Long-Term Monitoring program) as the basis for the method used to evaluate new and existing regulations. Request funding for evaluation design and implementation assistance.

The first approach from 2004-2009 has been completed. Public input on the two newly proposed approaches will be solicited during public open house meetings in conjunction with the request for comment on the *DRAFT* Fisheries Long-Range Plan for Trout Stream Resource Management in Southeastern Minnesota 2010-2015 and Progress Report. Note that any changes to current angling regulations will require an official rulemaking process far beyond this document, according to Minnesota Statute 14.001 – Administrative Procedure Act.

Action Item 7. Implement catch-and-release only brown trout angling on select warmwater stream reaches.

Approach from 2004-2009:

1) Include up to 40 miles of non-designated waters in the tiered regulation proposal process.

Progress and outcome:

This regulation was implemented on several coolwater stream sections in southeast Minnesota, which include Belle Creek (M-048-004, 7.3 miles), Middle Branch Root River (M-009-033, 12.5 miles), and North Fork Zumbro River (M-034-049, 11.9 miles). No gear restrictions are in effect on these sections.

It will be noted here also that the best way to evaluate this specific regulation may be through a series of angler surveys which would examine the social implications on anglers throughout southeast Minnesota. Because of the expense of creel surveys it is doubtful that we would be able to instrument this type of evaluation.

The Belle Creek (M-048-004) management plan was updated with assessments conducted in two stations in May 2009 (MNDNR 2009). Few brown trout were collected relative to many other trout streams in southeast Minnesota. Station 1.8 had an estimated 6.77 lbs/acre brown trout with no brown trout ≥16 inches sampled while Station 3.1 had an estimated 35.89 lbs/acre brown trout with five ≥16 inches/mile. From this information, collected 4 years after the implementation of the catch-and-release regulation, it is believed that water quality, specifically temperature, is limiting the trout population and not angler harvest.

The Middle Branch Root River (M-009-033), because of its size, is difficult to sample effectively. Without proper sampling techniques we believe an angler survey would be the best and only possible method for evaluating the catch-and-release regulation on this stream.

Conditions on the North Fork Zumbro River (M-034-049) are similar and we believe an angler survey would be the best method here for evaluating the catch-and-release regulation.

Approaches for 2010-2015:

1) ~~Include up to 40 miles of non-designated waters in the tiered regulation proposal process.~~

This approach has been completed and no new additional approaches are anticipated at this time.

1.4 HATCHERIES

Action Item 8. Maintain healthy stocks of brown, rainbow, and brook trout for use in reintroductions and maintenance stocking in the southeast.

Approaches from 2004-2009:

1) Maintain annual disease testing on current wild sources of brook trout and brown trout
2) Increase the level of communication between the Trout Program Coordinator, Regional Fisheries supervisory staff, Hatchery Supervisors, and the Southeast Trout Area Supervisors by having at least one annual meeting discussing issues surrounding management needs and hatchery issues.

Progress and outcome:

Lanesboro and Peterson Hatchery received an A-1 fish health inspection rating in 2004-2008. An A-1 rating means that all fish tested negative for the following diseases:

Furunculosis (*Aeromonas salmonicida*)
Enteric Redmouth Disease (*Yersinia ruckeri*)
Bacterial Kidney Disease (*Renibacterium salmoninarum*)
Whirling Disease (*Myxobolus cerebralis*)
Viral Hemorrhagic Septicemia (VHS)
Infectious Hematopoietic Necrosis (IHN)
Infectious Pancreatic Necrosis (IPN)

Crystal Springs Hatchery received an A-1 fish health inspection rating in 2004-2006. In 2007, this hatchery received a B-BF rating after a test for Furunculosis was positive. By March 2009, the hatcheries rating had changed to a B-(BF) which is a step-wise progression to an A-1 rating by 2011 following negative testing for the above mentioned diseases.

Lanesboro and Crystal Springs Hatchery produced stocks of brown, rainbow, and brook trout for stocking in southeast Minnesota. Peterson Hatchery produced lake trout for inland lakes in Northeast Minnesota during 2004-2009.

Table 10. Brown trout hatchery production in southeast Minnesota

Hatchery	2004 - #'s (lbs)	2005 - #'s (lbs)	2006 - #'s (lbs)	2007 - #'s (lbs)	2008 - #'s (lbs)
Lanesboro					
Fingerling	528,265 (2,363)	834,118 (4,126)*	474,430 (2,338)	459,930 (2,274)	661,260 (3,623)
Yearling	35,679 (7,788)	38,490 (8,908)	31,423 (8,360)	27,773 (6,921)	23,558 (4,102)
Brood	8,374 (10,077)	7,823 (8,425)	8,538 (6,458)	14,314 (4,436)	20,665 (6,542)

*Many of these fingerlings were actually requested and produced for 2004, but because of stream survey work were not stocked until July 2005 and therefore reported as 2005 stocked fish.

Table 11. Rainbow trout hatchery production in southeast Minnesota

Hatchery	2004 - #'s (lbs)	2005 - #'s (lbs)	2006 - #'s (lbs)	2007 - #'s (lbs)	2008 - #'s (lbs)
Lanesboro					
Fingerling	115,527 (11,773)	117,000 (8,523)	103,748 (9,303)	90,584 (5,919)	73,641 (5,176)
Yearling	177,700 (68,175)	199,522 (84,486)	221,105 (97,625)	218,910 (96,665)	226,888 (90,631)
Brood	4,127 (3,878)	4,271 (4,487)	4,163 (4,989)	4,111 (3,218)	4,569 (3,956)
Crystal Springs					
Yearling	29,045 (19,045)	30,342 (20,111)	26,995 (17,224)	38,030 (21,384)	17,498 (12,724)*
Brood	NA	427 (1,057)	NA	364 (1,248)	106 (317)

*Production reduced due to August 2007 flood loses.

Table 12. Brook trout hatchery production in southeast Minnesota

Hatchery	2004 - #'s (lbs)	2005 - #'s (lbs)	2006 - #'s (lbs)	2007 - #'s (lbs)	2008 - #'s (lbs)
Crystal Springs					
Fingerling	30,255 (355)	15,096 (102)	24,699 (156)	30,458 (401)	96,437 (758)
Yearling	2,425 (370)	525 (315)	1,997 (345)	623 (250)	400 (130)
Brood	NA	22 (44)	NA	NA	196 (230)

MNDNR is currently evaluating the coldwater hatchery program and will be initiating program changes due to budget cuts. However, almost all requests from the Lanesboro and Lake City Area Fisheries offices for brown, brook, and rainbow trout have been met by hatchery managers. Requests for specific species and numbers of trout needed to fulfill stream management plans are completed three years prior to stocking.

Approaches for 2010-2015:

1) Maintain annual disease testing on current wild sources of brook trout and brown trout
2) Increase the level of communication between the Trout Program Coordinator, Hatchery Supervisors, and the Southeast Trout Area Supervisors by having at least one annual meeting discussing issues surrounding management needs and hatchery issues.

One new approach will be added to this Action Item.

3) Plan the development of an additional stock of brook trout for reintroductions in southeast Minnesota.

Completion of the two original approaches will continue with the addition of this third approach.

2.1 INSTREAM HABITAT REHABILITATION

Action Item 9. Develop MNDNR Fisheries "Trout Habitat Improvement Guidelines for Southeast Minnesota"

Approaches from 2004-2009:

1) Guidelines will include sections on the planning, permitting, environmental review, implementation, long-term maintenance, and fisheries evaluation plan for trout stream habitat rehabilitation projects.

