

August 29, 2003

Martin Fitzpatrick
Water Quality Division
Oregon Department of Environmental Quality
811 S.W. Sixth Ave.
Portland, OR 97204

Re: **1999-2002 Triennial Review of Water Quality Standards**
Proposed Rule for Toxic Contaminants

Dear Mr. Fitzpatrick:

Northwest Environmental Advocates strongly supports Oregon's taking action to remedy years of failure to update its toxic criteria. That said, however, we believe that not only is the Department failing to take advantage of this triennial review to provide full protection to the state's designated and existing uses but that it is actively failing to meet the legal requirements of the Clean Water Act and Endangered Species Act, and to meet the intent of Executive Orders to protect children and remedy environmental injustice.

It is unfortunate for protection of the beneficial uses in Oregon, as well as for the deliberations that form public policy, that the Department has chosen to defer, in many instances, to the judgment of the industry-dominated Policy Advisory Committee (PAC). Although the PAC had a sound agreement, revisited many times but not altered, to use consensus decision-making with a super-majority fallback option, the Department decided to note the actual votes of Committee members in its Issue Paper. It then proceeded to "factor[] this majority approach into its deliberations in lieu of full consensus." Toxic Pollutants Criteria – 1999-2003 Water Quality Standards Review Draft Issue Paper (hereinafter "Issue Paper"), Department of Environmental Quality, 2003, at 56. This majority of which the DEQ speaks is the voice of the pulp and paper industry, the forest industry, the manufacturing industry, the meat industry, and the agriculture industry. A "strong majority vote" by the PAC is merely the statement of what industry wants. It is unwise for the Department to interpret its obligations pursuant to the Clean Water Act based on the vested interests of the State's major polluters.

I. LEGAL AND REGULATORY REQUIREMENTS

A. Clean Water Act

When a State reviews water quality standards in its triennial review, it must adopt specific numeric criteria for all toxic pollutants for which EPA has published criteria. 33 U.S.C. § 1313(c)(2)(B); 40 C.F.R. § 131.11(a)(2). For the remainder of the chemicals on the list, States are required to adopt criteria "based on biological monitoring or assessment methods." *Id.*; 40 C.F.R. § 131.11(b)(2). Furthermore, "[f]or waters with multiple use

designations, the criteria shall support the most sensitive use.” 40 C.F.R. § 131.11(a)(1). During the triennial review, “States must review water quality data and information on discharges to identify specific water bodies where toxic pollutants may be adversely affecting water quality or the attainment of the designated water use or where the levels of toxic pollutants are at a level to warrant concern and must adopt criteria for such toxic pollutants applicable to the water body sufficient to protect the designated use.” 40 C.F.R. § 131.11(a)(2). There is no evidence in the record that the Department has followed these legal requirements, and more important there is no evidence in the results – namely the proposed rule – that it has. Consequently, the proposed rule lacks sufficient basis to meet the requirements of the Clean Water Act, leaving EPA no choice but to disapprove the rule once the Environmental Quality Commission (EQC) finalizes it.

1. *Toxic Pollutants for Which EPA Has No Recommended Criteria*

The CWA requires States to adopt criteria “based on biological monitoring or assessment methods” for all toxic pollutants that have been listed on the toxic priority pollutant list for which EPA has not published criteria pursuant to section 304(a) pollutants whenever a State conducts its triennial review. U.S.C. § 1313(c)(2)(B). Of the 126 priority toxic pollutants identified by EPA, at least 18 have no published EPA-recommended criteria. Since 1988, when Oregon last established any numeric criteria for priority toxic pollutants, DEQ has failed to adopt criteria based on biological monitoring or assessment methods for these pollutants. In the now on-going and long overdue 1999-2002 triennial review, the Department does not maintain the option of ignoring this legal requirement.

2. *Narrative Criteria*

In addition to the numeric criteria, water quality standards include narrative criteria. Narrative criteria are especially important because numeric criteria “cannot reasonably be expected to anticipate all the water quality issues arising from every activity that can affect the State’s hundreds of individual water bodies.” *PUD No. 1 of Jefferson County and City of Tacoma v. Washington Department of Ecology, et al.* 511 U.S. 700, 717 (1994). Narrative criteria provide a mechanism to address any unanticipated water quality issues the State may encounter. *Id.* To this end, they serve to fill the gaps left by numeric criteria that have not been updated, do not exist, or were not developed to protect the most sensitive uses of a water body. There are a number of beneficial uses not likely to be adequately protected by existing or proposed numeric criteria, including threatened and endangered species which cannot bear the level of risk inherent in the assumptions upon which the numeric criteria are based and/or which are more sensitive to pollution than the species used to develop the criteria; humans who consume greater than average amounts of fish; children; species that are particularly sensitive to certain toxic pollutants, such as mink; species that consume high levels of fish in proportion to their body weight; and species and humans who are affected by the additive or synergistic effects of consuming multiple pollutants.

In light of the importance of such narrative criteria, particularly for toxic constituents, the law requires States to take specific actions. Specifically, the Department is required to promulgate an implementation methodology to interpret and apply Oregon's narrative criterion for toxic pollutants as required by 40 C.F.R. § 131.11 (a)(2) pursuant to section 303(c)(4)(A) of the CWA. Federal rules require that where a State uses narrative criteria for toxic pollutants, it is required to "provide information identifying the method by which the State intends to regulate point source discharges of toxic pollutants on water quality limited segments based on such narrative criteria." 40 C.F.R. § 131.11(a)(2). DEQ, however, has not created a methodology for the interpretation of its narrative toxics criteria including, but not limited to, point sources. It certainly has not met the dual requirements of 40 C.F.R. § 131.11(a)(2) together, namely that the State review water quality data on waterbodies may be having adverse effects or warranting concern, adopt water quality criteria to protect those uses and address how it intends to use the narrative criterion to regulate point source discharges.

Oregon has an extensive, and detailed, narrative criterion for toxic pollutants:

[T]oxic substances shall not be introduced above natural background levels in waters of the state in amounts, concentrations, or combinations which may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare, aquatic life; wildlife; or other designated beneficial uses.

OAR 340-041-(basin)(2)(p)(A). *See also*, 340-041-(basin)(2)(i), (j). However, without the required implementation methodology, this narrative criterion is widely ignored in regulatory situations where it should be interpreted and applied, such as Total Maximum Daily Loads (TMDLs), NPDES permits, and § 401 certifications.

The absence of such an implementation methodology becomes even more significant in the context of EPA's finding in the California Toxics Rule (CTR) that the agency's recommended criteria for CWA section 304(a) pollutants will often be insufficient to protect a State's beneficial uses. EPA stated in the CTR Biological Evaluation (BE) that: 1) its recommended criteria are not intended to provide protection for terrestrial and avian wildlife; 2) not all toxic pollutants have been designated as priority pollutants and even some priority pollutants have no recommended criteria developed; and, 3) its recommended criteria do not consider or reflect the synergistic and additive effects of multiple priority toxic pollutants. CTR BE at 5, 36-37. EPA further stated in the CTR that "in some instances, the human health mercury criteria included in today's final rule may not protect some aquatic species or threatened or endangered species. In such instances, more stringent mercury limits may be determined and implemented through use of the State's narrative criterion." 65 Fed. Reg. at 31689 (emphasis added). In fact, EPA considered this in concluding that California's narrative criteria for toxics are the only way in

which the health of many fish, birds, and mammals can be taken into account through water quality standards. CTR BE at 35. Oregon's failure to adopt, and use in the day-to-day regulatory work of the agency, implementation methods for the application of its narrative criterion on toxics will result in EPA's having to disapprove Oregon's standards finding they do not meet the requirements of the Clean Water Act and they pose a jeopardy to the recovery of threatened and endangered species.

3. *Criteria Are Required to Protect the Most Sensitive Beneficial Use*

DEQ's Issue Paper states that in a "situation of competing uses, DEQ will use the criteria that protect the most sensitive beneficial use." Issue Paper at 12. While that is a correct statement of its responsibility in applying its criteria, the Department appears to lose sight of the fact that its paraphrase of the requirements of 40 C.F.R. § 131.11(a)(1) has the effect of altering its responsibilities for the purpose of setting the criteria in the triennial review. Thus, it is not sufficient that, upon application of standards, DEQ will choose the criterion that protects the most sensitive use; in the development of the standards DEQ must identify and choose criteria that protect the most sensitive beneficial uses. Moreover, in the absence of an implementation policy or plan that establishes how the Department will apply Tier I of the antidegradation policy to ensure the protection of existing uses, the State must adopt criteria that meet that same goal.

B. Endangered Species Act

Regulations implementing the Endangered Species Act define agency "action" to include "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to: . . . (b) the promulgation of regulations." 50 C.F.R. § 402.02. Section 7 of the ESA prohibits agency actions that may jeopardize the survival and recovery of a listed species or adversely modify its critical habitat:

Each federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an "agency action") is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary . . . to be critical"

16 U.S.C. § 1536(a)(2). Section 7 of the Act also establishes an interagency consultation process to assist federal agencies in complying with their duty to avoid jeopardy to listed species or destruction or adverse modification of critical habitat. Under this process, a federal agency proposing an action that "may affect" a listed species must prepare and provide to the appropriate expert agency, a "biological assessment" of the effects of the proposed action. 16

U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a). For those actions that may adversely affect a species, the National Marine Fisheries Service (NMFS) and/or U.S. Fish & Wildlife Service must review all information provided by the action agency, as well as any other relevant information, to determine whether the proposed action is likely to jeopardize a listed species or destroy or adversely modify its designated critical habitat. 50 C.F.R. § 402.14(h)(3). This determination is set forth in biological opinions from the Services. *Id.*; 16 U.S.C. § 1536(b)(3)(A).

In formulating their biological opinions, the Services must evaluate the “effects of the action” together with “cumulative effects” on the listed species. 50 C.F.R. § 402.14(g)(3)-(4). This multi-step analysis requires NMFS to consider:

1. The direct, indirect, interrelated and interdependent effects of the proposed action, 50 C.F.R. § 402.02;
2. The “environmental baseline,” to which the proposed action will be added. This baseline includes “all past and present impacts of all Federal, State, or private actions and other human activities in the action area; the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation; and the impact of State or private actions which are contemporaneous with the consultation in progress,” 50 C.F.R. § 402.02; and,
3. Any “future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation,” 50 C.F.R. § 402.02.

The regulations do not, however, permit NMFS to consider the effects of future Federal actions when determining whether a proposed Federal action will jeopardize a listed species. *Id.*; see also 51 Fed. Reg. 19933 (June 3, 1986) (Interagency Cooperation — Endangered Species Act of 1973, as Amended; Final Rule) (“Since all future Federal actions will at some point be subject to the section 7 consultation process pursuant to these regulations, their effects on a particular species will be considered at that time and will not be included in the cumulative effects analysis.”). Such future Federal actions also are not properly a part of the environmental baseline since they have not yet occurred.

If, based upon an analysis of these factors, NMFS concludes that the proposed action is likely to jeopardize a listed species, or destroy or adversely modify its critical habitat, NMFS must identify and describe any reasonable and prudent alternative (“RPA”) to the proposed action that it believes would avoid jeopardy and adverse modification. 16 U.S.C. § 1536(b)(3)(B). An RPA may only consist of measures that are within the scope of the action agency’s legal authority and jurisdiction, that can be implemented consistent with the purpose of the proposed action, and that

will avoid jeopardizing the continued existence of the listed species. 16 U.S.C. § 1536(b)(3)(A); 50 C.F.R. § 402.02. The effects of an RPA must be analyzed under the same section 7 framework described above as an action proposed by an action agency. Finally, if NMFS believes that there is no reasonable and prudent alternative to the proposed action, its biological opinion must so state. 50 C.F.R. § 402.14(h)(3).

EPA's approval or disapproval of Oregon's proposed rules will trigger consultation pursuant to the Endangered Species Act. Therefore, it is incumbent upon DEQ, so long as it chooses to pursue a state process to update and tailor its water quality standards for the protection of threatened and endangered species as beneficial uses in Oregon, to meet the requirements of the ESA. To do otherwise is to waste everybody's time in a state process that might as well have been skipped entirely. As the remainder of these comments demonstrate, the content of the proposed rule falls far short of meeting the requirements of the ESA.

II. PROVISIONS OF DEPARTMENT'S PROPOSED RULE

A. Metals Criteria – Total Recoverable Concentrations

NWEA strongly supports the Department's proposal to use total recoverable, rather than dissolved fractions, of contaminants. As DEQ has made clear, there are numerous reasons for retaining the total recoverable approach in Oregon's current standards. *See* Issue Paper at 21. Unfortunately, the Issue Paper does not elucidate the reasons why both the Technical Advisory Committee (TAC) and the National Marine Fisheries Service (NMFS) and U.S. Fish & Wildlife Service (hereinafter "Services") prefer the total recoverable approach. *Id.* at 47, 59. This shortcoming in the document should be remedied. NWEA supports use of the use of total recoverable amounts primarily because it represents a more accurate body burden for those species whose intake comes from more than through their gills from the water column. Specifically, exposures through ingestion of particulates and ingestion of contaminated prey are included when using the total recoverable concentrations, exposures which otherwise would be ignored. This is true regardless of whether the contaminants bioaccumulate or not. For those that do bioaccumulate, it is an even more important consideration. Use of total recoverable decreases some of the risk created by the criteria, although not nearly enough, by the regulatory focus on the dissolved fraction in the water column. (For example, TMDLs and permits are developed with a focus on the water column, ignoring the accumulation of toxic contaminants in the ecosystem.) Throughout the standards, the Department, virtually ignores the issue of residual contaminants in the sediments and biota. In any case, DEQ's policy rationale – that it wants to adopt an approvable set of criteria for metals and is well aware of the shortcomings of using the dissolved fraction – is a sound one. Unfortunately, it is one of the few things DEQ has done to try to create a set of approvable standards. In nearly every other instance where the Department could have done something to meet the requirements of the Clean Water and Endangered Species Acts, it failed.

