

Technical Support Document

The EPA's Action on Idaho's Seasonal Cold Water Quality Standards

Submitted 2000 and 2003

June 9, 2020

[This page left intentionally blank.]

Technical Support Document

The EPA’s Action on Idaho’s Seasonal Cold Water Quality Standards

Contents

I.	Introduction.....	1
II.	Background.....	1
A.	CWA Requirements for Water Quality Standards.....	1
B.	EPA Regional Temperature Guidance.....	3
C.	Overview of Idaho’s Water Quality Standards Submissions.....	4
1.	Submitted Rule Language and Additional Documentation	4
2.	Idaho’s Supporting Analyses and Justification.....	6
D.	The EPA’s Review of Idaho’s Justification.....	7
E.	Scope of the EPA’s Action	8
III.	The EPA Action on Idaho’s Water Quality Standards	9
A.	Seasonal Cold Water Aquatic Life Use Description.....	9
B.	Seasonal Cold Water Temperature Criteria	10
C.	Other Seasonal Cold Water Criteria	11
D.	Designation of Seasonal Cold Water Aquatic Life for the Little Camas Creek Reservoir	12
IV.	Water Quality Standards in Effect for CWA Purposes.....	14
A.	Water Quality Standards Not in Effect	14
B.	Water Quality Standards in Effect	14
C.	Requirements to Apply Water Quality Standards in Effect	15
V.	Remedy to Address Disapproval	16

I. Introduction

This Technical Support Document provides the basis for the U.S. Environmental Protection Agency's (EPA) disapproval action under Section 303(c) of the Clean Water Act (CWA), 33 U.S.C. §1313(c), and the federal water quality standards regulations at 40 CFR Part 131, on certain water quality standards regarding a seasonal cold water use designation description, water body use designation, and criteria submitted to the EPA by the Idaho Department of Environmental Quality (DEQ). The water quality standards set forth in Idaho's Administrative Rules (IDAPA 58.01.02) were duly adopted pursuant to state law.

Idaho's seasonal cold water quality standards provisions addressed in this decision document include:

- Seasonal cold water use and criteria adopted on April 5, 2000 and submitted to the EPA for review and action on April 26, 2000. (Idaho Docket 16-0102-9704)¹
- Revised temperature criteria for seasonal cold water use and Little Camas Creek Reservoir water body use designation for seasonal cold water adopted on March 30, 2001. These water quality standards were submitted to the EPA for review and action on May 29, 2003. (Idaho Docket 58-0102-0002)²

This document is organized as follows:

- Part II provides additional background information about the CWA requirements and Idaho's seasonal cold water quality standards submittals.
- Part III discusses the bases for this action under CWA section 303(c) and the EPA's implementing regulations at 40 CFR Part 131.
- Part IV summarizes the water quality standards in effect for CWA purposes.
- Part V discusses the remedy to address the EPA's disapproval of these water quality standards.

II. Background

A. CWA Requirements for Water Quality Standards

The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters with an interim goal, where attainable, to achieve water quality that provides for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water. Under Section 303(c) of the CWA and federal implementing regulations at 40 CFR §131.4, states (and authorized tribes) have the primary responsibility for reviewing, establishing, and revising water quality standards. These standards include the designated uses of

¹ Letter dated April 26, 2000 from David Mabe, Administrator Water Quality Division, Idaho Department of Environmental Quality, to Randy Smith, Director, Office of Water, Region 10, U.S. Environmental Protection Agency, RE: Submission of revised water quality standards for approval: Idaho Docket 16-0102-9704.

² Letter dated May 29, 2003 from David Mabe, Administrator Water Quality Division, Idaho Department of Environmental Quality, to Randy Smith, Director, Office of Water, Region 10, U.S. Environmental Protection Agency, RE: Submission of revised water quality standards for approval: Idaho Docket 58-0102-0002.

a waterbody or waterbody segment, the water quality criteria necessary to protect those designated uses, and an antidegradation policy.

Under Section 303(c)(2)(A) of the CWA, whenever a state revises or adopts new water quality standards, such standards shall protect the public health or welfare, enhance the quality of water and serve the purposes of the CWA, including propagation of fish and wildlife. State criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to support the most sensitive use designation (40 CFR §131.11(a)). States are required to hold public hearings for the purpose of reviewing applicable water quality standards periodically but at least once every three years, and, as appropriate, modify these standards (40 CFR §131.20).

Each state must follow its own legal procedures for adopting such standards (40 CFR §131.5) and is required to submit a certification by the state's attorney general, or other appropriate legal authority within the state, that the water quality standards were duly adopted pursuant to state law (40 CFR §131.6(e)). In adopting criteria that protect the designated use, states should establish numeric values based on one of the following:

- CWA Section 304(a) guidance;
- CWA Section 304(a) guidance modified to reflect site-specific conditions; or,
- Other scientifically defensible methods (40 CFR §131.11(b)(1)).

Under 40 CFR §131.6, states must meet minimum requirements for water quality standards submissions. These include use designations consistent with the provisions of Sections 101(a)(2) and 303(c)(2) of the CWA (40 CFR §131.6(a)). Additionally, states must submit methods used and analyses conducted to support water quality standards revisions and water quality criteria sufficient to protect the designated uses (40 CFR §131.6(b) and (c)).