2) Guidelines will be developed in cooperation with trout angling groups, Wisconsin DNR, MNDNR Ecological Resources, and other interested parties.

Progress and outcome:

Habitat related issues continue to be key limiting factors of southeast Minnesota trout stream resources. The protection, restoration, and enhancement of degraded habitat will continue to be a focus of coldwater resource management. Trout stream habitat improvement in southeast Minnesota began in the late 1940's. Until recently, successes and failures based on shared empirical knowledge were the basis of ongoing habitat improvement efforts. The art and science of habitat improvement has evolved over time. The theories of fluvial geomorphology are relatively new to most fisheries biologists. MNDNR remains committed to using the best science available, along with a well trained staff to continue to improve the habitat improvement program. Healthy coldwater ecosystems are the target.

Continued program support by angler's and increased funding has allowed for recent equipment upgrades resulting in greatly improved efficiency and scope of project work currently being completed by the southeast Minnesota Habitat Improvement Crew at the Lanesboro Area Fisheries Office.

A new MNDNR Stream Survey Manual (2007) will guide the development of a MNDNR Fisheries Trout Habitat Improvement Guidelines document.

The "Fisheries Trout Stream Habitat Improvement Guidelines for Southeast Minnesota" document is still in early draft form and will be amended as training and time allows. Trout Unlimited Driftless Area Restoration Effort is working on similar documentation.

As a result of the new Lessard-Sams Outdoor Heritage fund source, and the subsequent increased interest in stakeholder and private interests in stream habitat restoration work, MNDNR Fisheries in southeast Minnesota developed a "Checklist for Southeast Minnesota Stream Habitat Improvement Projects" in summer 2009. This checklist is available to anyone and written specifically for those groups that have successfully acquired funds from this source and wish to pursue habitat improvement projects in southeast Minnesota. The checklist is currently being used by both the Hiawatha and Twin Cities chapters of Trout Unlimited with good success.

MNDNR Lanesboro Fisheries office maintains a continuously evolving habitat improvement priority list. This list is used to direct MNDNR and private efforts to stream reaches where habitat improvement and maintenance may potentially benefit a specific watershed and fishery. Many factors contribute to streams

placed on this list such as trout population condition, limiting factors, landowner cooperation, angler use, and watershed initiatives.

Table 13. MNDNR Southeast Minnesota Stream Habitat Improvement Priority List (streams are listed alphabetically).

Stream	Tributary #	County	Stream Mile		Total Miles	Type of work
			Lower	Upper		
Badger Creek	M-009-010-002	Houston	3.90	5.91	2.01	New
Beaver Creek, East	M-009-010-003-008	Houston	0.00	0.44	0.44	Maintenance
Beaver Creek, East	M-009-010-003-008	Houston	2.11	2.42	0.31	Maintenance
Beaver Creek, West	M-009-010-003-009	Fillmore	1.87	2.34	0.47	New
Burns Valley Creek, East	M-024-002	Winona	0.00	0.41	0.41	New
Camp Creek	M-009-025-003	Fillmore	0.00	2.45	2.45	Maint/New
Canfield Creek	M-009-025-010	Fillmore	0.00	1.57	1.57	Maintenance
Cedar Valley Creek	M-018	Winona	-	-	1.12	New
Coolridge Creek	M-009-017-005-005	Winona	0.57	1.23	0.66	Maint/New
Coolridge Creek	M-009-017-005-005	Winona	0.00	0.13	0.13	Maintenance
Crooked Creek	M-004	Houston	12.72	13.42	0.70	New
Diamond Creek	M-009-023	Fillmore	3.70	5.50	1.80	Maintenance
Diamond Creek, South Fork	M-009-023-001	Fillmore	0.00	0.80	0.80	Maintenance
Duschee Creek	M-009-025-001	Fillmore	-	-	0.93	Maintenance
Duschee Creek	M-009-025-001	Fillmore	3.96	4.92	0.96	New
Etna Creek	M-009-025-014	Fillmore	0.00	0.69	0.69	Maint/New
Etna Creek, South Branch	M-009-025-014-001	Fillmore	0.00	0.75	0.75	Maint/New
Ferguson Creek	M-009-017-012	Winona	0.00	1.25	1.25	Maintenance
Forestville Creek	M-009-025-009	Fillmore	1.02	2.59	1.57	Maintenance
Garvin Brook	M-026-001	Winona	2.34	3.95	1.61	Maintenance
Gilmore Creek	M-024 (?)	Winona	0.75	2.06	1.31	New
Gribben Creek	M-009-024	Fillmore	3.30	3.80	0.50	Maintenance
Hay Creek	M-046	Goodhue	11.80	13.00	1.20	Maintenance
Hemmingway Creek	M-009-017-005-006	Winona	0.00	0.83	0.83	Maintenance
Indian Creek, East	M-032	Wabasha	-	-	1.12	New
Indian Creek, East	M-032	Wabasha	-	-	0.91	New
Indian Creek, West	M-034-017	Wabasha	5.55	7.20	1.65	New
Kedron Creek	M-009-033-008-004	Fillmore	0.26	0.65	0.39	New
Little Jordan Creek	M-009-033-005	Fillmore	0.00	0.45	0.45	New
Long Creek	M-034-022	Wabasha	-	-	1.47	Maint/New
Lost Creek	M-009-033-002	Fillmore	0.47	1.10	0.63	New
Lynch Creek	M-009-031	Fillmore	0.48	1.69	1.21	New
Mazeppa Creek	M-034-049-001	Wabasha	0.00	7.90	7.90	New
Mill Creek	M-009-034	Olmsted	5.78	6.55	0.77	New
Money Creek	M-009-011	Winona	20.50	22.10	1.60	New
Pickwick Creek	M-017	Winona	5.50	6.89	1.39	Maintenance
Pickwick Creek	M-017	Winona	3.30	5.10	1.80	New
Pickwick Creek	M-017	Winona	4.64	5.40	0.76	New
Pine Creek	M-009-017-005	Winona	0.00	3.85	3.85	New
Rice Creek	M-009-030	Fillmore	0.00	2.31	2.31	New
Rice Creek	M-009-030	Fillmore	7.76	9.50	1.74	New
Root River, South Branch	M-009-025	Fillmore	30.00	35.66	5.66	New
Root River, S Fork	M-009-010	Fillmore	34.20	37.13	2.93	Maintenance
Rush Creek	M-009-017	Winona	12.60	17.69	5.09	New
Rush Creek	M-009-017	Winona	8.87	11.25	2.38	Maint/New
Snake Creek	M-032.5	Wabasha	0.70	3.80	3.10	New
Spring Valley Creek	M-009-033-010	Fillmore	10.78	13.61	2.83	New
Thompson Creek	M-009-001	Houston	4.99	8.11	3.12	New
Trout Run Creek	M-009-029	Fillmore	10.69	10.21	0.48	Maint/New
Trout Run Creek	M-009-029	Fillmore	3.90	4.44	0.54	New
Trout Valley Creek	M-031-001	Winona	4.65	5.49	0.84	New
Whitewater, Middle Branch	M-031-019	Win / Olm	9.75	14.00	4.25	Maint/New
Willow Creek	M-009-025-004	Fillmore	0.00	2.11	2.11	New
Winnebago Creek	M-001	Houston	13.36	14.65	1.29	New
Winnebago Creek	M-001	Houston	12.26	13.36	1.10	New
Wisel Creek	M-009-010-010	Fillmore	2.48	3.45	0.97	New
Wisel Creek	M-009-010-010	Fillmore	3.98	5.42	1.44	New

Approaches for 2010-2015:

1) Guidelines will include sections on the planning, permitting, environmental review, implementation, long-term maintenance, and fisheries evaluation plan for trout stream habitat rehabilitation projects.
2) Guidelines will be developed in cooperation with trout angling groups, Wisconsin DNR, MNDNR Ecological Resources, and other interested parties.

