UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

MAR 07 2003

Reply To
Attn Of: OW-131

Megan White
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Dear Ms. White:

We appreciate the considerable work that the Department of Ecology (Ecology) has done over the past decade on its water quality standards revisions. It is an impressive effort by your staff to pull together this extensive package with all its supporting materials, as well as the well-run workshops and hearings around the State. This letter transmits our comments on these water quality standards revisions.

We have reviewed the draft revisions to the Washington Water Quality Standards dated December 19, 2002. We have also reviewed the technical documents and decision memos associated with the various changes that were part of the package that was public noticed on January 2, 2003. We did not review the Draft Environmental Impact Statement in depth, because the Environmental Protection Agency (EPA) does not have a role in the State SEPA process, however, we did refer to the draft EIS to understand the range of potential options that the State is considering while it seeks comment on these draft standards.

These revisions have been in process for many years, a reflection of the complexity and difficulty of the topics you are addressing, and the understandably diverse interests of the population you serve. From the EPA perspective, we see some very important reasons to proceed to bring this triennial review to completion – 1) adoption of antidegradation implementation procedures, a required element of water quality standards, necessary for consistent implementation of your antidegradation policy; 2) adoption of temperature criteria to improve protection for salmonids, particularly native char; and 3) adoption of improved bacterial indicators, in accordance with the Beach Act (Public Law 106-284) requirements, to better protect human health. We recognize the merits of other changes – the shift to use-based standards; the inclusion of policies for variances, site-specific criteria, and use attainability analyses; and the policy for addressing compliance of dams with water quality standards -- if the State is to have the flexibility to address site-specific refinements to standards.

In addition, we commend you for the tribal consultation process that you have undertaken with this package of proposed revisions. Northwest tribes have a large stake in salmon recovery and in protecting the health of aquatic resources, both on their Reservations and in usual and accustomed harvesting areas off-Reservation. We appreciate that the State has specifically responded in this draft to the request from tribes to acknowledge their interest in consulting on any proposed use changes in Washington's standards by inserting a specific

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reference to consultation in WAC 173-201A-440(4). We encourage Ecology to continue the dialogue with tribes, on both these water quality standards, as well as other related water quality decisions in the future.

Once Ecology makes its final decisions on the standards and submits the revised rule to EPA, EPA will review and approve or disapprove the standards under our rules at 40 CFR Part 131. The revised standards will not be in effect under the Clean Water Act until EPA has taken action to approve those standards.

EPA must consult under Section 7 of the Endangered Species Act (ESA) with the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the U.S. Fish and Wildlife Service (USFWS) on the action to approve state water quality standards. Section 7(a)(2) of the ESA requires that federal agencies, in consultation with the Services, insure that their actions are not likely to jeopardize the existence of federally listed species or result in adverse modification of designated critical habitat of such species. This ESA consultation will be particularly important because of the recent listings of multiple native salmon populations in the Northwest and the need to conserve and recover these listed stocks.

In addition the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires federal agencies to consult with NOAA Fisheries on any actions authorized, funded, or undertaken by an agency that may adversely affect Essential Fish Habitat (EFH) identified by Regional Fishery Management Councils. EPA will be combining the ESA and EFH consultations into a single process.

Our comments on the State's draft water quality standards revisions are found in Enclosure 1 to this letter. We have organized the comments by topical area in the standards. The nature of the comments generally falls into one of three categories: 1) provisions where we have a particular concern as to whether what has been proposed will protect beneficial uses, 2) provisions where more information will be needed for our Clean Water Act review and ESA consultation, and 3) minor editorial comments.

We have a concern with the language in some of the provisions. We realize that clarity and precision in regulations are difficult to attain, as EPA's own regulations often show. However, language that is open to interpretation is difficult to implement, evaluate, or comply with. We found several places where Ecology could be helpful by either revising the wording or by providing more information on interpretation and application of the standards. This concern arises particularly in the sections pertaining to the temperature criteria, dissolved oxygen criteria, antidegradation procedures, and the natural conditions provision. We realize that it would be premature for Ecology to develop detailed implementation procedures for a proposed rule. Therefore, in Enclosure 1, we have identified where additional clarification within the standards would be most important to alleviate the potential for misapplication and misinterpretation of the standards, and which topics will need additional implementation guidance to support the Clean Water Act review and ESA consultation.

We would like to highlight six key issues of particular concern to EPA. Detailed comments on these and other issues are in the enclosure.

1) Ecology's proposed temperature criterion and use designations to protect char spawning and juvenile rearing may not be sufficiently protective.

2) Ecology's approach to protect salmon, steelhead, and trout spawning and rearing with a single criterion may not be sufficiently protective, particularly for early spawning stocks (spring chinook, chum) and late developing steelhead embryos. We recommend a separate temperature criterion to protect spawning.

3) Ecology should strengthen its provisions for the protection of waters colder than the criteria in order to provide more complete protection of its designated salmonid uses.

4) Dissolved oxygen criteria should be modified to ensure the protection of char and salmonid, steelhead, and trout spawning and rearing.

5) Antidegradation implementation procedures should be further clarified to ensure that the intent of the antidegradation policy is supported.

6) Both the natural conditions and short-term modification provisions should be refined so that they are applied and function appropriately.

We support Ecology in making needed revisions to the standards. It is a difficult job to write regulations that protect water quality adequately without being unnecessarily complex and burdensome. We hope that our comments may help in this difficult task. We are available to provide further input as needed to clarify our comments or suggest alternative language and approaches. Our principal expert on these standards is Marcia Lagerloef at 206-553-0176.

Sincerely,

Randy Smith

Randall F. Smith
Director
Office of Water

Enclosures

cc: Susan Braley, Ecology
Mark Hicks, Ecology
Steve Landino, NOAA Fisheries
Ken Berg, USFWS
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Enclosure 1

EPA Comments on December 19, 2002 Draft Revisions to Washington Water Quality Standards

A. Temperature Criteria to Protect Aquatic Life

Overall, we think that Ecology's proposed changes to its temperature criteria are positive. In particular, we support Ecology's change from a class-based system to a use-based system, where specific salmonid uses are defined. Because salmonid distribution and health is directly linked to water temperatures, we support Ecology's approach to establish various sub-categories of salmonid use for which specific temperature criteria apply.

Other aspects of Ecology's proposal we support include: 1) the 16°C criteria to protect salmon, steelhead, and trout spawning and rearing (except for some situations where this criteria may not protect spawning as discussed below); 2) the 17.5°C criteria to protect salmon, steelhead, and trout rearing-only; 3) the 18°C criteria to protect redband trout; 4) the 20°C criteria to protect indigenous warm water species; 5) use of the maximum 7-day average of the daily maximum temperature metric; and 6) the statement that the temperatures are not to exceed the criteria at a probability frequency of more than once every ten years on average.

