

1. Summary

Under Clean Water Act (CWA) section 304(a) states are required to periodically review criteria for water quality accurately reflecting the latest scientific knowledge on the effects of pollution on various designated and existing uses. This process is known as the "triennial review" (TR) required for states under the Clean Water Act section 303(c). As a policy the State of Alaska conducts its review on a three-year cycle. In an effort to promote transparent and accountable governance, the Department of Environmental Conservation (DEC) reviews all comments submitted during the public notification process and creates a responsiveness summary to formalize its response. This document is then provided to the U.S. Environmental Protection Agency (EPA) to satisfy reporting requirements identified at 40 CFR 131.20(c).

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DEC Triennial Review Website: <u>http://www.dec.state.ak.us/wa</u> ter/wqsar/trireview/index.htm

2. Background

DEC has initiated its 2021-2023 TR cycle. The TR provides an opportunity for the public to provide feedback regarding development and/or revision of state water quality standards (WQS).

Public Notification occurred via State of Alaska Public Notice webpage and DEC-Water Quality Standards Listserv on October 1, 2020. The 60-day public comment period ended November 30, 2020. DEC provided a list of potential TR topics and prioritization based on best professional judgement and input during previous TR cycles. DEC also provided issue specific factsheets pertaining to the TR process, human health criteria, and temperature. Questions received pertaining to issues posed during the 2021-2023 TR cycle were posted on the DEC Water Quality Standards webpage: http://dec.alaska.gov/water/water-quality/triennial-review.

DEC received a single request for an extension of the public comment period immediately prior to the close of the public comment period (Nov. 30th). DEC determined the request was predominately associated with a perceived need to address issues associated with the implementation of water quality standards in the Alaska Pollutant Discharge Elimination System program. DEC determined an extension was not warranted as such a request addresses issues outside of the scope of the 2021-2023 TR.



Table 1: Water Quality Comment Information

Comment Originator	Sets of comments submitted
Government Agencies	1
U.S. Environmental Protection Agency	1
Industry	
IDEXX Laboratories, Alaska Miners Association & Alaska Council of	2
Producers	
Environmental Non-Governmental Organization	
Southeast Alaska Conservation Council (SEACC); Alaska Clean Water	2
Advocacy (ACWA), Alaska Community Action on Toxics (ACAT), and	5
Gustavus PFAS Action Committee (GPAC); Salmon State	
Tribal Organizations	1
Chickaloon Village Traditional Council	1

DEC is considering all comments during development of the 2021-2023 TR work plan and schedule for regulations development. Additional opportunities for public comment on specific draft regulations will be available per Alaska administrative regulations under AS 44.62 (Administrative Procedures Act).

3. DEC Summary of Findings and Response to Comments

Seven sets of comments were received during the 2021-2023 TR Public Hearing and the 2021-2023 TR public comment period. The following list identifies potential TR topics raised by commenters and referenced in the *DEC 2021-2023 Triennial Review Issue Summary* or suggested to DEC by commenters.

- Aluminum Criteria
- Ammonia Criteria
- Antidegradation Tier 3 Nomination and Designation Process
- Bacteria
- Benthic Sediment Criteria
- Biotic Ligand Model for Derivation of Copper Criteria
- Groundwater Criteria
- Human Health Criteria
- Mixing Zones
- PFAS
- Selenium
- Toxic Manual Updates to Aquatic Life Criteria
- Water Quality Standards Clarification Rulemaking/Temperature Criteria



- Application of Designated Uses (Drinking Water and Irrigation)
- Application of Metal Translators
- Development of WQS and Implementation in state water pollution control programs

Table 2 summarizes the comments received by DEC and DEC's proposed responses. DEC may further modify its response over the course of the 2021-2023 TR cycle based on department need and resource availability.



