



AMERICAN FISHERIES SOCIETY MONTANA CHAPTER

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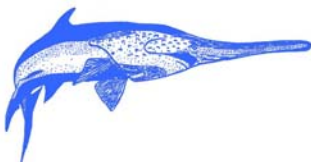
Ms. Kusnierz
Montana Department of Environmental Quality
1520 E. 6th Avenue
Helena, MT 59601

Dear Ms. Kusnierz,

The Montana Chapter of the American Fisheries Society (MCAFS) appreciates the opportunity to comment on the draft total maximum daily load (TMDL) and water quality restoration plan for the Shields River watershed, a stronghold for Yellowstone cutthroat trout. The MCAFS is an organization of professional fisheries scientists and students from multiple agencies, universities and the private sector across Montana. Along with the Department of Environmental Quality (DEQ), the MCAFS is a signatory of the conservation agreement developed to ensure the “long-term, self-sustaining persistence of Yellowstone cutthroat trout across its historic range” (FWP 2007). Our comments provide an opportunity for our chapter to meet our obligations as a signatory of the agreement, which is of course consistent with our commitment to the conservation of native fishes in Montana’s waters.

Our first comment relates to the notification on the release of public review and final drafts of TMDL documents. Although DEQ has agreed to send notice to Trout Unlimited and the MCAFS at the beginning of the public comment period, we received no communication, and were not aware of the document’s release until well into the public comment period. As these lengthy documents take considerable time to review, prompt notification is critical. Please make sure all water quality planners releasing TMDL’s are aware of the agreement among DEQ, MCAFS, and Trout Unlimited to ensure we have adequate time to review these plans.

The Shields River TMDL plan provides an example of a significant shortcoming in DEQ’s approach to water quality planning, namely the failure to recognize the link between dewatering and thermal alterations. Note the MCAFS has remarked on this deficiency in its comments on the 2004 303(d) list (see attachment). The Shields River and several of its tributaries are chronically dewatered streams, which DEQ acknowledged by listing flow alterations among causes of impairment. A primary consequence of reduced stream flows is thermal loading, which presents a major constraint on cold water fishes in streams throughout Montana. Chronic dewatering and associated thermal alterations are the primary factors limiting fish populations in



the Shields River (Scott Opitz, Montana Fish, Wildlife and Parks [MFWP], personal communication). This pollution/pollutant combination nearly excludes Yellowstone cutthroat trout from year round residency in the Shields River, and substantially limits populations of the more tolerant brown trout.

The DEQ's stated rationale for ignoring thermal alterations in dewatered streams stems from the distinction between pollutant and pollution, and the EPA does not require TMDL's for pollution. Nonetheless, DEQ has frequently developed TMDL's for streams listed only for pollution on both the 1996 and the current 303(d) list when the pollution category can be linked to a pollutant. Review of the Ninemile, Bitterroot headwaters, and Ruby TMDL plans reveals numerous streams with approved TMDL's with "pollution" being the only causes of impairment on the 303(d) lists used at the time, as DEQ *chose* to make the link between the listed pollution types and a pollutant. Nonetheless, DEQ arbitrarily limits this level of planning to pollution leading to sediment loading, leaving numerous streams with thermal loading without plans to restore water quality. Ironically, DEQ acknowledges the role of dewatering in streams benefiting from developed temperature TMDL's.

Another inadequacy in DEQ's approach to addressing temperature in dewatered streams is its omission of pertinent, readily available data in its biennial 303(d) list review, despite state law that requires "the department shall use all currently available data including data obtained from federal, state, and local agencies... (MCA 75-5-702). The US Geological Service (USGS) has been monitoring water temperature at its gauge near the mouth of the Shields since 1999, making these data readily available for several iterations of the biennial 303(d) list review. As the data assessment record sheets for the Shields River are not currently available, it is unclear if DEQ ever considered these data. (Note that the USGS also monitors temperature on the Gallatin River, and those data, along with frequent fishing closures because of high temperatures, should provide DEQ sufficient, credible data for a temperature listing on that important fishery.)

Our quick analysis of the USGS temperature data confirms warm water temperatures as impairing the cold water fishery in the Shields River (Figure 1). According to Carol Endicott (MFWP, personal communication), pending development of temperature guidelines for Yellowstone cutthroat trout, fisheries managers are using values developed for westslope cutthroat trout developed by Bear (2005), which call for maintaining maximum temperatures within the optimal range (13- 15 °C). Using the upper incipient lethal temperature (UILT) of 19.6 °C as a measure of sub-lethal to lethal stress, USGS data indicate water temperatures resulted in non-support of Yellowstone cutthroat trout in the Shields River, as maximum temperatures frequently and substantially exceeded the UILT. Moreover, stream temperatures are often lethal to the more tolerant brown trout, which has a UILT of 24.7 °C (Elliot 1981). Additional temperature monitoring data that confirm frequent occurrence of temperatures well above the UILT at several other locations along the Shields River are available from MFWP.

