Department of Environmental Conservation

Division of Water

2014/2016 Integrated Water Quality Monitoring and Assessment Report Response to Comments Public Noticed December 14, 2017 to January 29, 2018

November 2, 2018

INTRODUCTION

Summary of Project

The Integrated Report categorizes waterbodies in Alaska to meet the reporting requirements for the Section 305(b) report and Section 303(d) list of impaired waters, in accordance with federal Clean Water Act. The Integrated Report helps the State prioritize waters for data gathering, watershed protection, and restoration of impaired waters.

There are five categories to which a waterbody can be assigned:
• Categories 1 and 2 are waters for which there is enough information to determine that water quality standards are attained for all or some of their designated uses.
• Category 3 are waters for which there is not enough information to determine their status.
• Category 4 are waters that are impaired, but have a variety of waterbody recovery plans.
• Category 5 are waters that are impaired and do not yet have waterbody recovery plans. Category 5 waters are also known as Section 303(d) impaired waters.

The 2014/16 Integrated Report documents the following water quality impairment changes from the 2012 Integrated Report:

Eighteen waters are now attaining standards in Category 2 for some criteria:

• Five Unnamed Creeks, near Sweetwater Lake and USFS 3030 Road, where the waters are meeting various criteria for a variety of metals.
• Chatanika River, north of Fairbanks, where the water is meeting criteria for arsenic and dissolved oxygen.
• Chena River, Fairbanks, where the water is meeting the criteria for sediment.
• Chena Slough, Fairbanks, where the water is meeting the criteria for sediment.
• Cottonwood Creek, Wasilla, where the water is meeting the criteria for dissolved gas, pH, sediment (settable solids), and turbidity.
• Granite Creek, Sitka, where the water is meeting the criteria for sediment and turbidity.
• Kenai River, Kenai, where the water is meeting the criteria for arsenic, cadmium, chromium, lead, and pH.
• Lakes Hood/Spenard, Anchorage, where the water is meeting the criteria for dissolved oxygen.
• Little Meadow Creek, Matanuska-Susitna Borough, where the water is meeting the criteria for dissolved gas; petroleum hydrocarbons, oils, and grease; pH; sediment; toxic and other deleterious organic and inorganic substances; turbidity.
• Meadow Creek, Matanuska-Susitna Borough, where the water is meeting the criteria for dissolved gas; petroleum hydrocarbons, oils and grease; pH; sediment; toxic and other deleterious organic and inorganic substances; turbidity.
• Mosquito Lake, Haines Highway, where the water is meeting the criteria for dissolved gas, fecal coliform bacteria, and pH.
• Noyes Slough, Fairbanks, where the water is meeting the criteria for sediment standard, but remains impaired from residues and petroleum hydrocarbons.
• Udagak Bay, Unalaska Island, where the water is meeting the criteria for residues.
• Wasilla Creek, Matanuska-Susitna Borough, where the water is meeting the criteria for dissolved gas; petroleum hydrocarbons, oils, and grease; pH; sediment (settleable solids); turbidity.

Five waters are now in Category 4a under a Total Maximum Daily Load (TMDL):

• Cottonwood Creek, Wasilla, previously in Category 5/Section 303(d) impaired list, now has a TMDL that was developed and approved for fecal coliform bacteria.
• Goldstream Creek, Fairbanks previously in Category 5/Section 303(d) impaired list, the water now has a TMDL that was developed and approved for turbidity and total suspended solids.
• Hawk Inlet, Southeast Alaska, previously in Category 5/Section 303(d) impaired list, now has a TMDL that was developed and approved for cadmium, copper, lead, mercury, and zinc.
• Matanuska River, previously in Category 5/Section 303(d) impaired list, the water now has a TMDL that was developed and approved for residues (debris).
• Slate Creek, Denali National Park, previously in Category 5/Section

One water is now in Category 4b with alternative pollution controls:
• Little Susitna River, Matanuska-Susitna Borough, threatened for 8.5 miles for petroleum hydrocarbons with a waterbody recovery plan.

Two new waters are placed in Category 5/Section 303(d) impaired list:
• Lake Lucille, Matanuska-Susitna Borough, where two areas of freshwater lake bed sediments have elevated levels of lead and zinc. Lake Lucille is under an existing plan to correct a dissolved oxygen impairment.
• Little Susitna River, Matanuska-Susitna Borough, for 8.5 miles for turbidity.

