



**UNITED STATES ENVIRONMENTAL PROTECTION
AGENCY**

REGION 10

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OFFICE OF
WATER AND
WATERSHEDS

July 28, 2014

Paula Wilson
Idaho Department of Environmental Quality
1410 N. Hilton
Boise, Idaho 83706

RE: EPA comments on Idaho Mixing Zone Rule Draft v.4

Dear Ms. Wilson:

Thank you for the opportunity to provide comments on the Idaho Mixing Zone Rule Draft version 4, which the Idaho Department of Environmental Quality (DEQ) issued on July 17, 2014. EPA also appreciates the additional time to provide our written comments. We understand DEQ intends to issue the revised rule for a 30-day public comment period in September before presenting a final proposed rule to the Idaho Board of Environmental Quality in October.

We commend DEQ for improvements to the draft mixing zone rule. In a very short timeframe, the agency has worked with a variety of stakeholders to address several concerns. However, since the agency requested written comments for different rule sections at different times, we are not sure if some of our previous comments are still under consideration and/or will be addressed by DEQ in the public comment draft. With this in mind, we recommend DEQ collectively review the enclosed comments as well as our previous comments.

EPA recommends additional provisions and specificity for this rule to provide clarity and improve consistent interpretation of the provisions. For example, a previous recommendation reiterated in the enclosed attachment concerns identifying the "no larger than necessary" provision as a stand-alone sub-section since it applies broadly throughout the rule. Our recommendation also includes introducing a provision to demonstrate the need for each mixing zone. EPA recommends these provisions to afford DEQ flexibility in providing further details in the implementation guidance. In particular, these details will guide how the regulated community effectively demonstrates that the mixing zone is no larger than necessary and the level of water quality necessary to protect existing and designated beneficial uses is still preserved even with the authorization of the mixing zone.

Further, these details would be helpful for purposes of Endangered Species Act (ESA) analysis. EPA will need to review whether (and if so, how) its approval of the water quality standards revisions contained in the Idaho Mixing Zone Rule may affect threatened and endangered species and critical habitat for such species. EPA would be required to complete an ESA consultation with the Services, respecting any such effects that would follow from such Clean Water Act approval. Adding further specificity to Idaho's regulatory language will assist EPA in completing a timely consultation.

Our detailed comments, provided in the attachment, include input from both EPA Region 10 and EPA Headquarters. It is important to note that our detailed comments include suggested revisions to DEQ's draft rule language to help facilitate your review and understanding of our comments. We are available if you would like to discuss our comments further, and we look forward to continued work with DEQ on this effort. Please contact me at (208) 378-5771 if you have any questions.

Sincerely,

/s/ Cyndi Grafe

Cyndi Grafe
Idaho Mixing Zone Rulemaking Liaison

cc: Barry Burnell, DEQ (e-mail)
Mary Anne Nelson, DEQ (e-mail)

Enclosure:

Attachment A:
Summary of EPA Comments – Idaho Department of Environmental Quality (DEQ) Mixing Zone Draft v.4 submitted on July 28, 2014

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Attachment A:

Summary of EPA Comments – Idaho Department of Environmental Quality (DEQ) Mixing Zone Rule Draft v.4 010, 060.01, and 060.02 - submitted July 28, 2014

I. Definitions - 010.

Thermal Shock – 010.xx.

EPA recommends broadening this definition to be more inclusive of the direct or indirect kinds of thermal impacts to aquatic life, both motile and non-motile (EPA 2012). EPA also recommends adding the statement “but is not limited to” so DEQ has flexibility in future implementation guidance to address the different types of unreasonable interference due to rapid temperature changes. We recommend the following language:

Thermal Shock. A rapid temperature change that directly or indirectly causes adverse modifications in aquatic organisms which can include, but is not limited to, disorientation, susceptibility to predation, or vulnerability to disease.

Bioaccumulative Pollutants – 010.xx.

