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April 18, 2014

Paula Wilson
IDEQ State Office
Attorney General's Office
1410 N. Hilton
Boise, ID 83706

RE: Docket No. 58-0102-1201 - Negotiated Rulemaking
Idaho's Fish Consumption Rate
Suppression

Dear Ms. Wilson:

Clearwater Paper Corporation appreciates the opportunity to comment on Docket 58-0102-1201 as noted above. We value the work the Idaho Department of Environmental Quality (IDEQ) has done on this very important matter. We have attended previous meetings and look forward to participating further as this rulemaking proceeds.

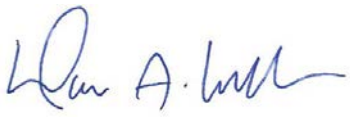
Clearwater Paper retained Exponent to provide technical comments on the subject rulemaking topic. Exponent is an internationally recognized environmental science consulting company and is retained by both private and public sectors organizations for their help in addressing difficult issues.

Exponent's work product is attached. A summary of their work is as follows"

> *"Adequate data from studies conducted in historical times (i.e., pre-suppression) are not available to adequately quantify historical fish consumption rates for the purpose of regulatory decision making. The one modern study conducted in the Pacific Northwest that specifically focused on collecting data on past fish consumption (25 years prior to the study) is not adequate for deriving a reliable fish consumption rate. More importantly data collected for coastal populations (where fishing resources are abundant, and other resources may not be) are unlikely to provide a representative fish consumption rate for inland populations with more limited access to fish."*

Please contact me at 509-344-5956 or marv.lewallen@clearwaterpaper.com with questions.

Sincerely yours,



Marv Lewallen
Vice President – Environmental, Energy & Sustainability

C: Don Essig

W/ Attachment A

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Fish Consumption Suppression and Water Quality Criteria Rulemaking in Idaho

As part of a Negotiated Rulemaking for water quality standards, the Idaho Department of Environmental Quality (IDEQ) has convened a series of public meetings addressing critical issues for water criteria development. The October 2, 2014, meeting addressed the issue of fish consumption suppression and included presentations on this topic by the Shoshone Bannock Tribes (Shoshone Bannock 2014) and the Nez Perce Tribe (Nez Perce 2014). At the request of Clearwater Paper, Exponent reviewed these presentations and related information on fish consumption suppression; we provide comments below. These comments are not intended as a detailed review of fish consumption suppression, but rather to provide a discussion of important issues for evaluating suppression as it relates to water quality criteria development.

Background

Fish consumption suppression is generally defined as a diminished rate of fish consumption compared to an appropriate baseline. In the context of regulatory decision-making and water quality criteria development, it is important to evaluate suppression not just on the basis of whether it exists, but also the causes. The definition is often expanded to describe an *artificially* diminished fish consumption rate *because* of a perception that the fish are contaminated (U.S. EPA 2000). However, suppression may occur as a natural consequence of social development and/or *because* of other reasons both related and unrelated to chemical impacts.

The two specific issues addressed in these comments are the potential causes of suppression and quantification of historical fish consumption rates.

Issue: Evaluating Potential Causes of Suppression

Native American populations in the Pacific Northwest consume less fish than they did historically (Scholz et al. 1985; Harper and Harris 2008). It has been proposed that historical fish consumption patterns be used to establish an appropriate baseline to assess current suppression rates (Harper and Harris 2008). When evaluating whether to consider suppression in water quality criteria development, it is important to separate causes of suppression that are related to chemical impacts from those that are not. The table below lists potential causes of suppression, grouped by those related to chemical impacts to water and those that are not.

Potential causes of suppressed fish consumption

Related to Chemical Impacts	Unrelated to Chemical Impacts
Fish population decline associated with chemical impacts	Fish population decline unrelated to chemical impacts
Fish advisories and other restrictions	Social changes in dietary patterns and choices
Perception of contamination	Changes in family/social structure
	Habitat loss
	Availability of alternative foods and economic resources to purchase them

If suppression is primarily due to chemical impacts, then water quality criteria that quantitatively incorporate non-suppressed fish consumption rates could theoretically contribute to reversal of suppression and lead to higher fish consumption; this might suggest the need for more stringent water quality criteria in the future, if consumption changed to a higher level. However, if suppression is primarily due to factors unrelated to chemical impacts (e.g., societal changes, habitat loss), incorporating higher rates of fish consumption in water quality criteria based on historical practices would not likely lead to a higher rate of consumption in the future; in which case water quality criteria based on current consumption patterns would meet the goal of providing a high degree of public health protection, both currently and in the future.