Opportunities for Public Participation

The Department formally requested a solicitation for existing and readily available water quality data and information from in the summer 2013 and again from August 1 to September 14, 2015. The Department received information from two interested parties in response to these solicitations.

The Department formally published notice of the proposed report on December 14, 2017. The Department posted the notice online in accordance with state requirements, provided downloadable files of the report on the Department web site, and published the public notice in the Anchorage, Kenai/Soldotna and Matanuska Susitna Valley newspapers. The notice was also published on a well-known and used electronic newsletter of general circulation with environmental issues. The Department held a public meeting on January 4, 2018.

The Department received comments from 16 interested parties.

2014/16 Final Report

The final report was submitted to the U.S. Environmental Protection Agency (USEPA) on November 2, 2018. Changes were made to place two waters, Boulder and Deadwood Creeks, under a Total Maximum Daily Load (Category 4a).

RESPONSE TO COMMENTS RECEIVED

I. Overall support or oppositions comments for Kenai and Little Susitna Rivers

A. Comment: Commenters supported including the Kenai and/or Little Susitna Rivers on the list of impaired waters. Visual observations were noted. Suggestions for improving water quality and background information on the rivers and fisheries was also provided. No additional water quality data was received. Commenters: 2, 3, 4, 7, 9, 10, 13, 14, & 16

Response:

Impaired waterbodies (Category 5) go through scheduling for restoration activities. Many of these restoration activities include opportunities for public involvement and sharing ideas for how to address the water quality impairment.

DEC encourages participation in future discussions with resource management agencies on how to address the turbidity pollution problem.

No changes were made to the Integrated Report based on this comment.

B. Comment: Commenters opposed including the Kenai and/or Little Susitna River on the list of impaired waters. Commenters expressed concern about study bias.

A commenter requested that no further regulations be sought for the Little Susitna prior to evaluation of the effectiveness of the current regulation prohibiting fishing from boats with carbureted 2-stroke motors. Some commenters also asked to be included/involved in future restoration discussions. Suggestions for improvements and background information on the rivers and fisheries was also provided.

No additional water quality data was submitted. Commenters: 1, 8, 11, 12, 14, & 16

Response: DEC recognizes the importance of both rivers to the Alaskan economy and anticipated the water quality data and reports would receive significant public scrutiny. As such, water quality studies on both rivers underwent peer review by independent scientists including an evaluation of whether the analysis was biased or otherwise flawed. The independent scientists found that the data supported the impairment conclusion.

Impaired waters (Category 5) go through scheduling for restoration activities. Many of these restoration activities include opportunities for public involvement and sharing ideas for how to address the water quality impairment.

Following implementation of pollution reduction measures, such as the motor limitations for the Little Susitna River by the Board of Fish, DEC typically monitors water quality to determine the effectiveness of new measures.

DEC encourages public participation in future discussions with resource management agencies on how to address the turbidity, petroleum and other pollution problems in the Kenai and Little Susitna Rivers.

No changes were made to the Integrated Report based on these comments.

II. Specific comments on Kenai River

C. Comment: Commenters questioned the use of RM 23 as the natural conditions site for the Kenai River. They questioned the use of the site for comparison with RM 11.5 to characterize the human-caused turbidity. Commenters: 1, 11, 12, & 14

Response: Site selection was done considering study objective which was to determine key characteristics of turbidity in the lower Kenai River for both high and low boat traffic reaches. The natural condition sampling location (RM 23) was established at an upstream of most human activity, like boating. RM 23 was also within close geographic proximity of the RM 11.5 impacted site so that turbidity measurements could be taken concurrently. DEC evaluated the data to ensure site selection met the original objectives.

The substrate at RM 23 does differ somewhat from the substrate at RM 11.5 (*Turbidity Monitoring on the Lower Kenai River, 2008-2010, Table 1*). Although not the basis for DEC's decision, analysis using RM 13.3, an impacted site with similar substrate to RM 23 finds the Kenai River would still be impaired.

Concurrent monitoring outside of the open motorized boat fisheries season, as well as during times of day when minimal boating activity occurs, showed no significant difference between RM 23 and RM 11.5 in the pattern and level of turbidity. This further demonstrates that the substrate differences between the reference site and potentially impacted site did not result in turbidity differences in the absence of motorized boat activity.

