



Brebner Flat Project

Fisheries Report

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for:
St. Joe Ranger District
Idaho Panhandle National Forests

January 30, 2019

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Reported mileages are estimates and may vary depending on how they are rounded and what models and equations they are used for or result from.

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Introduction

This report analyzes effects of a no action alternative and one action alternatives to aquatic species resources of the Brebner Flat Project. Detailed descriptions of the project location and the alternatives are located in Chapter 1 and 2 of the Brebner Flat EA.

Regulatory Framework

The regulatory authority (FSM 2600) which applies to the aquatic species resource is described below. The Forest Service policy which guides the compliance with these regulatory authorities is also listed. This report documents how the alternatives address these regulatory considerations.

Authority: The National Forest Management Act of 1976 (NFMA):

Section 6 of NFMA requires that all projects and activities authorized by the Forest Service must be consistent with applicable Forest Plan components Sec. 6(i) and 36 CFR 219.

Section 6 of NFMA also provides language to “insure that timber will be harvested from National Forest System lands only where; soil, slope, or other watershed conditions will not be irreversibly damaged; protection is provided for streams, stream-banks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperatures, blockages of water courses, and deposits of sediment, where harvests are likely to seriously and adversely affect water conditions or fish habitat; and that such [harvests] are carried out in a manner consistent with the protection of soil, watershed, and fish, resources.” Sec.6 (E)(i),(iii), and (v).

Policy: Land Management Plan for the Idaho Panhandle National Forests 2015:

The Forest Plan provides guidance for project and activity level decision-making on the Idaho Panhandle National Forests. All projects and activities authorized by the Forest Service must be consistent with the applicable plan components. The Idaho Panhandle Forest Plan 2015 addresses aquatic species and aquatic habitats under each of the Forest Plan elements; goals, desired conditions, objectives, standards, and guidelines (see Forest Plan Consistency Spreadsheet PF: F-41).

Authority: Endangered Species Act of 1973 (ESA):

Section 7 of the ESA requires Federal agencies to consult with the U.S. Fish and Wildlife Service to insure that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of listed species or destroy or adversely modify their critical habitat. A biological assessment will be prepared by the action agencies to determine the potential for effects to a listed species or habitat. No consultation with USFWS is necessary if the biological assessment determines there would be no effect to listed species (PF: F-45).

Policy: Forest Service Manual 2670.31:

Review, through the biological evaluation process, actions and programs authorized, funded or carried out by the Forest Service to determine their potential for effect on threatened and endangered species and species proposed for listing. A biological assessment is the document that presents the biological evaluation process to the U.S. Fish and Wildlife Service.

Authority: National Environmental Policy Act:

This act requires public involvement and consideration of potential environmental effects.

Policy: Forest Service Manual 2670.32:

Review programs and activities as part of the National Environmental Policy Act of 1969 process through a biological evaluation, to determine their potential effect on sensitive species.

Authority: Executive Order 12962 Recreational Fisheries as amended by EO 13474 (9/26/2008):

Section I. *Federal Agency Duties*. Federal agencies shall, to the extent permitted by law and where practicable, and in cooperation with States and Tribes, improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities.

Analysis Methods

Analysis Area

Direct and Indirect Effects Analysis Areas: Direct effects are caused by the action and occur at the same time and place (CEQ 1508.8). Indirect effects are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable.

The fish-bearing streams (Blue Grouse, Siwash and Kelley Creeks) of the project area were selected as the analysis areas for direct and indirect effects. These streams were selected because they are the fish-bearing, spawning and rearing streams within the project area that contain the proposed activities of this project (PF: F-01, F-02, and F-03). These streams were chosen to look at localized effects because effects might be missed at the larger watershed scale.

Cumulative Effects Analysis Area: The analysis of cumulative effects begins with the consideration of the direct and indirect effects on the environment that are expected or likely to result from the alternative proposals for agency action (36 CFR 220.4). Spatial and temporal boundaries set the limits for selecting the actions most likely to contribute to cumulative effects. The effects of those actions must overlap in space and time for there to be potential cumulative effects (FSH 1909, 15.2).

Spatial Boundaries: Spatial boundaries define the affected area for each resource indicator (FSH 1909.15, 15.2a). **Error! Reference source not found.** illustrates the Brebner Flat Project Area and the Siwash –St. Joe River Subwatershed boundary (6th level hydrologic unit code (HUC), in which the majority of the project activities fall. In addition to that HUC, the Brebner Flat project proposes to change the road prescription for approximately 1.07 miles of the end of FS road/trail 1956E from open year road to off-highway vehicles less than 50 inches in width to a seasonal use restriction. This activity would occur in the Bruin Creek –St. Joe 6th code HUC. The only ground disturbance associated to this activity would be during the installation of a gate. This disturbance would not impact any aquatic habitat or aquatic species in any way. Due to the lack of change, the Bruin Creek – St. Joe HUC will not be considered further in this report. The areas chosen for detailed analysis include:

- Siwash and Kelley Creeks: These areas were selected for cumulative effects analysis because proposed actions are planned in these drainages and the fish population in these streams currently use the habitat for all habitat requirements of all age classes.
- St. Joe River just upstream of the confluence with Fishhook Creek. This location is analyzed for cumulative effects because all the drainages, fish-bearing and non-fish bearing, of the project area flow into this section of the St. Joe River. The St. Joe River at this location is overwintering habitat and/or a migratory corridor depending on the species being discussed. This cumulative effects area is considered appropriate because the proposed actions could potentially produce measurable site-specific effects or cumulative effects at this scale.

The cumulative effects analyses area for aquatic resources was selected so that it includes the past, ongoing, and reasonably foreseeable activities within the watersheds of the proposed activities, and excluded areas that are disconnected, distant, or inconsequential.

The St. Joe River and the North Fork St. Joe, upstream of the project area (351,177 acres), is not considered in the cumulative effects analysis because the Brebner Flat Project Area (11,779 acres) is very small (3%)

compared to the upstream area. Due to the much larger size of the upstream area relative to the project area, the volume of water coming from the upper drainage area would mask affects from the project. In addition, activities on non-Forest Service lands could occur and have occurred upstream of and/or across the St. Joe River from the Brebner Flat Project area. However, these activities are not included in the cumulative effects analysis because according to Idaho State law, these activities must meet water quality and beneficial use requirements, which would prevent effects from those actions from overlapping with effects from the Brebner Flat Project.

