



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

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OFFICE OF
WATER AND WATERSHEDS

Mr. Mark Willrett
Director of Public Works
City of Klamath Falls, Oregon
500 Klamath Avenue
P.O. Box 237
Klamath Falls, Oregon 97601

MAR 07 2013

Re: Comments on Proposed Decision to Add Waters to Oregon's 2010 Impaired Waters List

Dear Mr. Willrett,

Thank you for submitting comments regarding the EPA's decision to add waters to Oregon's 2010 Impaired Waters List. Your counsel brought to our attention that the EPA inadvertently overlooked the City of Klamath Falls' (The City) comments in making our final decision on Oregon's 2010 Impaired Waters List in December 2012. (Unfortunately, the subject line of your email submission simply read, "FW: Image Attached," and was without any identifying information indicating that comments on EPA's proposed additions to the Impaired Waters List were included.). We regret this oversight, and given the substantive nature of your comments, EPA decided to reopen our decision on the specific water segments the City commented on and provide responses that will be contained in the administrative record for the final decision on EPA's additions to Oregon's 2010 Impaired Waters List.

After consideration of the City's comments, EPA has determined that sufficient basis remains to determine that Agency Lake, Upper Klamath Lake, Link River and the Klamath River are impaired for arsenic and the Klamath River and Upper Klamath Lake are impaired for pH and should be listed as Category 5 waters on Oregon's Impaired Waters List. Based on other comments the EPA received, the ammonia listing for the Klamath River had already been removed. The EPA's responses to the City's comments are attached in the enclosure to this letter.

The EPA's response to the City's comments will also be posted on our website at: <http://yosemite.epa.gov/R10/water.nsf/TMDLs/R10addsto2010ORList>, where all of the other decision documents and comment responses are posted. As noted in our response to your comments, several of the City's comments also were submitted by other commenters, were considered before the final addition of waters to Oregon's 2010 Impaired Waters List, and were responded to in the EPA's original response to comments document. The EPA now also has considered unique comments made by the City and has determined that these comments do not change our decision to add the above waters to Oregon's 2010 Impaired Waters List.

Again, I apologize for our having inadvertently overlooked the City of Klamath Falls' email submission, and I appreciate your counsel bringing this to our attention. We thank you for your interest in Oregon's water quality assessment and value your participation. As you may be aware, Oregon has begun developing their next Impaired Waters List. The EPA encourages the City of Klamath Falls to submit comments you deem appropriate to the State during their public comment process. Please feel free to

contact David Croxton, Manager, Watershed Unit, at 206-553-6694, or Jill Gable, Impaired Waters Coordinator, at 206-553-2582 with any additional questions or concerns.

Sincerely,



Daniel D. Opalski, Director
Office of Water and Watersheds

Enclosure

Cc: Stephen Higgs, Perkins-Coie (electronic)
Jennifer Wigal, Oregon Department of Environmental Quality (electronic)
Karla Urbanowicz, Oregon Department of Environmental Quality (electronic)

Response to City of Klamath Falls Comments
on
EPA's Additions to Oregon's 2010 Clean Water Act 303(d) List
March 6, 2013

Arsenic listings:

Comment 1a: EPA has no basis for listing the Klamath River as impaired for Arsenic for river segments immediately upstream and downstream of HWY 66. An exhaustive search of the DEQ's LASAR database did not find any data for the Klamath River at HWY 66 (Keno). This LASAR station ID could not be found in the database.

The data are in LASAR as shown in the supporting documents which support this listing, including five exceedences from samples collected between 1/26/10 and 9/21/10, at LASAR station 10765, Klamath River at Hwy 66 (Keno).

Comment 1b: EPA has no basis to list Agency Lake or Upper Klamath Lake as impaired for arsenic. EPA provided no arsenic data of any type to show that Upper Klamath Lake and Agency Lake are water quality limited for arsenic. It appears that EPA may be extrapolating the data on total recoverable arsenic from river mile 253 at Link River (which as discussed below is not a valid basis to list the river as impaired) across Upper Klamath Lake and Agency Lake up to river mile 285. This action is unsupported by any available data or analysis.