One new approach will be added to this Action Item.

3) Work with Trout Unlimited Driftless Area Restoration Effort (TUDARE), Natural Resource Conservation Service (NRCS) staff and other partners to develop projects to secure funding through grant opportunities that become available.

Completion of the original two approaches, with the addition of this third approach, will continue.

Action Item 10. Restructure the southeast MNDNR Fisheries Trout Stream Habitat Rehabilitation Crew.

1) Create an independent crew supervisor position that would be on site and work with heavy equipment.

Progress and outcome:

The southeast MNDNR Lanesboro Fisheries Trout Stream Habitat Improvement Crew was restructured to include an independent crew supervisor that could regularly be on site and working with heavy equipment. This would remove the supervisory responsibilities of this crew from the Fisheries Area supervisor and allow this individual to focus attention on habitat enhancement. An individual was hired and provided independence between the two crews but retired in early 2005.

The position description for this supervisor was changed to reflect better use of allocated funds. The position of Fisheries Trout Stream Habitat Rehabilitation Crew supervisor was changed to Assistant Area Supervisor. This position was filled in February 2007.

Other personnel changes include:

1. Three Laborer positions were upgraded to Laborer Trades & Equipment positions to better reflect the skills, abilities and knowledge of staff working in the positions.
2. An additional heavy equipment operator (Laborer Trades & Equipment) was hired in the spring of 2006. This position provides the crew with enough individuals to run the available equipment during the field season.

3. A General Laborer position was also filled in the Fisheries Management Section at Lanesboro Area Fisheries. The positions duties included working with Habitat Improvement staff when needed. This position is currently being held vacant.

Currently, the MNDNR Fisheries Trout Stream Habitat Improvement Crew consists of one full time permanent position with three full time seasonal positions. The current supervision of crew is shared between the Area Supervisor and the Assistant Area Supervisor which has been found to be much more efficient and beneficial to the supervised staff.

Approaches for 2010-2015:

1) ~~Create an independent crew supervisor position that would be on site and work with heavy equipment.~~

No new additional approaches are anticipated at this time. This Action Item is considered complete and will be removed in the next LRP.

Action Item 11. Improve the design and quality of trout stream habitat projects.

Approaches from 2004-2009:

1) Provide specialized training for the habitat improvement crew
2) Develop more specific project proposals including detailed stream maps created with Global Positioning Systems (GPS) and stream geomorphology
3) Increase involvement of the MNDNR Ecological Resources staff
4) Involve representatives from non-MNDNR agencies including other states and angler groups
5) Develop and implement cooperative habitat rehabilitation projects with Trout Unlimited and Minnesota Trout Association
6) Investigate the feasibility of providing pass-through grants with state Trout Stamp funds
7) Where workload exceeds Lanesboro Area Fisheries ability to address it, use private contracting where feasible to implement habitat rehabilitation projects
8) If such benefit can be reasonably predicted, expected, or quantified consider completing stream restoration projects with long-term fisheries benefits, including channel morphology restoration, riparian vegetation management, and culvert retrofitting (to eliminate fish migration barriers and provide for livestock fencing)

Progress and outcome:

Trout stream habitat projects have been improved through the following:

- Staff has attended three workshops taught by the MNDNR Division of Ecological Resources on stream assessment, classification, monitoring, and fluvial geomorphology in 2004, 2005, and 2007.

- The Area Fisheries Supervisor, Assistant Area Fisheries Supervisor, and Habitat Improvement Specialist are now certified through the University of Minnesota Extensions as Erosion and Sediment Control Specialist. This training is required by all construction crews in Minnesota working outside of agricultural practices.

- A Storm Water Pollution Prevention Plan, using the above mentioned training, is now used for all habitat improvement projects. These plans identify all potential sources of pollution, describe practices to be used to reduce pollutants, and help assure compliance with the terms of the conditions of the storm water permit through the Minnesota Pollution Control Agency.

- The Assistant Area Fisheries Supervisor has completed the "Applied Fluvial Geomorphology" training taught by Dave Rosgen of Wildland Hydrology. This training involves a week of lecture and field activities familiarizing students with a stream classification system and the processes and procedures in understanding the stable/unstable state of streams and rivers.

- The Habitat Improvement Crew along with other area fisheries staff attended a cooperative field training workshop in September 2009 with WIDNR fisheries staff, SWCD staff, and area Natural Resource Conservation staff. This reflects the executive order of a cooperative service agreement for shared services between Minnesota and Wisconsin.

Increased involvement with the Ecological Resources stream crew has not taken place due to the lack of time associated with both group's activities. It is doubtful that increased coordination will take place in the future though communication with specific activities would benefit both groups.

Table 14. Habitat improvement projects completed by the MNDNR Southeast Habitat Improvement Crew during 2004-2009

Stream	Tributary #	County	Total miles	Year of completion
Coolridge Creek	M-009-017-005-005	Winona	Barrier	2009
Kedron Creek	M-009-033-008-004	Fillmore	0.34	2009
Pickwick Creek	M-017	Winona	0.38	2009
Rush Creek	M-009-017	Winona	0.45	2007-2009
Trout Run Creek (Bid-a-wee's)	M-009-029	Fillmore	0.04	2006
Trout Run Creek (Egge's)	M-009-029	Winona	0.57	2007
Wisel Creek	M-009-010-010	Fillmore	0.76	2008
Mill Creek	M-009-034	Olmsted	0.66	2005
Seven-mile Creek	M-055-071.5	Blue Earth	0.19	2007

Table 15. Habitat improvement projects completed in cooperation with Trout Unlimited and Minnesota Trout Association during 2004-2009.

Stream	Tributary #	County	Total miles	Year of completion
Hay Creek (Germann's)	M-046	Goodhue	0.70	2008
Trout Run Creek (Meyer's)	M-009-029	Winona	0.28	2005
Trout Run Creek (Smith's)	M-009-029	Fillmore	0.25	2006
Trout Run Creek (Lohman's)	M-009-029	Fillmore	0.57	2007
Trout Run Creek (Anderson's)	M-009-029	Fillmore	0.38	2008
Trout Run Creek (Kleven's)	M-009-029	Fillmore	0.40	2009
M. Br. Whitewater River	M-031-019	Winona	0.49	2003-2004

Approaches for 2010-2015:

1) Provide specialized training for the habitat improvement crew
2) Develop more specific project proposals including detailed stream maps created with Global Positioning Systems (GPS) and stream geomorphology
3) Increase involvement of the MNDNR Ecological Resources staff
4) Involve representatives from non-MNDNR agencies including other states and angler groups
5) Develop and implement cooperative habitat rehabilitation projects with Trout Unlimited and Minnesota Trout Association
6) ~~Investigate the feasibility of providing pass-through grants with state Trout Stamp funds~~
7) Where workload exceeds Lanesboro Area Fisheries ability to address it, use private contracting where feasible to implement habitat rehabilitation projects
8) If such benefit can be reasonably predicted, expected, or quantified consider completing stream restoration projects with long-term fisheries benefits, including channel morphology restoration, riparian vegetation management, and culvert retrofitting (to eliminate fish migration barriers and provide for livestock fencing)

Two new additional approaches will be added to this Action Item.