In addition, states should establish narrative criteria or criteria based upon biomonitoring methods where numeric criteria cannot be established or to supplement numeric criteria (40 CFR §131.11(b)(2)). The CWA implementing regulations at 40 CFR §131.11(a)(1) require states to adopt water quality criteria that protect the most sensitive designated use and are based on sound scientific rationale. CWA Section 303(c) requires states to submit new or revised water quality standards to the EPA for review, and the EPA must ensure that those standards are consistent with the CWA and the EPA's implementing regulations.

The EPA considers four questions (described below) when evaluating whether a particular provision is a new or revised water quality standard. If all four questions are answered "yes," then the provision would likely constitute a new or revised standard that the EPA has the authority and duty to approve or disapprove under CWA Section 303(c)(3).³

1. Is it a legally binding provision adopted or established pursuant to state or tribal law?

³ See *What is a New or Revised Water Quality Standard under 303(c)(3) Frequently Asked Questions*, U.S. Environmental Protection Agency, EPA Pub. No. 820F12017 (Oct. 2012). Available at <https://www.epa.gov/sites/production/files/2014-11/documents/cwa303faq.pdf>

2. Does the provision address designated uses, water quality criteria (narrative or numeric) to protect designated uses, and/or antidegradation requirements for waters of the United States?
3. Does the provision express or establish the desired condition (e.g., uses, criteria) or instream level of protection (e.g., antidegradation requirements) for waters of the United States immediately or mandate how it will be expressed or established for such waters in the future?
4. Does the provision establish a new water quality standard or revise an existing standard?

Furthermore, the EPA considers non-substantive edits to existing water quality standards to constitute new or revised standards that the EPA has the authority to approve or disapprove under Section 303(c)(3) of the CWA. Although these edits and changes do not substantively change the meaning or intent of the existing standards, the EPA believes it is reasonable to treat such edits and changes in this manner to ensure public transparency as to which provisions are applicable for CWA purposes. The scope of the EPA's review and action on non-substantive edits or editorial changes extends only to the edits or changes themselves and does not constitute an action on the underlying previously approved water quality standards.

Lastly, pursuant to the EPA's Alaska Rule (40 CFR §131.21(c)), new or revised state and authorized tribal standards submitted to the EPA after May 30, 2000, are not effective for CWA purposes until approved by the EPA. If the state adopted a water quality standard that is effective under state law and submitted it to the EPA before May 30, 2000, then the state water quality standard is the applicable water quality standard for purposes of the CWA unless or until the EPA has promulgated a more stringent water quality standard for the state.

B. EPA Regional Temperature Guidance

The EPA's most recent recommendations for temperature criteria that are protective of salmonids in the Pacific Northwest are included in the *EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards*.⁴ The technical basis for the Temperature Guidance is discussed in the companion document, titled *Technical Synthesis: Scientific Issues Relating to Temperature Criteria for Salmon, Trout, and Char Native to the Pacific Northwest*.⁵ These documents provide the synthesis of the science on the effects of temperature on salmonids.

The water quality criteria recommendations in the Temperature Guidance are composed of numeric and narrative criteria to protect different salmonid species at their various life stages. Examples of these numeric criteria include: 9°C for bull trout (char) spawning; 13°C for salmon/trout spawning, egg incubation, and fry emergence; and 20°C for salmon and steelhead

⁴ EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards. EPA 910-B-03-002. April 2003. (<https://nepis.epa.gov/Exe/ZyPDF.cgi/P1004IUI.PDF?Dockkey=P1004IUI.PDF>). Hereafter referred to as the "Temperature Guidance."

⁵ Technical Synthesis: Scientific Issues Relating to Temperature Criteria for Salmon, Trout, and Char Native to the Pacific Northwest. EPA 910-R-01-007. August 2001.

migration corridors.⁶ Additionally, sublethal impacts to adult salmon and trout during migration, such as disease risk and reduced migration fitness, occur at temperatures less than 20°C.⁷

The Temperature Guidance numeric criteria recommendations incorporate a metric of a 7-day average of the daily maxima (7DADM). The 7DADM was chosen because it describes the maximum temperature in a stream or river, but is not overly influenced by the maximum temperature of a single day. In addition to the numeric criteria, the Temperature Guidance recommends narrative criteria to supplement the numeric criteria.

C. Overview of Idaho's Water Quality Standards Submissions

Idaho adopted the seasonal cold water use and criteria in April 2000, as part of the state's 2000 Triennial Review, and submitted the rule to the EPA for CWA Section 303(c) review on April 26, 2000. In March 2001, Idaho adopted revised temperature criteria associated with the seasonal cold water use and submitted the revisions to the EPA for CWA Section 303(c) review on May 29, 2003. The 2003 submittal includes temperature criteria revisions that lowered the magnitudes of the 2000 seasonal cold temperature criteria by 1°C (26°C daily maximum and 23°C maximum daily average instead of 27°C daily maximum and 24°C maximum daily average submitted in 2000). In addition, Idaho revised the aquatic life use designation of Little Camas Creek Reservoir to seasonal cold water.

1. Submitted Rule Language and Additional Documentation

- Idaho Docket 16-0102-9704 – DEQ initially proposed the seasonal cold water use and criteria rules on June 2, 1999 and conducted a public hearing on July 20, 1999. The Idaho Board of Health and Welfare approved the final rules on November 17, 1999. The Idaho State Legislature adopted the rules on April 5, 2000. DEQ submitted the rule package to the EPA for review and action on April 26, 2000.

