Response to Public Comments on Proposed Hawaii Administrative Rules (HAR), Chapter 11-54 Docket No. CWB-1-21

The Department of Health (DOH), Clean Water Branch (CWB) solicited public comments from December 16, 2020 through February 1, 2021, on proposed amendments to HAR Chapter 11-54 (Water Quality Standards). HAR Chapter 11-54 contains the water quality standards established for the State of Hawaii.

A virtual public hearing was held at 9:00 a.m. on February 1, 2021. The DOH-CWB published notices of the comment period and public hearing on December 16, 2020 in the Honolulu Star Advertiser, The Garden Island, Maui News, West Hawaii Today, and Hawaii Tribune-Herald. Below is a summary of the comments received and the DOH-CWB responses.

HAR 11-54 (WATER QUALITY STANDARDS)

Comments from eighty-four individuals about the amendment to class AA marine waters

Comments: The Hawaii Department of Health (HDOH) proposed to amend section 11-54-3(c)(1) of chapter 54 of Hawaii Administrative Rules (HAR 11-54) to include prohibition language specifying that "*no new permit shall be issued for point source discharges of industrial wastewater, industrial stormwater, and those facilities designated by the department as pollutant sources, except for construction-related discharges. All permitted discharges in effect on or before (placeholder date); all future modifications of such discharges; and all future renewals of such discharges may be allowed and permitted with conditions specified in discharge permits to meet applicable and appropriate protection levels for class AA waters*." If this proposed amendment will be adopted, the placeholder date will be substituted with the actual date of the next compilation of HAR 11-54.

During the public comment period, HDOH received one comment in-support of this proposed amendment and eighty-three comments in-opposition.

Response: HDOH extends its gratitude to all commenters. HDOH appreciates all of the comments that were submitted.

Considering all of the comments received, HDOH has decided to defer the proposed prohibition to the next triennial review of State Water Quality Standards (WQS). This deferral will allow for the evaluation and consideration of alternate amendments to protect class AA marine waters and to ensure these waters remain in their natural

pristine state with a minimum of pollution from industrial point source discharges. The next triennial review of State WQS is scheduled for April 2022.

HDOH will notify all commenters when a new proposed amendment to section 11-54-3(c)(1) of HAR 11-54 will be drafted.

Comments from Hawaii Department of Transportation, Highways Division, Design Branch

Comment 1: The proposal by HDOH to adopt the U.S. Environmental Protection Agency (EPA) recommended ambient water quality criteria and to update State Water Quality Standards (WQS) for the protection of human health is a reasonable move.

Response 1: Thank you for your comment. HDOH will continue to conduct triennial reviews of State WQS for the protection of human health and aquatic life. The next triennial review of State WQS is scheduled for 2022.

Comment 2: How does the recommended fish tissue water quality criterion for methylmercury, as specified in EPA-823-R-01-001, change State WQS? ("Human Health Criteria" section of HDOH Rationale for Proposed Amendments to HAR 11-54[1], page 4)

Response 2: In HAR 11-54, the human health water quality standards for toxic pollutants are specified as micrograms per liter of water (µg/L). For methylmercury (Chemical Abstracts Service number 22967-92-6), the proposed human health water quality criterion is specified as milligrams per kilogram of fish tissue (mg/kg). Since the proposed human health water quality criterion for methylmercury is a fish tissue-based measurement rather than a water column-based measurement, the implementation of this water quality criterion will require a change in analytical methods. Specifically, additional analytical methods will need to be used to measure the concentrations of methylmercury in fish tissues.

In 1998, the EPA approved method 1630[2] for measuring the concentrations of methylmercury in water columns. In 2010, the EPA approved modifications to method 1630[3] for measuring the concentrations of methylmercury in fish tissues. These modifications allow for the measurement of methylmercury concentrations in fish tissue

[1] HDOH Rationale for Proposed Amendments to HAR 11-54 (Compiled March 2021)

[2] EPA Method 1630 - Methyl Mercury in Water by Distillation, Aqueous Ethylation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry (August 1998)

[3] EPA 823-R-10-001 - Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion (April 2010)

as low as 0.002 mg/kg; this detection limit is less than 1/100 times the water quality criterion for methylmercury (0.3 mg/kg).

Comment 3: How were the proposed standards (for fish consumption) determined? ("Human Health Criteria" section of HDOH Rationale for Proposed Amendments to HAR 11-54, page 5)

Response 3: The EPA used the current methodology for deriving human health criteria and considered the latest scientific information about exposure factors, bioaccumulation factors, and toxicity factors of ninety-four toxic pollutants. In 2015, the EPA promulgated the final updated ambient water quality criteria for the protection of human health for these ninety-four toxic pollutants[4].