We, however, have serious concerns on three issues that raise the question as to whether the salmonid uses identified in Ecology's water quality standards (WQS) will be fully protected. Each of these issues are discussed below:

1) Char criteria and use designation.

We are concerned that a 13°C criterion may not fully protect bull trout spawning and rearing. As described in the bull trout peer review report that was part of EPA's Water Temperature Guidance Project, a 13°C criterion may place juvenile bull trout in a competitive disadvantage with other salmonids in a natural stream environment. Further, we have concerns that summer- early fall bull trout spawning may not be protected by the 13°C criterion. We also have concerns that bull trout spawning and rearing waters that currently have 7DADM maximum temperatures below 13°C could be warmed up to 13°C, which could further shrink the last remaining "optimal" bull trout habitat where bull trout clearly out-compete other salmonids. Lastly, although the methodology for designating char use is sound, we have concerns that there may be some isolated stream segments that should be added.

EPA recommendations: We recommend a 12°C criterion to minimize the risk to juvenile bull trout rearing from competition with other salmonids and to provide better protection for summer-early fall bull trout spawning. We also recommend a 9°C criterion to protect bull trout spawning. In order to protect bull trout spawning and to ensure existing high quality thermal habitat for bull trout rearing is maintained, we also recommend several changes to Ecology's WQS that are aimed at protecting waters that are colder than the temperature criteria. These recommendations are discussed below in issue #3. If these cold water protections are sufficient, it may not be

bull trout spawning crit in steel

necessary to have a separate bull trout spawning criterion. We also recommend that Ecology's char use designations be consistent with the U.S. Fish and Wildlife's bull trout spawning and rearing critical habitat areas.

2) Salmon and trout spawning.

We are concerned that the 16°C criterion may not fully protect salmon, steelhead, and trout spawning, especially those salmon stocks (spring chinook and summer chum) that spawn in the summer months and steelhead eggs that incubate into the summer months. We believe that 13°C temperatures or lower are needed to protect spawning and the final stages of steelhead egg-fry development. Ecology makes the case that meeting the 16°C criterion during the period of maximum summer temperatures will in most cases protect spawning. We believe this is most likely true for fall spawning stocks (and early steelhead fry emergence), but we are not convinced the summer spawning/fry emergence will necessarily be protected.

EPA Recommendations: We recommend Ecology establish a specific salmon and trout spawning and steelhead embryo use with a criterion of 13°C 7DADM. We recognize Ecology's concern for minimizing the complexity of its WQS. Therefore, we think it would be acceptable to only designate this use for waters where there is concern that the 16°C criterion will not fully support this use. We recommend Ecology work with other State agencies, Tribes, and NOAA Fisheries to locate and designate these waters.

3) Protection of waters currently below the criteria.

As noted in the bull trout discussion above, we have concerns about protecting waters with temperatures currently below the proposed 13°C char criterion. We also have a general concern about further warming of rivers used by threatened and endangered salmonids. Human activity has already increased temperatures in many rivers in the State of Washington which adversely affects ESA-listed fish; further warming, especially waters of high quality, should be minimized.

Specifically, we have concerns about the allowable temperature increases noted in (1)(c)(ii) of WAC 173-201A-200. First, it is unclear whether these allowable temperature increases would circumvent the Tier II antidegration process. Second, the 2.8°C allowable increase for non-point sources would provide essentially no added protection for existing cold water since very few streams are likely to be more than 2.8°C colder than the criteria during the summer period. Third, the basis for the formula for point sources is unclear, and this allowable increase raises similar concerns regarding protection of existing cold water.

Additionally, we have concerns that the thermal refuge provision in (1)(d) of WAC 173-201A-330 is too limited in potential scope and so restrictive that it will not be used in practice.

EPA Recommendations: We recommend that (1)(c)(ii) of WAC 173-201A-200 be modified to clarify that these temperature increases reflect a maximum allowable increase and that any temperature increase above 0.3°C is subject to the Tier II antidegradation process. The Tier II

process may result in reducing the allowable temperature increase. Additionally, we recommend replacing both the point source formula and the 2.8°C non-point temperature increase allowance. We recommend that the maximum cumulative allowable temperature increase be 25% of the difference between the natural background temperature and the criterion, which would apply to both point and non-point sources. We think this: 1) provides better protection for summertime spawning (both bull trout and salmon/steelhead) and for high quality rearing habitat (both bull trout and salmon/steelhead); 2) is fair in that it treats point and non-point sources equally, and 3) is clear and intuitive as to the intent and purpose of this WAC provision.

We also recommend that (1)(d) of WAC 173-201A-330 be modified to include "macro" areas of thermal refugia (i.e. larger than areas of seeps and springs), which could include specific watersheds or stream reaches within a basin that are ecologically significant when assessing the basin as a whole. For example, summertime bull trout spawning areas in the upper portion of basins could be designated which would both protect this sensitive use and recognize the value that upstream cold water provides to downstream areas in the basin. We are concerned, however, that the non-degradation protection associated with Tier III might prevent waters from actually being designated in this way. So, we also recommend that a de minimus temperature impact (e.g. cumulative amount of 0.3°C) be allowed, which would in effect make this what is sometimes called a Tier II ½ level of protection.

Tier 2½

In summary, these recommended modifications to WAC provisions are intended to ensure that waters that are colder than the criteria will protect the salmonid uses. As such, we would consider these in conjunction with the numeric criteria when determining whether or not Ecology's WQS meet CWA requirements.

4) Other comments related to temperature

We believe Ecology's demonstration that their criteria support steelhead smoltification that occurs in the spring is insufficient. We recommend that Ecology either show their summer maximum criteria support this sensitive use or adopt a 12°C criterion to protect steelhead smoltification.

14°

We support Ecology's inclusion of specific criteria described in (1)(c)(vi) of WAC 173-201A-200 that apply to thermal plumes in order to protect salmonids. We believe 33°C for instantaneous lethality leaves little margin for error, so we recommend 32°C. Although a maximum temperature spike of 17.5°C would not likely adversely affect fish embryos, long term exposure at this temperature would. We recommend a 13°C 7DADM value to protect fish embryos. It is unclear how the migration and lethal temperatures noted in this section will be applied to thermal plumes. We recommend that thermal shock to salmonids be prevented by limiting the maximum cross-sectional area of the river that exceeds 25°C to less than 5-10 percent of the river. We recommend that adult migration blockage be prevented by limiting the maximum cross-sectional area of the river that exceeds 21°C to less than 25% of the river or if upstream temperature exceeds 21°C, the thermal plume be limited such that 75% of the cross-sectional area of the river has no temperature increase.