9) Instrument the development of designs of habitat improvement projects completed by MNDNR Lanesboro Fisheries Habitat Improvement Crew and cooperative project groups to increase longevity (require less maintenance) and require less man-made structures and riprap with the overall goal of reducing cost while maintaining original objectives (to increase numbers of large trout).
10) Approach 6, above, will be removed from the next LRP. This approach is not needed due to outside funding opportunities.

Completion of seven of the original eight approaches will continue with the addition of the two new approaches.

Action Item 12. Increase trout stream habitat improvement project inspections and maintenance.

Approaches from 2004-2009:

1) The stream habitat crew will inventory, evaluate, and assess the status of all past southeast trout stream rehabilitation projects.
2) Develop a prioritized list of maintenance projects
3) Project inspections will update the maintenance list on an annual basis

Progress and outcome:

A stream inspection worksheet is in draft form. Project inspections and maintenance has been delayed due to the intensity of our current habitat improvement projects and the magnitude of inventorying all past habitat improvement projects. Walking surveys of trout streams and a written record of current habitat conditions and problems will be implemented winter 2009/2010 as time and funds allow.

Approaches for 2010-2015:

1) The stream habitat crew will inventory, evaluate, and assess the status of all past southeast trout stream rehabilitation projects.
2) Develop a prioritized list of maintenance projects
3) Project inspections will update the maintenance list on an annual basis

One new additional approach will be added to this Action Item.

4) Secure funding so that Minnesota Conservation Corp can be utilized to increase activities related to project maintenance and to insure that trout stream easement corridors are being protected and enhanced.

Completion of the original three approaches, with the addition of this fourth approach, will continue.

Action Item 13. Use the DNR Division of Waters General Permitting system for MNDNR Fisheries stream habitat projects.

Approaches from 2004-2009:

1) Develop standard procedures for each habitat improvement technique (similar to NRCS standard procedures) to facilitate approval process
2) Approve the technique for standard procedures with the DNR Division of Waters

Progress and outcome:

Little progress was made regarding this action item. The Area Fisheries Supervisor will make the appropriate contacts with the MNDNR Division of Waters staff and attempt to develop a workgroup to address this action item.

Approaches for 2010-2015:

1) Develop standard procedures for each habitat improvement technique (similar to NRCS standard procedures) to facilitate approval process
2) Approve the technique for standard procedures with the DNR Division of Waters

No new approaches are anticipated at this time. Completion of the original two approaches will continue.

2.2 RIPARIAN CORRIDOR MANAGEMENT

Action Item 14. Increase inspections and habitat protection on MNDNR Fisheries managed trout stream easements.

Approaches from 2004-2009:

1) The Lanesboro Area Fisheries Acquisition staff person will use the southeast trout stream easement database to prioritize, schedule and document easement inspections
2) Problems identified will be discussed with landowners while good land management within corridors will be noted and strongly encouraged
3) Problems will provide opportunities for riparian corridor projects with Minnesota Conservation Corp/Sentenced to Serve crews

Progress and outcome:

A final report of an ongoing Legislative and Citizens Committee on Minnesota Resources (LCCMR) funded study is addressing issues related to state held conservation easements, such as Aquatic Management Areas. This report will provide suggested guidelines for inspection related actions including a standard reporting format. Lanesboro Area Fisheries staff has assisted in the study by providing examples of concerns specific to the trout stream easements in southeastern Minnesota. There is currently a strong commitment by the Lanesboro Fisheries office to begin addressing historical issues regarding easement agreements and land practices within easement corridors. MNDNR staff will need to work with private landowners with easements on their property so that grazing in easement corridors is consistent with stream management plan objectives and best management practices recommended by the Minnesota Department of Agriculture.

If the fencing of an easement corridor to exclude livestock is deemed a necessary management activity, MNDNR Fisheries will work with landowners to develop specific fencing plans for the stream reach of interest. Tillage set-backs will be monitored to assure the protection of the riparian corridor and whether or

not the current set-backs are consistent with the angling easement contract and County Shoreland Zoning Ordinances.

During routine electrofishing assessments, Fisheries Specialists will invite landowners to observe and during this time discuss ongoing land-use practices, familiarize them with our different programs, and facilitate communication.

Approaches for 2010-2015:

1) The Lanesboro Area Fisheries Acquisition staff person will use the southeast trout stream easement database to prioritize, schedule and document easement inspections
2) Problems identified will be discussed with landowners while good land management within corridors will be noted and strongly encouraged
3) Problems will provide opportunities for riparian corridor projects with Minnesota Conservation Corp/Sentenced to Serve crews

Two new additional approaches will be added to this Action Item.

4) While reviewing MNDNR Division of Waters permit applications for potential stream work in public waters, the MNDNR Fisheries Supervisor will comment on current practices inconsistent with state or local laws relating to waters of the state. Lanesboro Area Fisheries comments relating to protected waters permitting will reflect and consider ongoing land-use practices.
5) MNDNR Lanesboro Fisheries staff and cooperative partners will strictly follow MNDNR Invasive Species Operational Order 113 while engaged in habitat improvement, habitat maintenance or any other daily activities.

Completion of the three original approaches, with this fourth and fifth approach, will continue.

Action Item 15. Assist riparian landowners to protect trout habitat on trout streams.

Approaches from 2004-2009:

1) Develop a workgroup to compile and distribute an information packet on healthy riparian corridors, land protection options, stream habitat management and protection programs, other technical and financial assistance, and government rules and regulations
2) The Area Fisheries Acquisition Specialist will develop and maintain a landowner contact list
3) Investigate interest in hosting demonstration “field days” for landowners

Progress and outcome:

Lanesboro Area Fisheries is developing partnerships with other conservation agencies actively working in southeast Minnesota. The primary task is working with landowners along streams where a conservation easement has been

acquired or where acquisition is actively being sought. Recent habitat improvement work has been focused on streams where the current landowner(s) demonstrate a long term commitment to stream and riparian health. This type of focus is a priority of the MNDNR Lanesboro Area Fisheries office.

Approaches for 2010-2015:

1) Develop a workgroup to compile and distribute an information packet on healthy riparian corridors, land protection options, stream habitat management and protection programs, other technical and financial assistance, and government rules and regulations
2) The Area Fisheries Acquisition Specialist will develop and maintain a landowner contact list
3) Investigate interest in hosting demonstration "field days" for landowners

No new approaches are anticipated at this time. Completion of the original three approaches will continue.

Action Item 16. Increase trout stream riparian zone maintenance using the Minnesota Conservation Corps (MCC), Sentence to Serve (STS) crews, and volunteers.

Approach from 2004-2009:

1) The Assistant Area Fisheries Supervisor, in consultation with the Area Fisheries Supervisor, will identify projects through the inventory process and schedule work with MCC/STS crews, angling groups, and volunteer groups

Progress and outcome:

Minnesota Conservation Corps (MCC) members have been used in several trout stream habitat improvement projects in 2007-2009. We hope to provide work for a series of stream corridor maintenance projects for MCC crews during the summer of 2010 and 2011.

Approaches for 2010-2015:

1) The Assistant Area Fisheries Supervisor, in consultation with the Area Fisheries Supervisor, will identify projects through the inventory process and schedule work with MCC/STS crews, angling groups, and volunteer groups

One new additional approach will be added to this Action Item

2) Funding will be requested through the Lessard-Sams Outdoor Heritage process for hiring MCC members.

Completion of the first approach, with the addition of this second approach, will continue.

2.3 WATERSHED MANAGEMENT

Action Item 17. Enhance stream watershed protection and management through cooperative partnerships with other agencies and the public.