Figure 1: Brebner Flat Project Area and Project Drainages

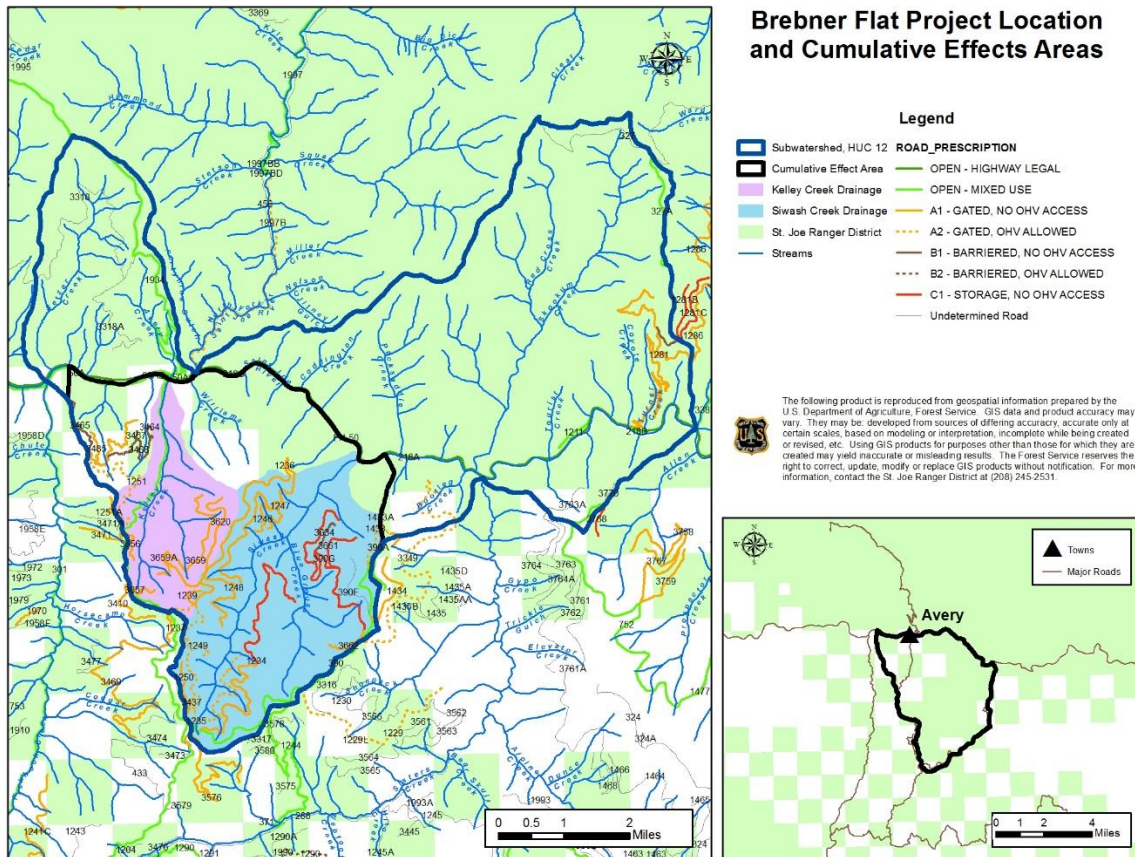


Figure 2: Project Location and Watersheds

Temporal Boundaries: The time frames used depend on the possible duration of effects that the actions produce on the affected resource (FSH 1909.15, 15.2b). The temporal boundaries are broken into short-term and long-term. Unless otherwise described, short-term effects refer to those occurring within or lasting up to five years. Long-term effects refer to those occurring after or lasting greater than five years. These timeframes are appropriate for fisheries, since five years is generally used as an approximate lifespan of cutthroat trout.

Past, Present, and Reasonably Foreseeable Future Actions: Past actions and events also need to be analyzed to determine how the present situation has been affected by history, and to identify trends or patterns that may exist (FSH 1909.15, 15.2b). Present and reasonably foreseeable actions are also considered. Activities which have occurred in the cumulative effects area have been reviewed, and only those that continue to display effects are considered in the cumulative effects analysis (PF: F-40).

Analysis Method:

This report documents the analysis of potential effects of the proposed alternatives to aquatic species and aquatic species habitat (resources identified by the IPNF Forest Plan 2015). This analysis is done by looking at how the existing condition could be affected by the actions proposed in the alternatives. Fish habitat requirements include a variety of elements that combine to make quality fish habitat (USFWS 1998). The IPNF Forest Plan (2015) describes the conditions of the habitat elements that would meet the desired condition for aquatic habitat. Existing conditions are described by how closely the existing characteristics meet the desired conditions. The environmental consequence section describes how the proposed actions (timber harvest, road construction, road storage/decommissioning, and fuel treatment) when imposed on the existing condition would affect the habitat elements (ie. resource indicators). This analysis specifically considers the following resource indicators and measures: how the project would affect connectivity of fish habitat; Effect to the quality of aquatic habitat; and subsequently the Effect to specific aquatic species populations.

Resource Indicators and Measures

Fish habitat and population trends of federally listed and sensitive species are used to describe and compare effects. Table 1 shows indicators and measures of these elements. The table also includes the source of direction showing the relevancy of the element indicator and measure.

Table 1: Resource Indicators and Measures

Resource Element	Resource Indicator	Measure	Alternative Driving issue	Source
Aquatic Habitat	Aquatic Habitat	Miles of connected Spawning and Rearing Fish Habitat	No	Forest Plan: FW-DC-AQH-01,02 and 05, FW-OBJ-AQH-01
		Habitat Quality	No	Forest Plan: FW-DC-AQH-01, FW-DC-AQH-05, FW-OBJ-AQH-01
Aquatic Species	Bull Trout	Trend of population	No	FSM 2670.31; Forest Plan: FW-DC-AQS-01, FW-DC-AQS-04 and 05.
	Westslope Cutthroat Trout	Trend of population	No	FSM 2670.32; Forest Plan: FW-DC-AQS-01
	Western Pearlshell Mussel	Trend of population	No	FSM 2670.32; Forest Plan: FW-DC-AQS-01

Connectivity:

This analysis focuses on connectivity to spawning and rearing habitat because those habitat represent the type of habitats with the highest potential to be affected by the proposed activities; especially road building. Migratory habitat in this analysis area is the St. Joe River. Migratory habitat is not analyzed for connectivity because there is no potential for the proposed activities to affect migratory habitat.

Desired Condition: The Forest Plan describes the connectivity desired condition as, “Connectivity between water bodies provides for life history functions ... and for processes such as recolonization of historic habitats.” (FW-DC-AQH-02), and “... stream crossings provide for passage of aquatic organisms.” (FW-DC-AR-07)

Existing Characteristics: GIS data is utilized to calculate the miles of suitable stream habitat that is connected (i.e., not blocked by human created structures). Determination of spawning and rearing habitat is provided by professional knowledge of fish behavior, field reviews, and discussions with Idaho Department of Fish and Game biologists. Determination of whether a barrier prevents connection to other fish populations or habitats is based on field reviews by the fisheries biologist and trained technicians.

Environmental Consequences: Analysis determines the miles of connected spawning and rearing habitat after project implementation.

GIS data is used to calculate the miles of suitable connected stream habitat following the implementation of alternatives.

Effect to quality of aquatic habitat:

Effect to the quality of aquatic habitat considers how the combination of hydrologic factors and structural components (e.g., large woody debris) within the stream are affected by proposed activity (PF: F26). Hydrologic factors consider how changes to sediment and water can affect the stream channel habitats, which in turn affects the way fish use that habitat.

Desired Condition: The Forest Plan provides a description of desired condition on pages 22 through 29 (Watershed, Soils, Riparian, Aquatic Habitat, and Aquatic Species). The desired condition statements remain generalized to allow for variable and complex relationships between habitats and aquatic species.

As described in the Forest Plan, the desired conditions for aquatic habitats are:

- “Water bodies, riparian vegetation and adjacent uplands provide habitat that support self-sustaining native and desirable non-native aquatic communities ... Aquatic habitats are diverse, with channel, lacustrine, and wetland characteristics and water quality reflective of the climate, geology, and natural vegetation of the area ... Streams, lakes, and rivers provide habitat that contribute toward recovery of threatened and endangered fish species and address the habitat needs of all native species.” (FW-DC-AQH-01)
- “Stream channels supply the required structure for desired stream habitat features such as pools, pool tails, banks, large woody material, backwaters, and riffles that provide aquatic species the necessary niches for holding, overwintering, spawning, cover, rearing and feeding.” (FW-DC-AQH-05). The Forest Plan goes on to describe general criteria for: stream water temperature, large woody debris, pool frequency, channel substrate, bankfull width-to-depth ratios, and bank stability.
- “Water quality supports native amphibians and diverse invertebrate communities.” (FW-DC-AQH-01)

Existing characteristics: The condition of existing fish habitat within the project area is based on a comparison between the desired condition and the existing stream characteristics. The existing characteristics and supporting information for this report were gathered from field surveys, district fish and hydrology files, geographic information system (GIS) data, historical records, aerial photographs, and published and unpublished scientific literature. Stream field reviews were conducted by the project hydrologist, fish biologist, and trained technicians (PF: F04, F05, F06, F07, F08, F09, and F11). Roads within the project area were reviewed most recently in 2013 and 2014 (PF: F11, and “roads” project file). These surveys included a combination of the proper functioning condition (PFC) surveys (PF: W07), and general walk through assessments and observations. Data collected by other agencies were also considered (PF: F16).

