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Ref: 8WP-IO

Todd Parfitt, Director
Wyoming Department of Environmental Quality
200 West 17th Street
Cheyenne, WY 82002

Dear Mr. Parfitt:

The U.S. Environmental Protection Agency (EPA) has completed its review of the Wyoming Department of Environmental Quality's (WDEQ) designated use changes from primary contact recreation (PCR) to secondary contact recreation (SCR) for certain low flow streams. The revised water quality standards (WQS) were submitted to the EPA for review with a letter dated November 8, 2016. The submittal package included: (1) a use attainability analysis (UAA); (2) WDEQ Water Quality Division Administrator's Final Determination; (3) Attorney General's certification that the use changes were duly adopted pursuant to state law; (4) public notices, public comments, and response to comments; (5) public hearing transcript; and (6) Geographic Information System (GIS) files. Lakes/reservoirs/ponds and Class 1 waters are not included in the state's submission, and therefore retain their currently applicable recreation use designation. Receipt of the submission on November 17, 2016, initiated the EPA's review pursuant to Section 303(c) of the Clean Water Act (CWA) and the implementing federal WQS regulation (40 CFR Part 131). The EPA is approving the majority of the designated use changes.

Background

WDEQ began developing the UAA in 2009. In 2010, WDEQ conducted 151 field surveys and the Wyoming Association of Conservation Districts (WACD) completed 720 field surveys to validate the UAA. WDEQ shared its first draft of the UAA with the EPA in February 2012. The EPA reviewed this draft and responded with a comment letter in May 2012. WDEQ was responsive to the EPA's feedback and made significant improvements to the UAA.

WDEQ shared the revised UAA with the EPA in October 2012. The EPA reviewed the revised UAA and responded with a comment letter in January 2013 stating "the EPA's preliminary thinking is that WDEQ's draft approach for identifying streams with insufficient flow to support a PCR use, with some modification, would be consistent with 40 CFR § 131.10(g)(2)."¹ The modifications included use of recently published more accurate GIS flow estimates, which Wyoming incorporated into a subsequent draft.

¹ "Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met."

WDEQ's first public comment period on the draft UAA and proposed designated use changes was August 6, 2013 to September 30, 2013. WDEQ held a public meeting on August 26, 2013, which EPA staff attended. The EPA sent a comment letter on September 25, 2013, again indicating the EPA's preliminary thinking that WDEQ's approach for identifying streams with insufficient flow or water levels to support PCR would be consistent with the EPA's WQS regulation. WDEQ's second public comment period on the UAA and proposed designated use changes was January 28, 2014 to March 14, 2014. The EPA sent a comment letter on March 14, 2014, again indicating the EPA's preliminary thinking that WDEQ's UAA approach was acceptable.

WDEQ submitted revised WQS to the EPA in December 2014. The EPA reviewed the submission and sent a final letter in June 2015 indicating that the EPA continued to support the state's UAA approach, but that the EPA could not approve any revised designated uses until the state completed a public hearing and satisfied the requirements of 40 CFR Part 25. Wyoming provided a third public comment period from July 31, 2015 to September 15, 2015 and held a public hearing consistent with CFR § 25.5 and § 131.20 on September 16, 2015, which EPA staff attended. The state reviewed and responded to the public comments from all three public comment periods. The EPA received Wyoming's complete submission on November 17, 2016.

Clean Water Act Review Requirements

The CWA at Section 303(c)(2), requires states and authorized Indian tribes² to submit new or revised WQS to the EPA for review. The EPA is required to review and approve, or disapprove, the submitted standards. Pursuant to CWA Section 303(c)(3), if the EPA determines that any standard is not consistent with the applicable requirements of the Act, the Agency shall, not later than the ninetieth day after the date of submission, notify the state or authorized tribe and specify the changes needed to meet the requirements. If such changes are not adopted by the state or authorized tribe within ninety days after the date of notification, the EPA is to promptly propose and promulgate such standard pursuant to CWA Section 303(c)(4)(A). The Region's goal has been, and will continue to be, to work closely with states and authorized tribes throughout the standards revision process so that submitted revisions can be approved by the EPA. 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.

Today's Action

Previously, Wyoming designated all state waters for PCR consistent with the CWA section 101(a)(2). Wyoming has since refined its recreational use categories to include SCR, a subcategory of the uses specified in CWA section 101(a)(2). The EPA's WQS regulation allows states and authorized tribes to designate a subcategory like SCR for a water body or waterbodies, provided the state or authorized tribe demonstrates that PCR is not an attainable use for that water body or waterbodies through a UAA (40 CFR § 131.10(j)(2))). In addition, a use change from PCR to SCR must be based on one of the six factors listed in 40 CFR § 131.10(g). Finally, the EPA's regulation at 40 CFR § 131.10(g) requires that

² CWA Section 518(e) specifically authorizes the EPA to treat eligible Indian tribes in the same manner as states for purposes of CWA Section 303. See also 40 CFR § 131.8.

if the state or authorized tribe revises its designated uses based on a required UAA, it must also adopt the highest attainable use, as defined in 40 CFR §131.3(m). Wyoming used GIS datasets, field surveys, and public comments to evaluate actual use, access, recreational facilities, and location of the water body to demonstrate that low flow conditions or water levels in streams in the state prevent the attainment of PCR consistent with 40 CFR § 131.10(g)(2).

Of the 104,145 stream miles evaluated in the UAA, Wyoming retained 20% (21,249 miles) for PCR, and changed 80% (82,896 miles) to SCR. The practical effect of Wyoming's use change to SCR is the application of a less stringent *E. coli* criterion (geometric mean of 630 organisms per 100 milliliters instead of geometric mean of 126 organisms per 100 milliliters). Wyoming determined that streams designated for SCR could not attain PCR based on meeting all the criteria below:

- Mean annual flow (MAF) less than 6 cubic feet per second;
- Located more than 1.0 mile from a school and census blocks with population densities greater than 55 persons per square mile;
- Located outside the boundary of a National or State Park, Recreation Area, Monument, or Historic Site;
- Located more than 0.5 mile from established campgrounds, U.S. Forest Service (USFS) or Bureau of Land Management (BLM) Recreation Sites, Natural Areas, or Wyoming Department of Transportation (WDOT) Rest Areas;
- Located more than 0.5 mile from trailheads or dispersed campsites that are on public land and within 0.25 mile of a road;
- Located outside of a primary area; and
- Public comments did not indicate the stream had an existing or a potential PCR use.

The EPA is approving the majority of the recreation designated use changes. The EPA is disapproving the use changes for ten water bodies where public comments provided sufficient information to show that the state's UAA does not demonstrate that low flow conditions or water levels at these locations actually prevent attainment of PCR. The attached rationale explains the EPA's action in detail.

Indian Country

The WQS approvals in today's letter apply only to waterbodies in the state of Wyoming, and do not apply to waters that are within Indian country, as defined in 18 U.S.C. Section 1151. These approvals exclude 'Indian country' lands as defined at 18 U.S.C. § 1151. Today's letter is not intended as an action to approve or disapprove WQS applying to waters within Indian country. The EPA, or authorized Indian tribes, as appropriate, will retain responsibilities for WQS for waters within Indian country.

Endangered Species Act Requirements

The EPA's approval of Wyoming's WQS is considered a federal action which may be subject to the Section 7(a)(2) consultation requirements of the Endangered Species Act (ESA). Section 7(a)(2) of the ESA states that "each federal agency ... shall ...insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is

determined to be critical...” The EPA concludes that the approval of designated uses for recreation, which are intended to protect humans from illness when exposed through immersion in, or ingestion of, water during recreational activities, are not subject to consultation requirements. The EPA’s discretion is limited to determining whether the designated recreation uses protect human health, and because consideration of effects on listed or proposed, endangered or threatened species is not within the EPA’s discretion, the EPA’s action is not subject to the requirements of section 7(a)(2) of the ESA.

Implementation

Waters not included in the UAA are not affected and retain their currently applicable recreation use designation. The UAA and web map are static (based on the GIS data the state used in the version of the UAA submitted to the EPA – see Appendix A of the UAA) and will not automatically be updated when the sources of the GIS data (e.g., USFS, BLM, WDOT, etc.) make changes to their datasets. Future revisions to the UAA and resulting designated use changes must be submitted to the EPA for review and action after the public hearing requirements of 40 CFR Parts 25.5 and 131.20 are satisfied. In addition, 40 CFR § 131.20(a) requires that Wyoming review waters designated for SCR uses at least once every three years. Our understanding is that Wyoming intends to start its triennial review process in Winter 2017. In addition, pursuant to the *Wyoming Water Quality Rules and Regulations*, Chapter 1, Section 33, “Any person at any time” may petition WDEQ or the Environmental Quality Council (EQC) to revise a designated use. It is important that the public remains engaged in this ongoing use refinement process.

Conclusion

We appreciate the efforts of WDEQ to address the EPA’s comments throughout the seven-year development of the UAA and resulting designated use changes. If you have any questions, please contact me at (303) 312-6392, or your staff may contact Tonya Fish on my staff at (303) 312-6832.

Sincerely,



for Darcy O'Connor,
Assistant Regional Administrator
Office of Water Protection

Enclosure

Rationale for the EPA's Action on Revisions to Wyoming's Water Quality Standards

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1.0 Clean Water Act and 40 CFR Part 131 Requirements Relevant to Recreation Uses

The core components of water quality standards (WQS) are: (1) designated uses; (2) water quality criteria that support the uses; and (3) antidegradation requirements. At issue in this action are designated uses, which are the goals specified in a state or authorized tribe's¹ WQS for each water body or water body segment, whether or not they are being attained (40 CFR § 131.3(f)). In other words, designated uses establish the state's environmental objectives for each water body (e.g., recreation, drinking water, game fish, agriculture, etc.).

Section 101(a)(2) of the Clean Water Act (CWA) states "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved..." Section 303(c)(2)(A) also requires WQS "...protect the public health or welfare, enhance the quality of the water and serve the purposes of this [Act]. Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial and other purposes, and also taking into consideration their use and value for navigation."

The EPA's WQS regulation at 40 CFR Part 131 interprets and implements these CWA provisions by requiring that a state or authorized tribe's WQS protect the uses specified in CWA section 101(a)(2) unless those uses are shown to be unattainable.² This regulatory scheme effectively creates a rebuttable presumption of attainability of those uses.³ However, states and authorized tribes have the discretion to determine that section 101(a)(2) uses are not, in fact, attainable in a particular case consistent with the EPA's requirements at 40 CFR § 131.10. If the water quality goals articulated by Congress are not attainable in a particular water body, the regulations require that such a determination be based upon a Use Attainability Analysis (UAA). The mechanism used to rebut the presumption of attainability is a UAA which 40 CFR § 131.3(g) defines 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)." This framework preserves states' and authorized tribes' paramount role in establishing WQS, and in weighing any available evidence regarding the attainable uses of a particular water body.⁴

Pursuant to 40 CFR § 131.10(g), if a state or authorized tribe demonstrates through a UAA that attaining a designated use is not feasible consistent with one of six enumerated factors, the state or authorized tribe may remove the use if it is not an existing use⁵ or the use will not be attained by implementing effluent limits required under CWA sections 301(b) and 306 and by implementing cost effective and reasonable best management practices for nonpoint source control. 40 CFR § 131.10(h). Section

¹ CWA Section 518(e) specifically authorizes the EPA to treat eligible Indian tribes in the same manner as states for purposes of CWA Section 303. See also 40 CFR § 131.8.

² 40 CFR §§ 131.2; 131.5(a)(7); 131.6(a), (f); 131.10(g), (j), (k).

³ 48 Fed. Reg. 51400, 51400 – 51401 (November 8, 1983), 63 Fed. Reg. 36742, 36749 (July 7, 1998), 78 Fed. Reg. 54518, 54522 (September 4, 2013), 80 Fed. Reg. 51020, 51024 (August 21, 2015). This approach was upheld in Idaho Mining Association v. Browner, 90 F. Supp.2d 1078, 1092 (D. Id. 2000).

⁴ 63 Fed. Reg. 36742, 36749 (July 7, 1998), and the EPA's Response to Comments for 2015 revisions to Part 131 (Essay 5.i page 3-92).

⁵ 40 CFR § 131.3(e) defines existing uses 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." Existing uses are known to be "actually attained" when the use has actually occurred and the water quality necessary to support the use has been attained. 80 Fed. Reg. 51020, 51027 (Aug. 21, 2015).

131.10(g) includes the following factors upon which a state or authorized tribe may rely on in removing a designated use:

- 1) naturally occurring pollutant concentrations prevent the attainment of the use;
- 2) natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met;
- 3) human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place;
- 4) dams, diversions, or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use;
- 5) physical conditions related to the natural features of water body such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or
- 6) controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

40 CFR § 131.10(g) also requires that if a state or authorized tribe adopts new or revised WQS based on a required UAA, then it must adopt the highest attainable use.⁶ As discussed above, one of the national goals established by CWA § 101(a)(2) is “recreation in and on the water.” The EPA, and many states and authorized tribes, refer to this goal as “primary contact recreation” (PCR). If a state or authorized tribe demonstrates through a UAA that PCR is not an attainable use, the state or authorized tribe would need to adopt a use subcategory (e.g., secondary contact recreation (SCR)) that requires less stringent criteria if it is the highest attainable use. 40 CFR § 131.10(g).

