

MUSSEL FORK CREEK TMDL
SUMMARY OF COMMENTS AND RESPONSES
Prepared by the Environmental Protection Agency, Region 7
Water, Wetlands and Pesticides Division
September, 2006

COMMENTOR(S):

- Anne Peery, TMDL Developer, Missouri Department of Natural Resources, (via email)
- John Ford, Unit Chief, Water Quality Assessment Unit, Missouri Department of Natural Resources
- Robert J. Brundage, Newman, Comley & Ruth, P.C.

INTRODUCTION

This document summarizes the comments that were submitted, identifies the commentor or commentors (at the end of the comment), responds to the comments, and summarizes changes that were made to the final TMDL. They are arranged by TMDL section wherever possible. Any change that is made to the TMDL in response to the comment is summarized in the response. If no change is noted in the response, then no change was deemed to be needed in the TMDL.

Summary of Changes to the Final TMDL

A change was made to the final document as a result of this public comment: on Section 10 of the TMDL the paragraph under Monitoring, is incorrect. This language starts with "The sediment listed 303(d) stream stations...." and continues through "...reference conditions within an ecological region". The language has been updated to read "The department conducted bioassessments on upper and lower Mussel Fork Creek..." and continues through "...In addition, the USGS currently collects ambient water quality data once a month on Mussel Fork near Mystic in Sullivan County."

COMMENTS AND RESPONSES

Section 1: Introduction

No Comments

Section 2: Background and Water Quality Problems

No Comments

Section 3: Description of the Sources

No Comments

Section 4: Description of the Applicable WQS and Numeric Water Quality Targets

No Comments

Section 5: Calculation of Load Capacity

No Comments

Section 6: Load Allocation (Nonpoint Source Loads)

No Comments

Section 7: Waste Load Allocation (Point Source Loads)

No Comments

Section 8: Margin of Safety

No Comments

Section 9: Seasonal Variation

No Comments

Section 10: Monitoring Plans for Mussel Fork Creek Appendices

Comment 1: “the paragraph under Section 10. Monitoring, is incorrect. This language starts with "The sediment listed 303(d) stream stations...." and continues through "...reference conditions within an ecological region". Commenter: Anne Peery, TMDL Developer, Missouri Department of Natural Resources, (via email)

Response: The language has been updated to read “The department conducted bioassessments on upper and lower Mussel Fork Creek...” and continues through “...In addition, the USGS currently collects ambient water quality data once a month on Mussel Fork near Mystic in Sullivan County.” This changed is based on information from the Missouri Department of Natural Resources, Water Protection Program.

Section 11: Public Participation

No Comments



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

SEP 25 2006

RECEIVED
2006 SEP 32 PM 12:32
WATER PROTECTION PROGRAM

Anne Peery, TMDL Developer
Missouri Department of Natural Resources
Water Protection Program
PO Box 176
Jefferson City, MO 65102-0176

Dear Ms. Peery:

Re: Comment Letter for Mussel Fork Creek TMDL, Missouri

Thank you for your letter concerning Mussel Fork Creek. I'd like to take this opportunity to respond to your letter. Your letter is very important to the U.S. Environmental Protection Agency.

In your letter, you make note that the TMDL curve, Figure 1, is posted in black and white but the Figure 1 descriptions are described with color references. This problem has been addressed and all future TMDL's will be posted for public notice in color. Also, you noted that the paragraph under Section 10. Monitoring, is incorrect. This language starts with "The sediment listed 303(d) stream stations...." and continues through "...reference conditions within an ecological region". The line has been changed as follows: "The department conducted bioassessments on upper and lower Mussel Fork Creek in 2002-2003 and 2004-2005, as well as gathering chemistry data in 2004-2005. No future monitoring has been scheduled for Mussel Fork Creek at this time. However, the department will routinely examine physical habitat, water quality, invertebrate community, and fish community data collected by the Missouri Department of Conservation under its Resource Assessment and Monitoring (RAM) Program. This program randomly samples streams across Missouri on a five to six year rotating schedule. In addition, the USGS currently collects ambient water quality data once a month on Mussel Fork near Mystic in Sullivan County. The survey gathers a variety of field and laboratory parameters at this site." This changed is based on information from the Missouri Department of Natural Resources, Water Protection Program.

