

Southeast Alaska Conservation Council



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Re. Development of Criteria for the Protection of Human Health in State Water Quality Standards

Mr. Tabor,

Southeast Alaska Conservation Council (SEACC) appreciates this opportunity to comment on potential future changes to human health criteria (HHC) in state water quality standards. Based in Juneau, Alaska (Tlingit/Áak'w Kwáan lands), SEACC is a regional grassroots organization with more than 7,000 supporters. For over 50 years, SEACC has been bringing together diverse Alaskans from our region's communities to protect the natural resources of Southeast Alaska, ensure sound stewardship of the lands of the region, and protect subsistence resources and traditional ways of life side-by-side with fishing, tourism, and recreation.

Alaska's Fish Consumption Rate (FCR) is a piece of the Human Health Criteria (HHC). The FCR appears to be the main issue with regard to debate on how Alaska's Department of Environmental Conservation (DEC) will modernize and update its HHC to be protective of all Alaskans. HHC criteria are a piece of the overarching criteria of Alaska's Water Quality Standards (WQS), which are designed to protect humans consuming water and the water that aquatic life exists within. For brief context, it has been recognized for some time by SEACC and other organizations and individuals that Alaska's FCR is not accurate or protective of human health; it is currently at 6.5 grams per day (gpd). That is approximately the weight of a teaspoon of sugar. Most Alaskans consume much more fish, shellfish, and other aquatic life than that on a daily basis, which has been known and illustrated since at least 1997.¹ In 2000, the EPA

¹ SEACC. *Letter to EPA: Petition for revision of Alaska's Fish Consumption Rate*. 19 November, 2015.

updated the national FCR to 17.5gpd for the general population and recommended 142.4gpd for subsistence populations.²

In 2015, SEACC petitioned EPA's Region 10 Administrator, Dennis McLerran, and asked that EPA revise Alaska's FCR until such time as Alaska could conduct appropriate regional and local studies to help inform the process.³ The petition also included relevant studies, data, and cultural and historical context regarding Alaska's consumption of aquatic life. As no specific regulation changes are proposed at this time, SEACC's comments focus mainly on our previous recommendations and the recommendations of the 2018 technical work group report. In general, we support the work group's recommendations; they appear in line with the most recent Environmental Protection Agency (EPA) guidance on these issues. The group produced nine technical recommendations around what were defined as the main topics of relevance.

Following are short summaries of the issues, the working group's recommendations, and SEACC's support or opposition to those recommendations based on our previous comments and research.

Issue 1: What Information about Fish Consumption and Fish Consumption Rates is Available to Inform the HHC Process?

Fish Consumption Rates (FCR) means the amount of aquatic life (e.g., finfish, marine invertebrates, marine mammals) consumed by humans within a given time period established through the use of a dietary survey instrument. For the purposes of HHC, it is listed as grams per day (gpd); 100 grams is about 1/4 lb.⁴

The workgroup generally agreed that while Alaska-specific dietary survey protocol might be preferable, it is not essential because appropriate dietary survey protocols are available from EPA.⁵ It also agreed that despite some known limitations with CSIS data, DEC should consider using the Alaska Department of Fish and Game (ADF&G) Community Subsistence Information System (CSIS) as the main source for consumption data.⁶ SEACC supports these recommendations, as long as the data collection protocols and system used by ADF&G remain very similar to the version that the workgroup evaluated.

² *Id.* at 2.

³ *Id.* at 3.

⁴ DEC Division of Water. November 13, 2018. *Evaluation of key elements and options for development of human health criteria: Technical workgroup report*. Accessed online at <https://dec.alaska.gov/water/water-quality/human-health-criteria/>

⁵ *Id.* at 14.

⁶ *Id.* at 12.

Issue 2: What Aquatic Life Species Should Alaska Include When Deriving a Fish Consumption Rate?

“The key issue is how to deal with species with an unknown origin or that may come in contact with pollutants outside of state waters.”⁷ EPA provides cautionary guidance on adjusting the Relative Source Contribution (RSC) to avoid duplicating counts for certain marine species. The workgroup considered numerous factors as it tried to determine a way to craft the FCR that was scientifically and technically sound. These are its recommendations:

- DEC should use the consumption of local fish when developing a state FCR.
- DEC should exclude market sources of fish when developing a state FCR.
- DEC should include marine invertebrates, shellfish, and seaweeds as part of FCR.
- DEC should include non-anadromous marine fish as RSC.
 - DEC should include the consumption of salmon when deriving a state FCR.
 - DEC should include salmon at a rate of 100% of the amount consumed.