B. Maintenance of Oregon Criteria for Which EPA has Withdrawn Recommended Criteria

The Department recommends, and NWEA concurs, that Oregon maintain its aquatic life criteria for Lindane (FW chronic), PCBs (FW Acute, SW Acute), Selenium (FW Acute), and Silver (FW Chronic), and its human health criteria for Beryllium, Cadmium, Chromium III, Chromium IV, 2,6-Dinitrotoluene, Lead, Silver, and 1,1,1-Trichloroethane, in lieu of withdrawing them entirely, and despite EPA's having withdrawn its recommended guidance for these pollutants. Should the Department decide to withdraw its own criteria, based on EPA's action, the State will still have to address these pollutants through the process of implementing its narrative criterion described above. 33 U.S.C. § 1313(c)(2)(B); 40 C.F.R. § 131.11(b)(2). In other words, DEQ does not have an option to have nothing in place. DEQ notes in its Issue Paper that EPA indicates where the human health criterion for Selenium is not protective of aquatic life, a state "could set limits for compounds through the use of that state's narrative criterion for toxic pollutants." Issue Paper at 9. We would add that the law requires the State to do so. However, as discussed above, DEQ would make an error to rely solely on its narrative criterion in the absence of required and appropriate implementation methodologies if it intends for EPA to be able to approve these standards.

However, maintaining these criteria is not enough. Many of these criteria in their current form are not sufficient to protect threatened and endangered species. As such, the Department has two choices. The first is to do nothing. The second is to take a precautionary approach that reduces the allowable levels based partly on the best available science and partly on policy – a policy that action to reduce potentially harmful levels of contaminants is required today and cannot wait until the science is sufficient to calculate "perfect" criteria. Even if the Department were not to alter its numeric criteria, but to address the need for such a policy in its interpretation methodology of its narrative criterion, it would be making giant strides towards meeting the requirements of the threatened and endangered species and the law intended to protect them. The species themselves cannot wait until such time as there are sufficient studies to recommend exactly what the criteria should be. The development of criteria, therefore, cannot be only a matter of science. It must also be a matter of public policy. In this case, it is not only the existence of the species that is held in the balance, it is also a matter of maintaining the substantial economic investment made by the public, as well as private entities, in attempting to preserve and restore those species.

NWEA suggests that to the extent the TAC was able to do any work, the Department would do well to defer to its judgment. Therefore, the TAC's continuing support for the Lindane and Silver criteria recommend their maintenance as part of the Oregon standards. We would reiterate our comments made elsewhere that, to the extent that Lindane, in particular, is generated by a point source, even if DEQ were to retract the numeric criterion, it would be legally obligated to

regulate the point source according to this criterion as guidance pursuant to the requirements of the narrative criterion. *See* 40 C.F.R. § 131.11(a)(2).

C. Guidance Values

NWEA supports the inclusion of guidance values in a separate table for the sake of clarity. However, we strongly object to the Department's intent with regard to the guidance values. The Issue Paper says the TAC advised that "[G]uidance values' should be used in conjunction with evidence of beneficial use impairment and best professional judgment in order to apply the narrative toxics criterion . . . Best professional judgement may include information from scientific literatures (such information should be of the nature of having been corroborated by others in the scientific community) and beneficial use impairment may include effects such as lethality, neurotoxicity, reproductive impairment, or immunosuppression." This is patently absurd. Once there is evidence of beneficial use impairment of the types described, the species at risk may not be able to recover. A perfect example of this is the virtual extirpation of mink along the Lower Columbia River as well as the reproductive impairment in river otter in the same location. A water quality standard – in this case the narrative criterion plus the guidance values – that purports to step in only after the damage is done is obviously not protective, and falls short of rationale public policy objectives and the goals of the Clean Water Act. To the extent that threatened and endangered species are implicated in this approach, the result is even more absurd. Waiting for additional impairment of those beneficial uses is not only contrary to the requirements of the Endangered Species Act, it is an idiotic principle considering the species' status.

Included in this guidance value table are the pollutants that are causing measurable and substantial harm to Oregon species, such as dioxin, DDE, pentachlorophenol, PAHs, etc. The Department cannot simply chose criteria that would be protective in an ideal world. We are now past the point of being in the ideal world as the contaminants have accumulated in the ecosystem and the species are showing dramatic effects of exposure to toxic pollution. Therefore, criteria based on populations of those species not having previously been exposed and previously altered are simply irrelevant. This is true for both threatened and endangered species as well as other affected species. In both cases, the populations are already at higher risk, due to their ESA status and/or their levels of contamination, and cannot bear the risk inherent in the EPA's recommended criteria. For example, river otter in the Columbia River with reproductive abnormalities caused by toxic contamination cannot be protected by standards that were intended to prevent those abnormalities in the first place. Likewise, threatened and endangered salmon already affected in various ways by toxic contaminants – and it is the Department's job to obtain this information if it desires to be an active participant in the creation of appropriate water quality standards for the State – cannot be protected by criteria that could be adequate if the populations were not already exposed and at risk from those on-going exposures, to say nothing of the risk of their extinction by virtue of their severely reduced populations and loss of habitat.

The Department states that the guidance values should be used for “reference purposes” only to set effluent limits. Issue Paper at 70. While NWEA agrees that other scientific information should be brought to bear in the application of the guidance values, we strongly take issue with the remainder of the Department’s thoughts on the use of these values: “However, violation of the guidance values should not result in the listing of a waterbody as impaired because these values were derived without meeting the data requirements of criteria development.” *Id.* This statement demonstrates the Department’s assurance that it will not use the guidance values as a method of interpreting its narrative criterion for toxics. As such, it renders the value of the narrative criterion null and void. Without such a gap-filling criterion, the entirety of Oregon’s standards on toxics fail to meet the requirements of the Clean Water Act, its implementing regulations, and the Endangered Species Act. CWA § 303(c)(2)(B); 40 C.F.R. § 131.11(a)(1), (2); 40 C.F.R. § 131.11(b).

This stated approach also implies that the Department intends to apply its narrative criterion on toxics through only the approach of using guidance values, and only as it sees fit, which will be rarely. We specifically request that the Department state in what other ways it intends to apply the narrative criterion, in order that there may be a complete record. DEQ has a terrible history of ignoring the narrative criterion; in some instances it actually quotes it and then ignores it. *See, e.g.,* Columbia Slough TMDL. The burden is on DEQ to show that it intends to use this narrative in its gap-filling role or the entire package of standards will not pass muster with either the EPA or the Services. To have decided to attempt to keep Oregon in the driver’s seat with regard to its standards and then to do nothing to meet the requirements of beneficial uses and the law is, as we have pointed out before, a waste of Oregon taxpayer resources and only causes additional delays in obtaining needed protections.

D. Human Health Value for 2,3,7,8-TCDD (Dioxin)

NWEA supports use of a more protective criterion for protection of human health from the effects of 2,3,7,8-TCDD. As mentioned elsewhere, dioxin is one toxic constituent that is can be regulated from point sources and therefore is particularly appropriate for reductions.

E. Dioxin and Dioxin Equivalency Criteria

1. *Using Equivalency Criterion is An Appropriate Approach*

NWEA strongly supports inclusion of the less potent dioxins and furans in the application of the criterion for 2,3,7,8-TCDD. There is no question as to the scientific validity of the approach proposed, with regard to dioxins and furans, nor to the equivalency figures. As the TAC stated, in an e-mail to the PAC Subcommittee:

The very reason the TEF approach has been recommended is to address the

cumulative effect of a class of compounds with a common mechanism of toxicity that are known to persist in the environment. Bioavailability and bioaccumulation relate to the interaction of the chemicals in question with the environment (including biotic). Although research is needed to more fully understand the bioavailability and bioaccumulation of all the Ah receptor-acting compounds, use of the information available for 2,3,7,8-TCDD to estimate such interaction is a reasonable approach until such information is known. Although this approach can be refined through inclusion of new information, such refinement does not undermine the value of the approach now, especially in comparison to the alternative which is to ignore the known toxicity of a variety of other Ah-receptor-acting compounds.

E-mail from: Fitzpatrick.Martin@deq.state.or.us to peter.j.ruffier@ci.eugene.or.us, November 4, 2002, Re: TAC Feedback. We disagree, however, that this should be a guidance value. The scientific work supporting the TEF approach and the criterion are sufficient to allow DEQ to use this as a criterion. That said, we doubt the protection level provided by the proposed criterion is sufficient to protect threatened and endangered species in particular. There is certainly no evidence that is the case. Given that dioxins and furans are capable of being reduced by point source controls, this is a set of pollutants that should be high on the Department's list to curtail. For, in many instances, the setting of protective criteria will not have much real world effect in reducing risks to beneficial uses, particularly with regard to banned chemicals. (This would be less true if the Department and other state agencies took more seriously the task of controlling and preventing nonpoint sources of sediment inputs.) In addition, we object to the Department's intent to not use the guidance value to interpret its narrative criterion in the § 303(d)(1) listing process. *See*, Issue Paper at 70. Again, this choice severely undermines the entire toxics rulemaking package.

2. *Failure to Include PCBs is Serious Shortcoming of Proposal*

NWEA strongly supports the TAC's recommendation to include PCBs acting on the Ah receptor in the proposed Dioxin equivalency criteria. The basis of this proposal is the common mechanism of toxicity of certain dioxins, furans, and PCBs, as discussed in the Van den Berg, et al. 1998 and World Health Organization 1998 references. There have been no questions raised by the participants in the PAC regarding the underlying thesis, namely that the dioxins, furans, and PCBs all exert their toxic effect through the so-called Ah receptor. *See, e.g.*, Issue Paper at 37. And, the Department concludes that "The scientific evidence indicates that the toxicity of a mixture of these compounds can be viewed as the sum of all the individual toxicities." *Id.* at 38. The basis for the Department's amendment to this TAC proposal is the objection of regulated industries who discharge dioxins and furans. *Id.* at 51. These mostly point source industries do not want to have further reductions in their discharges triggered by levels of PCBs for which they are ostensibly not responsible. (If they aren't directly responsible for some PCB loading,

they are, as large electrical consumers, indirectly responsible for some loading.) This, however, is not an appropriate basis upon which to make public policy. If the Department is attempting to provide, based on the best available science, the greatest possible protection for the beneficial uses, it must include the PCBs in the equivalency criteria, particularly since there is no valid scientific basis to exclude the *Ah*-receptor-acting PCBs.

The primary complaint by industry about the inclusion of PCBs in the equivalency approach is that these compounds are a form of historical deposition and therefore it would be “unfair” to include them. This is a specious argument. First, dioxins and furans measured in the water (sediment, and tissue) are just as likely to be a form of historical deposition. There is no particular difference between historically-deposited dioxin and historically-deposited PCBs. Second, the issue when setting standards is not the source of pollution (e.g., point vs. nonpoint source, historical vs. current), but the effect on the beneficial uses. The question is not whether a criterion is fair to point sources but whether it is fair – i.e., protective – to uses. If the members of the PAC were unable to grasp this, surely the Department should have been able to do so. Third, the PAC Subcommittee did not, as stated in the Issue Paper, propose to not include PCBs in the TEF. Its report to the full PAC stated that “[e]quity concerns related to legacy PCBs are unresolved.” This means that the industry representatives on the subcommittee did not change their minds and agree that PCBs should be included; it does not mean that the subcommittee recommended against including them. The failure of the PAC’s process, noted in the Issue Paper and discussed elsewhere in these comments, is irrelevant to the Department’s responsibility to make proposals based on sound science and policy.

In an e-mail to the PAC Subcommittee, the TAC stated:

The TAC sticks with its recommendation that *Ah*-receptor-acting PCBs should be allocated to the TEF equation and the existing PCB criteria should include only the non-*Ah* receptor-acting PCBs. Although the TAC acknowledges that using this approach could result in analyses of water samples that under current Oregon rule would have violated the total PCBs criteria; however, the TAC recommended that the PCB criteria be footnoted in such a way to indicate that if *Ah*-receptor acting PCBs were identified in the analysis, then the TEF criteria should also be applied (in addition to the total PCB criteria).

