



## MEMORANDUM

March 15, 2013

TO: CAROL KRAEGE  
Washington State Department Of Ecology

FROM: LINCOLN LOEHR

RE: Comments on White Paper re Toxics Policy Reform

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Thank you for the opportunity to provide comments concerning the White Paper. My comments address mainly the statement on page 5 that,

*“More than 1,700 water body segments in Washington are impaired due to high levels of toxic chemicals or metals.”*

My comments also address the discussion about zinc on page 22.

More than 1,700 water body segments impaired due to toxic chemicals or metals.

Ecology’s current EPA approved list of impaired waters show that the actual number of impaired segments is a lot less. The small number of listings associated with zinc or copper also calls into question the perceived impairments from these metals and the regulatory pressures currently applied.

The impaired listings consist of individual listings for each parameter. There are often cases where many parameters are separately listed for the same segment. Therefore, it is incorrect that there are more than 1,700 water body segments identified as impaired due to toxic chemicals or metals.

I reviewed the category 5 (impaired) listings from Ecology’s current EPA approved 303(d) list and determined the following:

Water:

- There are only 59 listings for toxics in freshwater and 2 listings for marine water.
- For zinc, there are only 3 listings for freshwater based on data from 1995 to 1999, and no listings for marine water.
- For copper, there are 16 listings for freshwater and only 2 listings for marine water, both in boat marinas.

The water quality data reviewed by the state and used in preparing the list of impaired waters do not demonstrate a widespread or significant contamination problem from either copper or zinc.

#### Tissue:

- There are 287 listings for toxics in freshwater tissue. These are mostly for pesticides, PCBs and dioxins. A number of these will be separate parameters co-occurring in the same tissue samples, meaning the actual number of segments will be less, but I made no effort to evaluate what the actual number of freshwater segments should be.
- There are 229 listings for toxics in marine tissue. 149 of these listings are for various PAHs in mussels and clams. These PAHs co-occur in the samples so the total number of samples with PAHs is probably 33, which is the number affected by Chrysene.
- The only tissue metals listings were for mercury and inorganic arsenic.
- About 30% of all the tissue based listings were for PCBs.

The tissue quality data reviewed by the state include many constituents that co-occur in these samples. Counting each parameter hit as a separate individual segment hit results in an over statement of the number of impaired segments.

#### Sediments:

- There are 7 listings for toxics in freshwater sediments. 4 are associated with sediment bioassay results since until very recently there were no numeric freshwater sediment criteria to compare to. 3 are associated with PCB criteria exceedances which is odd because no such criteria existed.
- There are 743 listings for toxics in marine sediments. These are for many different parameters in a fairly small number of actual segments, mostly in Bellingham Bay, Budd Inlet, the Tacoma area, the Duwamish Waterway, the Bremerton area, Port Gamble, the Anacortes area, Port Angeles, and the Everett area. Most all of the sediment listings are probably contained in 40 to 50 segments.
- Many of the toxic parameter specific listings for marine sediments are simply incorrect. It is common within the listings to find sites where a parameter is described as meeting the sediment quality standards, but gets listed as impaired for that parameter because it is a cleanup site, which is actually driven by other parameters. (See Ecology listing ID 507557 as an example for zinc and listing ID 501171 as an example for sediment bioassay.) Some note that there are data for the parameter but say nothing about whether the data exceed criteria and list it as impaired again because it is part of a cleanup site. (See Ecology listing ID508566 as an example for arsenic.) Some actually say that criteria are exceeded, so those are less questionable. There are well over 500 of the parameter specific sediment impaired listings for toxics that appear to have no validity.