This definition helps clarify the provision regarding unreasonable interference of bioaccumulative pollutants. EPA recommends DEQ explain the basis of this threshold number so that stakeholders can provide written comments during the public comment period, as appropriate.

xx. Bioaccumulative Pollutants. A compound with a bioaccumulation factor of greater than three hundred (300).

Zone of Initial Dilution (ZID) 010.117.

EPA recommends clarifying that the ZID is sized to prevent lethality to swimming or drifting organisms. Also, DEQ should clarify that “acute concentration” is synonymous with the magnitude component of acute criteria (i.e., the criterion maximum concentration), rather than a concentration that results in fifty percent lethality as used in Idaho’s definition of “acute” at section 010.01.

117. Zone of Initial Dilution (ZID). An area within a Department authorized mixing zone where acute criteria may be exceeded. This area shall be no larger than necessary and shall be sized to prevent lethality to swimming or drifting organisms by ensuring ~~assure~~ that drifting organisms are not exposed to acute concentrations for more than one (1) hour more than once in three (3) years. The

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actual size of the ZID will be determined by the Department for a discharge on a case-by-case basis, taking into consideration mixing zone modeling and associated size recommendations and any other pertinent chemical, physical, and biological data available.

II. Mixing Zones for Point Source Discharges – 060.01.

Narrative Criteria - 060.01 citation addition

EPA recommends that the statement addressing narrative criteria that apply within a mixing zone be expanded by referencing 200.03, to address taste and odor considerations, in addition to 200.05.

III. Impaired Waters - 060.01.a.

Although in some cases a mixing zone would not be authorized under this provision, EPA understands that the provision still allows a discharge with effluent limits requiring the water quality criteria be met end of pipe/at the point of discharge without dilution. During the last rulemaking session, DEQ noted that permitted effluent limits would effectively be the same as the TMDL wasteload allocations for point sources. Although this typically occurs, there are exceptions due to site-specific conditions. NPDES permit limits can be more stringent than TMDL waste load allocations when needed to eliminate “nearfield” or site-specific water quality standard issues.

The reason for these divergences is due to differences in scale. TMDLs have been written at a watershed scale that do not entirely address nearfield water quality standard problems associated with point sources. The NPDES permitting process assesses site-specific conditions and may set more stringent effluent limits when appropriate. It’s important to note that EPA does not sanction localized water quality standards exceedances in TMDL policy, rules or written guidance. Consequently, it is expected that there will be few instances where effluent limits are more stringent than TMDL wasteload allocations.

To ensure flexibility, EPA recommends that DEQ clarify in response to comments, rule and guidance, that the permitting agency may set more stringent effluent limits to address nearfield water quality standards problems. If DEQ wishes to directly translate TMDL wasteload allocations to permitted effluent limits, then EPA recommends appropriate levels of TMDL analysis and wasteload allocation to ensure no local water quality standards exceedances.

Specific Comment:

EPA believes that mixing zones in impaired waters should receive greater scrutiny. Any effluent limit must be derived from and ensure compliance with State water quality standards, including the State’s mixing zone policy (40 C.F.R. §122.44(d)(1)). Ultimately, the burden is on the permitting authority to comply with water quality standards.

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While EPA understands DEQ's need for flexibility, we are concerned that the rule language below is too encompassing and would not provide the agency with the ability to appropriately restrict the mixing zone, or ensure that the balance of loading from all sources would achieve water quality standards when mixing zones are allowed. For this reason, we recommend removing the general, catch-all phrases.

- a. Mixing zones shall not be authorized for a given pollutant when the receiving water does not meet water quality criteria for that pollutant; provided, however, the Department may authorize a mixing zone when the permitted discharge ~~meets~~ is consistent with an approved TMDL wasteload allocation or similar allocation in an approved ~~other applicable plans or analyses; such as 4b plans, watershed loading analyses, or facility specific water quality analyses;~~ that demonstrate that authorizing a mixing zone is consistent with achieving compliance with water quality standards in the receiving water. (x-xx-15)

IV. No Larger Than Necessary - 060.01.c.

EPA reiterates our recommendation that the second sentence regarding "no larger than necessary" be identified as a stand-alone provision since it applies more broadly in the rule. Additionally, we continue to strongly recommend DEQ incorporate a provision concerning the demonstration a discharger must make to obtain any mixing zone by moving language from 060.01.i.ii. into this provision.