Thank you for your letter and your concern about Mussel Fork Creek. Because of concerned citizens, such as you, we are better able to write TMDLs for the state's impaired waters' list.

If you have any questions, please contact Nathaniel Dunbar, of my staff, at (913)551-7982.

Sincerely,


(for)

John DeLashmit
Chief
Water Quality Management Branch

cc: Edward Galbraith
Missouri Department of Natural Resources

NEWMAN, COMLEY & RUTH P.C.

ATTORNEYS AND COUNSELORS AT LAW

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September 13, 2006

U.S. Environmental Protection Agency, Region VII
Water, Wetlands & Pesticides Division
Attn: Debby White, Water Quality Management Branch
901 North Fifth Street
Kansas City, KS 66101

Re: Comment on Mussel Fork TMDL

Dear Ms. White:

Please find enclosed a letter from the Missouri Department of Natural Resources to Mr. Larry Shepard of Region VII dated June 25, 2004. The letter provides information that Mussel Fork is not impaired by sediment and should be removed from the 303(d) list. The Department's letter requests a letter from EPA acknowledging whether it intends to de-list the 15-mile segment of Mussel Fork during the next listing cycle. According to the Department of Natural Resources, EPA did not respond to this letter.

My first comment in regards to the TMDL is why did EPA not respond to the MDNR's June 25, 2004 letter? Does EPA agree the stream is not impaired? If the stream is not impaired, there has been a tremendous amount of public resources wasted preparing a TMDL for a stream segment that is not impaired.

Thank you for the opportunity to comment and I look forward to your response.

Sincerely,

NEWMAN, COMLEY & RUTH, P.C.

By:



Robert J. Brundage
rbrundage@ncrpc.com

RJB:mag

Enclosure

cc: Ed Galbraith, MDNR (w/ encl.)
Mo-Ag Industries Council (w/ encl.)
Mo Clean Water Commission (w/ encl.)

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Bob Holden, Governor • Stephen M. Mahfood, Director

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June 25, 2004

Mr. Larry Shepard
U.S. EPA, Region VII
901 N. 5th Street
Kansas City, KS 66101

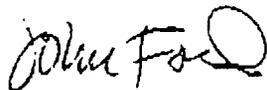
Dear Mr. Shepard:

The purpose of this letter is to request a return letter from EPA acknowledging that the upper 15 miles of Mussel Fork will be de-listed by EPA on the 2004 Missouri 303(d) List. Two enclosures support our request. The first enclosure is a "Sediment TMDL" protocol agreed upon by Missouri DNR technical staff, Jack Genereau and other EPA technical staff. Item Three of this protocol allows the state to request such a letter if the water in question has been shown to have an aquatic invertebrate community statistically similar to regional reference streams. The second enclosure is a memo from Randy Sarver, MDNR-Env. Services Program, summarizing aquatic invertebrate metric scores for the upper 15 miles of Mussel Fork relative to regional reference streams.

We would appreciate your careful consideration of this material and letter acknowledging your intent to de-list this 15 mile segment of Mussel Fork on the next 303(d) List. Randy would be happy to discuss the Mussel Fork invertebrate study in greater detail if you wish. He can be reached at Missouri Department of Natural Resources, Environmental Services Program, P.O. Box 176, Jefferson City, MO 65102-0176 or by telephone at (573) 526-3315.