Approaches from 2004-2009:

1) Collaborate with private interests and other agencies to implement conservation practices as opportunities arise
2) Continue involvement in ongoing watershed activities
3) Support MNDNR Division of Waters springshed mapping project to identify critical habitat to target for protection

Progress and outcome:

The Lanesboro Area Fisheries office has drafted a proposal for a Long-Term Monitoring program (LTM) specific to Driftless Area streams. Trout stream management is the primary focus of the LTM. Stream ecosystems are comprised of five primary components: hydrology, geomorphology, biology, water quality, and connectivity. This project will establish current baselines of various component-specific variables in a select group of streams and then monitor variable responses, including trout recruitment, size structure, and overall biomass, to changing anthropogenic disturbances, such as land use and climate warming, in a scientific approach. Establishment of baselines will also facilitate evaluation of in-steam habitat improvement projects, riparian easement purchasing and other management practices, special harvest regulations, and watershed restoration efforts.

A working agreement between the Minnesota Pollution Control Agency (MPCA), Fillmore County Soil & Water Conservation District (SWCD), and the MNDNR is drafted to coordinate sampling efforts and data collection for LTM program purposes. Specifically, the partnership will address water quality and indicators of water quality (fish and invertebrate Indices of Biotic Integrity), but will also facilitate MPCA data needs for similar applications. The project will likely be opened to public involvement through organized programs, such as the Citizen Monitoring Program supervised by MPCA, after data needs and sampling methods have been established by MNDNR and MPCA during the 2007 field season.

The Lanesboro Area Fisheries office is working collaboratively with the MPCA to address the turbidity impairments throughout the Root River Watershed. A TMDL (Total Maximum Daily Load) project was established by the MPCA as a requirement of the Clean Water Act. The TMDL process identifies all sources of

the pollutant causing the impairment and determines the source reductions necessary to meet water quality standards. The goals of the Root River Turbidity TMDL are to complete TMDL computations for each listing, and use these to produce a TMDL final report. Also, to develop management strategies to address pollutant sources according to the load allocations and waste load allocations. This project commenced in 2008 and is scheduled to be completed in 2011. Collecting continuous water quality data is a requirement, and therefore monitoring sites throughout the Root River Watershed have been installed to sample various parameters (i.e., water temperature, turbidity, water level, rainfall). The Lanesboro office has been assigned to visit these sites on a regular basis, download the information, and store the organized data until passed onto the MPCA for further analyses.

Furthermore, the Fillmore SWCD has been contracted through this project to collect water samples and to conduct discharge measurements at various sites. The Lanesboro office is working with them to help complete necessary tasks, as much of the work is required during timed weather events. Some of the monitoring sites are located on LTM streams, and is therefore a benefit to the LTM program.

Approaches for 2010-2015:

1) Collaborate with private interests and other agencies to implement conservation practices as opportunities arise
2) Continue involvement in ongoing watershed activities
3) Support MNDNR Division of Waters springshed mapping project to identify critical habitat to target for protection

No new approaches are anticipated at this time. Completion of the original three approaches will continue.

Action Item 18. Participate in local watershed projects to improve trout stream habitat and trout populations.

Approaches from 2004-2009:

1) Staff will attend watershed meetings and provide technical information
2) Establish continuous water quality and flow monitoring stations on the South Branch Root River to monitor influences of watershed management actions in this watershed
3) Continue involvement in ongoing watershed projects (ex. Whitewater River, Wells Creek, Winnebago Creek, Gilbert Creek, Camp Hazard Creek)
4) Develop and implement a method for providing fisheries and other information to angler groups and the public on local watershed projects

Progress and outcome:

MNDNR Lanesboro Area Fisheries has partnered with Fillmore County Soil & Water Conservation District, Minnesota Pollution Control Agency, Minnesota

Department of Agriculture, and local citizens in completing the Root River Watershed TMDL study. This was discussed above in Action Item 17.

Two current watershed initiatives are ongoing; Rush Creek (Winona and Fillmore counties) and Bee Creek (Houston County). The focus of these efforts is to conserve soil in the watershed and improve the overall water quality in the perspective trout streams.

Fisheries staff will coordinate with MNDNR Division of Ecological Resources Regional Clean Water Legacy staff to assure participation in ongoing watershed initiatives. As specific technical assistance is requested, MNDNR Fisheries staff will be engaged.

Approaches for 2010-2015:

1) Staff will attend watershed meetings and provide technical information
2) Establish continuous water quality and flow monitoring stations on the South Branch Root River to monitor influences of watershed management actions in this watershed
3) Continue involvement in ongoing watershed projects (ex. Whitewater River, Wells Creek, Winnebago Creek, Gilbert Creek, Camp Hazard Creek)
4) Develop and implement a method for providing fisheries and other information to angler groups and the public on local watershed projects

No new approaches are anticipated at this time. Completion of the original four approaches will continue.

3.1 STREAM MONITORING AND MANAGEMENT EVALUATIONS

Action Item 19. Continue monitoring trout streams including fish populations, physical and biological characteristics, and factors limiting trout abundance.

Approaches from 2004-2009:

1) Continue sampling trout populations according to Management Plan schedules
2) Continue sampling in LTM stations and add additional variables to determine factors influencing annual variation in trout population parameters
3) Evaluate the feasibility of increasing the number of streams sampled annually
4) Use new Stream Survey Manual to guide future stream assessments

Progress and outcome:

The MNDNR Lanesboro Area Fisheries office has assessed the trout and non-game fish populations in 68 streams (351 stations) in 2004-2009. The purpose of these assessments was to gather information regarding habitat evaluations, stocking evaluations, population evaluation, natural reproduction checks, and/or long-term monitoring (Table 12). This information is stored and available at the Lanesboro Area Fisheries office.

Full stream surveys, which include describing the physical characteristics as well as the biological and chemical characteristics, were completed or initiated on three streams during this period. New methods have been used that support the new MNDNR Stream Survey Manual (2007).

Streams in the LTM were assessed every spring or fall during this period (see Goal 2.3, Action Item 17). Currently there are 21 streams with 22 stations on the LTM list.

Natural Reproduction Checks are conducted in May and Habitat Improvement Evaluations usually take place during the spring.

Table 16. Streams electrofished by MNDNR Lanesboro Area Fisheries Office in southeast Minnesota (2004-2009).

Stream name	Tributary #	Year	Purpose
Badger Creek	M-009-010-002	2004 - 2008	NRC, MP
Bear Creek	M-009-033-008	2004 - 2009	Fall LTM
Beaver Creek, West	M-009-010-003-009	2008	MP
Beaver Creek, East	M-009-010-003-008	2004, 2006 – 2008	MP, NRC
Beaver Creek (Houston County)	M-009-010-003	2009	MP
Beaver Creek (Winona County)	M-031-006	2004 – 2009	Fall LTM
Bee Creek	I-006	2004, 2006-2009	NRC, SE, LTM, MP
Belle Creek	M-048-004	2009	MP
Big Springs Creek	M-009-021	2004 – 2008	NRC
Campbell Creek	M-009-011-002	2009	PA, MP
Camp Creek	M-009-025-003	2004 – 2009	Spring LTM, NRC, MP
Camp Hayward Creek	M-009-019	2009	MP
Canfield Creek	M-009-025-010	2004 – 2009	NRC, MP
Cold Spring Brook	M-034-048	2004 – 2009	Fall LTM
Coolridge Creek	M-009-017-005-005	2007 – 2009	FR
Corey Creek	M-009-011-005	2005, 2009	PA, MP
Diamond Creek	M-009-023	2004 – 2009	NRC, MP
Duschee Creek	M-009-025-001	2005	FS
East Burns Valley Creek	M-024-002	2009	MP
East Indian Creek	M-032	2004 – 2009	Fall LTM
Ferguson Creek	M-009-017-012	2004 – 2009	Fall LTM
Forestville Creek	M-009-025-009	2004 – 2009	Fall LTM
Garvin Brook	M-026-001	2004 – 2009	Fall LTM
Girl Scout Camp Creek	M-009-010-005.5	2005, 2009	PA, MP
Gribben Creek	M-009-024	2004 – 2009	Fall LTM, NRC
Hallum Creek	M-009-010-006	2005, 2009	PA, MP
Hay Creek	M-046	2005 – 2009	Fall LTM, HIE[1]
Hemmingway Creek	M-009-017-005-006	2006 – 2009	PA, FR
Hippie Creek	M-009-011-007	2009	PA, MP
Little Jordan Creek	M-009-033-005	2008	MP, SE
Looney Creek	M-009-009-003	2009	PA, MP
Lost Creek	M-009-033-002	2004	NRC
Lynch Creek	M-009-031	2005	PA
Maple Creek	M-009-010-008	2005, 2008	PA, FR, MP

