UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
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WATER
DIVISION

NOV 2 1 2019

Dr. Mary Anne Nelson
Water Quality Division Administrator
Idaho Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706-1255

Re: The EPA Review and Action on Idaho's Revised Site-Specific Criteria for Temperature for the Hells Canyon Reach of the Snake River, Idaho Rule Docket 58-0102-1102

Dear Dr. Nelson:

The U.S. Environmental Protection Agency has completed the review of Idaho's Revised Site-Specific Criteria for Temperature for the Hells Canyon Reach of the Snake River (Idaho Rule Docket 58-0102-1102). Pursuant to section 303(c)(3) of the Clean Water Act, 33 U.S.C. § 1313(c)(3), and 40 CFR Part 131, the EPA is approving Idaho's revised site-specific criteria for temperature to protect aquatic life, specifically fall Chinook spawning, applicable to the Hells Canyon Reach of the Snake River. The rationale for the EPA's action is summarized in the enclosed Technical Support Document.

In the September 25, 2019, Endangered Species Act Section 7(a)(2) Biological Opinion,[1] the National Marine Fisheries Service found that the approval of the revised site-specific temperature criteria at IDAPA 58.01.02.286, although likely to adversely affect Snake River Fall Chinook spawning, would not jeopardize the Snake River Fall Chinook ESU. The Biological Opinion also concluded that the Agency's action is not likely to adversely affect other threatened and endangered species present in the action area or their designated critical habitats. Likewise, in a letter of concurrence, the U.S. Fish and Wildlife Service found that the Agency's action is not likely to adversely affect bull trout and its designated critical habitat.[2]

Background

By letter dated June 8, 2012, the Idaho Department of Environmental Quality submitted to the EPA for review and action the revised water quality standards at IDAPA 58.01.02.286 of Idaho's administrative code. As set forth in the June 8 letter, the revised water quality standards were adopted and finalized by the 2012 Idaho Legislature. They became effective under Idaho state law on March 29, 2012 and were certified by the Idaho Attorney General on April 13, 2012, as being duly adopted pursuant to state law. Idaho's process for adopting the submitted revisions, including the opportunity for public comment, is described in DEQ's submittal letter and its enclosures.

[1] Opinion submitted to EPA from NOAA on September 25, 2019 [Snake River Hells Canyon Site Specific Temperature Criterion NMFS Consultation Number: NOAA 2019: WCRO-2019-00175 September 25, 2019], from Michael Tehan, NOAA, to Hanh Shaw, EPA.

[2] Letter of concurrence submitted to EPA from USFWS on May 3, 2019, 01IFWO-2019-I-1077

The EPA's Approval Action

In accordance with the EPA's authority under section 303(c)(3) of the CWA and 40 CFR Part 131, the EPA approves the submitted changes at IDAPA 58.01.02.286. In accordance with 40 CFR 131.21(c), the EPA's approval of the revised site-specific criteria of 14.5°C as a weekly maximum temperature (WMT or 7dadm), from October 23 through November 6 and 13°C from November 7 through April 15, are the applicable water quality criteria for temperature for this portion of Idaho's Snake River waters during the specified time period for purposes of implementing the CWA.

Nothing in this action shall constitute an approval of a water quality standard that applies to waters within Indian Country, as defined in 18 U.S.C. § 1151. The EPA or authorized Indian Tribes, as appropriate, will retain responsibilities for water quality standards for waters within Indian Country.

I appreciate the ongoing collaboration between the EPA and DEQ and look forward to future work with the state on water quality standards pursuant to our respective responsibilities under the CWA. If you have any questions regarding this letter, please contact me or Rochelle Labiosa of my staff at (206) 553-1172.

