Final

Sediment TMDLs for Impaired Streams in the Middle Trempealeau River Watershed:

Welch Coulee Creek
Irvin Creek
Newcomb Valley Creek
Swinns Valley Creek
Tappen Coulee Creek
North Creek

(April 15, 2002)
(Revised November 8, 2002)
(Revised December 26, 2002)

Introduction

Several streams in the Middle Trempealeau River watershed are listed as impaired in the 1998 303(d) list. (See Figure 1.) These streams and the specific segments are:

- Welch Coulee Creek – 0 to 4.5 miles
- Irvin Creek – 0 to 4.2 miles
- Newcomb Valley Creek – 0 to 4.6 miles
- Swinns Valley Creek – 0 to 5.2 miles
- Tappen Coulee Creek – 0 to 3.6 miles
- North Creek – 0 to 6.5 miles

These streams are listed as impaired due to not meeting their potential use classifications primarily from habitat degradation, turbidity or elevated temperatures caused by sediment from cropland and other upland erosion and stream bank erosion. Except for North Creek which is listed as a low priority, these streams are listed as a medium priority on the 1998 303(d) list.

The Middle Trempealeau River Watershed is 220 square miles, 84% in Trempealeau County and 16% in Buffalo County. Municipalities in the Middle Trempealeau River watershed include Blair, Whitehall, Independence and Arcadia. The land use in the watershed is shown in Figure 2. The entire watershed is located in the "driftless" area of Wisconsin, with steeply sloped hillsides, loess caps over sedimentary rock and moderate to high gradient streams. For more information on topography and geology of the watershed, see Chapter 2 of the "Nonpoint Source control Plan for the Middle Trempealeau River Priority Watershed Project".

These TMDLs address each stream individually, but are grouped together since they are all part of a single watershed management project –The Middle Trempealeau River

Priority Watershed Project. There is substantial background information on data collection, analysis, implementation and monitoring in that plan. The reader is encouraged to consult that plan for more detail.