Sincerely,

WATER PROTECTION PROGRAM



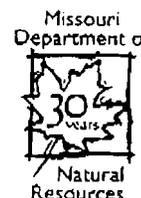
John Ford, Unit Chief
Water Quality Assessment Unit

JF:jc

Enclosures

c: Randy Sarver, MDNR Env. Services Program

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Protocol for Monitoring "Sediment" Polluted Streams on Missouri's 303(d) List

1. Conduct aquatic invertebrate community monitoring and aquatic habitat assessment using the Missouri biocriteria protocols on each stream. Sampling sites should be chosen at locations and intervals deemed appropriate by DNR/Environmental Services Program (ESP) staff. If only a portion of a classified stream is monitored (i.e., the upper 15 miles of a 60 mile waterbody ID), the findings and actions noted below will apply only to the monitored section. Likewise if ESP concludes that part of the monitored segment is impaired and part is fully sustaining aquatic life beneficial use, these portions will be treated separately throughout the rest of this protocol. Go to 2.
2. If aquatic invertebrate monitoring results in a conclusion that the segment in question is fully sustaining the aquatic life beneficial use, go to 3, otherwise go to 4.
3. Write letter to EPA, Region VII providing this information and requesting confirmation from EPA that segment is approved for delisting on the next Section 303(d) list.
4. Conduct a Hydrologic Modification Study.
 - A. Measurement of Sinuosity. Using USGS 7.5 minute topographic maps, aerial photos and site visits as needed, locate consecutive points on the impaired segment that are separated by exactly one mile of channel length. For each two points separated by one mile of channel length, measure the straight line distance (in miles) between the two sites. Divide one mile by the straight line distance to obtain the sinuosity factor for this one mile section. Calculate the sinuosity factor for each mile within the impaired segment. Identify all the biocriteria reference streams within the same ecological drainage unit (EDU) as the impaired stream. If there are none, locate the nearest two biocriteria reference streams from a nearby EDU with similar land use and geology as the EDU of the impaired stream. Make the same sinuosity measurements for the reference streams. Compare the two sets of sinuosity measurements with a statistical test for similarity of means. Means will be judged to be significantly different if the null hypothesis is rejected with a Type I error rate of 0.20¹. Note: Analysis of sinuosity factors for test streams can all be analyzed as one group for the entire waterbody or as subgroups representing shorter sections of the waterbody.
 - B. Measurement of In-channel Characteristics. For test streams use the same stream section used for aquatic habitat evaluation, make a minimum of ten cross-sectional measurements for each of the three metrics below. For biocriteria reference streams, make at least 10 cross sections in a one-quarter to one-half mile segment of stream for every five miles of channel length.
 - (1) Wetted Width-Average Depth Ratio. At each transect measure the width of the wetted channel in feet and the average depth in feet. Divide the wetted width by the depth to obtain the ratio. The average depth should be calculated by a minimum of three equally spaced depth measurements across the width of the stream. The distance between depth measurements should be no greater than three feet.
 - (2) Average Depth.
 - (3) Wetted Width to Channel Width Ratio. Divide the wetted width (in feet) by the channel width (in feet). Channel width is the distance between the bottom of the stream bank on opposite sides of the stream channel.

If at least two of the metrics noted in 4A and 4B are found to be significantly different from control streams with a Type I error rate of 0.20 or at least one metric is different at a Type I error rate of 0.10, the test stream (or the tested segment thereof) will be assumed to be impaired by physical alteration of the stream channel, go to 3, otherwise go to 5.

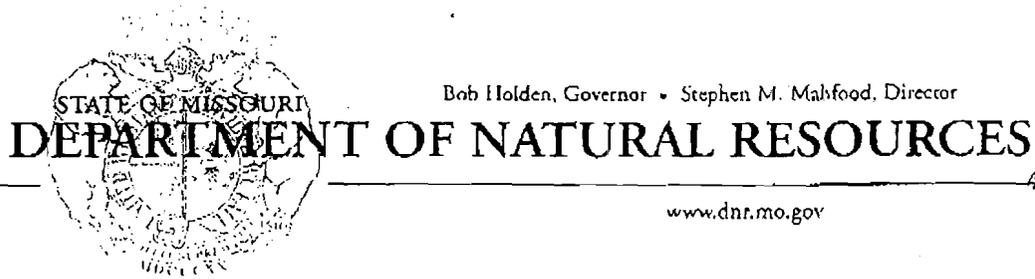
5. Conduct a Stressor Identification Study.

