

APPENDIX P RESPONSE TO PUBLIC COMMENTS

Executive Summary, Introduction and Standards Review

Comment: Page xi. Table E-1. Pollutant Source Descriptions.

What is the basis of listing “historic and current tree harvest on state land as an agriculture pollutant source in Table E-1? Specifically, what data and data sources were used to identify current timber harvesting on state land as a pollutant source? We are not aware of any sufficient credible data that supports this conclusion.

Response: Sufficient and credible data assessment is identified in Montana’s Rules for application to the 303(d) assessment and is not applicable to TMDL source assessment. However, aerial assessment, field reconnaissance, randomized monitoring of sources and watershed modeling and extrapolation of monitoring and modeling results to a watershed scale was used for the sediment TMDL source assessment in the St. Regis Watershed. See appendices relating to sediment source assessments for more information. The language cited in the comment above was edited to consider this comment in the final document.

Targets and Existing Conditions

Comment: The Riffle Stability Index (RSI) is proposed as a water quality target. It is my professional opinion that this Index has not been validated as a tool demonstrating excess watershed-scale sediment loading, and has not been correlated with beneficial use support. Kappesser (2002) merely did a correlative study to show that in his sampling, values for “roaded” and “unroaded” watersheds were different. I believe he should have better demonstrated that his sample watersheds were similar in other respects (channel confinement, geology, etc.), or better yet, had sediment budgets for each one. Additionally, Kappesser notes in his paper that “There are no clear breaks between the numbers, and the following are suggested only as guidelines...” which makes me skeptical that they are appropriate as water quality targets in the TMDL document. Nonetheless, if DEQ elects to utilize RSI, it should be limited to channel types between 2-4% as outlined in Kappesser (2002). Had there been a significant difference for lower gradient “C” channel types, I am sure Kappesser would have reported these as well. Also of note, for the St. Regis RSI dataset in Appendix B, there is no significant difference in RSI values between managed and reference watersheds ($p=0.14$).

Response: DEQ understands the limitations of the Riffle Stability Index (RSI) as you indicate above. Alternatively, sediment TMDLs need to assess the streams capacity to transport and sort sediment in relation to supporting beneficial uses. This tool provides a linkage between stream channel gradient/sinuosity shifts and sediment transport/sorting. The RSI does not assess increased sediment loads and therefore likely would not show a significant value shift between “roaded” and “unroaded” watersheds. It is a useful tool to indicate if changes in sediment transport and sorting are occurring due to shifts in stream energy from changed channel gradient or sinuosity. This tool is used to assess the

affects of transportation corridors where they have affected stream gradient and sinuosity in the St. Regis Watershed. You are correct in your point that this tool should not be used as an indicator of increased sediment yield. It does provide a link between stream channel changes and sediment sorting and transport. Sediment sorting and transport can affect beneficial uses. Although, in many cases, if stream energy is increased by altering sinuosity or gradient, bank erosion or channel degradation occurs as the stream tries to regain sinuosity and balance gradient along its length. Bank erosion was assessed separately as a sediment source category for this TMDL. Multiple lines of evidence are used to determine if a sediment TMDL is needed. Text concerning this target was edited to reflect caution of its use as a stand alone target.

Comment: The proposed percent fines target of $\leq 8\%$ is based on the mean value of unmanaged watersheds in the Lolo NF. This implies that half of reference watersheds would fail to the proposed TMDL target. In determining targets some other higher value should be used, such as the 75th percentile (or higher as appropriate – see M. Suplee’s latest JAWRA publication on Montana nutrients). This is the approach taken in many other Montana TMDLs.

Response: The original justification for this target was used from Riggers et al, 1998 and a 75th percentile of unmanaged watersheds was not reported in this document. DEQ is coordinating with Lolo National Forest to calculate the 75th percentile for this dataset for use in future reference assessments but this statistic is not available in the timeframe necessary to include into the St. Regis TMDL document. More importantly, almost all sites which met the subsurface % fine targets in the St. Regis watershed also met the 8% surface fine target in the same location. The subsurface percent fine targets are based on more refined reference studies and fry emergence impact assessments. The correlation between surface fines and subsurface fines in the St. Regis Watershed justifies using 8% surface fines in lateral scour pool areas.

Comment: It is unclear how the proposed temperature target for Canopy Density is measured and should be clarified.

Response: The canopy density and effective shade measurement methods are provided in appendices C and F.