The scope of a UAA could be one specific water body, or a group of water bodies. The *Water Quality Standards Handbook*,⁷ describes that “states and authorized tribes may also conduct generic UAAs for groups of water body segments provided that the circumstances relating to the segments in question are sufficiently similar to make the results of the generic analyses reasonably applicable to each segment.” Most recently, the EPA addressed categorical UAAs in its Response to Comments accompanying its 2015 revisions to Part 131:

To streamline a state’s or authorized tribe’s efforts to designate more accurate uses, the state or authorized tribe may conduct a categorical UAA if it can identify multiple waters or waterbody segments with similar characteristics and with constraints on attainability. This efficient approach may reduce regulatory and process burden by allowing the state or authorized tribe to involve its public in one effort that uses a single analysis to represent many sites. To use such an approach, however, it is critical to have enough information about each particular site to reliably place it into the category.⁸

⁶ 40 CFR § 131.3(m) defines the “highest attainable use” as “the modified aquatic life, wildlife, or recreation use that is both closest to the use specified in section 101(a)(2) of the [CWA] and attainable, based on the evaluation of the factors in § 131.10(g) that preclude(s) attainment of the use and any other information or analyses that were used to evaluate attainability. There is no required highest attainable use where the State demonstrates the relevant use specified in section 101(a)(2) of the [CWA] and sub-categories of such a use are not attainable.”

⁷ Section 2.9, see www.epa.gov/wqs-tech/water-quality-standards-handbook.

⁸ Essay 5.j(B) page 3-98 to 3-99.

As discussed below, Wyoming chose to develop a categorical UAA to evaluate attainable recreation uses.

2.0 Use of 40 CFR § 131.10(g)(2) as a Basis to Remove a PCR Use

In order to demonstrate that a PCR use is not attainable in certain Wyoming waters, the state's UAA relies on 40 CFR § 131.10(g)(2). The EPA has explained in various documents its view regarding use of this factor for purposes of evaluating the attainability of recreational uses. Both 40 CFR § 131.10(g)(2) and § 131.10(g)(5) are intended to deal with physical factors or limitations of the water body itself that prevent the attainment of the use because of those physical factors. However, the regulation explicitly limits application of § 131.10(g)(5) to situations involving an aquatic life use, while the regulation does not include any such limitation on the application of § 131.10(g)(2). When discussing the EPA's rationale for this difference in the 1983 preamble to the final rule, the EPA opined on the use of physical factors, such as flow and its relation to recreational uses:

Physical factors may be important in evaluating whether uses are attainable. However, physical limitations of the stream may not necessarily be an overriding factor. Common sense and good judgment play an important role in setting appropriate uses and criteria. ...EPA recognizes that while physical factors also affect the recreational uses appropriately designated for a water body. States need to give consideration to the incidental uses which may be made of the water body. Even though it may not make sense to encourage use of a stream for swimming because of the flow, depth or the velocity of the water, the States and EPA must recognize that swimming and/or wading may occur anyway. In order to protect public health, States must set criteria to reflect recreational uses if it appears that recreation will in fact occur in the stream.⁹

In discussing this quote from the 1983 final rule preamble,¹⁰ the EPA's 1998 Advanced Notice of Proposed Rulemaking (ANPRM) explained that "based on prudent public health considerations, the use protection question was not to be judged wholly on an analysis of the water body's suitability for swimming, but rather on whether or not swimming would actually *occur*" (emphasis added). The ANPRM further provided "that physical factors alone would not be sufficient justification for removing or failing to designate a primary contact recreation use." For example, low flow may prevent swimming by adults, but if it is located in an area where children have access to the water body and could play, ingest, or immerse themselves in the water, that is an indication that low flow may not prevent attainment of a PCR use.¹¹ Instead, "EPA's suggested approach to the recreational use question has been for States and authorized Tribes to look at a suite of factors such as, the actual use, existing water quality, water quality potential, access, recreational facilities, location, safety considerations, and physical conditions of the water body in making any use attainability decision."¹² Therefore, states or

⁹ 48 Fed. Reg. 51400, 51401 (November 8, 1983) (emphasis added).

¹⁰ The 1983 preamble and the WQS Handbook in quoting the preamble, use the phrase "will in fact occur." It is important to note that this phrase is not intended to mean that a state or authorized tribe must show that recreation "will" occur in the future. Rather, the phrase is intended to differentiate between physical or water quality reasons why recreation may not be safe and whether there is still a potential for recreation to occur such that the physical or water quality factors do not preclude recreation. It is reasonable to assume that recreation "will in fact occur" if there is a "potential" for recreation to occur.

¹¹ While the EPA's statements in the 1983 final rule preamble and ANPRM are followed by discussions relating to high flows and instances where states are to protect incidental uses, the EPA's statements reflect the EPA's position when determining whether physical conditions actually prevent attainment of a recreation use.

¹² 63 Fed. Reg. 36742, 36756 (July 7, 1998).

authorized tribes can demonstrate that low flow conditions or water levels prevent attainment of a PCR use by analyzing multiple lines of evidence to determine whether or not PCR activities have the potential to occur despite the low flow conditions or water levels.

The EPA acknowledges that the *Water Quality Standards Handbook*¹³ includes the following statement about the use of “physical factors” in evaluating recreation uses: “Physical factors, which are important in determining attainability of aquatic life uses, may not be used as the basis for not designating a recreational use consistent with the CWA section 101(a)(2) goal. This precludes states and authorized tribes from using 40 CFR § 131.10(g) factor 2 (pertaining to low-flows) and factor 5 (pertaining to physical factors in general).” The EPA recognizes that these statements are confusing and could be read to prohibit states from using factor 2 when designating or removing recreational uses. Such a reading is not supported by the language in 40 CFR §131.10(g)(2) and is inconsistent with the EPA’s long standing position that factor 2 can be used to remove any use specified in CWA section 101(a)(2), including a recreational use. Unlike 40 CFR §131.10(g)(5), which is explicitly limited to aquatic life uses, 40 CFR §131.10(g)(2) does not include any such limitation. The regulatory language in 40 CFR §131.10(g)(2) and the 1983 preamble discussion noted above make clear that the EPA never intended to make 40 CFR §131.10(g)(2) unavailable for states when designating recreational uses. The EPA is working to correct this statement in the WQS Handbook to avoid any future confusion about this issue.

In summary, states or authorized tribes can use 40 CFR § 131.10(g)(2) as a basis to remove a CWA section 101(a)(2) recreational use (e.g., PCR). In order to do so, however, the state or authorized tribe must complete a UAA to demonstrate that “Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met.” Because physical factors alone are not a sufficient justification for removing a recreation use, states or authorized tribes must do more than just demonstrate the existence of low flow conditions or water levels. The state or authorized tribe must also show that the low flow conditions or water levels prevent the attainment of the recreation use. As discussed in the ANRPM, there are a variety of lines of evidence that a state can use in addition to the existence of low flow conditions or water levels to justify removing a recreation use. As discussed below, Wyoming’s UAA provides additional lines of evidence that the state evaluated to determine whether 40 CFR § 131.10(g)(2) precludes attainment of a PCR use.

3.0 Wyoming’s WQS for Recreation Uses

In 2001, Wyoming designated all state waters PCR¹⁴ in response to concerns raised by the EPA that there were waters not designated for PCR for which the state had not completed UAAs to demonstrate that PCR is not attainable in these waters. Chapter 1, Section 2 of Wyoming’s *Water Quality Rules and Regulations* defines PCR as “any recreational or other surface water use that could be expected to result in ingestion or immersion (full body contact).” In 2007, Wyoming made several revisions to its WQS related to recreation uses that include:

¹³ Section 2.1.3, see www.epa.gov/wqs-tech/water-quality-standards-handbook.

¹⁴ For the remainder of this document, “PCR” and “SCR” refer to Wyoming’s designated uses.

- 1) changing from fecal coliform to *Escherichia coli* (*E. coli*) as the bacterial indicator for recreation uses and adopted an *E. coli* criterion to protect PCR (a geometric mean of 126 organisms per 100 milliliters);
- 2) creating a SCR use defined as “any recreational or other surface water use in which contact with water is either incidental or accidental and that would not be expected to result in ingestion of the water or immersion” and adopted an *E. coli* criterion to protect SCR (a geometric mean of 630 organisms per 100 milliliters);
- 3) designating all of Wyoming’s surface waters as SCR during the non-recreation season (October 1 to April 30); and
- 4) changing the designated use from PCR to SCR for a large number of waters for the recreation season (May 1-September 30).

On September 29, 2008, the EPA approved the WQS changes described in (1) – (3) and disapproved the SCR designation of surface waters during the recreation season because the state had not completed supporting UAAs as required by 40 CFR § 131.10 to demonstrate that PCR was not attainable in these waters during the recreation season. The EPA’s action letter stated that Wyoming could resolve the disapprovals by completing site-specific UAAs or working with the EPA to develop a categorical UAA. Wyoming chose to pursue the categorical UAA to support its use changes, which is described in detail below. In July 2013, Wyoming revised Section 27 of its WQS to indicate that PCR and SCR designated uses are identified in the Wyoming Surface Water Classification List. The Surface Water Classification List was also revised to indicate that waters designated for SCR through the UAA process can be viewed on the Wyoming Surface Water Standards website.¹⁵

4.0 Summary of Wyoming’s UAA

Consistent with 40 CFR § 131.10, Wyoming completed a UAA to determine whether PCR is an attainable use for 104,145 stream miles¹⁶ that the state designated PCR as a default recreation use in 2001. First, the state identified stream miles with low flow conditions or water levels where PCR was unlikely to be attainable using Geographic Information System (GIS) datasets. GIS is a system for the storage, retrieval, analysis, display, and maintenance of geographic information.¹⁷ Nothing in the CWA, federal regulations, or EPA guidance prevents states from using GIS data in WQS decisions. In the past, the use of GIS data in UAAs has included maps, such as sampling site locations or land uses in the watershed, but the analysis of whether a use is attainable was primarily based on field data. Wyoming’s UAA is novel in its use of GIS data on a state-wide scale as one of the primary lines of evidence in the evaluation of whether PCR is attainable. The EPA supports state and tribal efforts to use technology such as GIS data to make WQS decisions.¹⁸ Given the geographic size of Wyoming,¹⁹ difficulty reaching some of the stream miles at issue, and the limited state resources for conducting site visits, using GIS data was reasonable to inform the state’s recreation use decisions.

¹⁵ The EPA recommends the state update the website address in the Surface Water Classification List during the next triennial review. The current location is: deq.wyoming.gov/wqd/surface-water-quality-standards-2/.

¹⁶ The state UAA uses the terms “low flow channels (ephemeral, small intermittent, and small perennial streams and ditches)” and “flowlines,” but for simplification in this document, the EPA uses the term “stream miles” to describe the waters the EPA is approving or disapproving.

¹⁷ www.fgdc.gov/policyandplanning/a-16/lexicon-of-geospatial-terminology

¹⁸ For example, see the EPA’s January 22, 2013 comment letter to Wyoming.

¹⁹ The total area of Wyoming (97,813 square miles) is larger than the combined total areas of nine states: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, and Maryland (95,605 square miles) (www.census.gov/geo/reference/state-area.html).

Second, as recommended by the EPA, Wyoming used multiple lines of evidence including GIS datasets, field surveys, and public comments to evaluate actual use, access, recreational facilities, and location of the water body to determine if low flow conditions or water levels actually do prevent the attainment of PCR consistent with 40 CFR § 131.10(g)(2). The UAA did not consider water quality data and assumed the ambient water quality would support PCR.

Wyoming's categorical UAA approach is consistent with the EPA's statements about categorical UAAs. The state used scientifically defensible flow data for each water body to establish a category of waters with similar characteristics (stream miles with estimated mean annual flow less than 6 cfs). Wyoming used additional GIS datasets to identify common constraints on attainability (see Section 5.4 below).

Of the 104,145 stream miles addressed in the UAA, Wyoming determined 89,060 stream miles have low flow conditions or water levels. Using the multiple lines of evidence described above, the state determined that 6,164 stream miles had the potential to attain PCR despite low flow conditions or water levels. The final result is that Wyoming retained PCR on 20% of the stream miles addressed in the UAA (21,249 miles), and changed the designated use to SCR for the remaining 80% (82,896 stream miles). The practical effect of Wyoming's use changes to SCR is application of a less stringent *E. coli* criterion (a geometric mean of 630 organisms per 100 milliliters instead of a geometric mean of 126 organisms per 100 milliliters). The state adopted the highest attainable use of SCR wherever it was removing PCR. The state did not remove recreation uses completely for any stream miles. The state did not revise designated uses for water bodies not included in the UAA (e.g., Class 1 waters and lakes/reservoirs/ponds), thus those waters retain their currently applicable recreation use designation.

5.0 EPA Review of Wyoming's Revised WQS

The EPA's review of Wyoming's use changes from PCR to SCR for certain low flow stream miles focused on whether Wyoming's UAA demonstrated that low flow conditions or water levels prevent the attainment of PCR, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met, consistent with 40 CFR § 131.10(g)(2).