For the last triennial review of State WQS which was conducted in 2019, HDOH proposed to update State WQS by adopting the EPA 2015 updated ambient water quality criteria for the protection of human health. At this time, HDOH is not proposing to revise any aquatic life standards that are specified in HAR 11-54 for the protection of freshwater and saltwater organisms from the effects of short-term and long-term exposure to toxic pollutants.

Comment 4: Why is "fish consumption" the human health water quality standard? ("Human Health Criteria" section of HDOH Rationale for Proposed Amendments to HAR 11-54, page 5)

Response 4: Human health water quality standards are specified to protect from activities that can increase the exposure to waterborne toxic pollutants. These activities include the direct and indirect ingestion of water, and the consumption of aquatic organisms. Hence, human health water quality standards can be specified to protect from both the ingestion of water and the consumption of aquatic organisms (i.e., "water & organism") or from just the consumption of aquatic organisms (i.e., "organism only"). In HAR 11-54, the human health water quality standards are specified to only protect from the consumption of aquatic organisms, and they are labeled as "fish consumption" standards (i.e., "organism only" standards).

Comment 5: What is the rationale for removing certain toxic pollutants? ("Human Health Criteria" section of HDOH Rationale for Proposed Amendments to HAR 11-54, page 12)

Response 5: HDOH is proposing to remove the human health water quality standards (i.e., fish consumption standards) specified in HAR 11-54 for dichlorobenzenes,

[4] EPA 820-F-15-001 Human Health Ambient Water Quality Criteria: 2015 Update (June 2015)

dinitrotoluenes, endosulfan, and Polynuclear Aromatic Hydrocarbons (PAHs). For the first three mixtures of isomers, the removal of human health water quality standards is justified by the proposed addition of human health water quality criteria for specific isomers of dichlorobenzene, dinitrotoluene, and endosulfan. For the last class of chemicals, the removal of human health water quality standard is justified by the proposed addition of human health water quality criteria for specific PAH chemicals. Also, there are currently no aquatic life water quality standards specified in HAR 11-54 for PAHs. With the proposed removal of human health water quality standard for PAHs, there will be no water quality standards specified for this class of chemicals. In other words, it is proposed to entirely remove PAHs from HAR 11-54.

The detailed rationale for removing the above four human health water quality standards is stated on page 11 and a summary table (Table 3) is listed on page 12 of the HDOH Rationale for Proposed Amendments to HAR 11-54. For clarity, this rationale is re-stated below.

1) There are three isomers of dichlorobenzene. Since HDOH is proposing to add fish consumption standards for all three isomers (1,2-, 1,3-, and 1,4-) of dichlorobenzene, the current fish consumption standard in HAR 11-54 for dichlorobenzenes (i.e., mixtures of dichlorobenzene isomers) is removed.

2) There are six isomers of dinitrotoluene. According to the EPA Technical Fact Sheet on Dinitrotoluene[5], the (2,4- and 2,6-) isomers of this chemical are the two major forms. Moreover, 2,4-dinitrotoluene makes up about 76.5% (i.e., more than three-quarters) of technical grade dinitrotoluene which is a mixture of all six isomers. Since HDOH is proposing to add the fish consumption standard for 2,4-dinitrotoluene, the current fish consumption standard in HAR 11-54 for dinitrotoluenes (i.e., mixtures of dinitrotoluene isomers) is removed.

3) There are two isomers of endosulfan. By convention, the total endosulfan residue level in water samples is the sum of the (alpha- and beta-) isomers of endosulfan plus endosulfan sulfate (i.e., the major oxidation product of endosulfan). Since HDOH is proposing to add fish consumption standards for the (alpha- and beta-) isomers of endosulfan and also for endosulfan sulfate, the current fish consumption standard in HAR 11-54 for endosulfan (i.e., mixtures of endosulfan isomers) is removed.

4) There are over one-hundred PAH chemicals. Only three PAH chemicals (acenaphthene, fluoranthene, and naphthalene) are specified in HAR 11-54. There are fish consumption standards in HAR 11-54 for only one of these three PAH chemicals (fluoranthene) and also for PAHs (as a class of chemicals). Since HDOH is proposing to

[5] EPA 505-F-17-010 Technical Fact Sheet – Dinitrotoluene (DNT) (November 2017)

add or update fish consumption standards for specific PAH chemicals, the current fish consumption standard in HAR 11-54 for PAHs (as a class of chemicals) is removed. Overall, HDOH is proposing to add fish consumption standards for anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)-anthracene, fluorene, indeno(1,2,3-cd)pyrene, and pyrene, to update fish consumption standards for acenaphthene and fluoranthene, and to remove the fish consumption standard for PAHs.