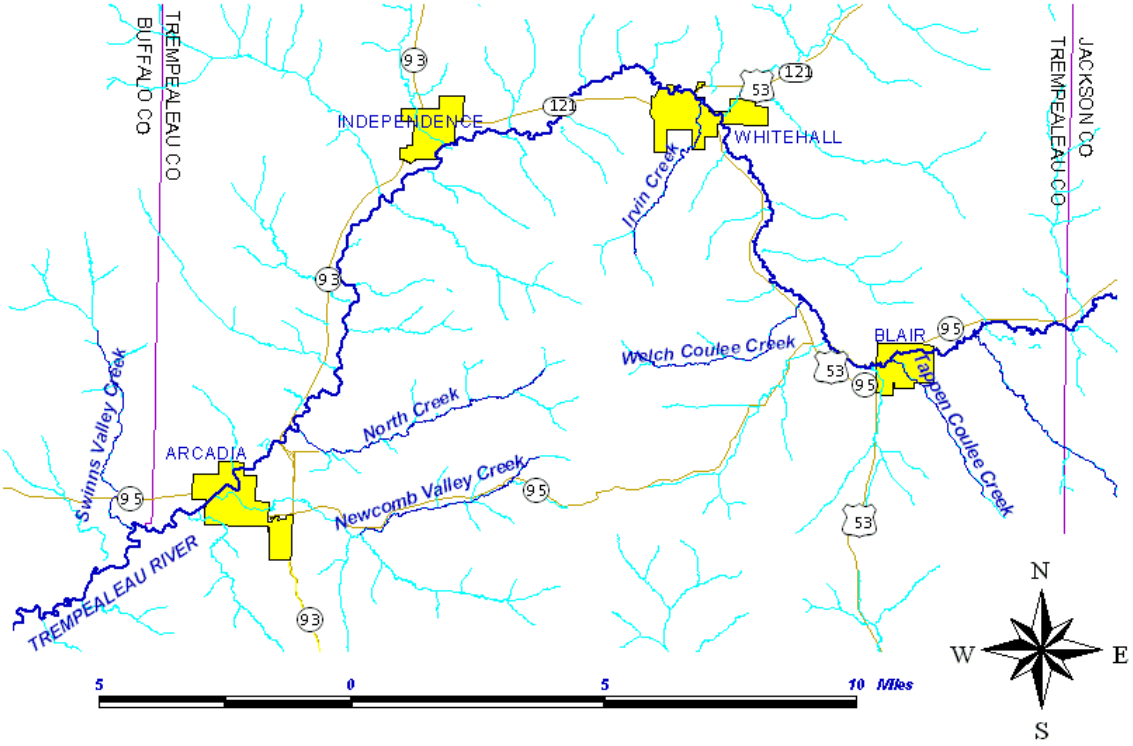

Figure 1. Map of the stream segments listed on Wisconsin's 303(d) list of impaired waterbodies, and included in the Middle Trempealeau River watershed TMDL. Note the Trempealeau River is not included on the 303(d) list or in this TMDL, but is highlighted in Figure 1.

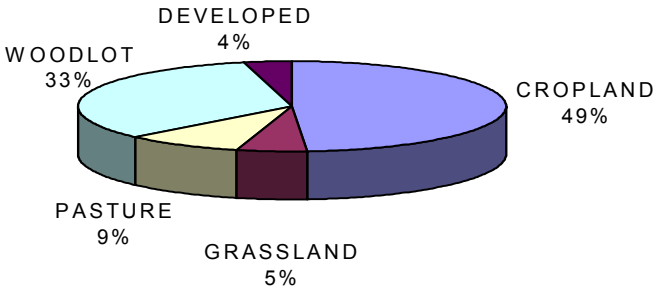

Figure 2. Land use in the Middle Trempealeau River Watershed. Source: Nonpoint Source Control Plan for the Middle Trempealeau River Priority Watershed Project (1992).

Description of Impaired Streams

The impaired streams of the Middle Trempealeau River Watershed can be characterized as entrenched with shifting sand bottoms and occasion areas with exposed gravel substrate. Much of the sedimentation and entrenchment of the streams is a "legacy" problem; resulting in part from farming practices prior to 1940. Today, additional sediment reaches the streams from eroding stream banks due to high velocity flood flows and unlimited cattle access, as well as, eroding croplands and pastures. The lack of overhanging grasses limits food sources for trout.

The sedimentation is a year round situation. The depth of sediment on the bed may increase or decrease to some degree during the year, but the overall extent of sediment covering the substrate remains throughout the year given the current sediment loads reaching the stream. The sediment reaching the stream is runoff event related. Thus, the critical condition for this set of TMDLs is runoff events.

The following is a number of statements from the water resources appraisal report for these streams:

- "Common water resource problems in the watershed include streambank erosion, sedimentation of riffle and pool areas …

- "The primary causes of stream bank erosion appear to be a combination of excessive cattle grazing of stream banks and severe flooding events. A frequent consequence of this bank erosion is sedimentation of pools, filling-in of spawning substrate in riffle areas and elimination of streambank cover. The filling-in of riffle areas (measured as embeddedness) reduces reproductive success of trout by reducing inter-gravel flow which is necessary to maintain suitable temperature and oxygen conditions for eggs and fry. Sedimentation of riffle areas also reduces suitable habitat for macroinvertebrates and other fish food organisms. Filling-in of pools reduces the amount of available cover for juvenile and adult fish.

- "The elimination of trees, grasses and shrubs along streambanks reduces shading and increases solar radiation that may result in excessive water temperatures.

Streambank erosion and resulting sedimentation of the stream bottom may result in a wider, shallower stream that could indirectly cause increased water temperatures.

- "Many of the watershed streams have a shifting sand substrate, which reduces the amount of suitable habitat for fish, and fish food organisms. Macroinvertebrate biomass is generally lower in areas with a predominantly sand substrate than a stream substrate with a mix of gravel, rubble and sand. Habitat suitable for some macroinvertebrate species is generally limited to riffle areas below bridge abutments where rubble and gravel from riprap is present.