A transportation analysis process (TAP) was conducted in 2017, which provided recommendations for long-term road management objectives within the project area.

Environmental Consequences: Analysis determines the Effect to aquatic habitat quality.

The majority of the stream habitat features described in the desired condition (i.e., pool frequency and depth, bank stability, etc.) are factors of the hydrologic influences on the stream. This aquatic species report utilizes stream channel condition information from the Hydrology Report as the basis for the Effect to aquatic habitat effects analysis. The Hydrology Report uses project relevant modeling to determine how the proposed actions would affect the channel conditions. The aquatic species report then considers if those changes to channel conditions would affect the habitats that are important/or limited for aquatic species. Refer to the Hydrology Report for discussion of specific models used and their assumptions.

The IPNF Forest Plan also includes desired conditions for stream temperature and instream large woody debris, however these indicators will not be analyzed for this project. Stream temperature and instream large woody material are not used as indicators for effects of the proposed activities because Inland Native Fish Strategy (INFS) riparian habitat conservation areas (RHCA) widths would be used for all harvest units. INFS RHCAs (e.g., widths of 100 feet, 150 feet or 300 feet; dependent on stream characteristics) are shown to be effective methods for preventing increases in stream temperatures (Clinton 2011, Groom et al. 2011), and for maintaining the future sources of LWD (large woody debris) which leads to pool creation and better cover. Due to the

effectiveness of RHCA's the potential for the Brebner Flat project to negatively affect stream temperature or instream LWD is non-existent.

Effect to Selected Aquatic Species Populations

Effect to selected aquatic species populations considers how the two habitat related issues, discussed above, could affect the population trend. Connectivity issues have the potential to isolate and fragment populations, and stream habitat conditions are considered because they affect the distribution and abundance of fish species (Fraley and Shepard 1989; Goetz 1989; Watson and Hillman 1997).

Desired condition: The IPNF Forest plan includes the following desired conditions, which are applicable to this project:

- “Over the long-term, habitat contributes to the support of well-distributed self-sustaining populations of native and desired non-native aquatic species. In the short-term, stronghold population of native fish, especially ... westslope cutthroat trout ... continue to thrive and expand into neighboring unoccupied habitats, and depressed populations increase in numbers. Available habitat supports genetic integrity and life history strategies of native fish ...” (FW-DC-AQS-01)
- “Recovery and delisting of bull trout is the long-term desired condition. Spawning, rearing and migratory habitat is widely available and inhabited.” (FW-DC-AQS-04)

Existing condition: Aquatic species (Table 2) were selected for analysis because they were identified by the U.S. Fish and Wildlife Service as being present in the project area, or they appear on the US Forest Service Region One Sensitive species list for the Idaho Panhandle NF. Qualitative and quantitative population surveys were conducted (PF: F01, F02, F03, F05).

Table 2: Aquatic Species

Species/designated critical habitat	Status	Analyzed in detail	Justification
Bull trout	Threatened (USDI 1999)	Yes	Bull trout migratory corridor habitat occurs within analysis area.
Kootenai River White Sturgeon (<i>Acipenser transmontanus</i>)	Endangered	No	Does not occur nor has ever been known to have occurred within the St. Joe River Drainage; therefore, it is not discussed further.
Westslope Cutthroat Trout	Sensitive Species (PF: F02)	Yes	Present on the St. Joe R.D.; potentially affected by proposed action.
Western Pearlshell Mussels	Sensitive Species (PF: F02)	No	Present on the St. Joe drainage
Redband Trout	Sensitive Species (PF: F02)	No	Not present on the St. Joe R.D.
Burbot (<i>Lota lota</i>)	Sensitive Species (PF: F02)	No	Not present on the St. Joe R.D.
Bull trout critical habitat	Designated	Yes	St. Joe River is classified as migratory designated critical habitat

Environmental Consequences: Analysis determines the Effect to aquatic species: bull trout and westslope cutthroat trout. Effects to species are based on predicted changes to stream habitat.

Assumptions and Limitations:

1. *Electrofishing presence/absence surveys:* These electrofishing surveys were conducted during the day in 100 meter segments. This sampling intensity is not sufficiently rigorous to establish population densities and may miss detection of bull trout (Thurow et al 2006), but it can establish that fish are present and provides a sampling of the species present and their size distribution.
2. *R1/R4 habitat survey depicts a snapshot in time:* The survey does not accurately display altered or changing stream conditions between various survey years (Roper et al 2002). Some parameters collected during this survey have a higher accuracy rate than others.

3. *Qualitative habitat surveys:* Qualitative habitat surveys were done on several streams within the project area by fisheries biologists and technicians; therefore, documentation is based on professional judgment of the stream conditions rather than quantitative numbers.
4. *Miles of fish habitat:* GIS mapping was used to calculate miles of fish-bearing water. Some streams were ground-verified and then the GIS map was adjusted to the field verified data.
5. *USFWS (1998) criteria:* These criteria were developed for bull trout drainages of the 5th or 6th HUC level. The largest stream drainage in the project area is a 7th level HUC, which is a smaller area than the 5th or 6th level HUCs; therefore, some of the criteria which pertain to large areas would not apply. There are also 8th level HUCs within the project area that are used by fish, but those streams are not compared to USFWS criteria because they are much smaller than those drainages for which the criteria were designed.
6. *Road density:* Road density includes road miles for all roads that are: open, prescriptions A (gated) and B (barriered). Prescriptions C (long-term stored) and D (decommissioned) are not included in the road density calculation because the intent of these prescriptions is to create roads that pose no hydrologic problems. BMP monitoring of St. Joe Ranger District projects confirm that the intent of these prescriptions is met for the majority of the roads treated by these prescriptions (PF: F11, F12, F13).

Incomplete and Unavailable Information

At the time of writing, there is no incomplete or unavailable information needed to analyze miles of spawning and rearing habitat, qualitatively discuss stream habitat, or qualitatively discuss westslope cutthroat trout, bull trout, or western pearlshell mussel populations.

Affected Environment (Existing Condition)

Named streams within the analysis area include: Siwash, Blue Grouse, Williams, Kelley, Theriault, Roundhouse, and a portion of the St. Joe River. Fish use habitat in Siwash Creek, Blue Grouse Creek, Kelley Creek and the St. Joe River. Williams, Theriault and Roundhouse Gulch are not fish-bearing streams and are not directly discussed further in this aquatic species report, but are considered indirectly in the analysis because information from the hydrology report is considered and because of the potential for affecting the St. Joe River. Table 1 summarizes the affected environment for the Brebner Flat Analysis area.

Table 1: Resource Indicators and Measures for the Existing Fisheries Condition.

Resource Element	Resource indicator	Measure	Existing condition
Aquatic Habitat	Aquatic Habitat	Connected Spawning and Rearing Fish Habitat	6.2 miles
		Quality of Aquatic Habitat	Kelley Creek: Stable, fair to good quality fish habitat Siwash Creek: combination of stable and unstable segments with associated poor to good quality fish habitat Blue Grouse Creek: unstable, poor to fair quality fish habitat
Aquatic Species	Bull Trout	Trend of Population	Not Present in Kelley, Siwash or Blue Grouse Creeks (F-1, F-2, F-3). Utilize the St. Joe River as a Migration Corridor (F-14). In St. Joe River population trend is static.

	Westslope Cutthroat Trout	Trend of Population	Present, Common in All Fish-Bearing Streams of Analysis Area (F-1, F-2, and F-3). Population trend is upward
	Western Pearlshell Mussel	Trend of Population	Not Present in Streams Of Analysis Area (F-5).