EPA understands DEQ's concerns regarding staff workload to review these demonstrations. However, we believe the DEQ should have this provision in rule to allow the agency flexibility in the implementation guidance to require different levels of analyses from the discharger depending on the specific situation. There also might be opportunities to leverage reviews under other requirements (e.g., plan and spec reviews, antidegradation, etc.) to lessen workload efforts.

xx. The Department shall determine if a mixing zone is appropriate on a case-by-case basis in accordance with the provisions of this section and shall not authorize a mixing zone that is determined to be larger than is necessary. The discharger shall provide to the Department an analysis that demonstrates a mixing zone is needed given siting, technological, and managerial options.

EPA also recommends DEQ clarify that the permitted design flow will be used to evaluate the mixing characteristics of the discharge with the receiving waters and determine the allowable size, if any, of a regulatory mixing zone. A literal reading of 060.01.c. could be that the permitted design flow always dictates the size of a regulatory mixing zone, which would not be appropriate.

- c. The size of mixing zone(s) and the concentration of pollutant(s) present shall be evaluated based on the point source wastewater permitted design flow.

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V. Unreasonable Interference – 060.01.d.

General Comment:

EPA recommends several revisions to Subsection 060.01.d. to clarify through additional provisions and specificity where mixing zones are not appropriate, and to ensure that the cumulative effects of mixing zones are addressed. It is our understanding that the intent of this subsection is to introduce these provisions as concepts in the rule. Then, DEQ will specify in implementation guidance how the regulated community will effectively demonstrate that the level of water quality necessary to protect beneficial uses (i.e., existing and designated) is still preserved even with the authorization of the mixing zone.

EPA also recommends DEQ clarify its interpretation of “beneficial uses” in response to comment, rule and guidance, and consistently use this terminology throughout. Some rule sections may use “existing,” and in others “designated,” and still others just “beneficial uses.” Presently, it’s not clear that Idaho’s definitions of designated and existing uses are included in the beneficial uses definition at 010.08. This inconsistency could result in different interpretations regarding the scope of the mixing zone rule as well as other rules.

Specific Comment:

EPA recommends the addition of language to ensure that cumulative impacts as a result of mixing zones are addressed. We also have concerns about the deletion of “including species listed under the Endangered Species Act.” EPA recommends editing or moving this phrase instead. Presently, the rule now only addresses ESA critical habitat, not species. See Section IX, below, for our suggested language regarding this concern.

d. Mixing zones, individually or in combination with other mixing zones, shall not cause unreasonable interference with, or danger to, beneficial uses, ~~including species listed under the Endangered Species Act~~. Unreasonable interference with, or danger to, beneficial uses includes, but is not limited to, the following:

VI. Unreasonable Interference Blocking – 060.01.d.i.

The revised language in this provision implies that the stated protections only apply to fish species. EPA recommends broadening this interpretation of unreasonable interference to including other aquatic life such as drifting and sessile organisms. EPA also recommends that if the reference to ESA is retained in the second sentence, it be revised to refer to both Endangered Species Act listed species and critical habitat for Endangered Species Act listed species. This is because “critical habitat” has a specific regulatory meaning under the Endangered Species Act, and a species may be listed without a designation of critical habitat.

i. Blocking, or impeding, fish passage to any life stage of fish or other aquatic life; or preventing successful spawning, egg incubation or rearing. This includes impacts to Endangered Species Act listed species and critical habitat for Endangered Species Act listed species.

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However, if DEQ incorporates our recommendation in Section IX, then the second sentence of 060.01.d.i. could be deleted since subsection 060.01.d. applies to any mixing zone and Section IX of our comments would address specific provisions for both ESA listed species and critical habitat.