Comment: Evaluating temperature in a TMDL or standards context is difficult because biologically optimal conditions for fish are not necessarily physically attainable. I think the TMDL outlines a reasonable approach for evaluating this issue. I do question the 54oF (12.2oC 7DADMT) supplemental indicator for headwater streams (and the Upper St. Regis River). It appears that a primary technical basis for this is Selong et al. (2001), which is appropriate as it is conducted in a controlled laboratory setting. Selong identified 13.2oC as the “optimal” temperature for bull trout growth, but this was determined through regression line fitting. The fact is that Selong’s curve is relatively flat at the top, and his study found no decline in growth until temperatures exceeded 16oC. This is also consistent with other research examining formation of heat-shock proteins in bull trout which occurred at levels close to 18oC. All other studies cited by DEQ are simply correlative and do not establish cause-and-effect related to temperature and bull trout. Lastly, I question the applicability of an optimal bull trout

temperature criterion being applied to all headwater streams, whether or not they even have bull trout. Bull trout have very specific habitat requirements (even outside of temperature), and undoubtedly the vast majority of streams in the St. Regis watershed are not bull trout streams (and likely never have been). DEQ should set the supplemental indicator at a temperature closer to 15-16°C as a 7DADMT, and this should apply only to known bull trout streams. Other streams should have a cutthroat standard applied.

Response: The fishery based temperature thresholds are only used as a supplemental indicator for some of the reasons identified in the comment. DEQ is not proposing any fishery based temperature levels as an absolute temperature standard. They do not directly relate to Montana's temperature standard, which identifies an allowable departure from naturally occurring temperature conditions. The fish based thresholds are included because there are bull trout present in the watershed and they are used in guiding an estimate of natural temperatures along with model output. Many headwater streams in the watershed may naturally not meet these temperatures, especially if lakes are present, but a number of the north sloped reference watersheds within the St. Regis watershed do meet the thresholds or come very close to meeting the fishery based thresholds. The bull trout based threshold should not be applied as a stand alone condition that has to be met. Emerging studies about cutthroat trout optimal and growth related temperature thresholds are finding quite similar results to bull trout thresholds you discuss above and could be used when this TMDL is updated during adaptive management process allowed by the state TMDL law when more spatially robust fish presence information becomes available in the St. Regis. DEQ is aware of the threshold differences pointed out in the above comment and did consider a threshold in the range provided in the comment above but EPA and USFWS guidance thresholds were used for endangered species act concerns. Nevertheless, the thresholds are not standards, and text in the document states that they are not to be used as stand alone line of evidence for determining compliance with Montana's temperature standards.

Comment: In section 6.1.8.1, water yield effects on sediment are evaluated. It should be noted that this water yield modeling assumed a fully forested baseline condition, which is not a natural condition in the fire-dominated Northern Rockies ecosystem. Modeling should be re-done using a vegetative condition that the streams historically evolved with, which for the lower Clark Fork area probably was around one-third of the watershed in a stand initiation condition at any one time (see Hessburg et al. in FS General Technical Report PNW-GTR-458). If modeling is not re-done, the text should clearly state that a false assumption of a fully-forested baseline condition was made.

Response: The modeling will not be re-run at this time. Future modeling should not use the LoloSED model. The document has been updated to reflect the assumptions about modeling from the comment above.

Comment: On page 34 under Anthropogenic Sediment Sources, please define "significant pollutant sources". What or how much is considered "significant"? Is this a qualitative description compared to the quantitative parameters measured with the source assessments and prescribed by the "targets".

Response: Clarification language was added to the document.

Comment: Page 37. Section 4.4.4.2 Reference Riparian Canopy Density

The texts suggest that reference conditions for naturally forested streambanks in steeper streams are 90% riparian canopy density or better. We feel this statement is misleading. We have sampled riparian canopy densities extensively throughout western Montana and found that even under reference conditions a significant portion of the riparian stands across a broader landscape are subject to disturbance regimes such as stand replacement fire, insect and disease and wind events that results in a large range of riparian canopy densities with mean values that are much lower than the figure cited. How extensive was the sample used to derive this figure? Was it representative of the unmanaged landscape within the affected watersheds?

Response: The sample locations used to derive canopy density targets are from non-burned riparian areas. Also, recent tree mortality via insect infestations were not apparent in areas used to derive targets. Tree mortality via insect infestations were not widespread in the St. Regis during the temperature monitoring effort. Recent fires have not significantly affected the St. Regis Watershed, although tree mortality due to insects is limited but continues in the area. Therefore, reference shade conditions used in the TMDL represent current reference conditions in the watershed. If significant portions of the St. Regis watershed are affected by fire or stand replacing insect damage, the targets provided are likely not going to be met due to these natural causes. If these causes of thermal increase do occur, human activities should not exacerbate the heating more than Montana's water quality standards allow. Language was added to the canopy density target section of this document about an adaptive management approach for fire and insect infestations. Discussion about the sample locations used for deriving the TMDL canopy density targets and used for temperature modeling are provided in appendix C.