Of the three potential causes of suppression related to chemical impacts listed above, fish population decline associated with chemical impacts is addressed in water quality criteria for the protection of aquatic life rather than human health. The other two potential causes associated with chemical impacts (i.e., recommended limits on fish consumption based on fish advisories or other restrictions and self-imposed limits based on real or perceived risks from chemical concentrations in fish) are associated with water quality criteria either directly or indirectly. However, it is unclear that either of these potential causes are actually significant reasons for diminished fish consumption relative to historical rates of consumption. Harper and Harris (2008) discuss reduced fish consumption from the Columbia River basin among the Confederated Tribes of the Umatilla Indian Reservation: “Many people have lost access to traditional fishing sites for a variety of reasons, while others lack time to fish, or have reduced fishing to avoid harassment which can be quite significant.” In addition, the authors state that “due to the reduction in fish availability, all of these baseline [health] benefits have been adversely affected, even without contamination.” Scholz and colleagues (1985) attribute significant declines in fish harvest related to dam construction from the late 1800s through the 1930s. Consistent with this, the presentation by the Shoshone Bannock (2014) indicates a steep decline in returning Columbia River salmon, from an estimated 17 million in 1855 to approximately 1.5 million in 1940, with populations hovering around that level to the present.

Conclusion of Issue

The available information indicates that reductions in fish harvest and consumption occurred in the 1900s in association with development of hydroelectric plants, diminished fish resources,

more limited access to fishing sites, and social changes. However, no scientific data are available to indicate suppression of fish consumption from historical levels is attributable to chemical impacts.

Issue: Quantification of Historical Fish Consumption

The presentations at the IDEQ Negotiated Rulemaking public meeting on October 2, 2014 reported that fish harvest has declined significantly among Native American populations. As noted above, the presentation by the Shoshone Bannock (2014) reported a decline in returning Columbia River salmon from an estimated 17 million to 1.5 million between the late 1800s and the mid-1900s. Although a documented decline in fish population would not necessarily result in a decline in fish consumption if the remaining resource is not a limiting factor for harvest and consumption at the desired level, available information indicates a decrease in fish consumption that correlates with the timing of the declining resource (Scholz et al. 1985).

The available information about historical fish consumption patterns in the Columbia River basin is primarily anecdotal in nature, collected by ethnographers and historians (Scholz et al. 1985). The information is useful for understanding general shifts in cultural patterns in the context of changing resource levels; however, the methods used to collect the information do not provide adequate data to support quantitative estimates of fish consumption or specific changes in fish consumption over time. Minimum standards for method development, data collection and analysis, data quality assurance evaluation, and reporting are required by regulatory agencies for current studies to be adequate for use in regulatory decision-making. Historical information was not collected using standard dietary survey methods, nor was it subjected to the level of review that would be a requirement for studies evaluating current consumption patterns.

Retrospective surveys that ask respondents to recall consumption patterns from the distant past are unlikely to produce reliable, quantifiable estimates of fish consumption. Analyses indicate that retrospective diet history surveys, such as food frequency questionnaires that look back over even the limited timeframe of a year or longer, are more likely to overestimate actual consumption than surveys requiring short-term recall (e.g., 24-hour) (Rasanen 1979). Recall would suffer to an even greater degree for surveys that extend back further in time. In addition, the survey would be limited to older members of the population, whose fish consumption habits may differ substantially from younger members. Thus, any current study soliciting information about consumption patterns from the distant past may not be representative of current or likely future consumption patterns, independent of any chemical impacts.

One study conducted in Pacific Northwest by the Lummi Tribe collected information on "historical" fish consumption rates, asking respondents to report fish consumption information from 25 years prior (Lummi Nation 2012). The study was limited to adult male tribal members over 45 years of age (men at least 20 years old in 1985). The study authors briefly discussed in the report the uncertainties and limitations associated with long-term study designs such as this, and acknowledged the potential for recall bias, but did not provide a basis for establishing that recall bias did not impact the study results. In addition, as documented in the study, the focus was on a single year (1985) with a substantially higher harvest than all years after or at least five

years before (the earliest reported in the study). Therefore, even if an accurate estimate of fish consumption in 1985 could be derived, it would likely overestimate long-term consumption patterns either before or after 1985.

Finally, the Lummi reservation is situated on Puget Sound, and Tribal members have far different fish resources and fish consumption habits from inland Tribes in Idaho (Exponent 2013). For these reasons, the Lummi Nation study does not provide adequate information to derive a reliable estimate of fish consumption in the past (1985), nor is it relevant to establishing fish consumption rates for residents in Idaho.

Conclusion of Issue

Adequate data from studies conducted in historical times are not available to accurately quantify historical fish consumption rates. The one modern study conducted in the Pacific Northwest that specifically focused on collecting data on past fish consumption (25 years prior to the study) is not adequate for deriving a reliable fish consumption rate. More importantly, data collected for coastal populations (where fishing resources are abundant, and other resources may not be) are unlikely to provide a representative fish consumption rate for inland populations with more limited access to fish.

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