VII. Unreasonable Interference Bioaccumulatives – 060.01.d.iii.

General Comment:

EPA guidance recommends States carefully consider the appropriateness of a mixing zone for substances with particularly adverse characteristics, such as bioaccumulative, persistent, carcinogenic, mutagenic, or teratogenic properties; or when characteristics of the discharge (e.g., temperature, flow) attract organisms to the mixing zone (EPA 2012). These types of pollutants can be of concern both from a human health as well as an aquatic life and wildlife protection perspective. EPA recommends that regulators consider prohibiting mixing zones for substances that are significantly bioaccumulative or when a property of the effluent attracts aquatic life. EPA guidance explains that when an effluent attracts biota, even a provision of a continuous zone of passage around the mixing zone will not serve the purpose of protecting aquatic life.

The impacts of bioaccumulative compounds may extend beyond the boundaries of a given mixing zone with resulting impairment of a water body's beneficial uses, particularly where stationary species or life stages are present, where uncertainties exist regarding the assimilative capacity of a water body or where bioaccumulation in the food chain is known to be a problem. Sediment contamination has also become a major concern in both flowing and non-flowing waters. Concerns about sediment contamination require additional attention since typical mixing zone evaluations focus on water column toxicity. This is of particular concern in areas where waters with existing sediment contamination has already been determined. The effects of persistent and bioaccumulative pollutants may not be detected for some distance from the point of discharge, well outside the mixing zone, or possibly not in the water column at all.

In its Great Lakes Guidance (EPA 2011), EPA established a twelve-year phase out of mixing zones for existing dischargers for bioaccumulative chemicals of concern (BCCs) in the Great Lakes Basin and a prohibition on such mixing zones for new dischargers. The general prohibition on mixing zones for BCCs was established largely because of the persistent and toxic nature of even minute amounts of BCCs in the environment.

Additionally, EPA has specific guidance regarding mixing zones and the methylmercury fish tissue criterion. The guidance explains that mixing zones are not relevant when applying a fish tissue criterion that has not been translated to a water column value. The fish tissue criterion reflects the exposure of the fish to mercury in the water column and food over the life of the fish,

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and thus, it reflects an integration of the exposure over time and over spatially varying water column concentrations (EPA 2010).

If the fish tissue criterion is translated to a water column value, states should follow existing procedures for determining appropriate mixing zones. However, EPA advises caution in the use of any mixing zones for mercury. Restricting or eliminating mixing zones may be appropriate in this case (EPA 2010).

EPA's guidance recommends restricting or eliminating mixing zones for bioaccumulative pollutants such as mercury so that they do not encroach on areas often used for fish harvesting (particularly for stationary species). Restriction or elimination might also be used to compensate for uncertainties regarding the ability of aquatic life or the aquatic system to tolerate excursions above the criteria, uncertainties inherent in estimating bioaccumulation, or uncertainties in the assimilative capacity of the waterbody (EPA 2012).

Specific Comment:

EPA recommends DEQ provide as appropriate, in rule or guidance, the conditions which would clearly indicate mixing zones for bioaccumulative pollutants shall be avoided. Additionally, EPA recommends further revisions to clarify the intent of this provision which is to prevent tissue concentrations higher than the criteria are "designed" to achieve. This might occur due to a higher bioaccumulation factor, increased exposure, or both. EPA also recommends that the provision be revised to specifically include protection of wildlife.

- iii. Bioaccumulation of pollutants (as defined in Section 010) ~~greater than the bioaccumulation factor used in calculation of water column criteria or where~~ resulting in tissue levels in aquatic organisms ~~are higher than~~ the applicable fish tissue or water column criteria would predict or resulting in adverse effects to wildlife.

VIII. Unreasonable Interference Attraction Behavior – 060.01.d.xx.

EPA continues to recommend adding the provision for attraction behavior. The language should be broad enough to introduce the provision in rule and allow the State flexibility, in the implementation guidance, to address attraction for temperature, food sources, and other factors (e.g., emerging contaminants) that science has not yet identified. Note: attraction can cause aquatic life to hang around longer within a mixing zone and consequently, be exposed to higher concentrations of pollutants for longer periods of time.