Although it appears there was conflict in the workgroup about how to include salmon in the FCR, the majority of the group concluded that salmonids should be fully included because some stocks spend the majority of their lives in state waters, and because of the challenge associated with trying to piece out what percentage of body weight to attribute to in-state water residency, as well as public perception. SEACC agrees with the workgroup recommendations that salmonids should be fully included.

Issue #3: What is the Appropriate Population to Target for Protection?

- DEC should consider Alaskans who live in rural areas and consume large amounts of aquatic biota as part of their diet as the Target Population.
- DEC should adopt the 90th percentile of the target population for use in determining an applicable FCR.
- DEC should apply consumer-only statistical data from ADF&G CSIS data sets and other dietary surveys.
- DEC should work to derive a methodology that accurately estimates the true percentage of non-consumers within the target population.
- DEC should consider collecting data specific to subpopulations in urban areas to determine whether assumptions regarding adequate protection are valid.

⁷ *Id.* at 15.

The workgroup evaluated different protocols for how to include different segments of the population. They determined through data and empirical knowledge that virtually all Alaskans eat fish and that Alaskans who eat fish definitely eat more fish than the national average. In the end, the majority recommended that Alaska's rural population be the target population and that the 90th percentile for the FCR was most appropriate. Adding multiple FCRs across the state also seems problematic from an administrative point of view.

Issue #4: Does Alaska's Cancer Risk Level (CRL) Provide the Appropriate Level of Protection to High Consumers?

"The cancer risk level (CRL) is a numeric value included in the human health criteria formula that is used to identify the allowable incremental increase in the lifetime risk of developing cancer caused by exposure to a carcinogen via consumption of water and/or aquatic biota."⁸

In our 2015 petition, SEACC stated:

We also request EPA lower the lifetime cancer risk for the State of Alaska to 10^{-6} given the likelihood that 175g/d still underestimates the actual FCR. Additionally, many rural villages representing the same populations with high FCRs also lack access to treated drinking water. Human health criteria are designed to minimize the risk of adverse cancer and non-cancer effects occurring from lifetime exposure to pollutants through the ingestion of drinking water as well as the consumption of fish/shellfish.

The work group's recommendation was to keep the existing CRL of 10^{-5} or 1 in 100,000. SEACC continues to recommend a CRL of 1 in 1,000,000, a higher level of protection for Alaskans.

Issue #5: What is the Role of Relative Source Contribution (RSC) and what are Alaska's options?

"Relative Source Contribution (RSC): means the estimate of the fraction (based on consideration of other exposures to that pollutant) of a pollutant's reference dose (RfD) that is allowed from ingestion of fish and water or fish alone. It applies only to non-carcinogenic pollutants."⁹

⁸ *Id.* at 35.

⁹ *Id.* at 22.

The RSC includes species that are not accounted for in the FCR and also provides a means of separating exposures through fish and water versus other exposure mechanisms. The workgroup's recommendations:

- DEC should apply EPA-recommended RSC values when deriving HHC for non-carcinogens.
- DEC should include the consumption of marine mammals as part of the RSC and exclude them from the FCR.
- For those pollutants known to bioaccumulate in marine mammal tissues, the Workgroup recommended that the RSC should be set to the lowest allowed level (0.2).

The work group discussed other issues including marine mammal consumption and had another discussion on salmonid inclusion (it was pointed out that Washington and Oregon have both included salmonids in their FCR rather than RSC).¹⁰ SEACC suggests additional study and consideration of inclusion of harbor seals, the most frequently consumed marine mammal, in the FCR rather than the RSC.

In the Alternative Viewpoint, potential compliance costs to the industry were mentioned. In its November 1, 2022 response to the DEC, which had in September demanded an economic analysis of regulatory impacts of implementing a revised HHC, EPA Regional Administrator Casey Sixkiller reminded DEC Commissioner Brune that:

“Neither the economic impacts of criteria nor the technological feasibility of meeting criteria concentrations may be considered where doing so could result in criteria that are not protective or based on sound science.”¹¹

The DEC should move forward quickly with implementing HHC that are protective of human health in this state.

