



# Final Environmental Impact Statement for the Land Management Plan

## *Appendix K: Water Resources and Fisheries Additional Information* Nez Perce-Clearwater National Forests



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## **Final Environmental Impact Statement for 2023 Land Management Plan for the Nez Perce-Clearwater National Forests**

Idaho, Clearwater, Lewis, Latah, Shoshone and Benewah Counties, Idaho

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**Abstract:** This Final Environmental Impact Statement documents the analysis of the Preferred Alternative and four additional action alternatives developed for programmatic management of the four million acres of National Forest system lands administered by the Nez Perce-Clearwater National Forests. The purpose is to provide land management direction for the Nez Perce-Clearwater National Forests, combining the 1987 Nez Perce National Forests Land Management Plan and the 1987 Clearwater National Forest Land Management Plan into one plan for the Nez Perce-Clearwater National Forests, now managed as one administrative unit.

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## Introduction

One of the original purposes for establishing the National Forest System was to protect the Nation's water resources. The 2012 Planning Rule includes requirements associated with maintaining and restoring watersheds and aquatic ecosystems, water resources, fisheries resources, and riparian areas in the plan area. The increased focus on watersheds and water resources in the 2012 Planning Rule reflects the importance of this natural resource and the commitment to stewardship of the Nation's waters.

The 2012 Planning Rule requires that revised forest plans identify watersheds that are a priority for restoration and maintenance, utilizing the watershed condition framework. The 2012 Planning Rule also requires the inclusion of plan components to protect, maintain, or restore water quality and water resources, including public water supplies, groundwater, lakes, streams, wetlands, and other bodies of water. Additionally, the Planning Rule requires that the Forest Service establish national best management practices for water quality and that plans ensure implementation of those practices.

Maintaining the diversity of plant and animal communities and the persistence of native species in the plan area is also emphasized in the Planning Rule. The Nez Perce-Clearwater identified 81 subwatersheds as conservation watershed networks, a collection of watersheds designed to provide long-term protection, connectivity, and survival of native federally listed fish and species of conservation concern.

The following information was used for the analysis included in the Water Resources and Aquatic Ecosystems and Fisheries Resource sections of the Final Environmental Impact Statement for the Land Management Plan for the Nez Perce-Clearwater National Forests.

## Watershed Classification

A watershed is a "region or land area drained by a single stream, river, or drainage network; a drainage basin" (36 CFR 219.19). A drainage basin or catchment is the area from which water flows to form a stream. A basin is defined by its outlet. All precipitation that falls within a drainage basin eventually flows to the outlet point, unless it is first removed by evaporation and transpiration. These drainage areas are defined by the highest elevations surrounding a selected location on a stream so that a drop of water falling inside the boundary will drain to the stream while a drop of water falling outside of the boundary will drain to another watershed. Watersheds encompass all of the ecosystem elements, including water, soils, vegetation, and animals. A watershed can cross ownership boundaries since they are based on topography.

Watersheds also span the landscape at many different scales. A systematic method, developed by the U.S. Geological Survey (U.S. Geological Survey and U.S. Department of Agriculture 2013) delineates watershed boundaries and assigns them hydrologic unit codes (HUC). The hydrologic unit code system is used to divide and subdivide the watersheds into successively smaller, nested levels. As they are successively subdivided, the numbering scheme of the units increases by two digits per level. For example, Mill Creek subwatershed is a sixth level waterbody with the HUC12 number 170603050701. Table 1 displays the nested, hierarchical classification for the Mill Creek subwatershed.

**Table 1. Hierarchy for the six nested levels of hydrologic units for the HUC12 Mill Creek subwatershed (170603050701)**

Level	Hydrologic Unit Hierarchy	Hydrologic Unit Code Designation	Waterbody Name	Hydrologic Unit Code Number
1	Region (2 digit)	HUC02	Pacific Northwest Region	17
2	Subregion (4 digit)	HUC04	Lower Snake	1706
3	Basin (6 digit)	HUC06	Clearwater	170603
4	Subbasin (8 digit)	HUC08	South Fork Clearwater	17060305
5	Watershed (10 digit)	HUC10	Middle South Fork Clearwater River	1706030507
6	Subwatershed (12 digit)	HUC12	Mill Creek	170603050701

Data Source: Watershed Boundary Dataset (U.S. Geological Survey and U.S. Department of Agriculture 2013)

## Watershed Condition Framework and Priority Watersheds

The Forest Service National Fish and Aquatic strategy recognizes that restoring watershed health and function is critical to sustaining clean, reliable water supplies for fish and wildlife habitat and to meeting human demands (U.S. Department of Agriculture 2017). Goal 1 of the six goals of the strategy is to conserve fish and aquatic resources. Sustaining the health and diversity of fish, other aquatic species, and their habitats is inherent to this goal. The strategy declares that the Forest Service will protect, conserve, and restore watersheds and aquatic ecosystems upon which populations of fish and other aquatic species depend. The strategy further states that the Forest Service will implement plans to help aquatic species and ecosystems respond to stressors, including drought, floods, invasive species, and disease. The agency’s vision is that National Forest System lands contain healthy watersheds and aquatic ecosystems characterized by complex, interconnected, and diverse habitats that contain self-sustaining assemblages of fish and other aquatic species. The Watershed Condition Framework (U.S. Department of Agriculture 2011) is one of the tools used to meet this strategy. It is a consistent nationwide approach to watershed restoration, which is conducted holistically at the subwatershed (HUC12) scale, typically 10,000 to 40,000 acres.

The watershed condition classification process (Potyondy and Geier 2011) is one of the steps included in the Watershed Condition Framework and is a methodology that characterizes watershed condition based on indicators and attributes related to watershed processes. Subwatersheds are ranked in one of three discrete classes that reflect the level of watershed health or integrity (Potyondy and Geier 2011). Watershed health and integrity are considered conceptually the same (Regier 1993). Watersheds with high integrity are in an unimpaired condition in which ecosystems show little or no influence from human actions (Lackey 2001). Within this context, the three watershed condition classes are directly related to the degree or level of watershed functionality or integrity: Class 1 – functioning properly, Class 2 – functioning at risk, and Class 3 – impaired function.

The Watershed Condition Framework (U.S. Department of Agriculture 2011) characterizes a watershed in good condition as one that is functioning in a manner similar to natural wildland conditions (Karr and Chu 1999, Lackey 2001). This characterization should not be interpreted to mean that managed watersheds cannot be in good condition. A watershed is considered to be functioning properly if the physical attributes are adequate to maintain or improve biological integrity. This consideration implies that a Class 1 watershed that is functioning properly has minimal undesirable human impact on its natural,

physical, or biological processes, and it is resilient and able to recover to the desired condition when disturbed by large natural disturbances or land management activities (Yount and Niemi 1990). By contrast, a Class 3 watershed has impaired function because some physical, hydrological, or biological threshold has been exceeded. Substantial changes to the factors that caused the degraded state are commonly needed to set them on a trend or trajectory of improving conditions that sustain physical, hydrological, and biological integrity.

Watershed conditions vary across the Nez Perce-Clearwater with conditions ranging from those unaffected by direct human disturbance to those exhibiting various degrees of modification and impairment. In 2011, the Nez Perce-Clearwater completed the watershed condition classification for 220 HUC12 subwatersheds. In summary, 140 watersheds were rated as functioning properly, 73 were rated as functioning at risk, and 7 were rated as impaired. As shown in

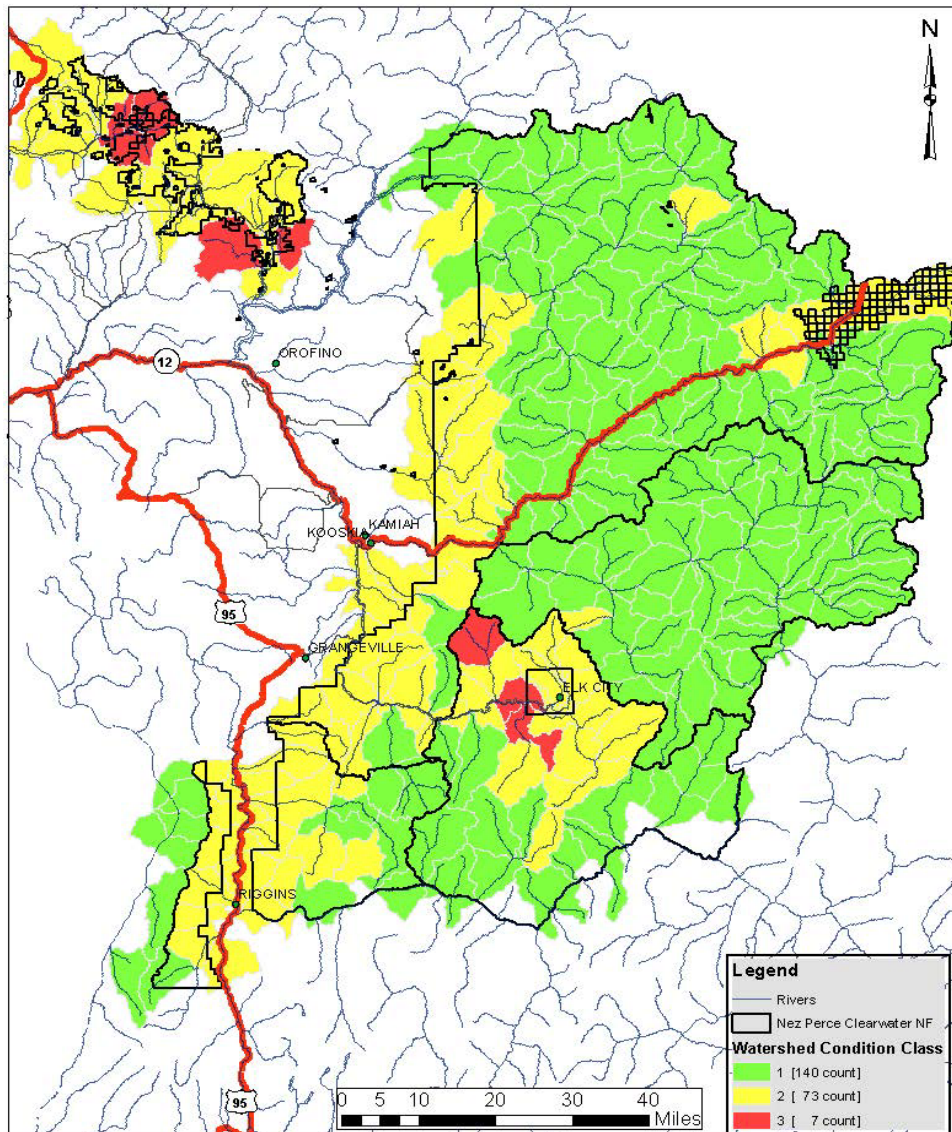
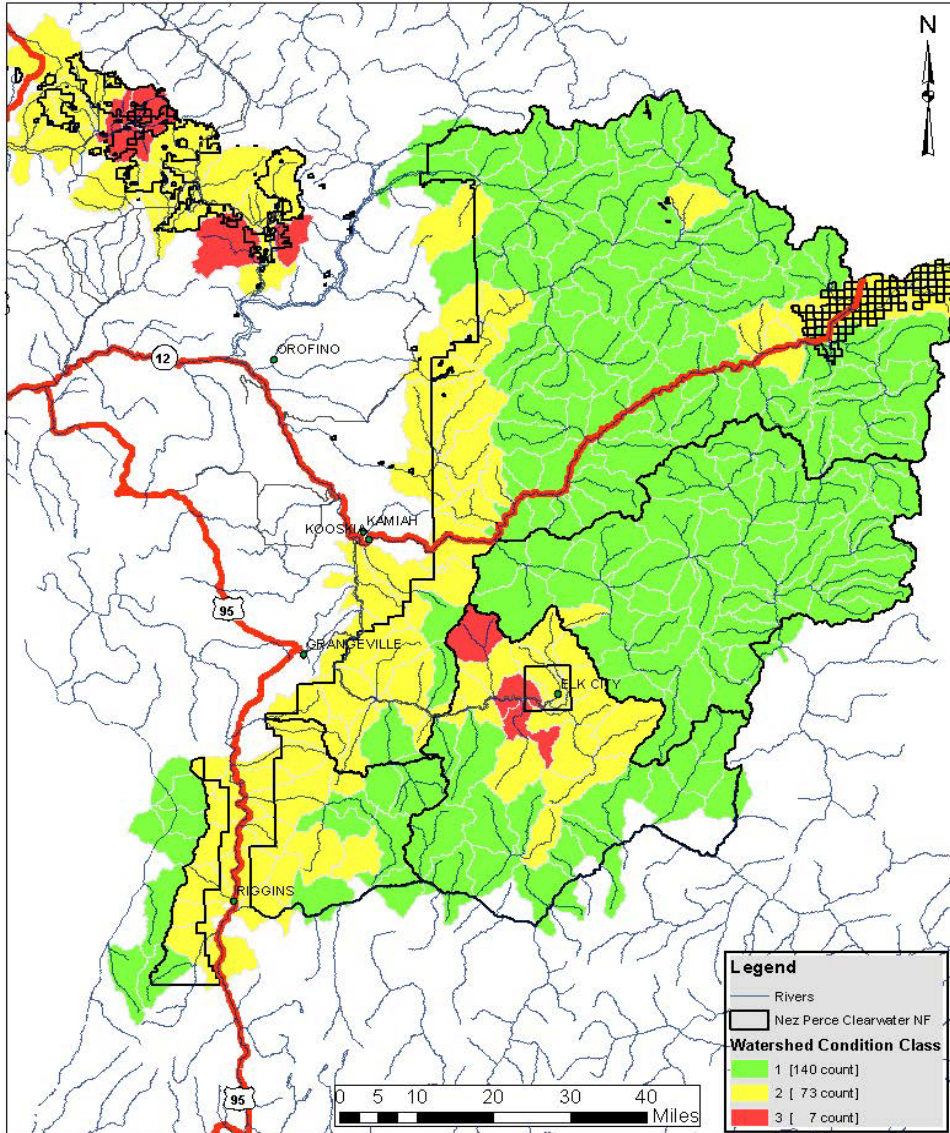


Figure 1, the majority of subwatersheds with Class 2 and 3 ratings are concentrated in the western, more road intensive portion of the Nez Perce-Clearwater. The most significant driver of the Class 3 ratings was the roads and trails indicator as noted in Table 3.





**Figure 1. Watershed Condition Classification on the Nez Perce-Clearwater National Forest.**

Data Source: Nez Perce-Clearwater watershed condition class data, 2011 Class 1 watersheds are primarily in the designated wilderness or Idaho roadless areas of the Nez Perce-Clearwater. Class 2 watersheds are mostly in areas with active vegetation management and higher road density. Class 3 watersheds are also in areas with active vegetation management and high road density, but these watersheds also have legacy features that have degraded watershed conditions, for example, dredge mining in Crooked River.

Trends in Class 1 watersheds are relatively static. The primary drivers of change in these areas are wildfires, landslides, and insect and disease infestations. Changing climate may have contributed to, and possibly exacerbated, the magnitude and extent of effects from these drivers. Forest management direction over the past few decades has been to allow natural processes to dictate variations in watershed conditions in these areas, including allowing naturally ignited wildfires to burn to achieve resource objectives. Several Class 1 watersheds have the potential to degrade into Class 2 with only moderate climatic changes due to the influence of multiple stressors.

In Class 2 and Class 3 watersheds, the trends are mixed: while some watersheds are declining, most watersheds are showing slow, continual improvement as restoration activities are implemented or natural recovery occurs. In road-accessible areas, projects have been designed to incorporate soil and water improvement measures to minimize the potential for soil erosion and mass wasting, reduce sediment delivery, aid in restoring water flow patterns, and re-establish native plant species. The main efforts have included restoration of vegetation to natural species, age, and opening patterns; restoration of soil productivity; improvement of riparian areas; and the reduction of impacts of forest roads by road reconstruction, maintenance, and decommissioning. In these areas, timber harvest, wildfire, mining, livestock grazing, recreation activities, road location, and management have combined with natural disturbances to either accentuate or lessen the intensity or duration of watershed processes. Changing climate may have either exacerbated or contributed to the magnitude and extent of the effects of these drivers.