Table 2: 2021-2023 Triennial Review Summary Comments and Responses		
Topic	Comment Summary	DEC Response
Aluminum	DEC should consider the elimination of existing aluminum criteria (freshwater) for the protection of aquatic life or consider updating existing regulations to apply EPA (2018) recommended approach for the derivation of aluminum criteria for the protection of aquatic life (freshwater). Use of the total recoverable value is not demonstrative of what may be bioavailable to aquatic life. DEC should consider alternative methods to reflect the appropriate form of the aluminum standards (and how to measure them) and/or allow permittees to propose alternative methods.	DEC thanks the commenter for their interest in this issue. EPA issued updated Aquatic Life Ambient Water Quality Criteria for Aluminum in Freshwaters in 2018. Unlike the fixed acute and chronic values currently applied in <i>Alaska Water Quality Criteria</i> <i>Manual for Toxic and Other Deleterious Organic and</i> <i>Inorganic Substances</i> (2008), the updated criteria use a 'modeling approach' in which three water chemistry parameters – pH, total hardness, and dissolved organic carbon to calculate water sample-specific values. Aluminum is a common chemical found in Alaska's waters and sediment. DEC intends to prioritize this issue and will be reviewing the EPA (2018) recommendations and available water quality data needed develop regional default values for the model inputs. States that have adopted similar approaches have had to expend significant resources to complete rulemaking and Alaska's diverse geochemistry would complicate such an effort. DEC is also considering implementation issues associated with the adoption of updated criteria in various water pollution control programs



		Until such a time that DEC adopts such a change, parties interested in applying the EPA (2018) recommended criteria can do so under existing regulations at 18 AAC 70.235 (Site-specific criteria). Per 40 CFR 131.21, all state water quality standards must be approved of by EPA prior to implementation in state water pollution control programs.
Ammonia	Adoption of EPA (2012) recommendations pertaining to ammonia (freshwater) may provide limited environmental benefits while resulting in significant implementation costs. DEC should consider a broad range of implementation methods (site-specific criteria, variances, designation use revisions) should it choose to include this issue in the 2021-2023 cycle.	DEC thanks the commenter for their interest in this issue. DEC is reviewing this issue and potential implementation issues associated with such an action. DEC is also reviewing how efforts by other states and implementation issues associated with such actions. This includes use of the EPA (2012) Recalculation Procedure for Site-specific Criteria Derivation and adoption of Multi-discharger Water Quality Standards Variances.
Antidegradation-Tier 3 Water	 DEC should commence rulemaking to provide for an administrative Tier 3 designation process DEC still has the authority to designated Tier 3 waters through the triennial review process DEC should prioritize review of current nominations and designate those waters as Tier 3 in accordance to the process outline in the 2010 interim Antidegradation Guidance. 	DEC thanks the commenters for their interest in this issue. In 2018 DEC adopted Policy and Procedure Number 05.03.104 <i>Guidance Relating to the Nomination</i> <i>and Designation of Tier 3 Waters.</i> This policy supersedes the 2010 Interim guidance and clarifies that the current process for nominating Tier 3 waters involves proposing the introduction of legislation to make the designation. Any such request may go to a legislative representative or committee for consideration for introduction as a legislative bill. Until such a time that



	• DEC should add the 2010 interim Antidegradation Guidance back onto the website so residents can have access to that information.	this policy is modified, DEC will return applications for nomination to the nominator and the nominator will be informed of the legislative process described above.
Bacteria	 DEC should revise all bacteria measurement units to either organism/100 ml or counts/100 ml. DEC should discontinue use of fecal coliform as an indicator bacteria and use of <i>Escherichia Coli</i> (<i>E.coli</i>) or enterococci. The commenter recognizes the need to retain fecal coliform as a bacterial indicator for the designated use of shellfish harvest but other designated uses could be revised to reference use of <i>Escherichia Coli</i> (<i>E.coli</i>) or enterococci 	DEC thanks the commenter for their suggestions. DEC currently applies fecal coliform indicators in multiple permits and similar water pollution control programs which could make implementation difficult. DEC will consider making such modifications following further review of potential implementation issues.
Benthic Sediment Criteria	DEC should develop numeric sediment guidelines.	DEC thanks the commenter for their suggestion and will continue to review the science and policy issues associated with development of criteria specific to sediment.
Biotic Ligand Model (BLM) for Derivation of Copper Criteria	• Multiple parties supported prioritizing development of guidance and use of the biotic ligand model in the derivation of copper criteria (freshwater) for the protection of aquatic life.	DEC thanks the commenters for their interest in this issue and will continue to develop Alaska-specific guidance on the use of the biotic ligand model when deriving copper criteria (freshwater) for the protection of aquatic life. As previously mentioned in regards to adoption of the EPA (2016) criteria for aluminum, states may be required to expend



