

Response to Comments Received on Hawaii Water Quality Standards Triennial Review

Navy, Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility

Comment 1: Recommend reevaluation of acute and chronic aquatic life water quality criteria for lead based on EPA updated recommended criteria.

Response 1: DOH is evaluating revisions to the aquatic life protection criteria. It may be difficult to update the full suite of toxic pollutants in the first phase of revisions. However, given specific mention of certain pollutants for consideration, DOH intends to give priority to the reevaluation of lead and copper.

Comment 2: Recommend reevaluation of acute and chronic aquatic life water quality criteria for copper based on EPA updated recommended criteria.

Response 2: See Response 1.

Comment 3: Recommend revisions to allow for the use of EPA approved methodologies for development of site-specific water quality criteria.

Response 3: DOH agrees that site-specific criteria development procedures are necessary. DOH intends to establish regulations allowing for consideration and adoption of site-specific standards. The use of EPA's recalculation, water effects ratio, streamlined water effects ratio, and biotic ligand model procedures likely will be considered.

Comment 4: Include language allowing the use of variances in cases where achieving water quality goals are impractical or infeasible; and provide a period for public input and comment.

Response 4: The State Attorney General's Office has certified that the Hawaii Revised Statutes at 342D-7 do provide authority to DOH for administering variances. However, there is no corresponding regulation in Hawaii Administrative Rule (HAR) ch. 11-54 that specifies how variances for water quality standards would be considered and processed. Therefore, DOH intends to consider new regulations for water quality standards variances and provide opportunity for public review and comment on the regulations and procedures.

City and County of Honolulu (CCH)

Comment 5: No specifics are provided on how the water quality standards will be revised, so it is difficult to provide specific comments on how it will affect CCH's program. Revised aquatic life criteria for copper, ammonia, cadmium, and selenium may affect effluent limits. Reference is made to the use of biotic ligand model for the copper criteria, but no details are provided on

how DOH will implement the criteria, so it is difficult to determine the effect on CCH's numeric effluent limits.

Response 5: The triennial review notification period is an opportunity for the public to provide input to DOH's plans for water quality standards revisions and what additional revisions should be considered. The public notice that DOH provided outlined specific aspects of the water quality standards where DOH intends specifically to revise in the next set of standards revisions. In the coming months, DOH intends to draft the actual revised regulatory language. When complete, the draft regulations will be public noticed and made available for public review and comment. At that time, the public will be provided ample opportunity to give input to DOH, which will assist the State in developing the final regulations for the revised water quality standards.

Comment 6: There is concern with the extent to which the numeric water quality criteria in HAR ch. 11-54 are applied to other programs, specifically stormwater. Will DOH develop numeric standards for stormwater runoff, separate from freshwater sources?

Response 6: HAR ch. 11-54 regulations specify the water quality condition for Hawaii's surface waters. Those conditions are expected to be met, especially by controllable discharge sources. In regulating such sources, DOH specifies discharge requirements and pollutant limits in National Pollutant Discharge Elimination System (NPDES) permits, based on assuring that the HAR ch. 11-54 water quality standards will be achieved. Establishing implementation procedures for how the water quality standards are interpreted or expected to be achieved is a separate process. In some cases, such procedures may and are adopted into the regulations. Most large municipal stormwater systems are regulated under HAR ch. 11-55 through Municipal Separate Storm Sewer System (MS4) permits which specify the requirements and numeric limits (if any) for stormwater runoff, not HAR ch. 11-54. In the CCH MS4 permit, numeric limits are only specified for the industrial stormwater discharge.

Comment 7: Some of the freshwater criteria (nitrate+nitrite, total phosphorus) for streams and estuaries (including Pearl Harbor estuary) are lower than laboratory detection limits. Will DOH consider revising the numeric limits to account for laboratory detection limits? Currently these limits appear to be infeasible from an enforcement perspective.