100.01.c. Seasonal cold water (SC): water quality appropriate for the protection and maintenance of a viable aquatic life community of cool and cold water species, where cold water aquatic life may be absent during, or tolerant of, seasonally warm temperatures. (4-5-00)

250.03 Seasonal Cold Water. Between the summer solstice and autumn equinox, waters designated for seasonal cold water aquatic life are to exhibit the following characteristics. For the period from autumn equinox to summer solstice the cold water criteria will apply: (4-5-00)

a. Dissolved Oxygen Concentrations exceeding six (6) mg/l at all times. In lakes and reservoirs this standard does not apply to: (4-5-00)

i. The bottom twenty percent (20%) of water depth in natural lakes and reservoirs where depths are thirty-five (35) meters or less. (4-5-00)

⁶ Temperature Guidance, Tables 3 and 4, p. 25

⁷ Temperature Guidance, Table 1, p. 16

- ii. The bottom seven (7) meters of water depth in natural lakes and reservoirs where depths are greater than thirty-five (35) meters. (4-5-00)
- iii. Those waters of the hypolimnion in stratified lakes and reservoirs. (4-5-00)

b. Water temperatures of twenty-seven (27) degrees C or less as a daily maximum with a daily average of no greater than twenty-four (24) degrees C. (4-5-00)

c. Ammonia. (4-5-00)

i. One (1) hour average concentration of un-ionized ammonia is not to exceed the criteria defined at Subsection 250.02.c.i. (4-5-00)

ii. Four (4) day average concentration of un-ionized ammonia is not to exceed the criteria defined at Subsection 250.02.c.ii. (4-5-00)

The submittal included the following documents:

1. The attorney general's certification that the rules were adopted according to state law;
 2. Summary of changes, including methods used and analyses conducted to support water quality standards revisions;
 3. *Evaluation of seasonal-cold water temperature criteria* by BioAnalysts, Inc. (Hillman et al. 1999);
 4. Proposed rule text, with deleted text struck out and inserted text underlined;
 5. Summary and responses to public comments;
 6. Public comments received;
 7. Pending rule text, after modifications following the public comment period, with deleted text struck out and inserted text underlined; and
 8. Rule text as approved by the Idaho State Legislature.
- Idaho Docket 58-0102-0002 – DEQ proposed the revised seasonal cold temperature criteria and designated Little Camas Creek Reservoir as a seasonal cold water use on September 6, 2000. DEQ conducted a public hearing on September 13, 2000 and the Idaho Board of Environmental Quality approved the final rules on November 9, 2000. The Idaho State Legislature adopted the rules on March 30, 2001 and the Idaho Attorney General certified the rules on September 25, 2001. DEQ submitted the rules to the EPA for review and action on May 29, 2003.

250.032.b. Water temperatures of ~~twenty-seven~~ six (276) degrees C or less as a daily maximum with a daily average of no greater than ~~twenty-four~~ three (243) degrees C. (3-30-01)

140.11. Little Camas Creek Reservoir, Unit SW-7, designation for seasonal cold water aquatic life use.

The submittal included:

1. Notice of Proposed Rulemaking, consisting of a descriptive summary of proposed revisions, invitation for public review, contact information for the public to obtain technical information supporting the proposed revision, and the revisions with proposed deletions struck out and proposed additions underlined;

2. Notice of Pending Rule, showing the substantive changes from the proposed rule text that resulted from public participation through the public hearing, written comments, and testimony at the meeting of the Board of Environmental Quality;
3. DEQ Response to Comments;
4. The attorney general's certification that the rules were adopted according to state law; and
5. Supporting analyses for the revised water quality standards.

2. Idaho's Supporting Analyses and Justification

DEQ stated in its supporting analyses that the purpose of the seasonal cold water aquatic life use designation was to provide a designated use category that was midway between Idaho's existing warm and cold aquatic life designated use categories.⁸ For the 2000 and 2003 seasonal cold temperature criteria, DEQ's justification included the *Evaluation of Seasonal-Cold-Water Temperature Criteria* report (Hillman et al. 1999), which evaluated the fish species residing in Idaho waters with temperatures that exceed 20°C.⁹ The analysis included definitions of various metrics to describe thermal tolerance, resistance, and preference of fish. Additionally, the report summarized information on temperature ranges of fish species. The analysis provided examples of stream temperatures and the distribution of fish in Oregon and Idaho.¹⁰

Based on best professional judgement, Hillman et al. (1999) identified thirty fish species in Idaho classified by the authors as cool and cold water species that might occur in waters with temperatures that exceed 20°C.¹¹ DEQ's justification used Hillman et al. (1999) to conclude that 26°C daily maximum and 23°C maximum daily average were protective of the seasonal cold water use because the criteria were less than the upper lethal temperatures for most of the thirty species identified in the report.¹²

DEQ provided additional justification for the seasonal cold water temperature criteria in its supporting analyses for the 2003 revised temperature criteria submittal.¹³ This justification cited literature indicating that cutthroat trout might be more widely tolerant of higher temperatures than described in Hillman et al. (1999). The justification also discussed cold water species migrating to cooler tributaries and being absent in mainstem waterbodies during seasonally warmer temperatures.¹⁴ Based on Hillman et al. (1999), the additional supporting analyses, and the conclusion that cold water species would be absent during seasonally warmer temperatures, DEQ determined that the temperature criteria (26°C daily maximum and 23°C maximum daily average) were protective of the seasonal cold water use.

⁸ Supporting Analyses for Docket 58-0102-0002. IDEQ. 2003. p.2 Hereafter referred to as "Supporting Analyses 2003."