- "Flooding is an annual (or more frequent) occurrence in the Trempealeau River watershed. Many of the watershed streams show evidence of high flood crests and excessive bank erosion due to flooding. Unstable stream banks in both wooded and open areas are prone to sloughing-off and contributing sediment to the stream bed during high water events. Excessive flooding in the watershed is primarily due to a combination of steep topography and the predominance of intensive agricultural land use. It is likely that high water extremes could be reduced to some extent by improved land management practices that would increase infiltration and reduce peak runoff rates.

- "Adequate implementation of Best Management Practices (BMPs) in the watershed would have a number of positive effects on water resources. Stabilizing streambanks would increase available cover for adult trout and reduce sedimentation of riffles and pools. Installation of fish habitat structures would also improve general habitat conditions in trout streams where cover is lacking. The effect of increased cover and overall habitat improvement would be an increase in carryover and survival of adult fish. Reduced sedimentation of riffle areas would increase trout reproduction, provided other factors such as oxygen and temperature conditions are suitable. Reduced sedimentation and bank erosion would also result in narrower and deeper streams, providing cooler temperatures and improved cover for adult fish. Reducing the intensity of stream bank grazing would increase bank stability and increase stream cover and shading by allowing growth of shrubs and grasses along the stream corridor.

- "Successful installations of BMPs in the watershed would also likely increase trout reproduction where limited reproduction is already occurring and improve survival of adult fish in streams where limited trout populations already exist."

The following is a stream-by-stream description:

Welch Coulee Creek - The full 4.5-mile length of Welch Coulee Creek is listed as impaired on the 303(d) list. Welch Coulee Creek is listed as impacted by elevated temperature, loss of instream habitat, and sedimentation, primarily due to stream bank erosion. In a 1990 survey (1), the stream HBI was 3.20 indicating no apparent organic loading, and the Habitat Rating was "fair". The stream is currently a Warm Water Forage Fishery. The potential use is coldwater Class III.

Irvin Creek - Irvin Creek, a 4.2-mile tributary of the Trempealeau River, has a 6,700-acre (10.4 mi. sq.) watershed. The full length of the creek is listed on Wisconsin's 303(d) list. Irvin Creek is listed as impacted by sedimentation and loss of instream habitat, primarily due to stream bank pasturing. Since a 1988 fish survey found no trout but a

very diverse forage fish community, the creek was de-classified from Class III Trout water to a forage fishery in 1989. The 1988 survey found largemouth bass and 11 minnow and forage species, with white sucker and creek chub most abundant. In 1990 (1), the stream HBI was 3.68, indicating slight organic pollution. Currently the creek is classified as a Warm Water Forage Fishery, but has a potential use of coldwater Class II trout fishery.

Newcomb Valley Creek - Newcomb Valley Creek in Trempealeau County, a 4.6-mile tributary of Turton Creek, is also listed on the 303(d) list. Newcomb Valley Creek is impacted by sedimentation, excessive total suspended solids leading to turbidity and loss of instream habitat. The primary source of impairment is stream bank erosion. The stream is currently classified as a Warm Water Forage Fishery, but a 1990 survey found 5 brook trout (2-8.4 inches), suggesting some natural trout reproduction in the headwaters. The survey also found Johnny darter and logperch. The stream HBI was 3.21, indicating no apparent organic pollution, and the Habitat Rating was "fair". The potential use of the creek is a coldwater Class III trout fishery.

Swinns Valley Creek -. The only significant stream in the subwatershed is Swinns Valley Creek. Swinns Valley Creek is a 7.5-mile tributary of the Trempealeau River. The segment from the mouth (mile 0) to mile 5.2 is listed on the 303(d) list as impacted by sedimentation and loss of instream habitat. The Swinns Valley subwatershed is 15.8 sq. miles and drains south to the Trempealeau River west of Arcadia. The primary source of the impairment is cropland erosion. The stream is classified as a Warm Water Forage Fishery; however, the 1990 survey (1) found 11 brown trout ranging from 3-16.4 inches in length. Three different age classes of trout were found, including evidence of natural reproduction in the headwater area. Seven minnow and other forage species were also found. The stream HBI was 2.72, indicating no apparent organic pollution, and the Habitat Rating was "fair". The potential use of Swinns Valley Creek is a coldwater Class II trout fishery.