Table 2 displays the number of subwatersheds on Nez Perce-Clearwater lands by class located within each of the subbasins. The seven subwatersheds with Class 3 ratings are located in the Lower North Fork Clearwater, South Fork Clearwater, Palouse and Rock subbasins and all have legacy mining effects, compromised channel function, high road densities, and impaired waters.

**Table 2. Watershed condition class by subbasins within the Nez Perce-Clearwater**

Subbasin	Percent FS Lands	Number of HUC12s	Class 1 – Functioning Properly	Class 2 – Functioning at Risk	Class 3 – Impaired Function
Hangman	2	1	na	1	na
Palouse and Rock	7	6	na	4	2
Lower North Fork Clearwater	12	9	3	4	2
Upper North Fork Clearwater	95	38	34	4	na
Clearwater	9	10	na	10	na
Middle Fork Clearwater	53	4	1	3	na
South Fork Clearwater	70	27	6	18	3
Lochsa	100	38	29	9	na
Upper Selway	38	14	14	na	na
Lower Selway	100	29	28	1	na
Lower Salmon	30	17	3	14	na
Lower Little Salmon	11	4	1	3	na
Middle Salmon—Chamberlain	38	17	15	2	na

Data Source: Nez Perce-Clearwater watershed condition class data, 2011.

Table 3 displays the number of subwatersheds in each class for each of the 12 indicators. The subcategory attributes for each of the indicators is also included. Water quality, water quantity, and aquatic habitat account for 30 percent of the weighting for the overall watershed condition class score; aquatic biota and riparian and wetland vegetation account for 30 percent; roads and trails and soils account for 30 percent; and fire regime, forest cover, rangeland vegetation, terrestrial invasive species, and forest health account for 10 percent of the weighting for the overall score. Table 3 also displays the percent of HUC12 subwatersheds that rated as Class 2 and Class by indicator. The indicators with highest percent of Class 2 and 3 watersheds are roads and trails, fire regime, and terrestrial invasive species. The fire regime

indicator addresses the potential for altered hydrologic and sediment regimes because of departures from historical ranges of variability in vegetation, fuel composition, fire frequency, fire severity, and fire pattern.

**Table 3. Number of subwatersheds by watershed condition class by indicator**

Indicator	Class 1 – Functioning Properly	Class 2 – Functioning at Risk	Class 3 – Impaired Function	Percent of HUC12s in Class 2 and 3
Water quality—impaired waters, 303(d) listed or other water quality problems	158	26	36	28
Water quantity—flow characteristics	184	30	6	16
Aquatic habitat—habitat fragmentation, large woody debris, channel shape, and function	151	48	21	31
Aquatic biota—life form presence, native species, exotic and aquatic invasive species	188	18	14	15
Riparian and wetland vegetation	124	56	40	44
Roads and trails—open road density, road and trail maintenance, proximity to water, mass wasting	82	53	85	63
Soils—soil productivity, soil erosion, soil contamination	122	74	24	45
Fire regime—fire regime condition class	67	146	7	70
Forest cover—loss of forest cover	220	0	0	0
Rangeland vegetation condition <sup>1</sup>	114	31	37	37
Terrestrial invasive species—extent and rate of spread	81	92	47	63
Forest health—insects and disease	145	75	0	34

<sup>1</sup>For the Rangeland Vegetation indicator, 38 HUC12s did not include rangeland vegetation and, therefore, were not assessed for that indicator.

Data Source: Nez Perce-Clearwater watershed condition class data, 2011.

The Watershed Condition Framework improves watershed restoration planning and implementation efforts on National Forests by targeting the implementation of integrated suites of activities in watersheds that have been identified as priorities for restoration. The Watershed Condition Framework (U.S. Department of Agriculture 2011) is a six-step process to 1) assess and classify watershed conditions, 2) identify priority watersheds for restoration, 3) develop a watershed restoration action plan, 4) implement essential projects to restore watershed condition in priority watersheds, 5) track accomplishments, and 6) monitor the results of those projects.

Utilizing the Watershed Condition Framework process, in 2011, the Nez Perce-Clearwater designated four subwatersheds as priority watersheds: Upper Little Slate Creek, Upper Elk Creek, Upper Clear Creek, and Fishing Creek. For each of these four subwatersheds, a watershed restoration action plan (WRAP) was developed to designate the essential projects necessary to restore the watershed to a better condition. Issues in these watersheds include exclusion of wildfire, road location and road densities, undersized culverts, past mining impacts, riparian structure and function, invasive species, loss of soil productivity, and water quality. Projects identified in the watershed restoration action plans would help to minimize the potential for soil erosion and sediment delivery, aid in restoring hydrologic regimes, and re-establish native plant species. Proposed activities include restoration of forested vegetation to natural species, age,

and opening patterns; soil decompaction of historic skid trails, jammer roads, and log landings; upsizing stream crossings to pass 100-year flows and aquatic organism passage; treatment of terrestrial invasive species; and reduction of impacts from forest roads through road reconstruction, maintenance, and decommissioning.

In 2014, Upper Newsome Creek and Meadow Creek subwatersheds were added to the list of designated priority watersheds by forest leadership based on forest priorities and the forest program of work. To date, all restoration work identified in the watershed restoration action plans has been completed in Fishing Creek, Upper Newsome Creek, and Meadow Creek subwatersheds. The majority of the restoration work was accomplished through partnership with the Nez Perce Tribe. Work in Upper Elk Creek, Upper Clear Creek, and Upper Little Slate subwatersheds are ongoing. In 2023, tribal staff and forest staff informally consulted, and the Musselshell Creek and Lower Crooked River subwatersheds were identified as priority watersheds, as part of an effort to better leverage funding secured under the priority landscape designation for multiple resource benefits, including fish habitat improvements, and to align with partner restoration priorities.

The 2012 Planning Rule directives require watersheds that are a priority for restoration and maintenance be identified in revised land management plans. Watersheds that are a priority for maintenance or restoration include: Upper Elk Creek (HUC12 #170603080701), Upper Clear Creek (HUC12 #170603040102), Upper Little Slate Creek (HUC12 #170602090301), Musselshell Creek (HUC12 #170603060202), and Lower Crooked River (HUC12 #170603050302).

By design, Watershed Condition Framework priority watersheds are not intended to be permanent designations—when all needed work is completed, a new Watershed Condition Framework priority watershed is to be identified. Priority areas for potential restoration activities could change quickly because of disturbance events, such as wildfire, severe flooding, or landslides. Therefore, the 2012 Planning Rule includes priority watersheds as other plan content so that an administrative change could be used to quickly respond to changes in priority. Future priority watersheds will be determined throughout the life of the forest plan, which is assumed to be 15 years. Priority watersheds are selected by a forest or area responsible official after analysis and evaluation using a multi-functional interdisciplinary approach. The participation of partners in the priority selection process is expected and highly encouraged. The 2012 Planning Rule and the planning directives require the responsible official to reach out to local, state, tribal, other federal agencies and interest groups when identifying priority watersheds (FSH 1909.12, section 22.31).

The Agricultural Improvement Act of 2018 (a.k.a. the 2018 Farm Bill), Section 8405 permanently authorizes the Forest Service to develop and maintain the Watershed Condition Framework, using the agency's existing processes and criteria. It provides specific legislative authorization and requirements for the process, one of those being to identify for protection and restoration up to 5 priority watersheds in each National Forest.

## **Water Quality**

The goal of the Clean Water Act is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The Idaho Department of Environmental Quality is responsible for ensuring that Idaho’s surface, ground, and drinking water resources meet state water quality standards. The Idaho Department of Environmental Quality uses water quality standards (IDAPA 58.01.02) to determine if Idaho’s waters are being adequately protected. A water quality standard defines the goals that

have been set for a water body by designating the uses for the water, sets criteria necessary to protect those uses, and prevents degradation of water quality.

## Beneficial Uses

Beneficial uses are the desired uses that water bodies should support, as identified in Section 100 of Idaho's water quality standards (IDAPA 58.01.02.100). Each beneficial use has a unique set of water quality requirements or criteria that must be met for the use to be supported. Most water bodies have multiple beneficial uses. A water body is considered impaired when it does not meet the water quality criteria needed to support one or more of its beneficial uses.

A designated use is a beneficial use assigned to a specific water body in Idaho water quality rules. The designated use of a waterbody does not imply any rights to access or the ability to conduct any activity related to the use designation, nor does it imply that an activity is safe. For example, a designation of primary or secondary contact recreation may occur in areas where it is unsafe to enter the water due to water flows, depth, or other hazardous conditions. In some cases, a water body does not have uses designated. For undesignated surface waters, Idaho applies a presumed use protection, meaning the water body will be protected for cold water aquatic life and primary or secondary contact recreation.

The following are types of uses that pertain to water bodies on the Nez Perce-Clearwater:

- Cold water aquatic life: water quality appropriate for protecting and maintaining a viable aquatic life community for cold water species; some water bodies include a bull trout subcategory with stricter stream temperature criteria.
- Salmonid spawning: waters that provide or could provide a habitat for active self-propagating populations of salmonid fishes.
- Primary contact recreation: protects people from gastrointestinal illness due to incidental ingestion of the water they are recreating in or on and applies to waters where people engage in activities that involve immersion in, and likely ingestion of, water, such as swimming, waterskiing, and skin diving.
- Secondary contact recreation: protects people from gastrointestinal illness due to incidental ingestion of the water they are recreating in or on and applies to waters where people engage in activities where ingestion of water may occasionally occur, such as fishing, boating, wading, and infrequent swimming.
- Domestic water supply: water quality appropriate for drinking water supplies, although it does not necessarily mean the water should be consumed without treatment.
- Agricultural, industrial, wildlife habitats, and aesthetics uses apply to all surface waters of the state.

## IDEQ 303(d)/305(b) Integrated Report

The Idaho Department of Environmental Quality 303(d)/305(b) Integrated Report is a compilation of information about the water quality status of all Idaho waters and is a requirement of the Clean Water Act. Integrated reports are compiled biennially and are submitted to the U.S. Environmental Protection Agency for approval. There are two main parts to the integrated report: 1) the 305(b) list, which summarizes the current condition of all state waters; and 2) the 303(d) list, which identifies those waters that are impaired or water quality limited and needing a total maximum daily load.

Both lists are named in accordance with the sections of the Clean Water Act where they are defined. Impaired waters listed on the 303(d) list are simply a subset of those on the 305(b) list. The Integrated

Report places all state water bodies into one of five primary categories based on the degree to which the water body its beneficial uses, which are shown in. These categories describe how a water body relates to its beneficial uses. Table 4 outlines a description of each of the categories and includes the miles of stream by category for streams occurring on the Nez Perce-Clearwater (State of Idaho Department of Environmental Quality 2022b).

**Table 4. Integrated report categories and stream miles of each occurring on the Nez Perce-Clearwater**

Category	Description	Assessed Miles
1	Waters are wholly within a designated wilderness or Idaho roadless area and presumed to be fully supporting all beneficial uses	1,458
2	Waters are fully supporting those beneficial uses that have been assessed	2,610
3	Waters have insufficient or no data and information to determine if beneficial uses are being attained or not	1,505
3T	Waters are wholly or partially on Indian reservations and not subject to the state's 305(b)/303(d) reporting requirements	6
4A	Waters do not support one or more beneficial uses, but a TMDL <sup>1</sup> is completed and approved by the Environmental Protection Agency	1,345
4C	Waters do not support one or more beneficial uses. Waters are those failing to meet applicable water quality standards due to other types of pollution, such as habitat or flow alteration, not a pollutant, and a TMDL <sup>1</sup> is not required.	329
5	Waters do not meet applicable water quality standards for one or more beneficial uses due to one or more pollutants. These waters make up the 303(d) list and an Environmental Protection Agency approved TMDL <sup>1</sup> is required.	747

<sup>1</sup>Total Maximum Daily Load

Data Source: Idaho Department of Environmental Quality 303(d)/305(b) Integrated Report (State of Idaho Department of Environmental Quality 2022b).

The most current Environmental Protection Agency approved report is the 2022 Idaho Department of Environmental Quality 303(d)/305(b) Integrated Report (State of Idaho Department of Environmental Quality 2022a). All lakes on the Nez Perce-Clearwater that the Idaho Department of Environmental Quality has assessed are fully supporting beneficial uses and none are listed as impaired. The Idaho Department of Environmental Quality has identified about 8,000 miles of stream on the Nez Perce-Clearwater, of which 1,505 miles have yet to be assessed for water quality (

Table 5). Six miles of stream occur on Indian reservations and are not subject to the state's 305(b)/303(d) reporting requirements. Approximately 51 percent of streams are determined to be fully supporting beneficial uses, while approximately 30 percent of streams are not supporting beneficial uses. There are 747 miles of stream included in the 303(d) list, identified as category 5 (Table 4), that do not meet applicable water quality standards for one or more beneficial uses and require an Environmental Protection Agency approved total maximum daily load to be developed.

**Table 5. Beneficial use status and miles of each occurring on the Nez Perce-Clearwater.**

2022 Integrated Report Beneficial Use Support Status	Stream miles	Percent of total stream miles
Fully Supporting	4,068	51
Not Assessed	1,505	19

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2022 Integrated Report Beneficial Use Support Status	Stream miles	Percent of total stream miles
Not Supporting	2,421	30
Tribal Waters Not Applicable	6	Less than 1 percent

Data Source: Idaho Department of Environmental Quality 303(d)/305(b) Integrated Report (State of Idaho Department of Environmental Quality 2022b)

Streams not supporting beneficial uses do not meet applicable water quality standards for their designated beneficial uses and are termed impaired or water quality limited. They are assigned Category 4 or 5 designations. Table 6 displays the miles of stream on the Nez Perce-Clearwater by subbasin that are designated as Category 4 or 5 and the pollutants or pollution for which the water body is impaired. The South Fork Clearwater, Lochsa, Hangman, and Clearwater subbasins have more than 50 percent of their streams on Nez Perce-Clearwater lands not supporting beneficial uses.

**Table 6. 2022 Integrated Report category 4 and 5 stream miles occurring on the Nez Perce-Clearwater and related pollutant or pollutions by subbasin**

Subbasin	Total Stream Miles	Category 4A (miles)	Category 4C (miles)	Category 5 (miles)	Pollutants or Pollutions
Hangman	14	14	0	0	sediment, temperature, <i>E. coli</i>
Palouse	185	4	48	28	sediment, temperature, <i>E. coli</i> , flow regime alterations, physical substrate habitat alterations, combined biota, habitat bioassessments
Rock	4	0	0	0	none
Middle Salmon—Chamberlain	845	53	0	0	temperature
Lower Salmon	466	3	0	0	<i>E. coli</i>
Little Salmon	83	0	0	0	none
Upper Selway	451	0	0	0	none
Lower Selway	1,296	0	0	0	none
Lochsa	1,377	31	0	656	temperature
Middle Fork Clearwater	167	0	0	9	combined biota, habitat bioassessments
South Fork Clearwater	1,169	922	176	0	temperature, sediment, <i>E. coli</i> , physical substrate habitat alterations
Clearwater	333	99	81	44	temperature, flow regime alterations, physical substrate habitat alterations, combined biota, habitat bioassessments
Upper North Fork Clearwater	1,422	196	5	2	temperature, sediment, physical substrate habitat alterations, combined biota, habitat bioassessments

Appendix K: Water Resources and Fisheries Additional Information

Subbasin	Total Stream Miles	Category 4A (miles)	Category 4C (miles)	Category 5 (miles)	Pollutants or Pollutions
Lower North Fork Clearwater	187	23	19	8	temperature, sediment, <i>E. coli</i> , flow regime alterations, physical substrate habitat alterations, combined biota, habitat bioassessments

Data Source: Idaho Department of Environmental Quality 303(d)/305(b) Integrated Report (State of Idaho Department of Environmental Quality 2022b)

In 2019, the United State Environmental Protection Agency approved the State of Idaho’s new and revised Human Health Water Quality Criteria for Toxics and Other Water Quality Standards Provisions (U.S. Environmental Protection Agency 2019), which established goals for the State’s surface waters, including protecting sources of drinking water and helping ensure that fish from Idaho’s waters are safe to eat. Impairments

Sediment and temperature are the primary pollutants of concern for water bodies on the Nez Perce-Clearwater, affecting approximately 1,500 miles of stream. Only a few streams are listed for bacteria, identified as *Escherichia coli*, a common fecal and intestinal organism of the coliform group of bacteria found in warm-blooded animals. Approximately 330 miles of stream are designated Category 4C for flow regime alterations and physical substrate habitat alterations. Flow and habitat alterations are considered pollution and not specific pollutants according to the U.S. Environmental Protection Agency (Clean Water Act 502(6) and 502(19)); hence, the Idaho Department of Environmental Quality does not develop total maximum daily loads for flow alteration or habitat alteration. Pollution encompasses human-caused changes in the environment that alter the functioning of natural processes and produce undesirable environmental or health effects. Pollution includes human-induced alteration of the physical, biological, and chemical integrity of water.