Significant windfall was not apparent or widespread in the St. Regis Watershed for most riparian areas with adequate buffer zones from clear cuts. Windfall affect was apparent in some riparian zones where trees were not protected from wind due to adjacent upland clearcut areas.

Comment: Page 63. The FS found four bull trout redds in Ward Creek during sampling in 2007, which might be important to note in the document. Page 71, last paragraph. Might want to include bull trout spawning documented in 2007.

Response: The document has been updated to reflect this information.

Source Assessment and Allocations

Paved Roads

Comment: Section 6.1.6, last paragraph, third sentence: Remove "a reduction in plowing speeds," from this sentence. Section 6.6.5.2, page 93, first paragraph, third sentence: Remove "a reduction in plowing speeds," from this sentence.

Response: The document has been updated. MDT provided unofficial, verbal comment at the public meeting that this practice is not a practical BMP because of safety and physical feasibility reasons.

Comment: Section 6.1.7, second paragraph: Quantifying cut-slope erosion and determining a percent reduction (i.e. 10% reduction) would be extremely difficult, if not impossible. Therefore, MDT proposes to replace the first sentence in this paragraph with a sentence similar to the following "MDT will explore alternatives for stabilizing key cut/fill slopes and capturing sediment." Section 6.6.5.2, page 93, second paragraph, first sentence: MDT proposes to replace the first sentence in this paragraph with a sentence similar to the following "MDT will explore alternatives for stabilizing key cut/fill slopes and capturing sediment."

Response: From discussion at the public meeting in St. Regis, it was apparent that MDT could easily meet and exceed the 10% road sanding reduction target. The 10% reduction in sediment entering streams from cut slopes may be problematic to meet. DEQ will combine these two allocations and allow MDT to meet them in combination with the flexibility to reduce sediment loading from either source within their allocation. Sections 6.1.6 and 6.1.7 were combined and the sentence above was used.

Comment: Section 6.6.5.2, page 92, first paragraph, second-to-last sentence: This sentence states that "Sediment loading from potential culvert failure can be reduced by an estimated 91% by upgrading all culverts to safely pass the 100-year flood." MDT currently designs culverts per our hydraulics manual. According to this manual, culverts are designed for the 10-year to 50-year storm events--without over topping the road--based on average daily travel (ADT) and the length of detour in the event of a culvert failure. It is unlikely that MDT will change these design criteria for culverts. Please revise this sentence (and other similar sentences in the document), as necessary. Section 8.4.2, page 105, first paragraph, first sentence: See comment above for Section 6.6.5.2.

Response: The sentence and also section 6.1.4 and 6.6.5.2 were intended to only apply to unpaved roads which MDT usually does not design. This clarification was added to the document.

Comment: Section 8.4.3, first bullet: MDT tried this BMP on Lolo Pass; however, it was discontinued since it was considered unsafe and ineffective. Therefore, this bullet should be removed. It could be replaced with a bullet similar to the following "Utilize a snow blower to directionally place snow and traction sand on cut/fill slopes away from sensitive environments."

Response: The document has been updated.

Comment: Appendix K, Results and Discussion, page K-2, first paragraph: Eleven years of data are presented in Table K-1. Please update this paragraph to reflect all eleven years of data. I also noticed the application rates in Table K-5 are for the old data (i.e. five years of data). Please update this table with the revised application rates. Please double-check all data in Appendix K

and verify that all tables, figures, and discussions are related to eleven years of data. Any revisions of the data in Appendix K should also be reflected in the main body of the report.

Response: The document has been updated.

Comment: Appendix K, Results and Discussion, page K-3, first paragraph, last sentence: 0 to 35% pass through a #40 mesh.

Response: The document has been updated.

Comment: Appendix K, Results and Discussion, Table K-1, page K-3: The sand application rates for the 2003 - 2004 and 2005 - 2006 winter seasons are incorrect. The correct applications rates are listed below:

2003 - 2004: 16,256 cy

2005 - 2006: 17,624 cy

Please update this table and revise your sediment loading calculations, as necessary.

Response: The document has been updated.