Aquatic Habitat

Connected Spawning and Rearing Fish habitat:

There are approximately 49 miles of perennial streams in the analysis area. The perennial stream miles can be further divided into spawning and rearing habitat, migratory habitat, and unsuitable habitat; i.e., habitat that is either too steep for fish to use or does not have enough water for fish. There are approximately 9.9 miles of spawning and rearing habitat, but only 6.2 miles are connected to other useable fish habitat. Migratory habitat (i.e., St. Joe River) makes up 5.9 miles of the perennial stream miles. There are approximately 33.8 miles of perennial stream habitat that is unstable for fish use.

Kelley Creek: There are 4.0 miles of spawning and rearing habitat in the Kelley Creek drainage. Only the lower

Figure 3: Kelley Creek dam



0.25 miles is connected to the St. Joe River.

There is an old concrete dam on private lands on Kelley Creek blocking access to the upper sections of stream (Figure 3).

Siwash Creek: There are 4.5 miles of spawning and rearing habitat in Siwash Creek. There are no human created barriers preventing access to the St. Joe River. The only road crossings of Siwash Creek occur on non-fish bearing streams near the headwaters of the drainage.

Blue Grouse Creek: There are 1.4 miles of spawning and rearing

habitat in Blue Grouse Creek. There are no human created barriers preventing access to the St. Joe River. The only road crossings of Blue Grouse Creek occur on non-fish bearing streams near the headwaters of the drainage.

St. Joe River: The St. Joe River, 5.9 miles, within the analysis area is entirely connected fish habitat and is utilized as a migratory corridor for bull trout and westslope cutthroat trout, as well as summer rearing habitat for WCT. There is a bridge across the St. Joe River within the project area. It does not affect migration.

Aquatic Habitat Quality

In general, the fish-bearing waters of the analysis area provide fair/good, stable, diverse habitats based on the results from the qualitative surveys, observations regarding LWD, review of previous quantitative reviews and the conditions documented in the hydrology report. The stream characteristics described in the Forest Plan, which apply

most closely with fish usage needs in the streams of the analysis area are: LWD, pool frequency, channel substrate and temperature.

Kelley Creek: Fish habitat characteristics are providing good quality fish habitat in Kelley Creek (PF: F_09). The hydrology report identifies that the streambanks and streambed in Kelley Creek are stable with minor bank erosion, streambed scour and sediment deposition. The existing Effect to these habitat characteristics is improving.

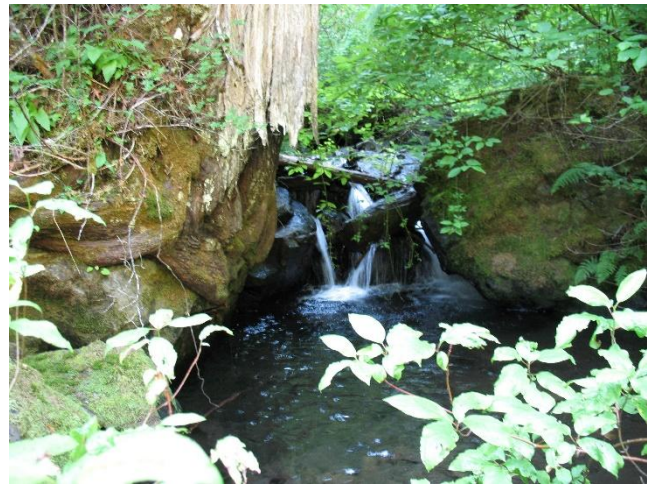
Lands within the Kelley Creek drainage are managed under mixed ownership; 59% Forest Service management, 38% timber industry management, and 3% private lands. Kelley Creek has approximately 4 miles of fish habitat which flows through Forest Service managed lands and non- Forest Service managed lands. From the confluence with the St. Joe River upstream, approximately 0.8 miles, Kelley Creek flows through a combination of privately owned land and timber industry lands. The next 1.0 mile of Kelley Creek flows through Forest Service managed lands. The stream splits into two tributaries, approximately 1.0 and 1.2 miles long, that flow through timber industry managed lands. Approximately 2000' the RHCA buffer of one of the tributaries has been harvested. The headwaters occur on Forest Service managed lands and are non-fish bearing sections.

Forest Service Road 1237 parallels the lower 2 miles of Kelley Creek. At times the road lies within 50' of the stream but the majority of the length lies upslope but within 300' of the stream. Between the road and the stream is timbered land.

Large woody debris is abundant and creating fair to good quality pools based on pool depth and cover. Stream banks were stable and the instream indicators (ie presence of vegetation on instream rocks) for stability were present.

Siwash Creek: The fish habitat characteristics identified in the Forest Plan are observed to be in overall fair condition for Siwash Creek because some sections are in good condition and other sections are considered poor/fair.

Figure 4: Siwash Creek



Lands within the Siwash drainage are under mixed ownership; 86% Forest Service management, and 14% timber industry management. The fish bearing section of Siwash Creek flows through Forest Service managed lands. Timber industry lands occur at the southern ridge of the drainage, a small area at the ridge of the divide between Williams Creek and Siwash Creek, and another small area near the ridge between Siwash Creek and Blue Grouse Creek.

Siwash Creek is steep, cascade/high gradient riffle habitat near the confluence with the St. Joe River (Figure 2). Large woody debris is common and providing diversity and complexity to the stream habitat (PF- F06).

Siwash Creek downstream of the confluence with Blue Grouse Creek was reviewed in August 2018. The stream is moderate gradient. The riparian zone is intact and providing abundant amounts of large woody debris to the channel. Large gravel is the common substrate size and there is very little vegetation growth of the stable cobble within the channel. The substrate was loose and bright colored, and mid channel bars as well as lateral bars were present indicating substrate movement. Pool habitat was low quality due to a lack of depth. Due to the indicators of substrate movement this section of Siwash Creek is considered in poor/fair condition. A 1993 evaluation of Siwash Creek stream habitat conditions reported similar conditions and issues as were found in the 2018 review (PF H_3).

Upstream of the confluence with Blue Grouse Creek, Siwash Creek is moderate gradient. The riparian zone is intact and providing large woody debris to the channel. Substrate is primarily gravels/cobble grading to smaller sizes further upstream. Stable undercut banks are present and large woody debris created pools are common (PF-F05).

The hydrology report states that Siwash Creek upstream of the confluence with Blue Grouse Creek has stable streambed and banks. Downstream of the confluence Siwash was Creek is displaying active scour, deposition and bank erosion.

Blue Grouse Creek: Blue Grouse Creek is a tributary to Siwash Creek. The fish habitat characteristics selected for review as guided by the Forest Plan, are observed to be in overall fair condition for Blue Grouse Creek.

The fish bearing section of Blue Grouse Creek flows through Forest Service managed lands. Timber industry lands (approximately 26% of the drainage) occur at the southern ridge of the drainage between Siwash Creek and Blue Grouse Creek, and another section is on the eastern ridge between Blue Grouse and Shoepack Creek.

Blue Grouse Creek near the confluence with Siwash Creek is a moderate gradient stream. There is an abundance of large woody debris but limited amounts incorporated into the bed and banks. Substrate is predominately cobble with evidence of flows being high enough to move cobble size material. Mid and lateral bars are common and the substrate is mobile. Pool habitat is present and some pools created by more established woody debris are creating higher quality pool habitat. But the majority of the pool habitat is shallow, small pools.

Higher in the system Blue Grouse is a higher gradient stream, averaging approximately 12%. As expected, due to the steeper gradient, the dominant habitat type is riffle habitat. Pool habitat is present and is predominately created by large woody debris. There is abundant woody debris in the channel.

