Sent via electronic mail

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Re: Comments on Washington's Water Quality Policy 1-11

On behalf of the Center for Biological Diversity, I offer the following comments on Washington's Water Quality Policy 1-11. Although the Center recognizes that there is a need to ensure that Washington's water quality assessments are based on credible data, the draft Water Quality Policy 1-11 takes an overly restrictive approach to data concerning ocean acidification, thus allowing Washington to willfully ignore a serious water quality problem that will only grow more severe with significant harmful consequences on the marine environment. Accordingly, the policy violates the spirit and the letter of the Clean Water Act.

4. Public participation

The requirement that data be submitted to Ecology's Environmental Information Management (EIM) database and have a Quality Assurance Project Plan (QAPP) frustrates ability of the public to meaningfully participate in the water quality assessment. The Clean Water Act requires public participation. The regulations governing implementation of the Clean Water Act's section 303(d) *require* that states "evaluate all existing and readily available water quality-related data and information to develop the list." 40 C.F.R. § 130.7(b)(5); *see also Sierra Club v. Leavitt*, 488 F.3d 904 (11th Cir. 2007).

In addition to the ability to submit non-numeric data, such as narrative information, directly to the Water Quality Assessment coordinator; Ecology should take a more flexible approach to public submissions. Numeric data that does not conform to the EIM database standards must also be considered. Data that do not have a QAPP must still be evaluated, and their usefulness for water quality assessment can be weighted according to their credibility—rather than a presumption against use. For example, published peer-reviewed scientific research should have a presumption of having used quality assurance protocol. Moreover, the public should be provided with an opportunity to ameliorate data if Ecology raises concerns.

EPA's guidance states that the "[l]ack of a State-approved QAPP should not, however, be used as the basis for summarily rejecting data and information submitted by such organizations, or assuming it is of low quality, regardless of the actual QA/QC protocols employed during the gathering, storage, and analysis of these data" (EPA, Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act at 33 (2005) ("EPA 2006")(EPA advised states to prepare their 2012 303(d) lists consistent with the 2006 Guidance).

EPA's guidance for listing of impaired waters emphasizes that states should evaluate all data, and that listings may be based on small data sets, data other than site specific monitoring, and data from the public (EPA 2006 Guidance).

7. Other Assessment Considerations

The draft policy states:

> The presence of common large-scale physical processes in marine waters, such as upwelling, circulation, and thermal heating effects, presents naturally occurring situations that would override the ability of sufficient human influences to produce exceedances. In these cases, Ecology staff will use historic data and best professional judgment to determine that the human influences are significant or not.

Ecology should strive to create measurable criteria for determining whether the human influences are significant or not. The Clean Water Act is a science-based statute, and assessments should be based on scientific criteria rather than best professional judgment. To the extent that the science is inconclusive, Ecology should adopt a precautionary buffer to ensure that water quality is protected.

Changes in ocean chemistry are irreversible on practical timescales, therefore Ecology is urged to use the precautionary principle when determining its water quality criteria and providing guidance on threatened and impaired waters listings. There are several sound reasons why Ecology's policy should weigh in favor of threatened or impaired listing of coastal waters when data is lacking or uncertain on ocean acidification.

First, there is a great time lag between when carbon dioxide is emitted into the atmosphere and when impacts are realized in the ocean. In a survey of the Pacific Ocean, Feely et al. discovered corrosive waters affected by ocean acidification upwelling onto the continental shelf all along the entire West Coast of the United States (Feely et al. 2008). Notably, "the upwelled water off northern California was last at the surface about 50 years ago, when atmospheric CO^2 was about 65 ppm lower than it is today" (*Id.*). This means that there is already another 50 years worth of carbon dioxide in the Pacific Ocean that will contribute to further acidification and undersaturation with respect to carbonates.

Second, there is already more CO^2 in the pipeline that is going to be absorbed into the ocean. The ocean absorbs CO^2 from the atmosphere until it reaches equilibrium.

> Approximately 7.1 gigatons of carbon are currently emitted annually by human activities.21 However, about 2.0 gigatons of carbon, or approximately 25–30% of annual anthropogenic emissions, are absorbed by oceans,[22] with 3.3 gigatons accumulating continuously in the atmosphere.[23] The oceans have absorbed approximately 525 gigatons of carbon dioxide from the atmosphere over the past 200 years,[24] a rate ten times the natural historical rate.[25] Over the next millennium, it is estimated that the world's oceans will absorb 90% of anthropogenic carbon dioxide currently being released into the atmosphere.26 by the time impacts are observed it may be too late.

(Burns 2008). The existing and accelerating rate of carbon dioxide levels in the atmosphere has already committed our oceans and coasts to irreversible acidification. Thus, even if all CO^2 emissions were to stop now we would still have declining pH and consequent impacts on biological processes.