		significant resources to acquire water quality data and develop regional default values for the model inputs. Alaska's diverse geochemistry would complicate such an effort. DEC is also concerned that application of the Fixed Benchmark Procedure – the approach most likely to be applied by APDES dischargers, has yet to be formally endorsed by EPA.
		Until such a time that DEC adopts the EPA (2007) recommended criteria, parties can propose such an approach under existing regulations at 18 AAC 70.235 (Site-specific criteria). Per 40 CFR 131.21, all state water quality standards must be approved of by EPA prior to implementation in state water pollution control programs.
Groundwater Standards	One party demonstrated support for the development of groundwater water quality standards/criteria.	DEC thanks the commenter for their support of this issue. DEC will continue to review the science and policy issues associated with development of groundwater-specific criteria and application to different designated uses.
Human Health Criteria (HHC)	 Multiple parties provided comments on DEC efforts to revise criteria for various toxic pollutants for the protection of human health identified in <i>Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances</i> (2008), Several commenters are supportive of continued efforts to update the applicable fish 	DEC intends to prioritize this issue during the 2021- 2023 triennial review cycle. DEC is reviewing all of the findings in the <i>DEC (2018) Human Health Criteria</i> <i>Technical Workgroup Report</i> and other documentation developed during the proceedings of the DEC Technical Workgroup deliberations. Any new rate will be based on DEC review of fish consumption studies, public comments and recommendation (including those made in this triennial review scoping



	 consumption rate used to calculate human health criteria Several commenters expressed concern regarding the derivation and implementation of revised criteria and a need to balance potential risk with potential benefits to human health. Commenters expressed about how revisions to HHC would affect mercury/methylmercury criteria and the potential to result in unwarranted impairment designations. EPA recommends use of EPA report on use of Alaska Department of Fish and Game – derived fish consumption rates for human health criteria development. There was explicit concern about how changes to affect village sewage lagoons and small municipal wastewater treatment plane. 	process), and information and input from interested parties, tribes, and other state and federal agencies.
Manganese	DEC received a comment suggesting a repeal of human health criteria for manganese based on the fact that such criteria are organoleptic in nature (i.e, laundry staining, color, and taste issues) rather than being grounded on potential impacts to human health. Should it be determined that repealing the existing standard is not acceptable to the U.S. Environmental Protection Agency, revision to 300 ug/l should be considered.	DEC thanks the commenters for their input on this issue. DEC has been reviewing literature published during the 2018-2020 TR cycle pertaining to human exposure to manganese and state rulemaking efforts associated with repeals/modifications of manganese criteria in an effort to determine whether revised human health-based criteria are warranted and potential effects repealing or revising existing criteria would have on different water pollution control programs. DEC intends to prioritize this issue in the 2021-2023 triennial review and determine whether



		recent drinking water exposure studies would support modification of the existing criteria.
Mixing Zones	Several commenters do not support use of mixing zones or modifications to existing language to allow use of mixing zones in anadromous waters	DEC thanks the commenters for their input. DEC is not considering repeal of 18 AAC 70.240 nor modifications to how mixing zones are implemented in the APDES program at this time.
Selenium	 Several comments were received that referenced a need to consider and adopt EPA 2016 recommended criterion for selenium (freshwater) as it reflects the most recent science pertaining aquatic life exposure to this pollutant. A commenter expressed concern that: several of the most sensitive species used to establish the 2016 criteria recommendations do not occur in Alaska; compliance with new criteria could redirect resources that would be better spent on matters that would have greater benefits to human health and the environment; and there is uncertainty regarding selenium removal technology and unforeseen impacts on receiving waters. A commenter expressed that if such criteria were adopted, there would be a need to develop implementation tools to allow existing 	DEC thanks the commenters for their input on this issue. DEC is reviewing the recommendations presented in EPA (2016) Aquatic Life Ambient Water Quality Criterion for Selenium – Freshwater and considering potential effects on DEC's water pollution control programs. DEC has yet to adopt a water quality criterion based on fish tissue concentrations and such an approach poses significant implementation challenges. DEC is monitoring the efforts of other states to determine a potential course(s) of action that addresses Alaska's unique regulatory environment. Until such a time that DEC adopts such a change, parties interested in applying the EPA (2016) recommended criteria and derive either a site-specific water column criterion element (or set of lentic/lotic criterion element values), or a set of procedures to facilitate the translation of the fish tissue criterion concentration elements into site-specific water concentration values may do so under existing regulations at 18 AAC 70.235 (Site-specific criteria). Per 40 CFR 131.21, all state water quality standards