E-mail from: Fitzpatrick.Martin@deq.state.or.us to peter.j.ruffier@ci.eugene.or.us, November 4, 2002, Re: TAC Feedback. DEQ’s only response in this rulemaking proposal to the scientific validity of including PCBs in the TEF approach is the following: “DEQ believes that this approach [of not including PCBs] has both technical and policy merits because it 1) improves upon the current Oregon criteria that only consider 2,3,7,8-TCDD by expanding the number of compounds that will be evaluated to seventeen; 2) provides an innovative way to evaluate the impacts of mixtures of chemicals; and 3) separates the regulation of pollutants that can be

managed in the industrial processes from those that are legacy pollutants.” Issue Paper at 73. To be sure, the TEF approach is an improvement because it expands the number of compounds and addresses some compounds collectively, as they function in the environment and their effects on affected species. However, what DEQ grants with this it takes away with its position, discussed elsewhere, that the guidance values will not be used for purposes of interpreting the narrative criterion in the § 303(d)(1) listing process. Moreover, its one sentence acceptance of the idea that there is merit to separating the regulation of pollutants that “can be managed in the industrial processes” from those that are “legacy pollutants” falls short of explaining why the distinction is not arbitrary. First, dioxin and furans themselves are legacy pollutants to the extent they are already found in the water column, sediments, biota, and fish tissue in Oregon rivers and streams. (The Department’s failure to consider this is contrary to the express requirements of 40 C.F.R. § 131.11(a)(2) and the requirements of the Endangered Species Act.) Second, as discussed in the paragraph immediately below, Oregon law already requires that all combinations of multiple pollutants be judged based on their effects to beneficial uses. DEQ’s stated intent to not apply that criterion as written undermines the basis of its entire standards on toxic contaminants. Third, the basis for setting water quality criteria is effects on the uses, not on the vested interests, making DEQ’s policy choice arbitrary.

Oregon’s narrative criterion for toxics, discussed above, clearly states that, “[T]oxic substances shall not be introduced . . . [in] combinations which may be harmful.” OAR 340-041-(basin)(2)(p)(A). This narrative criterion serves as a required supplement to the protection provided by the numeric criteria in the water quality standards. *PUD No. 1, supra*. In other words, from a legal standpoint, DEQ is required to take into consideration the additive properties of mixtures of compounds that include dioxins, furans, and PCBs, regardless of what it does in its numeric criterion. NWEA is well aware, as discussed above, that DEQ routinely disregards its narrative criterion. However, given that it cannot avoid the implications of the Van den Berg, et al. research and conclusions – with which the Department does not take issue – as a matter of public policy and clarity in regulation, it might as well adopt the results of potential application of the narrative criterion into its numeric criteria. Otherwise, failure to do so merely provides an opportunity for inconsistent regulation, which is a bad policy choice for regulated industry in Oregon and is contrary to the requirements of federal law. DEQ is also opening itself to third party lawsuits in which the state will be no doubt properly accused of failing to apply its narrative criterion. This can be avoided by simply adhering to the science of the issue, which is entirely settled.

Moreover, by explicitly not including the *Ah* receptor PCBs, DEQ is foregoing entirely regulation of some of the compounds that could and should – from a scientific standpoint – be included in the equivalency criterion. These are, as DEQ itself notes, criteria for the protection of aquatic life for 2,3,7,8-TCDD, any criteria for furans, and acute criteria for aquatic life for PCBs. Issue Paper at 38. DEQ admits that “these compounds often exist in the environment as complex mixtures, and therefore the magnitude of the toxic response cannot be completely

explained by the toxicity of any one chemical.” Issue Paper at 37. It also admits that the provision of the narrative criterion are required to provide complete protection: “[N]umeric water quality criteria have been set for some of these compounds, but not for others.” *Id.* Yet, it proposes to ignore those gaps altogether.

We recommend that, in the absence of information demonstrating it would not be sufficient to protect threatened and endangered species in Oregon, that the Department adopt the TEF equivalent of the wildlife criteria contain in the GLI, where criteria for the protection of wildlife from PCBs has been set at .000074 ug/L and for 2,3,7,8-TCDD at .0000000031 ug/L. These at least provide a sensible starting point for providing sufficient protection.

3. *Treatment of Monitoring Data*

DEQ proposes to treat all non-detected values of dioxins and furans as a zero contribution. While this may appear fair, in the absence of any other implementation information, the proposal is not protective. Dioxins and furans are not generally detectable in the water column at the levels of concern in either the existing or proposed criteria. Frequently they are not even detectable in effluents that contain levels of dioxin that are exceed the existing criterion and are therefore subject to regulation. An implementation rule for treating monitoring data that fails to address how monitoring data will be collected – whether from point sources or in waterbodies – that does conform to Department policies is needed, not just a rule that excludes data. The proposed rule should discuss use of internal waste streams, SemiPermeable Membrane Devices (SPMDs), tissue samples, etc. in order to ensure that data are collected that the Department will actually use.

F. Aquatic Life Criterion for Mercury

1. *Aquatic Life Criteria*

The Department proposes to replace its current freshwater acute 2.4 ug/L criterion for total mercury with 1.6 ug/L, while decreasing the protectiveness of its freshwater chronic criterion of 0.012 ug/L with a new 0.91 ug/L criterion. Proposed Table 20 at 5. Likewise, it proposes to decrease the protectiveness of its saltwater chronic criterion by replacing the existing 0.025 ug/L criterion with 1.1 ug/L. *Id.* It is difficult, if not impossible, to understand why the Department is making this suggestion. After all, the California Toxics Rule proposed a .05 ug/L criterion for human health protection and a .77 ug/L criterion for freshwater aquatic life protection against chronic effects and the result of that, following the first round of ESA consultation, was not only the Services’ proposed levels in the CTR Biological Opinion (BiOp) but the “reservation” by EPA of the aquatic life criterion. Why Oregon is proposing an aquatic life criterion less protective than that rejected in the CTR BiOp is confounding. It is not answered, from either a CWA or ESA perspective, by the Department’s comment that, “Since Oregon has the same

species as identified in the Biological Opinion to the California Toxics Rule, DEQ should undertake this review as soon as possible.” Issue Paper at 61. Does DEQ really think that it – or EPA – can escape the provisions of federal laws by suggesting that it will do something down the road? Could postponing the taking of action in the face of scientific information, if it were legal, be good public policy? We think not.

Oddly, even with the information and calculations available from many other sources – the Great Lakes Initiative (GLI), the CTR BiOp, the Mercury Report to Congress, the U.S. Fish & Wildlife comments on California mercury TMDLs – the TAC concluded it had only three options: 1) adopting the 1999 criteria, 2) maintaining Oregon’s existing criteria, or 3) “deriving new criteria based on the latest scientific information.” *Id.* at 48. The last of these was “not considered viable because of the limited scope of and resources available to the TAC.” What this discussion omits is that there were already a range of criteria developed by EPA and the Services available to be used. There was no need to deride this option as the task of “deriving” criteria, an action NWEA agrees the TAC was ill equipped to do. The Department’s failure to use an appropriate criterion for mercury is arbitrary considering the importance of mercury to protecting the beneficial uses and the need for a timely result, given the threatened and endangered status of some of those uses and the fact that Oregon is preparing TMDLs for mercury-contaminated waters.

2. *Failure to Adopt Wildlife Criteria*

As discussed elsewhere in these comments, the Department’s failure to adopt criteria that are protective of wildlife is contrary to 40 C.F.R. § 131.11(a)(1). Specifically, sufficient information exists for Oregon to adopt methylmercury criteria that will be protective of fish and wildlife. The 1995 GLI criteria for the protection of wildlife includes a criterion of .0013 ug/L for methylmercury. The CTR BiOp recommends the following criteria: .005 ug/L for fish, .00171 ug/L for birds, and .002 ug/L as sufficiently protective of both uses. EPA’s 1997 Mercury Report to Congress recommended the following levels for the protection of the following species: .000057 ug/L mink, .000042 ug/L river otter, .000033 ug/L kingfisher, .000082 ug/L loon, .0082 ug/L osprey, and .0001 ug/L bald eagle. Report at 3-44. In contrast, DEQ proposes to adopt numeric criteria that do not protect wildlife uses, despite their being designated as uses requiring protection.

G. Aquatic Life Criterion for Selenium

As with the mercury criterion discussed above, the Department, TAC, and PAC proceeded as if the CTR BiOp did not exist. The TAC concluded it had only three options: 1) adopting the 1999 criteria, 2) maintaining Oregon’s existing criteria, or 3) “deriving new criteria based on the latest scientific information,” a task it concluded was not viable. *Id.* at 48. The CTR BiOp contains a clear numeric criterion that would be protective of the same threatened and endangered species

in Oregon as exist in California. The Department notes that the PAC failed to address NWEA's suggestion that the CTR BiOp criteria could be used because it did not come to a formal motion. This is irrelevant since the committee was dominated by vested industrial interests and does not relieve the Department from making an independent judgment to use this criterion. NWEA recommends that the Department use the recommended criteria in the CTR BiOp.

H. Human Health Criterion for Mercury

1. *Failure to Incorporate Appropriate Fish Consumption Rates*

The proposal contains some errors regarding the adoption of a methylmercury criterion for fish/shellfish tissue. Although EPA's 2001 recommended criterion is .3 mg/kg, the Draft Issue Paper states that DEQ is recommending 36 ug/kg in tissue. Issue Paper at 96. The proposed rule language indicates DEQ is proposing 91 mg/kg in tissue. It is our understanding that these are merely uncorrected errors and the Department's intent is adopt the .3 mg/kg tissue criterion. We support this criterion insofar as the calculations used to derive it represent the best available evaluation by EPA on the human health effects of methylmercury. We do not support the adoption of the .3 mg/kg criterion itself as the Department has evidence that the national average fish consumption figure, used in the development of this criterion, is significantly lower than the level of fish consumed by some subpopulations in Oregon. Therefore, Oregon is aware as it proposes to adopt this criterion that it will not protect those populations of fish consumers.

EPA's notice of availability of the methylmercury tissue criterion itself emphasizes the issue of appropriate fish consumption levels:

“For exposure assessment, States and authorized Tribes are encouraged to use local studies on human fish and shellfish consumption that better reflect local intake patterns and choices. In the absence of local data, EPA recommends separate default fish consumption values for the general population, recreational fishers and subsistence fishers.”

Water Quality Criteria: Notice of Availability of Water Quality Criterion for the Protection of Human Health: Methylmercury, 66 Fed. Reg. 1344, 1346 (Jan. 8, 2001). Oregon proposes to adopt neither of these approaches, simply disregarding its credible evidence on actual consumption levels in certain subpopulations as well as information that there are, in fact, different levels of consumption within different populations, albeit not quantified at this time. While EPA's guidance is not binding, its clear message is that if there is information regarding differences in how designated uses are affected by methylmercury, it should be used. We would go further. The federal regulations are clear that the adopted criteria must protect the most sensitive beneficial use. In this case, evidence of fish consumption levels that far exceed those of the average population, namely the CRITFC fish consumption study, require that DEQ adopt

criteria to protect that use. If the Department does not wish to separate and protect the most sensitive population within that designated use, it can merely adopt a fish consumption level that protects the subpopulation and apply it to the entire use. It does not have the option of simply ignoring the existing data and choosing to protect all humans in Oregon on the basis of a consumption rate of 17.5 grams per day when it is aware that that consumption rate is factually incorrect.

2. *Failure to Adopt Methodology Undermines Protection Provided*

The practical problem with Oregon's proposal to adopt the tissue criterion for methylmercury is that, in the absence of a methodology with which to apply the criterion, it is unclear what protection, if any, will be provided by the adoption of the criterion. While EPA has stated that it "believes that the range of implementation issues would be addressed best through broad national implementation guidance," this belief does not relieve DEQ for its own responsibility to do so. *Id.* at 1345. Given the importance of the methylmercury criterion, Oregon cannot afford to disregard the matter of how it will implement it. *Id.* at 1348. Clearly, EPA did not intend that the criterion would be adopted by states and then subsequently be ignored; in fact, the opposite is true because EPA's availability notice discusses the role of the criterion in permitting and fish advisories. *Id.* at 1349. EPA's notice contains an extensive discussion of the various methods States can use to apply their tissue criterion with regard to determining the fraction of methylmercury in fish, from methylmercury in fish to methylmercury in water, and finally from methylmercury in water to total mercury in water. For example, in discussing the latter, EPA states, "EPA will consider standards implemented with empirically derived translators." *Id.* at 1356. EPA does not say that States can submit standards that are silent on the issue of methodology and have them be approved. Instead, EPA's position is that "an implementation policy is necessary that addresses recommendations for establishing sampling protocols and determining attainment of State or Tribal methylmercury water quality criterion, NPDES permitting and TMDL development, and source management and control strategies." *Id.* at 1357. Oregon's failure to address these issues and opt for a criterion it likely has no intention of applying in the real world renders its standard subject to disapproval.

I. Bioaccumulation Factors (BAFs)

Evidently, the TAC addressed the issue of non-existence national BAFs needed to fully use the EPA methodology: "[T]he TAC discussed how best to proceed with its recommendation on human health criteria given the unavailability of this critical information." Issue Paper at 31. Unfortunately, after this sentence no additional information is given about what the TAC concluded. Nor is there any reasoned judgment by the Department.