A 1993 evaluation of Blue Grouse stream habitat conditions reported similar conditions and issues as were found in the 2018 review (PF H_3).

The hydrology report states that Blue Grouse Creek is displaying active scour, deposition and bank erosion.

St. Joe River: The fish habitat characteristics identified in the Forest Plan are observed to be in overall good condition for the St. Joe River. The Effect to the fish habitat is static, due to streamside roads which will continue to exist into the future. The St. Joe River is designated migratory critical habitat for bull trout. The river currently is completely accessible upstream and downstream of the section of the river in the project area.

Aquatic Species

Bull Trout

Bull trout (*Salvelinus confluentus*) are listed as a Threatened species under the Endangered Species Act. In 2010 bull trout critical habitat was listed by the U.S. Fish and Wildlife Service (75 FR 63898). The St. Joe River is the only stream listed as critical bull trout habitat within the analysis area. The five-year review of bull trout status determined that the Coeur d'Alene lake population, which includes the St. Joe drainage, had a stable short-term trend, but the threat ranking was "High Risk" (USFWS, 2008). The IPNF Forest Plan monitoring report (March 2013) indicates that bull trout populations appear to be stable or increasing across most of the Idaho Panhandle National Forests. The bull trout population in the Coeur d'Alene Core Area, which includes the St. Joe River Basin, is predicted to be increasing (IPNF Forest Plan monitoring report 2013). The 2015 Forest Plan (Chapter 5) requires continued monitoring of bull trout (BT) populations at the forest level, but not at the project level.

The IPNF Forest Plan Final EIS provides a general overview of life history and distribution of bull trout across the forest (IPNF FEIS pp. 179-181). The historic range of bull trout includes the St. Joe River adjacent to the analysis area. There are no historic records of bull trout use of Kelley, Siwash or Blue Grouse Creeks. Probability analysis for bull trout habitat utilization does not predict bull trout utilization of Siwash Creek or Blue Grouse Creek upstream of their confluence (Isaak et al. 2015). Siwash below the confluence and Kelley Creek were not analyzed for use (Isaak et al 2015). Bull trout were not located during surveys of Kelley, Siwash or Blue Grouse Creeks (PF: F01, F02 and F03). The segment of the St. Joe within the project area is not utilized by bull trout for spawning; however, they do use this section as a migratory corridor (PF: F07 [Dupont 2006, personal communication]).

Westslope Cutthroat Trout (WCT)

The westslope cutthroat trout (*Oncorhynchus clarki lewisi*) are designated as a Sensitive species on the Idaho Panhandle National Forest (USDA FS 2011). The IPNF Forest Plan Final EIS provides a general overview of life history and distribution across the forest (IPNF FEIS pp. 182-185).

The most recent IPNF Forest Plan monitoring reports that discuss WCT populations, indicate that the WCT populations are stable or increasing throughout most of northern Idaho (USDA FS IPNF 2007, 2008, 2009). Idaho Fish and Game studies suggest the WCT population in Idaho currently appear stable or increasing in abundance in most areas (Kennedy and Meyer 2014). Idaho Fish and Game reports that the St. Joe River “has shown a pronounced increase in the abundance of cutthroat trout over 300mm, particularly since 1997 (IDFG 2014). Westslope cutthroat trout were located during surveys of Kelley Creek (PF: F03), Siwash Creek (PF: F01 & 02) and Blue Grouse Creek (PF: F02). Surveys indicated that westslope cutthroat trout are well distributed throughout the analysis area and multiple age classes were observed (Table 2).

Table 2: Westslope Cutthroat Trout Presence in Brebner Flat Project Area Streams

Stream Name	Predicted stream use	Year	WCT Sizes
Kelley Creek	Spawning and Rearing	2014	Young-of-the-Year to 13.4 cm
Siwash Creek	Spawning and Rearing	2014	4.0 to 23.4 cm
Blue Grouse Creek	Spawning and Rearing	2014	10 to 19.9 cm
St. Joe River	Rearing and Migratory	2013	Up to and Over 300 mm

Western Pearlshell Mussels

The western pearlshell mussel (*Margaritiferae falcate*) is designated as a Sensitive species for the IPNF (USDA FS R1 2011). The IPNF Forest Plan Final EIS provides a general overview of life history and distribution across the forest (IPNF FEIS p. 192). The 2015 Forest Plan does not require monitoring of western pearlshell mussel populations at the forest or project level (Chapter 5).

The western pearlshell mussel is listed by Nature Serve as having a national status of N4 (Apparently Secure) (Jepsen et al. 2011). This is the most common mussel species in the Pacific Northwest, but it has been extirpated from northern Nevada and from most areas in northern Utah; furthermore, there is documentation of the species declining in particular stream and rivers throughout its range (Jepsen et al. 2011). Populations are known to occur in northern Idaho in the Coeur d’Alene, St. Joe, and St. Maries Rivers (Frest 1999). Survey methods which located WPSM in Emerald Creek and the St. Maries River were utilized within the project area streams and WPSM were not identified during surveys in Siwash or Blue Grouse Creeks.

Due to the lack of WPSM in the analysis area they are not analyzed in the environmental consequences section of this document.

Environmental Consequences

The following table (Table 3) summarizes proposed activities for the action alternative. A more detailed table and description of the activities is located in Chapter 2 of the Brebner Flat Environmental Assessment (EA).

Table 3: Summary of Proposed Activities

Proposed Activity	Alternative 2
Commercial Timber Harvest	1719 Acres
Road Construction Associated with Timber Harvest Followed by Storage	2 Miles
Temporary Road Construction	4 Miles
Road Storage or Decommissioning (Watershed Restoration)	9.6 and 1.3 Miles
Road reconstruction,	3 Miles
Road maintenance (FSM 7705), specifically for project including haul route (FS road 1237 and 390)	8.8 Miles

Design Features Relevant to Aquatic species

Forest Plan Standards and Guidelines

The following are design features selected from a review of Inland Native Fish Strategy (INFS) Standards and Guidelines (FW-STD-RIP-03), and Forest Plan Standards and Guidelines.

1. INFS Riparian Habitat Conservation Areas (RHCA) widths as described in the Forest Plan would be used.
2. No commercial timber harvest would occur in INFS RHCAs.
3. No new roads or landings located in INFS RHCAs.
4. No material would be side cast in INFS RHCAs.
5. All haul routes under federal jurisdiction would be maintained prior to, during and after logging operations
6. Ground-based logging equipment should only enter an RHCA at designated locations, and only if it is necessary for the attainment of the RHCA desired condition.
7. Roads opened for temporary use would be closed upon completion of proposed activities.
8. New stream crossing structures would be designed to meet 100 year flood criteria.
9. Where appropriate and feasible, aquatic organism passage concepts would be included in stream crossing designs.
10. Trees felled within INFS RHCAs would be left on site.
11. No fuels or other toxicants would be stored within INFS RHCAs , and refueling of equipment will not occur within buffers
12. Activities that may disturb native salmonids, or have the potential to directly deliver sediment to their habitats, should be limited to times outside of spawning and incubation seasons for those species, as identified in the following table:

Timing Restrictions for In-Channel Work in Streams Occupied by Native Salmonids

Spawning Season	Location of Activity	Inoperable Activity Period*
Spring	Known Occupied Streams	Prior to July 15
Fall	Known Occupied Streams	September 1 Through March 15

* Dates can be modified when site-specific information on staging and spawning of native fishes supports changes.

13. Relic roads found during sale layout, that are not on the Forest transportation system and which culverts are still in place, would be decommissioned.

Best Management Practices

Reference for applicable BMPs in the project file.

Monitoring

No project level aquatic species monitoring is required for the Brebner Flat project area. The proposed alternatives do not propose activities that “test assumptions” or alter Forest Plan aquatic species/habitat guidelines.