Water temperature is the most common parameter not meeting water quality standards. Temperature is a physical property of water that has a profound effect on organisms that live or reproduce in the water, particularly Idaho's native coldwater fish, such as salmon, bull trout, and steelhead, and some amphibians. When water temperature becomes too high, salmon and trout suffer a variety of ill effects, ranging from decreased spawning success, to increased susceptibility to disease and toxins, to death. An increase in water temperature also reduces the solubility of oxygen upon which many aquatic organisms depend and increases the toxicity of ammonia. Increases in water temperature may enhance sensitivity to other toxic substances as well. Idaho's water quality temperature standards criteria are numeric.

Water temperature is most affected by the amount of solar radiation reaching a water body. The amount of shade or openings in riparian ecosystems influences the amount of solar radiation reaching the stream. The width of riparian ecosystems and associated vegetative cover correlates well with the degree of shade (Beschta et al. 1987). However, stream temperatures are controlled by a complex set of site-specific variables; including shading from riparian vegetation, wind velocity, relative humidity, geomorphic factors, groundwater inflow, and hyporheic flow (Caissie 2006). Increasing air temperatures resulting from climate change appear to be increasing stream temperatures within Idaho (Rieman et al. 2010).

In riverine systems, a dynamic balance exists between the supply of sediment from natural erosion and the energy of the moving water that carries and redistributes the sediment load. This balance varies from place to place within the stream channel. Sediment balance determines the very character of many streams and their suitability for various forms of aquatic life. Indicators of an altered sediment regime include



unbalanced aggradation or degradation, stream bank cutting, and channel bed scour. Idaho's water quality standard criterion for sediment is qualitative. Sediment comes in many sizes, can be measured in many ways, and many complexities exist in determining how much sediment is too much (Rowe et al. 2003). Total Maximum Daily Load

As directed by the Clean Water Act, each state agency must develop a total maximum daily load for all waters identified in the section 303(d) list of impaired waters. Total maximum daily loads provide an approach to improving water quality so that streams and lakes can support and maintain their state-designated beneficial uses. A total maximum daily load determines pollutant reduction targets and usually covers a basin or subbasin. In instances where a total maximum daily load assessment includes National Forest System lands, the Forest Service serves as a designated management agency through governmental memoranda of understanding. The State of Idaho is the lead agency for total maximum daily load development but must get U.S. Environmental Protection Agency approval before the total maximum daily load is formalized.

The total maximum daily load process has three distinct steps: 1) subbasin assessment, 2) loading analysis, and 3) implementation plan development. A loading analysis is needed only for those water bodies and their watersheds that were documented in the subbasin assessment to be water quality limited and only for those pollutants causing impairment. In addition to loading capacity and allocations, a loading analysis sets out a general pollution control strategy and an expected timeline for meeting water quality standards. For each of the subbasins with a developed total maximum daily load, the Idaho Department of Environmental Quality works with agencies and local landowners to develop a total maximum daily load implementation plan. Table 7 displays the status of subbasins in the total maximum daily load process on the Nez Perce-Clearwater. An Environmental Protection Agency approved Total Maximum Daily Load Report is required for the 747 miles of Category 5 water bodies in the Palouse, Lochsa, Middle Fork Clearwater, Clearwater, Upper North Fork Clearwater, and Lower North Fork Clearwater rivers that are listed in the 2022 Idaho Department of Environmental Quality 303(d)/305(b) Integrated Report (State of Idaho Department of Environmental Quality 2022b) before an implementation plan can be developed.

**Table 7. Status of subbasins in the total maximum daily load process on the Nez Perce-Clearwater**

<b>Subbasin Name and Hydrologic Unit Code</b>	<b>Idaho Department of Environmental Quality Subbasin Assessment and Total Maximum Daily Load Reports</b>	<b>Status of TMDL<sup>1</sup> Implementation Plan</b>
Hangman Creek 17010306	Upper Hangman Creek Subbasin Assessment and Total Maximum Daily Load (Idaho Department of Environmental Quality 2007b)	No plan has been developed
Palouse River 17060108	Palouse River Tributaries Subbasin Assessment and Total Maximum Daily Load (Henderson 2005)  South Fork Palouse River Watershed Assessment and Total Maximum Daily Load (Idaho Department of Environmental Quality 2007a)  Palouse River Subbasin: 2017 Temperature Total Maximum Daily Load (Idaho Department of Environmental Quality 2017b)	No plan has been developed <sup>2</sup>

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Subbasin Name and Hydrologic Unit Code	Idaho Department of Environmental Quality Subbasin Assessment and Total Maximum Daily Load Reports	Status of TMDL <sup>1</sup> Implementation Plan
Middle Salmon River – Chamberlain Creek 17060207	Middle Salmon River—Chamberlain Creek Subbasin Assessment and Crooked Creek Total Maximum Daily Load (Shumar 2002)  Middle Salmon River—Chamberlain Creek Subbasin and Crooked Creek Total Maximum Daily Load: 2017 Temperature Total Maximum Daily Load and Five-Year Review (Idaho Department of Environmental Quality 2017a)	Under Development
Lower Salmon River 17060209	Lower Salmon River and Hells Canyon Tributaries Assessments and Total Maximum Daily Load (Idaho Department of Environmental Quality 2010)	No plan has been developed
Little Salmon River 17060210	Little Salmon River Subbasin Assessment and Total Maximum Daily Load (Idaho Department of Environmental Quality 2006)  Little Salmon River Subbasin Assessment and Total Maximum Daily Load: 2013 Addendum (Idaho Department of Environmental Quality 2013)	Completed in 2008
Lower Selway River 17060302	Lower Selway River Subbasin Assessment (Bugosh 2000)  Category 5 water quality limited streams were delisted and no Total Maximum Daily Loads established	Not applicable
Lochsa River 17060303	Lochsa River Subbasin Assessment (Bugosh 1999)  Lochsa River Subbasin Temperature Total Maximum Daily Loads: 2012 Addendum to the Lochsa River Subbasin Assessment (EPA approved 2018, revised 2020) (State Technical Services Office 2012)  Appendix C. Lochsa River Subbasin Temperature Natural Conditions Assessments (State of Idaho Department of Environmental Quality 2022c)	No plan has been developed
South Fork Clearwater River 17060305	South Fork Clearwater River Subbasin Assessment and Total Maximum Daily Loads (Dechart and Woodruff 2003)	Completed in 2006
Clearwater River 17060306	Potlatch River Subbasin Assessment and Total Maximum Daily Loads (Idaho Department of Environmental Quality 2008)  Potlatch River Watershed Assessment and Total Maximum Daily Loads: 2017 Temperature Total Maximum Daily Load (Idaho Department of Environmental Quality 2018a)  Lolo Creek Tributaries Subbasin Assessment and Total Maximum Daily Load (Idaho Department of Environmental Quality 2011)  Lolo Creek Tributaries Watershed: 2017 Temperature Total Maximum Daily Load (Esquivel 2020)	No plan has been developed <sup>2</sup>
Upper North Fork Clearwater River 17060307	Upper North Fork Clearwater River Subbasin Assessment and Total Maximum Daily Loads (Idaho Department of Environmental Quality 2003)  Upper North Fork Clearwater River Subbasin Assessment and Total Maximum Daily Load: 2017 Lake Creek Temperature Total Maximum Daily Load (Idaho Department of Environmental Quality 2018b)	Under Development

Subbasin Name and Hydrologic Unit Code	Idaho Department of Environmental Quality Subbasin Assessment and Total Maximum Daily Load Reports	Status of TMDL <sup>1</sup> Implementation Plan
Lower North Fork Clearwater River  17060308	Lower North Fork Clearwater River Subbasin Assessment and Total Maximum Daily Load (Henderson 2002)  Lower North Fork Clearwater River Subbasin Five-Year Review and Total Maximum Daily Load Addendum (Rowan 2013)	Completed in 2004;  Addendum completed in 2013

<sup>1</sup>Total Maximum Daily Load<sup>2</sup>Implementation Plans have been developed for Agriculture for the Palouse River, Potlatch River, and Lolo Creek Tributaries.

Data Source: Idaho Department of Environmental Quality Table of Subbasin Assessments, Total Maximum Daily Loads, Implementation Plans, and Five-Year Reviews; <http://www.deq.idaho.gov/water-quality/surface-water/tmdls/table-of-sbas-tmdls/>

Once an approved total maximum daily load is established, waterbodies are moved from Category 5 to Category 4A in the integrated report. Impaired waters without a completed total maximum daily load remain as a Category 5 water body on the 303(d) list. As noted in Table 7, a total maximum daily load implementation plan is not applicable in the Lower Selway River Subbasin. Due to the findings in the Lower Selway River Subbasin Assessment (Bugosh 2000), all of the Category 5 water quality limited streams were delisted and no total maximum daily loads were established.

## Public Drinking Water

Water draining off National Forest System lands is often used for drinking water supplies. The protection of all sources of public drinking water from contamination is a nationwide imperative, heralded by the Safe Drinking Water Act of 1974. Municipal Watersheds and Source Water Protection Areas are two separate constructs for drinking water protection that are applicable to National Forest System land management.

The Forests to Faucets 2.0 assessment identified HUC12 watersheds in the United States that are most important to surface drinking water sources (Mack et al. 2021). The assessment also identifies forested areas important to the protection of drinking water and areas where the quantity and quality of drinking water supplies might be threatened by climate change, development, insects and diseases, or wildland fire. Watersheds on the Nez Perce-Clearwater have a moderate importance for the delivery of surface drinking water supplies from waters originating on the Forests (Mack et al. 2021). The assessment also indicated that lands within the Nez Perce-Clearwater have minimal threats to surface water supply from land use changes and moderate to high threats to surface water supply from climate change, insects and disease, and wildfire.

## Municipal Watersheds

Direction for management of National Forest System watersheds that supply municipal water is provided in 36 CFR 251.9 and Forest Service Manual 2542. The Forest Service is directed to manage watershed lands for multiple uses while recognizing domestic supply needs. Municipalities may apply to the Forest Service for municipal watershed agreements if they desire protective actions or restrictive measures to protect municipal water supplies not specified in the Forest Plan. Formal written agreements to ensure protection of water supplies may be appropriate when multiple use management fails to meet the needs of a water user.

Although there are currently no municipal watershed agreements established for watersheds on the Nez Perce-Clearwater, agreements could be developed in the future. Forest Service Manual 2542.03 states “identify watersheds providing the principal source of community water during land management planning.” The Nez Perce-Clearwater provides the principal source of community water for the cities of Elk River, Elk City, and Pierce. As shown in Table 8, there are three HUC12 subwatersheds on the Nez Perce-Clearwater that provide the principal source of community water for these communities.

**Table 8. HUC12 subwatersheds that provide the principal source of community water.**

HUC12 Name	Hydrologic Unit Code	Community	Percent of source water protection area on NFS lands	Source Water	Population Served
Upper Elk Creek	170603080701	City of Elk River	90	Elk Creek	165
Elk Creek	170603050203	Elk City Water and Sewer Association	51	Big Elk Creek	320
Upper Orofino Creek	170603060401	City of Pierce	41	Orofino Creek	508

Data Source: Idaho Department of Environmental Quality Source Water Assessment Database.

## Source Water Protection Areas

Source water protection areas protect public water systems from contamination in accordance with the 1996 amendments to the Safe Drinking Water Act. Public water systems are defined under the Safe Drinking Water Act as entities that provide "water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year."

Source water is the untreated groundwater (aquifers and springs) and surface waters (rivers, streams, and lakes) used to supply drinking water for private, domestic wells and public water systems. Groundwater and surface water used for drinking water supplies are often vulnerable to contamination from land use practices and potential contaminant sources within the vicinity of drinking water wells and intakes. The Nez Perce-Clearwater contains 80,000 acres of source water protection areas; 6,500 acres from groundwater and 73,500 from surface water. As noted in Table 9, Source water protection areas occur within 57 subwatersheds. Table 9 also shows the percent of source water protection area that occurs within the Nez Perce-Clearwater portion of a particular HUC12. For example, the Middle Elk Creek subwatershed is 14,580 acres. Only 2,555 acres of the 14,580 occur on Nez Perce-Clearwater lands. Of the 2,555 acres, only 805 acres are identified as a source water protection area, so 32 percent of the 2,555 acres of Nez Perce-Clearwater lands. This distinction is to identify the extent of source water protection area within the Nez Perce-Clearwater portion of the subwatershed.

**Table 9. Acres and percent of HUC12 subwatersheds with source water protection areas on Nez Perce-Clearwater**

HUC12 Name	HUC12 Number	Public Source Water Name	SWPA <sup>1</sup> acres on NPC <sup>2</sup>	Percent of SWPA <sup>1</sup> within NPC <sup>2</sup> portion of the HUC12
Big Sand Creek—Palouse River	170601080102	Camp Grizzly Boy Scout; IDT Laird Park Campground	105	Less than 1
Meadow Creek	170601080103	USFS Giant White Pine Campground	72	Less than 1

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HUC12 Name	HUC12 Number	Public Source Water Name	SWPA <sup>1</sup> acres on NPC <sup>2</sup>	Percent of SWPA <sup>1</sup> within NPC <sup>2</sup> portion of the HUC12
Deep Creek	170601080109	Mineral Mountain Rest Area IDT	72	1
Rock Creek—Palouse River	170601080110	Bennett Lumber Company; Potlatch City Of	253	7
Sherwin Creek—Salmon River	170602090405	USFS Slate Creek Ranger Station	21	Less than 1
Lower Rapid River	170602100404	Rapid River Fish Hatchery IDFG; Rapid River Homeowners Water Sewer Dist.	521	4
Rackliff Creek—Selway River	170603020403	USFS Ohara Bar Campground	216	1
Ohara Creek	170603020404	Elk City Water and Sewer Assn	1	Less than 1
Goddard Creek—Selway River	170603020405	USFS Fenn Ranger Station and YCC Camp	1,904	8
Lower Brushy Fork Creek	170603030103	USFS Lolo Pass Visitor Center	57	Less than 1
Lower Crooked Fork Creek	170603030106	USFS Lolo Pass Visitor Center; USFS Powell Ranger Station	54	Less than 1
Walton Creek—Lochsa River	170603030301	Lochsa Lodge; USFS Powell Campground; USFS Powell Ranger Station	1,196	6
Legendary Bear Creek	170603030302	USFS Powell Ranger Station	462	3
Bald Mountain Creek—Lochsa River	170603030506	USFS Lochsa Historical Visitor and Work; USFS Wilderness Gateway Campground	72	Less than 1
Glade Creek—Lochsa River	170603030708	Three Rivers Resort; Wilderness Inn	72	Less than 1
South Fork Clear Creek	170603040101	Kamiah City Of	3,946	24
Upper Clear Creek	170603040102	Kamiah City Of	4,060	22
Lower Clear Creek	170603040103	Kamiah City Of; Kooskia Water Dept; Orofino City Of	2,136	25
Big Smith Creek—Middle Fork Clearwater River	170603040201	Kamiah City Of; River Dance Lodge	6,341	25
Maggie Creek	170603040202	Kamiah City Of; Kooskia Water Dept; Orofino City Of	91	100
Suttler Creek—Middle Fork Clearwater River	170603040203	Kamiah City Of; Kooskia Water Dept; Orofino City Of; Riverside Indep. Water Dist.	3,059	74
South Fork Red River	170603050101	USFS Red River Ranger Station	125	1
Upper Red River	170603050102	USFS Red River Campground; USFS Red River Ranger Station	266	1
Middle Red River	170603050103	USFS Red River Ranger Station	211	1
Upper American River	170603050201	Elk City Water and Sewer Assn	168	1
Elk Creek	170603050203	Elk City Water and Sewer Assn	7,095	99