	dischargers to demonstrate protection of	must be approved of by EPA prior to
	designated uses through existing actions and	implementation in state water pollution control
	available water quality data	programs
	available water quality data.	
Total Dissolved Solids	 DEC received one comment pertaining to TDS/Dissolved Inorganic Substances There is little or no scientific evidence from laboratory or field studies that the most common ions (e.g., calcium and magnesium) that generally comprise TDS in most waters in Alaska adversely impact aquatic life. In fact, many pristine waters in Alaska that support healthy aquatic life populations have natural TDS levels that approach or exceed 500 mg/L. ADEC should re-consider, with a much higher priority, the statewide applicability of the drinking water criterion of 500 mg/L (and the related sulfate and chloride criteria of 250 mg/L). This represents the secondary MCL that is solely based on potential taste effects; there is no evidence of any adverse health effects. The provision to allow TDS levels up to 1,000 mg/L for aquatic life protection has little or no value to dischargers because of the underlying drinking 	DEC thanks the commenter for their interest in this issue and acknowledges the various concerns raised by the commenter. DEC intends to continue monitoring this issue and evaluate the application of secondary MCLs in state water quality standards as resources allow.



	supported the State's removal of secondary MCLs from the State's Water Quality Standards.	
Toxics Manual Update – Aquatic life criteria	 Several commenters recommend review of EPA current 304(a) recommendations to ensure that water quality standards include upto-date water quality criteria that are protective of designated uses Different commenters specifically reference updates to ammonia, cadmium. Copper (BLM), and selenium criteria which are located in the <i>Alaska Water Quality Manual for Toxic and other Deleterious Organic and Inorganic Substances</i> (Toxics manual) (2008). 	DEC thanks the commenters for their input on this issue. As DEC has mentioned in its comments pertaining to ammonia, application of the biotic ligand model, human health criteria, and selenium, DEC acknowledges both the interest and concerns associated with potential revisions to existing state criteria for toxic pollutants at and the challenges posed with implementing such criteria in Alaska.
Turbidity	 One comment expressed support for efforts to better understand potential impacts to aquatic life from turbidity levels beyond background (I,e,, ambient) conditions. Any such work should consider all designated uses and whether there are tangible benefits from any criteria revisions. 	DEC thanks the commenter for their input on this issue. DEC acknowledges the commenters concerns and the need to review the science pertaining to turbidity and how water quality standards for turbidity are implemented in a cautious and holistic manner. DEC intends to continue to review this issue and new scientific findings as they become available.
Water Quality Standards Clarification/Temperature	 Supportive of work to clarify water quality standards. One commenter expressed concern that the proposed modification to existing temperature criteria would replace the current biologically-based standards which use values designed to 	DEC thanks the commenters for their input on this issue. DEC would like to take this opportunity to clarify that any changes proposed to temperature criteria at 18 AAC 70.020(b)(10) would have no effect on the existing biologically-based standards.



be protective of aquatic life (i.e., salmonids) during specific life stages and in other waters consider site-specific requirements needed to preserve normal species diversity or to prevent appearance of nuisance organisms.	The purpose of the biologically based numeric criteria for temperature is to define the stream temperature values considered to be protective of cold water fishes in accordance with scientific literature. These numeric criteria identify temperatures above which impacts to salmonids begin to occur. The recommended duration value is expressed as the maximum 7-day average of the daily maxima (7DADM). This value is recommended because it describes the maximum temperatures in a stream, but is not overly influenced by the maximum temperature of a single day. Thus, it reflects an average of maximum temperatures that fish are exposed to over a weeklong period. Since this metric is oriented to daily maximum temperatures, it can be used to protect against acute effects, such as lethality and migration blockage conditions
	Adoption of a duration value would primarily benefit DEC's water quality assessment process as DEC does not currently have a formal policy dictating the applicable duration value at 18 AAC 70. The proposed duration value is based on recommendations provided in the EPA (2003) Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards and technical supporting documents that serve as the scientific basis for the EPA guidance.