We are not reviewing the Special Conditions for specific water bodies for temperature found in WAC 173-201A-600. These Special Conditions should be revisited over time as Ecology looks at the uses within particular basins. Where there are 20°C or 21°C temperature Special Conditions assigned, these waters should also be assigned a narrative provision to protect and restore other aspects of the natural thermal regime aside from maximum thermal temperatures, including cold water refugia and diurnal and seasonal temperature patterns.

B. Dissolved Oxygen (DO) Criteria

This was a particularly difficult section of the proposed WQS package to review adequately because of lack of clarity regarding implementation and because of the use of year-round criteria, which rest on the assumption of DO levels to be attained during critical life stage periods for fish. We therefore have many questions within our comments.

We note that in response to public comment Ecology has changed from the option proposed in June 2002, of a 120-day average as the metric for measuring dissolved oxygen, to the use of two metrics – a 90-day average and a one-day minimum. This approach is an improvement over the 120-day average, however we still have concerns with the metrics used, the numeric criteria selected, and the uncertainty regarding how these criteria will be implemented, particularly since the metrics are keyed to daily minimum DO levels. Our concerns relate particularly to protecting the fish early life stages of spawning, incubation, and rearing through fry emergence from the gravel. It will be difficult to complete our CWA review and develop the analysis for ESA consultation without further clarification of how the criteria are to be interpreted and applied, and how assumptions that were used in developing the particular metric statistic will be validated. We encourage Ecology to provide supplemental information on monitoring and assessment expectations. This would answer many of our questions raised during this review.

1) The selection of metrics and how they will be applied

a) 90-day averaging period

We are concerned that a 90-day averaging period is too long to protect the sensitive life stages of spawning, incubation, and fry emergence and that a 90-day averaging period can obscure substantial periods when protective criteria would not be met. One reference that we have used in our evaluation is EPA's Quality Criteria for Water (1986), which contains a discussion of EPA's nationally recommended criteria. EPA (1986) states that, "For embryonic, larval, and early life stages, the averaging period should not exceed 7 days. This short time is needed to adequately protect these often short duration, most sensitive life stages." While holding times for spawners, incubation times of eggs, and rearing in fresh water varies by salmonid species, we concur with the EPA criteria guidance that the averaging period for a metric for protection of the spawning and incubation life stages should be shorter than the Ecology's proposed 90 days.

EPA recommendation: EPA recommends a shorter averaging period. However, if Ecology

intends to use a 90-day metric, Ecology needs to provide additional information on how the longer averaging period will protect the early life stages of salmonids (spawning through fry emergence), and how measurement of this metric will be accomplished to assure protection of these earliest life stages.

b) Application of the 90-DADMin and 1-day minimum metrics

A key issue that needs further clarification within the WQS is the relationship between the two metrics that are proposed and what will apply under circumstances where there is a limited amount of data. If the criteria are applied separately and if the 1-day minimum can therefore be the operative criterion in some circumstances, we have concerns about the protectiveness of this criterion for designated uses.

Continuous DO measurements, or 90 days of individual grab measurements, are generally not feasible due to a lack of instrumentation and resources . We understand from further discussion with your staff that the 90-day average measurement is actually intended simply to bracket this period and can be calculated from as little as 3 monthly grab measurements. It is very hard to have confidence that ambient DO for 90 days can be characterized with only 3 measurements.

If there are two or fewer measurements, will only the 1-day minimum of 7.0 mg/l be used as the operative criterion for assessing waterbody compliance? Provision 200(1)(d)(i) states that "The 90-DADMin and the one-day minimum criteria in the table above must both be applied to ensure protection of a healthy aquatic system." Does this mean that if there isn't sufficient data for a 90-DADMin that a single sample will not be used for compliance purposes?

Provision (d)(vi) acknowledges the importance of how data is averaged for the 90-day metric so that the results aren't "unreasonably biased". How will this be interpreted? How will the 90-day periods be framed to insure that critical life stages are protected, particularly when these life stages differ in timing between species and between watersheds?

EPA recommendation: Ecology needs to develop additional guidance to permittees, staff, and others working with gathering and analyzing DO data to address issues including how many samples are needed to address compliance with the criteria, when (within the day) to sample and where to sample for the daily minimum. Large diurnal differences in DO occur in most waterbodies due to plant photosynthesis and respiration. Lakes and reservoirs are frequently stratified, so guidance is needed on where the criteria apply and how to sample these waterbodies. EPA cannot assess the protectiveness of the criteria for the designated uses without additional information on implementation of the DO criteria.

2) Use of a single set of criteria for year-round compliance

The cover memo to Ecology's technical discussion paper on the DO criteria indicates that the year-round criteria are anticipated to achieve significantly higher levels of DO in periods other than the summer. This fundamental assumption, including the specific levels that need to

be achieved to protect the most sensitive life stages of spawning, incubation, and fry emergence, is not evident in the standards and therefore is not available for testing. We find this to be a serious flaw for the following reasons: 1) some salmonid species spawn in mid-to-late summer, 2) human perturbations in the landscape, including increased sediment and nutrient delivery to streams, and alteration of flows, can significantly alter the natural seasonal pattern of DO availability in the water column and the spawning gravels. On page 2 of the Ecology technical support document it states, "Of all the water quality parameters, dissolved oxygen is possibly the most ubiquitously affected by the actions of humans."

The histogram on page 88 of Ecology's technical support document represents a summary of what percentage of rivers would meet various spawning criteria based on year-round 90-day daily minimum criteria set at different levels. The histogram illustrates that 77% of streams that met the 90-day average daily minimum of 9.5 - 10.0 mg/l met the spawning goal of 10.5 mg/l as a 90-day average daily minimum during spawning. The spawning period in these streams was determined from the WDFW Salmonid Stock Inventory (SaSI) data which is now ten years old and can't be assumed to be accurate for all waterbodies because of variations in the data quality used to develop this data base as well as the professional judgements involved. From a CWA perspective, and considering ESA consultation, it is unlikely that 77% compliance will be adequately protective for this critical life stage of salmonids.

EPA recommendation: We recommend that Ecology include an explicit spawning/egg incubation/fry emergence DO criterion in the WQS and apply this criterion particularly to those streams where summer spawning occurs. (See the discussion on this same issue under Temperature criteria.)

3) One-day minimum of 7.0 mg/l

Not knowing how the two metrics are intended to be implemented, and absent another specified daily minimum criterion in the WQS, it appears feasible that at times the operative criterion could be the daily minimum of 7.0 mg/l for salmonid spawning, egg incubation, and fry emergence (particularly for those stocks that commence spawning in mid-to-late summer.) If this is used as a stand-alone criterion, it appears to be a significant decrease in the dissolved oxygen criterion from the currently applicable criteria in Class AA and Class A fresh waters (9.5 mg/l and 8.0 mg/l, respectively, as a minimum). We do not find biological justification in Ecology's technical support document to support this change and are concerned about its protectiveness for early life stages of fish, particularly those that commence spawning in the summer.