J. Fish Consumption Rates

The Department, relying on the industry-dominated PAC, has decided to wholly ignore the results of the CRITFC fish consumption survey, a study that has not been assailed for lack of credibility. It is arbitrary for the state to forgo the opportunity to, using quantitative evidence, provide protection for a class of fish consumers. There are many ways in which Oregon could go about this, most if not all of which were discussed in both the advisory committees. These included: protecting a higher than 50th percentile of all Oregonians using national averages, thereby protecting subpopulations, using different percentiles for the Columbia River Intertribal Fish Commission (CRITFC) study, and other options. Because the end result of increasing fish consumption rate assumptions has the direct effect of lowering the allowable levels of toxic pollutants in the environment, no sector of industry will support such an approach. Regardless, it is the State's obligation to use the facts in its triennial review in support of standards that protect the most sensitive beneficial uses as required by 40 C.F.R. § 131.11(a).

The Issue Paper tapers off without sufficient conclusion on this issue as well. It states that “Initially, the TAC indicated that the choice of which [of the choices of technically defensible] rate to employ was a policy decision to be made based on which population or subpopulation Oregon wished to protect.” Issue Paper at 32 (emphasis added). This implies that after its initial consideration, the TAC changed its mind, making its subsequent proposal one that was on the basis of science, not policy. Regardless, the proposal's speedy dismissal by the PAC was sufficient to render it an anathema to the Department. Why? According to the Department it was because the TAC concluded that the EPA national average rate, as well as the 99th percentile national rate (“[EPA offers] as a value that can be used if states desire to protect subsistence anglers”) of 142.4 grams per day, as well as the 50th and 99th percentile rates from the CRITFC study (63.5 and 389.0 grams per day, respectively) were all scientifically defensible. *Id.* Left unsaid is whether the TAC believed that doing nothing with the information on fish consumption by subpopulations was scientifically defensible. One is left with the clear impression it did not. In fact, the TAC created a proposal, based on a combination of quantitative data and professional judgment, to assign fish consumption rates appropriate to fish consumption. This proposal was quickly dismissed by both the PAC and the Department. The reaction by the PAC was utterly predictable; the dismissal on the part of the Department was arbitrary.

Although the TAC recommended that DEQ use the 2000 EPA methodology, it acknowledged that other than adopting a different fish consumption rate, in the absence of BAFs – which DEQ cannot derive due to lack of data – it should continue to use BCFs. Issue Paper at 33. Therefore, the only recommendation made by the TAC with regard to human health protection with any practical ramifications whatsoever was that DEQ use different fish consumption rates depending upon information about the actual or predicted levels of consumption. As DEQ rejected this recommendation, without sufficient explanation, the result is that DEQ has adopted in principle a policy (the EPA Methodology) that differs from its previous criteria but has rejected the advice

of its own scientific panel that would cause any real change. Again, this makes the entire triennial review exercise a pointless waste of state taxpayer resources. There is simply no value added by the process. NWEA strongly urges the DEQ to adopt the recommendation of the TAC and actually do something to protect the greatest consumers of Oregon fish in the state. In the absence of choosing to take any special precautions to protect subpopulations at greater risk than the general public, the Department could, as a last option, choose to protect the entire population at a higher level. Choosing a risk level of 10^{-7} would be an appropriate response in the absence of any other action.

Again, the PAC took the position that whatever inequities are inherent in developing water quality standards should be borne by the designated uses, not the sources of pollution. The PAC rejected the TAC's proposal of a three-tiered fish consumption approach because it would "possibly lead[] to inequities. . . leading to situations where a source might have to comply with a criterion more strict than designated for its location in order of the water to meet a more strict criterion downstream." Issue Paper at 54. Since it is patently obvious that the PAC was not concerned about whether chosen criteria met the requirements of the Act and its implementing regulations, it is unclear why the Department chose to respect its views. The issue concerning downstream criteria is an odd one considering the fact that other Oregon criteria have this very same effect (e.g., temperature, which is not applied equally throughout a river system but is based on compliance with that criterion at the most downstream point) and the federal regulations themselves which require, in both the designation of uses and the setting of appropriate criteria, the State to "take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters." 40 C.F.R. § 131.10(b) (emphasis added). It is, therefore, a mystery as to why the Department would be swayed by such a specious argument.

K. Non-Linear Low Dose Extrapolation Model for Some Carcinogens.

The Department states it endorses the 2000 EPA Methodology that removes from the cancer risk formulas those assumptions concerning linear extrapolation to low doses for a particular cancer risk level. Issue Paper at 32-33. This statement is unclear on its face. However, DEQ staff has clarified that it means:

[F]or some carcinogens, their toxic effect (i.e. the induction of cancer) does not occur until some threshold concentration or dose is reached. So, at lower-than-threshold concentration or doses, there is no induction of cancer. What EPA proposed in its 2000 Methodology was to ADD a third way for calculating ambient water quality criteria to accommodate these particular carcinogens. Some pollutants exert their toxicity in multiple ways (e.g. there could be neurological damage [non-carcinogenic effect] as well as induction of tumors [carcinogenic

effect]). Furthermore, the carcinogenic effect of a particular pollutant might show a threshold dose in one tissue and no threshold dose in another tissue.

Therefore, the EPA Methodology approach for calculating human health criteria for any particular pollutant would involve evaluating the toxicological data to calculate a criterion for potentially all three ways in which toxicity might be manifested, then choosing the lowest criterion to be the recommendation because that would be the most sensitive effect. In looking at the IRIS database, the threshold carcinogenic effect data had not been developed to the point for calculating criteria, so the human health criteria proposed in this rulemaking are based on the non-threshold approach.

Pers. Comm. Marty Fitzpatrick, DEQ. The problem we see with this approach initially is that the recommended criteria do not take into account endocrine disruption effects so, while the theory provides greater protection, the reality does not.

In addition, this approach neglects the fact that some non-linear effects at low doses are actually higher than at higher doses. Sometimes high doses shut off effects that occur at lower levels, leading to dose response curves that are non-monotonic: low and intermediate doses produce effects that are larger than high levels. The presence of non-monotonic dose response curves in endocrine disruption means that many toxicological tests have led to erroneous conclusions about safety. Another important assumption of these regulatory approaches is that there is a threshold beneath which no effect occurs. Here, too, endocrine disrupting chemicals violate long-held, but not tested, assumptions. *See No Threshold Dose for Estradiol-Induced Sex Reversal of Turtle Embryos: How Little is Too Much?* Environmental Health Perspectives Volume 107, Number 2, February 1999, Daniel M. Sheehan, et al., <http://ehpnet1.niehs.nih.gov/docs/1999/107p155-159sheehan/abstract.html>. This paper challenges a common basic assumption in risk assessment, that there is a threshold level of contamination below which no effects are seen or caused, finding instead that any addition of an estrogenic contaminant will cause an effect because levels of endogenous estrogen were already at a high enough level to exceed the threshold for causing an effect. In other words, a contaminant doesn't have to exceed the threshold because endogenous estrogen already does. Sheehan et al. show this to be the case experimentally, with a very large sample size, and then show through theoretical analysis why it is so, thereby demonstrating "that no exogenous estrogen is without risk."

Sheehan et al. also show that if multiple contaminants share a common mechanism with endogenous chemicals that they are already at a level above a concentration sufficient to cause an impact. The sharing of a common mechanism is likely to be quite common for endocrine disrupting chemicals. This is, again, a reason why the narrative criterion is so important for protection of all beneficial uses, in particular threatened and endangered species and wildlife.

The same principle applies to the adoption of criteria intended to protect against carcinogenic effects. As populations are already contaminated, the question should be whether the threshold doses are already being approached or achieved and the criteria set appropriately. Again, it is a question of whether the Department can pretend that the world is ideal and completely clean. Clearly, it is not. Moreover, EPA's regulations specifically instruct the State to take this real world into account. 40 C.F.R. § 133.11(a)(2).

The use or rejection of linear models is also relevant to how well, if at all, criteria derived from this methodology protect children. As EPA's Children's Health Protection Advisory Committee (CHPAC) has advised the federal agency:

It has been argued by some that the linear model itself is fairly health-protective and can be considered to be protective even when exposure starts in early life stages. However, many agree that this approach ignores examples where potency is clearly larger if calculated based on early-life exposures (e.g., vinyl chloride, nitrosamines, others). Where data are unable to quantitate differences in potency by life-stage at exposure, generic approaches to address possible increased sensitivity from early life stage exposure could be applied. . . . As written, the July 1999 guidelines are basically silent on this issue except where there are existing chemical-specific data sufficient to quantify early-life-stage sensitivities.

Letter from Dr. J. Rouff Reigart, Chair, CHPAC to Christine Todd Whitman, dated May 30, 2002 at 3 (emphasis added).

L. Making Oregon's Criteria Less Stringent

The Department is proposing to adopt some EPA recommended criteria from 1999 that are less stringent than current Oregon criteria. This is true for the following pollutants for human health: Arsenic, Asbestos (water & organism), Benzene, Chlordane, Chloroform, Bis 2-Chloroisopropyl Ether, Bis Chloromethyl Ether (water & organism), DDT 4,4', 3,3' Dichlorobenzidene, 1,2 Dichloroethane (water & organism), Fluoranthene, Nickel, Phenol (water & organism), 2,4,6 Trichlorophenol (water & organism). In addition, it intends to lessen protection from chronic exposure to Dieldrin and Endrin in freshwater. NWEA believes that in lieu of lessening protection it is a better public policy to leave existing criteria in place until there is sufficient information to assess their effects on species that are not currently addressed in the recommended criteria. Those species are wildlife, fish and wildlife already affected by levels of contaminants, and threatened and endangered species. It is unwise to lessen protections given the status of species in Oregon.

M. Table 20 Criteria

1. *Cadmium*

The proposed criteria for cadmium are not sufficiently protective of human and wildlife health. A new study has found that cadmium can affect rats in ways that mimic the female hormone estrogen, making it a risk factor for breast cancer. Nature Medicine, Study: Cadmium Found to Mimic Estrogen, Randolph E Schmid, Washington Post, 14 July 2003. This study found that even relatively low doses of cadmium affected the mammary glands and sexual development of the animals, including an increase in weight of the uterus, changes in the lining of the uterus and increased density of the mammary glands. In rats exposed to cadmium while still in the womb, there were changes in their mammary glands and puberty began earlier than normal. With ovaries removed, after four days a 3.8-fold increase in the uterus weight was measured in rats given estradiol whereas rats given cadmium had a 1.9-fold uterine weight increase, indicating they were reacting to the metal as though it were a hormone. Rats treated with both estradiol and cadmium showed 50 percent increases in the density of the tissue in the mammary glands.

2. *Endosulfan*

The endosulfan criteria fail to protect beneficial uses from endocrine-disruption effects. Park et al. demonstrated that exposure to extremely low levels of endosulfan interferes with reproduction in the red-spotted newt *Notophthalmus viridescens* by disrupting the development of glands that synthesize a pheromone used in female-male communication that is related to mating success. Park, D, SC Hempleman, and CR Propper. 2001, Endosulfan Exposure Disrupts Pheromonal Systems in the Red-Spotted Newt: A Mechanism for Subtle Effects of Environmental Chemicals. Environmental Health Perspectives 109:669-673. Impacts at 5 parts per billion (ppb), the lowest concentration used, were measured, a concentration well within the range of endosulfan contamination regularly encountered in the environment. Indeed, EPA recommends that the amount of endosulfan in lakes, rivers, and streams not exceed 74 ppb, almost 15 times higher than the level reported by Park et al. The study shows that biologically significant effects can easily be missed by traditional toxicological testing, at levels far beneath those targeted by regulations and at levels without overt signs of toxicosis. This study suggests that amphibian pheromonal systems could be one of the systems mediating subtle effects of environmental chemicals.

3. *Copper*

Copper is known to cause disruption of intracellular processes that cause gill dysfunction in fish, elevate levels of plasma cortisol, an indicator of stress, and to increase susceptibility to microbial parasites. Idaho Biological Assessment at 64. The Department has not taken these effects into account in its adoption of the proposed criteria.

4. *Pentachlorophenol*

In the CTR, EPA promulgated an acute freshwater aquatic criterion for pentachlorophenol that is lower than DEQ criterion. In the CTR BE, EPA concluded that the criteria promulgated in the CTR would not “adversely affect” threatened and endangered species. CTR BE at 34. While this alone may not demonstrate that EPA considered Oregon’s value not protective, subsequent EPA action does. As a result of the Services’ conclusion that EPA’s acute value for PCP is not protective of listed salmonid species, EPA has reviewed its criterion and will promulgate a lower value which the Services agrees is protective. Services’ Biological Opinion on the CTR, March 24, 2000, pp. 167, 230; Letter from Geoffrey H. Grubbs, Director Office of Science and Technology U.S. EPA and Alexis Strauss, Director Water Division U.S. EPA Region 9 to Steve Thompson, Acting Manager California Nevada Operations Office U.S. Dept. of Interior and Rebecca Lent, Regional Administrator U.S. Dept. of Commerce. By agreeing that its original value was not protective of threatened and endangered species, EPA concluded that any higher value, including Oregon’s, is not protective.