Sincerely,

Daniel D. Opalski
Director

Enclosure

cc: Mr. Jason Pappani, Surface Water Bureau Chief, DEQ

Technical Support Document

The EPA's Action on Idaho's Revised Aquatic Life Water Quality Site-Specific Criteria for Temperature for the Hells Canyon Reach of the Snake River

November 21, 2019

The EPA's Action on Idaho's Revised Aquatic Life Water Quality Site-Specific Criteria for Temperature for the Hells Canyon Reach of the Snake River

Submitted June 8, 2012

Contents

I. Background

A. Clean Water Act Requirements for Water Quality Standards

The objective of the Clean Water Act (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 (WQS). These standards include the designated uses of 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), whenever a state revises or adopts a new WQS, such WQS shall protect the public health or welfare, enhance the quality of water and serve the purposes of the Act, including uses the 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 review applicable WQS periodically, 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 certification by the state's attorney general, or other appropriate legal authority within the state, that the WQS were duly adopted pursuant to state law (40 CFR §131.6(e)). In adopting such criteria, states should establish numeric values based on one of the following:

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

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)).

CWA Section 303(c), 33 U.S.C. § 1313(c), requires states to submit new or revised WQS to the EPA for review, and the EPA must ensure that those WQS 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 WQS. If all four questions are answered "yes," then the provision would likely constitute a new or revised WQS that the EPA has the authority and duty to approve or disapprove under CWA Section 303(c)(3).[1]

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

[1] See the EPA's *What is a New or Revised Water Qualify Standard Under CWA 303(c)(3)? Frequentlv Asked Questions,* October 2012

(4) Does the provision establish a new WQS or revise an existing WQS?

Furthermore, the EPA considers non-substantive edits to existing WQS to constitute new or revised WQS that the EPA has the authority to approve or disapprove under section 303(c)(3). Although these edits and changes do not substantively change the meaning or intent of the existing WQS, 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.

B. Idaho's June 8, 2012 Water Quality Standard Submittal

The Notice of Negotiated Rulemaking along with a preliminary draft rule was published in the June 1, 2011 edition of the Idaho Administrative Bulletin. On June 21, 2011, the Idaho Department of Environmental Quality (DEQ) held a negotiated rulemaking meeting pursuant to Idaho Code § 67-5220. A Notice of Proposed Rulemaking with the proposed rule was published in the August 3, 2011 Idaho Administrative Bulletin, and a notice of the pending rule was published in the December 7, 2011 Idaho Administrative Bulletin. The pending rule was finalized by the 2012 Idaho Legislature, and it became effective under Idaho law on March 29, 2012.

Idaho's revised site-specific criteria (SSC) for temperature is identified below (strikeout text represents the original language; and the underlined text indicates the revised language that is the subject of the EPA's CWA action):

286. SNAKE RIVER, SUBSECTION 130.01, HUC 17060101, UNIT S1, S2, AND S3; SITE-SPECIFIC CRITERIA FOR WATER TEMPERATURE.

~~*A maximum weekly maximum temperature of thirteen degrees C (13C) to protect fall chinook spawning and incubation applies from October 23rd through April 15th in the Snake River from Hell's Canyon Dam to the Salmon River.*~~ Weekly maximum temperatures (WMT) are regulated to protect fall chinook spawning and incubation in the Snake River from Hell's Canyon Dam to the confluence with the Salmon River from October 23 through April 15. Because the WMT is a lagged seven (7) day average, the first WMT is not applicable until the seventh day of this time period, or October 29. A WMT is calculated for each day after October 29 based upon the daily maximum temperature for that day and the prior six (6) days. From October 29 through November 6, the WMT must not exceed fourteen point five degrees C (14.5°C). From November 7 through April 15, the WMT must not exceed thirteen degrees C (13°C). ~~*(4-6-05)*~~( )

DEQ's June 8, 2012 submittal package included the following:[2]

1) Cover Letter, dated June 8, 2012
2) May 4, 2011 Notice of Negotiated Rulemaking
3) June 21, 2011 Negotiated Rulemaking Meeting Sign-In Sheet
4) Idaho Power Proposal to Initiate Negotiated Rulemaking
5) July 8, 2011 Notice of Proposed Rulemaking
6) Response to Public Comments Summary
7) Idaho Power Presentation to the Idaho Board of Environmental Quality

[2] http://www.deq.idaho.gov/laws-rules-etc/deq-rulemakings/docket-no-58-0102-1102-final-rule/

8) November 10, 2011 Notice of Pending Rule Adoption
9) Attorney General Certification of Rules Adoption
10) May 22, 2012 Status Update for Snake River Fall Chinook Salmon