Response 7: The water quality standards for pollutants in HAR ch. 11-54 are developed irrespective of laboratory detection limits, as they are established to protect aquatic life or human health from exposure to those pollutants in State waters. However, DOH does not expect NPDES permittees to quantify pollutants at or below concentrations below the capabilities of EPA approved methods or appropriate available laboratory test methods. For NPDES dischargers, the EPA only requires the use of the most sensitive of the EPA-approved methods, where such methods exist. Please see EPA regulations at 40 C.F.R. §122.21(e)(3) and §122.44(i)(1)(iv) and 79 FR 49001, August 19, 2014, on the use of sufficiently sensitive test

methods for permit applications and reporting. As for numeric limits in permits, DOH may reconsider and reevaluate the appropriate method for setting permit limits and requirements.

Science and engineering group (Abe, Kumagai, Krock, and Moreland)

Comment 8: Clarify purpose and intent of the water quality standards and consider a more holistic approach to water quality management. The original set of Hawaii standards were based on the premise that violations to the standards would serve as a warning sign and there would be some flexibility in addressing the violations; and use the standards to correct and prevent future violations and work towards rectifying significant existing water quality problems.

(Commenters used the word “violation,” but DOH suggests that “exceedance” of standards may be more appropriate.) The original basis and approach for standards do not appear to be considered under current NPDES permitting practice for point source discharges. The limits for nutrients and other parameters are very low and are posing significant and costly challenges particularly when applied as “end of pipe” NPDES permit effluent limits.

Response 8: DOH recognizes that most of the pollutant water quality standards applicable to Hawaii surface waters that currently exist were established in the 1970’s and have not been appropriately reevaluated since. DOH is now considering whether and how to transition from the current waterbody classification system (i.e., standards that generically apply to estuaries, embayments, open coastal waters, etc.) and establish more site-specific standards for specifically named waterbodies, which would appear to be more appropriate and applicable. However, this process may take several years, as water quality data and information for each waterbody would have to be collected and reviewed. After data collection and compilation, the technically challenging process of establishing the appropriate standards would need to take place. In pursuing this approach, DOH would be soliciting assistance and support from the knowledgeable technical and scientific community, as well as the public.

Comment 9: Provide guidance or procedures on follow-up action when limits are exceeded and include them in the water quality standards. Mass emissions from all significant sources contributing or has the reasonable potential for contributing to the violation should be considered. It is a waste of pollution control dollars to address stringent limits if the NPDES discharger is not the primary or significant cause of the water quality problem. It would be more cost-effective to perform watershed protection and enhancement projects for non-point sources rather than costly treatment upgrades for point sources.

Response 9: In situations where there are potentially many sources (including point sources and non-point sources) contributing to the water quality impairment, establishing total maximum daily loads (TMDLs) generally would be appropriate. Under the TMDL program, waste load allocations (for point sources) and load allocations (for non-point sources) are established, assigning pollutant load reductions to all significant sources contributing to the water quality impairment from the pollutant. Also, in 2003, the EPA issued the Water Quality Trading Policy

to provide tools to assist States in the development of trading programs. Nutrients are especially conducive to trading of load reductions, and the trading policy recognizes the potential environmental benefits of trading programs to reduce nutrients. DOH is receptive to the consideration of trading programs and would entertain plausible ideas for trading.

Comment 10: Include the minimum number and location of water quality samples so the evaluation is statistically valid. The standards should also address how data from multiple sampling points and depths around the zone of mixing should be analyzed. Compliance with water quality standards should not be based on limited data or short-term “blips” in the data. Where data indicates longer term degradation, the cause of the water quality should be identified by further sampling and investigations.

Response 10: Setting minimum samples is discouraged in water quality standards, as there may be cases when an incident that harms the aquatic environment occurs, and DOH would want to be able to appropriately respond. DOH should retain the discretionary ability to take appropriate action without having the minimum number of samples. Action is not limited to extreme actions like enforcement, but also could include making water quality assessments. DOH agrees, however, that a robust set of data and data compilation procedures are preferable to have greater confidence in making water quality assessments, especially for nutrients. Rather than in the standards, one appropriate tool for establishing water quality assessment procedures is in the implementation procedures for the Integrated Report. The Integrated Report is basically the State’s report on the status of its surface water quality, which fulfill the Clean Water Act Section 305(b) and 303(d) requirements. For the next Integrated Report, DOH intends to revisit the implementation procedures, and may consider some of the ideas brought up in comments here.