5. Polycyclic Aromatic Hydrocarbons (PAHs)

The Department needs to factor into its proposed approach to PAHs studies that demonstrate the toxicity of oil pollution to aquatic populations has been seriously underestimated by standard short-term toxicity assays, and the habitat damage that results from oil contamination has been correspondingly underestimated. Intertidal or shallow benthic substrates may become sources of persistent pollution by toxic polycyclic aromatic hydrocarbons (PAH) following oil spills or from chronic discharges. Recent research, mostly motivated by the *Exxon Valdez* oil spill, has found that (1) PAH are released from oil films and droplets at progressively slower rates with increasing molecular weight leading to greater persistence of larger PAH; (2) eggs from demersally-spawning fish species accumulate dissolved PAH released from oiled substrates, even when the oil is heavily weathered; and (3) PAH accumulated from aqueous concentrations of less than 1 ppb can lead to adverse sequelae appearing at random over an exposed individual's lifespan. These adverse effects likely result from genetic damage acquired during early embryogenesis caused by superoxide production in response to PAH. Oil poisoning is thus slow-acting following embryonic exposure, and adverse consequences may not manifest until much later. The frequency of any one symptom is usually low but cumulative effects of all symptoms may be considerably higher. National Academy of Sciences, *Oil in the Sea; Inputs, Fates, and Effects*, National Academy Press, Washington, D.C., 1985; Rice, S.D., A. Moles, and J.W. Short, *Conference on Prevention and Control of Oil Pollution Proceedings*, American Petroleum Institute, San Francisco, March 1975, 503-507; Moles, A., *Bull Environ. Contam. Toxicol.*, 61 (1999) 102-107; Gray, J. S., *Mar. Pollut. Bull.*, 39 (1999) 3-10; Spies, R.B., S.D. Rice, D.A. Wolfe, and B.A. Wright, *Amer. Fish. Soc. Symp.* 18 (1996) 1-16; Short, J.W. and M.M. Babcock, *Amer. Fish. Soc. Symp.* 18 (1996) 149-166; Short, J. W., K. A. Kvenvolden, P. R. Carlson, F.D. Hostettler, R. J. Rosenbauer, and B. A. Wright, *Environ. Sci. Technol.* 33 (1999) 34-42; Wolfe, D. A., and eleven coauthors, *Environ. Sci. Technol.* 28 (1994) 561A-568A; Brown,

E.D., and seven coauthors, *Amer. Fish. Soc. Symp.* 18 (1996) 448 462; Bue, B.G., S.Sharr, S.D. Moffitt, and D. Craig, *Amer. Fish. Soc. Symp.* 18 (1996) 619 627; Bue, B.G., S. Sharr, and J.E.Seeb, *Trans. Amer. Fish. Soc.* 127 (1998) 35 43; Short, J.W. and R.A. Heintz, *Environ. Sci. Technol.* 31 (1997) 2375 2384; Carls, M.G., M.M. Babcock, P.M. Harris, G.V.Irvine, J.A. Cusick, and S.D. Rice, *Mar. Environ. Res.* (2000) in press; Brodersen, C.C., J.W. Short, L. Holland, M.G. Carls, J. Pella, M. Larsen, and S.D.Rice, *Proc. 22nd Arctic and Marine Oil Spill Program*, Environment Canada, Calgary, June 1999, 325 336; Murphy, M.L., R.A. Heintz, J.W. Short, M.L. Larsen, and S.D. Rice, *Trans. Amer. Fish. Soc.* 128 (1999) 909 918; Carls, M.G., S.D. Rice, and J.E. Hose, *Environ. Toxicol. Chem.* 18 (1999) 481 493; Marty, G.D. and seven coauthors, *Can. J. Zool.* 75 (1997) 989 1007; Heintz, R.A., J.W. Short, and S.D. Rice, *Environ. Toxicol. Chem.* 18 (1999) 494 503; Heintz, R.A., S.D. Rice, and B.G. Bue, *Proceedings of the International Congress on Biology of Fishes*, American Fisheries Society, San Francisco, July 1996, 91-94; Roy, N.K., J. Stabile, J.E. Seeb, C. Habicht, and I. Wirgin, *Environ. Toxicol. Chem.* 18 (1999) 1521 1528; Short, J.W. and P.M. Harris, *Amer. Fish. Soc. Symp.* 18 (1996) 29 39; Eganhouse, R.P., B.R.T. Simoneit, and I.R. Kaplan, *Environ. Sci. Technol.* 15 (1981) 315 326; Hoffman, E.J., and G.L. Mills, J.S. Latimer, J.G. Quinn. *Can. J. Fish. Aquat. Sci.* 40(suppl.2) (1983) 41 53.

III. CHILDREN'S HEALTH

The Department has chosen to ignore completely the possibility that the criteria it intends to adopt are not protective of the subpopulation of children that in part make up the designated use of human health protection. In fact, it is well aware that the criteria it proposes to adopt are based on the effects of contamination in adults. Specifically, the criteria are derived from a formula that uses a 154 pound adult. Issue Paper at 15. EPA has developed a Policy on Evaluating Health Risks to Children that addresses the need to safeguard the health of infants and children because they are "among the nation's most fragile and vulnerable populations." This policy calls for EPA to: consider the risks to infants and children consistently and explicitly as a part of risk assessments generating during its decision making process, including the setting of standards to protection public health and the environment." EPA Rule Writer's Guide to Executive Order 13045, Attachment E. One such standard is the mercury criterion for public health protection. The Children's Health Protection Advisory Committee (CHPAC) noted that:

[We recognize] the Water Quality Criteria Standard as one means by which the EPA can regulate the prevention of contaminated fish by mercury and ensure children's protection from hazardous levels of mercury. The CHPAC recommends that EPA address the largest sources of mercury emissions expeditiously and prevent further contamination of fish by revising the Water Quality Criteria Standard. Studies have shown that once mercury enters water, either directly or through air deposition, it can bioaccumulate in fish and animal tissue at the top of the food chain in concentrations much greater than those found in water.

Report of the Children's Health Protection Advisory Committee Regarding the Selection of Five Regulations for Re-Evaluation, May 28, 1998 at 2.

Children are affected by toxic contaminants in ways unique to their life-stage. First, by virtue of their different developmental characteristics, children may be more sensitive to the adverse effects of toxicants and second as that environmental factors may produce different adverse effects in children than those observed in adults. Overview of the Special Vulnerability and Health Problems of Children, EPA Paper No. 2003-1, at 2. http://yosemite.epa.gov/ochp/ochpweb.nsf/content/1_Intro.htm. Environmental factors that affect children's exposures to toxicants include a limited diet in which children eat three to four times more food in proportion to their body size than adults, thereby ingesting larger amounts of chemicals per unit of body mass. Children's Environmental Exposures, EPA Paper No. 2003-3, at 5. Likewise, children consume more water relative to their body mass than do adults. *Id.* Chemicals at levels not harmful to adults can be detrimental to a young child. *Id.* Some children are particularly vulnerable as they are exposed to greater levels of lead and other pollutants such as pesticides due to their environmental exposures, including their physical stature relative to the location of pollutants. *Id.* at 7-12. Additional contributions from drinking water and consumption of contaminated fish place them at very high risk. In addition to exposure, various physiological factors increase the absorption and intake of environmental pollutants. When compared to adults, these include children's higher metabolic rates and higher activity levels; transplacental absorption (many drugs readily cross the placenta, such as PAHs and PCBs); dermal absorption (children have a higher ratio of skin surface to body weight, more vulnerable skin surface, and experience more intensive dermal contact); respiratory absorption (children breathe about twice as much air in proportion to their body mass as adults); gastrointestinal absorption (children have a higher intake of calcium compared to adults); blood-brain barrier absorption (which is age-dependent); blood volume and organ size (for example, the infant brain represents 13 percent of total body mass, compared to an adult's brain which constitutes only 2 percent); distribution of contaminants in blood and body fluids (chemical binding to serum albumin is lower in infants than in older children and adults, but it reaches adult levels by about 10 to 12 months of age, staying in the blood longer); immaturity of biotransformation processes (detoxifying pathways in children may not function effectively); and inadequate excretion and elimination functions (toxicants are eliminated more slowly and may accumulate in the system, leading to greater time-averaged internal doses). *Id.* at 13-17. The Department's proposed rules do nothing to address these shortcomings in the criteria.

In addition, children often suffer from higher body burdens than adults. America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illnesses (Second Edition), EPA 240R03001, February 2003. This report notes, for example that, "about 8 percent of women of child-bearing age have blood mercury concentrations greater than 5.8 parts per billion (equivalent to EPA's reference dose) . . . EPA has determined that children born to such women may be at some increased risk of potential adverse health effects. Chemicals accumulated by

women may pass through the umbilical cord, contributing to prenatal exposure in children. Prenatal exposure to such levels of methylmercury may cause developmental and cognitive effects in children, even at doses that do not result in effects in women who are or may become pregnant.” *Id.* at 94.

The results of exposure to toxic contaminants in children leads to a range of human health outcomes, some of which are not experienced by adults including prematurity and related conditions, congenital abnormalities, cancer, and altered behavior. For example, studies “have found relationships between attention problems, hyperactivity, and impulsivity, which are the common behaviors of ADHD [attention-deficit/hyperactivity disorder], and exposures to lead and PCBs. Animal studies provide supporting evidence that exposures to PCBs and lead may contribute to ADHD. *Id.* at 96 (citations omitted).

A little over one year ago, the CHPAC continued to assail the adequacy of children’s health protection by EPA. Letter from Dr. J. Rount Reigart, Chair, CHPAC to Christine Todd Whitman, dated May 30, 2002. The Committee expressed its concern that:

[T]here is no clear recommendation for default methods of accounting for potential increased sensitivity of early life stages to the effects of carcinogens. . . . The guidelines do not have adequate criteria for deciding whether to adopt a margin of exposure (MOE) approach versus a linear approach for dose-response assessment. The MOE approach generally assumes the carcinogen has a threshold below which carcinogenesis would not be expected to occur. This is a critical decision for children because it 1) assumes that the mode of action in adult animals applies equally to embryonic life stages, infants, and children as well as adult humans; and b) usually results in a less health-conservative analysis of risk (because one assumes zero risk below some threshold in the MOE approach but assumes non-zero risk for any dose in the linear approach. There are few chemicals for which data are sufficient to conclude that the mode of action is a threshold phenomenon. In addition, the vast majority of carcinogens have not been tested in studies that exposed animals in utero or perinatally. Although the guidelines state that a more conservative linear approach should be used if the assessor is not sure of the mode of action, there is little guidance to the assessor regarding the type and strength of evidence needed to make that determination.

Id. at 1. In other words, EPA’s recommended criteria, proposed by the Department to protect the beneficial uses of human health protection in Oregon, are insufficient to protect children. Moreover, the CHPAC concluded:

Another concern regarding the MOE approach is the lack of clear guidance on the adequate size of the margin of exposure when evaluating risks. Specifically, there

is a need to address whether the MOE should be larger when evaluating risks for early life stage exposures. The ratio of the existing exposure to the point of departure (typically the 95% lower confidence level on the dose effecting a 10% response rate) is the MOE. As noted above, there is uncertainty in assuming that the mode of action is the same when exposure occurs early in life as when exposure occurs at maturity. One approach to address this uncertainty is to use a larger MOE when risks to children are being evaluated unless certain that the mode of action and potency identified for later life stage exposures would be sufficiently similar to those following exposures at early life stages. The Agency has recently developed guidance for the Food Quality Protection Act additional ten-fold safety factor for pesticide tolerance assessment to protect children. Similar general approaches could be used to help decide whether the MOE should be larger, and how much larger, when evaluating risks to children.

Id. at 2.

NWEA agrees that there is no basis upon which to conclude that the Department's proposed human health criteria are protective of children as a beneficial use. Given the paucity of scientific data upon which more protective criterion can be developed, the Department is really left with only two options, to do nothing or to address the issue as a matter of policy. Doing nothing does not conform to the requirements of the Clean Water Act and is not protective of the most vulnerable of Oregon's population who, coincidentally, are the future of the State. It is also a poor policy choice because it will increase the public funds necessary to address children with chronic diseases and behavior problems. Therefore, the Department is obligated to address the issue as a matter of policy. The type of approach mentioned by the CHPAC, namely adopting a ten-fold safety factor, is, as a matter of policy, an appropriate and non-arbitrary method of addressing the problem.

The guidelines used to develop the Department's proposed criteria are also silent on the issue of exposure to carcinogens prior to conception, and the potential increased risk of cancer in the offspring of those who are exposed. *Id.* at 3.

IV. ENVIRONMENTAL JUSTICE

Title VI prohibits discrimination on the basis of race or national origin by entities receiving federal funding. Section 601 of the statute contains the primary prohibition, providing that:

No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefit of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

See 40 C.F.R. § 7.30 (provisions related to the Federal Water Pollution Control Act). Section 602 authorizes federal agencies to adopt regulations to effect the provisions of section 601. In 1973, EPA promulgated regulations that implement Title VI and revised them in 1984; they are codified at 40 C.F.R. Part 7. 38 Fed. Reg. 17968 (1973), *as amended by* 49 Fed. Reg. 1656 (1984). These regulations apply to “all applicants for, and recipients of, EPA assistance in the operation of programs or activities receiving such assistance beginning February 13, 1984. . . . Such assistance includes but is not limited to that which is listed in the [Appendix A] Catalogue of Federal Domestic Assistance under the 66.000 series. 40 C.F.R. § 7.15. Appendix A, item number 21 specifically lists CWA section 303. The substantive portion of the regulations require generally that:

- (a) As to any program or activity receiving EPA assistance, a recipient shall not directly or through contractual, licensing, or other arrangements on the basis of race, color, national origin or, if applicable, sex:
 - (1) Deny a person any service, aid or other benefit of the program;
 - (2) Provide a person any service, aid or other benefit that is different, or is provided differently from that provided to others under the program;
 - (3) Restrict a person in any way in the enjoyment of any advantage or privilege enjoyed by others receiving any service, aid, or benefit provided by the program;

. . .
- (b) A recipient shall not use criteria or methods of administering its program which have the effect of subjecting individuals to discrimination because of their race, color, national origin, or sex, or have the effect of defeating or substantially impairing accomplishment of the objectives of the program with respect to individuals of a particular race, color, national origin, or sex.