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HUC12 Name	HUC12 Number	Public Source Water Name	SWPA <sup>1</sup> acres on NPC <sup>2</sup>	Percent of SWPA <sup>1</sup> within NPC <sup>2</sup> portion of the HUC12
Lower American River	170603050204	Elk City Water and Sewer Assn	3	Less than 1
Upper Newsome Creek	170603050401	Kamiah City Of	3	Less than 1
Lower Newsome Creek	170603050402	Elk City Water and Sewer Assn	60	Less than 1
Meadow Creek	170603050702	Kamiah City Of	8	Less than 1
Lightning Creek—South Fork Clearwater River	170603050704	Kamiah City Of	3,266	22
Threemile Creek	170603050902	Grangeville Water Dept; Kamiah City Of	8	100
Rabbit Creek—South Fork Clearwater River	170603050903	Kamiah City Of; Kooskia Water Dept	770	24
Musselshell Creek	170603060202	USFS Musselshell Work Center	72	Less than 1
Middle Lolo Creek	170603060204	Orofino City Of; Riverside Indep. Water Dist.	186	2
Lower Lolo Creek	170603060205	Orofino City Of; Riverside Indep. Water Dist.	117	42
Upper Orofino Creek	170603060401	Pierce City Of; Riverside Indep. Water Dist.	11,134	100
Corral Creek	170603060901	Juliaetta City Of	27	Less than 1
Hog Meadow Creek—Potlatch Creek	170603060902	Juliaetta City Of; USFS Little Boulder Creek Campground	483	5
Upper Big Bear Creek	170603061001	Juliaetta City Of	21	1
Wheeler Canyon—Clearwater River	170603061302	Lewiston City Of	56	35
Elizabeth Creek—North Fork Clearwater River	170603070105	USFS Kelly Forks Work Center Campground	33	Less than 1
Cold Springs Creek—North Fork Clearwater River	170603070702	USFS Kelly Forks Work Center Campground	111	Less than 1
Sneak Creek—North Fork Clearwater River	170603071002	USFS Canyon Work Center	72	Less than 1
Stoney Creek	170603080202	Elk River City Of	23	10
Breakfast Creek—Stanton Creek	170603080204	Ahsahka Water and Sewer Dist.; Corps Big Eddy Marina; Corps Dworshak Power House View Pt; Corps Freeman Creek Campground; USFWS Dworshak National Fish Hatchery	127	34
Cedar Creek—Little North Fork Clearwater River	170603080302	Ahsahka Water and Sewer Dist.; Corps Big Eddy Marina; Corps Dworshak Power House View Pt; Corps Freeman Creek Campground; USFWS Dworshak National Fish Hatchery	91	82
Salmon Creek—North Fork Clearwater River	170603080404	Ahsahka Water and Sewer Dist.; Corps Big Eddy Marina; Corps Dworshak Power House View Pt; Corps Freeman Creek Campground; USFWS Dworshak National Fish Hatchery	1,396	9

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HUC12 Name	HUC12 Number	Public Source Water Name	SWPA <sup>1</sup> acres on NPC <sup>2</sup>	Percent of SWPA <sup>1</sup> within NPC <sup>2</sup> portion of the HUC12
Gold Creek	170603080501	Elk River City Of	63	18
Elkberry Creek—North Fork Clearwater River	170603080502	Ahsahka Water and Sewer Dist.; Corps Big Eddy Marina; Corps Dworshak Power House View Pt; Corps Freeman Creek Campground; USFWS Dworshak National Fish Hatchery	2	1
Swamp Creek—North Fork Clearwater River	170603080504	Corps Big Eddy Marina; Corps Freeman Creek Campground	112	35
Upper Elk Creek	170603080701	Elk River City Of; Corps Freeman Creek Campground; USFS Elk Creek Campground	23,659	100
Bull Run Creek	170603080702	Ahsahka Water and Sewer Dist.; Corps Big Eddy Marina; Corps Dworshak Power House View Pt; Corps Freeman Creek Campground; USFWS Dworshak National Fish Hatchery	681	29
Middle Elk Creek	170603080703	Ahsahka Water and Sewer Dist.; Corps Big Eddy Marina; Corps Dworshak Power House View Pt; Corps Freeman Creek Campground; USFWS Dworshak National Fish Hatchery	805	32
Long Meadow Creek	170603080704	Ahsahka Water and Sewer Dist.; Corps Big Eddy Marina; Corps Dworshak Power House View Pt; Corps Freeman Creek Campground; USFWS Dworshak National Fish Hatchery	1,145	23
Lower Elk Creek	170603080705	Ahsahka Water and Sewer Dist.; Corps Big Eddy Marina; Corps Dworshak Power House View Pt; Corps Freeman Creek Campground; USFWS Dworshak National Fish Hatchery	665	24
Cranberry Creek—North Fork Clearwater River	170603080801	Ahsahka Water and Sewer Dist.; Corps Big Eddy Marina; Corps Dworshak Power House View Pt; Corps Freeman Creek Campground; USFWS Dworshak National Fish Hatchery	37	74

1Source Water Protection Area

2Nez Perce-Clearwater

Data Source: Idaho Department of Environmental Quality Source Water Assessment Database.

The Idaho Department of Environmental Quality’s Source Water Protection Program provides guidance and approval of source water protection areas within the State of Idaho. The State of Idaho has completed a source water assessment for each of the 41 public water systems derived from the Nez Perce-Clearwater. A source water assessment summarizes the likelihood of individual drinking water sources becoming contaminated and serves as a foundation for public water systems to prepare source water (drinking water) protection plans and implement protection measures. Each source water assessment report defines the zone of contribution, commonly referred to as a source water protection area, as that portion of the watershed or subsurface area contributing water to the well, spring, or surface water intake. The assessment also identifies the significant potential sources of drinking water contamination in those areas; determines the likelihood that the water supply will become contaminated; and suggested management planning actions for communities and landowners. Public water supply sources and source water assessments can be found on the Idaho Department of Environmental Quality website: <http://www.deq.idaho.gov/water-quality/source-water/>. Source water protection is a voluntary effort a community can implement to help prevent contamination of the source water that supplies its public water system. A Source Water Protection Plan is a written plan a community develops to document its source water protection activities and outlines the management tools the local community plans to use to protect

drinking water sources. The following communities have formalized source water protection plans established with the Idaho Department of Environmental Quality: City of Elk River (Idaho Rural Water Association 2008), Elk City Water and Sewer Association (Idaho Department of Environmental Quality 2017c), City of Kamiah (Hummer and City of Kamiah Planning Team 2017), City of Orofino (City of Orofino 2006), City of Lewiston (City of Lewiston and Asotin County Public Utility District 2010), City of Juliaetta (City of Juliaetta 2019), Riverside Independent Water District, City of Kooskia (City of Kooskia 2013), and City of Potlatch (Idaho Rural Water Association 2010).

There are 13 public water systems that have surface water intakes located on Nez Perce-Clearwater lands or have surface water source water protection areas that extend onto National Forest System lands as delineated in the source water assessments (Table 10). These public water systems serve approximately 22,650 people. The communities of Elk River, Elk City, Kamiah, Orofino, Lewiston, Juliaetta, Pierce, and Riverside derive their domestic water supply directly from the surface water originating from within the Nez Perce-Clearwater. Approximately 73,490 acres of the Nez Perce-Clearwater are delineated as source water protection areas for surface water intakes.

**Table 10. Public water systems that have surface water intakes on National Forest System lands or have surface water source water protections areas that extend onto National Forest System lands**

Public Water System Number	Public Water System Name and Date of Assessment	Subbasin	Water Source	Class of Public Water System	Population Served by Public Water System
2180001	Ahsahka Water and Sewer District (2011)	Lower North Fork Clearwater	North Fork Clearwater	Non-Community	85
2180007	Big Eddy Marina, Clearwater County, Idaho (2001)	Lower North Fork Clearwater	Dworshak Pool	Non-Community	25
2180009	Dworshak Power House, Clearwater County, Idaho (2001)	Lower North Fork Clearwater	Dworshak Pool	Non-Community	50
2180010	Freeman Creek Campground, Clearwater County, Idaho (2001)	Lower North Fork Clearwater	Dworshak Pool	Non-Community	100
2180013	City of Elk River (2005)	Lower North Fork Clearwater	Elk River	Community	165
2180024	City of Orofino (Surface Water) (2001)	Clearwater	Clearwater River	Community	2,459
2180027	City of Pierce (2011)	Clearwater	Orofino Creek	Community	508
2180032	Riverside Independent Water District (Surface Water) (2001)	Clearwater	Clearwater River	Community	1,800
2180035	USFWS Dworshak National Fish Hatchery, Clearwater County, Idaho (2002)	Lower North Fork Clearwater	Dworshak Pool	Non-Community	25
2250017	Elk City Water and Sewer Association (Surface Water)(Idaho Department of Environmental Quality 2002)	South Fork Clearwater	Big Elk Creek	Community	320
2290018	City of Juliaetta (Surface Water) (2001)	Clearwater	Potlatch River	Community	609
2310003	City of Kamiah (Surface Water) (2017) (Hummer and City of Kamiah Planning Team 2017)	Clearwater	Clearwater River	Community	1,495



Public Water System Number	Public Water System Name and Date of Assessment	Subbasin	Water Source	Class of Public Water System	Population Served by Public Water System
2350014	City of Lewiston (Surface Water) (2002)	Clearwater	Clearwater River	Community	15,011

Data Source: Idaho Department of Environmental Quality Source Water Assessment Database.

There are 28 public water systems withdrawing groundwater from wells and springs within Nez Perce-Clearwater lands or have groundwater source water protection areas that extend onto National Forest System lands as delineated in the source water assessments (Table 11). These public water systems serve approximately 6,240 people. The communities of Grangeville, Kooskia, and Potlatch derive groundwater that drains from Nez Perce-Clearwater lands. Approximately 6,440 acres of the Nez Perce-Clearwater are delineated as source water protection areas for groundwater intakes.

**Table 11. Public water systems that have groundwater intakes or delineated zone of contribution located within Nez Perce-Clearwater lands**

Public Water System Number	Public Water System Name and Date of Assessment	Subbasin	Class of Public Water System	Population Served by Public Water System
2180041	USFS Canyon Work Center (2001)	Upper North Fork Clearwater	Non-Community	50
2180046	USFS Kelly Forks Work Center (2014)	Upper North Fork Clearwater	Non-Community	25
2180047	USFS Musselshell Work Center (2001)	Clearwater	Non-Community	35
2180056	USFS Elk Creek Campground (2011)	Lower North Fork Clearwater	Non-Community	35
2250023	Grangeville Water Department (2002)	South Fork Clearwater	Community	3,151
2250032	Kooskia Water Department (2003)	Middle Fork Clearwater	Community	607
2250035	Lochsa Lodge (2002)	Lochsa	Non-Community	80
2250036	Wilderness Inn (2002)	Lochsa	Non-Community	80
2250047	Rapid River Fish Hatchery, IDFG (2002)	Little Salmon	Non-Community	25
2250050	Rapid River Homeowners Water Sewer District (2003)	Little Salmon	Non-Community	120
2250052	USFS Powell Campground (2002)	Lochsa	Non-Community	25
2250062	River Dance Lodge (2011)	Lochsa	Non-Community	25
2250063	Three Rivers Resort (2004)	Lochsa	Non-Community	120
2250074	USFS Lochsa Historical Visitor and Work Camp (2002)	Lochsa	Non-Community	25
2250075	USFS Lolo Pass Visitor Center (2004)	Lochsa	Non-Community	25
2250078	USFS Powell Ranger Station (2014)	Lochsa	Non-Community	44
2250085	USFS Wilderness Gateway Campground (2002)	Lochsa	Non-Community	75

Public Water System Number	Public Water System Name and Date of Assessment	Subbasin	Class of Public Water System	Population Served by Public Water System
2250091	USFS Fenn Ranger Station and YCC Camp (2003)	Lower Selway	Non-Community	74
2250098	USFS O'Hara Bar Campground (2009)	Lower Selway	Non-Community	40
2250101	USFS Red River Campground (2002)	South Fork Clearwater	Non-Community	12
2250102	USFS Red River Ranger Station (2003)	South Fork Clearwater	Non-Community	70
2250105	USFS Slate Creek Ranger Station (2001)	Lower Salmon	Non-Community	25
2290003	Bennett Lumber Products, Inc. (2002)	Palouse	Non-Community	150
2290006	Camp Grizzly Boy Scouts (2002)	Palouse	Non-Community	300
2290021	Mineral Mountain Rest Area ITD (2002)	Palouse	Non-Community	100
2290030	City of Potlatch (2002)	Palouse	Community	812
2290051	USFS Giant White Pine Campground (2002)	Palouse	Non-Community	25
2290052	USFS Laird Park Campground (2002)	Palouse	Non-Community	86

Data Source: Idaho Department of Environmental Quality Source Water Assessment database.

Groundwater is an important resource in Idaho, and it will likely become more important in the future as the State's population and industries grow. Groundwater is the source of drinking water for 95 percent of Idaho citizens (Idaho Department of Environmental Quality 2019). Idaho uses over 12,384 million gallons of groundwater per day for domestic use, public water supplies, irrigation, livestock, and industry (Murray 2018). Water generated in the mountains of the Nez Perce-Clearwater is an important source of recharge for downstream aquifers and is, therefore, an important ecosystem service to local communities. The Nez Perce-Clearwater contains all or portions of the following groundwater flow systems: Palouse River, Hangman Creek, Clearwater Uplands, Clearwater Plateau, Mill Creek, Little Slate Creek, Elk City, and Red River (Graham and Campbell 1981).

Water from the Nez Perce-Clearwater drains into six Idaho counties (Table 12). The total groundwater withdrawn for public and domestic water supply from those counties is 17.2 million gallons per day (Murray 2018). An additional 12.7 million gallons of groundwater per day is used for irrigation, livestock, aquaculture, and other industry. In comparison, these same counties use 55.6 million gallons of surface water per day for public supply, irrigation, livestock, aquaculture, and other industry (Murray 2018). Consumptive groundwater use within the Nez Perce-Clearwater is limited to special-use permits, Forest Service campgrounds, or administrative sites with domestic wells, private in-holdings, and in-forest communities.

**Table 12. Groundwater withdrawal amounts and percent Nez Perce-Clearwater lands by county**

County	Population served	Public and domestic groundwater withdrawal (Mgal/d) <sup>1</sup>	Total groundwater use <sup>2</sup> (Mgal/d) <sup>1</sup>	Percent of Nez Perce-Clearwater in county
Benewah	9,218	0.5	0.8	4
Clearwater	8,373	0.7	6.3	50
Idaho	15,697	2.6	3.1	56

County	Population served	Public and domestic groundwater withdrawal (Mgal/d) <sup>1</sup>	Total groundwater use <sup>2</sup> (Mgal/d) <sup>1</sup>	Percent of Nez Perce-Clearwater in county
Latah	34,714	6.8	9.3	21
Lewis	3,750	0.7	1.2	Less than 1
Nez Perce	37,931	3.1	6.0	Less than 1
Shoshone	13,157	2.8	3.1	3
<b>Total</b>	<b>122,840</b>	<b>17.2</b>	<b>29.8</b>	<b>na</b>

<sup>1</sup>Million gallons per day

<sup>2</sup>Total groundwater includes public, domestic, irrigation, livestock, and industry usage.

Data Source: Water use by source and category in Idaho counties, 2015; U.S. Geological Survey data release (Murray 2018).

## Water Rights

Idaho Department of Water Resources manages water in the State of Idaho through water allocation and distribution processes. Water rights authorize the withdrawal of public water by private individuals and organizations and are enforced by the state. Water rights on the Nez Perce-Clearwater are administered by the Forest Service Northern Region regional office in close coordination with the State of Idaho. Water rights are enforced by the state. Both consumptive and non-consumptive water rights issues are addressed through legal mechanisms. The Snake River Basin Adjudication was an administrative and legal process that began in 1987 to determine the water rights in the Snake River Basin drainage. The Final Unified Decree for the Snake River Basin Adjudication was signed on August 25, 2014. Water rights that occur on the Nez Perce-Clearwater are summarized in Table 13. Consumptive claims are mostly filed under state water law, with the exception of certain reserved claims for administrative purposes. Non-consumptive claims include reserved rights for Wild and Scenic Rivers. Non-reserved instream flow claims were processed through the state comprehensive water planning process and the Nez Perce Tribal Settlement Agreement under the Snake River Basin Adjudication. Instream flows for resource protection are also included as conditions in special use permits.