Comment 11: Update limits to reflect changes in ambient water quality based on additional data and perform comprehensive holistic data analyses to identify and assess all significant point and non-point source discharges in evaluating NPDES permit requirements. The 1977 water quality standards workshop participants agreed that the original standards were based on limited data and should be adjusted after more data was collected. A more holistic evaluation should be conducted when control stations or zone of mixing stations are exceeding or near exceeding standards. The exceedances may be due to other sources rather than the point source discharge, which may lead to costly treatment upgrades with minimal benefits. Directing funds instead to watershed management and erosion control projects would be less costly and more effective. Permit writers have concluded that there is no assimilative capacity and set end-of-pipe limits at the water quality standard (e.g., 5 ug/L nitrate+nitrite), which is unattainable by treatment technology. Consider modifying permitting procedures and promoting more cost-effective water pollution actions, which will lead to less contested cases.

Response 11: See Responses 7, 8, and 9.

Comment 12: Develop separate standards for stormwater. It seems that DOH uses the upper decile (10% exceedance) value for stormwater permits. Consideration should be given to developing separate limits for stormwater. Consider use of mass emission criteria and documented impacts to receiving waters. Intermittent and highly variable nature of stormwater runoff may justify different requirements from other point source discharges to avoid imposing requirements that result in costly actions with limited water quality benefits.

Response 12: DOH assumes that the commenter is referring to and requesting more appropriate stormwater permit limits, rather than water quality standard limits in the above comments. See Response 7, regarding setting appropriate permit limits.

Maui Ocean Center

Comment 13: DOH should review the water quality standards for nutrients in embayments (HAR 11-54-6, Uses and specific criteria applicable to marine waters).

- a. Assess whether any harbors or embayments have historically or currently attained the standards.
- b. Identify the data that was the basis of the total nitrogen and nitrate+nitrite criteria and assess whether adequate data from leeward harbors and embayments were considered in developing the criteria.
- c. Identify the methodology used to develop the criteria and assess whether it is appropriate for development of nutrient standards according to EPA guidance.
- d. Provide information describing which of the EPA recommended methods (reference condition, mechanistic modeling, or stressor-response analysis) was used in setting embayments standards criteria and the details of the equations and data used in the calculations.
- e. Assess whether a separate use designation and criteria are warranted for harbors.

Response 13: Comments 13 a-d relate to the historical data and documentation of the nutrient standards for marine waters established in the 1970's and remain in HAR ch. 11-54 today. Instead of substantiating the original nutrient standards, DOH believes establishing appropriate site-specific standards for different waterbodies may be a better approach. See also Response 8. Comment 13 e is also partially addressed by Response 8. In addition, as indicated in the public notice for the triennial review, DOH is considering adding provisions in HAR ch. 11-54 to authorize and require the use of Use Attainability Analyses to change or remove a use.

Comment 14: Review and consider revising the standards provisions to allow intake credits in the case where the discharge is adding nutrients to the discharge, and when the intake and discharge are to separate waterbodies.

Response 14: DOH may consider revising the intake credit regulations at HAR 11-54-12 to allow at the discretion of DOH to waive the requirement of intake and discharge waterbodies to

be the same body of water if no environmental degradation will result. This is consistent with EPA regulations at 40 C.F.R. §122.45(g)(4).

Comment 15: Provide the reasoning for the implementation policy following the toxics control policy methodology when nutrients are not considered toxic pollutants.

Response 15: See Response 7, regarding setting appropriate permit limits.

Comment 16: Provide guidance on how to conduct NPDES permit monitoring and compliance for standards criteria applied at end-of-pipe when geomean or other permit limits are below the detection limit for EPA-approved water quality test protocols.

Response 16: See Response 7.

Comment 17: Review the impacts of the Clean Water Act policies and programs on the implementation of standards in NPDES permitting.

Response 17: DOH recognizes that having additional authorizing provisions to provide more flexibilities in program implementation, especially NPDES permitting, may be helpful in providing some regulatory relief without compromising environmental benefits. See also Responses 3 and 9, regarding site-specific standards adjustments, TMDLs, and trading policy.