⁹ Hillman, T.W., Miller, M.D., and Nishitani, B.A. 1999. Evaluation of Seasonal Cold Water Temperature Criteria. BioAnalysts, Inc. prepared for Idaho DEQ. December 1999. pp. 50

¹⁰ *Id.* at pp.15-19

¹¹ *Id.* at p. 11

¹² *Id.* at pp. 19-20

¹³ Supporting Analyses 2003, pp. 2-4

¹⁴ *Id.* at pp. 3-4

Included in the 2003 submittal was a brief justification for the Little Camas Creek Reservoir seasonal cold water aquatic life designation. The justification consisted of a listing of the fish species that were reported to occur in the Little Camas Creek Reservoir in 2000, per personal communication with the Idaho Department of Fish and Game. The fish assemblage included cold, cool, and warm water species as classified in Hillman et al. (1999). However, DEQ did not provide any supporting data with this use designation to confirm existing uses were not being removed and the current cold water use was not attainable. The short narrative was accompanied by a discussion and photos of the dry reservoir and changes to the fishery due to drought cycles in 2001 and 2002.

D. The EPA's Review of Idaho's Justification

The EPA began reviewing Idaho's justification for the seasonal cold water temperature criteria and engaging with the state in early 2000. The EPA's initial recommendation was that Idaho continue participating in the Temperature Guidance workgroup¹⁵ so that the Temperature Guidance could be completed before continuing with refinements to its designated beneficial use categories and revisions to the temperature criteria.¹⁶ The EPA explained to DEQ that the Temperature Guidance would likely provide the basis for DEQ to review and comprehensively revise the state's temperature criteria in a relatively short period of time.

Once the Temperature Guidance was finalized, the EPA contracted Versar, Inc. to identify experts from the Pacific Northwest area to peer review the DEQ's main analysis and justification for the revised seasonal cold water temperature criteria discussed in Hillman et al. (1999). The peer reviewers included Dr. Scott Heppell (Oregon State University), Dr. Dale McCullough (Columbia River Inter-Tribal Fish Commission), and Dr. Ernest Keeley (Idaho State University). The reviewers, with expertise in fisheries and biology, answered technical questions and provided supporting rationale, including cited references. Specifically, the charge to the reviewers was to answer the following twelve technical questions identified by the EPA:

1. Will the recommended temperature criteria – a maximum daily maximum temperature of 26°C or a maximum daily average temperature of 23°C – protect and maintain a viable aquatic life community of cool and cold water species in Idaho, where cold water aquatic life may be absent during, or tolerant of, seasonally warm temperatures?
2. Will the criteria protect and maintain the most temperature sensitive species in this category?
3. Are the endpoints used to reach the conclusions reasonable/adequate?
4. Is the literature cited in this evaluation thorough and current? Is there more recent and available data that would be relevant? If so, please provide the data and describe how it should be included in the derivation of appropriately protective criteria.
5. Are there data gaps? If so, where and what could be done to address those gaps?
6. Are the statements on temperature tolerance supported by the literature or data?

¹⁵ Along with Oregon and Washington, Idaho participated in the Temperature Guidance interagency effort from 2000-2003.

¹⁶ Letter from Lauris Davies, Standards and Planning Unit Manager, USEPA Region 10, to C. Steven Allred, Administrator, Division of Environmental Quality, Idaho Department of Health & Welfare. Comments to Idaho's Proposed Rule Dockets No. 58-0102-0002. September 27, 2000. pp. 10

7. Is the list of species used in the evaluation correct and complete?
8. Are there more temperature sensitive species of fish or other aquatic life that could be present in such a use classification? If so, does temperature data exist for these species and should it be included in the derivation of temperature criteria to protect seasonal-cold-water aquatic life?
9. Is the selection of metrics used to develop the conclusion adequately justified? Is it valid?
10. Is the overall logic used to develop this conclusion reasonable/sound? Is the method that they used to reach the conclusion adequately explained and justified?
11. Besides individual fish species does this evaluation adequately address other issues associated with fish response to elevated temperature?
12. If deficiencies are identified in any of the analyses, please attempt to provide a technical solution to correct identified deficiencies.

Versar, Inc. submitted the final report *Peer Review of State of Idaho Evaluation of Seasonal-Cold-Water Temperature Criteria* to the EPA in September 2004 (Versar report).¹⁷ The Versar report identified several deficiencies with the analysis in Hillman et al. (1999). These deficiencies included: (1) an incomplete list of fish species in Idaho that excluded some cold water natives and included some exotic fish species; (2) the metrics used as the basis for selecting temperature criteria offered limited protection; (3) sublethal effects such as competition or migration interference were not considered in the analysis; and (4) all the peer reviewers in the Versar report determined that the seasonal cold water temperature criteria were unlikely to protect cold water fish species and one peer reviewer stated the criteria was not likely to protect some cool water fish species. The EPA reviewed the report, summarized the analyses, and formed conclusions based on the report's findings.¹⁸

E. Scope of the EPA's Action

Under separate CWA Section 303(c) actions in 1996¹⁹ and 2002,²⁰ the EPA approved the dissolved oxygen and ammonia criteria that are associated with Idaho's cold water use at 250.02.a and 252.02.d, respectively. Idaho re-adopted these provisions again at 250.03.a and 250.03.c for the seasonal cold water use. For purposes of this action, the EPA reviewed all the submitted seasonal cold water provisions, including the dissolved oxygen and ammonia criteria, for consistency and to ensure public transparency as to which provisions are applicable for CWA purposes.