Comment 6: The Use Attainability Analysis (UAA) is a reasonable measure that rationalizes why certain metrics cannot be met due to current conditions.

Response 6: Thank you for your comment. Due to the diverse aquatic environments in Hawaii, HDOH prioritizes the specification of appropriate uses and applicable WQS for individual water systems. For a specific water system, the conduct of a UAA is required to assess physical, chemical, biological, or economic factors and to determine the attainable uses.

Comment 7: Appreciate HDOH's recognition that the Highest Attainable Use (HAU) may conflict with the current WQS and that the determination of the HAU will be data driven. ("Use Attainability Analyses" section of HDOH Rationale for Proposed Amendments to HAR 11-54, page 42)

Response 7: Thank you for your comment. HDOH recognizes that the determination of attainable uses must not only assess what can be attained right now but also what can be deemed as attainable in the future pending the implementation of measures such as effluent limits and best management practices. For a specific water system, the conduct of a UAA is required to scientifically demonstrate the non-attainment of a use and to properly determine the HAU.

<u>Comments from Surfrider Foundation</u>

Comment 8: Suggests that HDOH updates chapter 342D of Hawaii Revised Statutes (HRS 342D) and therefore HAR 11-54 to explicitly include "plastic" to the definition of "Pollutant." The commenter notes that in a letter dated March 30, 2020, the EPA further rescinded its approval of the Hawaii 2018 Section 303(d) List of Impaired Waters, citing specifically that "*the State's submission does not demonstrate that it has satisfied its statutory and regulatory obligation to assemble and evaluate all existing and readily available data and information related to plastics*."

Response 8: In its March 2020 letter to HDOH, the EPA requested the State to evaluate the existing and readily available water quality-related data and information related to plastics in Hawaii waterbodies for which the State received data and information and submit the results of the evaluation to the EPA.

In May 2020, HDOH submitted its evaluation and response to the EPA. Based on the analysis provided by HDOH, the EPA approved Hawaii's decision not to list 17 of 19 waterbodies on the 2018 List. The EPA did not agree with HDOH's reasoning for not listing 2 of the 19 waterbodies, Kamilo Beach and Tern Island. In its final decision in December 2020, the EPA affirmed the addition of the two waterbodies to the Hawaii 2018 List because "*those waterbodies indicate that they are impaired by trash…*"

The EPA recognizes that most of the trash polluting the nation's waterways is plastic trash, and that plastic trash threatens human health and aquatic ecosystems. However, the EPA does not differentiate plastic from other forms of trash, as indicated in their response to the Hawaii 2018 List. The definition of "pollutant" in both the federal Clean Water Act (CWA) and section 1 of HRS 342D (HRS §342D-1) are substantively the same.

Adding "plastic" to the definition of "water pollutant" in HRS 342D and therefore HAR 11-54 is redundant and unnecessary as plastics are a subset of garbage and solid refuse, both of which are currently included in the definition. Further, the addition of plastic to the definition will have little or no specific actionable effect in the HDOH's administration of the State's water pollution law.

Since HDOH interprets HRS §342D-1 at least as broadly as the EPA interprets the CWA, "plastics" as a category is interpreted to be subset of garbage and solid refuse, both of which are currently identified as water pollutants in HRS §342D-1.

Comment 9: Section 11-54-8(e) of HAR 11-54 states "*Warning signs shall be posted at locations where human sewage has been identified as temporarily contributing to the enterococci count*." To maximize public health and safety, Surfrider Foundation requests this provision be modified to mandate warning signs be posted where pollutants of public health significance are present.

Enterococci, an indicator of fecal contamination from warm-blooded animals, is currently the accepted criteria for determining public health risks in recreational waters, regardless if HDOH is able to establish a definitive connection between enterococci counts and the discharge of human sewage. It is therefore reasonable to expect that public signage be posted when enterococci counts exceed the accepted human health standards for recreational waters. This revision would be appropriate and consistent with the EPA's 2012 Recreational Water Quality Criteria.