Tappen Coulee Creek - Tappen Coulee Creek is a 3.6-mile tributary of the Trempealeau River. The whole creek is listed on the 303(d) list as impacted by sedimentation, elevated temperatures, and loss of instream habitat. The primary sources of the impacts are stream bank pasturing and stream bank erosion. In a 1990 survey (1), the stream had an HBI of 4.48, indicating slight organic pollution, and a "fair" Habitat Rating. The creek is currently a Warm Water Forage Fishery, with a codified use of Cold III. Currently, the stream has little potential to support trout due to inadequate spring flow and excessive water temperatures, but implementation of BMPs in the watershed is expected to restore the stream to its former coldwater Class III status.

North Creek - North Creek, a 6.8-mile tributary of the Trempealeau River, is managed as a Warm Water Forage Fishery. A 1990 survey (1) found one brook trout (10.5 inches) and 9 minnow and forage species. The stream HBI was 3.12 indicating no apparent organic pollution, and the Habitat Rating was "fair". The potential use is a coldwater Class III trout fishery. From 0-6.5 miles are listed on the 303(d) list as impacted by

sedimentation and loss of instream habitat, due to ditching, stream bank erosion and stream bank pasturing.

Table 1. Existing and potential use of impaired streams in the Middle Trempealeau River Watershed.[1]

Stream	Existing Use	Potential Use
Welch Coulee Creek	WWFF	Cold III
Irvin Creek	WWFF	Cold II
Newcomb Valley	WWFF	Cold III
Swinns Valley Creek	WWFF	Cold II
Tappen Coulee Creek	WWFF	Cold III
North Creek	WWFF	Cold III

Table 2. Definitions of use classifications.

Definitions of use classifications: (from s. NR 102.04(3), Wis. Adm. Code)
COLD: Cold Water Communities; capable of supporting a community of cold water fish and other aquatic life. This classification includes all the streams referenced in *Wisconsin Trout Streams*. **Class I:** high-quality streams where populations are sustained by natural reproduction. **Class II:** streams with some natural reproduction but need stocking to maintain a desirable fishery. **Class III:** streams that sustain no natural reproduction and require annual stocking of legal-size fish for sport fishing.
WWSF: Warm Water Sport Fish Communities; capable of supporting a community of warm water sport fish or of serving as a spawning area for warm water sport fish.
WWFF: Warm Water Forage Fish Communities; capable of supporting an abundant diverse community of forage fish and other aquatic life.
LFF: Limited Forage Fish Communities; are communities capable of supporting only a limited community of forage fish and aquatic life.
LAL: Limited Aquatic Life; capable of supporting only a limited community of aquatic life.

[1] Note: Existing Use is based on 1990 data (1). The Existing Use of some streams may have changed since 1990.

Existing Sediment Loads

For each creek listed above, water resource problems include sedimentation of riffles and pools and scarcity of stable instream cover. Primary sources of the sediment reaching the impaired streams include stream bank erosion from a combination of cattle grazing of stream banks and upland erosion, primarily from crop fields and other agricultural lands.

A frequent consequence of erosion and subsequent sediment delivery is sedimentation of pools, filling-in of spawning substrate in riffle area. The filling-in of riffle areas reduces the reproductive success of trout by reducing inter-gravel flow, which is necessary to maintain suitable temperature & oxygen conditions for eggs and fry. Sedimentation of riffle areas also reduces suitable habitat for macroinvertebrates and other sources of food for fish. Filling in of pools reduces the amount of available cover for juvenile and adult fish.

The estimated sediment loads to the impaired streams within the Middle Trempealeau River Watershed are shown in Tables 3 and 4.