C. The EPA's Pacific Northwest Temperature Guidance (2003)

The EPA's most recent recommendations for 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* (EPA 910-B-03-002, April 2003; hereafter referred to as the "Temperature Guidance").[3] The technical basis for the Temperature Guidance is the companion document, titled the "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). These documents provide the synthesis of the science of temperature relationships to salmonids. The vast majority of studies considered in the Temperature Guidance compilation and resultant recommendations, including those for salmonid spawning, relied upon laboratory studies comprising constant temperature exposures. The Temperature Guidance and its supporting documents acknowledge that in addition to the numeric criteria recommendations, in certain situations, alternative site-specific criteria for temperature could be established pursuant to 40 CFR §131.11(b). Consistent with this recommendation, Idaho has provided additional scientific bases to revise its SSC from a maximum 13°C 7-day average of the daily maxima (7dadm), recommended by the Temperature Guidance as protective of salmon spawning, and submitted the revised SSC to the EPA for review and action pursuant to CWA section 303(c).

The water quality criteria recommendations in the Temperature Guidance are composed of numeric and narrative criteria to protect different salmonid species at their various lifestages. Examples of these numeric criteria include: 9°C for bull trout (char) spawning, to 13°C for salmon/trout spawning, egg incubation, and fry emergence, to 20°C for salmon and steelhead migration corridors. In addition to the numeric criteria, the Temperature Guidance recommends narrative criteria to supplement the numeric criteria. The Temperature Guidance 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. The Temperature Guidance specifies that the typical range for salmonid spawning initiation is 4-14.0°C as a daily average (Table 1 of the Temperature Guidance).

II. The EPA Review and Action on the Revised Site-Specific Criteria for Temperature

A. The EPA Action

In accordance with its CWA authority, 33 U.S.C. 1313(c)(3) and 40 CFR § 131.11, the EPA approves Idaho's revised Site-Specific Criteria for Temperature for the Snake River from the Hells Canyon Dam to its confluence with the Salmon River (IDAPA 58.01.02.286). In accordance with 40 CFR 131.21(c), the EPA's approval of the revised site-specific criteria of 14.5°C as a weekly maximum temperature (WMT or 7dadm), from October 23 through November 6 and 13°C from November 7 through April 15,

[3] Available at https://www.epa.gov/wa/northwest-water-quality-temperature-guidance-salmon-steelhead-and-bull-trout

are the applicable water quality criteria for temperature for this portion of Idaho's Snake River waters during the specified time period for purposes of implementing the CWA.

B. The EPA Rationale

This section explains the EPA's basis for determining that the revised SSC for temperature will protect Idaho's aquatic life designated uses, consistent with the federal regulations at 40 CFR 131.11. The EPA has determined that the WQS revision at IDAPA 58.01.02.286 is based on sound scientific rationale and is protective of the most sensitive aquatic life designated use for the Snake River from the Hells Canyon Dam to its confluence with the Salmon River (fall Chinook spawning and incubation). The EPA's determination is informed by the analysis performed by the National Marine Fisheries Service (NMFS) during the Endangered Species Act (ESA) consultation (see discussion below).

The EPA's Review of DEQ's June 8, 2012 Submittal

The EPA's analysis of whether Idaho's SSC is based on sound scientific rationale and protective of the most sensitive designated use consisted of the following steps: (1) identify available studies on the effects to aquatic species for the revised SSC, (2) review available studies for data quality and relevance to determine potential effects to fish and aquatic life in Idaho, and (3) determine whether the Agency's action is protective of the most sensitive designated use, in this case whether Idaho's SSC is expected to be protective of aquatic communities residing in Idaho, and thus protective of Idaho's aquatic life designated use.

The multiple lines of evidence the state submitted to support its rationale that the SSC is protective are summarized as follows:

- Three studies conducted in declining thermal regimes show little or no effects for fall Chinook eggs at 14.5°C;
- A composite regression model utilizing the data from the same three studies indicates that a temperature threshold for effects above background is approximately 15.3°C;
- Field data supporting the interpretation that a healthy population of fall Chinook (Hanford Reach population) spawns at temperatures higher than 14.5°C; and
- Population trends indicating an increase in fall Chinook adult returns to the Snake River, despite current temperatures in the Snake River in excess of the 14.5°C criterion during the time of year when it is applicable.