A. Using aerial photos, ground truthing and appropriate databases that list wastewater treatment facilities, concentrated animal feeding operations, mining areas and other potential sources of relatively localized water contamination, locate potential sources of chemical contamination to the impaired segment. Identify the likely chemical pollutants for each of these sources. If one or more potential sources of chemical pollution is found, go to 5B. If no sources are found, go to 6.

B. Design and implement a water quality study to characterize all potential chemical pollutants of concern. If this study indicates that one or more chemicals appears to be responsible for the impairment in this segment, change the pollutant name from "sediment" to the name of the suspected chemical on the next Section 303(d) list. If no specific chemical is identified as being responsible for the impairment, go to 6.

6. Conduct a Sediment Deposition Study. [methods still under discussion by DNR]. If the study metrics indicate significant difference from biocriteria reference streams in this EDU, the impaired stream remains on the 303(d) list with sediment as the pollutant and a TMDL for sediment is scheduled.

If the study metrics indicate no significant difference from biocriteria reference streams in this EDU, the pollutant for this streams is changed to "unknown" on the next 303(d) list.



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RECEIVED
2004 JUN 23 PM 2:44
WATER PROTECTION PROGRAM

MEMORANDUM

DATE: June 23, 2004

TO: John Ford, Environmental Specialist
Water Protection Program
Water Protection and Soil Conservation Division

FROM: Randy Sarver, Environmental Specialist *RS*
Environmental Services Program
Air and Land Protection Division

SUBJECT: Proposed De-listing of a Portion of the 303(d) Listed Stream, Mussel Fork

Background: Approximately 29 miles of Mussel Fork in Sullivan, Macon, and Adair Counties are included on the 2002 Missouri 303(d) list for sediment pollution from agricultural non-point sources. This segment of Mussel Fork is listed in the Missouri Water Quality Standards as Class C water with waterbody I.D. #0674. Qualitative historic fisheries data was used to determine this impairment.

In 2002 and 2003 the Missouri Department of Natural Resources (MDNR), Environmental Services Program (ESP), Water Quality Monitoring Section (WQMS) conducted a macroinvertebrate bioassessment and habitat study of Mussel Fork in Sullivan and Adair Counties in north central Missouri. The report was finalized in November 2003 and submitted to the MDNR, Water Protection Program (WPP). This survey assessed the upper 15 miles of the listed portion of Mussel Fork, from the confluence of Little Mussel Fork in Adair County upstream to Section 2, Township 62 North, Range 18 West in Sullivan County. The November 2003 Mussel Fork report recommended de-listing the upper 15 miles of the 303(d) listed section. This was based upon biological criteria Stream Condition Index (SCI) scores of ≥ 16 at 75% of the 12 sampling sites.

Since that report was written, SCI scores have been used in statistical tests to de-list 13 sediment impaired streams listed for sediment impairment from agricultural sources. Furthermore, stakeholder discussions have been held concerning a Total Maximum Daily

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Memorandum to John Ford
 June 23, 2004
 Page 2

Load methodology document. Proposed language in that document designate MDNR requirements for level three (3) biological data in listing waters on the 303(d) list. Therefore, to be consistent with the listing methodology requirements for biological sampling sites with greater than seven (7) sites, standard statistical tests are now applied to Mussel Fork SCI data.