EPA's Quality Criteria for Water (1986) contains EPA's recommendations for DO levels to protect various life stages. Because many salmonid populations in Washington are ESA-listed, we referred to Table 2 in that document, which presents criteria referenced to the risk of production impairment. EPA (1986) states, "If slight production impairment or a small but undefinable risk of moderate impairment is unacceptable, then one should use the "no production impairment" values given in the document as mean values and the "slight production impairment" values as minima. The slight production impairment value for embryo and larval stages of salmonids in Table 2 is 9 mg/l. The EPA criteria for spawning are based in part on

achieving required intergravel dissolved oxygen concentrations for eggs in redds, which are presumed to be as much as 3 mg/l below the water column criterion. Thus, a criterion of 9 mg/l as a daily minimum measured in the water column is intended to ensure that the intergravel dissolved oxygen is at least 6 mg/l as a minimum.

Ecology's technical document reviewed more recent technical literature and concluded (page 23) that minimum intergravel DO to protect spawning and incubation should be at least 8.0 - 8.5 mg/l if a high degree of protection is intended. Using EPA's recommendation that a 3 mg/l difference should be factored into the water column criterion in reference to the intergravel criterion, would result in a water column criterion of 11.0 - 11.5 mg/l. Ecology's technical document cites a range from literature of typically 1 - 3 mg/l for the difference between the water column and intergravel DO concentrations. We are aware that the science of measuring intergravel DO is inexact, and that it appears that intergravel DO is spatially heterogeneous. Therefore, the assumption of a 3 mg/l difference between water column and intergravel DO is potentially a conservative assumption, but appropriate to support the designated use, especially when it includes listed species.

Ecology's technical support document provides documentation of both the factors that can compound the effects of marginal DO (such as temperature) and the potential to impact survival because of reduced fitness resulting from decreased size at hatching and delay in emergence from the gravels – effects associated with less-than-optimal DO. It was evident from many studies that if temperatures are not ideal for spawning and incubation, the effects of lower DO are exacerbated. Many of the laboratory tests were conducted such that the alevin did not need to push up through gravel substrate (i.e. emerge) to survive. This action in nature will be affected if the fitness of the fish has been affected by lower than optimal DO in the redd. "Thus higher oxygen levels may be needed to fully protect emergence than to just fully support hatching alone." (p 11, Ecology DO technical support document). The studies reviewed also demonstrated that any decrease in mean oxygen concentration during incubation may directly reduce the size of hatched salmonids. (p 14, technical support document). A reduction in size of hatched fish would affect both the fitness for emerging from the gravels as well as the foraging ability and susceptibility to predation once they have emerged. Ecology's review of field studies of emergence from spawning gravels found that 8.0 mg/l was associated with superior health and survival and that significant reductions in survival were associated with average concentrations below 6.0 - 7.0 mg/l.

Another factor that will affect the protectiveness of the criteria is the flow rate in the waterbody during the time of spawning, which affects the aeration rate of the gravels. Where streams have multiple out-of-stream water appropriations, combined with drought conditions, flows could be seriously reduced and result in a lower rate of flow and aeration to the gravels. This factor also warrants using a conservative assumption in the estimate of the difference between the water column DO and the intergravel DO.

We understand from discussion with Ecology staff that from their analysis of existing stream data from 84 sites, the minimum DO was on average 0.94 mg/l lower than the 90-day average DO. This is the basis for Ecology concluding in staff discussions with EPA that

compliance with the 90-day metric will more likely provide compliance with a daily minimum of 8.5 mg/l, rather than 7.0 mg/l. Worded differently, it is likely to be the 90-day metric that is the driver from a compliance standpoint. The analysis done by Ecology to make this assumption is based on measurements that are not representative of the metric specified in the standards, so it is difficult to tell whether this is an accurate conclusion. The criterion in the proposed WQS is a 90-DADMin, whereas the measurement used in the assessment of existing data is a 90-day average. Discussion at the front of the analysis acknowledges that the current monitoring program is both intermittent and not likely to sample in the early part of the morning when DO levels are expected to be lowest. Therefore, this analysis did not look at critical conditions reflective of the metrics as stated in the draft criteria.

EPA recommendation: As discussed in other recommendations above, Ecology needs to clarify the operation of the two-metric system and how the levels set will protect the early life stages of salmonids, particularly those stocks that commence spawning in mid-to-late summer.

4) Other factors that affect available DO as well as impacts of DO levels

We are concerned that DO levels that may be marginal for protection are further exacerbated by other stresses that may already exist in aquatic environments affected by human activities. On page 23 of Ecology's technical support document there is a consideration of various policy issues, including a discussion of temperature-induced risks to salmonids that may interact with the DO levels. It's stated, "When temperatures are above favorable levels for incubation, any reduction in oxygen can cause a notable increase in detrimental effects to embryonic growth and survival." As discussed in our review of the temperature criteria there is evidence that the temperature criteria selected by Ecology are at the edge of what are considered to be fully supporting levels, therefore this statement regarding DO effects would support an even more conservative approach in setting DO criteria. Temperature and DO are also related in that temperature affects the amount of DO in the water, therefore an approach to the DO criteria might be to set both a numeric limit and 90% saturation, and apply whichever is greater in that particular situation. As described earlier in our comments, human actions on the landscape increase sediment delivery to streams, and reduce flows or alter timing of flows, all of which can have significant effects on the DO in the gravels, regardless of the water column DO.

EPA recommendation: Ecology's final selection of DO criteria to protect salmonid spawning, egg incubation, and fry emergence needs to specifically address these issues and explain how the DO levels selected are protective.

5) De minimus provision

Provision (d)(ii) allows that "When a waterbody's DO is lower than the criteria in the table 200(1)(d) [or within 0.2 mg/L of the criteria] and that condition is due to natural conditions or human structural changes that cannot be effectively remedied (as determined consistent with the federal regulations at 40 CFR 131.10), then human actions considered cumulatively may not cause the 90-DADMin to decrease more than 0.2 mg/L."

This provision raises one concern and a few questions. Our concern is that this language treats human structural changes that cannot be effectively remedied like a natural condition. Human structural changes that cannot be effectively remedied are not a natural condition. As noted by the regulation citation, applying this *de minimus* provision would first require a Use Attainability Analysis (UAA) to remove a designated use from a waterbody or create a subcategory of a use with less stringent criteria. Ecology will need to do a UAA and submit it to EPA for review and approval before resetting the criteria for reasons other than natural conditions. Because a UAA determines an attainable condition and, as necessary, new uses and criteria, we do not see the biological basis for further degrading the condition with an allowance of 0.2 mg/l.

The provision regarding natural conditions would work as an "automatic" natural condition provision without the language related to human structural changes.

EPA recommendation: Ecology needs to provide further information on how it envisions this provision operating in order for EPA to be able to complete its review.