Past, Present, and Reasonably Foreseeable Activities Relevant to Cumulative Effects Analysis

The IDT developed a list of past, present, and reasonably foreseeable actions that have occurred in the Brebner Flat Project area, and the aquatic species cumulative effects area. The aquatic species resource analysis considered which of these actions might have created effects which continue and which might overlap in time and space with

effects from the Brebner Flat project. Reasonably foreseeable activities considered for this analysis area are identified in the project file.

Activities considered not relevant to the cumulative effects analysis include:

Past Timber Harvest (direct effects): Timber harvest has known effects to hydrology resources, which in turn can affect instream habitat, fish, and aquatic organisms. Large-scale timber harvest within the project area that occurred in the early 2000's.

There have been 429 acres harvested in the project area within that time period. However with the adaptation of INFS standards, including buffers, by the IPNF 1995 (23 years ago), those acres which were harvested have had no entry buffers between the harvest units and the streams. Effectiveness monitoring of the standards and guidelines associated to INFS (intact buffer zones) have shown that they reduce potential impacts from timber harvest to an amount too small to measure within streams (Cristan et al 2015, Rashin et al 2006, Jackson et al. 2007). Therefore, adding potential effects from this project to these past activities would not be considered a cumulative addition, since the buffers were established.

Past Wildfire and Prescribed Fire: Almost the entire project area burned during the 1910 fires. The landscape has revegetated since that time. Between 1986 and 2015 there have been 10 fires none of which were greater than four acres. Prescribed fire has only occurred in the project area in relation to fuel treatment of harvested areas. This prescribed fire is conducted in a manner that minimizes effects on soils and hydrologic resources. Due to the recovery from historic fires and protection of soils during prescribe burns there are no continuing negative effects the channels and therefore no negative effects to fish habitat or fish populations.

Past Fire Suppression: The physical action associated to fire suppression can have impacts to aquatic resources. There have been 10 recorded fires in the Brebner Flat area between 1986 and 2015. These fires ranged between less than 1 to 4 acres. Fire suppression includes a variety of activities such as: hand fire line construction, dozer fire-lines, and aerial retardant. The different activities produce different levels of effects, and the location of the activity also affects the level of impact. Any impacts from the suppression of these fires would be too small to measure at this time, based on the small size of these fires, and the recovery time since the fires.

Past Timber Stand Improvement Activities (planting, thinning, pruning, etc.): These activities are not ground-disturbing activities and do not have any short- or long term-impacts to the aquatic species resource; therefore, their effects do not overlap in time or space with the proposed projects.

Past Public activity (firewood gathering, berry picking, hunting, etc.): The only aspect of these activities that would create ground disturbance is the use of the Forest roads to access activity locations. Road use is covered by road maintenance and road construction discussion.

Present Recreation: These activities can occur within INFS buffers, but the main effects from recreation result from the use of roads and trails associated to getting people to their recreational activities of huckleberry picking, firewood gathering, etc. Effects from road use is discussed previously in the section on transportation system. At the project and analysis area scales, it is not possible to attribute measurable incremental changes to recreation activities themselves.

Present Firewood cutting/gathering: This activity is not allowed within INFS buffers, according to the firewood permit; therefore, we assume no effects to aquatic habitat, fish, or aquatic organisms.

Present Herbicide Use: This activity is closely regulated and if application were to occur it would follow EPA approved label directions, as required by law, and the requirements of the St. Joe Noxious Weed Control EIS (PF F44). There would be no measureable effects to habitat, fish, or aquatic organisms.

Future Fire Suppression: The Brebner Flat project area lies within the area of the St. Joe Ranger District where fires would be actively suppressed. Stands currently occur in fire group seven, which may have the most variable fire regime in northern Idaho; ranging from low- and mixed-severity on a moderate return interval of 30-80 years, to less frequent stand-replacing fires every 150 years or more (Zack and Morgan 1994). If stand-replacing fire would occur there is the potential for aquatic habitat to be negatively affected due to an increase in sediment from slopes. However, it is unrealistic to attempt to predict if a fire would occur in the project area that would overlap temporally

with the proposed project activities, or what type of suppression actions would be taken at that time. However there are guidelines in place that would minimize the effects from potential future fire suppression actions to aquatic resources. These guidelines include: INFS for fire/fuels management, Minimum Impact Suppression tactics (MIST), Guide to Preventing Aquatic invasive species transport, and the Implementation guide for aerial application of fire retardant. Future fire suppression will not be included in the cumulative effects analysis because of the unpredictable nature of occurrence and the guidelines in place to reduce effects

Past, ongoing and reasonably foreseeable activities considered relevant include:

Timber Harvest

Indirect effects: Past timber harvest (Forest Service and non-Forest Service) will be considered as an indirect effect analyzed in the hydrology report.

Direct effects: Past timber harvest on non-Forest Service managed lands do not apply INFISH buffers but use the narrower Idaho Forest Best Management Practices.

Timber Harvest on non-Forest Service Lands: Timber harvest on non-Forest Service managed lands will continue into the future. Harvest on these lands must adhere to Idaho Forest Best Management Practices.

Transportation System: The majority of the existing transportation system was developed to implement past management activities (i.e., roads constructed primarily for timber harvest). The physical presence of the system (whether used or not) has affected streams, fish, and aquatic organisms in the past, in the form of increased sediment to streams, which in turn can fill in pool habitat and interstitial spaces that then can have a negative effect on fish and aquatic organism populations (PF: F15, pp. 28-29). Some roads built in the past have been decommissioned thus eliminating their negative effects and road maintenance is more effective because fewer miles exist.

The actual use of unpaved roads (i.e. driving on the road) also has the potential to affect stream habitat. Heavily used unpaved roads produce more sediment than lightly used roads (Foltz 1996).

Road Maintenance: Road maintenance occurs periodically within the project area. Periodic maintenance reduces the potential for catastrophic road failures as well as reduces persistent sediment inputs. In 2018 several roads in the project area were reconditioned through an agreement with an adjacent timber company. This reconditioning work includes cleaning of ditches and culverts, repair of soft and unstable areas, etc (PF: F-20). In 2019 the Kelley Creek Road (FS 1237) will be rocked on the running surface (personal communication with Sean Christen). These types of activities were analyzed and approved under the IPNF Road Maintenance BA (PF: F-17). BMPs and design features are in place which reduce negative effects of road maintenance to stream habitat (PF: F17).

Watershed Improvement: Road decommissioning (1.2 miles) and long term storage (7.9 miles) occurred in the early 2000s within the Brebner Flat project area as required by the Blue Grouse Timber Sale. Review of one of the stored roads (390G) found the road to be hydrologically stable (PF-F11). Road decommissioning and road storage can have short term negative effects but long term beneficial effects. The roads in the Brebner Flat project are no longer having negative effects of the channels and thus are not having a negative effect on fish habitat or fish populations.

Fish migration barrier: A concrete dam has been located on Kelley Creek for several decades and has eliminated fish migration from the St. Joe River upstream in Kelley Creek to suitable habitat. This dam is located on privately managed land. The concrete dam on Kelley Creek is still present and continues to isolated fish populations in Kelley Creek from the St. Joe River. Because the dam is located on private lands it is not proposed for removal.

Environmental Consequences by Alternative

Summary

Table 4: Summary of Resource Indicators and Measures by Alternative

Resource Element	Resource Indicator	Measure	Alternative A	Alternative B
Aquatic Habitat	Aquatic Habitat	Connected Spawning and Rearing Fish Habitat	6.2	6.2
		Aquatic Habitat Quality	Static Trend	Static/slight downward
Aquatic Species	Bull Trout	Population	Static Trend	Static Trend
	Westslope Cutthroat Trout	Population	Static Trend	Static/MIH

Alternative A (No Action)

Summary: The selection of this alternative would not include implementation of any activities. Changes in the condition of streams and riparian areas and the effect of the changes on bull trout, westslope cutthroat trout, and other aquatic organisms would rely on natural processes and be influenced by past management activities. The effects to aquatic habitat and aquatic populations would remain in its current good condition in Kelley Creek and impaired condition for Siwash and Blue Grouse but all drainage would improve slowly through natural processes.