To adequately demonstrate that PCR is not attainable, the state must first identify and document low flow conditions or water levels. Second, the state must demonstrate that the low flow conditions or water levels prevent attainment of PCR. Wyoming demonstrated that PCR is not attainable because waters with a mean annual flow (MAF) less than 6 cubic feet per second (cfs) do not support PCR activities unless small children can access the water. Wyoming's UAA explains that "The Categorical UAA identified low flow channels (ephemeral, small intermittent, and small perennial streams and ditches) with insufficient flow to support full body immersion as those flowlines within the 100k National Hydrography Dataset (NHD) with estimated mean annual flows less than 6 cubic feet per second (cfs). These flowlines were designated for secondary contact recreation unless they occurred in areas easily accessible by small children (i.e., near populated places, schools, parks, accessible recreation sites, etc.) since small children are more likely to have contact with the water equivalent to swimming in accessible low flow channels." (UAA page 6). The state then established specific buffers within which to define where the low flow waters would be easily accessible to small children and if so, such waters would retain PCR. This approach is consistent with the EPA's ANPRM which, as discussed above, recommended using access and location as additional lines of evidence to determine if physical factors such as flow, consistent with 40 CFR § 131.10(g)(2), truly preclude attainment of recreational uses. Another line of evidence used by the state is public comments. The state asked the public for site

specific data to identify stream miles addressed in the UAA that should be retained for PCR because low flow conditions or water levels were not preventing attainment of PCR.

Sections 5.1 and 5.2 explain in detail how the state completed the two steps to adequately demonstrate PCR is unattainable in certain low flow stream miles during the recreation season in Wyoming.

5.1 Documentation of Low Flow Conditions or Water Levels

To adequately demonstrate that the PCR use is not attainable, the state must first identify and document low flow conditions or water levels. As discussed above, given the geographic size of Wyoming (97,813 square miles), difficulty reaching some of the stream miles at issue, and the limited state resources for conducting site visits, Wyoming used GIS data (with appropriate data quality controls) to inform the state's recreation use decisions. As a general matter, the EPA supports state and authorized tribal efforts to use technology such as GIS data to make WQS decisions and believes it was reasonable for the state to use GIS data as part of its demonstration in this case. Wyoming used estimated flow data in NHDPlus Version 2. The following sections provide background on the development of NHDPlus, the attributes related to flow that Wyoming evaluated, and how the state used estimated flow data and measured flow data to choose a flow threshold to identify stream miles with low flow conditions or water levels consistent with 40 CFR § 131.10(g)(2).

- **National Hydrography Dataset (NHD)**

In 2000, the NHD (1:100,000-scale or 100k) was released as the result of a collaborative efforts between the EPA, the U.S. Geological Survey (USGS), and cooperating states. It provided, for the first time, a rich set of named surface water features for making maps, the ability to link features such as water quality monitoring stations to streams, and a national stream network for data analysis.²⁰ USGS 1:24,000-scale printed topographic maps are the original source for the NHD. The stream network shown on the maps was collected using stereo imagery and then field checked by USGS.²¹ A high resolution (1:24,000 or 24k) NHD was completed in 2007. In 2006, the EPA and USGS produced NHDPlus (Version 1), a national geospatial surface water framework that builds upon and extends the capabilities of the NHD, the Watershed Boundary Dataset (WBD), and the National Elevation Dataset (NED). NHDPlus was developed to support the estimation of stream flow volume and velocity used in pollutant dilution modeling.²² NHDPlus Version 2 was released in September 2012, and includes improved flow estimates.

Wyoming's UAA is built on the 100k NHD because this scale enables use of the more detailed, quantified flow attribute data in NHDPlus V2. The finer scale 24k NHD has one attribute related to flow, but it provides only a general hydrologic classification (i.e., perennial, intermittent, ephemeral). In contrast, NHDPlus V2 includes three attributes related to flow that can be joined to the 100k NHD: mean annual flow (MAF), stream order, and watershed area. MAF is the arithmetic mean of all individual daily mean flows for a given water year at a specific site, and is the only attribute that is a direct estimate of flow. The Wyoming Department of Environmental Quality (WDEQ) evaluated each of the three attributes available in NHDPlus V2 and concluded that "...due to the large variability in precipitation from one region of the state to another and corresponding variability in hydrologic regimes, mean annual flow estimates were the most accurate attribute to identify flowlines with insufficient flow

²⁰ www.epa.gov/waterdata/weaving-national-hydrologic-geospatial-fabric

²¹ nhd.usgs.gov/Frequently+Asked+Questions+about+the+NHD+&+WBD.htm

²² www.epa.gov/waterdata/nhdplus-national-hydrography-dataset-plus

to support full body immersion.” (UAA page 14). As discussed in UAA Section 3.2, from 1971 to 2000, precipitation in Wyoming ranged from about 5 inches per year in the central basin areas to 93 inches per year in the mountainous areas of northwestern Wyoming.

In NHDPlus V2, there are two methods for estimating MAF: the Vogel Method and the Enhanced Runoff Method (EROM). The Vogel Method uses a log-log regression approach based on drainage area, precipitation, and temperature data, and MAF values from the HydroClimatic Data Network (HCDN) gages. HCDN gages are a subset of all USGS gages for which streamflow primarily reflects meteorological conditions rather than anthropogenic activities (i.e., representative of natural flow conditions). Vogel estimates are only available for drainage areas within the range of the original data used for computing the regressions. In Wyoming, Vogel estimates are not available for approximately 58% of the 100k NHD stream miles. EROM is a 6-step flow estimation process including: (1) unit runoff from a flow balance model; (2) an estimation of flow losses due to evapotranspiration; (3) a log-log regression using reference gages; (4) a method to account for flow transfers, withdrawals, and augmentation; (5) adjustment of flows upstream of a gage to the measured gage flow; and (6) quality assurance on the results of step 5.

Wyoming used measured flows from 189 of the 257 USGS gage sites in the state²³ to evaluate the accuracy of the Vogel and EROM estimates (period of record ranged from 10 to 100 years). Wyoming used EROM estimates at gage sites where Vogel estimates were not available. The state concluded the EROM estimates were more accurate than the combined EROM and Vogel estimates ($R^2 = 0.86$ versus $R^2 = 0.84$). EROM estimates were approximately 1.2 times the MAF measured as USGS gages, therefore they overestimated measured mean annual flows. (UAA Sections 3.3.1 and 3.3.2)

- **Choosing a Low Flow Threshold**

Wyoming next chose a flow threshold to represent the recreation season low flow conditions or water levels described in 40 CFR § 131.10(g)(2). The EPA has not developed guidance on selection of appropriate low flow thresholds for recreation, therefore it is incumbent on the state to explain any low flow threshold for recreation if they are using such a low flow threshold to revise designated uses by relying on 40 CFR § 131.10(g)(2). Once the state determines it will use 40 CFR § 131.10(g)(2) to rebut the presumption of PCR attainability, the state is responsible for identifying a low flow threshold, providing the basis for its threshold decision, and describing how this threshold is used to demonstrate that the use is unattainable pursuant to 40 CFR § 131.10(g)(2). As discussed below, Wyoming addressed all of these elements.

Wyoming determined that MAF was the most accurate attribute available in NHDPlus V2 to identify which stream miles have insufficient flow to support full body immersion during the recreation season from May 1 through September 30. To choose a threshold to identify stream miles with insufficient flow and/or depth to support full body immersion, Wyoming evaluated the relationship between MAF and mean recreation season flow using measured flows from the 257 USGS gage sites in the state. Because the majority of the 257 USGS gages in Wyoming are located on larger perennial streams (i.e., channels that are not ephemeral, small intermittent streams, small perennial streams, or small ditches) that would generally be expected to support PCR, mean recreation season flows will generally be much higher than MAF. Conversely, the MAF and mean recreation season flow of streams that do not support full body immersion will be more similar because ephemeral streams only flow in response to precipitation events

²³ The WDEQ removed 68 USGS gages that were used to calibrate the EROM estimates from the analysis to avoid bias in the results.

throughout the year, smaller intermittent streams do not have large enough watersheds to contribute runoff during the recreation season or may be dry for portions of the recreation season, and small perennial streams do not have large enough watersheds to contribute significant runoff during the recreation season. Therefore, WDEQ used the 257 USGS gages in Wyoming to identify where the MAF and mean recreation season flow are most similar (i.e., relationship is closest to 1:1). (UAA Section 3.3.2).

For the 257 USGS gages, the mean recreation season flow was 1.7 times the MAF. For the 51 USGS gage sites with the lowest 20% of MAF, the relationship between MAF and mean recreation season flow was also 1.7 times the MAF. However, for the 15 USGS gages with MAF less than 6 cfs (cubic feet per second), mean recreation season flow was 1.2 times the MAF. Recognizing that 15 gages is a small dataset, the state also used data from an additional 9 USGS gages with MAF less than 6 cfs located within adjacent states in watersheds that either originate or terminate in Wyoming. For the combined 24 USGS gages with MAF less than 6 cfs, mean recreation season flow was about 1.3 times MAF. Therefore, the relationship between MAF and mean recreation season flow is closer to 1:1 in streams with MAF less than 6 cfs. Wyoming chose this as the flow threshold that best represents low flow conditions or water levels because waters that are less than 6 cfs are generally ephemeral, intermittent and small perennial streams that generally lack sufficient flow and/or depth to support full body immersion because they only have water for short periods of time, or may naturally dry up or are dewatered for portions of the summer recreation season. (UAA Section 3.3.2).

To validate whether MAF less than 6 cfs is a reasonable flow threshold, Wyoming also analyzed the relationship between MAF and recreation season depth (UAA Section 3.3.3). Of the 24 USGS gage sites with MAF less than 6 cfs, 17 had field measurement data for cross sectional area and stream width that could be used to calculate mean depth for each field measurement. Wyoming calculated the mean recreation season depth using a best fit relationship and mean recreation season flow for each gage site. The mean recreation season depth ranged from 0.4 – 0.8 feet (4.8 – 9.6 inches). The state recognized that this depth information is not representative of an entire channel reach, but concluded it indicates streams with estimated MAF less than 6 cfs will rarely have depths at base flow conditions that would support PCR activities by those other than small children. Wyoming's use of this depth information to evaluate the attainability of PCR in stream miles with MAF less than 6 cfs flow is reasonable in light of the additional lines of evidence the state used to determine potential PCR use (see Sections 5.2 & 5.3 below), particularly whether small children have the potential to recreate in these streams.²⁴

Field surveys were another line of evidence Wyoming used to validate whether MAF less than 6 cfs is a reasonable flow threshold (UAA Section 3.3.4). The WDEQ and Wyoming Association of Conservation Districts (WACD) completed 871 field surveys in 2010. The WDEQ and WACD visited sites and answered a series of questions regarding the physical characteristics and potential recreational uses of the waters they were visiting (see Appendix C of the UAA). Two of the survey questions are relevant to evaluating whether an estimated MAF of 6 cfs is an appropriate threshold for recreation activities in Wyoming:

4. Is the survey location on a water that is a larger perennial stream or game fishery known to be used by sportsmen or other recreationists? and

²⁴ The EPA cautions states or tribes that we are not aware of a GIS dataset for stream depth that would be scientifically defensible to rely on as the primary documentation of low water levels.

5. Is the survey location either currently known to be or do you believe that it has a reasonable potential to be used for recreational activities such as fishing, swimming, floating, boating, canoeing, or kayaking?

Of the approximately 439 surveys conducted on sites with estimated MAF less than 6 cfs, 97% of the time the field survey indicated “no” for Question 4 and 95% of the time the field survey indicated “no” for Question 5. In other words, most of the time the field survey confirmed that streams with an estimated MAF less than 6 cfs do not have sufficient flow and/or depth to support full body immersion.

- **Point Source Discharges**

Pursuant to 40 CFR § 131.10(g)(2), low flow conditions or water levels may prevent the attainment of the use “unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met.” In order to address situations where effluent discharges may add enough volume to a low flow stream such that it becomes capable of attaining PCR, the WDEQ added measured discharge volumes reported by permittees in 2012 to the mean annual flow estimates of NHDPlus if the discharge point was within 300 feet of a stream segment. Wyoming considered 2012 data representative of conditions after reduced discharges from coalbed methane production, which can add significant flow to surface waters. The addition of point source discharge flow resulted in the addition of approximately 12 stream miles, although some of these segments would have been identified as PCR due to buffers for populated places, schools, and recreation areas described below in Section 5.2. (UAA Section 3.4).

- **Stream Miles Not Present in the 100k NHD**

As discussed in the NHD section above, MAF is only available for stream miles in the 100k NHD. Stream miles not present in the 100k NHD were evaluated by extrapolating watershed area and MAF data from the 100k NHD headwater (1st order) stream miles. First order stream miles in the 100k NHD have an average MAF of 1.1 cfs, a median of 0.2 cfs, and 95th percentile of 4.8 cfs. The WDEQ concluded that because stream miles not present in the 100k NHD are generally tributaries to 1st order 100k NHD stream miles and flow and stream size generally increase downstream, that stream miles not present in the 100k NHD will have MAF less than 6 cfs. Therefore, stream miles not present in the 100k NHD do not have sufficient flow to support full body immersion. (UAA Section 3.5)

- **Conclusion**

As described above, the state is responsible for identifying a low flow threshold, providing the basis for its threshold decision, and describing how this threshold is used to demonstrate that the use is unattainable pursuant to 40 CFR § 131.10(g)(2). The state identified an estimated MAF less than 6 cfs as Wyoming’s low flow threshold. UAA Sections 3.3.1 and 3.3.2 provide the basis for this threshold, and UAA Sections 3.3.3 and 3.3.4 confirm this threshold is reasonable to identify stream miles with insufficient flow to support full body immersion when translated into depth measurements and compared to field survey results. The state described that the threshold is used in combination with the GIS datasets and buffers, and public comments to determine whether PCR or SCR is the appropriate designated use (e.g., UAA Section 2.4). In addition, Wyoming added measured discharge volumes reported by permittees to the mean annual flow estimates of NHDPlus V2 to be consistent with 40 CFR § 131.10(g)(2).