A "statutory claim" is a statement filed with Idaho Department of Water Resources to make a record of an existing beneficial use right. In 1978, a statute was enacted requiring persons with beneficial use rights, other than water rights used solely for domestic purposes as defined above, to record their water rights with Idaho Department of Water Resources. The purpose of the statute was to provide a system to document water rights for which there were previously no records. However, these records are merely affidavits of the water users, and do not result in a license, decree, or other confirmation of the water right. "Adjudication" is a court action for the determination of existing water rights, which results in a decree that confirms and defines each water right. Idaho Department of Water Resources issues permits that can become licenses.

**Table 13. Number of water rights and claims by type on the Nez Perce-Clearwater**

Owner	Decreed Water Rights	Statutory Claims	Licensed Water Uses	Total
Federal Government	775	136	7	918
All Others	86	75	144	305

Data Source: Idaho Department of Water Resources GIS Data Hub; Point of Diversion: Water Right; 6/27/2018 version.

In the Clearwater Basin, most subwatersheds which have consumptive surface water rights contain less than 1,000-acre foot per year of surface water allocation. The highest non-consumptive water right is greater than 400,000-acre foot per year associated with minimum instream flows on the Lochsa, Selway, and Middle Fork Clearwater rivers, which are designated wild and scenic rivers. With the exception of areas near Lewiston, Pierce, and Kooskia, where maximum allowable use ranges from 10,000 to 35,000-acre foot per year, water use in other human populated subwatersheds is generally below 5,000-acre foot per year, per the Draft Clearwater Subbasin Assessment (Ecovista 2003). Data regarding potential water use within the Clearwater Basin was derived from Idaho Department of Water Resources records on both water rights and adjudication claims filed under the Snake River Basin Adjudication process.

Groundwater use in the Clearwater basin is less substantial than surface water use in both amount and distribution. The overall distribution of allowable groundwater use is predominantly associated with privately owned portions of the basin and is most likely comprised of municipal and domestic use. No groundwater use is permitted in the Selway River drainage or the Upper North Fork subbasins. Allowable groundwater use in the Lochsa, Lower North Fork, and South Fork subbasins is both limited and localized.

The Salmon River Subbasin Assessment (Northwest Power and Conservation Council 2004) noted 40 points of water diversion in the Middle Salmon–Chamberlain subbasin, 1,500 points of water diversion in the Little Salmon subbasin, and 450 known points of water diversion in the Lower Salmon subbasin. The numbers include the Snake River Basin Adjudication recommended rights, the claims they are or will be processing, and any other licensed and permitted rights currently recognized. Because the amount of water that can be diverted at any one time depends on available water and many other factors, no diversion rates or volumes have been given.

## **Minimum Stream Flow Water Rights**

Minimum stream flow water rights are held by the Idaho Water Resource Board in trust for Idaho citizens (Idaho Code, Title 42, Chapter 15) for the purpose of maintaining minimum streamflows to protect a variety of instream uses (Idaho Department of Water Resources 2013). These are junior water rights. The minimum stream flow is the amount of flow necessary to preserve desired stream values, including fish and wildlife habitat, aquatic life, navigation and transportation, recreation, water quality, and aesthetic beauty. Through the Snake River Basin Adjudication process, minimum stream flow water rights are established on approximately 180 streams located within the Nez Perce-Clearwater.

## **Wild and Scenic Rivers Agreement and Wild and Scenic Water Rights**

Section 13(c) of the Wild and Scenic Rivers Act expressly reserves the quantity of water necessary to protect river values, including water quality and flow-dependent outstandingly remarkable values, to achieve the purposes of the Act. This reservation of water is called a federal reserved water right and is generally adjudicated in a state court (for example, basin-wide adjudication). The designation does not supersede existing, valid water rights and establishes a priority date coincident with the river's date of designation into the National Wild and Scenic Rivers System.

The priority date is the date when the water right was established, and it determines who gets water when there is a shortage. If there is not enough water available to satisfy all of the water rights, then the oldest

(or senior) water rights are satisfied first and so on (in order) until there is no water left. When there is not enough water to satisfy all the water rights, new (or junior) water rights holders do not get water.

The Wild and Scenic Rivers Agreement resolved issues related to federal reserved water right claims filed by the federal government under the Wild and Scenic Rivers Act. The agreement provides for the quantification of the wild and scenic federal reserved water rights and state administration of those rights. Within the Nez Perce-Clearwater, Rapid River, Middle Fork Clearwater River, Lochsa River, and Selway River and various tributaries have established wild and scenic river minimum flow water rights, as displayed in Table 14.

**Table 14. Active decreed water rights for minimum instream flow for wild and scenic rivers on the Nez Perce-Clearwater**

<b>Wild and Scenic River</b>	<b>Federal Reserved Water Rights and stream flow amount</b>	<b>Stream Name and State of Idaho Reserved Water Right</b>
Middle Fork Clearwater	Water Right 81-10625 When the stream flow at the quantification site is less than 37,900 cfs <sup>1</sup> , the United States is entitled to certain flows based on time of year.	Maggie Creek (81-11954) Clear Creek (81-11957 and 81-11963)
Lochsa River	Water Right 81-10513 When the stream flow at the quantification site is less than 18,600 cfs <sup>1</sup> , the United States is entitled to certain flows based on time of year.	Brushy Fork Creek (81-11934), Spruce Creek (81-11935), Papoose Creek (81-11936), Squaw Creek (81-11937), Crooked Fork Creek (81-11938), White Sand Creek (81-11939), Walton Creek (81-11940), Warm Springs Creek (81-11941), Hungery Creek (81-11942), Fish Creek (81-11943), Big Sand Creek (81-11944), Big Flat Creek (81-11945), Boulder Creek (81-11947), Old Man Creek (81-11950), Pete King Creek (81-11953)
Selway River	Water Right 81-10472 When the stream flow at the quantification site is less than 23,700 cfs <sup>1</sup> , the United States is entitled to certain flows based on time of year.	West Moose Creek (81-11946); Wounded Doe Creek (81-11948); Moose Creek (81-11949, 81-11952, and 81-11956); Rhoda Creek (81-11951); Pettibone Creek (81-11955); Gedney Creek (81-11958); Marten Creek (81-11959); Mink Creek (81-11960); O' Hara Creek (81-11961, 81-11965); Bear Creek (81-11962); Hamby Creek (81-11964); Meadow Creek (81-11966); Cub Creek (81-11967); Buck Lake Creek (81-11968); Goat Creek (81-11969); Running Creek (81-11970); White Cap Creek (81-11971); Indian Creek (81-11972); Three Prong Creek (81-11973); Deep Creek (81-11974); Wilkerson Creek (81-11975)
Rapid River (including West Fork)	Water Right 78-11961 When the stream flow at the quantification site is less than 625 cfs <sup>1</sup> , the United States is entitled to certain flows based on time of year.	na

<sup>1</sup>Cubic feet per second, Data Source: Idaho Department of Water Resources

In addition to quantifying the wild and scenic water rights, the Wild and Scenic Agreement subordinated the wild and scenic water rights to certain existing and future water uses and required detailed administration of existing and new water rights to ensure water use conforms to all elements of the water rights. This means that, although the wild and scenic water right may be senior in priority, some junior water rights will not be regulated to provide water to satisfy the wild and scenic water right. Subordination to finite future uses allows federal reserved water rights in each wild and scenic basin to be

subordinate to a limited amount of future development that would not otherwise occur without the benefits of subordination.

The provisions of the Wild and Scenic Agreement apply to hydraulically connected water sources above (upstream from) the ending points of the respective wild and scenic water rights. The Idaho Department of Water Resources interprets the term "hydraulically connected sources" to mean all sources of water, including ground water, within the surface water drainages of the wild and scenic rivers, upstream from the ending points of the wild and scenic water rights. All surface water rights and ground water rights diverted from sources hydraulically connected to the wild and scenic river reaches upstream from the ending points are recorded, tracked, and administered under the provisions of the Wild and Scenic Agreement. Wild and scenic water rights apply to the Lochsa River, Middle Fork Clearwater River, , Lower Salmon River, Middle Salmon-Chamberlain, Little Salmon River, Upper Selway River, Lower Selway River subbasins and Rapid River watershed. The Nez Perce-Clearwater also contains a 25-acre portion of the St. Joe River subbasin associated with the St. Joe wild and scenic river that flows through the Idaho Panhandle National Forest. These drainages cover 2,112,767 acres, or 52 percent, of the Nez Perce-Clearwater.

## **Specially Protected Waters**

All streams within the Nez Perce-Clearwater are protected by the Clean Water Act. The Idaho Department of Environmental Quality administers the Clean Water Act through water quality standards, designation of beneficial uses, and the anti-degradation program. There are several streams on the Nez Perce-Clearwater that have distinct status that offers additional protections, including streams in wilderness and Idaho roadless area, wild and scenic rivers, special resource waters, and state protected waters.

## **Outstanding Resource Waters**

Outstanding resource waters are high quality waters that have been designated by the Idaho legislature. Outstanding resource waters constitute an outstanding national or state resource that requires protection from point and nonpoint source activities that may lower water quality. In 2000, the Board of Environmental Quality passed a motion to recommend portions of the Selway Rivers as outstanding resource waters. These segments included the Selway River, Meadow Creek, Moose Creek, East Fork Moose Creek, North Fork Moose Creek, Running Creek, Bear Creek, and White Cap Creek. The Idaho State legislature has yet to designate any river as an outstanding resource waters.

## **Special Resource Waters**

As outlined in section 056 of the Idaho Water Quality Standards (IDAPA 58.01.02), special resource waters are those specific segments or bodies of water which are recognized as needing intensive protection to preserve outstanding or unique characteristics or to maintain current beneficial uses. There are 1,380 miles of special resource waters on the Nez Perce-Clearwater. Rivers with special resource water designations are Potlatch River, Clearwater River, North Fork Clearwater River, Middle Fork Clearwater River, Lochsa River, Selway River, South Fork Clearwater River, American River, Red River, Salmon River, Little Salmon River, and Rapid River.

## **Northwest Power and Conservation Council Protected Areas**

In 2003, the Northwest Power and Conservation Council determined that, for specific stream reaches, hydroelectric development would have unacceptable risks of irreversible loss to fish and wildlife and

identified these stream reaches as “Protected Areas”. In essence, Protected Areas are places where fish and wildlife values are judged to outweigh the value of electricity those areas could generate. Under the Northwest Power Act and the Federal Power Act; federal entities, specifically the Bonneville Power Administration, Federal Energy Regulatory Commission, U.S. Army Corps of Engineers, and the Bureau of Reclamation must consider protected area status and restrictions when making decisions regarding hydroelectric facility permits and access to electricity from those facilities. Inclusion in a protected area does not prohibit hydroelectric development at a site. It is important to note that the Council’s recommendations are not binding upon the federal agencies. However, the Council 1) calls on the Federal Energy Regulatory Commission not to license a new hydroelectric development in a protected area, and 2) calls on the Bonneville Power Administration not to acquire the power from such a project should one be licensed by the Federal Energy Regulatory Commission, nor to allow access to the Pacific Northwest—Pacific Southwest Intertie, or “power grid”, in a way that would undermine the protected areas policy. The Northwest Power and Conservation Council identified 2,385 miles of protected areas or streams on the Nez Perce-Clearwater.

Protected Area designations by the Council are not the only constraint on hydroelectric development. Federal designations, such as wilderness areas, wild and scenic rivers, and other designations, can constrain hydroelectric development, as can state statutes. The Northwest Power and Conservation Council identified 1,215 miles of stream already protected under other federal or state action.

## **Comprehensive State Water Plan**

The Idaho Water Resource Board is charged with the development of the Idaho Comprehensive State Water Plan (Idaho Department of Water Resources 2012). The plan includes the statewide water policy plan and associated component basin and water body plans, which cover specific geographic areas of the state.

The Idaho Water Resource Board prepared components of the Comprehensive State Water Plan for the North Fork Clearwater River Basin (Idaho Water Resource Board 1996) and South Fork Clearwater River Basin (Idaho Water Resource Board 2005). The North Fork and South Fork Clearwater River Basin plans provide guidance for the development, management, and protection of water and related resources in the river basins in compliance with provisions of the Idaho State Constitution and Idaho State Code.

## **State Protected River Designations**

The Idaho Water Resource Board has determined that the value of preserving the designated waterways of the North Fork and South Fork Clearwater River basins is in the interest of and for the benefit of the state as a whole. All landowners – private, state, and federal – are encouraged to manage their lands consistent with the Idaho Water Resource Board’s protection designations. The Idaho Water Resource Board also encourages federal resource management agencies to work within the comprehensive state water planning process rather than pursuing federal protection of waters within Idaho.

To protect the public interest, current resource use, and the multiple-use character of the basins, the Idaho Water Resource Board designates specific streams and stream segments as protected with the classification of natural or recreational. As shown in Table 15, there are 533 miles of stream within the Nez Perce-Clearwater with state protected river designations.

**Table 15. State protected river designations by category for the North Fork and South Fork Clearwater River Basins and Associated Stream Miles**

Category	Miles	Rivers
North Fork Clearwater Natural Rivers	103	Portions of North Fork Clearwater River, portions of Isabella Creek, Weitas Creek, portions of Kelly Creek, Cayuse Creek, Little North Fork Clearwater River
North Fork Clearwater Recreation Rivers	97	Portions of North Fork Clearwater River, portions of Isabella Creek, portions of Kelly Creek, Beaver Creek, Elk Creek
South Fork Clearwater Natural Rivers	49	Tenmile Creek, Williams Creek, Twentymile Creek, Johns Creek, Hagen Creek, Square Mountain Creek, Moores Creek, Gospel Creek, West Fork Gospel Creek
South Fork Clearwater Recreation Rivers	284	East Fork Crooked River, West Fork Crooked River, Sixmile Creek, Wing Creek, Silver Creek, Red River, Otterson Creek, South Fork Red River, West Fork Red River, Moose Butte Creek, Red Horse Creek, American River, Limber Luke Creek, West Fork American River, East Fork American River, Kirks Fork, Crooked Fork River, Relief Creek, Newsome Creek, Haysfork Creek, Baldy Creek, Pilot Creek, Sawmill Creek, Sing Lee Creek, West Fork Newsome Creek, Meadow Creek, Mill Creek, South Fork Clearwater River

**Data Source: Idaho Department of Water Resources State of Idaho Prohibited Activities on Protected Rivers**

The following activities are prohibited on all protected streams, unless specific exceptions apply:

- Construction or expansion of dams or impoundments
- Construction of hydropower projects
- Construction of diversion works
- Dredge or placer mining, including recreational dredging, except where allowed through application for permit, Form 3804-B
- Mineral or sand and gravel extraction within the stream channel
- Alterations of the stream channel, except as outlined under activities allowed with terms and conditions

**Activities allowed with terms and conditions**

The following activities are allowed if they do not impede fish passage, spawning, rearing, and boat passage: alterations of the stream channel for construction and maintenance of roads, bridges, and trails; public recreation facilities; fish and wildlife enhancement structures; and channel reconstruction projects approved by the Idaho Water Resource Board.

**Recreational Designated Streams with Exceptions to Prohibited Activities**

Exceptions can only occur if they do not impede fish passage, spawning, rearing, or boat passage and activities must comply with all state stream channel alterations rules and standards. All works must be constructed or maintained to minimize erosion and sedimentation. The following rivers or streams are adjacent to privately owned land which may require construction of diversion works for domestic, municipal, or agricultural uses: South Fork Clearwater River, from the Nez Perce National Forest boundary to confluence with Middle Fork Clearwater; Red River and Moose Butte Creek; American



River, mainstem only; Relief Creek; Crooked River, mainstem only; Newsome Creek mainstem and Pilot Creek; Meadow Creek; and Mill Creek.