Response 9: Enterococci is currently the EPA-recommended indicator of fecal contamination; however, its use has been criticized by several researchers because the epidemiological studies leading to their selection mainly focused on beaches where point sources of sewage discharge were present and very little consideration was made

for environmental (non-fecal) sources[6]. Further, enterococci have been shown to grow in the environment in the absence of any known fecal source, animal or human[7]. Therefore, the use of enterococci as a surrogate for pathogens is problematic. Enterococci from the human gut is shed and passed in human feces, therefore, the greater numbers of human enterococci found in ambient waters indicate the presence of human feces which may also mean greater numbers of human pathogens and increased risk to human health. However, if there are no human or animal sources, then the health risk is negligible in the area[8,9].

A microbial source tracking study was commissioned by HDOH on the island of Kauai in response to persistent elevated enterococci levels in an area where a prior HDOH sanitary survey was unable to identify any fecal sources. The study, conducted by researchers from the University of California, Berkeley, confirmed HDOH's sanitary survey results and concluded that the elevated levels of enterococci found were not caused by human or animal fecal contamination[10].

The EPA is aware of the shortcomings of the current fecal indicator. DOH monitors beaches and issues health advisories and notification as required under the federal Beaches Environmental Assessment and Coastal Health Act of 2000 (BEACH Act) under the guidance of The National Beach Guidance and Required Performance Criteria for Grants, 2014 Edition (Guidance). Section 1.3 of the Guidance states: "*It is important to note that FIB (*fecal indicator bacteria*) are not exclusively of fecal origin, and they can be part of the natural microflora in the environment. FIB have also been shown to persist and even grow in sand, sediments, and soil; on plant surfaces; and within algal mats and biofilms…FIB from these nonfecal sources have not been demonstrated to be related to the potential for human illness.*"

Because of the uncertainty associated with the sources of elevated enterococci levels, the Guidance specifies that "*If there is reason to doubt the accuracy, certainty, or representativeness of the first sample collected, based on QA/QC measures, resampling should be considered. This might be the case if sampling results at the beach have shown that, historically, water quality has consistently met acceptable*

[6] Fujioka, R.S. (2001). Monitoring coastal marine waters for spore-forming bacteria of faecal and soil origin to determine point from non-point source pollution. Water Science and Technology 44, 181-188.
[7] Bayappanahalli, M.N., et al., Enterococci in the Environment, Microbiology and Molecular Biology Reviews. 2012, 76(4), 685-706.
[8] Soller, J.A., et al., Estimated human health risks from exposure to recreational waters impacted by human and non-human sources of faecal contamination, Water Research (2010), doi:10.1016/j.watres.2010.06.049.
[9] Viau, E.J.; Lee, D.; Boehm, A.B. Swimmer risk of gastrointestinal illness from exposure to tropical coastal waters impacted by terrestrial dry-weather runoff, Environ. Sci. Technol. 2011, 45 (17), 7158-7165.
[10] Dubinsky, E. and Anderson, G.; Mahaulepu and Waikomo Watersheds Phylochip Source Tracking Study, Hawaii. Final Report, May 22, 2019.

beach water quality thresholds and no known or potential sources of fecal contamination affect beach water quality."

Given these factors, when elevated enterococci levels are encountered at beach monitoring sites that have historically shown that water quality has consistently met acceptable threshold levels, HDOH will issue Notifications to inform the public that the level of enterococci has exceeded the threshold level and that retesting of the beach is currently underway. If retesting results also exceed the threshold, DOH will post signs on the affected beaches and will issue an Advisory to inform beach users to remain out of the affected waters.

Comment from Mālama Pūpūkea-Waimea

Comment 10: Mālama Pūpūkea-Waimea supports the overall effort "*to adopt EPA recommended ambient water quality criteria and to update State WQS for the protection of human health*." ("Human Health Criteria" section of HDOH Rationale for Proposed Amendments to HAR 11-54, page 3)

The modernization of fish consumption standards appears to be much needed and support by best available science.

Response 10: Thank you for your comment. HDOD appreciates the support and agrees that the best available science should be considered when updating State WQS.

Comment from County of Hawaii, Planning Department

Comment 11: We recommend ongoing collaboration with County Department of Water Supply (DWS), Dept of Environmental Management (DEM), Department of Public Works (DPW). Moreover, we encourage increased engagement with our entire watershed and coastal partnerships, and any projects to improve groundwater, stream and coastal water quality, and encourage local communities to develop such projects.

Response 11: HDOD appreciates the recommendation and looks forward to continued support and collaboration with the County of Hawaii and its stakeholders.