Issue #6: How Should DEC Apply Bioaccumulation or Bioconcentration Factors?

Bioaccumulation (BAF) and bioconcentration factors (BCF) describe the ability of a substance to be absorbed either through indirect exposure or through water.¹² The EPA recommended that

¹⁰ *Id.* at 26.

¹¹ United States Environmental Protection Agency. 1 November, 2022. *Letter to Alaska DEC Commissioner Jason Brune*. Accessed online at <https://dec.alaska.gov/water/water-quality/human-health-criteria/>

¹² DEC Division of Water. November 13, 2018. *Evaluation of key elements and options for development of human health criteria: Technical workgroup report*. Accessed online at <https://dec.alaska.gov/water/water-quality/human-health-criteria/>

states apply measured or estimated BAFs whenever they are available, rather than BCFs in computing a human health criterion.¹³ EPA also recommended that BAF values consider three trophic levels of fish (TL 2, 3, and 4) with TL4 as the highest level (top predators). The report stated that ADF&G subsistence harvest data would need to be re-analyzed to incorporate trophic levels. The workgroup recommended:

- DEC should use EPA-recommended bioaccumulation factors for fish, whenever available, for deriving HHC.
- DEC should apply EPA-recommended TL 4 BAFs for deriving HHC.

Due to consistently low budgets and staffing levels, DEC and the workgroup acknowledged that creating Alaska-specific BAFs was not feasible. After the workgroup discussed the issue in detail, it recommended that Alaska should apply trophic level 4 BAFs rather than the national methodology recommended by the EPA (an average of TLs 2-4); the Workgroup acknowledged, however, that this method may work better should salmon be included in the RCS rather than the FCR. This appears to be a detail that can best be decided once other related issues have been decided. SEACC currently supports the workgroup's recommendations for BAF and BCF measurements.

Issues related to implementation of HHC:

- ***Issue 7: Application of statewide/regional/site-specific criteria***
- ***Issue 8: Implementation of HHC***

The workgroup discussed several challenges of developing FCRs for Alaska. Many issues were considered and were listed in the report. The final recommendations were:

- DEC should adopt a statewide FCR.
- When needed, FCRs can be adjusted using local data and existing regulatory tools such as site-specific criteria.

SEACC currently agrees with these recommendations. **We recommend that DEC adopt a statewide FCR of 308gpd**, which is representative of actual fish consumption levels in key rural areas such as Kodiak and Soldotna. This rate should be protective of all Alaskans. At least one key study has shown that households in Alaska that don't use any fish, whether in urban or

¹³ *Id.* at 38.

rural areas, factored at 8% or less.¹⁴ The 2018 workgroup report explains that the ADF&G methodology makes it likely that true non-consumers are accurately accounted for, and that a downward bias is unlikely to be significant (at 31). A statewide FCR of 308gpd, based on the rural target population will be protective of the vast majority of Alaskans.

Regarding implementation concerns, the workgroup did not make any specific recommendations for how to include updated HHC in wastewater discharge permits or waterbody assessments and impaired water determinations. DEC's alternate viewpoint suggests that it should undertake "additional analysis" regarding the costs to the regulated community—mines and publicly owned water treatment works (POTWs). SEACC disagrees, for the same reasons the EPA disagrees (discussion on Page 4 of this comment).

Regarding waterbody impairment determinations, SEACC disagrees with the suggestion expressed in the workgroup's technical report that Alaska residents may be confused by the implementation of HHC (at 45), or that risk to human health may be mischaracterized as a result. The risk is already mischaracterized via use of a grossly inappropriate FCR that is not protective of Alaskans' health. Implementation of a more realistic FCR for Alaskans will actually dispel some confusion, in SEACC's view. We disagree with the Alternate Viewpoint expressed in this statement about implementation (at 46):

All mixing zones are prohibited in anadromous fish spawning waters, so they provide no benefits in much of Alaska.

The idea that the DEC would describe mixing zones as having "no benefits" is extremely concerning. Mixing zones provide an important buffer to the discharge of contaminated waters from mines in Alaska. Every waterborne pollutant will end up in the marine environment eventually, so the importance of mixing zones in buffering or mitigating the effects of some toxins released through wastewater is difficult to overstate. The use of tools like physical and chemical treatment, diffusers, and mixing zones help minimize the damage that industry inevitably causes to both marine and freshwater sources.