The EPA's action applies only to waterbodies in the State of Idaho and does not apply to waters that are within Indian Country as defined in 18 U.S.C. §1151. In addition, nothing in this action

¹⁷ Versar. 2004. Summary Report: Peer Review of State of Idaho evaluation of Seasonal Cold Water Temperature Criteria. Versar, Inc. (Reviewers: Dr. Scott Heppell, Dr. Dale McCullough, and Dr. Ernest Keeley) prepared for USEPA Contract No. 68-C-02-091. September 2004. pp. 79

¹⁸ Email correspondence from Lil Herger to Lisa Macchio Re: Cold water synthesis. July 21, 2005. p. 1 and EPA review of the State of Idaho Seasonal Cold Water Temperature Criteria: Synthesis of reviewer comments (contractors and EPA), Lil Herger, pp. 4

¹⁹ EPA Approval/Disapproval Action on the Idaho 1994 Water Quality Standards and 1995 Revisions. Letter correspondence to Wallace Cory, IDEQ. June 25, 1996.

²⁰ Approval of Acute and Chronic Aquatic Life Criteria for Ammonia. Letter correspondence to David Mabe, IDEQ. November 12, 2002.

shall constitute an approval or disapproval of a water quality standard that applies to waters within Indian Country. The EPA, or authorized Indian Tribes, as appropriate, will retain responsibilities for water quality standards for waters within Indian Country.

III. The EPA Action on Idaho's Water Quality Standards

The following sections summarize the EPA's action and rationale for each provision. The strikeout text represents the original language and the underlined text indicates the revised language that is the subject of the EPA's action.

A. Seasonal Cold Water Aquatic Life Use Description

The EPA Action

In accordance with its CWA authority, 33 U.S.C. §1313(c)(3) and 40 CFR Part131, the EPA disapproves IDAPA 58.01.02.100.01.c (Idaho Docket 16-0102-9704 – submitted 2000).

100.01.c. Seasonal cold water (SC): water quality appropriate for the protection and maintenance of a viable aquatic life community of cool and cold water species, where cold water aquatic life may be absent during, or tolerant of, seasonally warm temperatures. (4-5-00)

The EPA Rationale

Most of Idaho's surface waters are designated and protected for cold water aquatic life. Waters are either designated for cold water aquatic life in tables found at IDAPA 58.01.02.110 – 160, or waters are undesignated which results in the application of the cold water aquatic life use and criteria in accordance with IDAPA 58.01.02.101.01. The seasonal cold water use that Idaho adopted in 2000 broadly describes protection of an aquatic community containing a mix of cool and cold water species (fish and invertebrates), where the cold water species that are present "may be absent during, or tolerant" of warm temperatures.

Given the supporting information provided by DEQ and the Versar report, the EPA is not able to conclude with certainty that the seasonal cold water use, as currently defined by the state, could appropriately be applied to any waters in Idaho to protect cold and cool water species that "may be present" consistent with the CWA and EPA's regulations. The state's description of the seasonal cold water use includes ambiguous and undefined terms such as "may be absent" and "tolerant" that lack scientific clarity. The Versar report indicated that if cold water species are actually present, then the less stringent seasonal cold criteria would not be protective of the associated cold water aquatic life. Therefore, even if the regulation defined such terms, application of this use requires a site-specific analysis of the aquatic community to determine whether cold water species are seasonally absent and whether the species that are present are less sensitive to warmer temperatures, or whether cold water species are present, but tolerant of warm temperatures. As noted below, without additional data and clear definition of these terms, the EPA had to evaluate whether the criteria associated with the seasonal cold water use were protective of growth, reproduction, and survival of the cool and cold water species that may be present.

With the EPA also disapproving the temperature criteria associated with the seasonal cold water use and Idaho's designation of the seasonal cold aquatic life use to the Little Camas Creek Reservoir (see Sections III.B. and III.D., respectively), the EPA concludes that disapproval of the seasonal cold water use and its definition is warranted. This will afford Idaho the opportunity to more clearly articulate the aquatic community to be protected by a seasonal cold aquatic life use, in accordance with 40 CFR § 131.10(a), and/or to determine if site-specific criteria would be more appropriate in these situations. If a use change is still appropriate for a specific water, the state could also consider adopting a location specific use rather than adopting an entire new designated use category in its water quality standards structure (see 78 FR 54517, pages 54523-54524).

B. Seasonal Cold Water Temperature Criteria

The EPA Action

In accordance with its CWA authority, 33 U.S.C. §1313(c)(3) and 40 CFR Part 131, the EPA disapproves IDAPA 58.01.02.250.03.b (Idaho Docket 16-0102-9704 - submitted 2000), and 250.02.b (Idaho Docket 58-0102-0002 - submitted 2003).

250.03.b. Water temperatures of twenty-seven (27) degrees C or less as a daily maximum with a daily average of no greater than twenty-four (24) degrees C. (4-5-00)

250.032.b. Water temperatures of twenty-seven six (276) degrees C or less as a daily maximum with a daily average of no greater than twenty-four three (243) degrees C. (3-30-01)

The EPA Rationale

The EPA disapproves the seasonal cold water temperature criteria because they do not provide protection to the aquatic life use, particularly cold water fish species that “may” occur, or “may” not actually be “tolerant of seasonally warm temperatures,” in the waters where Idaho could apply the seasonal cold aquatic life use. DEQ did not demonstrate that the criteria are protective and based on scientifically sound rationale, as required under 40 CFR §§131.6 and 131.11.