The EPA Handbook recommends for wastewater plumes that tend to attract aquatic life the incorporation of measures to reduce the toxicity (e.g., via pretreatment, dilution) to minimize lethality or any irreversible toxic effects on aquatic life.

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xx. Attraction that results in adverse effects to aquatic life or wildlife.

IX. Unreasonable Interference Nonmotile/Sessile Organisms – 060.01.d.xx.

EPA recommends DEQ ensure protection against unreasonable interference to nonmotile organisms. Mixing zones, if disproportionately large, could unacceptably impact the integrity of the aquatic ecosystem and have unanticipated ecological consequences on the water body as a whole resulting in impairment of the designated or existing uses. Therefore, EPA’s policy has emphasized a holistic approach to mixing zone regulation which considers location, size, shape, outfall design and in-zone quality. Mixing zone guidance produced by EPA since 1972 has consistently emphasized the need to protect both nonmotile benthic and sessile organisms in the mixing zone as well as swimming and drifting organisms (Water Quality Criteria 1972).

As originally designed, EPA’s mixing zone policy provided for the prevention of lethality to swimming and drifting organisms by limiting the size of the mixing zone and to nonmotile organisms by limiting the placement or location of mixing zones. Other circumstances where mixing zone prohibitions or location restrictions might be appropriate include areas used by aquatic life for breeding or feeding, locations of shellfish beds, locations of critical habitat for threatened and endangered species, across tributary mouths, shallows, near shore areas and in areas of critical habitat. (ANPRM 63 FR 36,742; 36,788 – 89)

For these reasons, EPA recommends DEQ ensure the rule language provides adequate protection for sensitive resource areas and populations of nonmotile organisms, including locating mixing zones to avoid such areas.

X. Threatened and Endangered Species and Critical Habitat

EPA recommends that the rule address both ESA listed species and critical habitat separately from “unreasonable interference.”

060.01.xx. Mixing zones shall be sized, configured and located to avoid adverse effects to ESA-listed species and critical habitat designated for ESA-listed species.

i. Mixing zones shall not be located in known spawning areas for ESA-listed species.

ii. Mixing zones shall not result in destruction or adverse modification of ESA listed critical habitat.

XI. Mixing Zone Restrictions - 060.01.h.

EPA continues to recommend clarification that the restrictions described in Subsection 060.0.h. are not the default starting points for the mixing zone size. The wording in Subsection 060.01.i. could imply that if a demonstration is not done to justify either a smaller or larger mixing zone,

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then a mixing zone at the 25% thresholds presented in Subsection 060.01.h. would likely be authorized.

This language should be revised to clearly state the intent of Subsection 060.01.h. to be that all mixing zones, whether they are within the size restrictions of Subsection 060.01.h. or are proposed to vary from those restrictions according to Subsection 060.01.i., must be evaluated on a case-by-case basis to ensure consistency with the overall provisions of Section 060, including a demonstration that the mixing zone is no larger than necessary. Please also see our corresponding comment in section IV. No Larger Than Necessary – 060.01.c.

XII. Nonflowing Waters – 060.01.h.ii.

As written, this section does not address the sizing and location of mixing zones for existing discharges to non-flowing waters. EPA recommends that the proposed size and location restrictions for mixing zones in nonflowing waters apply to all discharges (new and existing), except for the requirement to use diffusers. Also, please refer to our comments concerning

Unreasonable Interference Bioaccumulatives and Nonflowing Waters in Section VII. - 060.01.d.iii.

- ii. For all ~~new~~ discharges to nonflowing waters ~~authorized after July 1, 2015:~~
 - (1) The size of the mixing zone is not to exceed five percent (5%) of the total open surface area of the water body or one hundred (100) meters from the point of discharge, whichever is smaller;
 - (2) Shore-hugging plumes are not allowed; ~~and~~

iii. For all new discharges to nonflowing waters authorized after July 1, 2015:

- (1) Diffusers shall be used.