Consultation under the Endangered Species Act

The EPA reviewed the above lines of evidence along with additional updated data and information during the development of the Biological Evaluation (BE) for the purpose of initiating consultation under section 7(a)(2) of the ESA with the U.S. Fish and Wildlife Service (USFWS) and NMFS, collectively "the Services," on the EPA's proposed action to approve Idaho's SSC.[4] The BE analyzed the effects on bull trout (*Salvelinus confluentus*) and its designated critical habitat under USFWS'

[4] Biological Evaluation of the Revised Idaho Water Quality Standard for Temperature for the Snake River Below the Hells Canyon Dam to its Confluence with the Salmon River. Prepared by the U.S. Environmental Protection Agency for U.S. Fish and Wildlife Service and National Marine Fisheries Service. Submitted to USFWS and NMFS, April 4, 2019.

jurisdiction; and the following species under NMFS' jurisdiction: Snake River fall and spring/summer Chinook salmon (*Oncorhynchus mykiss*), Snake River Basin steelhead (*O. mykiss*), Snake River sockeye salmon (*O. nerka*), Southern Resident killer whale (*Orcinus orca*), and designated critical habitats for all of these species. The EPA also requested consultation with NMFS pursuant to the essential fish habitat provisions in section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA)(16 U.S.C. 1855(b)). In accordance with 50 CFR 402.13 and 50 CFR 402.14(c), the EPA sent the BE to the Services on April 4, 2019, requesting concurrence from USFWS on the agency's determination of "may affect, but not likely to adversely affect" bull trout, and initiation of formal ESA consultation with NMFS.[5]

On May 3, 2018, the USFWS provided its concurrence with the EPA's determination that the proposed approval of Idaho's SSC for temperature may affect, but is not likely to adversely affect bull trout and its designated critical habitat.[6] On September 25, 2019, NMFS provided its biological opinion, which concluded that although the proposed action is likely to adversely affect, would not jeopardize the continued existence of Snake River fall Chinook salmon, and determined that the action will not destroy or adversely modify designated critical habitat for Snake River fall Chinook salmon. NMFS concurred with the EPA's determination that the action is not likely to adversely affect Snake River spring/summer Chinook salmon, Snake River sockeye salmon, Snake River Basin steelhead, and their designated critical habitats. NMFS also concluded that proposed action is not likely to adversely affect the Southern Resident Killer whale and its designated critical habitat.[7]

Protection of Most Sensitive Designated Use

Idaho's SSC was adopted to protect "fall chinook spawning and incubation" in the Snake River from the Hells Canyon Dam to the confluence with the Salmon River. Cold water fish, specifically salmonids, are the aquatic assemblage that is most sensitive to elevated water temperatures (EPA Temperature Guidance, 2003). In reviewing Idaho's revised SSC, the EPA concurs with the state that fall-run Chinook spawning[8] is the most sensitive life stage of cold water fish use in the area to which the SSC applies. Therefore, protection of fall-run Chinook spawning will also protect other aquatic life uses within this stretch of the Snake River.[9]

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[5] Letter to Ritchie Graves, Columbia Hydropower Branch, NMFS, from the U.S. Environmental Protection Agency Requesting Initiation of Formal ESA Consultation, and letter to Gregory M. Hughes, State Supervisor, USFWS, requesting concurrence, for the Agency's Proposed Action on Idaho Water Quality Standards — Revised Idaho Water Quality Standard for Temperature for the Snake River Below the Hells Canyon Dam to its Confluence with the Salmon River; April 4, 2019.

[6] Letter from Gregory Hughes, Idaho State Supervisor, USFWS, to Hanh Shaw, EPA, concurring with the EPA's not likely to adversely affect determination for bull trout in the Action Area (01IFWO-2019-I-1077); May 3, 2019.

[7] Letter and Final Biological Opinion transmitted from Ritchie Graves, NMFS, to Hanh Shaw, EPA, (WCRO-2019-00175), September 25, 2019.