		The establishment of a formal duration period does not change, modify, or affect the existing biologically- based criteria for the protection of salmonids currently established at 18 AAC 70.020(b)(10) Once DEC finalizes draft language, all rulemaking materials, including technical support documents, will be available for public comment per AS 44.62.
General: Drinking Water and Irrigation Standard Applicability to All State Waters	Application of designated uses to all waters does not reflect how waters are used or their actual capacity to support that use.	DEC thanks the commenters for their input on this issue. Application of the designated uses of drinking water and irrigation to all waters is rooted in Alaska's territorial history. In 1949, the Alaska Water Pollution Control Board was established by the territorial legislature and the Alaska Water Pollution Control Act was created. It was determined that Alaskan waters should be protected for the highest water use which was "water supply and their sources" or simply the drinking water use. These goals were carried over into the 1952 territorial "Water Quality Objectives" and Water Quality Act of 1965, which directed states to develop water quality standards. In July of 1971 the Alaska Department of Environmental Conservation (ADEC) was created and the "Water Quality Objectives" were taken out of the Department of Health and Welfare regulations and transferred to the jurisdiction of the new agency. The ADEC made few changes to the 1952 objectives that now were called the Water Quality Standards



		under Title 18, Alaska Administrative Code, Chapter 70. Modifying a designated use is considered to be a change in water quality standards and requires rulemaking to accomplish. Per 40 CFR 131.10(g) and (h), states may remove designated uses. To do so, it must be demonstrated that the use is not an existing use. Since water supply (i.e., drinking water) nor irrigation are uses identified in section 101(a)(2) of the Clean Water Act ('fishable/swimmable uses), a Use Attainability Analysis is not required to make a such a determination but some form of analysis is required. Following this, states must satisfy one of the six conditions referenced at 40 CFR 131.10(g). Having met this requirement, states must public notice their decision and submit the findings to EPA
General: Conversion Factors and Metals Translators	 ADEC uses statewide conversion factors based on EPA's national recommendations. Because these factors are applied statewide, they are naturally very conservative. Other States have specific procedures to allow development of waterbody-specific translators that reflect the actual ratios of total to dissolved metal concentrations. Current regulations make establishment of site-specific criteria/use of translators difficult. 	DEC thanks the commenters for their input on this issue. DEC concurs with this comment and acknowledges that the development and use of translators can be extremely challenging. DEC is unlikely to take on the task of developing state- specific guidance on the development of waterbody- specific translators, given the resources and expertise that would be required of such a study. Criteria development is extremely resource intensive and must be coordinated with EPA (and the federal Services (USFWS/NMFS)) during the entire process



		to help ensure Endangered Species Act and EPA approval. Until such a time that DEC is able to develop regulations and guidance pertaining to the use of translators, parties can propose such an approach under existing regulations at 18 AAC 70.235 (Site- specific criteria). Per 40 CFR 131.21, all state water quality standards must be approved of by EPA prior to implementation in state water pollution control programs.
General: Triennial Review	The triennial review has not resulted in timely updates and revisions to WQS	DEC thanks the commenters for their input on this issue. As previously mentioned in this document for select TR issues, before DEC can modify state WQS at 18 AAC 70 DEC must ensure that such modifications are based on science and ensures the protection of designated uses at 18 AAC 70. Such decisions require extensive engagement to stakeholders to ensure the adoption and implementation of such regulations addresses their concerns.
General: Implementation of WQS	 DEC is not meeting its Clean Water Act designation (primacy) obligations DEC should be requiring more data from permit applicants and apply the 'precautionary principle' 	DEC thanks the commenters for their input. DEC has determined that these issues are outside of the scope of the 2021-2023 triennial review.



Current program capacity/funding is inadequate
EPA should reassume control over inspection program
 DEC is demonstrating preference towards industry when making public appearances/is not responsive to community inquiries
There is a lack of transparency regarding DEC/EPA grant agreements



4. DEC Water Quality Standards 2021-2023 Priorities

During development of the 2021-2023 TR priorities, DEC considered public input, department priorities, and issues identified by other state agencies. This list is provided in recognition that there is much work to do on updating and improving existing to address stakeholder concerns. Completion of prioritized issues depends on a number of variables including but not limited to, staffing and available resources; third-party agreements; timing of EPA release of recommended criteria updates, approval of existing water quality standards packages by EPA; and new or unforeseen issues that pertain to DEC's WQS program.