Comment: Appendix K, Input of Traction Sand from Interstate 90, page K-9, second paragraph: MDT suggests using an average delivery rate of 20.5% for segments of I-90 within 25 feet of the stream channel. This would be consistent with the average delivery rate calculated for segments of I-90 that are located 25 to 50 feet of the stream channel.

Response: The analysis suggests that a delivery rate of 41% is reasonable for stream segments within 25 feet of I-90, and thus its use will continue as the basis of the loading estimates until new study identifies otherwise. We propose working with DEQ to conduct appropriate analysis if changes are necessary.

Comment: Appendix K, Input of Traction Sand from Interstate 90, Table K-8, page K-11: Please update the delivery rates in this table for eleven years of data. Also, the contributions from bridges should have decreased with the revised delivery rates. Please revise these calculations and update the body of Appendix K and the body of the report, as necessary.

Response: The document has been updated.

Unpaved Roads

Comment: The culvert failure analysis is an analysis of the likelihood of risk, the probability of failure. It is not really an actual sediment contribution model like the other modeling components. Many culverts out there are undersized and have been there for years and years with H:D > 1.0 every year and yet have never failed. So to add 800 per year for every year is not supported by what we know does or doesn't happen on the ground.

We know sediment is contributed from road surface erosion every year; we know that I-90 sanding sends sediment to the river every year; we do not know that anywhere near 800 tons

from culverts is ever contributed. This might have happened in 1996, but certainly not every year.

The result of the analysis as reported do not stress the limitations and assumptions of the analysis; this needs to be clearly stated so that the resulting values are consider reasonable in relation to the other components of the sediment modeling. (The USGS regression equations alone have standards errors of +/- 50%).

Typically, now we try to replace a failed culvert with something larger and more suitable.

Further, we would like to stress that we feel it is inappropriate to use the results of the road fill sediment volume AT RISK analysis, which was performed by the Lolo National Forest, to extrapolate a daily sediment load allocation from POTENTIAL culvert failures. The analysis portrays sediment AT RISK, is not a known annual contribution, and is not additive, therefore, it should not be accounted for in the same was as actual annual sediment contributions from sediment sources such as road surface erosion and highway sanding. As stated in an email to you on Oct. 9, 2007, the Superior Range District might encounter 1-2 culvert failures per year; in an exceptional year such as 1996 (Q25) there were approximately 6 culvert failures. While we do agree that sediment from failure of undersized culverts is a threat to water quality, this analysis is better used to help prioritize culverts for removal and/or upgrade. A similar analysis was used in the Upper Lolo TMDL as a prioritization mechanism, but was, appropriately, not used to determine an annual load from culvert failures. Furthermore, to our knowledge, as an involved stakeholder in other TMDLs for which the culvert-at-risk-analysis was conducted, the analysis will not be used to extrapolate an annual load for the Prospect and Middle Blackfoot TMDLs. (If the corresponding risk analyses are used for these other TMDLs, the Lolo National Forest will provide the same comment as we have just provided above: essentially that this analysis was not intended to be used to determine an annual sediment load).

I discussed this topic with several transportation folks and engineers.

Typically the Superior District has one, maybe two "culvert failures" per year. In exceptional years we can expect more. With the rain on snow event of 1996 there were probably about 30-40 across the whole Lolo National Forest, around 6 on Superior District. This is a very small portion of all the culverts out there (6/~600 is 1%).

Response: Culvert failure sediment load analysis is being pursued in Prospect, Yaak, and Middle Blackfoot TMDL planning areas. Substantial changes in the culvert failure assessment were enacted because of the comments above. These following changes reduced the estimated sediment yield from culvert failure substantially and provide caveats for the yield identified in the document. They include:

- Fixing errors in the analysis
- Using 25% of the at risk sediment load as a delivery function (a description is provided in Appendix J, Averaging Annual Yields section)
- Using different failure probabilities than stated in the USFS documentation provided to DEQ (a description is provided in Appendix J, Averaging Annual Yields section)

- Using the 1.4 ratio to indicate lower likelihood of failure
- Additional language in the allocation section of the TMDL providing discussion about most of the load from this source derived during large flood events and that it is a very probabilistic analysis.

Using these revised assumptions in the analysis provides a much reduced estimated sediment load from culvert failure that fit into a general range more compatible with Lolo NF estimated culvert failure rates. Existing sediment loading rates from culverts were lowered to about 25% of the original estimate. DEQ agrees with many of the precautions Lolo NF provides about using the load analysis, but with the analytical refinement conducted during the public comment period the analysis can be used to estimate gross load estimates that are useful for comparison to other sediment sources in the watershed.