Comments from American Forest and Paper Association

Comment 12: HDOH should develop human health water quality criteria revisions suited to the unique characteristics of State waters.

States are not required to adopt the EPA's National Human Health Water Quality Criteria (HHWQC).

Response 12: Under the CWA, states are required to periodically review and, as appropriate, adopt, new or revised criteria for which the EPA has published new or

updated CWA section 304(a) criteria recommendations. If the State does not adopt new or revised criteria for which the EPA has published new or updated CWA section 304(a) criteria recommendations, the State must provide an explanation to the EPA. States may develop water quality standards that are more stringent than the criteria recommended by the EPA. If states develop standards that are less stringent than those recommended by the EPA, the state must demonstrate that the criteria being developed are as protective as those recommended by the EPA.

Numeric standards for human health ambient water quality (i.e., numeric standards for toxic pollutants) were first added to State WQS in 1990 and were based on the EPA's recommended criteria. Since then, there have been no significant changes to Hawaii's toxic pollutant standards. Although HDOH acknowledges that Hawaii should develop water quality criteria that are suited to the unique characteristics of State waters, and that individual states may develop site-specific standards based on scientifically defensible data, HDOH lacks the resources to develop such water quality criteria specific to Hawaii. The EPA's 2015 Final Updated Human Health Ambient Water Quality Criteria, on which the proposed changes are based, reflects current scientific health risk information that were obtained using resources that far exceed those available to the State.

HDOH reviewed the EPA's 2015 recommended criteria, which were developed using the most current peer-reviewed scientific information and has chosen to adopt the recommended criteria. HDOH's proposed changes include water quality standards that are both more stringent, and less stringent than existing standards, in addition to those that remain unchanged. If the recommended criteria were not adopted, many of the existing numeric criteria would remain unnecessarily stringent relative to the current level of risk as determined by current scientific information. New scientific information has determined that the level of risk due to exposure to some of these toxic pollutants are not as great as previous data has shown and that the new recommended levels provide the same level of public health protection at lower numeric concentrations.

HDOH acknowledges that the State has flexibility in adopting HHWQC and believes that the EPA's 2015 recommended water quality criteria provides an appropriate level of protection to State waters.

Comment 13: Hawaii has the discretion to consider the costs of meeting the criteria and other social costs and benefits of their adoption, as well as other relevant factors. As it undertakes the risk management inherent in establishing its HHWQC, HDOH also should recognize the uncertainties and conservative assumptions involved in risk estimates.

Response 13: As stated above, HDOH lacks the resources necessary to perform the risk analysis required to develop state-specific water quality standards that provide appropriate protection from toxic pollutants. HDOH believes State WQS should be based on the best available science that has been adequately peer-reviewed and subjected to public participation process.

The draft rules have been reviewed and approved by the State's Small Business Regulatory Review Board, which represents the interests of small businesses that may be impacted by the rule change. Small businesses and permitted dischargers did not express any major concerns and did not oppose the proposed revisions during the public comment period.

Comment 14: The National HHWQC are unnecessarily conservative and based on unrealistic default values.

Response 14: HDOH does not agree that the National HHWQC are unnecessarily conservative. Hawaii's revised standards for toxic pollutants include several instances where the existing criteria will be made less stringent due to advances in risk analysis and chemical toxicity characteristics. The aim of revising Hawaii's WQS is to update existing criteria to provide human health protection commensurate with currently available scientific information. In doing so, HDOH understands that some criteria will become more stringent while others will become less stringent.

Comment 15: The National HHWQC are not necessarily applicable to Hawaii's waters. The EPA 2015 HHWQC update includes a Fish Consumption Rate (FCR) of 22 grams per day (which is more fish and shellfish from inland and nearshore waters than is consumed by 90 percent of the U.S. adult population 21 years of age and older).

Response 15: HDOH does not agree that the National HHWQC are not applicable in Hawaii's waters. The FCR specified by the EPA is relevant to Hawaii and reflects Hawaii's somewhat higher consumption of nearshore fish relative to the majority of adult population in the U.S. The aim of revising State WQS is to update existing criteria to provide human health protection commensurate with currently available scientific information.

Comment 16: There is a more scientifically advanced way to calculate human health criteria: The Probabilistic Risk Assessment (PRA).

Response 16: HDOH appreciates the reference to PRA; however, HDOH believes that the criteria recommended by the EPA provide an appropriate level of human health protection in Hawaii. HDOH currently lacks the resources necessary to conduct the analyses required to implement PRA.