4.1 High Priority Issues for Rulemaking.

- Aluminum Aquatic Life Criteria
 - DEC will prioritize review efforts by other states to establish default criteria when measured data is not readily available and develop a performance-based approach for implementation of EPA 2018 recommended criteria on a site-specific basis.
- Human Health Criteria Update
 - DEC will prioritize evaluation of the findings of the 2018 Technical Workgroup and engage with stakeholders on potential issues and options associated with the calculation of pollutant-specific criteria for the protection of human health.
- Manganese Human Health Criteria
 - DEC will prioritize the review of recent scientific literature pertaining to manganese exposure and impacts on human health to determine whether revisions are warranted at this time.
- Water Quality Criteria Clarification Rulemaking
 - DEC will prioritize development of draft regulatory language and administrative requirements for proposed amendments to state regulations.

4.2 Information Gathering and Analysis. These issues have received higher prioritization by the department due to their relevance to DEC's water pollution control programs and the state of the science behind their development. Rulemaking pertaining may or may not occur during the 2021-2023 TR cycle.

- Ammonia Aquatic Life Criteria
 - DEC will continue to review efforts by other states to implement the EPA 2012 recommended criteria through the use of recalculation procedures and water quality standards variances for individual and groups of APDES permittees with similar treatment facilities.
- Cadmium
 - DEC will continue to review efforts by other states to implement EPA 2016 recommended freshwater and marine criteria in state water pollution control programs.



- Copper Aquatic Life Criteria
 - DEC will continue to review efforts by other states in the development of Alaskaspecific guidance for use of the biotic ligand model.
- Methylmercury Human Health Criteria
 - DEC will continue to review efforts by other states to implement the EPA 2001 recommended criteria for methylmercury.
 - Review efforts by other states to develop and adopt water quality standards variances for methylmercury.
- Temperature Performance-based approach
 - DEC will continue to review options and other state efforts to develop a performance-based approach for establishing temperature criteria.
- Recreational Water Quality Criteria for Microcystins and Cylindrospermopsin
 - DEC will continue to review efforts by other states to adopt and implement EPA 2016 recommended criteria for recreational waters for microcyctins and cylindrospermopsin.
 - DEC will continue to review efforts to develop implementation tools by other states that may be practicable in Alaska.
- Selenium Aquatic Life Criteria
 - DEC will continue to review efforts by other states to adopt EPA 2016 recommended selenium and specific implementation strategies that have been developed to facilitate application in water pollution control programs.
- Turbidity Criteria
 - DEC will continue to review efforts by other states to develop performance-based approaches to establishing turbidity that are protective of aquatic life and other designated uses.

4.3 Issues for Tracking and Monitoring. These issues are of relevance to DEC but additional scientific research and policy development is required before rulemaking will be considered.

- Acrolein Aquatic life criteria
 - o DEC will continue to review efforts to adopt updated human health criteria
- Benthic Sediment Criteria
 - DEC will continue to review efforts by other states to determine whether the development of benthic sediment criteria is warranted at this time.
- Establishment of Biocriteria
 - DEC will continue to review and support efforts to expand the science pertaining to the distribution of macroinvertebrates in Alaska and potential use as indicators of environmental stress.
- Dissolved Inorganic Substances for Total Dissolved Solids (TDS)
 - DEC will continue to review the scientific literature for new information pertaining to potential toxicity to aquatic life



- DEC will continue to engage with stakeholders regarding the potential need and efforts by other states to develop a performance-based approach to establishing TDS levels.
- Establishment of Groundwater Standards
 - DEC will continue to engage with stakeholders regarding the potential need and challenges with modifying state WQS to have specific criteria for groundwater.
- Mixing Zones and Zones of Initial Dilution
 - DEC will continue engage with stakeholders regarding the potential need for regulation amendments to address specific issues associated with mixing zones.
- Effects of Pharmaceuticals and Personal Care Products
 - DEC will continue to review scientific literature for findings specific to toxicity to aquatic life that reside in Alaska that originate from pharmaceuticals and personal care products.
- Temperature Criteria
 - DEC will continue to review scientific literature regarding effects of increasing temperatures on aquatic life, particularly salmonids, and potential amendments to existing WQS regulations.
- Petroleum Hydrocarbons Aquatic Life Criteria
 - DEC will continue to review scientific literature for findings specific to toxicity to aquatic life that reside in Alaska.