Wyoming explained its decision for choosing the estimated MAF less than 6 cfs flow threshold to represent low flow conditions or water levels and responded to public comments. Some public comments were supportive of the estimated MAF less than 6 cfs flow threshold, and others requested that the flow threshold be lower than 6 cfs. Wyoming's response to comments states "...WDEQ/WQD was not provided with any detailed site-specific information during the multiple comment periods that indicate that a modeled mean annual flow of 6 cfs is not an appropriate threshold for identifying channels that are unlikely to have sufficient flow and/or depth to support full body immersion during the summer recreation season."²⁵ The EPA recognizes that there is a range of values that could be used to identify low flow conditions or water levels. The EPA's evaluation focused on: (1) whether the state used scientifically defensible flow data to identify a low flow threshold and stream miles that are at or below that threshold; and (2) whether the flow threshold was reasonable based on the depth/water level conversions and field survey results. Based on the information discussed above, the EPA concludes that Wyoming satisfied these two elements and that these elements are appropriate for Wyoming to use in conjunction with the additional lines of evidence (see Sections 5.2 and 5.3 below) to determine that, consistent with 40 CFR § 131.10(g)(2), attainment of the PCR use in the waters at issue is precluded, even by small children.

In summary, Wyoming sufficiently documented that some stream miles have low flow conditions or water levels using the NHDPlus V2 estimated flow data, measured flows from USGS gage sites, estimated depths, field surveys, and public comments and responses described above. This was the initial assessment in the state's analysis. All stream miles with an estimated MAF less than 6 cfs were not designated for SCR. The state used additional lines of evidence to further evaluate whether low flow conditions or water levels prevented attainment of PCR, as described in the next section.

5.2 Demonstration that Low Flow Conditions or Water Levels Prevent Attainment of PCR Based on GIS datasets and Buffers

- **GIS Datasets and Buffers**

As discussed above, the state must next demonstrate that the identified low flow conditions or water levels prevent attainment of PCR. The EPA recommends states and authorized tribes use multiple lines of evidence to determine whether or not activities associated with PCR have the potential to be attained and to actually occur despite the low flow conditions or water levels. The WDEQ used GIS datasets²⁶ for populated places, schools, parks, and accessible recreation to evaluate actual use, access, recreational facilities, and location consistent with the EPA's suggested approach.²⁷ These datasets and 1.0 mile and 0.5 mile buffers were used to identify water bodies that should retain PCR despite low flow conditions or water levels. The state indicated the buffer distances "are intended to identify those low flow channels with the greatest likelihood of being used for water play by small children based on a general understanding of how far small children may play from their homes, schools and recreation sites." (UAA pages 35-36). The state further explains "The areas with the highest likelihood of water play by small children are consistent with those identified in Wyoming's Recreational Use Designations Use Attainability Analysis (UAA) Worksheet, including parks, recreation areas, high density housing areas, schools, etc. (WDEQ/WQD 2013b). Although these channels will generally not support full body immersion since they are low flow, they are most likely to be used by small children for water play with a level of contact with the water equivalent to swimming." (UAA page 10). Therefore, Wyoming

²⁵ See Section 3.8 of Wyoming Categorical Use Attainability Analysis for Recreation Response to Comments for Comment Period Ending September 16, 2015, September 2016 (WY RTC 2016).

²⁶ Data layers and sources are listed in Appendix A of the UAA.

²⁷ 63 Fed. Reg. 36742, 36756 (July 7, 1998)

retained PCR on water bodies within the buffer distances because the state assumed existing or potential uses occur on those waterbodies.

In order to avoid situations where stream miles are not designated PCR or SCR, stream miles not present in the 100k NHD were designated PCR if they are located within a primary area (see Figure 35 in the UAA). Stream miles not present in the 100k NHD were designated SCR if they are located outside of a primary area. The WDEQ also clarified that primary areas include "...any waterbody in those area, regardless of whether they are present in the 24k NHD."²⁸

Table 1. Wyoming datasets and buffer distances (Table 2 in UAA)

Category	Dataset	Buffer Distance (miles)
Populated Places and Schools	Census Blocks with Populations Greater than 55 Persons/square mile	1.0
	Schools	1.0
Established Recreation Areas	Campgrounds	0.5
	USFS and BLM Recreation Sites, Natural Areas, and WY DOT Rest Areas	0.5
	National Parks and Recreation Areas, State Parks and Historic Sites	Within Boundary
Other Accessible Recreation Areas	Trailheads (on public land and within 0.25 miles of a road)	0.5
	Dispersed Campsites (on public land and within 0.25 miles of a road)	0.5

PCR was retained on low flow stream miles within 1.0 mile of the boundary of census blocks with populations greater than 55 persons per square mile and within 1.0 mile of a school. WDEQ chose a buffer distance of 1.0 mile based on the distance elementary students are expected to walk to school under Wyoming Department of Education policy. The U.S. Census Bureau dataset was used for evaluating proximity to populated areas. The WDEQ chose population densities greater than 55 persons per square mile because this density represents the lowest population density of Wyoming's 98 largest municipalities. (UAA Section 4.2.1).

Wyoming retained PCR in established recreation areas including low flow stream miles: (1) within 0.5 mile of campgrounds, U.S. Forest Service (USFS) and Bureau of Land Management (BLM) recreation sites, natural areas, or Wyoming Department of Transportation (WYDOT) Rest Areas, and (2) within the boundaries of National Recreation Areas, Monuments, State Parks and Historic Sites. Waters within the boundaries of national parks and congressionally designated wilderness areas as of January 1, 1999 are designated Class 1 waters²⁹ and were not included in the UAA, and therefore retain their currently applicable recreation use designation (approximately 8,059 stream miles). Congressionally designated Wild and Scenic Rivers were also retained for PCR. (UAA Section 4.2.2).

The WDEQ also evaluated other accessible recreation areas using datasets from USFS, BLM, and WYDOT (UAA Section 4.2.3). Where dispersed campsite data were lacking in National Forests, the

²⁸ August 2014 Response to Comments, page 9.

²⁹ Wyoming Surface Water Quality Standards, Chapter 1, Section 4(a) and Appendix A.

WDEQ collected data directly using GPS surveys. Low flow stream miles within 0.5 mile of trailheads or dispersed campsites that are on public land and within 0.25 mile of a road³⁰ remain designated for PCR. Public land includes all lands managed by National Park Service, National Grasslands, Bureau of Indian Affairs, Fish and Wildlife Service, USFS, BLM, Department of Energy, BLM, Department of Defense, Corps of Engineers, or the state of Wyoming (see Figure A-9 in UAA).

Because the way Wyoming chose a buffer distance was not based on science but on the state's evaluation of the likelihood that its citizens will use a low flow stream for PCR, the EPA advised Wyoming to explain its decision for choosing a buffer distance and to seek public comment on whether those buffers are appropriate for recreation uses in Wyoming and also provide the public an opportunity to identify areas outside the buffer areas that support PCR. The state invited comment on buffer distances and responded these comments (e.g., WY RTC 2016, Section 3.8). The EPA emphasizes that these buffers were used to retain PCR on low flow waters in order to protect children. Therefore, there is no action before the EPA for the stream miles within the buffers. If the public is aware of children recreating in low flow streams outside of the buffer areas, that information can be provided to the state at any time. Based on the analysis described above, approximately 4,949 stream miles retained PCR despite low flow conditions or water levels because the state determined they had existing or potential PCR uses.

- **Extensions**

The WDEQ addressed SCR stream miles isolated between two PCR segments by extending PCR to the isolated SCR stream miles. Side channels of braided PCR stream miles were also designated for PCR. Based on this extension process, approximately 1,210 stream miles retained PCR. (UAA Section 5.0).

- **Field Survey Validation of UAA Results**

The EPA also considered how well the UAA results performed compared to the field surveys for determining the assigned recreational use (UAA Section 6.1). The WDEQ and WACD conducted 871 field surveys in June to November 2010 and completed worksheets (see Appendix C of the UAA) containing questions regarding the physical characteristics and potential recreational uses of the waters at the site. Based on how the questions were answered, the WDEQ determined whether the site had characteristics that could support activities associated with PCR or SCR. These results were then compared to whether the UAA identified that particular stream as PCR or SCR. This process was repeated for every draft of the UAA. Hence, the percent agreement between the UAA and the field surveys has changed during each iteration of the UAA because the survey results are independent of the UAA.³¹ For the final version of the UAA, where the field surveys indicated that the stream could support PCR activities, the UAA agreed that PCR was attainable 95% of the time. Overall, the field surveys and the UAA agreed on the appropriate designated use (PCR or SCR) 80% of the time.

In addition, based on the information below, the field surveys are temporally, hydrologically, and spatially representative of the waters addressed in the UAA.

³⁰ Includes highways, county roads, and USFS roads suitable for passenger cars (see Figure A-8 in UAA).

³¹ In an email dated February 3, 2017, the EPA asked for clarification regarding whether the percent agreement statements in the UAA were about the final version of the UAA or the version that existed in 2010 at the time of the field surveys. The WDEQ confirmed the information above in a response email also dated February 3, 2017.

- Of the 720 field surveys, 666 (93%) were completed during Wyoming's recreation season (May 1 – September 30). The EPA recognizes that the 54 October/November WACD field surveys were conducted outside of Wyoming's recreation season; however, the surveys include relevant and useful information. For example, 42 of the surveys were completed during the first week of October and it is unlikely that the channel conditions were significantly different during the last week of September.
- According to the U.S. Drought Monitor,³² during the time of the field surveys, most of Wyoming was not experiencing drought. During the last week of June 2010, 60% of the state had no drought, 12% abnormally dry (D0), 21% moderate drought (D1), 6% severe drought (D2). For July and August, about 70% of the state had no drought, 22-24% D0, and 7% D1. The most variability was during September through the first week of November 2010 when the part of the state with no drought ranged from 32-70%, D0 22-60%, and D1 7-10%.
- The WACD survey sites were randomly generated and included sites with a range of estimated MAF (see Table 1 in the UAA).
- Geographically, the survey sites are well distributed throughout the state, except for Sweetwater County (UAA Figure 38). Our understanding is that the Sweetwater Conservation District did not have staff at the time to visit the randomly generated survey sites. We are not aware of any information demonstrating that the state's process for determining whether PCR is attainable would not be appropriate for Sweetwater County as compared to the rest of the state.

5.3 Consideration of Public Comments

- Overview

After looking at whether these low flow stream miles were easily accessible by small children, Wyoming then used the public comments to evaluate whether there is a PCR use not accounted for by the UAA. If public comments sufficiently identified the location of the stream and existing or potential recreational activities at that location, then such evidence would be used to show that low flow conditions or water levels are not precluding attainment of PCR for that location and the stream miles must remain PCR. The EPA's comment letters during the development of the UAA emphasized the importance of public input to identify areas such as isolated pools that cannot be identified by GIS datasets or PCR activities occurring in streams despite low flow conditions or water levels.³³ As a general matter, the EPA expects that the burden of proof to rebut the presumption for uses specified in CWA § 101(a)(2) remains with the state. However, where the state is trying to determine whether or not PCR has the potential to occur despite low flow conditions or water levels, the EPA considers it reasonable for Wyoming to expect the public to provide information sufficient to identify: (1) the location of the stream (e.g., latitude and longitude, object ID provided in web map, road mile marker); and (2) existing or potential recreational activities in the context of the physical condition of the stream. Public commenters may provide any number of pieces of information, and such information could come from user testimony during the hearing, user written comments, photos, flow data, or data from the UAA worksheet in Appendix C of the UAA.³⁴

³² droughtmonitor.unl.edu/

³³ See EPA's May 15, 2012, January 22, 2013, September 25, 2013, March 14, 2014, and June 3, 2015 comment letters to the WDEQ.

³⁴ EPA's June 3, 2015 comment letter to Todd Parfitt, Director, WDEQ.

The WDEQ's July 23, 2015, public notice stated:

The public is invited to provide oral and written comments and/or documentation regarding the existing and potential recreation activities on streams designated for secondary contact recreation as described in the Categorical UAA. Documentation provided should be sufficient for WDEQ/WQD to confirm whether primary contact recreation is an existing or attainable use, or not, on a particular stream. Such information may include photographs, flow data, and other information at the level of detail described in the worksheets contained in Appendix C of the Categorical UAA. Modification of a surface water designation established in the Categorical UAA will require the presentation of information sufficient to identify: (1) the location of the stream (e.g., latitude and longitude, object ID provided in the web map, etc.) and (2) the existing and potential recreational activities associated with the stream, given the physical condition of the stream.

In addition to the general information in the UAA, the state provided the public with specific information about the stream miles addressed in the UAA through the WDEQ shapefiles and Web Map (via the internet for people that do not have access to GIS software) including:

- Proposed designated use (PCR or SCR);
- If PCR, whether that was due to flow, access, wild and scenic, or extension;
- Name of the stream;
- NHDPlus V2 estimated MAF;
- WYPDES flow;
- Measured flow;
- WDEQ and WACD survey locations and whether the survey indicated PCR or SCR;
- Location of primary areas;
- Location of populated places, schools, campgrounds, established recreation areas, trailheads, dispersed campsites, and roads; and
- Class 1 designation.³⁵

The next section discusses the state's consideration of public comments and the EPA's evaluation of the state's responses.