Table 3. Upland sediment loading to the stream by source (in tons per year) from each subwatershed included in the TMDL for the Middle Trempealeau River watershed. Source: The Nonpoint Source Control Plan for the Middle Trempealeau River Priority Watershed Project (2), Table 3-1. The WINHUSLE Model was used to generate the data.

Sub-Watershed **	Cropland	Development	Grassland	Pasture	Woodlot Grazed	Ungrazed Woodlot	Wetlands	Total
Welch Coulee	831	80	6	33	4	0	3	957
Irvin Creek	1,024	133	6	47	9	13	0	1,232
American – Newcomb Valley	2109 (4,686)	119 (265)	1 (2)	33 (73)	34 (76)	18 (39)	1 (1)	2,314 (5,142)
Swinns Valley	3,442	94	0	115	168	30	0	3,899
Tappen Coulee	1,045	58	0	23	9	2	0	1,137
North Creek	1,699	51	4	85	26	10	1	1,876

** Except for Newcomb Valley Creek, the subwatershed listed includes at least the entire drainage area to the impaired stream. In general, the subwatershed also includes a very small direct drainage area to the Trempealeau River. For American Valley subwatershed, the drainage area to Newcomb Valley Creek is about 45% of the subwatershed. For American Valley Creek subwatershed, a proportional amount corresponding to the Newcomb Valley drainage area is listed and the entire subwatershed value is included in ( ).

Table 4. Annual Loading from stream bank sediment delivered to the streams (in tons per year) for each subwatershed included in the TMDL for the Middle Trempealeau River Watershed. Source: The Nonpoint Source Control Plan for the Middle

Trempealeau River Priority Watershed Project (2), Table 3-2 and NRCS stream bank erosion calculation method.

Subwatershed **	Sediment Load (Tons/year)	Sediment loading rate (tons/stream mile)
Welch Coulee	614	82
Irvin Creek	277	18
American Valley -- Newcomb Valley Creek	992 (2,204)	124
Swinns Valley	376	50
Tappen Coulee	433	89
North Creek	16	2

** Except for Newcomb Valley Creek, the subwatershed listed includes at least the entire drainage area to the impaired stream. In general, the subwatershed also includes a very small direct drainage area to the Trempealeau River. For American Valley subwatershed, the drainage area to Newcomb Valley Creek is about 45% of the subwatershed. For American Valley Creek subwatershed, a proportional amount corresponding to the Newcomb Valley drainage area is listed and the entire subwatershed value is included in ( ).

Water Quality Standards

The streams included in the TMDL for the Middle Trempealeau River Watershed are not currently meeting applicable water quality standards. More specifically, they are not meeting their codified designated use. The coldwater designated use contained in Wisconsin's water quality standards is described as follows:

- NR 102.04 (3) intro and (a), Wis. Adm. Code:

(3) FISH AND OTHER AQUATIC LIFE USES. The department shall classify all surface waters into one of the fish and other aquatic life subcategories described in this subsection. Only those use subcategories identified in pars. (a) to (c) shall be considered suitable for the protection and propagation of a balanced fish and other aquatic life community as provided in the federal water pollution control act amendments of 1972, P.L. 92-500; 33 USC 1251 et seq.

(a) *Cold water communities.* This subcategory includes surface waters capable of supporting a community of cold water fish and other aquatic life, or serving as a spawning area for cold water fish species. This subcategory includes, but is not restricted to, surface waters identified as trout water by the department of natural resources (Wisconsin Trout Streams, publication 6-3600 (80)).

The applicable narrative criterion relating to sediment as a pollutant is as follows:

- NR 102.04 (1) intro and (a), Wis. Adm. Code:

"**(1)** GENERAL. To preserve and enhance the quality of waters, standards are established to govern water management decisions. Practices attributable to

municipal, industrial, commercial, domestic, agricultural, land development or other activities shall be controlled so that all waters including the mixing zone and the effluent channel meet the following conditions at all times and under all flow conditions: (a) Substances that will cause objectionable deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state."