. . .
- (d) The specific prohibitions of discrimination enumerated above do not limit the general prohibition of Sec. 7.30.

40 C.F.R. § 7.35. In addition, the regulations require federally-supported programs “in which the recipient has previously discriminated on the basis of race, color, sex, or national origin,” to “take affirmative action to provide remedies to those who have been injured by the discrimination.” 40 C.F.R. § 7.35(a)(7).

DEQ has and continues to receive federal funds in support of its overall water quality program including its development of water quality standards. *See, e.g.*, Performance Partnership Agreements. Therefore, the water quality program is a program covered by the applicable regulations cited above. As such, the Department is not only prohibited from developing water quality standards that discriminate against subpopulations based on race, national origin, or gender but it is affirmatively required to provide for water quality standards that remedy such past

discrimination. In addition, the triennial review of water quality standards obtains financial support from EPA and therefore also specifically qualifies as a program covered by those regulations. The prohibition against discrimination means that the Department cannot fail to provide protection to subpopulations from the risk of cancer and chronic diseases from toxic contaminants, it cannot provide protection from those risks at different risk levels, and it cannot provide the same level of protection by restricting people in those subpopulations from engaging the enjoyment of engaging in beneficial uses, such as swimming and fishing, as the general population.

The subpopulations covered by these requirements include:

- C people who rely upon fish as a source of protein due to cultural habits based on their national origin;
- C people who prepare fish according to certain cultural customs based on their national origin that result in higher levels of consumption of toxic constituents;
- C people in subpopulations for which the Department proposes to provide protection from risk of cancer at less than one in a million;

In contrast to the law and public policy concerns, DEQ suggests ignoring the issue altogether. In its Issue Paper, DEQ recommends use of the 17.5 g/day fish consumption rate “until such time that sufficient information is available to completely apply the 2000 EPA Methodology in deriving criteria.” Issue Paper at 75. The Department notes that this is “consistent with the lowest fish consumption rate recommendation of the TAC.” *Id.* (emphasis added). It goes on to say that this approach “is a logical policy choice as it will likely be approved by EPA, it avoids the equity issues raised by some PAC members over the use of TAC-recommended multiple fish consumption levels, and it provides greater protection to subsistence fisher subpopulations within the State than currently exists.” *Id.* This is a curious set of statements, at best. First, if approval by EPA is the primary goal of the triennial review process, it is odd that DEQ has strongly resisted the proposal advanced by NWEA, as a means to keeping Oregon’s criteria current and taking into consideration the State’s disinclination to provide any additional protection than that provided by EPA’s recommended criteria, that the State merely incorporate by reference EPA’s recommended criteria. The Department could dispense with wasting staff time, and the time of volunteer reviewers on the TAC and the PAC, by simply taking this step. It refused, however.

The second statement is more peculiar as a rationale because this recommendation does not avoid equity issues, it quite obviously creates inequity. If by “equity issues,” the staff means that a different proposal would create unequal restrictions on dischargers of toxic contaminants, this is a red herring. The water quality-based provisions of the Clean Water Act inherently create unequal conditions for point sources to meet. For example, point sources effluent limits are set on the basis of stream size, status of the waterbody (impaired or not), and other sources that may be contributing to the levels of that particular pollutant in the receiving water. So too, different uses

in a waterbody can generate different effluent limits, such as the presence or absence of salmonid spawning. Since the criteria are intended to be tied to the foundation of water quality standards – the designated uses themselves – there is nothing wrong, but in fact everything right – with an approach that sets the criteria for toxics based on the needs of those uses. In point of fact, when DEQ states that it wants to employ a one-size-fits all approach to toxics, it is merely clarifying for the record that it does not intend to protect all designated uses equally. In fact, it is placing a higher priority on treating all dischargers equally. That is not the goal for setting water quality standards, as EPA recently clarified. 67 Fed. Reg. 68971, 68975 (Nov. 14, 2002). DEQ attempts to justify its decision to ignore fish consumption data and information, and the need to provide the same level of protection to people who consume fish at a rate higher than the national average, by concluding that use of the national average “provides greater protection to subsistence fisher subpopulations within the State than currently exists.” Issue Paper at 75. This is a ludicrous proposition. Given that the EPA’s national consumption rate has changed, DEQ would be arbitrary to ignore it in favor of the now-outdated 6.5 g/day basis for previous criteria. In other words, the State hardly has a choice in the matter. Whether increasing the rate to the current national average provides greater protection to Oregon’s entire population over its past use of the national average is wholly irrelevant. Use of the higher consumption rate does not provide greater protection to subsistence fisher subpopulations. In fact, it does not even provide equal protection to those subpopulations. Claiming that use of the new national average suggests that Oregon is attempting to do anything for people engaging in subsistence fishing is disingenuous and detestable.

V. THREATENED AND ENDANGERED SPECIES

The protection of designated and existing uses – particularly the protection of fish and wildlife – in Oregon’s waterways, as required by the CWA, plays an essential role in achieving the primary goal of the Endangered Species Act, namely the conservation and recovery of listed species. By not identifying which numeric criteria are insufficient to protect these beneficial uses, the Department fails to meet their needs. Accordingly, if EPA approves Oregon’s submittal it will have failed to “utilize [its] authorities . . . for the conservation of [listed] species.” 16 U.S.C. § 1536(a)(1). Likewise, given gaps in information needed to rectify shortcomings of numeric criteria, the Department must properly interpret and apply its narrative criteria on toxics. Again, Oregon’s failure to do so will result in EPA having failed to ensure that shortcomings in its own recommended criteria are rectified in order to protect threatened and endangered species in Oregon – a violation of the agency’s ESA section 7(a)(1) substantive obligations – should EPA approve Oregon’s submittal.

Furthermore, EPA will be required to fulfill its substantive and procedural obligations under ESA section 7(a)(2) by ensuring its actions (and inactions) in the context of Oregon’s toxics criteria will not jeopardize the continued existence of listed species. Water quality standards provide the strongest authority for species protection in state programs because these standards generally

include numeric goals for specific water bodies that are translated into water-quality-based effluent limitations for permits under CWA § 301(b)(1)(C) and allocations to pollution sources in the development of TMDLs pursuant to CWA § 303(d)(1)(C). Consequently, it is only appropriate that since 1992, EPA has had a stated policy of including ESA consultation in reviewing state water quality standards during the triennial review process. Under a Memorandum of Agreement between EPA and the Services, EPA initiates ESA consultation each time a State's toxic pollutant standards go through triennial review and are less strict than EPA's national recommended aquatic life criteria, or insufficient to provide for the protection and propagation of fish and shellfish. EPA Gold Book, Appendix J (1992). DEQ's failure to address the needs of threatened and endangered species will merely force EPA to take federal actions.

The Department notes that EPA's aquatic criteria are intended to protect "at least 95% of the species" because "aquatic ecosystems are tolerant of some stress." Issue Paper at 13. What this fails to recognize is that some species in Oregon can no longer tolerate any additional stress, in fact they have been listed as threatened or endangered pursuant to the Endangered Species Act (ESA) specifically because they have not been able to tolerate the levels of stress to which they have been and are currently being subjected. These stresses include both habitat losses and loss of habitat connectivity throughout their life cycle, stresses from multiple toxicants, conventional (e.g., temperature), and nonconventional pollutants, and stresses such as navigating hydroelectric facilities and coping with low flow conditions. In addition to the limitations of criteria intended to only protect 95 percent of the species, the criteria have not been established to take into account possible greater effects of contaminants on the most sensitive life cycle stages. Nor have they been designed to protect species that do not have sufficient populations to be able to withstand normal losses from stressed ecosystems. And they not been designed to prevent sublethal effects such as endocrine disruption, suppression of immune systems, and alterations of behavior that have been measured in field and lab studies on a range of species, including salmonids. As anadromous fish, which rely upon complex olfactory senses to complete their life cycle, these behavioral sensitivities may present even more problems than they would for other stressed species. It seems to be lost on the Department that its analysis of what is required to protect threatened and endangered species is inherently flawed so long as it relies upon the same assumptions that EPA uses to develop recommended water quality criteria for healthy populations of species.

The Department reports the TAC concluded "there was insufficient information to propose criteria" for compounds currently lacking EPA recommended criteria – including PAHs, DDTs, PCBs, fluoride, diazinon, atrazine, hexachlorocyclohexane, and carbofuran – despite the literature on these compounds' sublethal effects on salmonids. Issue Paper at 16-17. As explained above, the CWA requires States to adopt criteria "based on biological monitoring or assessment methods" for all toxic pollutants listed on the toxic priority pollutant list for which EPA has not published criteria pursuant to section 304(a) pollutants whenever a State conducts its triennial review. U.S.C. § 1313(c)(2)(B). Therefore, DEQ is required by law to adopt some type of

criteria to address the effects of these pollutants and does not have the option of wholly failing to address them merely because EPA has yet to promulgate recommended criteria.

Moreover, regardless of whatever difficulties are inherent in addressing a variety of sublethal effects known to adversely affect salmonids, the Department must address them. Otherwise, EPA will be required to do so. For example, Nagler et al. report an unexpectedly and unusually high proportion of wild chinook salmon that appear to have been sex-reversed early in development causing chromosomal males to have female reproductive tracts. High Incidence of a Male-Specific Genetic Marker in Phenotypic Female Chinook Salmon from the Columbia River. Environmental Health Perspectives 109:67-69. Nagler, et al., 2001. Eighty-four percent of phenotypic females in the wild salmon tested positive for the male genetic marker whereas genetically-similar hatchery-raised salmon in another river showed no such effect. This research raises the question as to whether widespread sex-reversal may be contributing to the decline in wild salmon populations in the Pacific Northwest. The results are striking because of the high proportion of feminized males and the degree to which sex reversal has gone; many of the males are fully fertile females. Previous experiments with other species of fish have shown that exposure of fish eggs to estrogen-mimicking substances can cause complete sex reversal of males to fertile females. Nagler et al. identify two strong candidates for the results, one being abnormally high water temperatures on the spawning grounds and the second being endocrine disrupting compounds that may have feminized the developing males. An estrogen-sensitive "window" in salmonids occurs around the time of hatching and extends to beyond the time when these fish begin to feed exogenously; during this window male chinook salmon have been shown to be very susceptible to sex reversal. Early during this estrogen-sensitive period (at or shortly after hatching) male chinook salmon can be sex reversed by exposure to high concentrations of estrogen for periods as short as one hour.

Some compounds (e.g., atrazine, carbofuran, lindane, methyl parathion, and dieldrin), known to be estrogenic in rainbow trout (*O. mykiss*) bioassays, are present in the Columbia River.

This is just an example of one of a wide variety of other measured effects on salmonids from toxic contaminants that the Department has not considered in its proposed rules. The omission of this analysis is so blatant that it is can hardly rest with the public to bring those studies to the Department's attention. In fact, it would be a fruitless exercise for us to do so here because the Department has made its intention of not responding very clear.

The Department has proposed to set criteria based on the presumed effects of each pollutant found by itself in an idealized waterbody and based on the effects of each pollutant at criteria concentrations. Thus, the analysis of the effects on threatened and endangered species, such as it has been, fails to take into account the real levels of contamination present in Oregon's waters. At the point of section 7 consultation this fiction will be a demonstrated fallacy of the Department's standards. The criteria chosen cannot purport to protect the beneficial uses precisely because those uses are already negatively affected by levels of contaminants and other

confounding water quality problems present in their habitat. Therefore, the Department's proposed criteria underestimate the current and future effects of toxic contaminants on threatened and endangered species and they will have to be rejected and subject to a federal promulgation.

VI. SENSITIVE SPECIES

DEQ's failure to protect wildlife through its aquatic life criteria and/or by providing separate criteria is contrary to the requirements of the law. The Clean Water Act contains an interim goal of "providing for the protection and propagation of fish, shellfish, and wildlife." CWA § 101(a)(2) (emphasis added). The statute further requires a state to adopt standards "such as to protect the public health or welfare, enhance the quality of water and serve the purposes of this chapter. Such standards shall be established taking into consideration their use and value for public water supplied, propagation of fish and wildlife." CWA § 303(c)(2)(A)(emphasis added). Water quality criteria are required to be sufficient to protect the designated uses, which includes wildlife. 40 C.F.R. § 131.11(a)(1). In particular, these criteria must protect the most sensitive beneficial use, which is frequently wildlife. Water Quality Standards Handbook - Second Edition, September 1993, at 3-31, 3-32, Appendix H. Mammals that consume fish are at higher risk than humans because as body weight decreases, exposure increases. In addition, the state is required to review data and information where toxic pollutants may be adversely affecting water quality, attainment of uses, or at a level to warrant concern and "must adopt criteria for such toxic pollutants applicable to the water body sufficient to protect the designated use." 40 C.F.R. § 131.11(a)(2). Here, Oregon is well aware that designated uses of wildlife, such as mink, bald eagles, and river otter in the Lower Columbia River, for example, are being adversely affected by water quality, in fact sufficiently that the use is not being attained. Nonetheless, Oregon is neither reviewing the data and information necessary to adopt the criteria required by the federal rules nor is it adopting criteria sufficient to protect those designated uses.