The EPA's determination is based on a review of DEQ's justification supporting the seasonal cold water temperature criteria. In making this determination, the EPA is relying upon the Versar report, which is a peer review of the scientific justification contained in Hillman et al. (1999) that DEQ relied upon to justify the seasonal cold water temperature criteria. In addition, the EPA relies upon the recommendations set forth in the Temperature Guidance.²¹

The EPA has identified several deficiencies with DEQ's conclusion that the criteria are protective of cool and cold water species.²² The following summarizes the key findings from the

²¹ Versar 2004

²² Email correspondence from Lil Herger to Lisa Macchio Re: Cold water synthesis, July 21, 2005. p. 1 and EPA

EPA's review of DEQ's justification.

- The list of fish species considered in Hillman et al. (1999) was not a comprehensive list of native cool and cold water species in Idaho. The analysis was primarily focused on non-native species.²³
- The temperature sensitivity of some fish species that Hillman et al. (1999) identified as “cool water” species appeared to be comparable to the sensitivity of “cold water” species (e.g., the Ultimate Upper Incipient Lethal Temperature and growth optima metrics for salmonids were similar to some native “cool water” species included in the analysis).²⁴ Therefore, while cold water species may be absent, the criteria may not be protective if sensitive cool water species are present.
- Idaho's analysis did not evaluate the historical distribution of native species to determine if warmer temperatures have led to permanent exclusion of these species from their original range.²⁵
- Idaho's analysis focused on the persistence/survival of the species, whereas the EPA's evaluation of the criteria, in the absence of a definition of “tolerant” in the description of the use, requires confirmation that the criteria prevent negative effects on growth and reproduction, in addition to survival. Through time, fish that might be thermally tolerant in terms of persistence, might be compromised after exposure to elevated temperatures. These fish might exhibit impacts on competition, feeding limitations, or disease, leading to negative population level effects. Persisting in an adverse environment is different than being able to thrive and reproduce.²⁶
- Idaho's analysis did not sufficiently demonstrate that it is natural for cold water fish to abandon habitat due to hot temperatures during the summer and that this is normal behavior that is not influenced by human-caused disturbance.²⁷
- Idaho's justification did not demonstrate that the criteria were protective of other cold water aquatic life that might be present, such as macroinvertebrates.²⁸
- The analysis in Hillman et al. (1999) included significant data gaps, such as omitting some available literature and excluding some native species, with no accounting for those gaps.²⁹

C. Other Seasonal Cold Water Criteria

The EPA Action

In accordance with its CWA authority, 33 U.S.C. §1313(c)(3) and 40 CFR Part 131, the EPA disapproves IDAPA 58.01.02.250.03., 250.03.(a) and 250.03(c), which were submitted in 2000

review of the State of Idaho Seasonal Cold Water Temperature Criteria: Synthesis of reviewer comments (contractors and EPA), Lil Herger, pp. 4

²³ Versar 2004, p. 27

²⁴ *Id.* at p. 9

²⁵ *Id.*

²⁶ *Id.* at p. 10

²⁷ *Id.* at Appendix B, p. B-1

²⁸ *Id.* at p. 18

²⁹ *Id.* at p. 12

(Idaho Docket 16-0102-9704).

250.03 Seasonal Cold Water. Between the summer solstice and autumn equinox, waters designated for seasonal cold water aquatic life are to exhibit the following characteristics. For the period from autumn equinox to summer solstice the cold water criteria will apply: (4-5-00)

a. Dissolved Oxygen Concentrations exceeding six (6) mg/l at all times. In lakes and reservoirs this standard does not apply to: (4-5-00)

i. The bottom twenty percent (20%) of water depth in natural lakes and reservoirs where depths are thirty-five (35) meters or less. (4-5-00)

ii. The bottom seven (7) meters of water depth in natural lakes and reservoirs where depths are greater than thirty-five (35) meters. (4-5-00)

iii. Those waters of the hypolimnion in stratified lakes and reservoirs. (4-5-00)

c. Ammonia. (4-5-00)

i. One (1) hour average concentration of un-ionized ammonia is not to exceed the criteria defined at Subsection 250.02.c.i. (4-5-00)

ii. Four (4) day average concentration of un-ionized ammonia is not to exceed the criteria defined at Subsection 250.02.c.ii. (4-5-00)

The EPA Rationale

As discussed in Section II.E., the EPA approved the dissolved oxygen and ammonia criteria that are associated with Idaho's existing cold water use at IDAPA 58.01.02.250.02.a and 252.02.d in 1996 and 2002, respectively. Idaho adopted the same dissolved oxygen and ammonia criteria for the seasonal cold water use at IDAPA 58.01.02.250.03.a and 250.03.c. The EPA disapproves IDAPA 58.01.02.250.03.a, and 250.03.c because these water quality criteria are associated with the seasonal cold water use that the EPA is disapproving (see Section III.A. regarding the EPA's rationale for disapproval of the seasonal cold water use) and therefore, these seasonal cold criteria are no longer applicable. The EPA is only disapproving the application of these dissolved oxygen and ammonia criteria to the seasonal cold water use. The EPA is not disapproving the values for dissolved oxygen and ammonia criteria that the EPA previously approved as protective of the cold water use at IDAPA 58.01.02.250.02.a and 252.02.d.

D. Designation of Seasonal Cold Water Aquatic Life for the Little Camas Creek Reservoir

The EPA Action

In accordance with its CWA authority, 33 U.S.C. §1313(c)(3) and 40 CFR Part 131, the EPA disapproves the seasonal cold water use designation at IDAPA 58.01.02.140.11, Unit SW-7 (Idaho Docket 58-0102-0002 - submitted in 2003).