The DEQ's repeated failure to examine the links between dewatering and thermal loading, along with omission of readily available temperature data in its data review, suggests a reluctance to address this common threat to Montana's cold water fisheries. The MCAFS fully understands the challenges associated with in stream flow. Nevertheless, these challenges do not absolve



DEQ of its responsibility to address this major constraint on cold water fisheries, including sensitive native species such as Yellowstone cutthroat trout. Designation of a stream as dewatered should automatically trigger evaluation of thermal regime with TMDL's developed as indicated by the available data and data collected through the TMDL planning effort for a given stream. At a minimum, DEQ should include temperature among the pollutants potentially requiring TMDL's in Section 1.4 of the final plan.

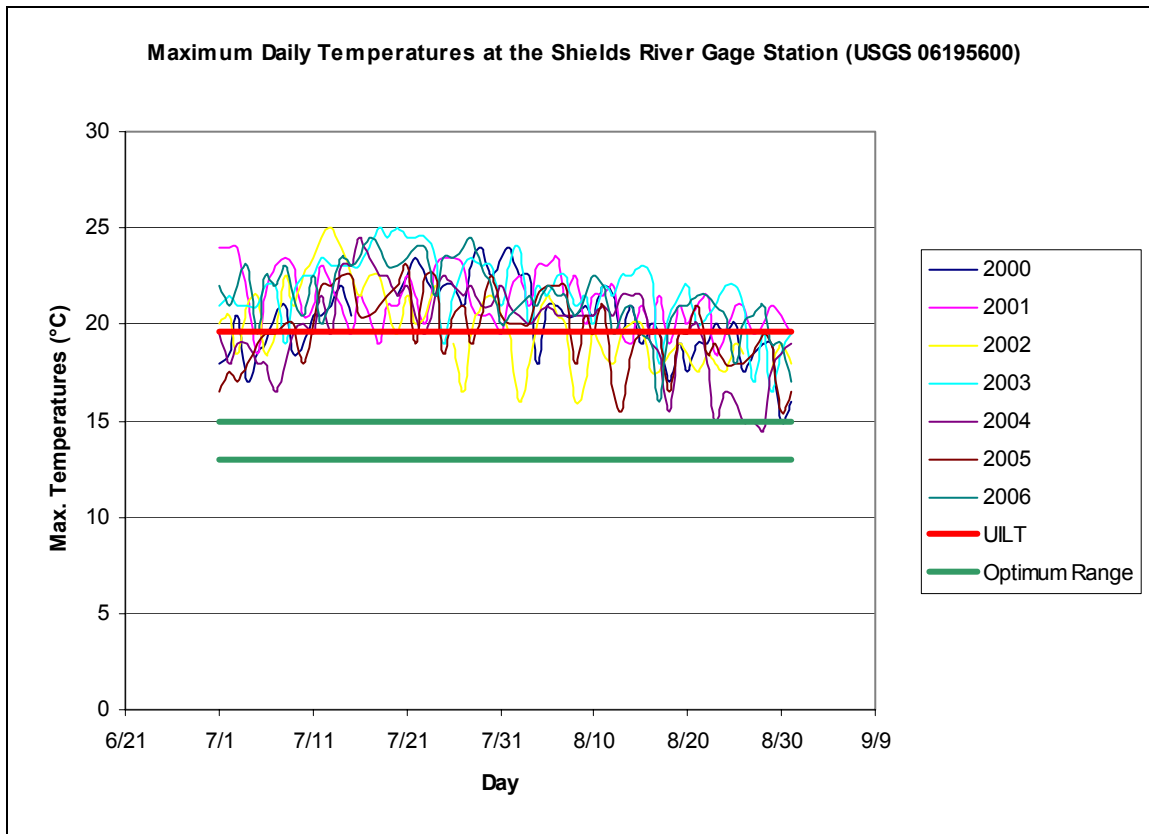


Figure 1: Maximum daily temperatures during July and August from 2000 through 2006 at the USGS gage station. UILT = upper incipient lethal temperature.

Our next topic relates to the quality of data used in developing TMDL's for streams throughout Montana. The MCAFS has commented on data quality in the Dearborn TMDL, and evaluation of public comments published in the approved TMDL's for the Ruby, Sun, and Teton planning areas indicate other reviewers share our concerns. Sample size, bias, replicability, and spatial coverage are recurring themes. We understand that limited budgets and resources shape the feasibility of a data collection strategy; however, data quality remains an important consideration. Quality assurance project plans developed for each TMDL should include provisions for quantitative evaluation of data quality objectives (i.e. precision, bias, accuracy, and representativeness) for each parameter used in the TMDL process. DEQ should post these



results with public review drafts so reviewers can evaluate the quality of the data used. Clearly, the repeated interest from numerous reviewers justifies the expense of disclosing these analyses.