- **Wyoming's Response to Comments**

Although this section focuses on WY RTC 2016, the EPA reviewed all the public comments and the state's response to comments for all three public comment periods.³⁶ In the WY RTC 2016, Section 4.8, the state's response to individual comments regarding their PCR activities on waterbodies was generally that the commenter did not provide the information requested in the public notice in order for the state to retain PCR on a specific water body. In an email dated January 18, 2017, the EPA asked the WDEQ to clarify how the WDEQ determined whether the location and recreational activities information provided in the public comments did, or did not, satisfy the information requested in the public notice. The WDEQ provided additional information in an email on January 20, 2017, stating that the WDEQ created a spreadsheet of comments that provided location information. Where latitude/longitude was not

³⁵ See *Recreation Designated Uses Web Map Users Manual* and May 23, 2017 email from Michael Thomas.

³⁶ See detailed Background section of the cover letter to this rationale.

provided, the WDEQ searched the NHD network for the stream name. For the locations that the WDEQ could determine, if the location was proposed for PCR or was a Class 1 water, no further analysis was undertaken because no use change was proposed for these waters. If the location was proposed for SCR, the WDEQ evaluated the information describing recreational activities for that location. The WDEQ determined that the public comments did not provide specific details regarding the existing and potential recreational uses, or described activities that were not PCR (e.g., drinking, washing dishes), or did not provide a description of the physical characteristics (e.g., depth, width, flow) of the water at that location in a manner that demonstrated PCR is a potential or existing use despite low flow conditions or water levels.

It is reasonable for the state to request specific information from the public, such as location or recreational activities, otherwise the state cannot determine whether or not low flow conditions or water levels prevent attainment of PCR. In this case, the state's public notice was clear that the public must provide information sufficient to identify the location of a particular stream. However, inclusion of the phrase "at the level of detail described in the worksheets contained in Appendix C" appears to narrow the types of information described in the EPA's June 2015 letter that could be provided to satisfy the location element to only latitude/longitude or GPS Datum and Coordinate System. At least some of the public comments indicate that was the interpretation of this language. For example, Dan Smitherman's statement ... "a lot of time when I'm in the backcountry, I don't have a GPS with me."³⁷ Similarly, Leslie Peterson said "I could list a huge number of streams you have listed that I do not think should be downgraded, but that listing would be fairly meaningless as I am unable to provide a GPS description of each."³⁸ The EPA's position is that commenters could adequately identify the location with latitude/longitude or GPS coordinates, but those are not required. The public could also provide other types of information such as a narrative description that is sufficient to identify "a particular stream" as requested in the public notice (see discussion of Porcupine Creek below).

The second piece of information requested by the state in the public notice is "the existing and potential recreational activities associated with the stream, given the physical condition of the stream." The public notice does not explain that the state interpreted this language as a two-part test – that the public needed to: (1) describe existing and potential recreational activities; and (2) provide depth, width, or flow information describing the physical condition of the stream, and that the state would dismiss comments that did not provide both parts. The EPA disagrees that the public must provide depth, width, or flow information in order for the state to evaluate whether PCR activities would actually occur despite the low flow condition or water levels of the stream. For example, if a person indicates they can swim or fully immerse themselves at a location, it is clear that the low flow conditions or water levels do not actually prevent PCR activities from occurring, and while depth, width, or flow information is helpful, it is not necessary. Similarly, a person that hikes near a particular stream may indicate there is a pool that is deep enough for swimming. The EPA considers this information sufficient to show that the low flow conditions or water levels at that location do not actually prevent PCR activities from occurring. Therefore, the EPA is disapproving the state's use change to SCR for certain stream miles discussed below.

The EPA agrees that the state was reasonable in its approach where comments that only indicated they used a water for "primary contact recreation" did not provide sufficient detail to determine the existing and potential recreational activities. Wyoming was reasonable to conclude that a commenter's use of the term "primary contact recreation" did not sufficiently describe "the existing and potential recreational

³⁷ WY RTC 2016, Appendices page C-23.

³⁸ WY RTC 2016, Appendices page A-44.

activities associated with the stream, given the physical condition of the stream” as requested in the state’s public notice. Therefore, the EPA approved the state’s SCR use designation in these situations.

- **Science of *E. coli***

Wyoming’s recreational criteria to protect PCR and SCR are not the subject of this action, however, some public comments expressed a lack of understanding of the science relating to recreational criteria and specifically *Escherichia coli* (*E. coli*), which is a species of bacteria that includes many different strains or serotypes. They normally occur in human and animal intestines where most strains are harmless. *E. coli* are used as indicators for determining human health risk in recreational waters because they occur coincidentally with other disease-causing microorganisms (pathogens) in fecal material. Their presence in a waterbody likely indicates fecal contamination and the likely presence of a wide range of other pathogens.

Some strains of *E. coli* can cause illnesses including diarrhea, urinary tract infections, and respiratory illness. Shiga toxin-producing *E. coli* (STEC) are a well-known strain of disease-causing *E. coli*. STEC include strains such as *E. coli* O157:H7 (sometimes called “*E. coli* O157” or “O157”) and *E. coli* O104:H4 (sometimes called “EHEC”) that have caused large disease outbreaks in North America and Europe.³⁹ The terms verocytotoxic *E. coli* (VTEC) and enterohemorrhagic *E. coli* (EHEC) also refer to STEC.

E. coli are not visible to the human eye without magnification from an instrument such as a microscope. Laboratory tests are used to determine the presence and the quantity of *E. coli* cells in water. The standard laboratory testing relies on culturing and counting cells and does not differentiate among strains or sources. More sophisticated testing that relies on genetics, often referred to as “bacterial source tracking,” can be used to help identify *E. coli* sources.

In addition, some public comments expressed an expectation that pets would be protected by the recreational *E. coli* criteria. The EPA’s recreational water quality criteria are for human health protection and did not evaluate either risk to pets or risk to humans from contact with a dog that has entered a stream.

- **Drinking Water Use**

Based on Wyoming’s definition of PCR (“any recreational or other surface water use that could be expected to result in ingestion or immersion (full body contact)”), some public comments expressed an expectation to be able to use ambient water without treatment during recreation for drinking or similar uses such as food preparation or washing dishes. The EPA recognizes the phrase “or other surface water use that could be expected to result in ingestion of the water” in the state’s definition may create ambiguities regarding what the state intended to protect for when a water is designated for a recreation use as compared to a drinking water use.

Neither of Wyoming’s water quality criteria for the protection of recreation uses -- PCR or SCR -- are protective of drinking ambient untreated water nor were they approved by the EPA to protect such a use. The Safe Drinking Water Act (SDWA) maximum contaminant level goal (MCLG) for drinkable water

³⁹ www.cdc.gov/ecoli/general/

(for public water systems) is zero *E. coli* and total coliforms.^{40,41} In addition, recreational water quality criteria, including the EPA's 304(a) criteria recommendation for *E. coli*, do not directly address other pathogens such as parasites (*Giardia lamblia* and *Cryptosporidium*) and viruses,⁴² further illustrating their limitations to protect drinking ambient untreated water. For these reasons, the EPA agrees with the state's decision not to retain PCR based solely on public comments received indicating a water body is used for ambient drinking water or similar uses.

In order to avoid future confusion on this issue, the EPA recommends the state revise its definition of PCR to clarify that this use protects incidental ingestion during PCR activities, not drinking or similar uses.

- **Non-immersion Recreation Uses**

Another point of confusion expressed in the public comments was whether activities that do not require immersion constitute PCR under the state's definition of "any recreational or other surface water use that could be expected to result in ingestion of the water *or* immersion (full body contact)" (emphasis added). Because the state's definition says "or" not "and," non-immersion activities that could result in ingestion are included in the state's definition of PCR (e.g., head dunking or splashing). Although Wyoming made statements indicating the state did not intend to protect non-immersion activities with the potential for ingestion as PCR,⁴³ the state cannot change the definition of PCR through interpretive statements. If Wyoming does not intend PCR to protect non-immersion activities with the potential for ingestion, the EPA recommends the state revise its PCR definition consistent with the regulatory requirements for WQS revisions in 40 CFR Parts 131 and 25. Therefore, the EPA's action today is based on the plain language of the state's previously approved definition of PCR, and as a result, the EPA disapproved SCR use changes where public comments identified a location and non-immersion recreation uses with the potential for ingestion (see next section).

Some public comments⁴⁴ also stated that the fact that the state's definition does not require immersion undermines the UAA's approach of using 6 cfs as a low flow threshold. The EPA disagrees. For stream miles above this threshold, the state retained PCR which would protect for both immersion and non-immersion activities with the potential for ingestion. For stream miles below this threshold, immersion may not be attainable [except where the stream miles are within the specific buffer zones or public comments showed that the state's UAA did not adequately demonstrate that flow was precluding attainment of PCR]. However, where immersion is not attainable, it was reasonable for the state to rely on public comments to identify situations where non-immersion recreational activities with the potential for ingestion may be occurring. As stated above, the EPA disapproved SCR use changes where the public provided sufficient information to indicate that a non-immersion use was indeed occurring.

- **Summary of Certain Public Comments and the EPA's Determination That Some Public Comments Show Low Flows Are Not Precluding Attainment of PCR**

The EPA's review of the public comments below is organized in the order they were presented in Section 4.8 of the WY RTC 2016. The EPA used the information provided in the public comments to create the figures below using the shapefiles submitted to the EPA for action (buffers identified in the

⁴⁰ www.epa.gov/ground-water-and-drinking-water/table-regulated-drinking-water-contaminants#four

⁴¹ 40 CFR § 141.52

⁴² www.epa.gov/dwreginfo/surface-water-treatment-rules

⁴³ For example, September 2016 UAA, pages 1 and 9.

⁴⁴ Wyoming Outdoor Council's Jan. 3, 2017 letter to the EPA (p. 6).

UAA are shown in blue). The use designations in the shapefiles Wyoming submitted to the EPA for action are the same as the use designations presented through the WDEQ Web Map via the internet in order to facilitate public comment from people that do not have access to GIS software. The shapefiles include multiple attributes. The “RecUse” attribute is the use designation that the EPA is approving or disapproving. Other attributes, such as “StrmType” may indicate “Secondary” based on estimated flow for a Class 1 water and “RecUse” indicates “Class 1.” The EPA is not approving or disapproving the “StrmType” attribute (i.e., no Class 1 waters were approved for a use change to SCR). Class 1 waters were excluded from the UAA and no use changes for Class 1 waters were adopted by the state; therefore, there is no new or revised WQS requiring an action before the EPA.

Andy Blair: The commenter indicated children routinely play in a ditch from the Middle Fork of the Popo Agie that is in Lander City Park and runs at less than 1 cfs for most of the summer. The EPA confirmed that the location described is designated PCR as indicated in the state’s response to comments (see Figure 1). Therefore, no use change was adopted for this water and no action is before the EPA.

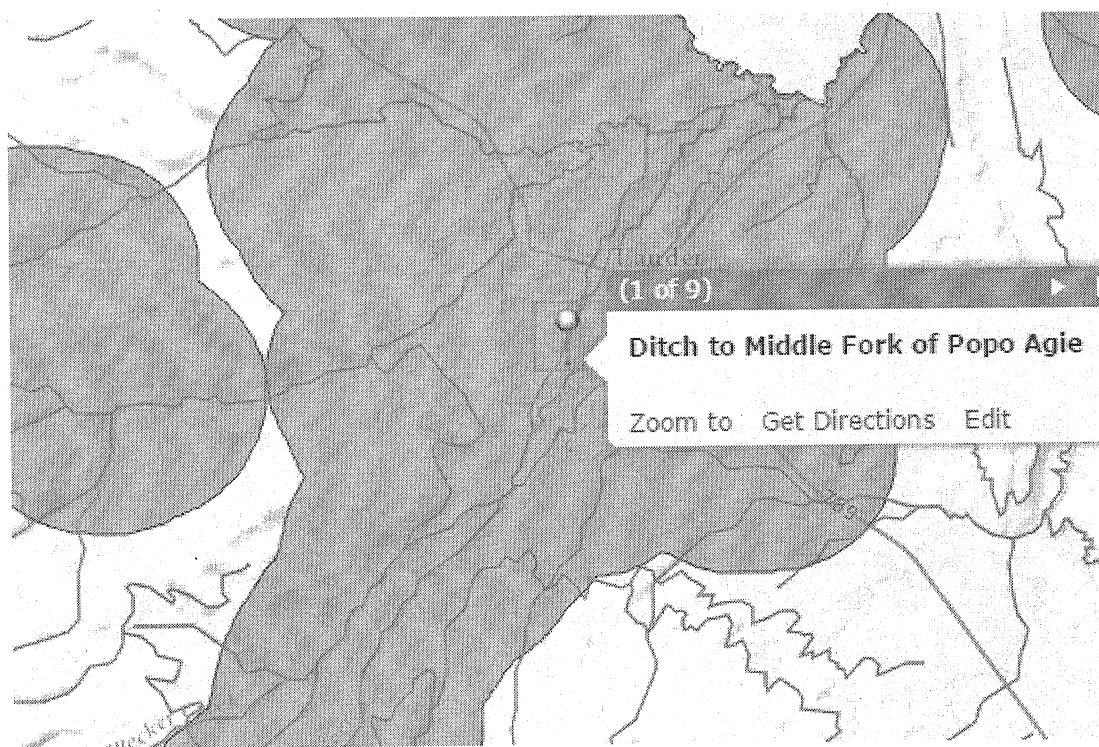


Figure 1. The ditch in Lander City Park that is tributary to the Middle Fork of the Popo Agie (flowline not shown at 100K scale NHDPlus V2) is designated PCR because it is located within a primary buffer

Cam Eddy: The comment provided latitude/longitude of their P.O. box and indicated they “play, walk, and actively get into” waters within a 25-mile radius. Providing a radius does not identify the location of “a particular stream” as requested in the public notice. It is unclear whether the activities described are PCR or SCR. For example, walking would generally not result in incidental ingestion or immersion and would therefore not demonstrate PCR is an existing or potential use. Therefore, the EPA approves the use change. The terms “play” and “actively get into” could indicate child’s play that may result in ingestion of water (e.g., head dunking or splashing) or immersion. The commenter could submit additional information to the state that clearly links child’s play or other specific recreational activities that may result in immersion or ingestion to a particular stream for consideration in a future rulemaking.