XIII. Reservoirs Mean Detention Time – 060.01.h.iii.

EPA recommends DEQ define how the mean detention time shall be calculated to ensure consistent implementation. In the revision below, we used the State of Washington definition as an example.

- iii. Reservoirs with a mean detention time of fifteen (15) days or greater shall be considered nonflowing waters for this purpose. Mean detention time is calculated by dividing a reservoir's mean annual minimum total storage by the thirty-day ten-year low-flow from the reservoir.

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XIV. Larger than Restrictions – 060.01.i.ii.

EPA appreciates the incorporation of discharger analysis and demonstration, however, this requirement is currently limited to mixing zones that are larger than restrictions. EPA continues to recommend that this demonstration occur for all mixing zone applications and that the demonstration should be more in depth for mixing zones that are larger than the restrictions.

XV. Outfall Design Shore Hugging Plumes – 060.01.j.ii.

EPA reiterates concerns regarding shore-hugging plumes and recommends that DEQ revise the current provision to address other aquatic life, in addition to migrating fish, and to address wildlife. EPA recommends a broader provision.

ii. Avoid shore-hugging plumes in those water bodies where the littoral zone is a major supply of food, ~~and cover,~~ or other critical habitat features for migrating fish, other aquatic life, or wildlife, or where recreational activities are impacted by the plume.

XVI. Points of Compliance as Alternatives to Mixing Zones - 060.02.

EPA recommends DEQ clarify this provision to ensure consistent implementation and protection of beneficial uses by minimizing localized impacts. We recommend DEQ replace the term “nonpoint source” discharges with “regulated” discharges to reduce confusion, particularly concerning stormwater. Our understanding is this provision applies to regulated point source stormwater discharges, such as industrial, municipal, and construction. The draft provision could be interpreted to mean there are permitted nonpoint source stormwater discharges; we are not aware of these situations.

We also recommend specifying that the “404” dredge and fill activities pertain to Clean Water Act, Section 404. Further, EPA recommends DEQ retain previous language regarding monitoring compliance. This addition clarifies the intent of this provision to require monitoring and data analysis at the point of compliance. Additionally, it provides flexibility to DEQ to limit the allowed amount of dilution. Also, EPA recommends the provision that the points of compliance shall be appropriately located to minimize localized impacts. This provides the agency the flexibility to outline appropriate location requirements through the implementation guidance or permit based on site-specific conditions. And, lastly, EPA believes considerations for impaired waters are also applicable and recommends citing 060.01.a. in the last sentence.

02. Points of Compliance as Alternatives to Mixing Zones. Specification of mixing zones for some ~~nonpoint source~~ regulated discharges, including stormwater and Clean Water Act, Section 404 dredge and fill activities, may not be practicable due to ~~their~~ the generally intermittent and diffuse nature of these discharges. ~~Rather~~ Where establishment of mixing zones is not practicable, the Department may allow limited dilution of the discharge by establishing points for monitoring ~~points of compliance~~ with

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ambient water quality criteria. These ~~alternatives to a mixing zone~~ points of compliance are still subject to requirements outlined in Subsections 060.01.a and 060.01.d. and shall be appropriately located to the discharge so as to minimize localized impacts.

Citations and Additional Resources:

U.S. Environmental Protection Agency. (2010) Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion, April 2010. EPA 823-R-10-001

U.S. Environmental Protection Agency. (2012) Water Quality Standards Handbook: Second Edition. EPA-823-B-12-002, March 2012. www.epa.gov/wqshandbook

U.S. Environmental Protection Agency. (2011) 40 CFR 132.2 Water Quality Guidance for the Great Lakes System. <http://www.gpo.gov>

U.S. Environmental Protection Agency. (1991) Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001, March 1991.
http://water.epa.gov/scitech/swguidance/standards/handbook/upload/2002_10_25_npdes_pubs_o_wm0264.pdf