If future data collection and analysis indicate the culvert failure current loading rates are imprecise, they may be updated during future adaptive management process.

Comment: Culvert failure. From our discussion, it sounds like this part of the TMDL source assessment is being re-done to address some errors identified.

Response: Substantial changes in the culvert failure assessment were completed. See response to the comment directly above.

Comment: Page 76. Section 6.1.2 Sediment Loading due to Timber Harvest

“No new sediment production from road building associated with timber harvest is allowed unless mitigated 2:1 until the road allocations are met. We are concerned that this target is not feasible for landowners with smaller land bases like DNRC. When undertaking smaller timber management projects on an individual parcels that require even moderate levels of new road construction there may not be always be an opportunity to mitigate at 2:1. This may be due to the limited amount of existing road available for offset or due to the economic limitation associated with smaller sized timber harvest. There maybe limited amounts of revenue provided by smaller timber permits that would not be cable of funding the mitigations to existing roads at the 2:1 ratio even if there were available. DNRC would utilize all reasonable soils and water conservation practices to minimize erosion and potential sediment delivery to the extent necessary to meet water quality standards and protect beneficial uses.

Response: If DNRC utilizes all reasonable soil and water conservation practices to minimize erosion and potential sediment delivery, 2-1 mitigation may not be needed. Nevertheless, the mitigation strategy was moved to the restoration section as a “suggested approach” to achieving the TMDLs.

Comment: Page 78 Section 6.1.4 Potential Sediment Risk from Culvert Failures

Table 6-3 Estimated Culvert Failure Sediment Loading summarizes the potential sediment load reductions for upgrading culverts to 50 and 100 year flood events. Typically, DNRC and other private forest landowners design stream crossing on small first and second order stream for 25 and 50 year minimum flood event rather than 100 year events. Montana Forestry BMP require culvert to meet a minimum capacity of a 25 year event. Upgrading culverts to 100 year flood

capacity may be appropriate for larger systems roads, county Roads, USFS and other landowner on larger fish bearing streams. However, this standard is cost prohibitive for DNRC and other small private landowner to adopt broadly across the entire planning area.

Response: The document was clarified. Larger culvert sizes (Q100) should be applied at any fish bearing stream crossings if technically feasible. Twenty five year event sized culverts should be applied in non fish bearing stream crossings. Also, language was added about these sized culverts potentially not being feasible because of local conditions at any given crossing.

Comment: Page 80 Section 6.1.4.2 Bank Erosion

“A 90% reduction in the anthropogenic sediment load from bank erosion is proposed”. A 50 to 75% reduction would be more realistic and possibly achievable considering the proximity of roads and infrastructure near streams that may not be feasible or too cost prohibitive to alter. A contradiction in Section 6.1.7 proposes only a 10% reduction in sediment loading from Highway (I-90) cut slopes and would remain a source of sediment that would aggravate stream channel stability and make it difficult for other source reductions to be effective.

Response: Reducing bank erosion is more feasible than reducing traction sand sediment loading. Safety considerations need to be taken into account during road sanding allocations. Society highly values human life and this came into consideration with the road sanding allocations. Also, alternatives to road sanding such as chemical application also have an environmental impact.

Alternatively, in section 6.1.5.1 the document provides an adaptive management strategy to modify the bank erosion allocation if sediment reductions from this source appear to be unachievable economically.

Shade and Temperature Allocations

Comment: Page 98 Twelvemile Creek Temperature Allocations and Total Maximum Daily Load

We recognize the connection between increased shading and decreased in-stream temperatures, yet question the 89% reference shading for tributaries with tree dominated canopies. Forest stands are a mosaic with varied coverage percentages from full canopy, to patchy tree mortality and canopy loss due to insects and fire. As further insect mortality occurs in Lodgepole pine stands, natural shading may be lower. What is the range of canopy coverage compared to natural conditions and how does the model allocate for fire or natural shade reduction as has happened in the past?

Response: The sample locations used to derive canopy density targets are from non-burned riparian areas. Also, recent tree mortality via insect infestations were not apparent in areas used to derive targets. Tree mortality via insect infestations were not widespread in the St. Regis during the temperature monitoring effort. Recent fires have not significantly affected the St. Regis Watershed, although tree mortality due to insects

is limited but continues in the area. Therefore, reference shade conditions used in the TMDL do represent current reference conditions in the watershed. If significant portions of the St. Regis watershed are affected by fire or shade reducing insect damage, the targets provided are likely not going to be met due to these natural causes. If these causes of thermal increase do occur, human activities should not exacerbate the heating more than Montana's water quality standards allow. Montana's temperature standard allows only a certain amount of human caused heating. Language was added to the canopy density target section of this document about an adaptive management approach for fire and insect infestations. Discussion about the sample locations used for deriving the TMDL canopy density targets and used for temperature modeling are provided in appendix C.