Pursuant to the *Wyoming Water Quality Rules and Regulations*, Chapter 1, Section 33, “Any person at any time” may petition the WDEQ or the EQC to revise a designated use.

Ellen Fales: The comment provided latitude/longitude and screen shots from the state’s Web Map for Butler Creek and Fall Creek. The EPA identified the location for both creeks. For Butler Creek, the latitude/longitude is on an unnamed tributary to Butler Creek that is designated SCR, but the commenter’s screen shot identifies the mainstem which is designated SCR for part of its length and downstream is designated PCR at the border of the primary buffer. Fall Creek does not appear as a flowline at 100k NHD (green pin on the left in Figure 2). The comment states both streams are “bathing areas for locals on a regular basis in the summer.” The WY RTC 2016 (page 156) says “The above comment does not [provide] enough detail about the physical conditions of the streams (i.e., are there pools capable of supporting full body immersion, do children have regular contact with the water equivalent to swimming, etc.)” As discussed above, the comment indicates the waters’ potential for immersion or ingestion consistent with the state’s definition of PCR and no further detail regarding the physical conditions are necessary. The EPA concludes that the comment provided the information requested in the state’s public notice and indicated that the state’s UAA does not demonstrate that low flow conditions or water levels at these locations actually prevent attainment of PCR. The EPA disapproves the use change to SCR for Fall Creek, Butler Creek, and unnamed tributary to Butler Creek (see Figure 2). If WDEQ wishes to pursue whether PCR is attainable on these waters, the WDEQ could collect additional information (e.g., request clarification from the commenter, do a field survey, etc.) to support future refinement of the use designations for these waters.

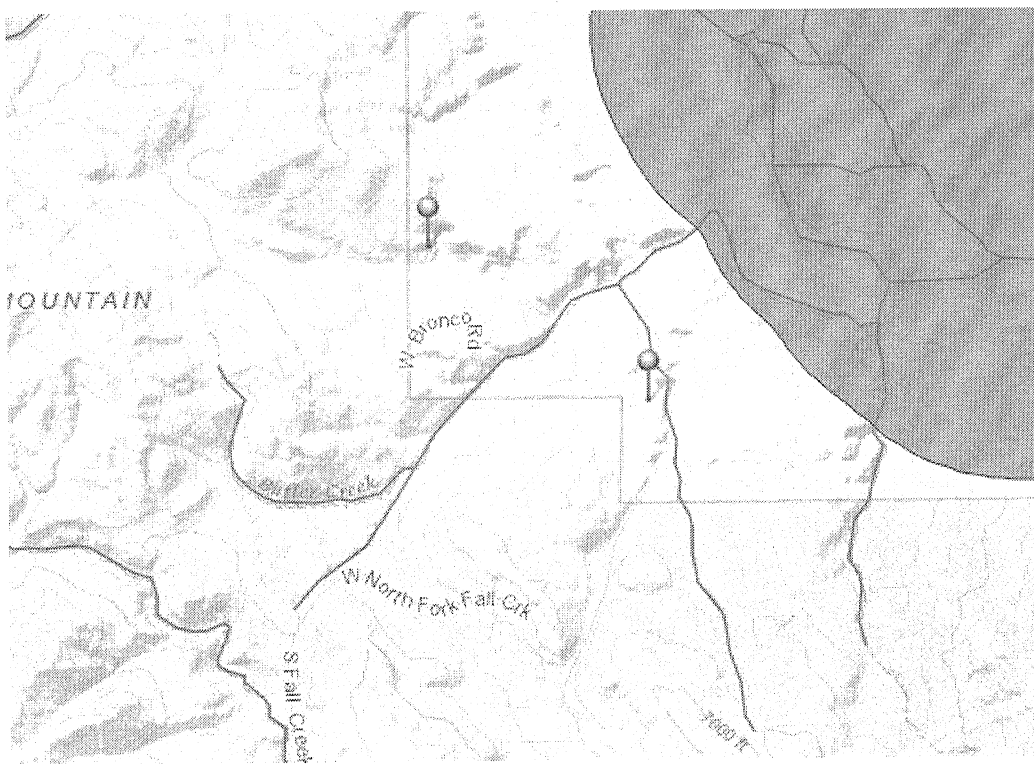


Figure 2. Fall Creek (left pin), Butler Creek mainstem, and unnamed tributary to Butler Creek (right pin), Teton County

Dave Hohl: The comment provided latitude/longitude for a stream that is used for “cooking and dish washing, and for bathing, using either a sun shower or dipping water from the creek to wash and rinse.”

As stated above, “cooking and dish washing” are not uses protected by recreational water quality criteria. However, “bathing, using either a sun shower or dipping water from the creek to wash and rinse” does describe recreational activities with the potential for ingestion or immersion. The EPA concludes that the comment provided the information requested in the state’s public notice and indicated that the state’s UAA does not demonstrate that low flow conditions or water levels at these locations actually prevent attainment of PCR. The EPA disapproves the use change to SCR for an unnamed tributary to the Sweetwater River located near 42.55443311, -109.0833675 in Sublette and Fremont counties (the entire section designated SCR to the primary buffer shown in Figure 3).



Figure 3. Unnamed tributary to the Sweetwater River, Sublette/Fremont Counties, disapproved from headwaters to primary buffer

George Jones: This comment said many people “wade, wash up, and splash around” on national forest lands. Activities such as wading would not be expected to result in ingestion of water, whereas splashing could. It is unclear whether the term “wash up” means washing hands, or face, or full body immersion. The comment lists multiple locations and indicates people hike, fish, or backpack in these areas, which are all activities that would not be expected to result in ingestion or immersion. The comment did not clearly link existing or potential PCR uses to a particular stream (i.e., it is not possible to distinguish which activities mentioned are occurring on which streams); therefore, the EPA approves the use changes. The commenter could provide this clarification to the state for consideration in a future rulemaking.

Shari Kearney: The comment listed several locations where “there are lots of great holes in little streams I’ve seen my friends (or other recreational users): take a dip or splash in.” The commenter did not provide sufficient location information; therefore, the EPA approves the use changes. The commenter could provide clarification on these locations to the state for consideration in a future rulemaking.

In the southwest Absarokas, the comment listed “Fall Creek, Trail Creek (north of the Buffalo Fork), Turner Fork, Middle Fork of Long Creek.” The EPA found three Fall Creeks (two of which are Class 1)

and three Trail Creeks (one of which is north of North Buffalo Fork but Class 1). The EPA identified only one Middle Fork of Long Creek. This creek is about 6.5 miles long and only about 1.5 miles of that is designated SCR. The comment did not sufficiently identify the location and whether the recreational activities described are occurring in the SCR or PCR section of the water body.

Some of the streams identified were designated PCR either because of flow or were designated Class 1 and are, therefore, not included in the UAA. These include Turner Fork, a tributary to South Buffalo Fork in the region of the southwest Absarokas, the creek flowing in front of “Williamson Corral” north of Arrow Pass, Monument Creek, and Middle and North Fork of Boulder Creek. Lakes mentioned in the comment, such as Phillips Lake and Double Lake, were also not included in the UAA.

Linda Olinger: The comment listed several locations where “I regularly recreate on and in.” This comment does not describe specific recreational activities or link them to specific locations in order to allow the state to evaluate whether PCR is an existing or potential use; therefore, the EPA approves the use changes.

Bruce Pendery: This comment stated “I have used small streams for primary contact recreation like bathing, drinking, and cooking in the following areas” or “I have used a number of small low flow streams for primary contact recreation” and provided a list of stream names. General descriptions like “primary contact recreation” do not provide sufficient detail to determine the existing and potential recreational activities. Drinking and cooking are not uses protected by Wyoming’s recreational use and associated recreational water quality criteria. The comment did not clearly link “bathing” to a particular stream. It is not possible to distinguish whether bathing is happening on all of the streams listed or whether only drinking or cooking are happening on some of them; therefore, the EPA approves the use changes. The commenter could provide this clarification to the state for consideration in a future rulemaking.

This comment did provide the information requested in the state’s public notice for an unnamed tributary to Porcupine Creek:

This is the small, apparently unnamed stream that is a tributary of Porcupine Creek in the Wind River Mountains near upper and Lower Green river Lakes. This small stream drains the Twin Lakes as well as several other Lakes. It is located in Sublette County. In the day hike I did up this creek I engaged in primary contact recreation with the stream including bathing and swimming.

This is an example of a narrative description that is sufficient to identify a location (even though it does not include GIS coordinates). The comment also clearly linked “bathing and swimming” to the unnamed tributary to Porcupine Creek. However, because the unnamed tributary to Porcupine Creek is designated Class 1, no use change was adopted and, therefore, no action is before the EPA (see Figure 4).

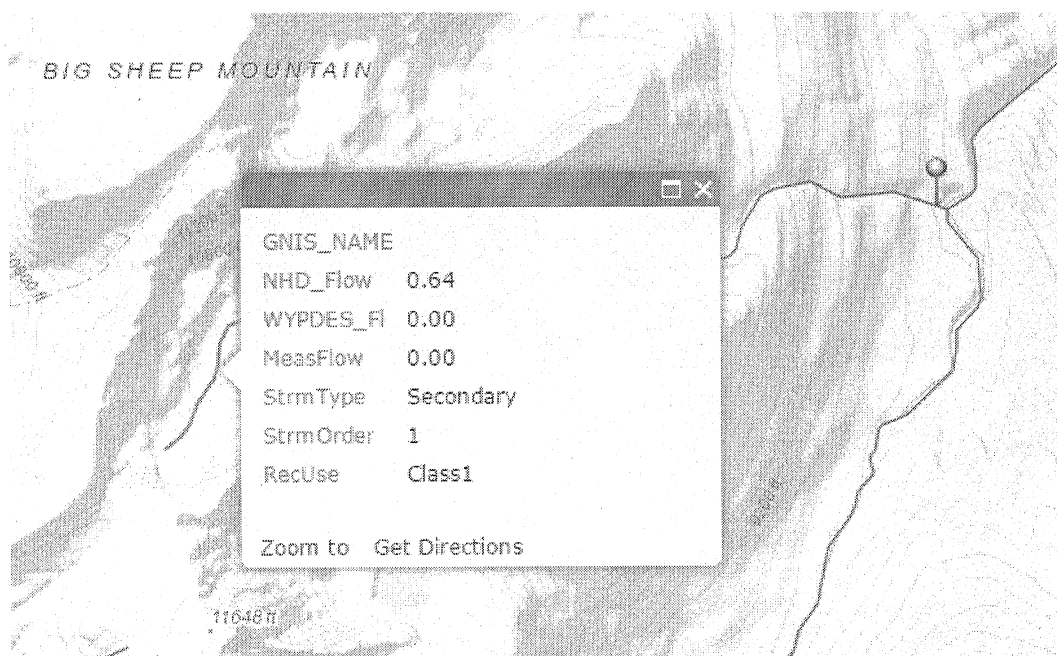


Figure 4. Unnamed tributary to Porcupine Creek is designated Class 1

Leslie Peterson: This comment described cooking at hunting camps in several locations. Cooking is not a use protected by Wyoming’s recreational use and associated recreational water quality criteria. The comment did not clearly link existing or potential PCR uses to a particular stream, therefore the EPA is approving the use changes. The commenter could provide additional information to the state for consideration in a future rulemaking.

Henry Phibbs: This comment indicates there are headwater streams proposed for SCR that flow into larger heavily used recreational waters in wilderness areas. The comment did not clearly link existing or potential PCR uses to a particular stream; therefore, the EPA approves the use changes. The commenter could provide additional information to the state for consideration in a future rulemaking.

Sandy Shuptrine: This comment expresses concern about the headwaters of Game Creek being designated for SCR because of downstream waters being used for irrigation. The EPA understands the commenter’s concern regarding *E. coli* contamination of food irrigated with water from an SCR stream; however, irrigation is not a use protected by recreational water quality criteria. The EPA approves the use changes.

Connie Wilbert: This comment listed several general locations such as “The Snowy Range” or “Wind River Range” and for some areas listed example streams that are “heavily used for recreation.” The comment did not clearly link existing or potential PCR uses to a particular stream; therefore, the EPA approves the use changes. The commenter could provide additional information to the state for consideration in a future rulemaking.

Carlin Girard: This comment described streams located near Jackson’s local trail system and the amount of dogs on the trails. It does not, however, describe existing or potential PCR uses of these streams; therefore, the EPA approves the use changes. The comment also described a section of Spring Creek that is used by students from the Teton Science School for aquatic science field experience. This activity may result in ingestion or immersion; however, it was difficult to determine exactly where these

activities were occurring and, therefore, not possible to determine if they were occurring in the portion of Spring Creek already designated PCR. Because Spring Creek near the Teton Science School is already designated PCR, it seemed likely that the stretch of interest was already designated PCR. The commenter could provide additional information to WDEQ if the segment extends beyond the portion currently designated PCR. Finally, the comment described swimming and boating on Flat Creek Lake and asserted the headwaters of Flat Creek that are designated SCR that flow into the lake should be designated PCR. The comment did not identify any existing or potential recreational activities in the headwaters of Flat Creek; therefore, the EPA approves the use change.