140.11. Little Camas Creek Reservoir, Unit SW-7, designation of seasonal cold water aquatic life use

The EPA Rationale

In addition to the concerns discussed above with the seasonal cold water use designation and associated temperature criteria, Idaho did not provide sufficient justification, in accordance with 40 CFR §131.10(j)(2), for application of the seasonal cold water use to Little Camas Creek Reservoir. *See* Sections III.A. and III.B. for the discussion on the seasonal cold water use designation and associated temperature criteria.

As noted in Section II.C., above, DEQ's justification for assigning a seasonal cold water aquatic life use to Little Camas Creek Reservoir was brief and lacked necessary supporting data. Prior to 2001 when the reservoir experienced severe drought, Little Camas Creek Reservoir was reported to contain rainbow trout and longnose dace among other fish species.³⁰ Hillman et al. (1999) classified rainbow trout as a cold water species and longnose dace as a cool water species³¹ with Final Temperature Preferences (FTP)³² of 13-21.1°C (Adult life stage) and 11.7-21.1°C (Unknown life stage), respectively.³³ Supporting literature for the Temperature Guidance provided a final field preference of 18.9°C - 21.1°C (Adult life stage) for rainbow trout.³⁴ These temperature preferences are lower than the seasonal cold water temperature criteria.

In accordance with 40 CFR §131.10(g), states can remove a use that is not an existing use,³⁵ if the state conducts a use attainability analysis (UAA),³⁶ as specified at 40 CFR §131.10(j), that demonstrates attaining the use is not feasible due to one of six factors. 40 CFR §131.10(j)(2) requires states to conduct a UAA whenever they designate a sub-category of a use specified in CWA Section 101(a)(2) that requires criteria less stringent than previously applicable. Idaho's analysis for Little Camas Creek Reservoir did not evaluate the existing uses of Little Camas Creek Reservoir, confirm that existing uses were not being removed, or demonstrate that attaining the cold water aquatic life use was not feasible due to one of the six factors at 40 CFR §131.10(g). Based on DEQ's description of the established fishery during non-drought conditions in the waterbody and because the submittal lacks any information about the existing use for the waterbody, the EPA cannot conclude that the seasonal cold aquatic life use designation and associated temperature criteria are protective of Little Camas Creek Reservoir consistent with the CWA and the EPA's regulation.

³⁰ Supporting Analysis, p. 13

³¹ Hillman et al 1999, pp. 32-33

³² The FTP is defined in Hillman et al 1999 (p. 11) as the eventual choice of temperature zone irrespective of acclimation history. Agrees closely with maximum growth temperature.

³³ Hillman et al 1999, p. 37 and p. 43

³⁴ Sauter, S.T., McMilan, J., and Dunham, J. Issue Paper 1 Salmonid Behavior and Water Temperature: Prepared as Part of EPA Region 10 Temperature Water Quality Criteria Guidance Development Project. EPA-910-D-01-001 May 2001, pp. 5-6

³⁵ "Existing use" is defined in the EPA's regulations at 40 CFR § 131.3(e) as "those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards." Per 40 CFR §131.10(g) and § 131.10(h)(1), states may not remove uses that are existing uses, unless a use requiring more stringent criteria is added.

³⁶ A use attainability analysis is described in the EPA's regulations at 40 CFR § 131.3(g) as: "a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in §131.10(g)."

IV. Water Quality Standards in Effect for CWA Purposes

A. Water Quality Standards Not in Effect

Pursuant to the EPA's Alaska Rule (40 CFR §131.21(c)), new or revised water quality standards submitted by a state or authorized tribe to the EPA after May 30, 2000, are not in effect for CWA purposes until approved by the EPA. The EPA has disapproved the following provisions and consequently, they are not in effect for CWA purposes.

- IDAPA 58.01.02.252.02.b and IDAPA 58.01.02.140.11 (Unit SW-7) adopted by DEQ on March 30, 2001 and submitted to the EPA on May 29, 2003.

250.02.b. Water temperatures of twenty-six (26) degrees C or less as a daily maximum with a daily average of no greater than twenty-three (23) degrees C. (3-30-01)

140.11. Little Camas Creek Reservoir, Unit SW-7, designation for seasonal cold water aquatic life use.

B. Water Quality Standards in Effect

Pursuant to the EPA's Alaska Rule (40 CFR §131.21(c)), when a state has adopted and submitted a water quality standard to the EPA before May 30, 2000, that water quality standard remains in effect despite the EPA's disapproval of the water quality standard until the EPA has promulgated a more stringent water quality standard. The following water quality standards were adopted under Idaho state law and submitted to the EPA before May 30, 2000; therefore, these water quality standards remain in effect despite this disapproval action.

- IDAPA 58.01.02.100.01.c and IDAPA 58.01.02.250.03 were adopted by DEQ on April 5, 2000 and submitted to the EPA on April 26, 2000.