Table 16 (continued). Streams electrofished by MNDNR Lanesboro Area Fisheries Office in southeast Minnesota (2004-2009).

Stream name	Tributary #	Year	Purpose
Middle Branch Whitewater River	M-031-019	2006 – 2009	Fall LTM
Mill Creek	M-009-034	2004 – 2009	HIE (2)[2], NRC
Nepstad Creek	M-009-010-009	2005, 2009	PA, MP
New Yorker Hollow	M-001-009	2008	MP
North Branch Whitewater River	M-031-018	2004 – 2009	Fall LTM (2)
Nepstad Creek	M-009-010-009	2005	PA
Peterson Creek	M-026-001-008	2008	FA
Pickwick Creek	M-017	2005 – 2009	HIE, PA
Pine Creek (New Harford)	M-017	2005 – 2009	LTM, FA
Pine Creek	M-009-017-005	2004	NRC (2)
Riceford Creek	M-009-010-005	2004	NRC
Rush Creek	M-009-017	2005 – 2009	HIE[3], PA
Second Creek	M-040	2009	PA, MP
Silver Creek	M-009-009	2005, 2009	PA, MP
South Branch Root River	M-009-025	2004 – 2009	Fall LTM, NRC
South Branch Whitewater River	M-031-017	2004 – 2009	Spring LTM
South Fork Root River	M-009-010	2006 – 2009	Spring LTM
Spring Creek	M-047	2008	MP
Spring Valley Creek	M-009-033-010	2004	NRC
Storer Creek	M-009-008	2005, 2009	PA, MP
Swede Bottom Creek	M-009-010-001	2008	MP
Torkelson Creek	M-009-026	2004 – 2008	NRC
Trout Brook	M-048-007	2005 – 2009	Fall LTM
Trout Run Creek	M-009-029	2004 – 2009	Fall LTM, HIE (3)[4]
Trout Valley Creek	M-031-001	2004 – 2009	Fall LTM
Vesta Creek	M-009-010-007	2005, 2009	PA, MP
West Branch Money Creek	M-009-011-008	2006	PA, MP
West Indian Creek	M-034-017	2004 – 2009	Fall LTM
Watson Creek	M-009-025-002	2004	NRC
Wildcat Creek	M-007	2008	MP, FA
Willow Creek	M-009-025-004	2004	NRC
Winnebago Creek	M-001	2004 – 2009	Spring LTM, NRC
Wisel Creek	M-009-010-010	2004 – 2009	NRC, HIE[5]

FR = Fisheries Research, LTM = Long-Term Monitoring Program, MP = Management Plan update, NRC = Natural Reproduction Check, SE = Stocking Evaluation, FA = Flood Assessment, FS = Full Survey, HIE = Habitat Improvement Evaluation, PA = Population Assessment. [1] Stream mile 12.60, [2] Stream mile 1.86, [3] Stream mile 11.31, [4] Stream mile 0.98, 1.97, 5.95, [5] Stream mile 4.20.

Approaches for 2010-2015:

1) ~~Continue sampling trout populations according to Management Plan schedules~~
2) Continue sampling in LTM stations and add additional variables to determine factors influencing annual variation in trout population parameters
3) Evaluate the feasibility of increasing the number of streams sampled annually
4) Use new Stream Survey Manual to guide future stream assessments

One new additional approach will be added to this Action Item.

5) Modify Approach #1 above to maintain focus on Management Plan schedules but on trout streams with angling easements as a second layer of sorting priority and time commitment.

Completion of the original four approaches, with the addition of this fifth approach, will continue.

Action Item 20. Improve the quantity and quality of evaluations on new trout stream habitat rehabilitation projects.

Approaches from 2004-2009:

1) Select two major projects to be evaluated for 6-10 years
2) Design evaluation plan to measure key variables
3) Collect at least 2 years of pre-project data and sample at least 4-6 years post project
4) Consider conducting angler surveys (creels) in conjunction with these evaluations
5) Consider conducting post treatment surveys on a longer-term basis to document benefits and life of habitat projects

Progress and outcome:

Though we do not have standard protocol for conducting habitat evaluations, we have assessed the fish population in all recent evaluations to include at least one-year post-habitat improvement fish assessment work. Some habitat improvements will have two years of post-habitat improvement fish community information. This is not adequate based on the evaluations producing statistically valid information as pointed out in Approach #3 above.

Creel surveys provide excellent information but unfortunately are expensive to conduct. MNDNR Lanesboro Fisheries will seek additional funding for future angler surveys necessary to evaluate management activities. Alternative low cost means of measuring angler use and harvest will be explored.

Habitat Improvement Evaluations and most other fish population assessments include the use of a Coldwater Index of Biotic Integrity (Mundahl and Simon 1998) to monitor the possible effects on the non-game portion of the fish population.

Table 17. Trout stream habitat improvement projects in southeast Minnesota with pre- and post-project fish population data and year to report findings

Stream	Stream mile	Year of Pre-project fish population assessments	Year of Post-project fish population assessments	Year to conclude evaluation (# of pre- and post-project assessments at time of final report)
Kedron Creek	0.28	2007, 2009	-	2012 (2, 3)
Mill Creek	1.66, 5.78	1989, 1994, 2004	2006 -2009	2010 (3, 5)
Pickwick Creek	5.0, 6.3	2005-2008	2009	2012 (4, 4)
Rush Creek	11.02, 13.97	2005-2007	2008-2009	2012 (3, 5)
Trout Run Creek	0.98	2004-2006	2007-2009	2012 (3, 6)
Trout Run Creek	1.97	-	2007-2008	Discontinue – lack of pre-project data
Trout Run Creek	3.90 & 4.20	-	2008	Discontinue – lack of pre-project data
Wisel Creek	4.20	1994, 1995, 2005-2007	2008-2009	2012 (5, 5)
Hay Creek	12.6	2007-2008	-	Discontinue – project was moved
Winnebago Creek	13.38	2007-2008	-	2015 (2, 6)

Approaches for 2010-2015:

1) Select two major projects to be evaluated for 6-10 years
2) Design evaluation plan to measure key variables
3) Collect at least 2 years of pre-project data and sample at least 4-6 years post project
4) Consider conducting angler surveys (creels) in conjunction with these evaluations
5) Consider conducting post treatment surveys on a longer-term basis to document benefits and life of habitat projects

No new approaches are anticipated at this time. Completion of the original five approaches will continue.

Action Item 21. Continue development of a southeast MNDNR Fisheries Geographical Information System (GIS) and stream survey database.