- In the case of sediment listings for zinc, there are 26. 6 stations near Tacoma are clearly identified as having zinc concentrations that exceed the sediment cleanup screening level (but all for samples that are from 18 to 23 years ago, close in time to when the Asarco facility was still active). 4 stations in the Duwamish say very clearly that the samples do not exceed the SMS chemistry criterion, but they are designated as impaired for zinc anyway because they are in a Superfund site. 16 stations identify that there were samples collected, but say nothing about how they compared to the zinc sediment criteria, only that they are in MTCA or Superfund sites, so they are listed as impaired for zinc.
- In the case of sediment listings for copper, there are 25, all of which were segments included in the sediment listings for zinc. These have the same issues for the copper listings as they did for the zinc listings.
- There is a similar pattern for numerous other parameters as well.
- There are more than 15 different PAHs that co-occur, resulting in multiple listings for the same segment.

The approach used for the listing of sediment segments results in a great exaggeration of the number of segments listed for toxics. Many of the specific parameter listings are simply wrong. While the segment should be listed, based on one or more specific parameters, listing as impaired and as part of a MTCA or Superfund site does not support listing for numerous other parameters that do not in fact exceed criteria. Parameter specific listings for a segment must be based on evidence that the parameter in question exceeds applicable standards. The listing document needs also to demonstrate that analysis of the data shows that the parameter in question actually exceeds criteria. Most of the sediment listings do not make such a demonstration.

### Zinc concerns.

Page 22 includes a discussion about zinc. The discussion talks about zinc in high enough concentrations to kill adult fish. While particular stormwater discharges may have elevated levels, Ecology appears to lack data from receiving waters indicative of significant impairment due to zinc. As noted in the discussion above about the impaired water body segment listings, there are no segments in Puget Sound listed for water concentrations of zinc above criteria.

The discussion notes that the majority of zinc that enters Puget Sound and its freshwater tributaries comes from human-caused sources. That's actually not true. Ecology's Phase 3 studies of surface runoff from different land uses show that about 80% of the total loading of zinc comes from the forest land use. The forest land use loading is not associated with human causes. In fact, Ecology's Phase 3 studies of surface runoff shows that the forest land use typically accounts for 80 to 90% of the loading for all of the

metals and other toxic chemicals that were studied.<sup>1</sup> This does not mean that the forest land use loading is of environmental concern, but it does provide context when talking about loadings.

Perhaps there are some surface waters impacted by zinc concentrations higher than the water quality criteria, in which case actions to address the problem are appropriate. The Spokane River is such an area, and a regulatory program called a total maximum daily load was established to address metals concerns. It is not included on the impaired waters list now because the TMDL has been done and implemented. However, since the metals problem was associated with historic mining in Idaho, I would expect that the River still has times it exceeds the metals criteria for zinc.

The discussion about zinc on page 22 raises very significant concerns about municipalities, ports, and businesses facing expensive source control and treatment measures for stormwater discharges because of zinc. The concerns raised are real. These parties are facing significant regulatory compliance problems. The available data however do not support a significant water quality problem from zinc in our state, especially for Puget Sound.

#### Summary:

The White Paper asserts that more than 1,700 water body segments are impaired. A review of Ecology's 303(d) list indicates that there are far fewer segments impaired by toxics. The total number of separate parameter specific segment listings is a cause for confusion, but should not be represented as all separate segments. There is much double counting in tissue and sediments and in the case of sediments there are parameter specific listings that are simply wrong. I do not know how many separate water body segments are impaired for toxics, but I suspect the number is more in the 300 to 500 range.

The 303(d) listing of impairments for the metals copper and zinc do not demonstrate a significant environmental problem, especially in marine waters. This should make us pause and contemplate just how much environmental benefit may result from the very substantial actions required of industrial and municipal stormwater permittees now and in the future for these parameters. Are large scale control measures for these parameters really needed, or should we focus our efforts better to address local areas where there may be some real issues with these and other parameters? I sense that the present NPDES stormwater program for zinc is compelling us to buy into a feel good placebo and poses very significant challenges to permittees. I appreciate that the Toxics Reduction Strategies Workgroup is trying to find better ways to address toxics and metals concerns.

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<sup>1</sup> See Table 15 in *Toxics in Surface Runoff to Puget Sound Phase 3 Data and Load Estimates*, Department of Ecology, April 2011, publication No. 11-03-010.