C. Bacterial Criteria

Ecology is proposing shifting from its current fecal coliform criteria to E.coli in fresh water and enterococci in marine water, consistent with the most recent EPA criterion guidance for protection of primary contact recreation. The October 2000 Beaches Environmental and Coastal Health Act (BEACH Act) made this a requirement by adding section 303(i) to the CWA, requiring coastal states to adopt criteria for coastal recreation waters "as protective of human health as" EPA's published criteria for pathogens and pathogen indicators by April 2004. Ecology's proposed criteria meet the Beach Act requirement. Two areas merit further discussion in our comments below.

We note that Ecology is adopting E. coli criteria for freshwater at a level more stringent than EPA's national criteria recommendations. As we understand it, Ecology's decision is based on maintaining the level of protectiveness for primary contact recreation (i.e. risk of illnesses due to pathogens in the water) under the current fecal coliform criterion. Ecology's E. coli criterion is based on a close correlation found between fecal coliform and E. coli in fresh water in Washington. This is an appropriate and well-supported risk management decision on the State's part, and therefore supportable under the CWA.

1) Use of fecal coliform as an indicator of compliance with enterococci criteria for protection of primary contact uses in marine waters

Provision WAC 173-201A-210 (2)(b)(i) states that "Fecal coliform levels for shellfish growing areas will be viewed by Ecology as also being fully protective of primary and secondary contact uses." We appreciate that Ecology has concerns both about the need to test for three bacterial indicators (fecal coliform, E. coli, and enterococci) and with the potential public communications issue if the water passes the shellfish sanitation criterion and fails the primary contact criterion. National and local studies have indicated that there is no basis for assuming a

relationship between the concentration of fecal coliform in a water body and the concentration of enterococci (for example, Vasconcelos, 1985). In Vasconcelos (1985) water near local marine beaches at Golden Gardens and Alki Point was sampled. At Alki Beach there were seven separate sampling periods. Fecal coliform always met the marine criterion of 14/100 ml. On two occasions the enterococci criteria exceeded the criterion of 35/100 ml, despite the fecal coliform compliance (3 fecal coliform vs. 63 enterococci, and 6 fecal coliform vs 51 enterococci). At Golden Gardens the fecal coliform criteria were exceeded in three out of six samples. The enterococci criteria were exceeded on only one (the lowest) of these three coliform exceedance occasions (43 enterococci vs 17 fecal coliform/100 ml). Data provided to EPA by KingCounty Wastewater Treatment Division (email from Betsy Cooper) of marine water sampling related to spill events at the West Point and Carkeek sewage treatment facilities, shows that in these instances the fecal coliform criterion for shellfish consumption was exceeded without the primary contact enterococci criterion being exceeded. In no cases was the enterococci criterion exceeded without the fecal coliform criterion being exceeded.

These data comparisons are very limited, but were all that was immediately available for assessing Ecology's proposal. The Golden Gardens and two King County studies appear to support the protectiveness of your proposed approach of using the fecal coliform monitoring for shellfish sanitation purposes as an indicator of protective levels of enterococci. However, there does not appear to be a predictable relationship between the two parameters, and the Alki Beach study brings into question whether even the general assumption that the fecal coliform limits will be exceeded first is valid.

Fecal coliform are known to die off quickly in marine waters, whereas enterococci may survive for some time. This tendency of enterococci is precisely why this indicator is viewed by EPA (EPA, 1986) as a more protective and reliable indicator for human health protection in marine water, compared with fecal coliform. The persistence of enterococci in marine water is likely to better replicate the behavior of other human pathogens, including viral pathogens.

EPA recommendations: If Ecology wishes to continue monitoring for fecal coliform only as a surrogate for enterococci in marine waters, the ability of the one indicator to safely represent the other needs to be further documented. As noted above, we are not currently aware that there is a reliable relationship between fecal coliform and enterococci or E. coli in marine water. We recognize that the State may need a period of transition to develop experience with the new indicators and the analytical methodologies, therefore it is appropriate and recommended that states include measurement of multiple indicators for a limited period of time (May 2002 Draft Implementation Guidance for Ambient Water Quality Criteria for Bacteria).

2) Waters in lakes and Class AA waters

In fresh water Ecology is proposing to set the new E. coli criteria at 100/100 ml based on the close correspondence found in WA fresh waters between the E. coli and fecal coliform numbers and the desire to not lower the level of protection currently afforded these waters for primary contact uses. How will Ecology handle waters that are currently set at a fecal coliform criterion of 50/100 ml (lakes and Class AA waters)?

EPA recommendation: Ecology needs to clarify that for waters in lakes and Class AA meeting the current bacterial criteria, degradation of water quality to the levels in the proposed criteria would require a Tier II antidegradation analysis.

D. Antidegradation

Antidegradation is a required element of state and tribal WQS. We know from experience that implementation of the antidegradation policy is difficult and seldom applied consistently without implementation procedures being available to guide both department staff and the public. Therefore, we are very pleased that Ecology has developed draft antidegradation implementation procedures. In the arena of temperature, antidegradation is a necessary tool for protecting waters colder than the criteria where they currently exist. This can be particularly important in upper watersheds, where waters have traditionally supported species and life stages that require the coldest temperatures. Cold water protection also provides assimilative capacity that is critical when future development or other activities that contribute to increases in temperature are planned downstream.

We have particular concerns with the proposed antidegradation implementation procedures in four areas: 1) the need to clarify how Ecology and the public will determine which waters are Tier II; 2) the potential for the "measurable change" approach to result in untracked cumulative effects that systematically degrade Tier II waters; 3) the general permit approach and its consistency with antidegradation policy requirements; and 4) the limited options for assigning an ecologically significant water a Tier III status. We have drawn from the experience or other states to suggest some potential approaches to these issues. We recognize that implementation of the antidegradation policy is challenging from an administrative standpoint and therefore recommend that Ecology's approaches be reviewed and potentially refined at some point within the next few years, after more experience is gained in implementation.

1) Waters receiving a Tier II analysis

Tier II waters – those waters with higher quality than the criteria assigned – constitute an important public resource, allowing assimilative capacity for future growth and a cushion in water quality that is likely beneficial to both humans and aquatic species. The Tier II analysis in EPA's regulations is intended to make these decisions public decisions about use of a finite resource that is available to all.

a) Identifying Tier II waters

Ecology's approach to antidegradation is a parameter by parameter approach, rather than a designational approach. As we understand it, this approach does not include identification in advance of what waters are considered to be Tier II waters for which parameters. One issue that needs to be addressed in implementation guidance is how Tier II waters will be determined. It is quite possible that many permittees are not yet discharging at their permitted levels. Measurement of ambient water quality therefore would not be a true reflection of what water quality might be if all facilities were operating at their allowable discharge limits.