This alternative meets Forest Plan goals for restoring aquatic habitat where past management activities have affected stream channel morphology by relying on natural processes to meet or move streams and riparian areas towards desired conditions. It does not, however, actively pursue measures to improve aquatic habitat by conducting actions such as storing or decommissioning of roads.

Alternative B (Proposed Action)

Summary: The following is the summation of affects to the aquatic species resource. Detailed documentation of the analysis is located in project file document F-22.

Connected Spawning and Rearing Fish Habitat: The implementation of this alternative would not alter the issue of, connected spawning and rearing habitat, because there would be no new roads crossing any fish-bearing streams. The amount of unconnected habitat on Kelley Creek would remain the same due to the barrier on private lands.

Effect to aquatic habitat quality: The hydrology report states that the cumulative effects to Siwash and Blue Grouse Creeks, which include the effects from the implementation of the proposed action, would retain these streams in their current conditions. Because the habitat of these streams would not be further degraded, there would be no impediment to the slow natural recovery processes.

The hydrology report states that localized instability could occur in Kelley Creek resulting in increased sediment inputs. Increased sediment input could result in sediment becoming deposited in existing pool habitat. The Forest Plan identifies pool frequency as a feature of desired stream habitat. Kelley Creek is currently considered to have fair to good quality pool habitat. Increases in sediment to the channel could become deposited in the existing pool habitat reducing its depth, thus reducing the quality of the pools and potentially the frequency of the pools if they become completely filled.

The implementation of this alternative does contribute to the Forest Plan goal AQH-01 “for restoring aquatic habitat where past management activities have affected stream channel morphology”, due to the lack of negative impacts to Siwash and Blue Grouse Creeks. The alternative has the potential to slow natural process recovery of Kelley Creek. Project file document F-21 documents compliance with the Forest Plan.

Effect to bull trout population: Within the analysis area, bull trout only utilize the St. Joe River. The cumulative effects from the proposed action “May effect- not likely to adversely affect” bull trout population due to the potential for sediment generated in Kelley and Williams to reach the St. Joe River. A biological assessment for bull trout is located in the project file.

The proposed action “May effect – not likely to adversely affect” designated critical habitat within the St. Joe River due to the potential for sediment from the project area reaching the St. Joe River. The documentation of the

crosswalk between the bull trout matrix and bull trout critical habitat primary constituent elements (PCE) is located in the project file, F-19.

Effect to westslope cutthroat trout population: The cumulative effects from the implementation of this alternative “May Impact individuals or habitat, but will not likely contribute to a trend toward federal listing” for the westslope cutthroat trout (WCT) present in Kelley Creek. WCT using other streams of the analysis area would not be affected by the implementation of the proposed action.

Detailed Analysis

Alternative A (No Action)

Summary: The selection of this alternative would not include implementation of any activities. Changes in the condition of streams and riparian areas and that effect on bull trout, westslope cutthroat trout, and other aquatic organisms would rely on natural processes and be influenced by past management activities. The Effect to aquatic habitat and aquatic populations would be remain in its current good condition in Kelley Creek and impaired condition for Siwash and Blue Grouse but all drainage would improve slowly through natural processes.

This alternative meets Forest Plan goals for restoring aquatic habitat where past management activities have affected stream channel morphology by relying on natural processes to meet or move streams and riparian areas towards desired conditions. It does not, however, actively pursue measures to improve aquatic habitat by conducting actions such as storing or decommissioning of roads.

Direct and Indirect Effects:

There would be no direct or indirect effects from the selection of this alternative because no activities are proposed.

Cumulative Effects

Kelley Creek:

Connected spawning and rearing habitat: There would be no change to this indicator because of the lack of change to the miles of connected spawning and rearing habitat. There would continue to be a barrier dam in Kelley Creek.

Trend of aquatic habitat quality: This alternative would maintain existing fair/good quality aquatic habitat conditions in Kelley Creek into the long-term. This determination is based primarily on the factors:

- (1) the fish-bearing segments of the streams currently have fair/good quality habitat
- (2) the hydrology report concluded that stream channel stability would maintain the current trend toward natural background conditions (Brebner Flat Hydrology Report);
- (3) even though forest conditions may deteriorate and increase the risk of fire, and its potential associated effects to water resources, fires would be suppressed if an ignition does begin preventing large scale fires which create larger negative effects to water resources.
- (4) The amount and type of activity occurring on non-Forest Service managed lands. Private industrial timber land comprises approximately 38 % of the Kelley Creek drainage. This land has been harvested in the recent past and plans exist to continue harvesting in a similar manner as what occurred in the past. Harvest on private lands must adhere to Idaho State Best Management Practices regarding stream protection buffers and road construction and maintenance.
- (5) The Kelley Creek road (FS road 1237), has been in place for many years, would continue to be used by the public and for log haul from private industry lands and Forest Service lands.

Effect to bull trout population: There would be no change to trend of bull trout population in Kelley Creek because this stream is not utilized by bull trout.

Effect to westslope cutthroat trout population: There would be no change to the Effect to the westslope cutthroat trout population in Kelley Creek. The conditions which currently create a reduction in available habitat (i.e., the dam) would continue.

Siwash Creek:

Connected spawning and rearing habitat: There would be no change to this indicator because there are no barriers to the miles of connected spawning and rearing habitat.

Trend of aquatic habitat quality: There would be continue to be a slow natural recovery for the existing fair/good aquatic habitat of Siwash Creek if this alternative were selected. This determination is based on the following factors:

- 1) Siwash Creek currently has segments of the stream which have degraded aquatic species habitat.
- 2) A 1993 report by the IPNF Forest hydrologist identified the same types of degraded habitat in Siwash Creek as are still evident today.
- 3) Private industrial timber land comprises approximately 14 % of the Siwash Creek drainage. This land has been harvested in the recent past and plans exist to continue harvesting in a similar manner as what occurred in the past. Harvest on private lands must adhere to Idaho State Best Management Practices regarding stream protection buffers and road construction and maintenance.
- 4) The hydrology report (PF: RRW) states that it is difficult to determine if Siwash Creek is recovering or is continuing to be negatively affected by past management activity.

Effect to bull trout population: There would be no change to trend of bull trout population in Siwash Creek because this stream is not utilized by bull trout.

Effect to westslope cutthroat trout population: There would continue to be a static condition for the westslope cutthroat trout population in Siwash Creek because aquatic habitat conditions are relying on natural recovery to improve degraded conditions.

Blue Grouse Creek:

Connected spawning and rearing habitat: There would be no change to this indicator because there are no barriers to the miles of connected spawning and rearing habitat.

Trend of aquatic habitat quality: There would be continue to be a slow natural recovery for the existing fair/good aquatic habitat of Blue Grouse Creek if this alternative were selected. This determination is based on the following factors:

- 1) Blue Grouse Creek currently has segments of the stream which have degraded aquatic species habitat.
- 2) A 1993 report by the IPNF Forest hydrologist identified the same types of degraded habitat in Blue Grouse Creek as are still evident today.
- 3) Private industrial timber land comprises approximately 17 % of the Blue Grouse Creek drainage. This land has been harvested in the recent past and plans exist to continue harvesting in a similar manner as what occurred in the past. Harvest on private lands must adhere to Idaho State Best Management Practices regarding stream protection buffers and road construction and maintenance.
- 4) The hydrology report (PF: RRW) states that it is difficult to determine if Blue Grouse Creek (as a tributary to Siwash Creek) is recovering or is continuing to be negatively affected by past management activity.