While there are no EPA recommended national criteria for the protection of wildlife, there are sources of well-established criteria that could be used. For example, the CTR BiOp contains a recommended criterion for methylmercury of .00171 ug/L for the protection of birds and an instruction from the Services that if EPA adopts anything less protective than .002 ug/L, it needs to re-consult. EPA's GLI wildlife criterion include: methylmercury .0013 ug/L; DDT & metabolites .000011 ug/L; PCBs .000074 ug/L; and TCDD .0000000031 ug/L. EPA's Mercury Report to Congress contains a number of recommended protection levels for methylmercury including: .000057 ug/L for mink, .000042 ug/L for river otter, .000033 ug/L for kingfishers, .000082 ug/L for loon, .0082 ug/L for osprey, and .0001 ug/L for bald eagle. Report at 3-44. (These numbers differ from those used in the GLI because the Report used more recent data for BAFs, used region-specific assumptions of prey, chose different endpoints (more sensitive endpoints to assess a greater range of toxic effects; and different uncertainty factors.) In addition to a science-based approach, there is nothing that prevents the Department from taking a policy approach to reducing overall levels of contaminants in Oregon waters.

The Department's failure to address the endocrine-disrupting and other sublethal effects of many toxic constituents is deeply troubling. It will be many years until EPA has developed recommended criteria that are intended to guard against these toxic effects. However, there are endless studies that demonstrate a wide variety of sublethal effects on adults, children, fish, and animals. To take no action in the face of such studies is irresponsible.

DEQ's response to NWEA's position that it is required to address the protection of wildlife is contained in the Issue Paper (where our position is mischaracterized as that wildlife "should," rather than "must," be considered in the development of standards): "For this review, DEQ took the position of considering aquatic life criteria to protect the designated beneficial uses of anadromous fish passage, salmonid fish rearing, salmonid fish spawning, and resident fish and aquatic life." Issue Paper at 44. This statement does not clarify how the Department thinks it is meeting the requirements of the Clean Water Act and implementing regulations, nor why such an approach would be good public policy. Moreover, it does not even suggest why the Department thinks that its approach will meet the requirements of the Endangered Species Act, during the required consultation associated with EPA's approval or disapproval. Federal law does not allow for DEQ to simply dismiss protection of the most sensitive beneficial use.

VII. UNIDENTIFIED PROPOSED CHANGES IN CRITERIA

The Department is evidently attempting to sneak a potentially major change in its criteria for toxic contaminants without the virtue of public review. It has proposed language, without identifying marks to note the proposed word change, that would substitute "may" for "shall" in the toxic narrative criterion and the language citing the applicability of Table 20. "Shall" is mandatory and "may" is generally permissive. *See, e.g., Eduardo v. Clatsop Community Development Corp.*

(Or.App. 2000) ("When used in a statute, 'shall' normally imposes a nondiscretionary duty on the person or persons directed to act. *Scovill*, 324 Or at 167 n 7 (citing *Dika v. Dept. of Ins. and Finance*, 312 Or 106, 109, 817 P2d 287 (1991)). The same is true for ordinances.") Although when modified by the negative "not" it appears the change should have no effect, the fact that the change is proposed suggests that there is a regulatory purpose in making it. That would be the logical conclusion of a regulatory construction interpretation. Therefore, it appears that the Department seeks to allow some measure of discretion in its application of the toxic narrative criterion and Table 20 values. The results could be attempts by the Department to issue NPDES permits, TMDLs, § 303(d)(1) listings, and § 401 certifications that allow for the harmful levels that are otherwise, without the language change, strictly prohibited under the existing criteria. If this is the intent, and we have no reason to believe it is not, Oregon's standards will fail to protect the beneficial uses and will not, therefore, be approvable by EPA pursuant to the Clean Water Act.

It is essential that DEQ set out explicitly what its intent is in making this language change so that

if there are any questions regarding regulatory intent or regulatory construction there will be a clear record. For example, it needs to make clear whether changing "shall" to "may" is intended to allow, under any circumstances, the Department or the Commission to make regulatory decisions (e.g., issue NPDES permits, § 401 certifications, prepare § 303(d)(1) lists, develop TMDLs) that would allow levels of toxic contaminants that exceed the Table 20 values or cause the conditions that are currently prohibited in the narrative criterion. It needs to make clear that a change in language would not allow the Department or Commission discretion to override the Table 20 values or the narrative criterion on the basis of professional judgment, policy rationale, or any other basis. It needs to make clear that the change in language would not allow the Department of Commission to simply disregard the Table 20 values or narrative criterion on the basis that it was permissive as to its applicability.

In addition, it is inconsistent with the requirements of the Oregon Administrative Procedure Act to propose changes to Oregon rules without clearly identifying them to the public during the public review process. Particularly given the Department's identifying all other proposed changes with bold text and underlining, the lack of identification of these proposed changes misleads the public into believing that no change has been proposed in the remaining language. For this reason alone, the Department must not make the proposed changes in language from "shall" to "may."

VIII. OMISSIONS FROM PROPOSED RULE

A. Failure to Consider Sublethal Effects

The Department must use current information on sub-lethal effects of toxic contaminants on human and wildlife health. These effect include but are not limited to: reduced immunity from disease; permanent brain damage including decreased intelligence, motor skills, memory, eye-hand coordination and increased aggressive behavior; reduced male fertility; reduced penis size, a result found in Columbia River river otter; and abnormal sexual development (e.g., missing testis) and abnormal sexual behavior, among other effects. There are numerous studies on the effects of toxic contaminants that we incorporate by reference in these comments. A list is attached to this letter. <http://www.ourstolenfuture.org/Basics/chemlist.htm> (accessed August 29, 2003); references at <http://www.ourstolenfuture.org/Sources/chemsources.htm> (accessed August 29, 2003).

Studies done in Puget Sound on the impacts of contaminated sediments on juvenile salmon demonstrate they are at risk from even a short 3-week stay in a contaminated area. Fish studied suffered from impaired migration and swimming behavior and impaired immunity from disease. The Science Center concludes there is a risk to salmon from toxic contaminants: "Exposure to contaminants found in Columbia and Willamette River sediments, particularly to PAHs and PCBs, can affect the health of threatened or endangered salmon that utilize the Lower LCR.

Short-term exposure to PAHs and PCBs in contaminated estuaries, both through diet and through the water column, reduces disease resistance and growth rates of outmigrant juvenile chinook salmon in Puget Sound (Arkoosh et al. 1998; Casillas et al. 1995). Resuspension of these contaminants as a result of dredging would increase the risk of exposure through the water column or through contaminated prey. Reduced growth and increased disease residence reduce survival potential.” Science Center memo at 8. Male trout with feminine traits have been found in British Columbia and a recent study has found that a pesticide appears to prevent Atlantic salmon from making the transition from freshwater to saltwater fish. Even low levels of pesticides can alter swimming and migration behaviors in ways that prevent fish from reaching the ocean or returning to their spawning beds. Additionally, certain pesticides can cause abnormal sexual development, preventing fish from reproducing and pesticides can alter the aquatic environment, for example by reducing the food supply available to salmon.

B. Failure to Take Into Consideration Existing Adverse Effects

As explained above, federal regulations require DEQ to “review water quality data and information on discharges to identify specific water bodies where toxic pollutants may be adversely affecting water quality or the attainment of the designated water use or where the levels of toxic pollutants are at a level to warrant concern and must adopt criteria for such toxic pollutants applicable to the water body sufficient to protect the designated use.” 40 C.F.R. § 131.11(a)(2). The Department has failed to meet these requirements. For example, the Department is required to evaluate data on use impairment related to levels of toxic contaminants, i.e. for pollutants that are at levels posing a risk to piscivorous wildlife such as eagles, mink and otter. Some of the information available is from tissue and wildlife health studies related to the Columbia and Willamette Rivers. For example, information that “river otter in the vicinity of [Columbia River] RM 119.5 are in a critical or almost critical category based on reference level comparisons, abnormalities noted during necropsy, and histopathological observations of individuals,” must be evaluated for compliance with water quality standards and to assess the impacts of the proposed project. The Health of the River 1990-1996, Integrated Technical Report, Tetra Tech, May 20, 1996, Figure 14, at 53 [hereinafter “Health of the River”]. This information is tied to toxic contaminants: “Concentrations of organochlorine insecticides, PCBs, and to a lesser extent PCDDs and PCDFs in the liver of river otters were highly correlated with each other and many were significantly related to baculum [penis bone] and testes size or weight.” *Id.* at 52. Likewise, the Department is required to use the extensive information on reproductive failures of the Bald eagle in the Lower Columbia River. The Bi-State study noted that “Historically, some individual mink contained PCB concentrations known to make adult female mink in laboratory studies incapable of producing young.” *Id.* at 52. Likewise, Washington’s 1996 303(d) list includes both entries and listings for PCB-1254, Arsenic, 4,4'-DDE, Dieldrin, and Bis-2-(ethylhexyl)phthalate based on the edible portions of white sturgeon tissue found in the Lower Columbia River. (Both states shared the data from the Bi-State study upon which Washington’s listings are based.)

Other information available on toxic contamination of the Lower Columbia River concerns sediment contamination levels. As the Bi-State study demonstrated, toxic contaminants are present at unsafe levels in depositional areas of the Columbia. For example, there are numerous locations where sediment contamination exceeds values believed to be individually protective of benthic organisms and wildlife. *Id.* at 37. Listed are nine metals and one organic compound, Bis(2-ethylhexyl)phthalate. The document notes other contaminants of concern found in sediments as well, such as polynuclear aromatic hydrocarbons (PAH). *Id.* at 36. The Department is obligated to use all of the information from its own studies. For example the Bi-State study found that "[r]eference levels were exceeded for aluminum, iron, cadmium, copper, lead, selenium, zinc, and silver. Copper and lead exceeded reference levels comparatively frequently, and deserve further evaluation. Additional testing is also recommended for silver and mercury. . ." *Id.* at 35. These pollutants are of significant concern to assuring no adverse effects from contaminants to threatened and endangered salmonids, as well as to other affected species.

C. Limitations Are Required on Mixing Zones for Persistent Bioaccumulative Toxicants

In order to decrease the build-up of contaminants in sediments, the Department should have considered and proposed a prohibition on mixing zones for the most persistent bioaccumulative contaminants subject to these standards. The States of Illinois, Indiana, Minnesota, Michigan, and Wisconsin have all adopted requirements to eliminate or, for existing discharges, to phase out mixing zones for Bioaccumulative Chemicals of Concern (BCCs). As EPA has found:

In aquatic organisms, effects of BCCs range from death to impairment of reproduction, development, and growth (Sweeney et al., 1993). In wildlife, birds exposed to BCCs have exhibited biochemical dysfunction and metabolic effects, behavioral/neurological disorders, and reproductive impairment (Elliott et al., 1996). For humans, as is true for wildlife, the main route of exposure to BCCs is through the consumption of Great Lakes fish, which have 'uptaken' and retained the pollutants from their surrounding environment and food. Potential adverse human health effects resulting from the consumption of contaminated fish include both the increased risk of cancer and the potential for systemic or noncancer risks such as kidney damage (U.S. EPA, 1997). As affirmed by commenters who support today's rule, women who are pregnant and children, in particular, are at risk for being adversely affected by BCCs (U.S. EPA, 1997). BCCs can induce inheritable chromosomal changes in women that could result in birth defects in their infants, cross the human placenta contributing to exposure of the fetus through placental transfer, and accumulate in body tissues. Exposure to BCCs can result in decreased fertility, premature labor, spontaneous abortion, reproductive hormone disorders, increased stillbirths, lack of mammary function, reduced libido, and delayed estrus. Children may be at greater risk than adults.

Because BCCs can accumulate in human milk, women exposed to the pollutants who breastfeed could potentially pass the chemicals on to their infants. Risks to infants and children include central nervous system effects, mortality, low IQ scores, cataracts, congestive heart failure, skin disorders, cancers, immune system dysfunction and immunosuppression, skeletal disorders, neurological/behavioral effects, and endocrinological disorders. In addition to supporting EPA in its rationale behind the rule, as summarized in the above paragraphs, many commenters strongly advised EPA to expand the proposed rule so that the regulations apply nationwide, not just for the Great Lakes System, and that the BCC mixing zone phase-out should cover chemicals other than BCCs.