EPA recommendation: We recommend that the calculation of existing permitted loads be taken into account before it is assumed that there is remaining assimilative capacity for further allowable degradation under Tier II.

b) Measurable change

Ecology includes under WAC 173-201A-320 (2) an approach that defines "measurable change" in terms of individual criteria. The intent is that only activities that result in a predicted "measurable change" outside the mixing zone will be considered degradation that is significant enough to warrant a Tier II analysis. The "measurable change" approach has two potential bases: 1) the amount that can be reliably measured with current instrumentation, and 2) an allowance for *de minimus* degradation.

EPA recommendation: We recommend that guidance clarify that the "measurable change" approach is not intended to result in double counting of an allowance for measurement error plus an allowance for degradation.

While using some sort of threshold is reasonable, we are concerned that there is the potential that application of the mixing zone policy, coupled with this provision, could result in no activities exceeding the "measurable change" threshold and therefore receiving a Tier II analysis. We are assuming that one safeguard in this regard is the explicit reference to the section of the mixing zone policy that sets specific size limitations – WAC 173-201A-400(7).

EPA recommendation: We recommend that Ecology clarify in this section that Tier II analysis will be needed if WAC 173-201(a) 400 (12) is used to develop a mixing zone that exceeds the numeric size criteria established in WAC 173-201A-400(7). This would limit the possibility of the "measurable change" provision becoming an exit ramp from Tier II analysis for all projects simply by manipulation of the mixing zone size.

c) Cumulative effects from actions not receiving Tier II analysis

In addition, a concern with any approach like the "measurable change" approach is that these seemingly *de minimus* changes can have a cumulative effect from multiple actions over time. In order to make sure that cumulative effects are managed, we encourage Ecology to develop a mechanism to either establish a baseline in time for water quality or to track degradation over time when it results from actions that never receive a Tier II analysis.

The State of Colorado discovered after several years of implementing their antidegradation policy, that no actions were receiving a Tier II analysis. One way that Colorado addressed this was to change their regulations in September 2000 to set a baseline date and limit cumulative degradation from that date to 15% of the remaining assimilative capacity.

Similarly, the draft rule for the Great Lakes Water Quality Guidance (58 FR 20802) proposed a definition of de minimus degradation for non-BCCs (Bioaccumlative Chemicals of Concern) such that the lowering of water quality by a pollutant would be considered de minimus

if it satisfied the following criteria:

The lowering of water quality uses less than 10 percent of the total assimilative capacity; and

at least 10 percent of the total assimilative capacity remains unused after the lowering of water quality.

The State of New Hampshire has a similar provision, however they consider a lowering of > 20% of the remaining assimilative capacity to be a significant lowering of water quality requiring the Tier II process.

These examples provide options for limiting how much of the assimilative capacity can be used without going through a Tier II analysis and also for limiting cumulative effects. These approaches do require that baseline water quality be known and some record-keeping system to track degradation from the baseline in water quality and assimilative capacity.

Our concern with Ecology's "measurable change" approach is that it is conceivable that permit limits could be calculated to fit within the measurable change thresholds without ever assessing whether a water is a Tier II water. This would make it virtually impossible for the public to track what is happening overall to water quality in Tier II waters.

EPA recommendations: We recommend that Ecology include a provision in the antidegradation procedures to address cumulative degradation in Tier II waters in order to assure the public that the "measurable change" approach won't ultimately lead to loss of all Tier II status waters without public input and review. We would be happy to assist Ecology in locating other state examples of this type of approach that have proven reasonable to implement.

2) Factors considered in antidegradation Tier II analysis

The proposed rules state at WAC 173-201A-320 (4) (a) that "A statement of the benefits and **costs** of the social, economic, and **environmental effects** associated with the action" (emphasis added) will be provided by the applicant for the Tier II analysis. However, the examples given of the information that will assist this analysis do not speak to the environmental and social cost of degrading water quality (or, conversely the benefits of maintaining water quality.)

Previous review drafts of Ecology's standards, including the December 2001 version, contained a substantive list of these counterbalancing benefits of maintaining the water quality, including assisting in the recovery of threatened and endangered species, providing assimilative capacity for future industry and development, and promoting fishing, recreation, and tourism industries. These examples are now missing from the implementation procedures and therefore likely to be overlooked. (Our discussion above under temperature criteria provides further support for the need to consciously weigh factors, such as protection of salmonids, in this decision-making process.) We are aware also (August 7, 2002 letter from James Anderson, Executive Director, Northwest Indian Fisheries Commission, to Tom Fitzsimmons, Director, Ecology) that tribes have raised Tier II degradation as a significant issue because of the cultural

and economic cost to them of further degradation of the aquatic systems supporting their treaty resources. When the benefits of maintaining water quality in a particular water body are not part of the consideration, that may undermine the overall intent of the State's antidegradation policy.

EPA recommendation: We recommend that Ecology reinsert into Section (4)(a) of the Tier II procedures the examples of benefits of maintaining water quality that were listed in the December 2001 draft WQS under (5)(c) (ii) within the antidegradation section.

3) Public process associated with determinations for Tier II waters

Ecology's draft implementation procedures contain no discussion to indicate whether or how determinations to allow degradation of Tier II waters will be made available to the public for their input and comment.

EPA recommendation: We recommend that Ecology use existing public notice opportunities and make preliminary Tier II determinations (and their basis) available for public comment at the time of permit public notice or notice of action to issue a Section 401 water quality certification. Determinations that degradation is not significant and does not require a Tier II analysis should also be included in a public notice for the action.

4) General permits and control programs

We appreciate the difficulty of tackling this particular issue and are pleased that Ecology is explicitly addressing general permits. If all actions in Tier II waters were to require a full Tier II analysis, there would no longer be an administratively streamlined general permit process. Thus, the challenge is to balance administrative efficiency with needed protection for high quality waters. Ecology staff noted at the Seattle public hearing that "many thousands" of activities fall under general permits, therefore this is an area deserving of attention when considering the effectiveness of an antidegradation policy and implementation procedures.

a) Requirements applicable to individual activities authorized under a general permit or water pollution control program

The proposed language in WAC 173-201A-320 (6) has dropped some of the significant specifics found in the December 2001 draft. Notably, the language has been dropped that stated that general permits and control programs must be designed so that individual actions would not be expected to: "(i) Cause violations of water quality standards or harm existing uses", "(ii) Result in further lowering of water quality for parameters reported on the most recent EPA approved Section 303(d) list", or "(iii) Lower water quality in waters designated by name in this chapter as Water Quality Preservation Areas." Dropping the above-quoted language, which specifically states important expectations of individual actions under general permits and control programs, while at the same time indicating that these individual actions will not require a Tier II analysis, appears to unnecessarily remove options Ecology may wish to retain to correct activities that are found to cause degradation that is unacceptable.