Data Analysis: A total of 33 SCI scores were queried from the WQMS biological database for glide/pool reference streams within the Plains-Grand/Chariton Ecological Drainage Unit. Because all streams are scored relative to season, the reference scores came from both spring and fall seasons. These scores made up the control group. A second group made up of 12 Mussel Fork SCI scores were also queried from the database. This group comprised the test group. The SCI scores failed the test for normality and a Mann-Whitney Rank Sum Test was used to compare groups. A 95% probability value ($P=0.050$) was used to determine significance. There was no statistically significant difference between the control (reference) and test (Mussel Fork) group SCI scores ($P=0.090$). The results of the Mann Whitney Test are as follows:

Mann-Whitney Rank Sum Test

Data source: MDNR-ESP Bioassessment Database: Mussel Fork and Biocriteria Reference SCI Scores

Normality Test: Failed ($P = 0.005$)

Group	N	Missing	Median	25%	75%
MFC	12	0	16.000	15.000	18.000
REF	33	0	18.000	16.000	20.000

$T = 209.500$, $n = 12$, $n = 33$, ($P = 0.090$)

The difference in the median values between the two groups is not great enough to exclude the possibility that the difference is due to random sampling variability; there is not a statistically significant difference ($P = 0.090$).

Conclusions: The written report of November 2003 and the statistical analysis of this document support the conclusion that the upper 15 miles of the 303(d) listed portion of Mussel Fork should be proposed for de-listing to the Environmental Protection Agency.

RS:th



to Phil Schroeder

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

SEP 25 2006

RECEIVED
2006 SEP 27 PM 12:33
WATER PROTECTION PROGRAM

Mr. Robert J. Brundage
Newman, Comley & Ruth P.C.
P.O. Box 537
Jefferson City, MO 65102-0537

Dear Mr. Brundage:

Re: Comment Letter for Mussel Fork Creek TMDL, Sullivan, Macon, and Adair Counties, Missouri

Thank you for your letter concerning the Mussel Fork Creek Total Maximum Daily Load (TMDL) in Sullivan, Macon, and Adair Counties. We welcome the opportunity to provide responses and clarifications to your questions.

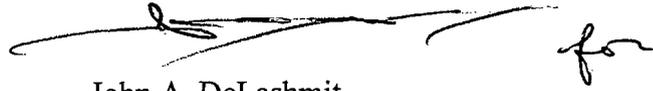
The Missouri Department of Natural Resources (MDNR) correspondence, to which you refer in your letter, requested that the United States Environmental Protection Agency (EPA) acknowledge in a letter whether the Agency intended to delist the Mussel Fork segment during the next listing cycle. The only instrument that allows the EPA to take action on a delisting proposal is an impaired waters list submitted under Section 303(d) of the Clean Water Act. I'm sure that you are aware that Missouri has not submitted a list to EPA since the 2002 list. Consequently, EPA has been unable to act on any proposed delisting since that time. We will evaluate the appropriateness of Mussel Fork Creek's status based upon the state's supporting data when the 303(d) list is submitted for our review.

The Mussel Fork Creek segment was listed on the 1998 303(d) list. EPA is subject to a 2001 Consent Decree, *American Canoe Association, et al. v. EPA*, No. 98-1195-CV-W in consolidation with No. 98-4282-CV-W, February 27, 2001, which requires Missouri to complete all TMDLs required for the 1998 303(d) list by 2009, and mandates an EPA backstop requirement to complete TMDLs for the state if the agreed-upon schedule is not maintained by Missouri. The Mussel Fork Creek segment is covered under this Decree. Absent an approved delisting, the EPA is compelled by the Decree to ensure that this TMDL is produced according to the mandated schedule.

We will certainly be mindful of your concerns when we review Missouri's next 303(d) list. Thanks again for your letter and your concern about the status of Mussel Fork Creek.

Please contact me at (913)551-7821 if you have any further questions.

Sincerely,

A handwritten signature in black ink, appearing to read "John A. DeLashmit", with a long horizontal flourish extending to the right.

John A. DeLashmit
Chief
Water Quality Management Branch

cc: Edward Galbraith
Missouri Department of Natural Resources