100.01.c. Seasonal cold water (SC): water quality appropriate for the protection and maintenance of a viable aquatic life community of cool and cold water species, where cold water aquatic life may be absent during, or tolerant of, seasonally warm temperatures. (4-5-00)

250.03 Seasonal Cold Water. Between the summer solstice and autumn equinox, waters designated for seasonal cold water aquatic life are to exhibit the following characteristics. For the period from autumn equinox to summer solstice the cold water criteria will apply: (4-5-00)

- a. Dissolved Oxygen Concentrations exceeding six (6) mg/l at all times. In lakes and reservoirs this standard does not apply to: (4-5-00)
 - i. The bottom twenty percent (20%) of water depth in natural lakes and reservoirs where depths are thirty-five (35) meters or less. (4-5-00)

- ii. The bottom seven (7) meters of water depth in natural lakes and reservoirs where depths are greater than thirty-five (35) meters. (4-5-00)
 - iii. Those waters of the hypolimnion in stratified lakes and reservoirs. (4-5-00)
- b. Water temperatures of twenty-seven (27) degrees C or less as a daily maximum with a daily average of no greater than twenty-four (24) degrees C. (4-5-00)
- c. Ammonia. (4-5-00)
 - i. One (1) hour average concentration of un-ionized ammonia is not to exceed the criteria defined at Subsection 250.02.c.i. (4-5-00)
 - ii. Four (4) day average concentration of un-ionized ammonia is not to exceed the criteria defined at Subsection 250.02.c.ii. (4-5-00)

C. Requirements to Apply Water Quality Standards in Effect

As explained above in Section III, DEQ has not provided a sound scientific justification that the seasonal cold water use and accompanying criteria will be protective of the assemblage of aquatic organisms present in Idaho waters that might be designated for seasonal cold water use. Pursuant to the Alaska Rule, these water quality standards (IDAPA 58.01.02.100.01.c and IDAPA 58.01.02.250.03 - submitted in 2000) will remain in effect unless or until the EPA promulgates more stringent standards for Idaho. See 40 CFR §131.21(c). However, the EPA has determined that the CWA does not require federal promulgation at this time because the use and criteria do not apply to any waterbody in Idaho. Since the seasonal cold water designated use does not currently apply to any waterbody, the associated criteria also do not currently apply and therefore the seasonal cold water use and associated criteria have no practical effect for CWA purposes. DEQ cannot apply or implement the seasonal cold water designated use and associated criteria to a waterbody until DEQ adopts the seasonal cold water designated use for individual waters in the state. Additionally, most waters in Idaho are designated for cold water aquatic life use. The requirements to protect the cold water aquatic life designated use are equally or more stringent than the seasonal cold water designated use and apply year round.

To designate the seasonal cold water use and criteria to individual waters in Idaho, DEQ would be required to follow its negotiated rulemaking process for adoption of revised water quality standards. DEQ must identify and provide the necessary justification for revising the aquatic life use for a specific waterbody and take public comment. The waterbody designation would then be reviewed and approved by the Idaho Board of Environmental Quality and submitted to the Idaho legislature for review and adoption. Following adoption under state law, DEQ would submit the individual water body designation along with the supporting justification to the EPA for review and action under the CWA Section 303(c). If applicable, the EPA would complete consultations under Section 7 of the Endangered Species Act prior to taking CWA action.

The supporting justification would include a sound scientific basis for the application of the seasonal cold water use and temperature criteria in accordance with 40 CFR §131.6 and 131.10. Given that most of Idaho's surface waters are designated and protected for cold water aquatic life year round (i.e., waters are either designated for cold water aquatic life in tables found at IDAPA 58.01.02.110 – 160, or waters are undesignated which results in the application of the cold water

aquatic life use and criteria in accordance with IDAPA 58.01.02.101.01), future designations of a seasonal cold water use to any waterbody would entail designation of a sub-category of aquatic life use with less stringent temperature criteria.

As discussed above, consistent with the federal regulations at 40 CFR §131.10(j)(2), states must conduct a UAA whenever they designate a sub-category of a use specified in CWA Section 101(a)(2) that requires criteria less stringent than previously applicable. Therefore, a UAA will be required in most, if not all, instances where Idaho applies the seasonal cold water use in the future to specific waters in the state. This “structured scientific assessment” must include information such as:

- Specific waterbody boundaries
- Identification of the waterbody’s existing use
- Demonstration that attaining the current designated use is not feasible because of one of the six factors listed in 40 CFR §131.10(g)
- Identification of the most temperature sensitive native species present or potentially present in the waterbody when the seasonal cold water criteria apply to ensure the temperature criteria protect the aquatic life designated use, according to 40 CFR §131.11(a)(1)
- Scientifically defensible demonstration that cold water and sensitive cool water species are not present when the seasonal cold water criteria apply
- Scientifically defensible demonstration that the seasonal cold water use is the highest attainable use for the waterbody. This would include data demonstrating the waterbody’s natural thermal regime
- Consideration of protection of downstream uses in accordance with 40 CFR §131.10(b)

V. Remedy to Address Disapproval

CWA Section 303(c)(3) and the federal water quality standards regulations at 40 CFR §131.21 state in part that when the EPA disapproves a state’s new or revised WQS, the EPA shall specify changes that are needed to assure compliance with the requirements of CWA Section 303(c). The EPA recommends DEQ consider the following options if it believes that there are waters in the state that would be more appropriately assigned to something other than one of the current aquatic life designated use categories:

- Delete the seasonal cold water use and criteria from Idaho’s WQS regulations and establish site-specific criteria and location specific uses (as appropriate) for particular waters; and/or
- Revise the seasonal cold water use to more specifically define the uses and species types to be achieved and protected, and establish criteria to protect the aquatic life expected in those waters.

There are EPA-approved water quality standards applicable to all of Idaho’s waterbodies, and the CWA-effective seasonal cold water use sub-category and associated criteria do not apply to any specific waterbodies in Idaho. Because this disapproval simply rejects the creation and utilization of a less-stringent sub-category of designated use, the effect of this action is to prevent the state—absent further WQS revisions and subsequent EPA approval—from employing the seasonal cold water use in waters where the current EPA-approved cold water use applies. Under

these circumstances, the EPA's disapproval does not trigger the need for promulgation of a federal standard.