EPA recommendation: We recommend the December 2001 language, quoted above, be reinserted into this section.

b) Tier II review at the time of public notice of the general permit

Ecology has followed EPA's suggestion that the Tier II analysis for these general permits and programs be conducted primarily at the time of permit issuance. It is unclear what process or analysis will take place when all that is stated in the WQS at WAC 173-201A-320 (6)(b) is that "A statement to that effect will be included in the information provided during the public process." How will this process allow individuals to identify waters where further degradation would not be in the "overriding" public interest? We recognize that a complete site-specific analysis is not feasible at the time of general permit issuance.

Provision (6)(b) states that "The economic and environmental considerations made, when developing the general permit or program, satisfy the requirements of subsection (4)(a) of this section." This statement reflects an assumption that the economic and environmental considerations pass Tier II. It isn't clear how or whether that would be the case or whether that determination would be publicly available.

EPA recommendation: We recommend that Ecology clarify what kind of information will be made available to the public at the time of public notice of a draft general permit. If there are circumstances when Ecology provides public notice of individual activities under a general permit or control program that is another potential opportunity to request public input relative to degradation in Tier II waters, if the activity will take place in a Tier II water.

We are not clear on why only section (4)(a) is referred to, when the Tier II analysis also includes (4)(b). Section (4)(b) pertains to alternatives to the lowering of water quality to assure that the least degrading alternative that can be "practically implemented" is used. Without this reference, only AKART will be applied, regardless of whether the activity is in a Tier II waterbody.

EPA recommendation: We recommend that the reference to section (4)(b) of the antidegradation procedures be included under (6)(b).

5) Criteria for qualifying for Tier III (non-degradation) status

Ecology's criteria for Tier III designation limit the potential to protect ecologically important waters. EPA's regulations suggest that one criterion for designation as a Tier III water is exceptional ecological significance. Ecology's provisions at WAC 173-201A-330 (1) include (a) " water in a relatively pristine condition...or possesses exceptional water quality, and also occurs in federal and state parks, monuments, preserves, wildlife refuges, wilderness areas, marine sanctuaries, estuarine research reserves, or wild and scenic rivers", (b)"unique aquatic habitat types" that are "regionally rare examples" and (d) waters that are areas of "thermal refuge." This appears to limit unnecessarily the range of ecologically significant waters that might be considered for non-degradation. Consider, for example, a stream that connects two

related population segments of a particular ESA-listed salmonid stock. Maintaining the genetic and spatial diversity of that population, by maintaining the integrity of the connection may be critical to its survival in an environment that receives multiple stresses. The connecting waters may not be pristine or unique habitat types, but for the population dynamics at hand they may be a vital link, where further degradation would affect the ability of the water to support the fish use of that connecting link. Such cases may not be made readily, but they shouldn't be precluded by designation criteria that are too limited.

We understand that Ecology's limited set of designation criteria was used in previous drafts because this section of the standards made designation essentially automatic if a waterbody met the designation criteria. This is no longer the case.

EPA recommendation: We recommend that you insert a criterion for designation of waters of exceptional ecological significance. We would be happy to work with you in developing appropriate language. Because of the significant difference in allowable activities between Tier II and Tier III waters, many states have adopted a Tier II ½ provision that allows some very limited degradation, but offers much of the Tier III protection. We would support the State adopting in addition to the Tier III category, a Tier II ½ as mentioned in the Draft EIS.

6) Assessment of how these provisions function

We recommend that Ecology commit to a review of its antidegradation implementation procedures after a set initial period, such as three years. The proposed revisions to the State's WQS are intended to ensure that the antidegradation policy that has been in place for some time is implemented. There is no national antidegradation implementation guidance for this process and little experience regionally to draw from, yet there are public expectations that the policy is intended to create benefits of enhanced environmental protection for current uses as well as future needs. A review within a few years could be an opportunity to re-check both the expectations and the performance of the implementation program you have designed.

E. Designated Uses

1) Salmonid and other fish migration

The salmonid and other fish migration use is no longer listed specifically under aquatic life uses being protected (provision WAC 173-201A-200) and use designations for waters of the state (provision WAC 173-201A-600)

EPA recommendation: Ecology needs to add this use to the two provisions referred to above.

2) Protection of nonspecified aquatic life

We support the new language in this draft of the WQS that other nonspecified fish and nonfish species must also be protected within the use categories that are primarily named after various fish species.

F. Water quality offsets

Provision WAC 173-201A-450 (2)(b) states, "The improvements in water quality associated with creating water quality offsets for any proposed new or expanded actions must be demonstrated to have occurred in advance of the proposed action." Ecology's introduction of this provision shows considerable foresight for addressing water management on a watershed basis. This language as well as the accompanying provisions in this section of the water quality standards do not make clear the importance of designing the offset both spatially and temporally in the context of the watershed where it is occurring.

EPA recommendations: We recommend that you insert language into the provision to clarify that the offset needs not only to precede the discharge that it is offsetting, but also remain in place so that the reductions continue to occur at the same time as the discharge they are meant to offset. In addition, the offset and discharge need to be related spatially in such a way that the waterbody condition and uses aren't being degraded in the waterbody as a whole between where the discharge occurs and where the offset takes place, nor create any adverse localized impacts..

G. Criteria for total dissolved gas (TDG)

1) Implementation

There appear to be some ambiguities in the language in this section. Clarification and some additional specifics are needed to understand how this criterion is applied. WAC 173-201A-200(1)(f) contains some areas of confusion. Table 200(1)(f) lists the criterion as "Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection." The narrative accompanying that table at (1)(f)(ii) states that "TDG is measured as the average of the twelve highest consecutive hourly readings in any one day, relative to atmospheric pressure." Are these consistent with each other? Is compliance with the criterion on a per sample basis or only based on an average of the twelve highest hourly readings? What if there aren't 12 readings? If the metric is now an average of the twelve highest hourly readings, what is the likely range of data points, based on existing data? How high might an individual reading be and still have the average comply with the criterion for a twelve-hour average?

The current WQS include a specific compliance point below Bonneville dam (Camas-Washougal), in the absence of a forebay downstream. No such indiction of where compliance will be measured below Bonneville is included in the proposed revisions. Where will compliance be measured below Bonneville?

If the monitoring in the gas abatement plan (1)(f)(iii) indicates harm to the fish population that exceeds that caused by passage through the turbines, what actions can Ecology take?

EPA recommendation: Ecology needs to provide additional information/clarification regarding the application of this criterion.

2) Basis for allowing higher TDG criteria

The biological basis for allowing higher TDG numbers than EPA's criteria recommendations is not discussed.

EPA recommendation: Ecology needs to include a discussion of the basis for the alternative TDG numbers in its submission to assist EPA in both the CWA review and in conducting the ESA consultation.