Surfrider Foundation

Comment 18: Remove differentiation between wet and dry seasons since climate change eliminated discernible seasons.

Response 18: Additional information and more careful review of data would be necessary before consideration of eliminating the wet and dry season differentiation. Some studies show that rainfall trends for Hawaii still indicate seasonal differences (e.g., Frazier and Giambelluca).¹ DOH may reconsider and make necessary changes in the future depending on review of the data.

Comment 19: Revise 11-54-8(e) to read: “Raw or inadequately treated sewage, sewage for which the degree of treatment is unknown, or other pollutants of public health significance, as determined by the director of health, shall not be present in natural public swimming, bathing or wading areas. Warning signs shall be posted at locations where human sewage *or other pollutants of human health significance, have* been identified ~~as temporarily contributing to the enterococcus count.~~”

¹ Frazier, A.G., and Giambelluca, T.W. (2017), Spatial trend analysis of Hawaiian rainfall from 1920 to 2012. *Int. J. Climatol.*, 37(5), 2522-2531. Doi: 10.1002/joc.4862

Response 19: Revision to §11-54-8(e) may not be necessary. DOH already has broad posting authority under HAR 11-54-4(e), which reads: “In order to reduce a risk to public health or safety arising out of any violation or probable violation of this chapter, the director may post or order posted any State waters.”

Comment 20: Recommend adding subsection 11-54-8(f) to read: “When the Department declares a Brown Water Advisory, it shall post caution signs as soon as any physical danger which may be presented has passed, and caution signs shall remain posted as long as the Brown Water Advisory is in effect. The Department shall conduct water testing within 72 hours after any physical danger has lifted. If the water quality meets the recreational standards provided in subsections (b) and (c) herein, the Department shall lift the Brown Water Advisory and remove the sign. If the recreational standards provided in subsections (b) and (c) herein are exceeded, the Department shall continue posting, and continue testing every 72 hours until there is no exceedance, at which time the Department will remove the caution sign.”

Response 20: DOH appreciates the suggestions for how to deal with Brown Water Advisories, posting, and resampling. In fact, the suggestions are very similar to common practice of DOH when Brown Water Advisory notifications are given. However, DOH thinks the public interest may be better served by DOH maintaining discretion to alter procedures and not including implementation procedures in regulations.

Comment 21: Instead of the full recommendations in Comment 20, suggest a provision requiring posting only at lifeguarded beaches. Insert after the first use of the word “signs” in the suggested paragraph above in Comment 20, the phrase “at any affected lifeguarded beaches”.

Response 21: DOH is supportive of this suggestion and would like to work with the lifeguard community to implement these procedures. As stated in Response 20, DOH prefers to develop appropriate implementation procedures outside of regulations.

Comment 22: Recommend adding subsection (g) to read: “Temporary caution signs shall be posted at locations where the recreational water quality criteria in subsections (b) or (c) herein are exceeded. Signs shall remain posted until subsequent testing shows that the water quality exceedance has stopped. Permanent caution signs shall be posted at locations where monitoring results show that enterococcus levels exceed 130 colony forming units per one hundred milliliters, more than fifty percent of the time, over a one-year period.”

Response 22: This recommendation would also be considered within implementation procedures. See Responses 20 and 21.

Comment 23: The Department should look at available data to determine which beaches require more frequent testing and permanent caution signs to be most protective of public health. The Department needs to weigh both public use and health risk from documented bacteria

exceedances in determining which beaches it tests and how often sampling occurs, and not just continue to sample high-use beaches that nearly always measure low bacteria levels that do not pose a public health risk.

Response 23: DOH has already changed the beach monitoring frequency, and continues to adjust monitoring efforts based on various factors. DOH also is continuing to investigate additional indicators that may be better indicators of health risk; testing multiple indicators; collaborating with others on developing more rapid and reliable test methods; etc. DOH shares the commenter's common interest in protecting public health of beach recreators.