Significant windfall was not apparent or widespread in the St. Regis Watershed for most riparian areas with adequate buffer zones from clear cuts. Windfall affect was apparent in some riparian buffer zones where trees were not protected from wind due to adjacent upland clearcuts. However, most windfall events would fall into the natural source category if they become prevalent, along with fire and bug kill.

Comment: Page 100, Section 7.4 Additional Surrogate Allocation Components for the St Regis Watershed “If activities that reduce shade are absolutely necessary, mitigation on a 2:1 basis should occur if the standard and TMDLs have not been met”. Large landowners that have impacted riparian areas have an incentive to a trading system, yet small landowners that have protected their riparian areas may only need a stream crossing site or small treatment on a restoration site in the riparian zone that is difficult to accomplish at 2:1 level of shade mitigation. Any disturbance should require the highest level of prompt shade restoration feasible.

Response: DEQ adds that alternatives to any level of shade disturbance should be thought about thoroughly. Providing mitigation at this level provides incentive to consider alternatives to impact shade. The level of detail provided by the St. Regis TMDL would not support allocations to specific landowners. Similarly, the allocations in this document are for prevalent land use activities within the whole watershed. While DEQ agrees with some of the concepts about difficulties in implementing the mitigation that are presented above but new, unmitigated sources are not appropriate when standards are not currently achieved. Montana has committed to progressing toward implementing TMDLs and trying to meet standards in watersheds with TMDLs. This document identifies that this type of mitigation should occur at a landscape scale within the watershed. Allocation reductions for non point sources in this document are voluntary and not enforceable, although certain state and federal agencies have working objectives that consider implanting the federal clean water act. If there is no way to plan around a future activity which will reduce stream shade or produce mitigation on a land parcel basis, coordination with other local landowners should be considered for restoration on nearby land for mitigation opportunities.

Restoration and Future Monitoring Approaches

Comment: Pg 103 Agency Coordination

Please include DNRC Southwestern Land Office in the Stakeholder Coordination for achieving targets and agency coordination of restoration efforts.

Response: The document has been updated to include this information.

Comment: On page 42 (West Fork Big Creek) and other places throughout the document such as discussions for Twelvemile Creek, please note the known watershed restoration activities for which we have given you information. We have completed a lot of restoration work in the St. Regis River watershed, and that information should be taken into account (especially for Twelvemile, where we did a lot of culvert removals and decommissioning of roads, along with culvert upgrades). In addition to identifying sediment sources which are degrading water quality, it is also important to identify the watershed rehabilitation work that has been implemented which has and will continue to contribute to improved water quality. For example, in Big Creek, the number of crossings has decreased (by 5 or 6). In Twelvemile, the road density has decreased, along with the number of crossings, so those numbers should be reflected as well. Please refer to the list of restoration work emailed to you on Feb. 14, 2007 as well as the email sent to you on Oct. 9, 2007 which reiterates that this type of work should be noted because it speaks to the current conditions discussed in the source assessment as well as to meeting targets and restoration plan implementation. Sediment volumes at risk which have been reduced by this type of already implemented work (culvert upgrades and removals) was reassessed and emailed to you on Oct. 10, 2007.

Response: The restoration section has been updated to include this information.

Project Name	Project Description/Objective	Year Completed	Watershed	Activities
Sunset Mine Reclamation Project	In 1991, a bond was obtained to reclaim the Sunset Placer Mine in Sunset Creek, a tributary to South Fork Little Joe Creek. This reclamation would reinforce a weak bank, recontouring of settling ponds, shape and stabilize steep banks, plant alder cuttings, etc. to promote stabilization and growth in the area.	1991	Sunset Creek (South Fork Little Joe Creek)	500 feet streambank stabilization 2 acres placer mine reclamation