Third, by the time that Washington State has observed the adverse impacts and documented pH change in excess of most water quality standards and criteria it will likely be too late to avoid devastating impacts of ocean acidification on biological communities, ecosystems, fisheries, and the communities that depend upon the ocean and coastal resources. While the early research on ocean acidification has taken place in the lab, more recent field studies and surveys indicate that ocean acidification is much worse than predicted and the impacts on marine life are already being felt. Projections of future carbon dioxide levels commit us to magnitudes of ocean acidification that could cause the collapse of marine ecosystems. In light of ocean acidification, it is vitally important that Ecology establish protective water quality assessment methods that allow for the maintenance and propagation of marine life and a healthy marine habitat.

Seventy science academies from around the world recently issued a statement warning that "[e]ven with stabilisation of atmospheric CO^2 at 450 ppm, ocean acidification will have profound impacts on many marine systems" (Interacademy Panel 2009). The statement called for large and rapid reductions of global carbon dioxide emissions because the biological consequences of ocean acidification. Additionally, 155 of the leading scientists of ocean acidification from around the world issued a statement calling for governments to take action because ocean acidification is underway and it has already reached detectable levels with impacts on marine ecosystems (Monaco Declaration 2009). The best available science tells us that ocean acidification is occurring rapidly and that we need deep and rapid reductions in carbon dioxide emissions to prevent the worst consequences to ocean ecosystems and the economies that depend on them.

In sum, Ecology should therefore amend its policy to adopt a precautionary approach to ocean acidification.

8. Specific Submittal and Assessment Criteria

b. Bioassessment

Biological assessment is a very important tool for protecting water quality. Ecology should strive to create biological criteria for marine waters. Moreover, where biological assessment information is unavailable in accordance with the Environmental Assessment SOP, Ecology must still consider these information and data. As the field of biological assessment is emerging, data consideration must be more flexible. Ecology is encouraged to create more biological assessment criteria and monitoring for ocean acidification.

e. pH

Ecology's revision to the draft Policy that specifically seeks to deal with studies regarding ocean acidification is unwarranted. It is an impermissible attempt to limit the data and information that may be considered in Washington's water quality assessment. Indeed, it appears as though Ecology has included this paragraph specifically to frustrate the Center's attempts to bring Ecology's attention to the important issue of ocean acidification.

The draft policy states:

> Concerns about declining pH in oceans have raised issues regarding whether pH in Washington's coastal waters are being impacted by absorption of anthropogenic carbon dioxide pollution. For water quality assessment purposes, Ecology will consider pH data submitted for specific waterbody segments that show a measurable declining trend in pH. These data will need to meet all requirements outlined in chapters 1 and 2 of Policy 1-11 to be considered. This approach is consistent with the EPA memorandum of 11/15/2010 issued by Denise Keehner, Director of Oceans and Watersheds, regarding "Integrated Reporting and Listing Decisions Related to Ocean Acidification."

With regard to water quality assessments for ocean acidification, the absence of site specific monitoring should not obviate the need to list ocean waters as threatened or impaired, rather it demonstrates a need for additional coastal monitoring. Recognizing the limited monitoring data available, states must consider a more expansive versus cautious approach to monitoring data (EPA 2006 Guidance). Site-specific monitoring data is not required for impaired water listing. EPA regulations require that "reports from dilution calculations and predictive modeling" be included in the data and information that a state considers in its assessment process for section 303(d) listing purposes. 40 CFR 130.7(b)(5)(ii)). EPA guides states to consider even very small sample sets to ascertain the attainment status of waters. Moreover, states should use information about observed effects, predictive modeling, and knowledge about pollutant sources and loadings when making its listing determinations (EPA 2006 Guidance).

Washington, therefore, must take into account not only site-specific monitoring, but also studies of offshore monitoring, predictive modeling, knowledge about atmospheric carbon dioxide levels and rates of increase, as well as laboratory studies on the impacts of ocean acidification on organisms to identify threatened and impaired waters. "EPA also supports the use of predictive modeling and other non-site-specific data such as remote sensing data, land use analysis, and knowledge about pollutant sources and loadings to make assessment decisions"(Environmental Protection Agency, 2010: 7). Additionally, Washington can make a presumption that a pollutant source from atmospheric deposition is uniformly affecting water segments in large geographic areas (Environmental Protection Agency 2010). The best available scientific information on ocean acidification can and must inform the development of 303(d) lists, even if site-specific measurements are not available. There is a significant body of science confirming that ocean acidification is occurring which must be fully considered in the 303(d) listing process. Additionally, the synergistic effects of global warming, pollution, with ocean acidification should be considered.

Due to the unique nature of ocean acidification, lack of site specific monitoring does not diminish the severity of the problem or the need to list waters as impaired. Accordingly, Washington may not dismiss any of the information and data submitted concerning ocean acidification—whether or not it contains site-specific measurements meeting the exacting data requirements for numeric information in the draft policy.

Conclusion

I appreciate the opportunity to submit comments on Washington's draft policy.

Sincerely,

/s/ *Miyoko Sakashita*
Miyoko Sakashita