Total Load Capacity, Waste Load Allocations & Load Allocations

The measurable goal for each of the streams is to achieve a coldwater fishery, as measured through fishery species and population metrics.

Total Load Capacity: Based on review of all the information and professional judgment of Department water quality staff, a total load capacity for sediment in these streams as shown in the table below has been determined. The average annual loads are consistent with load reductions and loading capacities called for in other streams in the same part of the state. There is no known model or quantitative tool to identify a specific numeric sediment load target – especially when a portion of the sedimentation is a result of land uses and hydrology from more than 60 years ago. The Department intends to monitor the stream and evaluate whether the load reductions are being achieved and whether the stream is responding as anticipated. If additional reduction is needed, the intent of the Department is to revise this TMDL and assign a lower load capacity. If the expected results are achieved with a lower sediment load reduction, the Department intends to pursue either "delisting" of these streams and the need for the TMDL will be eliminated or revise this TMDL to assign a more appropriate total load capacity. The BMPs are designed to be particularly effective in addressing the critical high flow events.

Based on preliminary results of best management practice installation in Eagle Creek in Buffalo County, (a stream of similar size with similar topography, soils and geology in an adjoining county) it appears that natural reproduction has been restored in the upper reaches of the stream due to limiting cattle access and stabilizing eroding stream banks. Undoubtedly these two sources of sediment have a direct effect on the streams.

It would appear that limiting cattle access along with reducing a sediment load to at least the amount from stream banks is necessary for the headwater portion of the stream. Higher levels of sediment reduction may be necessary to allow the downstream portions of these small streams to respond. Since this is, in part, a legacy impairment, a relatively long response time is anticipated.

The following load capacities are based on professional judgment and in all cases correspond to a load reduction that is greater than the estimated sediment load from the eroding stream banks.

Impaired Stream	**Total Load Capacity** (Average Tons/Year)
Welch Coulee Creek	942
Irvin Creek	1,028
Newcomb Valley Creek	1,752
Swinns Valley Creek	2,176
Tappen Coulee Creek	829
North Creek	1,136

Wasteload Allocation There are no present or anticipated point sources discharging to these impaired streams.–Therefore, the wasteload allocation is zero.

Load Allocation. The load allocations for each stream are outlined in Tables 5, 6, 7, 8, 9 and 10. They assume the Margin of Safety is implicit. They take into account practicable use of best management practices and met or exceed the sediment reduction from stream banks that seems to be adequate control in the headwaters of Eagle Creek.

All estimates below take into account all land uses in the watershed. For example, the values for cropland and other uplands include forested areas. Sediment delivery estimates from croplands and other uplands are based on use of the WINHUSLE model. The model uses soil erosion predictors of the USDA Universal Soil Loss Equation along with hydrology equations from USDA hydrologic models to transport the eroded soil from the field to the stream. Documentation of use of this model is on file with EPA Region 5. The model has been reviewed and accepted by EPA for use in nonpoint source watershed modeling. Sediment delivery to streams from eroding stream banks is based on volumetric techniques identified by the Natural Resources Conservation Service. Since these streams are small with moderate gradients, the amount of sediment reaching the streams is not adjusted for downstream locations.

Table 5. Load Allocation Analysis for Sediment Reaching Welch Creek (Average Annual Tons/Year)

Source of Sediment	Load Allocation	Prior Average Annual Load	% Reduction – to Achieve Total Load Capacity	Reduction in Average Annual Load	Reduced Average Annual Load
Croplands and other uplands		957	40%	383	574
Stream Banks		614	40%	246	368
Total	942	1571		629	942

Table 6. Load Allocation Analysis for Sediment Reaching Irvin Creek (Average Annual Tons/Year)

Source of Sediment	Load Allocation	Prior Average Annual Load	% Reduction to Achieve Total Load Capacity	Reduction in Average Annual Load	Reduced Average Annual Load
Croplands and other uplands		1,232	30%	370	862
Stream Banks		277	40%	111	166
Total	1,028	1,509		481	1,028