Project Name	Project Description/Objective	Year Completed	Watershed	Activities
Hendrickson Timber Sale	In 1997, the Superior Ranger District awarded the Hendrickson Timber Sale. The objective of this project was to harvest timber in the Little Joe Creek watershed. As part of the contract, roads #18557 and #4206 would receive level 2 decommissioning.	1997	Little Joe Creek	5.08 miles level 2 decommissioning
Reset Timber Sale	In September of 1997, the Superior Ranger District awarded the Reset Timber Sale. This timber sale would harvest timber in the Two Mile and Little Joe Creek watershed. Five roads under the timber sale contract received scarification and erosion control seeding, which constitutes level 2 closures.	1997	Little Joe Creek Two Mile Creek	2.31 miles level 2 decommissioning
Hiawatha Trail Stabilization	Approximately 5 rock weirs and rootwads will be used to stabilize a 200 foot long, 100 foot high eroding slope that is actively being cut by the St. Regis River into the Hiawatha Trail. Willows will also be planted to aid in bank stabilization. The slope will also be hydro-seeded to ensure revegetation.	1998	St. Regis River	50 feet streambank stabilization 100 feet rootwad, log or boulder placement 5 weirs

Project Name	Project Description/Objective	Year Completed	Watershed	Activities
Savenac Creek Stream Restoration Project	The objective of this project was to complete a full stream re-creation around an old mining dam in Savenac Creek. Approximately 550 feet of stream was rerouted and habitat structures were placed in-stream.	1998	Savenac Creek	550 feet stream channel relocation 550 feet rootwad, log or boulder placement
Tujo II Helo Timber Sale	In 1998, the Lolo National Forest, Superior Ranger District awarded the Tujo II Helo Timber Sale. This sale would salvage timber within the Little Joe Creek watershed. As part of the contract, road #16436 would receive level 2 decommissioning.	1998	Two Mile Creek Little Joe Creek	2.57 miles level 2 decommissioning
Ward Creek Flume Removal Project	A watershed monitoring flume was placed in Ward Creek in the early 1960's and is no longer in use. This project proposes to remove the flume from the stream. The removal of this flume allowed for fluvial fish passage approximately 3.0 miles upstream, which has been inaccessible since installation.	1998	Ward Creek	1 fish passage barrier removal 100 feet rootwad, log or boulder placement
2 Joe Road Obliteration Project	One of the objectives of the 2 Joe Road Obliteration Project was to conduct level 3 and 4 road decommissioning on approximately 3 miles of road in the Little Joe and Twomile Creek drainages.	1999	Twomile Creek Little Joe Creek	1.21 miles level 3 decommissioning 1.89 miles level 4 decommissioning 1 culvert removal (0.0 miles accessed)

Project Name	Project Description/Objective	Year Completed	Watershed	Activities
Tarbox Mine Reclamation Project	The objective of the Tarbox Mine Reclamation Project was to reclaim a large area disturbed from past mining by removing much of the waste rock from the area and replacing with topsoil to promote vegetation growth in the area. There were also two stream restoration points associated with this project that will be tracked in this project.	2002	Packer Creek	748 feet stream channel stabilization 2000 feet mine tailing stabilization
Powerswitch Salvage Timber Sale	The objective of this project was to harvest dead and dying timber from a result of mountain pine beetle epidemic in the area. This sale also incorporated the replacement of several fish passage culverts within the project area. One road also received level 3 decommissioning.	2003	Rock Creek	3 culvert replacements (9.62 miles of upstream usable habitat accessed)
Knox Brooks Stewardship Project	This timber stewardship project will harvest up to 2500 acres to remediate the pressures of mountain pine beetle in the area, reconstruct approximately 40 miles of road and decommissioning of approximately 50 miles of road (along with the successive removal of culverts on these roads). Resources enhancement projects designed to enhance riparian and stream channel conditions will also take place.	2004-2005	Twelvemile Creek Rock Creek	39 culvert removals (11.55 miles upstream habitat opened) 7 culvert replacements (29.99 miles upstream habitat opened) 9.67 miles level 3 decommissioning 39.67 miles level 4 decommissioning 0.296 miles level 5 decommissioning