Applied Life Sciences LLC (Bennett)

Comment 24: In HAR 11-54-1, Definitions, expand definition under "Aquatic life" for marine plants to include algae and limu.

Response 24: The definition of "Aquatic life" comes directly from Hawaii Revised Statutes (HRS) Section 187A-1, so DOH does not intend to alter the definition. DOH interprets marine plants to include algae and limu.

Comment 25: In HAR 11-54-1, Definitions, "Brackish waters" is defined with a lower threshold of 0.5 ppt, which is different than defined by Department of Water Supply.

Response 25: DOH uses different definitions for the applicability of water quality standards criteria for different waterbodies. The definitions are not intended to state the conditions for certain classes of waters that agree with common understanding by other organizations. In most cases, the definitions with different salinity thresholds are used to be sure the appropriate protective standards apply to those waters based on sensitivities of different types of aquatic organisms (marine vs. freshwater) exposed to pollutants in typical salinity conditions for those organisms.

Comment 26: In HAR 11-54-1, Definitions, "State waters" (1) says "...the director may in the director's discretion take appropriate action when the director believes that the discharge of pollutants to the ground or groundwater has adversely affected, is adversely affecting, or will adversely affect the quality of any State water other than groundwater." The word "may" is too vague and should be replaced with "shall."

Response 26: DOH believes the director should maintain discretion in taking appropriate action and suggests keeping the word "may" in this section.

Comment 27: The lack of enforcement of the HAR 11-54-1.1 provision for antidegradation is contrary to its intent.

Response 27: Comment noted. Also, DOH is currently developing antidegradation implementation procedures for NPDES permits and Section 401 water quality certifications. A public notice was issued on February 7, 2019, announcing a public hearing on April 2, 2019 and soliciting public comments on the draft procedures. With the establishment of outlined procedures for the review and evaluation of potential water quality changes from dischargers, the DOH will be better able to maintain and protect existing water quality uses.

Comment 28: Most of the Class AA waters in HAR 11-54-3 (c)(1) are not maintained in their pristine state as pollutants from unofficially sanctioned operations are degrading the water quality (e.g., Kealakehe wastewater treatment plant sump, NELHA aquaculture wastes, and Hapuna Beach restrooms into drainage pits).

Response 28: Comment noted. See also Response 8.

Comment 29: For discharges into HAR 11-54-3 (c)(2), Class A waters, discharges must receive the best degree of treatment or control compatible with the criteria for this class. Best treatment practices have improved since 2012, and best practices are not used as many waters exceed nitrogen and phosphorus criteria (e.g., in Hilo Bay).

Response 29: Best treatment technology for publicly owned treatment works as specified by the EPA is still secondary treatment, defined at 40 C.F.R. Part 133, which includes biochemical oxygen demand removal efficiency and concentration, total suspended solids removal efficiency and concentration, and pH range. The EPA has reviewed and reconsidered changes to the definition of secondary treatment, and retained the current definition (i.e., did not add nutrient removal or controls).

Comment 30: Enforcement provisions should be included in HAR 11-54-3, Classification of water uses, and 11-54-4, Basic water quality criteria applicable to all waters.

Response 30: Enforcement authority and provisions for DOH, particularly for water pollution are in Hawaii Revised Statutes, Chapter 342D, Water Pollution. See in particular, Sections 342D-9, Enforcement; 342D-17, Enforcement by state and county authorities; and 342D-50, Prohibition.

Comment 31: The units need to be included in the numeric standards table. The target for toxicity is not clear nor is the route of exposure. Chlorine is unclear, as it is not in elemental form in water, and at levels listed, as hypochlorite, it is a biocide.

Response 31: The table includes at the top that “All values are expressed in micrograms per liter.” If DOH revises the table, it may make changes to make the units clearer. For Chlorine, total residual chlorine is intended, which includes the free residual chlorine (dissolved

hypochlorite ions, hypochlorous acid, and chlorine gas) plus the combined chlorine forms (chloramines).

Comment 32: The numeric standards table states that values shall not exceed certain values over specific time frames. However, no action or remediation is described when exceedances occur.

Response 32: See Response 30.