In a real-world situation, it is not possible to select perfect monitoring sites. It is necessary to select the sites that meet minimum requirements and have the greatest number of advantages and the fewest disadvantages. RM 23 meets the DEC guidelines for a valid natural conditions reference site for comparison with RM 11.5.

No changes were made to the Integrated Report based on this comment.

D. Comment: Commenters questioned the use of Kenai River RM 11.5 as an impacted site as the area is tidally influenced and may be impacted by tributaries. Concern was also expressed that the Kenai River is glacially fed. Commenters: 1, 5, 8, 11, & 12

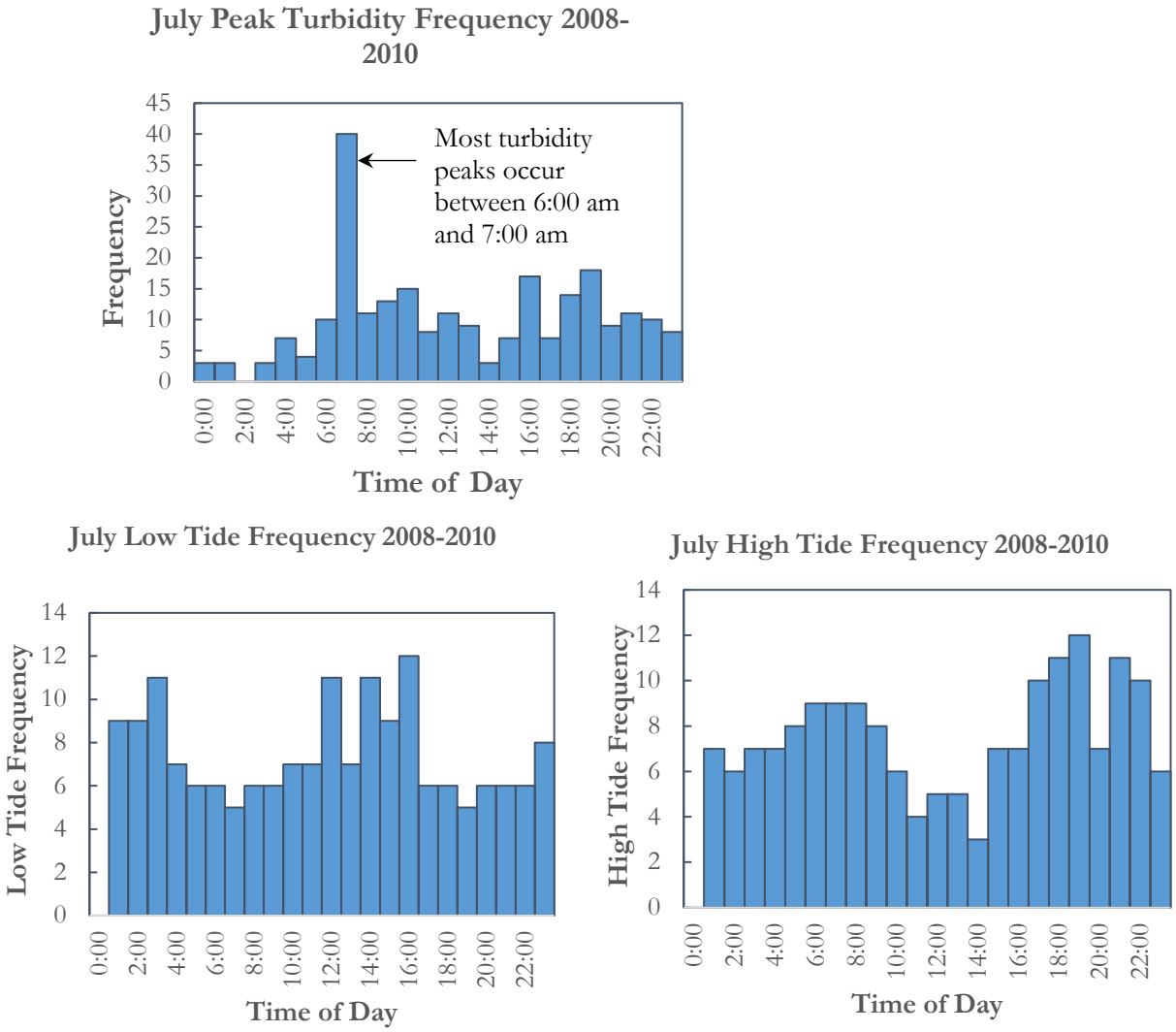
Response: RM 11.5 was chosen as the impacted site, because it represents a high boat traffic site on the lower river. It was also in proximity to the monitoring site for the 2005-2007 Army Corps of Engineers boat wake study (*Boat-Wave-Induced Bank Erosion on the Kenai River, Alaska ERDC TR-08-5, March 2008*). The Corps of Engineer study noted that boat activity near this location was very heavy.