## Best Management Practices Sources

Best management practices, often referred to as “BMPs,” are methods, measures, or practices used to address the Clean Water Act objective of maintaining and restoring the chemical, physical, and biological integrity of the Nation’s waters. The use of best management practices is the primary mechanism for mitigating impacts to resources from land management actions. Best management practices used on the Nez Perce-Clearwater come from federal and state direction.

### National Best Management Practices Program

The Forest Service initiated the National Best Management Practices Program in 2012 to improve management of water quality consistent with the federal Clean Water Act and state water quality programs and to integrate water resource protection into management activities conducted across the landscape. The goal of the National Best Management Practices Program is to improve agency performance, accountability, consistency, and efficiency in protecting water quality, and is a significant component of the Agency’s water strategy. The National Best Management Practices Program enables the Agency to readily document compliance with the management of nonpoint source pollution at local, regional, and national scales and address the planning rule requirement for national best management practices (36 CFR 219.8(a)(4)). National best management practices are outlined in Volume 1: National Core Best Management Practices Technical Guide (U.S. Department of Agriculture 2012). Direction for the implementation of this program is found in Forest Service Handbook 2509.19 and additional guidance is located at <https://www.fs.usda.gov/naturalresources/watershed/bmp.shtml>.

### Forest Service Handbook 2509.22, Northern Region and Intermountain Region (R1 and R4) Soil and Water Conservation Practices

The Soil and Water Conservation Practices handbook (U.S. Department of Agriculture 1988) provides site specific soil and water conservation practices for use on National Forest System lands in the Northern Region and the Intermountain Region to comply with direction in the Clean Water Act.

### State of Idaho

Subsection 350.03 of the Idaho Water Quality Standards (IDAPA 58.01.02) lists best management practices for the purpose of limiting nonpoint source pollution. Those specific to actions on Forest Service lands are Rules Pertaining to the Idaho Forest Practices Act, Stream Channel Alteration Rules, and Dredge and Placer Mining Operations in Idaho.

### Idaho Forest Practices Act (IDAPA 20.02.01)

Since 1974, the State of Idaho has encouraged sustainable forest management on Idaho forestland through compliance with the minimum best management practices detailed in the “Rules Pertaining to the Idaho Forest Practices Act, Title 38, Chapter 13, Idaho Code” (Idaho Department of Lands 2022). Best management practices are actions that focus on maintaining high quality water in forested watersheds and keeping sediment from reaching streams. They are enforced by the Idaho Department of Lands on state

and private lands and by timber sale administrators on federal lands. Best management practices are regularly monitored by Idaho Department of Lands. Additionally, every four years, the Idaho Department of Environmental Quality conducts an audit of randomly selected logging projects across the state as part of Idaho's commitment to implementing the federal Clean Water Act. The audit team monitors stream temperature, sediment in the stream, shade, bank stability and the number of aquatic fish and invertebrate species to determine if best management practices were effective. Actions on federal lands in Idaho have had a 93 to 100 percent best management practice compliance rate since 1988 (Andrea et al. 2009, Hoelscher et al. 2001, Idaho Department of Environmental Quality 2016, Stone and Hess 2020).

The Idaho Forestry Best Management Practices Field Guide: Using BMPs to Protect Water Quality (University of Idaho Extension Office 2015) is a field manual developed by the University of Idaho Extension. It includes information and diagrams about the Idaho Forest Practices Act, watersheds, working forests, forest roads, stream crossings, and timber harvest methods and post-harvest activities.

### **Stream Channel Alteration Rules (IDAPA 37.03.07)**

Section 055 of the Stream Channel Alteration Rules outlines the minimum standards to be used during stream channel alteration activities. The standards are intended to cover the ordinary type of stream channel alteration and are included as minimum conditions for approval of stream alteration permits.

### **Dredge and Placer Mining Operations in Idaho (IDAPA 20.03.01)**

Rules governing dredge and placer mining operations in Idaho are intended to implement the requirements for operation and reclamation of placer and dredge mining set forth in the Idaho Code. Compliance with these rules will allow removal of minerals while preserving water quality and ensuring rehabilitation for beneficial use of the land following mining.

The Manual of Best Management Practices for the Mining Industry in Idaho (Idaho Department of Lands 1992) was developed through a joint effort, including state and federal agencies and mining associated organizations. The handbook is intended to be an informational reference guide that can be used by both industry and regulatory agencies. The best management practices outlined in the manual are recommended for use but are not required by law.

## **National Core Best Management Practices Reviews on the Nez Perce-Clearwater**

The Forest Service's National Core Best Management Practice (BMP) program was initiated in 2012. The intent of the program is to improve water quality management through consistent and effective application of BMPs associated with management activities conducted on NFS lands. Prior to development of the national program, BMP planning and implementation was directed by overlapping state-specific guidance and individual forest and regional policies and protocols. The National Core BMP program provides a standardized set of core BMPs for avoiding or mitigating effects to soil and water resources associated the range of management activities. In addition to the core BMPs, it provides a series of systematic monitoring protocols for virtually all management activities conducted on NFS lands (U.S. Department of Agriculture 2012).

The Nez Perce-Clearwater, along with all other NFS units in the United States, has been implementing the National Core BMP Program and fulfilling annual monitoring requirements since 2014. To date, the Forest Service has conducted 17 BMP reviews in a variety of categories (Table 16). BMP review

categories were selected to evaluate priority management activities for the national forest as well as to complement the pool of BMP reviews conducted throughout the Northern Region. For each of these BMP reviews, specific instructions are provided for developing the sample pool and randomly selecting eligible activities and sites. Reviews are conducted by interdisciplinary teams in the field and are supplemented with information gathering from applicable project documentation.

**Table 16. Categories of Best Management Practice (BMP) reviews that have been conducted on the Nez Perce-Clearwater since 2014**

Short name	Title of BMP Protocol	Brief population description
Aquatic Ecosystems A	Active Construction of Aquatic Improvements	All in-stream construction activities ongoing at the time of project implementation
Aquatic Ecosystems B	Completed Construction of Aquatic Improvements	Floodplain and waterbody improvement projects completed within last 1 to 2 winter seasons
Facilities B	Facilities Operation Maintenance	FS administered sites or sites authorized under SUP greater than one year old and within .25 miles of waterbody
Rangeland Management A	Grazing Management	All active grazing allotments with ongoing riparian monitoring efforts that have the potential to measurably affect riparian health, water quality or beneficial uses
Recreation A	Developed Recreation Sites	Developed recreation sites tracked in INFRA within 300 feet of a waterbody
Recreation B	Dispersed Recreation Sites	Known dispersed recreation sites within 200 feet of a waterbody
Recreation C	Completed Trail Construction or Re-routing	Motorized and non-motorized trails that have been constructed, re-routed or had disturbed soil during the past year. Motorized and non-motorized should be separated.
Roads A	Active Road and Waterbody Crossing Construction or Reconstruction	All construction and reconstruction of FS system roads and crossings occurring during monitoring season
Vegetation Management B	Cable and Aerial Yarding Operations	Ground based harvest units with at least one AMZ or where the AMZ was intentionally excluded. Must be done within 12 months of completion
Water Uses B	Operation Maintenance— Springs	All spring developments greater than one year old

Data Source: Nez Perce-Clearwater National Best Management Practices audits 2014 to 2020.

Despite having been around since 2014, this program is rather nascent; in most instances, only one BMP review from a given review category has been conducted on the Nez Perce-Clearwater. As a result, broader patterns in BMP implementation and effectiveness will require more years of replicate BMP reviews in specific categories to find patterns in deficiencies. A general synopsis of findings on Nez Perce-Clearwater will be outlined below. Results of BMP reviews from the rest of the Northern Region of the Forest Service (north Idaho, Montana, North Dakota, and portions of South Dakota) will be used to further contextualize those local findings from the Nez Perce-Clearwater.

BMP reviews consisted of either implementation monitoring, effectiveness monitoring, or both. Where implementation and effectiveness have both been monitored, a composite rating is assigned based on the matrix shown in Table 17.

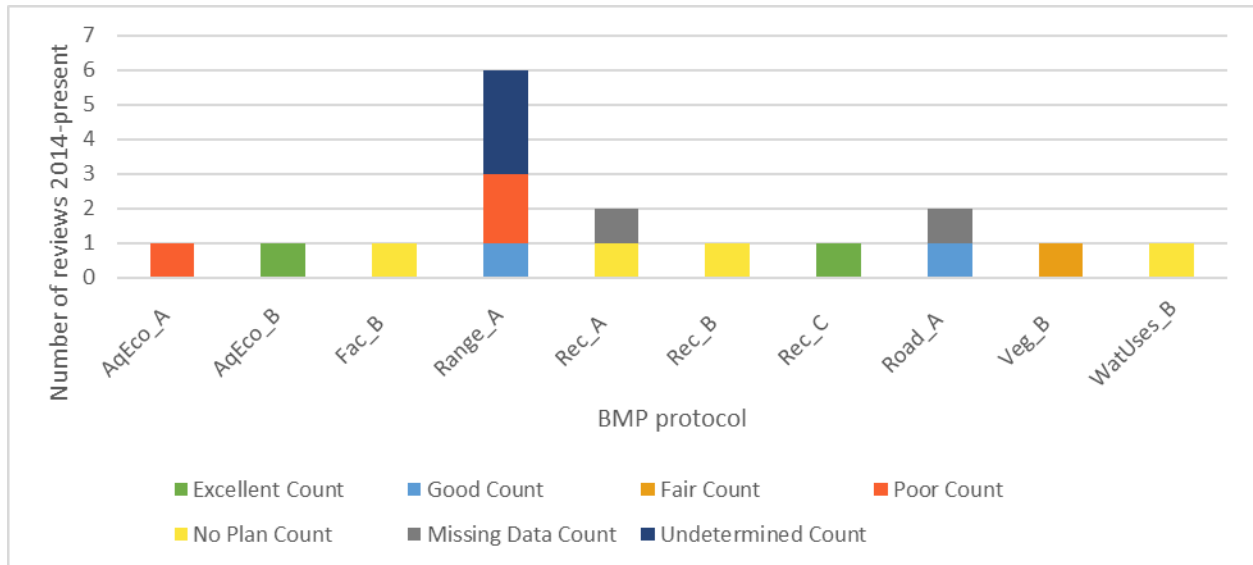
**Table 17. Composite Rating Matrix for National Core BMP reviews**

Composite Rating	Fully Implemented	Mostly Implemented	Marginally Implemented	Not Implemented	No BMPs
Effective	Excellent	Excellent	Good	Good	No plan
Mostly Effective	Good	Good	Fair	Fair	No plan
Marginally Effective	Fair	Fair	Poor	Poor	No plan
Not Effective	Poor	Poor	Poor	Poor	No plan

Data Source: National best management practices for water quality management on National Forest system lands. Volume 1: National Core BMP Technical Guide (U.S. Department of Agriculture 2012).

Figure 2 provides composite ratings for each BMP review conducted on the Nez Perce-Clearwater national forest. Three Range reviews conducted on forest had an “Undetermined” rating, and two reviews (Rec A and Road A) were missing data, thereby precluding a composite rating.

Another four reviews (Facilities B, Recreation A and B, and Water Uses B) had a “No Plan” composite rating. A “No Plan” rating occurs when there is no master facility plan that includes soil and water BMPs. This review protocol convention is problematic because master BMP and soil and water quality control plans are generally not maintained for certain NFS—administered facilities like campgrounds. Where soil and water quality concerns arise, site-specific engineering or administrative controls are explicitly prescribed by local resource specialists to address the issues at hand. So, while there may be no master nonpoint source pollution control plan in place, a campground or other facility may be fully addressing all soil and water quality concerns but those successes are being overlooked due to a protocol technicality. This concern has been elevated to protocol developers and should be addressed in the future.



**Figure 2. Number of Best Management Practice (BMP) reviews, category of review, and composite rating for BMP reviews conducted between 2014 and 2020 on the Nez Perce-Clearwater**

Data Source: Nez Perce-Clearwater National Best Management Practices audits 2014 to 2020.

Of the remaining protocols conducted on Nez Perce-Clearwater, five of those were given composite ratings of Excellent, Good, or Fair, and three were rated as Poor. While the majority of reviews where composite ratings could be assigned suggest that BMP implementation and effectiveness is reasonably

successful, these reviews are best evaluated as a representation of site-specific conditions rather than as broader indicators of BMP application and efficacy on the forest. It is beyond the scope of this synthesis to evaluate specific details of each individual review.

BMP review frequency and scope (range of evaluated projects) is anticipated to increase in the future through nationally mandated completion of these reviews as well as through explicit direction to complete BMP reviews within the new forest plan.

With so few BMP reviews having been conducted on the forest, broader context on BMP implementation and effectiveness from the remainder of Forest Service Northern Region is helpful. Approximately 200 BMP ratings have been conducted in the Northern Region since 2014. As denoted in

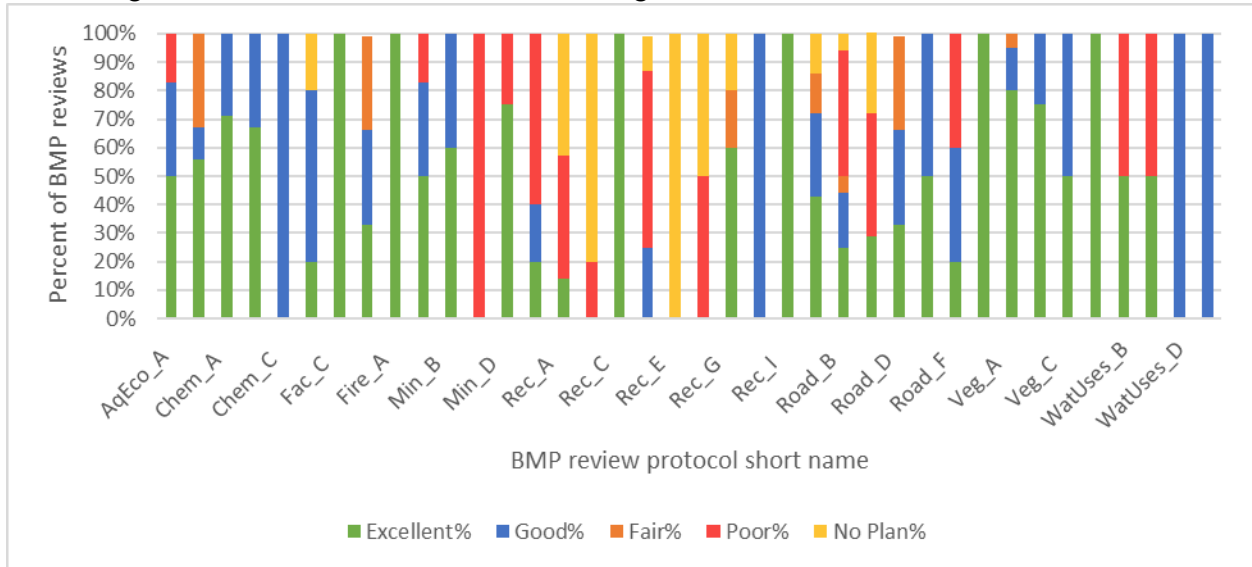
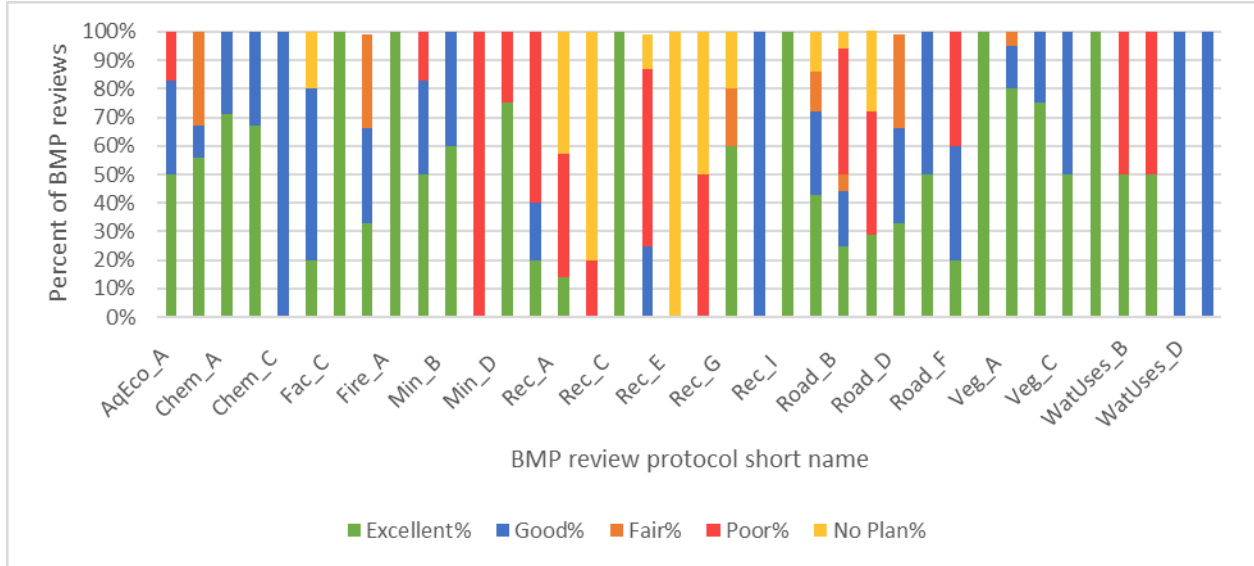


Figure 3, the majority of reviews conducted in the Northern Region have received Excellent composite ratings. While Excellent and Good ratings dominate most of the review categories, there are a few categories where BMP implementation and effectiveness are falling short. Data suggests that Minerals C (Placer Mining Operations), Range A (Grazing Management), Recreation D (Trails Management), and Water Uses B and C (Springs and Water Drafting) all require further scrutiny to address what appear to be BMP implementation and effectiveness deficiencies.