Approaches from 2004-2009:

1) Improve the accuracy of stream lines by periodically redigitizing stream lines, both in the field and in the lab.
2) Design the data structure of the legacy (old) stream survey data to store fisheries data over 1,300 stream surveys and fish population assessments in southeast Minnesota
3) Input past stream survey data and link to the stream layer for displaying and analyzing data, including fish population estimates for trout which are currently available in summary spreadsheet format ("brown trout database").
4) Add other components as staffing and resources allow including a) trout stream easements; b) fisheries habitat projects; c) trout stocking; d) special regulations; e) survey sampling stations; and f) links to the National Hydrology Dataset (NHD) used by Minnesota Pollution Control Agency and the United States Geological Survey.

Progress and outcome:

The status of each component above is as follows:

1) Re-digitization of Fisheries managed stream has been completed in southeast Minnesota (Major watersheds #38-50) by MIS staff under Fisheries funding and direction.
2) Time required to complete this task was partially re-designated to working on the new Stream Survey Manual (2007). Recent work has been directed to complete this approach.
3) Same as 2) above.
4) Trout stream easements, fisheries habitat improvement projects, and special regulations have all been developed into their own GIS layer. Trout stocking areas, survey sampling stations and any links to other databases has not been completed.

A stream survey database is currently under construction. The lake survey database has recently been completed and integration into each area fisheries office is underway. The Fisheries Information Technologies team has been working closely with the MNDNR Lanesboro Area Fisheries Office to develop a user-friendly system that will provide us with valuable reports and analysis.

MNDNR Lanesboro Area Fisheries continues to rely on outside Fisheries staff expertise to improve existing data layers and to develop tools that can be used to improve the output potential from the current MNDNR GIS information database. MNDNR GIS staff has developed high quality GIS data as is reflected in the ability to produce and update products such as the "2009 Trout Angling Opportunities in Southern and Central Minnesota" booklet.

Approaches for 2010-2015:

1) Improve the accuracy of stream lines by periodically redigitizing stream lines, both in the field and in the lab.
2) Design the data structure of the legacy (old) stream survey data to store fisheries data over 1,300 stream surveys and fish population assessments in southeast Minnesota
3) Input past stream survey data and link to the stream layer for displaying and analyzing data, including fish population estimates for trout which are currently available in summary spreadsheet format ("brown trout database").
4) Add other components as staffing and resources allow including a) trout stream easements; b) fisheries habitat projects; c) trout stocking; d) special regulations; e) survey sampling stations; and f) links to the National Hydrology Dataset (NHD) used by Minnesota Pollution Control Agency and the United States Geological Survey.

No new approaches are anticipated at this time. Completion of the original four approaches above will continue.

3.2 ANGLER USE AND ANGLER ATTITUDES

Action Item 22. Obtain an unbiased estimate of fishing pressure and angling success for the entire southeast trout stream resource.

Approaches from 2004-2009:

1) Develop methodology for regional trout stream creel survey
2) Institute methodology
3) Develop plan for additional creel surveys to follow as temporal comparison

Progress and outcome:

In 2005, a large regional creel survey was conducted on 33 trout streams in southeast Minnesota. Four creel clerks were used to gather information from April 1 to September 30. Anglers were interviewed, counted, and given a post-card to return indicating total hours fished. Anglers consisted of mostly males (90.2%) using a variety of bait (37.0%), fly (35.3%), lure (20.7%), and mixed method (7.0%) gear types. Mean angler trip length was calculated as 3.77 hours with a catch rate of 1.10 trout/hour. An estimated 214,307 trout were caught in 52,687 angler trips totaling 190,859 angler-hours. Observed angler harvest rates were 17.3% for brown trout and 34.4% for rainbow trout. This creel will help natural resource managers meet their long-term goal to conserve, enhance and restore self-sustaining trout populations and their habitats for anglers and the people of Minnesota.

This creel is scheduled to be repeated in 2011 if funding is available.

Approaches for 2010-2015:

1) Develop methodology for regional trout stream creel survey
2) Institute methodology
3) Develop plan for additional creel surveys to follow as temporal comparison

One new additional approach will be added to this Action Item.

4) MNDNR Lanesboro Fisheries will develop a project proposal describing the need and potential expenses for an angler use and attitude survey so that it can be ready for submission as potential funding becomes available.

Completion of the original three approaches above, with the addition of this fourth approach, will continue.

Action Item 23. Conduct periodic mail surveys of southeast Minnesota trout anglers to answer specific management questions and document trends over time in angler characteristics and preferences.

Approaches from 2004-2009:

1) Use expertise at the University of Minnesota for implementing mail survey
2) Develop plan and/or recommendations for conducting mail surveys in the future

Progress and outcome:

No new mail surveys of southeast Minnesota trout anglers have been conducted since Vlaming and Fulton's "Trout Angling in Southeastern Minnesota: A Study of Trout Anglers" in 2003. A follow up study would be beneficial in evaluating current management activities and in developing future strategies.

Time and resources of University of Minnesota staff with expertise in developing mail surveys is very limited due to the need for this type of work throughout the state regarding the human dimension of management of many animal species.

Approaches for 2010-2015:

1) Use expertise at the University of Minnesota for implementing mail survey
2) Develop plan and/or recommendations for conducting mail surveys in the future

No new approaches are anticipated at this time. Completion of the two original approaches above will continue.

4.1 PUBLIC INFORMATION

Action Item 24. Increase efforts to educate and inform anglers and other clientele on current trout management programs in southeast Minnesota.

Approaches from 2004-2009:

1) Create a "Southeast Trout Stream Resource" page on the MNDNR website.
2) Revise stream access maps and information materials
3) Use MNDNR Fisheries MinnAqua, county fairs, school events, hatchery tours, and state park resources to increase public outreach
4) Explore methods of getting information from constituents
5) Meet with angler groups to discuss southeast trout management

Progress and outcome:

The MNDNR Lanesboro Area Fisheries office website (http://www.dnr.state.mn.us/areas/fisheries/lanesboro/index.html) has been expanded to include pictures of the August 2007 and June 2008 flood. The site also includes pictures of trout collected during our electrofishing assessments. One page is devoted to the sculpin reintroduction program. Newsletters and stream conditions can be found on other pages within the Lanesboro Area Fisheries web page and are frequently read according to the MNDNR Web Team.

Several new versions of the original "Trout Fishing Access in Southeastern Minnesota" booklet from 1998 have been produced. The first was in 2005 and titled "2005 Trout Angling Opportunities in Southern Minnesota". This booklet included streams throughout southern Minnesota and was changed to a full size format (8 ½" x 11"). A version was also produced in 2007.

The latest version entitled, “2009 Trout Angling Opportunities in Southern and Central Minnesota” is a 68 page booklet that includes text and maps to approximately 206 trout streams and 14 trout lakes in south and central Minnesota.

A newsletter entitled “Lanesboro Fisheries News” was released in fall 2008. Another one will be released in fall 2009. These newsletters include information on staff, long-term monitoring, trout population assessments, trout stocking, habitat improvement projects, and begin with a supervisor message. They have been very well received by our constituents.

Lanesboro Fisheries office personnel gave presentations on the status of the coldwater resources in southeast Minnesota to several angling groups. Hiawatha Chapter – Trout Unlimited, Win-Cres Chapter – Trout Unlimited, Twin Cites Chapter – Trout Unlimited and Minnesota Trout Association are given presentations at least once a year. This will expanded to other angling organizations and non-angling parties including local watershed groups. Cooperation with Minnesota Pollution Control Agency should facilitate public outreach and education in the future (see Goal 2.3, Action Item 17).