[8] Considered to comprise of adult holding, spawning, egg incubation and fry emergence

[9] Other aquatic life, including macroinvertebrates and resident trout have higher thermal tolerances than fall Chinook spawning; although bull trout adult and subadult foraging occurs in the Snake, the recommended protective temperature criterion for this use is 16°C as a 7dadm from the Temperature Guidance. The USFWS concurred with the EPA that the action is not likely to adversely affect bull trout.

In assessing the effects of the SSC on the most sensitive species, the EPA was informed by the relevant analysis used by NMFS in the 2019 Biological Opinion. As part of this evaluation, NMFS reviewed the effects associated with the individual studies provided by Idaho in support of the WQS revision, along with additional information.[10] NMFS found that the estimated loss of eggs and fry from the allowable increase in river temperatures resulting from the revised criteria would amount to an annual average 8% loss of the redds in the Snake River. However, for the whole fall Chinook Evolutionarily Significant Unit (ESU), which includes areas outside of the Snake River, NMFS estimated the annual average total percentage loss of redds at 3.4 % (range 2.5-4.6%).[11] This loss would result in an average of 3.4% fewer returning adults each year.

Using a Beverton-Holt model, NMFS calculated the number of adult recruits under the existing conditions vs. the number of adult recruits under the proposed SSC (with 3.4 percent fewer spawners), and then calculated the difference. Due to density-dependency reflected in the Beverton-Holt model (meaning that as the number of spawners increases, there is a point where the number of recruits per spawner starts to level off), the reduction in number of recruits due to the loss of spawners is dependent upon the number of spawners. NMFS estimated that the loss of recruits from the proposed EPA action would be 5 to 73 Chinook salmon per year. Accordingly, NMFS concluded that although the EPA's action to approve the SSC would be likely to adversely affect the Snake River fall Chinook ESU and its critical habitat, the resultant loss of adult recruits (5-73 individuals/year) would not jeopardize the Snake River fall Chinook ESU at a population level.

The EPA's approval of the SSC, including the determination that the SSC will protect the most sensitive designated use, is informed by the conclusions in the 2019 Biological Opinion and, in particular, NMFS' finding that the Agency's action will not jeopardize the Snake River fall-run Chinook ESU at the population level. There is uncertainty in the estimates of the loss of eggs and fry associated with the SSC revision because they are based on primarily two laboratory studies (with differing results regarding the magnitude of effect) and limited field data sources. Due to this uncertainty, the EPA has determined that Idaho's revised SSC represents the upper limit in allowable temperatures for Snake River fall-run Chinook spawning and egg incubation and its protectiveness is dependent on the species viability status for recovery, and in particular, the habitat constraints and carrying capacity (other physical limitations) within the Snake River that limit the viability of fall Chinook. Any changes in the species viability status for recovery should be considered by Idaho during its periodic review of its applicable water quality standards. Further, the EPA has determined that the SSC's limited increase in the magnitude of allowable river temperatures, from 13°C to 14.5°C, to only the first two weeks of the designated spawning period is appropriate. This serves to limit the adverse effects of the action to less than a 5% (3.4% on average, each year) loss of redds, and therefore adults, for the whole fall Chinook ESU (NMFS 2019).

The continued application of the 13°C criterion (the optimal temperature threshold) as a 7dadm from November 7 through April 15 will ensure adequate protection of water quality with no expected adverse

[10] Including, for example, evidence from field data that spawning occurs at temperatures at or higher than the SSC in the Hanford Reach population, a more robust population of fall-run Chinook.

[11] Note that EPA is identifying the higher end of the ranges provided in the NMFS Biological Opinion (in some places upper end identified as 4.5% and in other places in the Opinion, 4.6%).

effects for fall-run Chinook spawning through egg incubation during the rest of the spawning time period. During consultation, NMFS identified field data from the Hanford Reach of the Columbia River (NMFS 2019) with a healthy population of fall-run Chinook, although not entirely analogous to the Snake River, indicate that elevated temperatures (above a maximum of 14.5°C, comparable temperatures to what would be allowed by the revised SSC) are present for the same two week time period when significant numbers of redds are emplaced. Therefore, while an increase in allowable temperatures from 13°C to 14.5°C as a 7dadm for up to two weeks may be justified, any additional increase in magnitude beyond two weeks of the early spawning period would not be based upon known available field data for healthy fall Chinook populations.