DEC evaluated tidal impacts. The timing of high and low tides, and the tidal range of tides was compared to the daily peak turbidity recorded at RM 11.5. The time and range of the tides was not correlated to the time of the daily peak turbidity. Periods of inter-tidal flow at nights and on non-motorized boat days (Mondays) did not cause measurable turbidity increases. Figures D1–D4, illustrates our analysis. It is important to note, the turbidity study collected sufficient measurements for DEC to be able to statistically determine differences in the daily average of turbidity at the two measured sites (RM 23 and RM 11.5).

The confluence of the Killey and Funny Rivers with the main stem Kenai River occurs in closer proximity to the natural conditions site, RM 23, than to the impacted site, RM 11.5. Any turbulence measures derived from the tributary waters would be more likely to be monitored at the natural conditions site and not affect turbidity in the downstream impacted site.

Prior to proposing the Kenai River and Little Susitna River as impaired, DEC conducted an analysis to identify all potential sources of turbidity, both natural and anthropogenic; although other sources were identified, anthropogenic sources were determined to be the primary cause of elevated turbidity. Please see *Kenai River Listing Determination*, Appendix A (http://dec.alaska.gov/water/wqsar/waterbody/docs/kenai-river-turbidity-listing-determination.pdf) for the detailed source assessment including evaluation of river characteristics.

Conversations with Kenai Watershed Form staff indicate that, as of 2018, many boats now launch from the Eagle Rock boat launch (RM 11), which is downstream of the impacted monitoring site at RM 11.5. Although RM 11.5 was an appropriate location to evaluate turbidity prior to 2017, turbidity from this additional boat launch as well as accounting for tidally related turbidity will need to be captured in future turbidity studies.



Figures D1, D2 and D3. July Peak Turbidity Frequency 2008-2010 at RM 11.5 and Histograms showing the timing of the low and high tides in July 2008 to 2010 for the Kenai River.