Omission of certain pollutants and streams from TMDL development is our last concern. Nutrients were among the probable causes of impairment for the Shields River on the 1996 303(d) list, and apparently, initial TMDL planning efforts included sampling and analysis intended to lead to a nutrient TMDL. The DEQ reported to MFWP that nutrients were accidentally left off the 2006 list, and because current guidelines require a pollutant to be included on both the 1996 and 2006 lists, a nutrient TMDL would not be included in this effort. An error in the management of the 303(d) list compilation is not a valid reason for not developing a TMDL for a listed pollutant, and DEQ should meet its obligation to address nutrient loading in the Shields River, not relegate the pollutant to a “possible” TMDL in the future. The emergence of whirling disease as a substantial threat to Yellowstone cutthroat trout underscores the need to address nutrients, as eutrophication favors *Tubifex tubifex*, the intermediate host for the causative agent of whirling disease.

Initial TMDL planning efforts addressed several streams for which no TMDL is presented in the public review draft. Rationale for not completing TMDL’s relates to a lack of a pollutant for the listed streams, despite DEQ’s precedence of completing TMDL’s for streams where links between the pollution and pollutant are possible. The lack of a TMDL for Elk Creek is a significant concern, as a pollutant, siltation, was among the probable causes on the 1996 list. The 2006 list includes only pollution, despite the availability of data collected through the TMDL planning process, which likely confirms sediment as a pollutant.

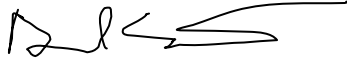
A looming deadline and large number of waters still without plans may provide the temptation to trim streams and pollutants from immediate consideration. In the cases of Cottonwood, Elk, and Rock creeks, DEQ has the data to develop TMDL’s, and has established the precedence of developing TMDL’s for streams where the listed pollution could be linked to a pollutant. Furthermore, as these streams support Yellowstone cutthroat trout, DEQ, a signatory of the cutthroat trout conservation agreement (MFWP 2007) has an obligation to incorporate the fish’s conservation into its planning efforts.

In general, the TMDL plan developed for the Shields River watershed is limited in its ability to conserve Yellowstone cutthroat trout. Acknowledging the links between dewatering and temperature loading would greatly improve the plan’s usefulness in conserving this declining, sensitive species, and would reduce the rationale to including the fish on the Endangered Species list. Nonetheless, the DEQ arbitrarily and capriciously limits the Shields analysis solely to pollution leading to sediment loading, leaving numerous streams with thermal loading without plans to restore water quality. Ironically, DEQ acknowledges the role of dewatering in streams benefiting from developed temperature TMDL’s and yet arbitrarily and capriciously omits dewatering and temperature loading from the Shields TMDL.



We appreciate the opportunity to comment on this plan and look forward to reading the final draft.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Schmetterling', with a long horizontal flourish extending to the right.

David Schmetterling, President
Montana Chapter American Fisheries Society



AMERICAN FISHERIES SOCIETY
MONTANA CHAPTER

Literature Cited

- Bear, E. A. 2005. Effects of temperature on survival and growth of westslope cutthroat trout and rainbow trout: implications for conservation and restoration. Master's Thesis, Montana State University, Bozeman, Montana.
- Elliott, J. M. 1981. Some aspects of thermal stress on freshwater teleosts. Pages 209–245 in A. D. Pickering, editor. Stress and fish. Academic Press, New York.
- Montana Fish, Wildlife & Parks 2007. Memorandum of understanding and conservation agreement for westslope cutthroat trout and Yellowstone cutthroat trout in Montana. Montana Fish, Wildlife & Parks, Helena Montana.





2817 Third Ave. North
Great Falls, MT 59401

March 12, 2004

Integrated Report Coordinator
Water Quality Planning Bureau
Department of Environmental Quality
PO Box 200901
Helena, MT 59620

To Whom It May Concern:

This letter provides comments from the Montana Chapter of the American Fisheries Society (MCAFS) to the draft 2004 303(d) list compiled by the Montana Department of Environmental Quality (DEQ). The MCAFS is an organization of professional fisheries scientists and students from state and federal agencies, universities, tribal governments, and the private sector across Montana. The mission of the American Fisheries Society is to improve the conservation and sustainability of fishery resources and aquatic ecosystems by advancing fisheries and aquatic science and promoting the development of fisheries professionals. We are keenly interested in the total maximum daily load (TMDL) process and its potential to promote conservation of Montana's fisheries.