Project Name	Project Description/Objective	Year Completed	Watershed	Activities
Middle Fork Big Creek Culvert Removal	The objective of this project was to remove and undersized culvert on the Middle Fork Big Creek on a previously closed road.	2004	Middle Fork Big Creek	1 culvert removal (4.55 miles upstream habitat opened)
West Fork Packer Timber Sale	The objective of this project was to salvage dead and dying trees in the Packer Creek watershed. As part of this project, two roads in the area received level 3 decommissioning, including culvert removals.	2005-2006	Packer Creek	1.66 miles level 3 decommissioning 1 culvert removal (0.77 miles upstream habitat opened)
Big Creek Stream Restoration Project	The objective of this project was to remove several fish passage barriers along Trail 706, along with other culverts that were not fish passage barriers, but were undersized, complete necessary stream restoration work at these sites and at other sites where erosion was occurring, decommission road #18642, change the travel plan designation on Trail 706 from motorized to non-motorized, and exchange easements with Stimson Timber Company.	2005	West Fork Big Creek	8 culvert removals (7.0 miles of upstream habitat opened) 6 streambank stabilization sites 2.38 miles of level 3 decommissioning
Rainy Creek Culvert Replacement	The objective of this project was to replace an undersized culvert that was a fish passage barrier with a culvert that would accommodate passage and high flows. The Idaho Panhandle NF completed this project to haul timber on this road.	2005	Rainy Creek	1 culvert replacement (1.14 miles upstream habitat accessed)

Comment: We also discussed including some language regarding SMZs, RHCAs, BMPs etc, especially a discussion on how they are not equal. Some are optional SMZs are optional for private land owners who are cutting timber but not for a commercial timber sale whereas RHCAs which are required INFISH buffers used by the Forest Service, and which are more stringent than SMZ buffers.

Response: As noted above, the State of Montana’s SMZ requirements are a set of minimum Best Management Practices which may or may not be sufficient to achieve (restore) water quality standards, to achieve riparian habitat conservation objectives, or to provide suitable fish habitat. SMZ’s generally apply to a minimum of a 50 foot corridor from each stream bank. SMZ’s include several types of restoration activities, such as road repair and culvert sizing for modest flood flows. Forestry Best Management Practices are intended to maintain and/or slightly improve upland and streamside watershed conditions to achieve overall watershed health. Montana Forestry BMPs proscribes stream crossing culverts that meet 25 year flood flows, while Forestry BMPs are being developed for fish passage suitability for new culverts. RHCAs include 300 foot riparian buffer zones that provide shade and sediment filtering, exclude road building in riparian zones as much as possible, and routing water off of existing sediment contributing roads. Watershed RCHA practices and reasonable water quality BMPs also include appropriate culvert sizing (50 or 100 year flood flows), fish passage suitable culverts in fish bearing streams, and instream physical habitat characteristics (bank stability, instream fine sediment percentage, pool frequency, pool width/depth ratio, and large woody debris).

Montana’s SMZ law and or/ RHCA and INFISH standards are not synonymous with a term used in Montana’s water quality rules, “all reasonable land, soil and water conservation practices”.

Clarifying language was added to Section 8 of the document to help tie each of these “BMPs” into allocation approaches for sediment or temperature TMDLs.

Comment: Monitoring Section. As mentioned above, major changes have taken place in Twelvemile Creek (road decommissioning, culvert removals and upgrades), it would be good to re-evaluate fine sediment and RSI targets now to see what/if changes have occurred.

Response: DEQ will complete a TMDL review via an adaptive management approach identified in Section 9 of the TMDL document. If feasible, USFS should collect this information after restoration project implementation and it can be used by DEQ during the scheduled TMDL review. Otherwise, DEQ may collect this data during the TMDL review if significant restoration work was completed in the watershed during the time between initial TMDL data collection and the future TMDL review.

Comment: Restoration Section. It is disappointing to see, after all the field work and analysis conducted, that more specific restoration measures were not identified, such as particular stretches of the St. Regis River that could be improved by stream bank revegetation, meander reactivation, habitat enhancement and other more site-specific measures. In general, the

restoration section is very generalized and is not very specific to the St. Regis watershed. If possible, we recommend including more specific restoration strategies that can be identified from the data collection, analysis and assessment efforts.

Response: Some of the detail indicated above can be found in respective appendices. DEQ has provided a framework for building a more detailed water quality restoration plan by compiling this document and identifying sources to general land use categories within each of the watersheds in need of a TMDL. DEQ recommends a locally led effort for more detailed restoration planning. This would involve all significant land managers and could include other important restoration efforts such as fishery habitat, local zoning and weed management along with water quality issues. This level of detail would likely require a higher level of local stakeholder input than what was provided in the TMDL planning effort. Funding for further watershed restoration efforts may be supplemented by competitive state and federal grants administered by DEQ and DNRC.

Comment: Page 109. For the SMZ law to have the maximum beneficial effect it should be applied consistently on all lands, therefore we support the inclusion of this statement: "The State of Montana will not consider SMZ law waivers without consulting with DEQ and considering DEQ comments".

Response: Thank you for your comment.