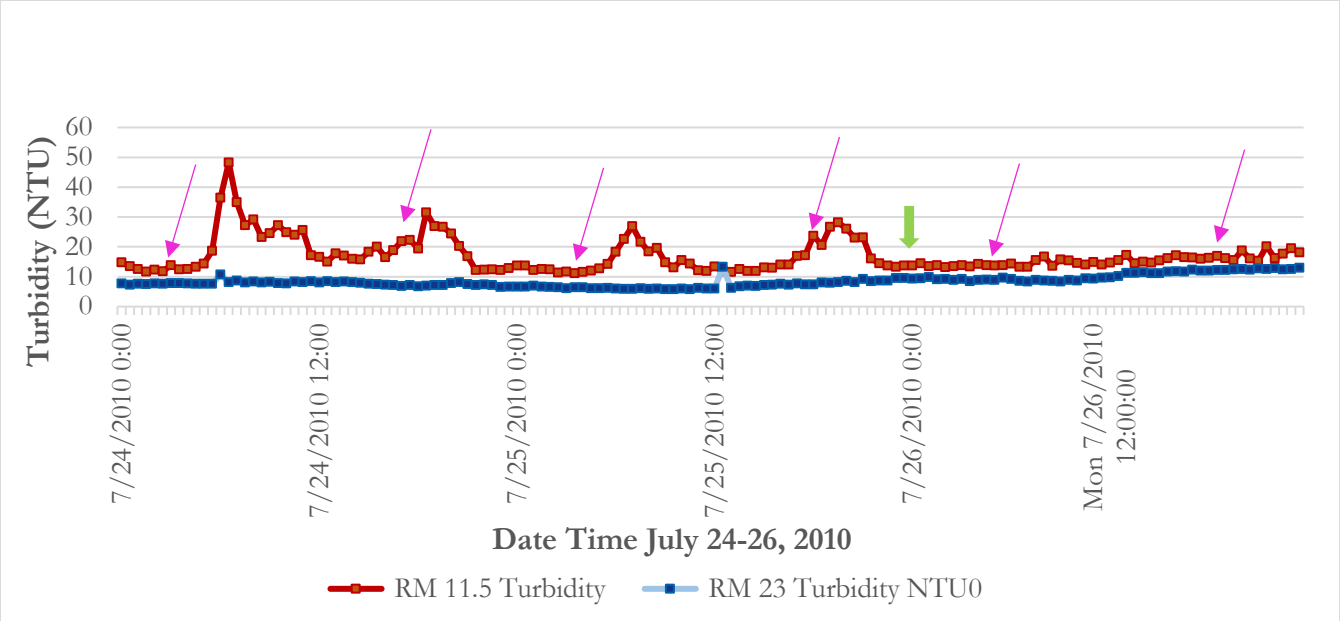


Figure D4. Turbidity during the king salmon fishery 2010 at the Natural Conditions site, RM 23, and the impacted site, RM 11.5. Green arrow designates Monday; pink arrows designate high tide.

E. Comment: Commenters expressed concern about the location of the monitoring devices within the Kenai River. They questioned the locations based on the transect information and believed that monitoring mid-channel would be more appropriate as the transect monitoring conducted illustrates there is not a uniform distribution particularly at RM 8.5. Commenters: 1, 11 & 12

Response: At RM 23, equipment was deployed between 10 and 30 feet from the riverbank where turbidity variation is reduced. At RM 11.5, equipment was generally deployed closer to 30 feet from the bank to ensure that the equipment was always submerged in the water when river depth changed with tides. At RM 23, equipment could be deployed closer to the bank since river levels were not affected by tides. The study strived to maintain a consistent bank distance. Deployment mid-channel was not advisable because of the navigational hazards to boats traveling the river. Location of the monitoring devices did not bias the study conclusions. Analysis of turbidity trends showed that RM 11.5 and RM 23 were equivalent at times of limited to no motorized boat activity (12 am to 5 am and Mondays in July), but turbidity was elevated at RM 11.5 when motorized boat activity was present.

DEC recognizes that typically deployment closer to river banks will result in higher turbidity readings. As such, deployment further from the banks will result in a less protective evaluation and results would have been greater closer to the banks (Figure E1) due to bank erosion. DEC also recognizes there is more variation in the transect data at RM 8.5. Although the impairment area includes RM 8.5, the statistical comparison of sites was between RM 23 and RM 11.5 and any delisting evaluation will be made using RM 23 and 11.5.

Figure E1 (Kenai River showing visibly higher turbidity near the banks of the river)

No changes were made to the Integrated Report based on this comment.

F. Comment: Commenters expressed concern about the age of data and change in boating patterns on the Kenai River. Commenters: 1, 8, & 12

Response: DEC recognizes that conditions and human activities change over time. DEC understands fishing practices have shifted and fewer overall boats were counted according to ADF&G Creel Surveys in more recent years compared to the 2008-2010 time period evaluated. However, the recent decrease in fishing and boating activity may not be a long lasting change in activity. At this time, there are no controls or best management practices in place to prevent future exceedances of the turbidity water quality standards.

To investigate the extent of changes in boating patterns, DEC funded a study to collect additional information on the Kenai River in July 2018 through our Alaska Clean Water Actions grant program. The study surveyed the number of boats between Eagle Rock (RM 11) and the Pillars (RM 12.6). Updated information on human sources including the number of boats, as well as additional information that will help in selecting effective best management practices to reduce turbidity was collected. This includes boat position relative to the bank of the river, boat hull shape, and approximate load of the boat. Comparisons can then be made to the historic data as well as a better understanding of ways to reduce turbidity.

The boat information study also conducted limited turbidity monitoring (July 16-31, 2018) in conjunction with the boat information study. The limited monitoring was designed to provide more recent data and confirm, or not, the proposed turbidity impairment determination that was based on the 2008-2010 comprehensive turbidity study. The 2018 limited monitoring did not meet all the requirements of the turbidity listing methodology

since only 2 week of data could be collected. The 2018 study also did not capture all the impacts from fishing practice changes since the original 2008-2010 study. Conversations with Kenai Watershed Form staff indicate that many boats now launch from the Eagle Rock boat launch (RM 11), which is downstream of the impacted monitoring site at RM 11.5 and turbidity from this additional boat launch is not captured by the 2018 turbidity study.