**Figure 3. National Core BMP review composite ratings summary for Forest Service Region 1, 2014 to 2020.**

Data Source: Forest Service R1 National Best Management Practices audits 2014 to 2020.

## Conservation Watershed Network

A conservation watershed network is a designated collection of watersheds where management emphasizes habitat conservation and restoration to support federally listed fish and Species of Conservation Concern. The goal of the network is to sustain the integrity of key aquatic habitats to maintain long-term persistence of native aquatic species. Designation of conservation watershed networks, which includes watersheds that are already in good condition or could be restored to good condition, are expected to protect native fish and help maintain healthy watersheds and river systems. Selection criteria for inclusion identifies those watersheds that have the capability to be more resilient to ecological change and disturbance induced by climate change. For example, watersheds containing unaltered riparian vegetation will tend to protect streambank integrity and moderate the effects of high stream flows. Rivers with high connectivity and access to their floodplains will experience moderate floods when compared to channelized and disconnected stream systems. Wetlands with intact natural processes slowly release stored water during summer dry periods, whereas impaired wetlands are likely less effective retaining and releasing water over the season. For all these reasons, the Conservation Watershed Network represents the best long-term conservation strategy for native fish and their habitats.

Selected Conservation Watershed Network watersheds are expected to provide a pattern of protection across the landscape where the habitat of listed salmonids and Species of Conservation Concern receives special attention and treatment. HUC12 watersheds with strong local populations, are expected to function as refugia and a source of colonizing fish for adjacent HUC12 watersheds with habitat not meeting desired conditions. Adjacent HUC12 watersheds with habitat not meeting desired conditions, with high potential for restoration and fish production, are expected to benefit from habitat suitable for population expansion after desired conditions are met. Watersheds included in the Conservation Watershed Network are intended to replace those previously identified as Key or Priority under guidance found in National Oceanic and Atmospheric Administration’s guidance (National Marine Fisheries Service 1995).

Criteria used to identify these watersheds included the following:

1. A major or minor spawning area for Snake River steelhead trout or Snake River spring and summer Chinook salmon are both identified in the Snake River Recovery Plan (National Oceanographic and Atmospheric Agency 2017).
2. Designated critical habitat for one or more Endangered Species Act listed fish species occurs in at least 25 percent of the stream network within HUC12 watershed. Examples include the Columbia River bull trout, Snake River steelhead trout, and Snake River fall Chinook salmon.
3. Climate Shield<sup>1</sup> modeled reaches that have a that have a year 2040 bull trout probability of occurrence greater than 25 percent.
4. A local bull trout population identified in the Bull Trout Recovery Plan (U.S. Department of the Interior 2015).
5. Important spawning and rearing habitat for Species of Conservation Concern.

Multiscale analysis of the five criteria was used to develop the Forest's conservation watershed network, starting with the scale of the Columbia River Basin and ending with HUC12 sub-watersheds within the plan area. Multiscale analysis is consistent with guidance contained in the Interior Columbia Basin Ecosystem Management Project Memorandum of Understanding approved by senior managers in several of the western federal land management and regulatory agencies (U.S. Department of Agriculture and U.S. Department of the Interior 2014). The memorandum updated science findings from the original Interior Columbia Basin Ecosystem Management Project effort of the late 1990s and guides inclusion of best available science into land management plan revisions.

At the broadest of scale considerations, available critical habitat data for Endangered Species Act listed fish species was mapped against the 305b stream network. Species included in the map were Columbia River bull trout, Snake River steelhead trout, fall Chinook Salmon.

Information in the U.S. Fish and Wildlife Service's Upper Snake and Mid-Columbia Recovery Unit Implementation Plans for Bull Trout were reviewed to place identified local populations located within the Nez Perce-Clearwater in context with the recovery needs of the species across its range in the western United States. Local populations are significant because a 'recovered' bull trout population described in terms of size, age structure, and density implies that bull trout populations, at the local population, core area, or recovery unit scale interact with their surrounding environment so that their population scale status is stable or increasing based on measurements and calculations of population size, density, and age structure (U.S. Department of the Interior 2015).

The Forest Service then used the climate shield modeled reaches for bull trout across the Nez Perce-Clearwater national forest to look more closely at where cold water is predicted to persist into the future in the face of climate change. Major and minor spawning areas for Snake River steelhead trout and Snake River spring and summer Chinook salmon, as identified in the draft Snake River Recovery Plan, were identified by HUC12.

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<sup>1</sup> <https://www.fs.usda.gov/research/treesearch/47740>

The final step in the conservation watershed network identification process identified HUC 12 watersheds that supported species of conservation concern. Species of conservation concern include Pacific lamprey throughout the Nez Perce-Clearwater.

After each of the five criteria were applied at the HUC 12 level across Nez Perce-Clearwater, watersheds were evaluated for the number of criteria that were met. HUC 12 subwatersheds were assessed while looking at networks across subbasins. It was determined that HUC12 watersheds that met three criteria or more would provide a designated collection of watersheds where management emphasizes habitat conservation and restoration to support threatened or endangered native fish and species of conservation concern. HUC12 subwatersheds that meet three of the five criteria are considered Conservation Watershed Network. There are 245 HUC12 subwatersheds, shown in Table 18, within the Nez Perce-Clearwater National Forests. Of the 245 HUC12 subwatershed, 81 subwatershed met three or more of the criteria used to determine the Conservation Watershed Network.

**Table 18. Criteria met by each HUC12 watershed analyzed for inclusion in the Conservation Watershed Network**

HUC12	Name	Criteria (1=Yes, 0=No)					Total Acres	NPC Acres
		#1	#2	#3	#4	#5		
170601080101	Headwaters Palouse River	0	0	0	0	0	20546	20503
170601080102	Big Sand Creek—Palouse River	0	0	0	0	0	23893	22719
170601080103	Meadow Creek	0	0	0	0	0	25644	22907
170601080104	Big Creek	0	0	0	0	0	10294	8318
170601080105	Flat Creek	1	0	0	0	0	11264	158
170601080107	Gold Creek	0	0	0	0	0	18079	11092
170601080109	Deep Creek	0	0	0	0	0	27446	12057
170601080110	Rock Creek—Palouse River	0	0	0	0	0	36121	3715
170601080303	Cedar Creek	0	0	0	0	0	15833	394
170601080305	Silver Creek	0	0	0	0	0	29180	657
170601090102	Headwaters Pine Creek	0	0	0	0	0	24724	4344
170602070402	Upper Sabe Creek	1	1	0	1	0	19852	14311
170602070403	Lower Sabe Creek	1	1	0	1	0	16164	7599
170602070503	Hot Springs Creek—Salmon River	0	1	0	0	1	16722	5771
170602070504	Dillinger Creek—Salmon River	0	0	1	0	1	26503	9623
170602070601	Upper Bargamin Creek	1	1	0	1	0	23082	23073
170602070602	Middle Bargamin Creek	1	1	0	1	0	22603	22602
170602070603	Lower Bargamin Creek	1	1	0	1	0	24216	24216
170602070701	Richardson Creek—Salmon River	0	0	0	0	1	23732	9495
170602070702	Big Mallard Creek	0	0	1	0	0	36511	36511
170602070703	Trout Creek—Salmon River	0	0	0	0	1	26210	14333
170602070704	Lemhi Creek—Salmon River	0	0	0	0	1	18465	4062
170602070705	Rhett Creek	0	0	0	0	0	12350	12350
170602070707	Jersey Creek—Salmon River	0	1	0	0	1	34341	22883
170602070901	Upper Crooked Creek	1	0	0	1	0	17433	17433
170602070902	Big Creek	1	0	0	0	0	18004	18004



Appendix K: Water Resources and Fisheries Additional Information

HUC12	Name	Criteria (1=Yes, 0=No)					Total Acres	NPC Acres
		#1	#2	#3	#4	#5		
170602070903	Lake Creek	1	0	0	1	0	28890	28890
170602070904	Lower Crooked Creek	1	1	0	0	0	20064	20064
170602071001	Meadow Creek	0	0	1	0	0	17803	17803
170602071002	Anchor Creek—Wind River	0	1	1	1	1	23692	23692
170602071101	Indian Creek—Salmon River	0	0	0	0	1	33074	15094
170602071103	Bull Creek—Salmon River	0	0	0	0	1	28076	19561
170602071104	Sheep Creek	1	0	0	1	0	35030	35030
170602071105	Bear Creek—Salmon River	0	0	0	0	1	17470	6401
170602071107	Carey Creek—Salmon River	0	1	0	0	1	11206	3478
170602090203	Kelly Creek—Salmon River	0	0	0	0	1	24432	19989
170602090204	Allison Creek	0	1	0	0	0	12899	12899
170602090206	Berg Creek—Salmon River	0	1	0	0	1	18721	8841
170602090301	Upper Little Slate Creek	1	1	1	1	0	25524	25524
170602090302	Lower Little Slate Creek	1	0	1	1	0	15873	15873
170602090303	Upper Slate Creek	1	0	0	1	0	10656	10656
170602090304	Lower Slate Creek	1	0	0	1	1	32046	26281
170602090401	Race Creek	0	0	0	0	0	18419	13491
170602090402	Fiddle Creek—Salmon River	0	0	0	0	0	24694	9513
170602090403	Cow Creek—Salmon River	0	0	0	0	0	19368	10152
170602090404	John Day Creek	0	1	0	1	0	14027	6659
170602090405	Sherwin Creek—Salmon River	0	0	0	0	0	15212	6900
170602090501	McKinzie Creek—Salmon River	0	0	0	0	0	19754	5234
170602090502	Skookumchuck Creek	0	0	0	0	0	20944	14400
170602090503	Poe Creek—Deer Creek	0	0	0	0	0	10041	3862
170602090601	South Fork White Bird Creek	1	1	0	0	1	22976	22413
170602090602	North Fork White Bird Creek	1	1	0	0	0	21082	14306
170602090603	Chapman Creek—White Bird Creek	1	0	0	0	0	22411	109
170602100402	Copper Creek—Rapid River	1	0	0	1	0	15123	5027
170602100403	West Fork Rapid River	1	1	1	1	0	22056	10770
170602100404	Shingle Creek—Rapid River	1	0	0	1	1	16513	12954
170602100503	Sheep Creek—Little Salmon River	1	0	0	0	0	23129	3564
170602100504	Squaw Creek	1	0	0	0	0	11845	8376
170602100505	Hailey Creek—Little Salmon River	1	0	0	0	0	7973	11
170603010501	Upper Running Creek	1	1	0	1	1	24355	24349
170603010503	Lower Running Creek	1	0	0	1	1	17704	12401
170603010601	Wahoo Creek	1	0	0	0	0	13541	13541
170603010602	Upper Bear Creek	1	1	0	1	1	17999	17999
170603010603	Upper Cub Creek	1	0	0	1	0	17543	17540
170603010604	Paradise Creek	1	1	0	1	0	21317	21317

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HUC12	Name	Criteria (1=Yes, 0=No)					Total Acres	NPC Acres
		#1	#2	#3	#4	#5		
170603010605	Middle Bear Creek	1	1	0	1	1	16436	16436
170603010606	Lower Cub Creek	1	1	0	1	0	18194	18187
170603010607	Lower Bear Creek	1	1	0	1	1	9744	9744
170603010701	Goat Creek	1	1	0	0	0	18824	18820
170603010702	Ditch Creek	1	0	0	0	0	11564	11564
170603010703	Elk Creek—Selway River	1	1	0	0	1	18166	11174
170603010704	Pettibone Creek	1	0	0	0	0	20915	20915
170603010705	Dog Creek—Selway River	0	0	0	0	1	27104	27104
170603020101	Headwaters East Fork Moose Creek	1	0	0	1	0	21596	21596
170603020102	Upper East Fork Moose Creek	1	0	0	1	1	22439	22439
170603020103	Cedar Creek	1	0	0	1	0	16315	16315
170603020104	Middle East Fork Moose Creek	1	0	0	1	1	30745	30745
170603020105	Upper North Fork Moose Creek	1	0	0	1	0	17383	17383
170603020106	West Moose Creek	1	0	0	1	0	19107	19107
170603020107	Middle North Fork Moose Creek	1	1	0	1	1	10675	10675
170603020108	Rhoda Creek	1	1	0	1	0	36382	36382
170603020109	Lower North Fork Moose Creek	1	0	0	1	1	17568	17568
170603020110	Lower East Fork Moose Creek	1	1	0	1	1	29497	29497
170603020111	Moose Creek	1	1	0	1	1	11509	11509
170603020201	Marten Creek	1	1	0	0	1	20987	20987
170603020202	Meeker Creek—Selway River	0	0	0	0	1	28261	28261
170603020203	Three Links Creek	0	0	0	0	1	28091	28091
170603020204	Mink Creek	0	0	0	0	0	10236	10236
170603020205	Otter Creek	0	0	0	0	1	10514	10514
170603020206	Pinchot Creek—Selway River	0	0	0	0	1	31822	31822
170603020301	Headwaters Meadow Creek	1	1	0	1	1	24067	24067
170603020302	Upper Meadow Creek	1	1	0	1	0	22345	22345
170603020303	Sable Creek	1	0	0	1	0	13686	13686
170603020304	Middle Meadow Creek	1	0	0	1	1	33220	33220
170603020305	Buck Lake Creek	1	1	0	1	1	20738	20738
170603020306	Horse Creek	1	0	0	1	0	9617	9617
170603020307	Lower Meadow Creek	1	0	0	1	1	31587	31587
170603020401	Gedney Creek	1	0	0	0	1	30818	30818
170603020402	Glover Creek—Selway River	0	0	0	0	1	29016	29016
170603020403	Rackliff Creek—Selway River	0	0	0	0	1	17864	17864
170603020404	O'Hara Creek	1	1	0	0	1	37882	37882
170603020405	Goddard Creek—Selway River	0	1	0	0	1	22715	22715
170603030101	Upper Brushy Fork	1	0	0	1	0	10249	10249
170603030102	Spruce Creek	1	1	0	1	0	15876	15876