H. Criteria for Ammonia

We have reviewed Ecology's draft document entitled, "Review of USEPA's 1999 Ammonia Criteria for Freshwaters" (December 2002). We appreciate the time and effort Ecology staff have put into analyzing some of the more salient issues regarding ammonia toxicity. The draft document points out some of the complexities inherent in determining and ensuring an appropriate/adequate/acceptable level of protection for aquatic life species, more specifically, for salmonid species. The draft document presents several insightful alternative approaches for revising the State's acute and chronic ammonia criteria for freshwaters for the protection of salmonids and nonsalmonid species.

We support Ecology in recommending alternative 1. EPA believes this is a reasonable approach to ensure protection of salmonids from adverse effects from ammonia, especially given: (1) the range and status of salmonids in Washington, (2) salmonids are a commercially and recreationally important species in Washington, as well as certain salmonid stocks being listed as threatened or endangered under the ESA, and (3) the State's concern regarding an acceptable level of risk for these species. Further information is included in the enclosed review that EPA Region 10 conducted, with assistance from EPA Headquarters, to assess both the Washington and Idaho ammonia proposals in September 2001 with respect to the 1999 EPA criteria guidance for ammonia. (Enclosure 2)

I. Natural and Irreversible Human Conditions

We are concerned that the two situations combined under provision WAC 173-201A-260(2) [NOTE: there is a typo in the numbering in the draft WQS – it is listed as "1" but should be "2"] are not appropriate for combining because they need to be handled differently. The provision combines the existing provision relating to natural conditions with a new option to allow criteria to be reset due to human structural changes that cannot be effectively remedied, plus some allowed further degradation in both of these circumstances.

1) Natural conditions

The significant change in the natural condition language from the current WQS is the change from "the natural conditions shall constitute the water quality criteria" (an automatic provision) to "may become the alternative criteria target for a waterbody." The new language takes away the automatic character of the provision. A change to a natural condition will therefore require a site specific criterion be developed. It is unclear if the phrase "alternative

criteria target" is intended to result in something other than a new criterion?

EPA recommendation: Ecology needs to clarify whether it intends an automatic provision for natural conditions or a site-specific criteria development process, which would include submission to EPA in each instance it is used. In either case, EPA recommends that: 1) decisions on natural conditions be water body-specific, well-documented, and supported with data and information; and 2) that there be a public participation process when invoking the natural condition provision to change a criterion. The public participation could easily take place within the context of permit public notice, public notice of a draft 303(d) list, or public notice of a draft TMDL. The language in the notice would need to specifically call attention to this determination and the technical basis for it. We believe this will increase both the credibility and the acceptance of changes in criteria that are proposed as natural conditions. Even if changes in the applicable criteria occur based on an "automatic" natural conditions provision in the standards, these procedures should still be followed. If the natural conditions provision is automatic there is a clear need for a mechanism for permit writers and the affected public to track these changes in the effective criteria in the State's standards.

2) Human structural changes

The provision dealing with human structural changes that cannot be effectively remedied cites language from and references the EPA standards regulations (40 CFR Section 131.10). This section of EPA regulations addresses use designations, and more specifically the language captured in the State's draft is from the section on conducting a Use Attainability Analysis (UAA) to demonstrate that the designated use is not attainable. Therefore this provision applies to both use changes and changes in criteria.

EPA recommendation: Ecology needs to clarify what is envisioned with this provision. It appears that first a UAA would need to be completed in accordance with new section WAC 173-201A-440. After EPA review and approval and ESA consultation this UAA could be used to change both the uses and the applicable criteria.

J. Short-term Modifications

Ecology has made some significant changes to this provision that may warrant dividing the activities into categories, some of which don't easily fit the concept of a short-term modification.

1) Time limits on activities that are "short-term" modifications

Ecology's current WQS contain in the short-term modifications provision the language, "Such activities must be conditioned, timed, and restricted (i.e. hours or days rather than weeks or months) in a manner that will minimize water quality degradation to existing and characteristic uses." The proposed revision drops the parenthetical statement which illustrates the concept of "short-term." A provision entitled short-term modifications is not specifically listed under optional policies that states might adopt in 40 CFR 131.13. However, these

modifications fit conceptually with the concept that water quality can be maintained and protected with some allowance for short-term changes in water quality.

EPA recommendation: EPA recommends that the time period examples be reinserted into the short-term modification language.

2) Integrated pest or noxious weed programs

We have concerns that as worded now this aspect of the short-term modification provision is not limited in time. While these programs may be authorized for multiple years, the duration of the activity itself should be limited as noted above.

EPA recommendation: The language under WAC 173-201A 410 (2) that the "standards may be modified for the duration of the plan or for five years" should be removed if this is to be a short-term modification.

3) Watershed restoration activities

These activities, such as dam removal may well last longer than hours or days, and can't be justified as a short-term modification.

EPA recommendation: Watershed restoration activities could potentially be addressed under the variance provisions, relying on rationale #3 under 40 CFR 131.10 (g). We would be happy to explore this with you further.

K. Special Conditions Applicable to Certain Waters

Ecology has translated intact to its new specific use designation table for fresh water (WAC 173-201A 620) the Special Conditions that are included in the current WQS. These Special Conditions currently use expressions of the temperature and DO criteria that are expressed in the metrics of absolute minimum DO and absolute maximum temperature, as opposed to the seven-day average of the daily maximum temperature and the 90-day average of the daily minimum DO. In addition, in some cases the Special Conditions are still expressed as fecal coliform. The information to understand the applicable metric is not apparent in Table 620 and needs to be clarified.

EPA recommendation: Ecology needs to clarify the applicable metrics for these Special Conditions. We assume Ecology will want to harmonize these criteria with what is adopted in this triennial review. This could be done as Ecology takes up the questions of use designation that it has tabled until completion of this triennial review.

L. Variances, Site-specific Criteria, and Use Attainability Analyses

Each of these tools for refining the applicable uses or criteria in a water body is recognized by EPA and it is appropriate that Ecology is incorporating allowance for use of these

tools into the Washington water quality standards. Use of any of these tools to change an applicable criterion or use for a water body requires EPA review and approval and ESA consultation.

EPA recommendation: Ecology needs to make sure these expectations are clear to the users of these standards.

M. Editorial Suggestions

Marine water designated uses and criteria

On page 22, the brief introduction under the title to WAC 173-201A-210 refers to "fresh surface waters" rather than the marine waters in the title – this should be changed.

Table 210(1)(g) on page 25 might be titled more appropriately "Shellfish Harvesting Bacteria Criteria in Marine Waters", although we understand the harvesting function is contained within the overall aquatic life use. The bacterial criteria are intended to protect human health rather than aquatic life, so alternative labeling might make this more clear.

On page 26, the "Water contact bacteria criteria" should be labeled provision "b" rather than "a".