Table 7. Load Allocation Analysis for Sediment Reaching Newcomb Valley Creek (Average Annual Tons/Year)

Source of Sediment	Load Allocation	Prior Average Annual Load	% Reduction to Achieve Total Load Capacity	Reduction in Average Annual Load	Reduced Average Annual Load
Croplands and other uplands		2,314	50%	1,157	1,157
Stream Banks		992	40%	397	595
Total	1,752	3,306		1,554	1,752

Table 8. Load Allocation Analysis for Sediment Reaching Swinns Valley Creek (Average Annual Tons/Year)

Source of Sediment	Load Allocation	Prior Average Annual Load	% Reduction to Achieve Total Load Capacity	Reduction in Average Annual Load	Reduced Average Annual Load
Croplands and other uplands		3,899	50%	1,950	1,950
Stream Banks		376	40%	150	226
Total	2,176	4,275		2,100	2,176

Table 9. Load Allocation Analysis for Sediment Reaching Tappen Coulee Creek (Average Annual Tons/Year)

Source of Sediment	Load Allocation	Prior Average Annual Load	% Reduction – to Achieve Total Load Capacity	Reduction in Average Annual Load	Reduced Average Annual Load
Croplands and other uplands		1,137	50%	569	569
Stream Banks		433	40%	173	260
Total	829	1,570		742	829

Table 10. Load Allocation Analysis for Sediment Reaching North Creek (Average Annual Tons/Year)

Source of Sediment	Load Allocation	Prior Average Annual Load	% Reduction – to Achieve Total Load Capacity	Reduction in Average Annual Load	Reduced Average Annual Load
Croplands and other uplands		1,876	40%	750	1,126
Stream Banks		16	40%	6	10
Total	1,136	1,892		756	1,136

Margin of Safety

A margin of safety is provided primarily through the installation of additional best management practices than what is called for to meet the load allocation and what is called for in the priority watershed plan. The entire Middle Trempealeau River Watershed is eligible for enrolling lands along the streams for the purpose of installing vegetated riparian buffers under the USDA Continuous Sign-up Conservation Reserve Program. Enrolling land in this program should help stabilize the stream banks. In addition, riparian buffers should provide 50 to 75% control of sediment carried in overland flow through the buffers. Since overland flow provide 15 to 20% of the sediment delivered to the streams (concentrated flow provides the remainder), vegetated riparian buffers should additionally reduce the sediment load by about 10 to 15%. Trempealeau County's enrollment has been in the top five of the state.

Also, implementation of the Wetland Reserve program in this watershed should help reduce sedimentation. The Wetland Reserve Program is a voluntary program offering landowners the opportunity to receive cost share payments for restoring wetlands on their property. The USDA Natural Resources Conservation Service (NRCS) and the U.S. Fish & Wildlife Service (FWS) administer the program with assistance from DNR. Restoration of wetlands should provide some additional sediment control as well as moderating stream velocities. The additional sediment control from wetland restoration cannot be quantified.

Also, the number of cattle and small dairy farms has decreased since the Priority Watershed Project began due to a poor farm economy. Many small dairy farms now raise poultry, eliminating the impacts from cattle grazing.

Finally, based on preliminary results in Eagle Creek, a nearby stream where stream bank work alone has shown early stages for trout community restoration, the load capacity is likely conservative and for most of the streams it is much lower that what may be necessary needed. This is not to say that the load reduction called for is not needed to achieve downstream water quality needs, such as those in the Mississippi River. However, for these small headwater streams, the load capacity could be higher than what is identified.

Seasonal Variation

There is no seasonal variation in the sedimentation impairment within the stream of any of these streams. The extensive sedimentation occurs year round. Given the legacy nature of the problem, there is no evidence to indicate that the depth or areal extent of the sediment deposits varies throughout a year. Under some stream flow regimes, sediment reaching the stream is deposited on the bed, and at other times, sediment is scoured and transported downstream. Over time the net result has been an accumulation of sediments in and along the streams under the current amounts of sediment reaching the stream.