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HUC12	Name	Criteria (1=Yes, 0=No)					Total Acres	NPC Acres
		#1	#2	#3	#4	#5		
170603030103	Lower Brushy Fork	1	1	0	1	1	25819	25819
170603030104	Upper Crooked Fork	1	1	1	1	1	19434	19434
170603030105	Fox Creek—Boulder Creek	1	1	0	1	1	16021	16021
170603030106	Lower Crooked Fork	1	1	0	1	1	21097	21097
170603030201	Upper Big Sand Creek	1	0	0	0	0	17354	17354
170603030202	Hidden Creek	1	0	0	0	0	10509	10509
170603030203	Upper Colt Killed Creek	1	1	0	1	1	24735	24735
170603030204	Lower Big Sand Creek	1	0	0	0	0	24478	24478
170603030205	Colt Creek	1	1	0	1	1	16645	16645
170603030206	Middle Colt Killed Creek	1	0	0	1	0	10802	10802
170603030207	Storm Creek	1	1	0	1	0	32678	32678
170603030208	Lower Colt Killed Creek	1	1	1	1	1	21055	21055
170603030301	Walton Creek—Lochsa River	1	0	1	1	1	18806	18806
170603030302	'Imnamatnoon Creek	1	1	0	1	0	13218	13218
170603030303	Waw'aalamnime Creek	1	1	0	1	1	17197	17197
170603030304	Wendover Creek—Lochsa River	1	1	0	0	1	20722	20722
170603030401	Upper Warm Springs Creek	1	0	0	0	0	13778	13778
170603030402	Wind Lakes Creek	1	0	0	0	0	12552	12552
170603030403	Lower Warm Springs Creek	1	0	0	1	1	19438	19438
170603030501	Postoffice Creek	1	1	0	0	1	12184	12184
170603030502	Lake Creek	1	1	0	0	0	33293	33293
170603030503	Weir Creek—Lochsa River	1	1	0	0	1	33200	33200
170603030504	Stanley Creek—Lochsa River	1	1	0	0	1	31574	31574
170603030505	Boulder Creek	0	0	0	1	1	30020	30020
170603030506	Bald Mountain Creek—Lochsa River	1	0	0	0	1	28809	28809
170603030601	Upper Fish Creek	1	1	0	0	1	23240	23240
170603030602	Hungery Creek	1	1	0	0	1	22676	22676
170603030603	Lower Fish Creek	1	1	0	0	1	10396	10396
170603030701	Old Man Creek	0	0	0	0	1	28118	28118
170603030702	Split Creek	0	0	0	0	1	9989	9989
170603030703	Fire Creek	0	0	0	0	1	11267	11267
170603030704	Bimerick Creek—Lochsa River	0	0	0	0	1	34496	34496
170603030705	Deadman Creek	0	0	0	0	0	12710	12710
170603030706	Canyon Creek	0	0	0	0	0	12577	12577
170603030707	Pete King Creek	1	0	0	0	1	17623	17622
170603030708	Glade Creek—Lochsa River	0	0	0	0	1	21069	21069
170603040101	South Fork Clear Creek	1	1	0	0	1	16530	16530
170603040102	Upper Clear Creek	1	1	0	0	0	19132	18813
170603040103	Lower Clear Creek	1	0	0	0	0	29403	8455

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HUC12	Name	Criteria (1=Yes, 0=No)					Total Acres	NPC Acres
		#1	#2	#3	#4	#5		
170603040201	Big Smith Creek—Middle Fork Clearwater River	1	0	0	0	1	28880	25764
170603040202	Maggie Creek	1	1	0	0	0	16827	55
170603040203	Suttler Creek—Middle Fork Clearwater River	1	1	0	0	1	28934	4112
170603050101	South Fork Red River	1	1	0	1	1	24140	24140
170603050102	Upper Red River	1	1	0	1	1	32001	32001
170603050103	Middle Red River	1	1	0	1	1	23120	23120
170603050104	Lower Red River	1	1	0	1	1	23923	22979
170603050201	Upper American River	1	1	0	0	1	15259	14397
170603050202	East Fork American River	1	0	0	0	0	11396	10585
170603050203	Elk Creek	1	0	0	0	1	16309	7149
170603050204	Lower American River	1	0	0	0	0	15615	8975
170603050301	Upper American River	1	0	1	0	1	28631	28631
170603050302	Lower Crooked River	1	1	0	1	1	16972	16327
170603050401	Upper Newsome Creek	1	1	0	1	1	24512	24512
170603050402	Lower Newsome Creek	1	1	0	1	1	18040	18040
170603050501	Whiskey Creek—South Fork Clearwater River	1	1	0	0	1	14556	10503
170603050502	Leggett Creek—South Fork Clearwater River	1	1	0	0	1	15380	15380
170603050503	Tenmile Creek	1	1	0	1	1	34340	34340
170603050504	Twentymile Creek	0	0	0	0	0	14567	14567
170603050505	Wing Creek—South Fork Clearwater River	0	0	0	0	1	14062	14062
170603050506	Silver Creek	0	0	0	0	1	16537	16537
170603050507	Peasley Creek—South Fork Clearwater River	0	0	0	0	1	27026	27026
170603050601	Upper Johns Creek	1	1	1	1	1	30790	30790
170603050602	Gospel Creek	1	1	0	0	0	15205	15205
170603050603	Lower Johns Creek	1	1	0	1	1	26142	26142
170603050701	Mill Creek	1	1	0	0	1	23454	23454
170603050702	Meadow Creek	1	1	0	0	1	24017	24017
170603050703	Grouse Creek—South Fork Clearwater River	0	0	0	0	1	26925	25083
170603050704	Lightning Creek—South Fork Clearwater River	0	0	0	0	1	29733	14624
170603050902	Threemile Creek	1	0	0	0	0	21337	7
170603050903	Rabbit Creek—South Fork Clearwater River	0	0	0	0	0	34827	3168
170603060201	Upper Lolo Creek	1	1	0	0	1	26820	26820
170603060202	Musselshell Creek	1	0	0	0	1	35342	14833

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HUC12	Name	Criteria (1=Yes, 0=No)					Total Acres	NPC Acres
		#1	#2	#3	#4	#5		
170603060203	Eldorado Creek	1	0	0	0	1	27203	27203
170603060204	Middle Lolo Creek	1	0	0	0	1	29511	10023
170603060205	Lower Lolo Creek	1	1	0	0	0	36565	282
170603060401	Upper Orofino Creek	1	0	0	0	0	27950	11158
170603060402	Quartz Creek	1	0	0	0	0	11568	199
170603060503	Fivemile Creek—Clearwater River	1	0	0	0	0	35012	9
170603060801	East Fork Potlatch River	1	1	0	0	1	39713	5323
170603060802	West Fork Potlatch River—Potlatch River	1	0	0	0	1	39817	25696
170603060901	Corral Creek	1	0	0	0	0	14353	7366
170603060902	Hog Meadow Creek—Potlatch Creek	1	1	0	0	1	22169	9320
170603061001	Upper Big Bear Creek	1	0	0	0	1	31640	4068
170603061302	Wheeler Canyon—Clearwater River	0	1	0	0	0	24858	159
170603070101	Meadow Creek	0	1	1	1	0	16200	16198
170603070102	Long Creek	0	1	1	1	0	17909	17909
170603070103	Vanderbilt Gulch—North Fork Clearwater River	0	1	1	1	0	34091	34081
170603070104	Lake Creek	0	1	1	1	0	22051	22051
170603070105	Elizabeth Creek—North Fork Clearwater River	0	1	0	1	0	38545	38545
170603070201	Upper Cayuse Creek	0	1	1	1	0	28914	28914
170603070202	Gravey Creek	0	0	1	1	0	19895	19895
170603070203	Monroe Creek	0	0	0	0	0	13251	13251
170603070204	Middle Cayuse Creek	0	1	0	1	0	17825	17825
170603070205	Toboggan Creek	0	0	0	1	0	13782	13782
170603070206	Lower Cayuse Creek	0	1	0	1	0	14187	14187
170603070301	Osier Creek	0	1	0	1	0	19822	19822
170603070302	Little Moose Creek	0	1	0	1	0	12520	12520
170603070303	Deadwood Creek—Moose Creek	0	1	0	1	0	14303	14303
170603070401	Middle Fork Kelly Creek	0	1	1	1	0	26217	26217
170603070402	Upper Kelly Creek	0	1	0	1	0	30624	30624
170603070403	Lower Kelly Creek	0	1	0	1	0	30413	30413
170603070501	Upper Weitas Creek	0	1	0	1	0	15780	15780
170603070502	Middle Weitas Creek	0	1	0	1	0	34803	34803
170603070503	Little Weitas Creek	0	0	0	1	0	19461	19461
170603070504	Middle Creek	0	0	0	0	0	17502	17502
170603070505	Hemlock Creek	0	0	0	0	0	21422	21422
170603070506	Johnny Creek	0	0	0	0	0	11735	11735
170603070507	Lower Weitas Creek	0	1	0	0	0	19114	19114

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HUC12	Name	Criteria (1=Yes, 0=No)					Total Acres	NPC Acres
		#1	#2	#3	#4	#5		
170603070601	French Creek	0	0	0	0	0	16879	14900
170603070602	Upper Orogrande Creek	0	0	0	0	0	20057	2012
170603070603	Lower Orogrande Creek	0	1	0	0	0	21921	21921
170603070701	Fourth of July Creek	0	1	0	1	0	28528	28528
170603070702	Cold Springs Creek—North Fork Clearwater River	0	1	0	0	0	30138	30138
170603070703	Cave Creek—North Fork Clearwater River	0	0	0	0	0	25306	25306
170603070801	Washington Creek	0	0	0	0	0	30148	8820
170603070802	Little Washington Creek—North Fork Clearwater River	0	0	0	0	0	19844	19844
170603070803	Rock Creek—North Fork Clearwater River	0	0	0	0	0	21963	21963
170603070901	Upper Skull Creek	0	0	1	1	0	17937	17931
170603070902	Collins Creek	0	1	0	0	0	22722	22702
170603070903	Lower Skull Creek	0	1	0	1	0	15243	15243
170603071001	Quartz Creek	0	0	0	1	0	27920	27920
170603071002	Sneak Creek—North Fork Clearwater River	0	0	0	0	0	20372	20372
170603080202	Stony Creek	0	0	0	1	0	24145	237
170603080204	Stanton Creek—Breakfast Creek	0	0	0	1	0	12497	372
170603080301	Minnesaka Creek—Little North Fork Clearwater River	0	0	0	1	0	22344	10036
170603080302	Cedar Creek—Little North Fork Clearwater River	0	0	0	1	0	27050	111
170603080401	Beaver Creek	0	0	0	0	0	39807	6883
170603080402	Isabella Creek	0	0	0	1	0	19761	19756
170603080404	Salmon Creek—North Fork Clearwater River	0	0	0	1	0	37605	15935
170603080501	Gold Creek	0	0	0	0	0	12148	358
170603080502	Elkberry Creek—North Fork Clearwater River	0	0	0	0	0	26370	139
170603080504	Swamp Creek—North Fork Clearwater River	0	0	0	0	0	38524	324
170603080701	Upper Elk Creek	0	0	0	0	0	26979	23672
170603080702	Bull Run Creek	0	0	0	0	0	15481	2324
170603080703	Middle Elk Creek	0	0	0	0	0	14579	2556
170603080704	Long Meadow Creek	0	0	0	0	0	35680	4961
170603080705	Lower Elk Creek	0	0	0	0	0	19513	2818
170603080801	Cranberry Creek—North Fork Clearwater River	0	0	0	0	0	36150	50
170603080804	Freeman Creek—North Fork Clearwater River	0	0	0	0	0	26970	80

Table 19 contains the list of HUC12 subwatersheds to be included as Conservation Network Watersheds, summarized by subbasin (HUC08) and watershed (HUC10). Conservation Watershed Networks are the highest priority for restoration actions for the aquatic environment.

**Table 19. Conservation Watershed Network acres by Hydrologic Unit Code (HUC)**

HUC08	HUC10	HUC12	HUC12	Acres
Middle Salmon—Chamberlain	Sabe Creek	Upper Sabe Creek	170602070402	14313
		Lower Sabe Creek	170602070403	7599
	Bargamin Creek	Upper Bargamin Creek	170602070601	23079
		Middle Bargamin Creek	170602070602	22605
		Lower Bargamin Creek	170602070603	24216
	Wind River	Anchor Creek—Wind River	170602071002	23692
	Lower Salmon River	Slate Creek	Upper Little Slate Creek	170602090301
Lower Little Slate Creek			170602090302	15873
Lower Slate Creek			170602090304	26281
White Bird Creek		South Fork White Bird Creek	170602090601	22414
Lower Little Salmon River	Rapid River	West Fork Rapid River	170602100403	10770
		Shingle Creek—Rapid River	170602100404	12963
Upper Selway River	Running Creek	Upper Running Creek	170603010501	24353
		Lower Running Creek	170603010503	12403
	Bear Creek	Upper Bear Creek	170603010602	17999
		Paradise Creek	170603010604	21317
		Middle Bear Creek	170603010605	16436
		Lower Cub Creek	170603010606	18197
		Lower Bear Creek	170603010607	9744
Elk Creek—Selway River	170603010703	11172		
Lower Selway River	Moose Creek	Upper East Fork Moose Creek	170603020102	22439
		Middle East Fork Moose Creek	170603020104	30745
		Middle North Fork Moose Creek	170603020107	10675
		Rhoda Creek	170603020108	36382
		Lower North Fork Moose Creek	170603020109	17568
		Lower East Fork Moose Creek	170603020110	29497
		Moose Creek	170603020111	11509
	Lower Selway River—Three Links Creek	Marten Creek	170603020201	20987
	Meadow Creek	Headwaters Meadow Creek	170603020301	24067
		Upper Meadow Creek	170603020302	22345
		Middle Meadow Creek	170603020304	33220
		Buck Lake Creek	170603020305	20738
		Lower Meadow Creek	170603020307	31587

Appendix K: Water Resources and Fisheries Additional Information

HUC08	HUC10	HUC12	HUC12	Acres
	Lower Selway River—Gedney Creek	O'Hara Creek	170603020404	37882
Lochsa River	Crooked Fork Creek	Spruce Creek	170603030102	15876
		Lower Brushy Fork	170603030103	25819
		Upper Crooked Fork	170603030104	19434
		Fox Creek—Boulder Creek	170603030105	16021
		Lower Crooked Fork	170603030106	21097
	Colt Killed Creek	Upper Colt Killed Creek	170603030203	24735
		Colt Creek	170603030205	16645
		Storm Creek	170603030207	32678
		Lower Colt Killed Creek	170603030208	21055
	Upper Lochsa River	Walton Creek—Lochsa River	170603030301	18806
		'Imnamatnoon Creek	170603030302	13218
		Waw'aalamnime Creek	170603030303	17197
		Wendover Creek—Lochsa River	170603030304	20722
	Warm Springs Creek	Lower Warm Springs Creek	170603030403	19438
	Middle Lochsa River	Postoffice Creek	170603030501	12184
		Weir Creek—Lochsa River	170603030503	33200
		Stanley Creek—Lochsa River	170603030504	31574
	Fish Creek	Upper Fish Creek	170603030601	23240
		Hungery Creek	170603030602	22676
		Lower Fish Creek	170603030603	10396
Lower Clearwater	Clear Creek	South Fork Clear Creek	170603040101	16530
	Sutler Creek	Suttler Creek—Middle Fork Clearwater River	170603040203	4161
	Lolo Creek	Upper Lolo Creek	170603060201	26820
	Potlatch River	East Fork Potlatch River	170603060801	5353
		Hog Meadow Creek—Potlatch Creek	170603060902	9327
South Fork Clearwater River	Red River	South Fork Red River	170603050101	24140
		Upper Red River	170603050102	32001
		Middle Red River	170603050103	23120
		Lower Red River	170603050104	22986
	American River	Upper American River	170603050201	14397
	Crooked River	Upper American River	170603050301	28631
		Lower Crooked River	170603050302	16327
	Newsome Creek	Upper Newsome Creek	170603050401	24512
		Lower Newsome Creek	170603050402	18040
	Upper South Fork Clearwater River	Whiskey Creek—South Fork Clearwater River	170603050501	10503
Leggett Creek—South Fork Clearwater River		170603050502	15380	



HUC08	HUC10	HUC12	HUC12	Acres
		Tenmile Creek	170603050503	34340
	Johns Creek	Upper Johns Creek	170603050601	30790
		Lower Johns Creek	170603050603	26142
	Middle South Fork Clearwater River	Mill Creek	170603050701	23454
		Meadow Creek	170603050702	24017
Upper North Fork Clearwater River	NF Clearwater — Lake Creek	Meadow Creek	170603070101	16203
		Long Creek	170603070102	17909
		Vanderbilt Gulch—North Fork Clearwater River	170603070103	34089
		Lake Creek	170603070104	22051
	Cayuse Creek	Upper Cayuse Creek	170603070201	28914
	Kelly Creek	Middle Fork Kelly Creek	170603070401	26217

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