MNDNR Lanesboro Fisheries staff with MNDNR St. Paul staff attends a booth at the “Great Waters Expo” in Minneapolis annually and visits with hundreds of anglers answering questions about southeast Minnesota trout management.

Every year several electrofishing demonstrations are given to school groups, outdoor education groups, landowners and/or anglers. In addition to seeing how we collect our information, groups are given a background on how we use the information and its importance to fisheries management in southeast Minnesota.

Approaches for 2010-2015:

1) Create a “Southeast Trout Stream Resource” page on the MNDNR website.
2) Revise stream access maps and information materials
3) Use MNDNR Fisheries MinnAqua, county fairs, school events, hatchery tours, and state park resources to increase public outreach
4) Explore methods of getting information from constituents
5) Meet with angler groups to discuss southeast trout management

Two new approaches will be added to this Action Item.

6) Participate in the planning of the “National Trout Learning Center” that is proposed in Preston, Minnesota.
7) Continue to support the acquisition of the Spring Valley Hatchery property which would be an ideal local for the learning center. This potential project would create an excellent opportunity for education and outreach.

Completion of the original five approaches above, with the addition of these two new approaches, will continue.

Action Item 25. Distribute an annual status report of fisheries management activities to measure progress in implementing strategic and long range plan objectives.

Approach from 2004-2009:

1) The Assistant Regional Fisheries Supervisor will coordinate the development of an annual progress report

Progress and outcome:

This Approach was not realized during the term of the previous Long-Range Plan. Staff changes, with a multitude of responsibilities, have delayed the completion of this Action Item. MNDNR Lanesboro Area Fisheries is now directed by different staff as this management area is now part of Region 3 since 2007.

This Action Item must be re-emphasized as an important component to the communication pathway between this state agency and its constituents.

Approach for 2010-2015:

1) The Assistant Regional Fisheries Supervisor will coordinate the development of an annual progress report

No new approaches are anticipated at this time. Completion of the original approach above will continue.

CONCLUSIONS

All 25 Action Items have been initiated, are ongoing, or are complete. Specific tasks from this document will be assigned to all Fisheries Specialists to reflect current priorities.

It will be noted that the MNDNR southeast trout staff have been reduced in number. Positions vacant with their status include:

Fisheries Specialist – Acquisition (Lanesboro) – This job is now being completed by Steve Klotz (Area Fisheries Supervisor) and Jim Melander (Fisheries Technician).

Fisheries Specialist – Acquisition (Lake City) – This position was moved to Lanesboro Area Fisheries office and combined into the duties of Steve Klotz (Area Fisheries Supervisor) and Jim Melander (Fisheries Technician). This

position also held trout program responsibilities for all of southeast Minnesota from 2001-2006.

It should also be noted here that angling easement acquisition activities have increased within the Lanesboro Office. Each easement purchase currently takes 10-12 months to process, causing some difficulties with landowners. If processing time could be reduced, more landowners would be willing to consider easements.

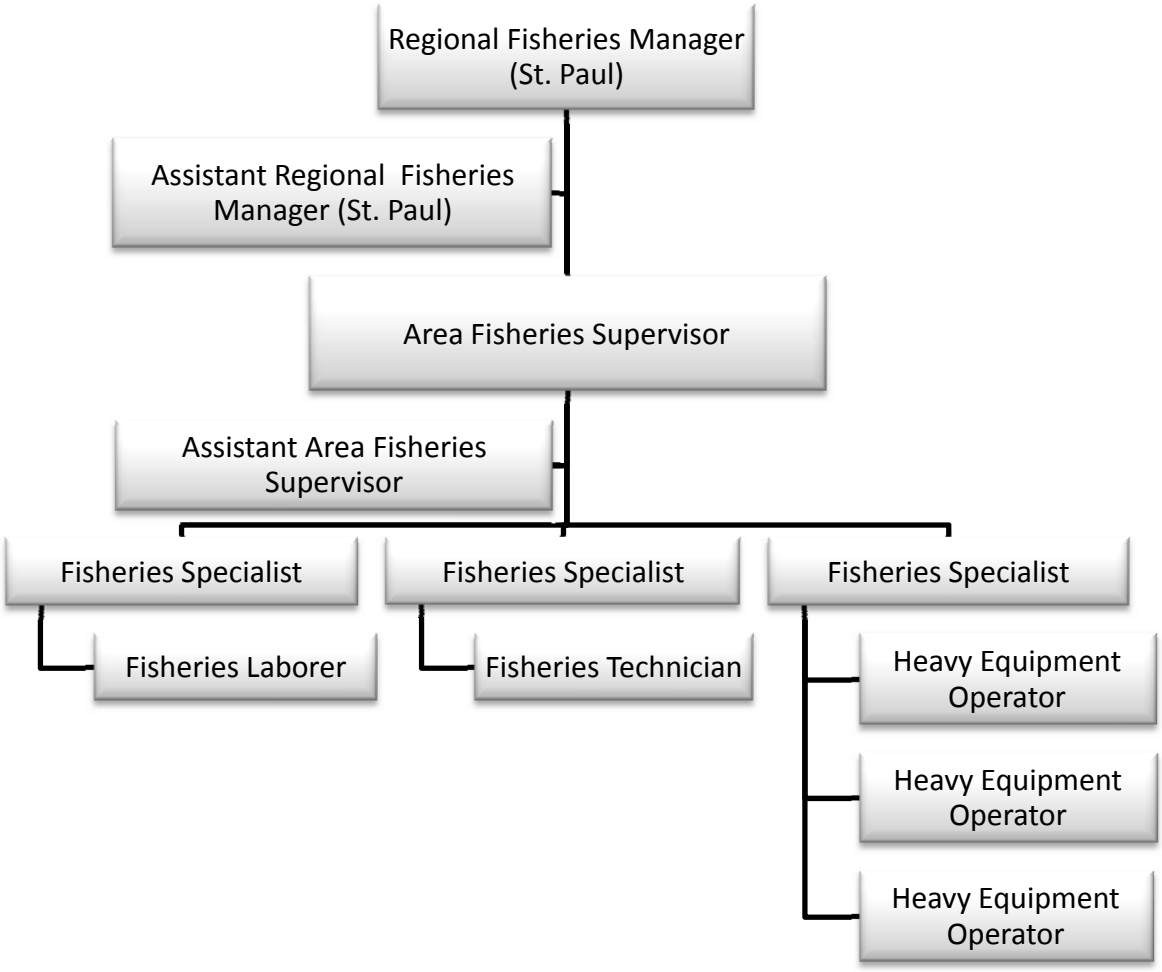
Fisheries Specialist – Trout program (Lake City) – This position now focuses on the Mississippi and southeast cool and warmwater fisheries and is currently filled in the MNDNR Lake City Fisheries Office.

Watershed Coordinator (Senior Fisheries Specialist) – Rochester – This position will not be filled due to budget constraints.

From 2001 to 2006, the MNDNR Fisheries Assistant Regional Manager was stationed in Rochester and focused almost strictly on activities in southeast Minnesota. The current focus for this position revolves around all activities within the Region as was initially intended and not focused on activities within one or two area fisheries offices. This is basically a loss of another staff member for southeast Minnesota fisheries resources.

From 2006-2008, MNDNR Lanesboro Fisheries office included a full time, seasonal Fisheries Laborer position. This position provided critical field work responsibilities with another Fisheries Laborer and the Fisheries Technician. The person in this position was given a promotional opportunity and the position was not filled following that vacancy.

Position descriptions need to be rewritten for most staff to reflect their current responsibilities. The current organizational chart for the MNDNR Lanesboro Fisheries Office follows:



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