Analysis of the 2018 turbidity data was unable to confirm the previous impairment nor does the study indicate attainment of the turbidity criteria in the lower Kenai River.

Therefore, the final Report leaves the Kenai River in Category 3 (insufficient information) for turbidity until further information becomes available to reassess the current condition of the river. ADEC will work with local stakeholders to create a prioritized watershed plan to address potential water quality issues affecting the Kenai River.

G. Comment: Commenter expressed concern that looking at only July data skews the percentages. Testing over a longer period of time would reduce the overall percentage of daily exceedances. Commenter: 12

Response: July is the month when king and salmon fisheries are open and concurrently when motorized boating activity is the highest. Impairment decisions evaluate water quality as a result of anthropogenic impacts to make sure we are being protective of designated uses. The guidance specifies a minimum length of time to be examined in order to avoid impairments that are based on short-term or isolated events.

No changes were made to the Integrated Report based on this comment.

III. Specific Comments on the Little Susitna River

H. Comment: Commenters question the location of the Little Susitna River natural conditions site and the extent of the impairment. Commenters: 5 & 14

Response: The turbidity natural condition site was sampled in a location upstream of motorized boating. The natural condition site was geologically and hydrologically comparable to the downstream test sites where motorized boating is common. Additionally, DEC evaluated the downstream test site to compare days/times with heavier boat traffic to days/times with less boat traffic.

DEC recognizes differences in riverbed characteristics at locations farther downstream to the impairment area. As such, the area of impairment only extends from 7.5 river miles downstream of the Public Use Facility boat launch to 1 river mile upstream.

No changes to the Integrated Report were made based on this comment.

I. Comment: Commenters expressed concern about additional regulations for petroleum hydrocarbons on the Little Susitna. Commenters: 14 & 16

Response: DEC expects water quality to meet the petroleum hydrocarbon water quality standards as a result of the Board of Fisheries action requiring fishing from boats using cleaner burning motors. As a result, the Little Susitna River, for petroleum hydrocarbons, has been placed in Category 4b (impaired with a plan). DEC plans to conduct additional water quality sampling in the future. Once the water quality sampling results demonstrate the Little Susitna River is meeting allowed limits, DEC will remove the impairment designation for petroleum hydrocarbons in a future Integrated Report. At this time, DEC is not aware of any proposal for additional regulations aimed at further reducing hydrocarbon levels.

No changes to the Integrated Report were made based on this comment.

IV. Comments on Water Quality Standards and Applicability of Designated Uses

J. Comment: Commenters questioned the turbidity water quality standards and classifications of the various designed uses. They commented/questioned/requested the use be reclassified. Commenters: 1, 9, 12, 13, 14, & 16

Response: Under the Clean Water Act, the Alaska Integrated Report must use the current, approved state water quality standards. States are also required to assign designated uses and the criteria to protect those uses for all state waters.

Any modification of uses or criteria requires a scientific rationale for the modification and public notice as well as complying with all other state and federal requirements for rulemaking. Until and unless DEC completes regulatory revisions changing a designated use, water quality monitoring must show that conditions meets water quality criteria for all currently applicable uses.

There is a separate process for requesting a revision to designated uses and water quality criteria that is described at:

http://dec.alaska.gov/water/wqsar/trireview/pdfs/tr-process-factsheet-10-02-17.pdf.

Also please be aware that state regulation 18 AAC 70.230(d)(2) states that water in **state and national parks**, national preserves and monuments, national recreation areas, and national wildlife refuges may not be reclassified for designated uses.

If there are future changes in water quality standards, the effect on a currently listed waters will be re-evaluated in a future Integrated Report.

No changes were made to the Integrated Report based on this comment.

K. Comment: Commenters questioned the use of fresh water standards instead of marine water for the impairment areas on both the Kenai and Little Susitna Rivers. Commenters: 1, 12, 14, & 16

Response: Multiple test results found that all of the water above Kenai River RM 5 is fresh water. Fresh water that is tidally influenced (e.g., flow and stage) does not have a separate water quality standard.