Oregon's 2010 Assessment Methodology, which the EPA used in this assessment, states: "For a water body with only one monitoring site, the assessment unit segment is from mouth to headwaters" (page 12). There are several stations where arsenic data were collected in the Klamath River which all show impairment for arsenic. Therefore the entire length of the river in Oregon was listed as impaired, including areas where no data has been collected. The extent of impairment will be more specifically evaluated during the TMDL process.

Comment 2: EPA has no basis in the record to list Agency Lake, Upper Klamath Lake, Link River, and Klamath River as impaired for arsenic for any stream reach. The LASAR database presents arsenic data used by EPA for LASAR stations 10764 (Big Bend) and 10768 (Link River). However, these data are for total recoverable arsenic and not inorganic arsenic. (Oregon's water quality criterion is established for inorganic arsenic only.) Total recoverable arsenic is not used as a water quality criterion in Oregon. EPA therefore used the wrong parameter (total recoverable arsenic) to evaluate whether the Klamath River is impaired for inorganic arsenic and, as a result, the listing proposal is flawed.

Comment 3: Total recoverable arsenic is not a scientifically-sound surrogate for inorganic arsenic. This is true for two reasons.

Enclosure 1: EPA Response to City of Klamath Falls Comments on OR 2010 303(d) List

1.) The dominant species of arsenic in a waterbody depends on biological activity in that waterbody (citation: "Distribution of speciation of arsenic in natural water and some marine algae" by Meinrat O. Andreae, Deep Sea Research, Vol. 25, Issue 4, April 1978, Pp. 391-402). EPA did not evaluate biological activity in the Klamath system, which is particularly influenced by biological activity and algal growth.

2.) The amount of arsenic in a waterbody is not necessarily correlated or connected to the level of total arsenic or total recoverable arsenic in the waterbody (citation: "Arsenic, Mercury and Selenium in Fish Tissue and Water from Idaho's Major Rivers: A Statewide Assessment" by Don Essig, March 2010). This report found that in Idaho the average ratio of inorganic to total arsenic is about 0.73, but varies from 0.25 to 1.0. Also the TMDL for the Similkameen River in Washington State (Ecology publication no 02.03.044 see Table 8) indicated a significant difference between total recoverable and inorganic arsenic.

It is inappropriate for EPA to list Agency Lake, Upper Klamath Lake, Link River or the Klamath River as water quality limited for arsenic. Total recoverable arsenic is not a water quality criterion and it is not a reasonable surrogate to determine the level or inorganic arsenic in these waterbodies.

No inorganic arsenic data for the time period of consideration (1/1/2000 to 12/31/2010) are available from LASAR, STORET or NWIS (USGS database). Therefore, the EPA used the data that were available for total recoverable arsenic. The studies cited for Washington and Idaho are cases where both total recoverable arsenic and inorganic arsenic data were available. If there had been inorganic arsenic data available, the EPA would have used it. The Washington Similkameen River TMDL study was actually an in depth monitoring project for a waterbody that had been listed on the 303(d) list as impaired based on total recoverable arsenic data (not inorganic arsenic, which is what is in Washington's water quality standards.) Please also see response to other similar comments in the EPA's Response to Comments excerpted below:

Commenters (3), (4), (9) and (13) disagreed with the listings of Klamath River, Beaverton Creek and Fanno Creek for the following reason: The proposed listing is based on exceedences of Oregon's human health criterion of 2.1 ug/l. The criterion is expressly for "total inorganic arsenic" not total arsenic. All the data on which the listing is based were for total arsenic. There is no information on the portion of the total that is in inorganic form. In the absence of data on inorganic arsenic concentrations there is no basis for listing.