We have numerous concerns about this list and appreciate the opportunity to provide comments. Our concerns include recent distinctions regarding impairment categories, ways of determining impairment from nutrients, and decisions regarding specific streams. We believe that these issues have enormous implications for Montana's fisheries and hope to see them resolved.

A primary concern with the draft 2004 list is classification of some impaired segments within the Water Quality Category 4C. TMDLs are not required for these waters because DEQ did not identify a pollutant-related use impairment. In our opinion, listing streams based on the distinction between "pollutants" and "pollution" is tenuous as there is tremendous interrelatedness between pollutants and pollution. Furthermore, this distinction overlooks an explicit objective of the Clean Water Act, namely to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Clearly, focusing on pollutants does not ensure restoration and maintenance of the biological and physical conditions in our waters.

A significant problem with this pollutant/pollution dichotomy is that DEQ has not adequately altered their 303(d) listing process to reflect this change. DEQ employs criteria for sufficient



AMERICAN FISHERIES SOCIETY
MONTANA CHAPTER

credible data (SCD) developed before the advent of this distinction, while this change results in a need for more data in order to make reliable beneficial use support determinations (BUD). For example, a reasonable assumption in a dewatered stream (pollution) is that thermal loading (pollutant), due to decreased flow volume, presents a constraint on aquatic life. Therefore, if dewatering is a concern for a given stream, it is incumbent on DEQ to disprove increased temperatures as a constraint on fisheries and aquatic life. Although the available temperature data may score within the range of sufficient, credible data, DEQ needs to evaluate whether impairment due to temperature can be ruled out before designating the stream as 4C. Because of the highly labile nature of temperature data, a significant amount of data is required to adequately evaluate temperature as a pollutant. Failure to take these steps constitutes an undue risk to Montana's fisheries from a very common cause of impairment.

Another concern is DEQ's approach to addressing nutrient enrichment as a probable cause of impairment. Review of information on the Environet database indicates that DEQ relies on nutrient investigations and target development from the Clark Fork River for making impairment listings for a wide range of streams. This approach has serious limitations in that it ignores the well-established relationship between stream size and trophic organization (Vannote et al 1980). Moreover, this approach is unlikely to protect smaller streams that tend to be oligotrophic compared to large rivers such as the Clark Fork. Any beneficial use support determination based on use of values developed for the Clark Fork River should be reevaluated to assess the appropriateness of the listing.

The Gallatin River (MT41H001_010) provides an example of our concerns regarding 4C classification. In this case, we believe that the 4C classification is inappropriate, as there is substantial evidence of impairment from temperature. If DEQ applied the same logic statewide in the beneficial use support determinations, we have concerns regarding the overall value of the 2004 303(d) list.

A significant amount of evidence does not support 4C classification of the Gallatin. There is substantial evidence that thermal modifications limit cold-water fisheries and aquatic life in the river, necessitating development of a TMDL. Thermograph data collected by Montana Fish, Wildlife & Parks, but not included in the analysis clearly indicate summer temperatures result in stress to this fishery. In addition, macroinvertebrate communities suggested warm temperatures, a condition noted in DEQ's analysis but not included in the impairment determination.

An important consideration in including thermal alterations as a probable cause for the Gallatin River is its importance in the recovery and conservation of fluvial Arctic grayling. Montana Fish, Wildlife & Parks has reintroduced grayling to the Gallatin River. Arctic grayling, as the name implies, are especially sensitive to thermal loading. Therefore, DEQ needs to include efforts surrounding conservation of this candidate for the endangered species list in water quality planning for the Gallatin River.

In conclusion, our concerns regarding the draft 2004 303(d) list relate to exclusion of streams from requirements for TMDL development through the 4C Classification, criteria for nutrient impairment determinations, and the failure to list the Gallatin River and possibly numerous other



waters across the state due to thermal modifications. The very large number of waters on the draft 2004 list precluded us from conducting a stream-by-stream assessment of the appropriateness of listings. However, the emergence of the Gallatin River in a cursory review of 4C streams suggests that thermal modifications and other impairments associated with “pollution” may not be addressed through the TMDL process. We recommend that DEQ strengthen its SCD and BUD requirements to ensure currently listed 4C waters and their fisheries receive adequate protection under the Clean Water Act.

Sincerely,

Steve Leathe, President

LITERATURE CITED

Vannote, R.L., G.W. Minshall, K.W. Cummins, J.R. Sedell, and C.E. Cushing. 1980. The river continuum concept. *Canadian Journal of Fisheries and Aquatic Science* 37:130-137.



AMERICAN FISHERIES SOCIETY
MONTANA CHAPTER