All areas investigated on the Little Susitna River for turbidity measurements are fresh water and outside of tidal influence.

No changes were made to the Integrated Report based on this comment.

V. Comments on Other Waters

L. Comment: Comments were received on Akutan Harbor, Popof Strait and Tongass Narrows. Additional information was provided as well as questions about the current water quality status and permit requirements and TMDL requirements/request for withdrawal. Supplemental information on Zones of Deposit was also provided. Commenter: 15

Response: DEC will consider the request for withdrawal of the Akutan Harbor Dissolved Gas TMDL in a future Integrated Report in conjunction with DEC Wastewater Discharge Authorization Program to ensure that the residual solid waste pile does not negatively impact or cause a future impairment of the water quality criteria. The Akutan Harbor Residues TMDL remains in effect.

Popof Strait is considered Category 5 for non-attainment of the residues criteria in the 2014/2106 Integrated Report. After Trident finalizes the Consent Decree and implements activities to improve water quality, DEC will re-consider the status of Popof Strait in a future Integrated Report.

DEC will review the additional Tongass Narrows I dive survey data provided and determine if it meets the requirements for a Category 2 categorization in a future Integrated Report.

DEC added the word "not" as requested to the Akutan Harbor write-up (*2014/2016 Final Integrated Report, page 67*). DEC also added clarifying language on page 68 regarding the zone of impact as a term described in the Consent Decree and not by the water quality standards.

Questions related to APDES permit requirements or zones of deposit, should be discussed directly with the DEC Wastewater Discharge Authorization Program.

M. Comment: Comments were received regarding ocean acidification. Commenter specifically requested 3 waters (Alutiiq Pride Shellfish Hatchery, Port Conclusion, and Kodiak Island OA Mooring) be listed as impaired due to ocean acidification. Commenter referenced earlier information submitted. Commenter: 6

Response: DEC determined there is quite a bit of variability in Alaska's oceans throughout the year. As such, changes that could be attributed to anthropogenic sources versus natural environmental processes are difficult to discern but must be done as a part of the impairment evaluation process. Only exceedances outside the naturally occurring range are considered for impairment.

The specific data submitted found that pH and temperature at Alutiiq Pride Shellfish Hatchery, Port Conclusion, and Kodiak Island OA Mooring were meeting Alaska's water quality standards. The September 14, 2015 submittal from the commenter states: "(e)ven though pH values of most coastal waters fall within state outer-acceptable ranges for pH…".

No changes were made to the Integrated Report based on this comment.

VI. Suggestions/Comments on other Processes

N. Comment: As noted above, a number of commenters provided suggestions on solutions, requests for changes in water quality standards, particularly the development of tidally based standards, and changes in permit conditions. Identified below are the public processes and anticipated schedule for addressing concerns raised.

Response:

Solutions for reducing turbidity impacts: DEC plans on starting a public discussion on how to reduce impacts in the near future and believes it is important to spend significant time engaging the public in developing potential solutions prior to developing the formal restoration plan. All commenters will be contacted to see if they are interested in being added to the Nonpoint Source Section "listserv" so they can be contacted to help with restoration planning ideas. Public notice of restoration plan (or the Total Maximum Daily Load) is scheduled for 2022 (Little Susitna River).

Water Quality Standards: DEC evaluates state water quality standards every 3 years. The process is known as the Triennial Review (http://dec.alaska.gov/water/wqsar/trireview/index.htm). The public comment period for the 2018-2020 cycle was completed in December 2017 and DEC is finalizing which standards will be addressed. As a result of public comment, evaluating the turbidity standard is under consideration. Commenters will be apprised of the final decision.

KEY (Comment Letter Numbers)

1. Ted Wellman, Kenai River Special Management Area (KRSMA) Board
2. Alex Peterson
3. Jennifer McCard
4. Bill Schreck
5. Ben & Amber Allen – Millers Riverboat Service
6. Center for Biological Diversity
7. Central Peninsula Fish and Game Advisory Committee
8. City of Kenai
9. Cook Inletkeeper
10. Dwight Kramer
11. Kenai River Professional Guide Association

12. Kenai River Sportfishing Association
13. Kenai Watershed Forum
14. Matanuska Valley Fish and Game Advisory Committee
15. Trident Seafoods Corporation (2 letters)
16. Andrew Couch – Fishtale River Guides