Evaluating total recoverable arsenic for inorganic arsenic in the water column is an acceptable practice (See "A Review of the Source, Behaviour and Distribution of Arsenic in Natural Waters," Applied Geochemistry, 17, 517-568. Smedley, P. L. and Kinniburgh, D. G. 2002.) The EPA evaluated the total recoverable arsenic water column data to compare them to Oregon's criteria. There are two primary reasons for this evaluation method. First, organic forms of arsenic

are usually minor in surface waters. Second, virtually none of the samples collected in Oregon was analyzed only for inorganic arsenic in the water column. There is a basis for listing as the data show clear impairments: Fanno Creek had three values over the criteria (one value double the criteria), Beaverton Creek had five values over the criteria and Klamath River had nine values over the criteria (one value triple the criteria).

Comment 4: Application of Oregon's statewide 2.1 ug/l inorganic arsenic criterion to the Klamath River Basin is inappropriate. Natural background levels of arsenic are high in the basin and there is evidence that this is the cause of the exceedance of the numeric criterion. DEQ intends to develop site-specific criteria for arsenic for the Klamath River. DEQ is considering changing the designated uses of the Klamath River due to the naturally elevated levels of arsenic. Thus, it is unreasonable to use the state-wide criterion as the benchmark to determine whether Agency Lake, Upper Klamath Lake, Link River or the Klamath River are impaired for arsenic.

Currently the 2.1 ug/l numeric criterion applies to the Klamath basin as it does throughout the rest of Oregon. In our evaluation of compliance with the water quality standards, the EPA cannot pre-suppose the outcome of a site-specific criteria analysis or designated use re-evaluation. Data on natural background conditions will be assessed during the TMDL process or when the State proceeds with site specific criterion.

Comment 5: EPA lacks sufficient documentation in its record to explain what assessment protocol or criteria it used to determine that the Agency Lake, Upper Klamath Lake, Link River or the Klamath River are water quality impaired for arsenic. Information provided during the public comment process was unclear and insufficient to understand the basis for listings.

The EPA's record includes the Listing Methodology used for determining water quality impairments for arsenic along with all the data and data sources the EPA reviewed in making its impairment decisions. These include water quality data specific to the Klamath system. Additionally, the EPA's record includes Oregon's Listing Methodology which provides further explanation about their listing protocols, particularly Oregon's waterbody segmentation protocol. All of this information was available to the public to review. The EPA believes sufficient information is contained in the record to explain the basis for determining impairment for arsenic.

Comment 6: EPA's supporting data for the listing proposal indicates that the Klamath River at the mouth of Link River has already been listed on Oregon's 303(d) list and that a TMDL has been established for arsenic. This is not the case. There is no TMDL for arsenic anywhere in the Klamath River basin.

The EPA agrees that there is no arsenic TMDL for the Klamath River. We were not able to find any place in the supporting data that mentions such a TMDL. If such a reference does exist, it was in error and has no bearing on the listings.

Ammonia listings

Comment: The City's review of EPA's proposed listing of ammonia for the Klamath River is based upon an examination of two EPA documents. We found multiple errors and inconsistencies between the proposed ammonia listing and the data that EPA erroneously relied on to support the listing. EPA lacks sufficient documentation in its record to list the Klamath River from river mile 207 to 275 as water quality impaired for ammonia.

Based on similar comments received by other commenters, this listing has been removed because it was a duplicate of the same area already listed by ODEQ in 2010.

pH Listing:

Comment: River mile 253 is the mouth of Link River, which is not part of Upper Klamath Lake. The data used for the listing is only from Upper Klamath Lake, so there is no basis to include Link River in this listing.

The EPA did not create new segmentation for the listings, but used existing segmentation for Klamath River/ Upper Klamath Lake as previously delineated by DEQ. The segmentation used for this listing is similar to that used for all listings for "Klamath River/Upper Klamath Lake."

Comment: The LLID information as stated in EPA's Listing document indicates that the listing starts at the Oregon California border. This is inconsistent with EPA's proposal to list the river from river mile 253 to 275.

The LLID number refers to the entire waterbody, the river miles of the listing specify the segment that is impaired.

Comment: All of the USGS data for pH are from June through September and cannot support a "fall-winter-spring" listing.

The listing is based on data collected between October and May, the correct season for the "fall-winter-spring." The specific dates are indicated in the database in the record.