65 Fed. Reg. 67638, 67642 (Nov. 13, 2000).

On this basis, EPA finalized a rule that prohibits or, for existing discharges, phases out mixing zones for BCCs in the Great Lakes System (GLS) (in most cases, by November 15, 2010) subject to certain exceptions. *Id.* This means that NPDES permit limitations for BCCs discharged to the Great Lakes System must be set no higher than water quality criteria. 65 Fed. Reg. 67638 (Nov. 13, 2000). The rationale behind these state and EPA actions is applicable to Oregon's waters, where contamination of sediment and biota have already occurred, have already had a measurable detrimental effect on many species, and where threatened and endangered species can ill afford any additional risks to their survival caused by such pollutants. Behind the theory of using mixing zones is the belief that by mixing with the receiving waters within the zone, the discharge will become sufficiently diluted to meet applicable water quality criteria beyond the borders of that zone. This belief is factually in error with regard to many of the contaminants addressed in the Department's rulemaking proposal.

The mixing zone prohibition for the Great Lakes System was limited to BCCs based on the fact that they are the pollutants of primary concern. EPA's regulations applicable to the Great Lakes System define a BCC as any chemical that 1) accumulates in aquatic organisms by a human health bioaccumulation factor (BAF) greater than 1000 (after considering various specified factors), and 2) has the potential upon entering surface waters to cause adverse effects, either by itself or in the form of its toxic transformation product, as a result of that accumulation. 40 C.F.R. § 132.2. The BCCs subject to EPA's rule include: Lindane, Mirex, Hexachlorocyclohexane (BHC), DDD, Hexachlorobenzene, alpha-Hexachlorocyclohexane, Chlordane, beta-Hexachlorocyclohexane, delta-Hexachlorocyclohexane, DDT, Hexachlorobutadiene, DDE, Photomirex, Octachlorostyrene 1,2,4,5-Tetrachlorobenzene, PCBs, Toxaphene, 2,3,7,8-TCDD, Pentachlorobenzene, Mercury, 1,2,3,4-Tetrachlorobenzene, and Dieldrin. *Id.*

In the GLS mixing zone rule, EPA determined that:

“BCCs, due to their persistent and bioaccumulative nature, are incompatible with mixing zones. By definition, BCCs are chemicals that do not degrade over time. These chemicals accumulate in organisms living in the water and become more concentrated as they move up the food chain – from biota to fish and wildlife to humans. Because the effects of these chemicals are not mitigated by dilution, using a mixing zone to ‘dilute’ BCC discharges is not appropriate. Commenters pointed out that dilution and dispersion are inadequate substitutes for removing and treating the BCCs before they are discharged to the Great Lakes’ waters. EPA agrees with these commenters because it is the mass of BCCs that poses a problem, not just the concentration. Because dioxins, mercury, polychlorinated biphenyls (PCBs) and other BCCs degrade over long periods of time or do not degrade at all, their buildup in pockets of sediments creates ‘hot spots’ in the environment in which bioaccumulation of toxics in fish and other aquatic organisms can occur at levels that significantly exceed safe levels for consumption by wildlife and humans.

Id. at 67641. EPA went on to note that even small concentrations of BCCs can increase the risks of cancer, organ failure, and a host of other maladies in humans and wildlife. *Id.* Moreover, the concentration in sediments and the food chain of BCCs where natural sinks exist, and upon which many beneficial uses rely, makes elimination of mixing zones a step towards reducing the probability of adverse effects on these organisms and those that consume them. For example, in the Willamette and Columbia Rivers, where the effects of toxic contaminants have been measured in fish, birds, and mammals, reducing these types of pollutants will reduce the detrimental effects already discovered. These rivers are also surely affected adversely by BCC discharges further upstream. Had the Department followed the requirements of 40 C.F.R. 131.11(a)(2), it might have addressed these issues.

Oregon should ban and phase out the use of mixing zones for BCCs because they are harmful to the environment and any discharge of BCCs – even those discharges that are equivalent to the applicable water quality criteria – have the potential to impair the integrity of the receiving waterbody. Using mixing zones to increase the amount of allowable discharge exacerbates this situation because the effects of BCCs are not limited to the short term, or localized zone of initial dilution, meaning that adverse effects could occur far outside the mixing zone and long after the BCC discharge occurred. In order to provide full support for the beneficial uses of protecting human health and wildlife, and to protect threatened and endangered salmonids and the food chain upon which they rely, reducing the mass of BCCs accumulating in depositional areas of Oregon is essential. Using the best regulatory tool available to DEQ, NPDES permits for point sources, is the most effective way to achieve this end. As EPA comments in its GLS rule, “EPA does not consider mixing zones an entitlement.” Why, then, does the Department?

D. Effect of Temperature and Dissolved Oxygen on Toxic Parameters

Increased temperatures and low levels of dissolved oxygen affect the toxicity of other water quality parameters – conventional and toxic – and enhance the adverse effects of other parameters on the beneficial uses, particularly salmonids. Temperature affects the uptake of toxic contaminants by aquatic uses because elevated temperatures decrease available DO in the water column. Oregon Department of Environmental Quality, Final Issue Paper on Dissolved Oxygen, Appendix A-6, June 1995. In addition, the biological demands on aquatic species increase with increasing temperatures. At lower DO levels, the amount of oxygen delivered to fish tissue decreases, restricting the ability of fish to maximize metabolic performance. *Id.* Low DO levels increase the acute toxicity of various toxicants such as metals and ammonia. *Id.* Low DO levels may compound the adverse effects of some toxicants. Alternatively, toxicants may increase sensitivity to low levels of DO. For example, the Department has provided an example of where a toxicant that damages the gill epithelium can decrease the efficiency of oxygen uptake. Also, several toxic contaminants increase oxygen consumption due to interferences with oxidative phosphorylation of pentachlorophenol and have the potential to increase sensitivity to low DO. *Id.*

The U.S. Environmental Protection Agency concurs that adverse impacts of toxicants may be compounded by low DO levels or may increase sensitivity to low DO levels. U.S. EPA, Biological Assessment of the Revised Oregon Water Quality Standards for Dissolved Oxygen, Temperature, and pH, September, 1998, at 63. EPA identified three mechanisms by which low DO and a toxicant in combination cause effects: 1) Increase gill ventilation associated with low DO can increase uptake of waterborne toxics, 2) Any toxic contaminant that damages the gill epithelium and decreases efficiency of oxygen uptake will increase sensitivity to low DO, and 3) a number of toxics, such as pentachlorophenol, increase oxygen consumption due to interference with oxidative phosphorylation. *Id.* Therefore, when elevated temperatures – which are common in Oregon waters – cause depleted oxygen levels, there are additive impacts with toxic contaminants.

It is not known with any specificity what the additive effects of high temperatures and low dissolved oxygen levels are. However, a precautionary approach – which is called for based on the threatened and endangered status of species, the lasting effects on human health, particularly vulnerable children and subsistence fishers, and the lack of protection for wildlife – would all suggest that the Department provide for a greater level of protection than those proposed.

E. Failure to Promulgate Narrative Criterion Implementation Methods

As recognized by Congress in its enactment of CWA section 303(c)(2)(B), the establishment of numeric criteria for toxic pollutants, combined with the application of narrative criteria to address more site-specific water quality issues, enables the State and EPA to evaluate the adequacy of a wide range of existing and potential pollution control measures to protect aquatic

ecosystems, wildlife, and human health. Because of Oregon's inadequate numeric toxic criteria and lack of methodology for interpreting and applying its narrative toxic criteria, however, DEQ continually fails to fully evaluate its data on toxic contamination of surface waters. As just one of many examples across the state, this significant problem is demonstrated by the unsatisfactory CWA section 303(d)(1)(A) listing of the Calapooia River, a tributary to Oregon's Willamette River. DEQ has listed the river because it does not meet water quality standards for bacteria and temperature. DEQ did not list the river as violating toxics standards, despite the agency's determination that the toxic chemicals ametryn, atrazine, desethylatrazine, desisoproylatrazine, diuron, hexazinone, lindane, metolachlor, metribuzin, prometon, pronamide, propachlor, propazine, simazine, terbacil, and triclopyr existed in the waterway. *See* Final 1998 Oregon Section 303(d) List Decision Matrix. The agency effectively ignored the presence of these toxic substances because DEQ had yet to issue criteria for the toxics or narrative criteria implementation methodology. Had EPA required DEQ to do so, these toxics would have been analyzed during the agency's listing evaluation for the river. In addition, DEQ also found benzo(b)fluoranthene, butylbenzyl phthalate, di-n-butyl phthalate, diethyl phthalate, and indeno (1, 2, 3-cd)pyrene in the Calapooia River, "but [because the agency concluded that] there are no well established guidelines available for evaluating risks, nor have there been any beneficial use impairment evaluations," it did not include these toxics in its listing evaluation. *Id.* Had EPA required DEQ to adopt new EPA-recommended criteria for these toxics as well as a narrative implementation methodology, DEQ would have effectively been able to analyze the risk posed by the presence of these toxics and to conduct a use impairment evaluation.

Failure to apply the narrative criterion ensures that DEQ fails to override the many weaknesses inherent in its standards. Thus, the narrative criterion which could be used to overcome problems with treating each pollutant separately, and look at additive and other effects of multiple toxicants, is never implemented. Likewise, criteria that fail to take into account known sublethal effects of pollutants, bioaccumulation, weaknesses in the lethality studies used to derive criteria, incompatibility between monitoring assumptions and actual monitoring methods and frequency, interactions with other non-toxic pollutants, all need to be addressed through the narrative criterion on toxics. Yet, the Department continues to ignore the obvious policy rationale and the legal requirements to develop clear and protective methods of doing so. This failure renders the entire standards package irredeemably flawed.

IX. APPROACHES TO ADDRESS UNCERTAINTY

Oregon's proposed changes to outdated numeric criteria and guidance levels for toxic contaminants demonstrate that the state does not have the resources to ensure that state-adopted criteria meet the requirements of the Clean Water and Endangered Species Acts. There is no reason therefore, except some sort of false state pride, to create delays in adopting EPA

recommended criteria. It would require less state resources and allow for more timely updates now and in the future for Oregon to simply become a National Toxics Rule state or to create a mechanism in state standards that has the same effect. Then, Oregon could focus on creating and applying methods to implement Oregon's narrative criterion on toxics – through the § 303(d) listing process, TMDLs, NPDES permits, § 401 certifications, etc. – in order to achieve the protection for beneficial uses that is required. Only the application of the narrative can address the reality of toxic contamination in Oregon's waters including, for example, the presence of multiple toxics contaminants, existing effects such as reproductive failure and deformities on beneficial uses from current levels of toxic contaminants, effects on subsistence fishers, taking into account existing and new research on the sub-lethal effects of pollutants, and protecting threatened and endangered species.

In addition, there is an important policy opportunity for the State. In the face of knowledge that the criteria proposed will have detrimental effects on various species, including threatened and endangered salmonids, but a generally insufficient basis upon which to establish protective numeric criteria, the Department has the policy choice of providing an across-the-board margin of safety, such as the ten-fold decrease for pesticide exposure of children. If the DEQ is serious about wanting to control its own water quality standards, rather than have them disapproved for lack of compliance with federal law, it should take the initiative and make this bold policy step. Then it could truly claim to have an "Oregon Plan."

X. DEQ AND EPA ROLES

The Department has fairly consistently taken the position that all it has to do is to adopt EPA recommended criteria and that it will have fulfilled its obligations under federal law. NWEA has consistently pointed out the fallacy in this approach, a position that has been echoed by EPA itself. Nonetheless, DEQ has simply disregarded the fact that its adopting EPA recommended criteria will not be the end of the analysis, under either the Clean Water or Endangered Species Acts. Once again, DEQ's lack of responsiveness underscores the pointlessness of its undertaking a triennial review on toxics.

In this regard, it is useful to point to EPA's own statements with regard to its 2000 Ambient Water Quality Criteria (AWQC) Methodology and the role of the states:

EPA encourages states and tribes to use the revised methodology to develop or revise AWQC to reflect local conditions appropriately. EPA believes that AWQC inherently require several risk management decisions that are, in many cases, better made at the state and regional level (e.g., fish consumption rates, target risk levels). . . . The revised methodology will provide more flexibility for decision-making at state, tribal and EPA regional levels. EPA believes the AWQC require several risk management decisions that are often better made at the state, tribal

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and regional level.”

Fact Sheet: Revised Methodology for Deriving Health-Based Ambient Water Quality Criteria (2000), EPA-822-F-00-005, October 2000. What DEQ is not seeing here is that risk management decisions have to be made, not ignored. Its decision to ignore, for example, the CRITFC study results is not making a decision, but failing to make a decision. The absence of action is in direct contradiction to EPA’s methodology.

CONCLUSION

Oregon’s proposed standards for toxic pollutants are long overdue and therefore a welcome change from the status quo. It is however, also “too little, too late.” Having waited this long to promulgate needed criteria, Oregon does not automatically also get a pass on promulgating the standards properly. It is unfortunate that the state did not, at the outset, merely request that EPA promulgate federal criteria for Oregon, thereby avoiding the delay inherent in conducting this state process and forcing EPA to waste further time in entering consultation on a set of criteria that are obviously inadequate to meet the requirements of both the Clean Water Act and the Endangered Species Act.

Sincerely,

Nina Bell
Executive Director

cc: Paula Vanhaagan, EPA Region X
Dru Keenan, Region X