Sediment delivery, on the other hand, varies both seasonally and with the intensity of the rainfall events.[1] Most of the sediment enters during spring runoff and intense summer rainstorms. Considerable sediment also enters the stream from eroding stream banks during runoff events. The best management practices to achieve the load allocation are selected and designed to function for 10-year or 25-year, 24-hour design storms; providing substantial control for the major rainfall events.

Public Participation

Consistent with the Wisconsin DNR Continuing Planning Process and as required by Sections NR 120.08, Watershed Plans, and NR 121.07(1), Water Quality Management Plans, there was public participation on the Middle Trempealeau River Priority watershed Project Plan. There were public meetings in the developmental stage of the plan and a public hearing was held on the Middle Trempealeau River Priority Watershed Project Plan on January 6, 1992. Public comments were incorporated into the final plan. The load allocations in these TMDLs are consistent with the Middle Trempealeau River Priority Watershed Plan. Since the load allocation in this TMDL is consistent with the Middle Trempealeau River Priority Watershed Plan the Department believes the public participation process used for the priority watershed project meets the intent of public participation requirements for a TMDL.

Reasonable Assurance

There are no point sources in the watershed. As such, the specific requirement to demonstrate "reasonable assurance" of nonpoint source load allocations is not entirely applicable. However, in the spirit of demonstrating implementation of the TMDLs, the following information is provided:

> Wisconsin's section 319 Management Plan (approved by the EPA in 2000) describes the variety of financial, technical and educational programs in the state.

[1] The reader should clearly differentiate between sedimentation – the deposition of sediment – and the sediment as a pollutant reaching the stream. The first is a year round situation where the depth of the sediment deposition may vary in response to flood flows in the stream. The second is the pollutant itself, which reaches the stream during storm events.

In addition, it describes the "back-up" enforcement authorities for nonpoint source management in Wisconsin. The primary state program described in the 319 Management Plan is the Wisconsin Nonpoint Source Water Pollution Abatement Program (Section 281.65 of the Wisconsin Statutes and Chapter NR 120 of the Wisconsin Administrative Code). Implementation of these TMDLs is provided through implementation of Wisconsin's Nonpoint Source Water Pollution Abatement Program.

Specific to these TMDLs, these streams are part of a larger priority watershed project, The Middle Trempealeau River Priority Watershed Project. The Middle Trempealeau River Priority Watershed Plan was prepared through the cooperative efforts of the Wisconsin Department of Natural Resources, the Buffalo and Trempealeau County Land Conservation Departments (LCD) and the Department of Agriculture, Trade and Consumer Protection (DATCP). The goal of the project is to reduce the amount of pollutants from nonpoint sources that reach surface water and groundwater within the watershed. Designation of this watershed as a "priority watershed" project enables special financial support to local governments and private landowners in the watershed to reduce nonpoint source pollution. The watershed plan will be used as a guide to implement measures to achieve desired water quality conditions. Signed cost-share agreements list the practices, costs, cost-share amounts and a schedule to install BMPs.

The DNR and DATCP review the progress of the counties and other implementing units of government, and provide assistance throughout the ten-year project. As part of a financing plan for the Priority Watershed and Priority Lake projects, long-term state cost sharing and local staff funding is committed to the Middle Trempealeau River Priority Watershed Project. A copy of the plan is attached. The watershed project is scheduled for completion December 31, 2004. However, enforcement of nonpoint source performance standards will continue beyond that date.

Monitoring

The WDNR intends to monitor these impaired streams in 2005, after implementation of the Middle Trempealeau River Priority Watershed project is complete. The monitoring will consist of metrics contained in the Department’s baseline protocol for wadeable streams, such as the Index of Biological Integrity (IBI) and the current habitat assessment tool. Based on the 2005 monitoring, the need for further monitoring will be determined.

Information Sources/Attachments

1. Middle Trempealeau River Priority Watershed Surface Water Resource Appraisal Report (May 1991)

2. Nonpoint Source control plan for the Middle Trempealeau River Priority Watershed Project (August 1992)