Brian Connely: The comment identified three areas where “I have fully immersed:” Meadow Creek, Willow Creek, and Horse Creek and provided latitude/longitude for all three locations.

The state’s response to comments indicates the coordinates provided for Meadow Creek were in Montana, which the EPA confirmed. Using best professional judgment, the WDEQ concluded the commenter meant 43 degrees latitude and the Meadow Creek at that location is designated PCR. Therefore, there is no action before the EPA. However, there is an SCR segment just upstream of that location. The commenter may provide additional information to the state for consideration in a future rulemaking if this is not the Meadow Creek that was intended or if the immersion described is occurring in the SCR section of this Creek.

For Willow Creek, the coordinates provided were not on Willow Creek, but on Alkali Creek, which is a tributary to Willow Creek. The longitude provided appears to be missing a negative sign; however, the addition of the negative sign results in coordinates consistent with the commenter’s location description. The EPA concludes that the comment provided the information requested in the state’s public notice and indicated that the state’s UAA does not demonstrate that low flow conditions or water levels at these locations actually prevent attainment of PCR. The EPA disapproves the use change to SCR for Willow Creek from the primary buffer to the confluence with Lost Creek and Alkali Creek from the confluence with Willow Creek to the coordinates intended by the commenter (see Figure 5).



Figure 5. Disapproved sections of Willow Creek highlighted in yellow (from confluence with Lost Creek to primary buffer) and Alkali Creek highlighted in orange (from commenter's coordinates to confluence with Willow Creek), Natrona County. Green pin is located at commenter's coordinates.

For Horse Creek, the longitude provided (170) was either not in Wyoming or was incorrect. Assuming that two numbers were transposed and a negative was intended, the state was able to determine the location based on -107. The comment indicates Horse Creek is a perennial spring that is 51 to 54 degrees year-round and describes it as "a swimming hole." This is an example of a comment that sufficiently described the physical conditions as requested by the state without providing specific information on depth, width, or flow. The EPA concludes that the comment provided the information requested in the state's public notice and indicated that the state's UAA does not demonstrate that low flow conditions or water levels at these locations actually prevent attainment of PCR. The EPA review of aerial imagery (see below) suggests this may be a spring, which is consistent with the comment. One of the limitations of NHDPlus V2 is that it is not able to identify such groundwater-fed surface water features. The EPA disapproves the use change to SCR for Horse Creek from the spring to the confluence with an unnamed tributary (see Figures 6 and 7).

The state's response to comments indicates this area of Horse Creek is located on private land. Private land surrounding a water body may serve as an indicator of whether access is probable, but that does not demonstrate that PCR is not attainable. State law regarding the protection of private property is a separate issue from – and is unaffected by – a determination under the Clean Water Act as to the level of protection appropriate for a water body.

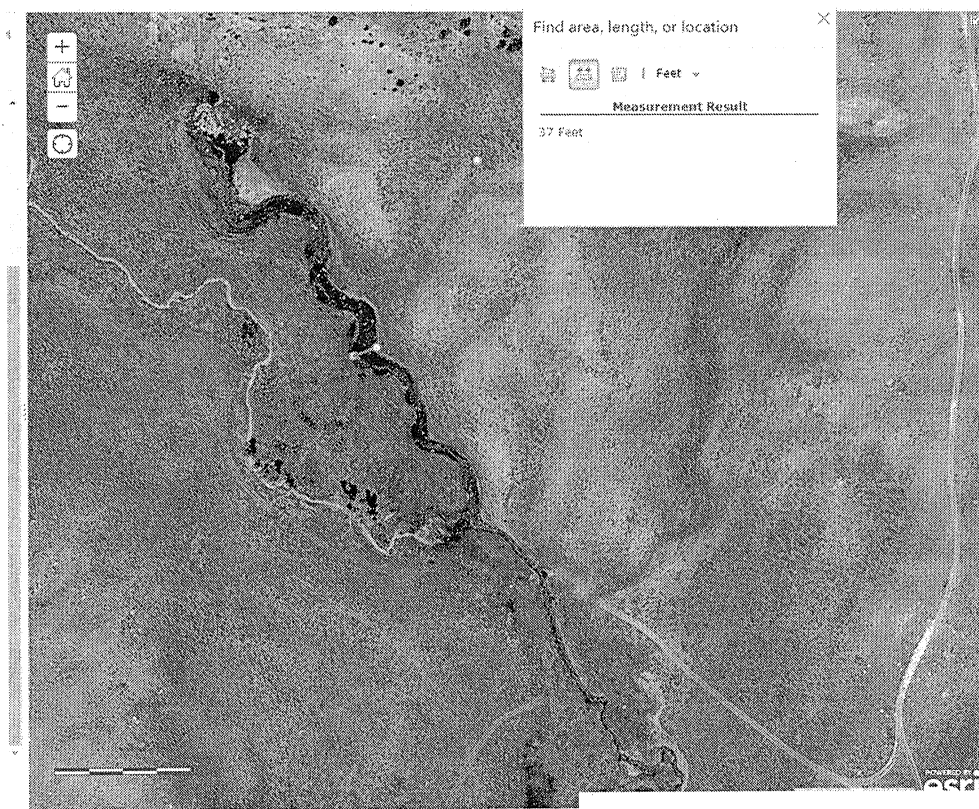


Figure 6. Horse Creek aerial image showing spring and channel width of 37 feet at point measured and roads/trails providing access

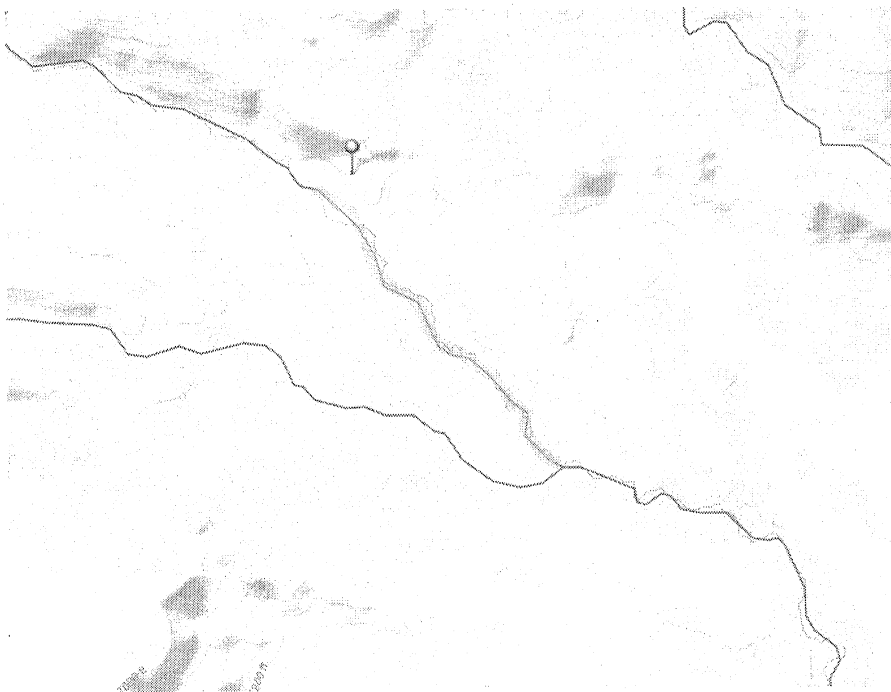


Figure 7. Disapproved section of Horse Creek, Natrona County, from confluence with unnamed tributary near 42.694004, -107.097804 to spring

Dan Smitherman: The commenter observed four young people, two under the ages of ten, play in the water for two full days in Pine Creek in the Bridger Wilderness. This comment indicates child's play that may result in ingestion of water. Because the location identified by the commenter is designated Class 1, no use change was adopted for this water and no action is before the EPA.

The comment also stated "If you look at Cliff Creek in Sublette County from below the falls to the headwaters has been downgraded. I've guided hunters in there many times. I've watched them bathe, drink, wash their hands, do everything in that creek. Mountain bikers and hikers can access those falls... they're more than happy to get underneath them and take a shower." The EPA was able to locate Cliff Creek but not the falls mentioned. Drinking and washing hands are not uses protected by recreational water criteria. Bathing and the statement that there are falls that mountain bikers and hikers "get underneath them and take a shower" demonstrate PCR is an existing or potential use but it is unclear where these uses are occurring. Therefore, the EPA approves the use change. The commenter could provide additional information to the state for consideration in a future rulemaking.

The comment indicated there are "plenty of places on that creek where you can get full body immersion" on Kilgore Creek, and "the creeks that feed Kilgore, Jamb Creek, Grizzly Creek, are all the same way." This comment provided the information requested in the state's public notice and sufficiently demonstrated low flows at these locations do not prevent attainment of PCR. Although the comment does not identify a specific recreation location on these streams, they are designated SCR throughout their entire lengths so recreation at any location would occur within a reach designated SCR. The EPA disapproves the use change to SCR for Jamb Creek, Grizzly Creek, and Kilgore Creek and its tributaries (see Figures 8, 9, and 10).

The commenter stated he has used Soda Fork for drinking, washing hands, & cooking, which are uses not protected by recreational water quality criteria. Soda Fork is designated PCR; therefore, there is no action before the EPA.

The comment indicates full body immersion is possible on Wolf Creek in Sublette County. However, the EPA was not able to identify a Wolf Creek in Sublette County. The commenter could provide more detailed location information to the state for consideration in a future rulemaking.

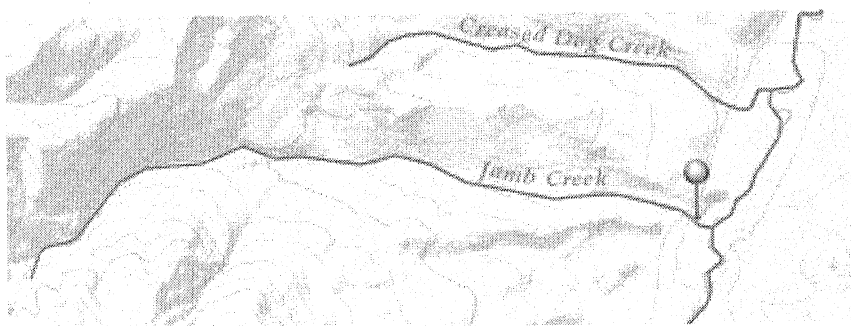


Figure 8. Jamb Creek, Sublette County (disapproved from confluence with Hoback River to headwaters)

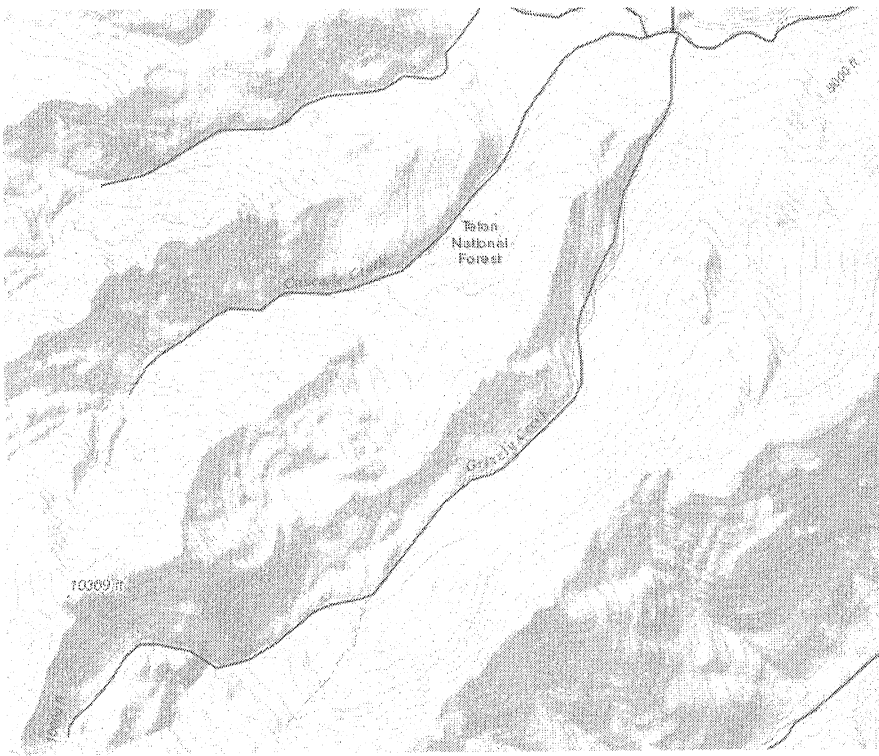


Figure 9. Grizzly Creek, Sublette County (disapproved from confluence with Hoback River to headwaters)