SEACC also disagrees with the viewpoint that Alaska should only implement revised HHC after a thorough cost-benefit analysis to industry is completed. The United States Congress has

¹⁴ EPA. Polissar, N. & Neradilek, M. March 20, 2019. *Alaska statewide and regional estimates of consumption rates in rural communities for salmon, halibut, herring, non-marine fish, and marine invertebrates*. Tetra Tech, EPA Contract EP-C-14-016, p.12. Accessed online at <https://dec.alaska.gov/water/water-quality/human-health-criteria/>

consistently refused to replace technology-based approaches with a cost-benefit standard.¹⁵ The EPA does not support that reason for delaying implementation of protective HHC criteria (see Page 4 of this comment). Cost-benefit analysis requires monetization of the benefits of protecting human health and the environment, and tends to be skewed to produce a picture of high costs and low benefits,¹⁶ exactly as several of the Alternate Viewpoints in the 2018 workgroup report suggest.¹⁷ If a particular industry or industry player is unwilling to adjust treatment methods so that its discharge is protective of human health, it shouldn't be accommodated. The Clean Water Act¹⁸ uses a technology-based approach, and the EPA sets limits on pollution discharge through effluent limitations and other methods. CWA requires the application of the "best available technology economically achievable ..." for point source pollutants, such as pollutants emitted by mines.¹⁹ SEACC believes that the DEC tends to give the mining industry in Alaska undue leeway with regard to compliance.²⁰ Industry should be held to a standard that protects human health, and if industry is unwilling to evolve and adapt accordingly, it's time to find new ways to diversify Alaska's economy. The idea, as stated in the Alternate Viewpoints several times in the workgroup report, that HHC won't protect users who consume fish outside CWA waters (i.e., marine international waters) is misguided considering that waterborne pollutants inevitably enter the marine environment at some point. Reducing these pollutants and their ability to enter any water sources, no matter what kind, helps protect not only Alaskans but all who consume food from the water.

Industry, especially in Alaska, is not likely to invest in currently available treatment methods until mandated to do so. SEACC views this as a positive opportunity to encourage more responsible and accountable industry players in Alaska. Technology is evolving to address these types of concerns at a relatively fast pace. In 2013, EPA released a publication²¹ that described numerous technologies being developed or used at large scale already. Some of these included

¹⁵ Center for Progressive Reform. Glicksman, R.L. February 19, 2020. *CPR Perspective: Technology-based standards: The advantages of technology-based standards in protecting health, safety, and the environment*. Accessed online at <https://progressivereform.org/publications/perspstatutory/>

[The Center for Progressive Reform is a nonprofit research and advocacy organization that conducts independent scholarly research and policy analysis.]

¹⁶ *Id.*

¹⁷ DEC Division of Water. November 13, 2018. *Evaluation of key elements and options for development of human health criteria: Technical workgroup report*, at 5, 27, 43 & 46. Accessed online at <https://dec.alaska.gov/water/water-quality/human-health-criteria/>

¹⁸ The CWA can be found at 33 U.S.C. § 1251 et seq. The CWA regulations are in 40 C.F.R. Parts 104-108, 110-117, 122-140, 230-233, 401-471, and 501-503.

¹⁹ CWA 304(b)(2).

²⁰ See SEACC's previous public comments, objections and appeals on Kensington mine; see also SEACC's comments on anti-degradation and backsliding re. the Niblack operation's updated discharge permit (2022 and 2023).

²¹ EPA 832-R-12-011. March 2013. *Emerging technologies for wastewater treatment and in-plant wet weather management*. Accessed online at <https://www.epa.gov/sites/default/files/2019-02/documents/emerging-tech-wastewater-treatment-management.pdf>.

ultraviolet disinfection, reverse osmosis filtration, advanced separation techniques, and the use of certain bacterias. SEACC encourages DEC and industry to work together to research and invest in improved technologies to assist any industry affected by implementing protective HHC. Implementing an appropriately protective HHC is the first step to creating positive change in how Alaska protects its water and residents.

Thank you for the opportunity to comment on DEC's continuing effort to revise Human Health Criteria. We look forward to continuing the discussion.

Respectfully,

A handwritten signature in black ink that reads "Aaron Brakel". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

Aaron Brakel
Inside Passage Waters Program Manager