Comment 33: For the Kona Coast [in HAR 11-54-6 (d)(1)(B)], the Conservative Mixing Model provides credits or subsidies for nutrients in groundwater and fails to account for the degrading influences of excess nutrients on the groundwater. The models imply the groundwater nutrients are not to be considered in the regulatory standards. The degradation of the receiving waters from watershed pollutants must be accounted for in the regulations as marine life will utilize all nutrients and promote growth. The regulations do not attempt to account for tidal influences on groundwater flows and hence nutrient concentration. Nutrients promote phytoplankton and algal growth and coral decline.

Response 33: The Kona Coast is known to have higher freshwater flows. The adjustment in this section for waters less than 32 ppt factors in the natural freshwater influx, but does not allow for continued or excessive nutrients and pollutants above those found naturally in the higher freshwater flows.

Comment 34: In HAR 11-54-7 (e)(2)(A)(v), Protected reef communities, it is unclear what protection means in this context.

Response 34: “Protected” reef communities in this context means reefs that are generally less exposed to waves and open coastal waters, compared to the other reef categories, and that are not already listed in the other reef categories in this section. The definition in HAR 11-54-7 (e) states, “Protected reef communities” means hard bottom aggregations, including scattered sand channels and patches, dominated by living coral thickets, mounds, or platforms. They are found at depths of ten to thirty meters (thirty-two to ninety-six feet) along protected leeward coasts or in shallow water (up to sea level) in sheltered lagoons behind atoll or barrier reefs and in the calm reaches of bays or coves.’ The other general reef categories used in this section are: 1) all reef flats and reef communities in preserves, reserves, sanctuaries, or refuges; 2) nearshore reef flats; 3) offshore reef flats; and 4) wave exposed reef communities. All reefs are “protected” in some manner by water quality standards in HAR ch. 11-54, so it is understandable that there may be confusion in the use of the word “protected” when describing certain types of reef communities.

Comment 35: For HAR 11-54-8, the application of total Enterococci enumeration for assessment of recreational water safety is scientifically not justifiable. There is some correlation to gastrointestinal illness health risk only when known sewage exposure is occurring. Enterococci

are found in recreation waters where no wastewater source or flood event has occurred. The State should adopt better recreational safety criteria based on accurate risk assessments in Hawaiian waters.

Response 35: The BEACH Act of 2000 and implementing national regulations require coastal BEACH program States like Hawaii to adopt the recommended national recreational waters criteria. DOH at HAR 11-54-8 incorporates this requirement and adopted the national criteria for Enterococci. DOH, however, agrees that additional or more appropriate indicators may better serve Hawaii public beach recreators in protecting them from sewage pollutants and pathogens. DOH has recently started working with the EPA's national program office to explore pathways to propose alternative site-specific recreational waters indicator(s) and/or risk values for some Hawaii surface waters. Work will be ongoing in this effort.

Comment 36: The most significant risk in recreational water microbiology is not from bacteria but virus. A pathogenic virus can be present when Enterococci levels are very low unless there is a documented sewage spill. Also, risk of skin infections is five times greater than gastrointestinal illness risk. Direct measurement of a ubiquitous pathogen such as Norovirus is recommended.

Response 36: DOH agrees that a lot more ongoing and new studies need to be considered in revising and adopting other numeric water quality standards to protect recreational waters. Although direct measurements of the pathogenic agent are best to determine the presence of each pathogen, it is extremely costly to collect samples and analyze specifically for each pathogen. Therefore, although EPA acknowledges that viruses cause many of the illnesses, they recommend the use of fecal indicator bacteria, such as Enterococci and E. coli to generally indicate the potential presence of sewage and associated sewage-associated pathogens. In addition, EPA's review of scientific literature of fecal indicators found that fecal indicator bacteria can multiply and persist in tropical climates, in all water types, and in soils; and may be from non-human sources and have potentially lower risk levels. For all these reasons, alternative site-specific standards development is allowed by EPA. DOH is exploring those possibilities. See also Response 35.

Comment 37: The Director (of DOH) should create an independent review commission and have an ongoing task of reviewing environmental policy and regulations for scientific soundness.

Response 37: Comment noted.