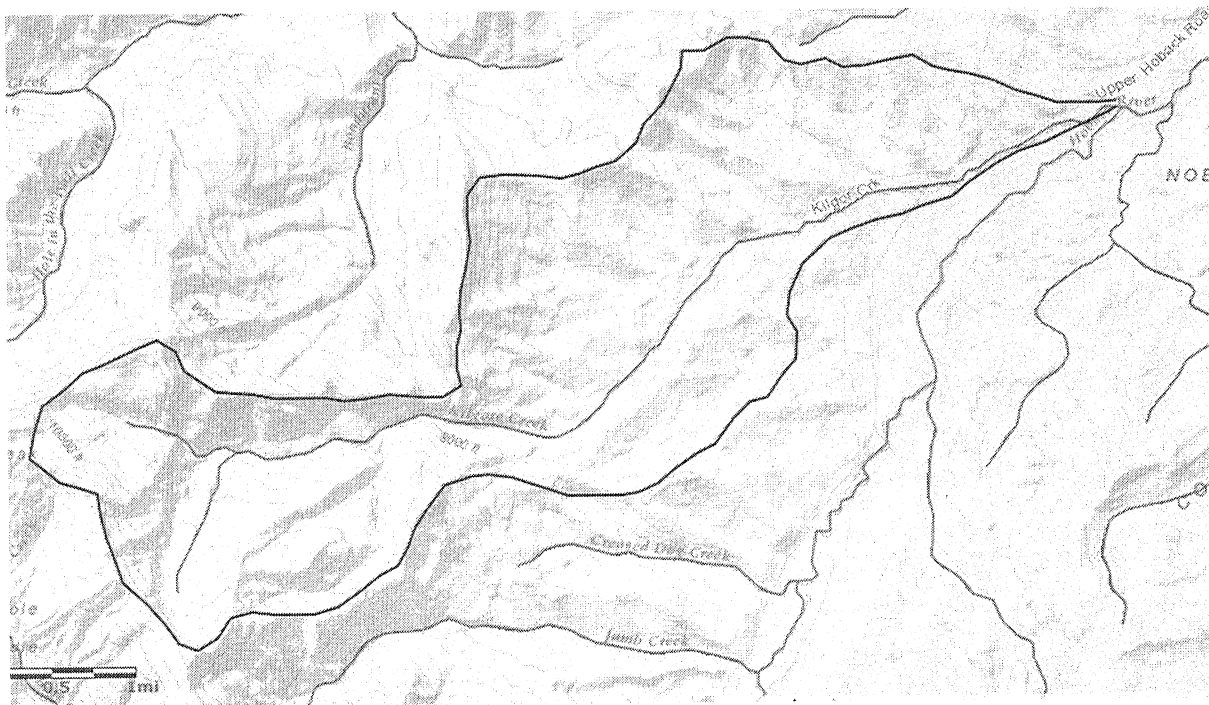


Figure 10. Kilgore Creek and tributaries, Sublette County (green line surrounds disapproved sections from confluence with Hoback River to headwaters)

Ted Lapis: This comment provided latitude/longitude, a map, pictures of a deep pool and indicates it is a swimming hole. The EPA confirmed the location is designated PCR as indicated in the state's response to comments (see Figure 11). Therefore, no use change was adopted for this water and no action is before the EPA.

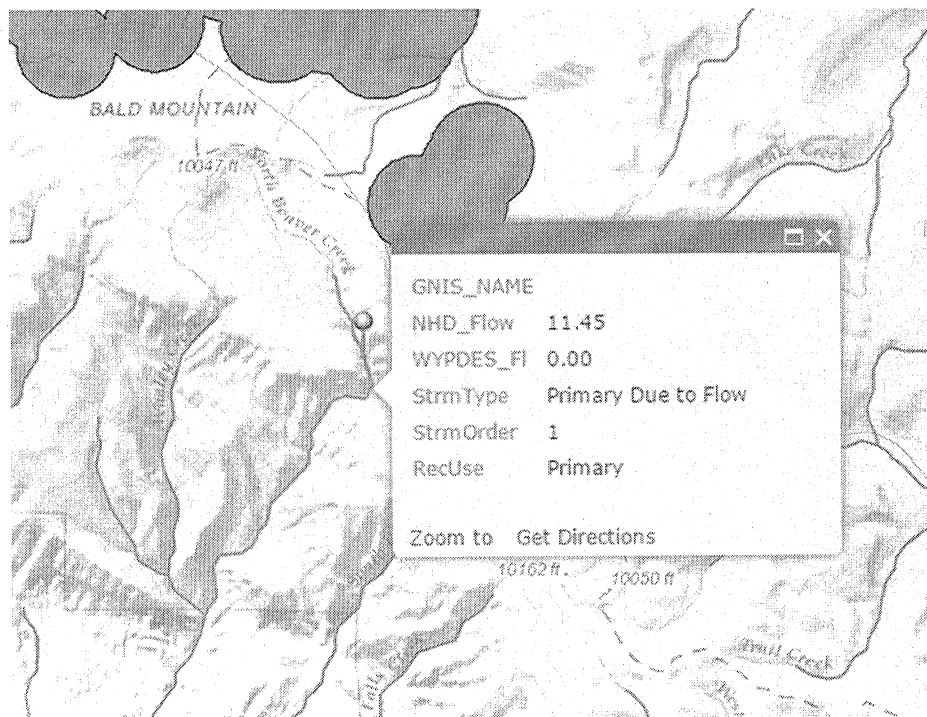


Figure 11. Unnamed tributary to North Beaver Creek, Big Horn County

5.4 Summary

Of the 104,145 stream miles addressed in the UAA (100k NHD), Wyoming determined 89,060 stream miles have low flow conditions or water levels. Using the multiple lines of evidence described above, the state determined that 6,164 stream miles have existing or potential PCR uses despite low flow conditions or water levels, and retained PCR for these stream miles. The final result is that Wyoming retained PCR on 20% of the stream miles addressed in the UAA (21,249 miles), and changed the designated use to SCR for the remaining 80% (82,896 stream miles). As discussed in this document, the state demonstrated low flow conditions or water levels prevent attainment of PCR in stream miles that meet all of the criteria below:

- Stream miles with estimated MAF less than 6 cfs (100k NHD);
- Located more than 1.0 mile from a school and census blocks with population densities greater than 55 persons per square mile;
- Located outside the boundary of a National or State Park, Recreation Area, Monument, or Historic Site;
- Located more than 0.5 mile from established campgrounds, USFS or BLM Recreation Sites, Natural Areas, or WYDOT Rest Areas;
- Located more than 0.5 mile from trailheads or dispersed campsites that are on public land and within 0.25 mile of a road;
- Located outside of a primary area (for stream miles not present in the 100k NHD); and

- Public comments did not indicate the stream had existing or potential primary contact recreation use (see discussion below).

Where a public comment provides both the location and existing or potential recreational activities requested by the state in the public notice, this indicates that the state's UAA does not demonstrate that low flow conditions or water levels at these locations actually prevent attainment of PCR. In this situation, the state may retain PCR, or collect additional information to support a proposed use change in the future. To ensure that future records of the state's decision-making process are complete, responses to public comments that provide site-specific information (such as location and recreational activities) should: (1) also be site-specific; (2) clearly articulate why the information provided either was or was not sufficient; and (3) describe the work the state did to identify locations or clarify any uncertainties. Table 3 summarizes the waters for which the EPA is disapproving the SCR use.

Table 3. Water bodies disapproved for SCR designated use change based on public comments

Water Body	County	Figure
Butler Creek from primary area (approximately 0.4 miles downstream of S. Fall Creek Rd.) to headwaters	Teton	2
Unnamed tributary to Butler Creek (near 43.386055, -110.850972) from confluence with Butler Creek to headwaters	Teton	2
Fall Creek (tributary to Butler Creek near 43.395661, -110.850371)	Teton	2
Unnamed tributary to the Sweetwater River (near 42.55443311, -109.0833675) from the primary area near Sweetwater Gap Road to headwaters	Sublette/ Fremont	3
Willow Creek from the primary area to the confluence with Lost Creek	Natrona	5
Alkali Creek from confluence with Willow Creek to 43.409573, -106.796037	Natrona	5
Horse Creek from confluence with an unnamed tributary (near 42.694004, -107.097804) to spring	Natrona	7
Jamb Creek from confluence with Hoback River to headwaters	Sublette	8
Grizzly Creek from confluence with Hoback River to headwaters	Sublette	9
Kilgore Creek and tributaries, from confluence with Hoback River to headwaters	Sublette	10

6.0 Requirements of 40 CFR § 131.10(g)

40 CFR § 131.10(g) requires that “if a State adopts a new or revised water quality standard based on a required use attainability analysis, the State shall also adopt the highest attainable use, as defined in 40 CFR § 131.3(m).” The highest attainable use is defined as “the modified aquatic life, wildlife, or recreation use that is both closest to the uses specified in section 101(a)(2) of the Act and attainable, based on the evaluation of the factor(s) in 40 CFR § 131.10(g) that preclude(s) attainment of the use and any other information or analyses that were used to evaluate attainability. There is no required highest attainable use where the State demonstrates the relevant use specified in section 101(a)(2) of the Act and sub-categories of such a use are not attainable.” 40 CFR § 131.3(m). In this instance, Wyoming demonstrated that PCR is not attainable and that SCR⁴⁵ is the use that is both closest to the uses specified in CWA Section 101(a)(2) and attainable in light of the factor precluding the use (40 CFR § 131.10(g)(2)) and the other information and analyses described in the UAA that were used to evaluate

⁴⁵ Chapter 1, Section 2, of Wyoming's *Water Quality Rules and Regulations* defines SCR as “any recreational or other surface water use in which contact with water is either incidental or accidental and that would not be expected to result in ingestion of the water or immersion types of activities.”

attainability. Thus, Wyoming changed the designated use to SCR for 82,896 stream miles reflecting the highest attainable use consistent with 40 CFR § 131.10.

7.0 Public Hearing

The CWA and the EPA's WQS regulation requires states and authorized tribes to hold public hearings for the purposes of reviewing and revising WQS. The state met 40 CFR § 25.5 when conducting its public hearing held in Casper, Wyoming on Wednesday, September 16, 2015, from 5:30 to 8:30pm. The EPA documented its consideration of the public comments provided during the public hearing as well as the state's responses in a memorandum to the file entitled, *EPA Response to Specific Comments Raised Regarding Public Participation in Wyoming's Recreational Use Changes*.

8.0 State Process

40 CFR § 131.6(e) requires "Certification by the State Attorney General or other appropriate legal authority within the State that the water quality standards were duly adopted pursuant to State law." Wyoming submitted this certification from the Wyoming Attorney General in a letter dated November 7, 2016. As a general matter, the EPA's regulation at 40 CFR § 131.6(e) gives the state Attorney General the primary authority to determine whether or not the state adopted WQS consistent with their own state law absent evidence to the contrary. The EPA considered public comments raised on the state's process as well as the state's responses and documented its consideration in *EPA Response to Specific Comments Raised Regarding Public Participation in Wyoming's Recreational Use Changes*.

Commenters also assert the state did not comply with the credible data provisions of Section 35 in Wyoming's WQS. The state responded to these comments.⁴⁶ For example, "...credible data relevant to the decision in determining whether primary contact recreation is an attainable use are data that represent 'natural, ephemeral, intermittent or low flow conditions or water levels.'" "The modeled flow data is based on a flow balance model. The flow balance approach takes precipitation, potential evapotranspiration (PET), evapotranspiration (ET), and soil moisture storage into account. PET and ET calculations include air temperature." There is no evidence in the record that Wyoming did not comply with Section 35.

9.0 Conclusion

The EPA's WQS regulation allows a state or authorized tribe to demonstrate through a UAA that a designated use is not attainable due to one of the 40 CFR § 131.10(g) factors. Consistent with 40 CFR § 131.10(g)(2), Wyoming's UAA justified revising a PCR use to an SCR use for certain waters by showing that these waters that have insufficient flow to support PCR activities during the recreation season except where small children can easily access the waters and where public comments have shown that such uses are occurring or can occur despite the state's low flow analysis. The state specifically: (1) documented low flow conditions or water levels using scientifically defensible flow data and explained why it chose an MAF less than 6 cfs to represent low flow conditions or water levels; and (2) demonstrated that low flow conditions or water levels prevented attainment of PCR by considering whether small children can easily access the waters through the datasets and buffers identified and public comments as multiple lines of evidence.

⁴⁶ WY RTC 2016, pages 150-151.

Of the 104,145 stream miles addressed in the UAA (100k NHD), Wyoming determined 89,060 stream miles have low flow conditions or water levels. Using the multiple lines of evidence described above, the state determined that 6,164 stream miles have potential PCR uses despite low flow conditions or water levels. Rather than removing the recreation use entirely, the state designated a recreation use subcategory that requires less stringent criteria – SCR as the highest attainable use consistent with 40 CFR § 131.10(g). The final result is that Wyoming retained PCR on 20% of the stream miles addressed in the UAA (21,249 miles), and changed the designated use to SCR for the remaining 80% (82,896 stream miles).

The EPA approves the majority of Wyoming's adopted SCR uses as consistent with the CWA and the EPA's implementing regulations. The EPA disapproves the use change to SCR for ten water bodies summarized in Table 3 because public comments provided sufficient information to show that the state's UAA does not demonstrate that low flow conditions or water levels at these locations actually prevent attainment of PCR. Water bodies not included in the UAA (e.g., lakes/reservoirs/ponds and Class 1 waters) retain their currently applicable recreation use designation.

Designated uses are never “done” – they are regularly refined over time as new information becomes available as required by 40 CFR § 131.20(a). It is important that the public remains engaged in this ongoing use refinement process. Wyoming's WQS allow “any person at any time” to petition the WDEQ for a designated use change. The public may also provide relevant information during the triennial WQS review as required by 40 CFR § 131.20(a) and (b).