Effect to bull trout population: There would be no change to trend of bull trout population in Blue Grouse Creek because this stream is not utilized by bull trout.

Effect to westslope cutthroat trout population: There would continue to be a static condition for the westslope cutthroat trout population in Blue Grouse Creek because aquatic habitat conditions are relying on natural recovery to improve degraded conditions.

St. Joe River (at the downstream most point within the project area):

Connected spawning and rearing habitat: There would be no change to this indicator because of the lack of change to the miles of connected spawning and rearing habitat. The St. Joe River would continue to provide migratory access to upstream spawning and rearing areas.

Trend of aquatic habitat quality: There would be no change to Effect to aquatic habitat if this alternative were selected because there are no actions proposed.

Effect to bull trout population: There would be no change to the Effect to bull trout populations because the habitat within this section of the St. Joe River would not be altered and it would continue to provide a migratory corridor to upstream bull trout spawning and rearing areas.

Effect to westslope cutthroat trout population: There would be no change to the Effect to westslope cutthroat trout populations because the habitat within the St. Joe River would not be altered.

Alternative B (Proposed Action)

Summary:

The proposed project is not likely to adversely affect federally listed bull trout population or their designated critical habitat but there is the potential for minor and short-term effects from sediment generated in Kelley, Theriault and Williams Creeks that could reach the St. Joe River. The proposed project may impact westslope cutthroat trout and their habitat in Kelley Creek, but the effect would be localized and short term. Westslope cutthroat trout using other streams of the analysis area would not be affected by the implementation of the proposed action. The proposed project would not affect the issue of “connected spawning and rearing habitat” because there would be no new roads crossing any fish-bearing streams, therefore currently connected habitat would remain connected. The amount of unconnected habitat on Kelley Creek would remain the same due to the barrier on private lands. The implementation of this alternative contributes to the forest plan goal AQH-01 “for restoring aquatic habitat where past management activities have affected stream channel morphology” due to the lack of negative impacts to Siwash and Blue Grouse Creeks. The proposed action has the potential to slow natural process recovery of Kelley Creek. Project file document F-22 provides detailed analysis and F-23 provides documentation of compliance with the forest plan.

Direct and Indirect Effects:

Activity: Timber harvest (1,719 acres)

Aquatic Habitat

Connected spawning and rearing habitat: Timber harvest would not create any barriers to the movements of aquatic species there would be no reduction in connected spawning and rearing habitat.

Effect to aquatic habitat quality: Timber harvest would not create any barriers to the movements of aquatic species there would be no reduction in connected spawning and rearing habitat. There would be no direct effects to the quality of aquatic habitat or populations of aquatic species from timber harvest because Inland Native Fish Strategy buffers would be used for all harvest units adjacent to streams. Best management practices monitoring of past buffers on units has shown that these buffers protect stream conditions from timber harvest (Cristan et al 2016, NCASI 2012, Seyedbagheri 1996).

Timber harvest could result in indirect effects. Based on the watershed analysis of effects to stream channel stability, harvest may indirectly affect the instream habitat used by aquatic species. The

hydrology analysis determined that fish bearing streams of the project area could experience peak flow increases due to the proposed timber harvest. This increase could increase the input of sediment to the channel.

Aquatic Species

Effect to bull trout population: Timber harvest would have no direct or indirect effect on the bull trout population because timber harvest effects that may occur in the fish-bearing streams of the project are not occupied by bull trout.

Effect to westslope cutthroat trout population: Timber harvest activity could have a negative effect on westslope cutthroat trout because of the potential for negative changes to channel conditions of streams inhabited by westslope cutthroat trout due to increases in peak flows identified in the hydrology analysis.

Activity: Road construction (2.4 miles)

Road construction would have no direct effects to the aquatic species indicators because the road construction projects do not cross fish-bearing streams or flowing water. However, road construction projects do have the potential to create indirect effects to aquatic species habitat. Detailed discussion of indirect effects from this activity are analyzed in the hydrology report.

Aquatic Habitat

Connected spawning and rearing habitat: The road construction associated with the implementation of this alternative would not impact the amount of connected habitat because none of the proposed road crosses a fish-bearing stream.

Trend of aquatic habitat quality: Road construction would increase road densities from 3.1 to 3.5 miles per square mile. This is an increase but it would still maintain the road density at a moderate level as rated in the Forest Plan, appendix D. New road construction (system and temporary) occurs predominately in Kelley Creek drainage (2.11 miles) and the Williams/face drainage (2.93 miles). Theriault drainage has only 0.33 miles, Siwash 0.51 miles and Blue Grouse 0.2 miles. The roads are mainly located high on the slope which reduces their influence on the stream channels.

Aquatic Species

Trend of bull trout population: Bull trout do not occur in any of the tributary streams therefore road construction won't affect them in those streams but sediment generated from road construction in those drainages has the potential to reach the St. Joe River where bull trout do occur. Therefore there is a potential for minor short term effects to bull trout and their designated critical habitat in the St Joe River.

Trend of westslope cutthroat trout population: Road construction would have a minor short term effect to westslope cutthroat trout population in Kelley Creek but not in Siwash or Blue Grouse because there is very little construction in those drainages and it is high on the slope reducing impacts to channels.

Activity: Road storage (9.6 miles) and decommissioning (1.3 miles)

Aquatic Habitat

Connected spawning and rearing habitat: Road storage and decommissioning would have no effect to habitat connectivity because none of the roads being treated cross a fish-bearing stream.

Trend of aquatic habitat quality: Road storage and decommissioning would have no effect to habitat connectivity because none of the roads being treated cross a fish-bearing stream. The road storage and decommissioning projects could create indirect effects to aquatic species habitat through the generation of sediment. There would be approximately 15 culverts removed on non-fish-bearing streams, which could create short-term pulses of sediment during the removal. In the long term, this would be beneficial because there would be a reduction in risk of culvert failure, which could cause large inputs of sediment to the channel.

Aquatic Species

Trend of bull trout population: This activity would have no effect on the trend of the bull trout population because the road storage and decommissioning would occur in Siwash and Blue Grouse Creeks which are not occupied by bull trout.

Trend of westslope cutthroat trout (WCT) population: This activity would cause no change to the quality of the habitats used by westslope cutthroat trout in Siwash and Blue Grouse Creeks; therefore, the project would cause no change to the westslope cutthroat trout population in those streams.

Activity: Road Reconstruction (4.7 miles)

Aquatic Habitat

Connected spawning and rearing habitat: There would be 4.7 miles of road reconstructed but none are crossing fish bearing streams in the project area.

Trend of aquatic habitat quality: Roads 1234 and 390G would be reconstructed. These roads are currently in long-term storage with culverts removed. This activity would have no direct effects to the aquatic species indicators, because the roads being reconstructed are not crossing fish bearing streams. Detailed effects analysis regarding indirect effects from this activity are discussed in the hydrology report and considered as an indirect effect to aquatic species habitat.

There would be 4.7 miles of road reconstructed, but none is crossing fish bearing streams in the project area. There would be a short-term increase in sediment as the culverts are replaced on these roads. There would be a long-term risk for increased sediment generation to the stream due to the retention of culverts on a gated road. The risk of increased sediment leads to the risk greater negative effects to aquatic species habitat.

Aquatic Species

Trend of bull trout population: This activity would have no effect on the bull trout population because the road reconstruction would occur in Siwash and Blue Grouse Creeks, which are not occupied by bull trout.

Trend of westslope cutthroat trout (WCT) population: This activity would have an effect on the quality of the habitats utilized by westslope cutthroat trout in Siwash and Blue Grouse Creeks; therefore, the project would maintain a status quo condition for the westslope cutthroat trout population in those streams.

Activity: Road Maintenance

Road maintenance would be conducted on all existing roads that would be used for the timber sale. Road maintenance activities were analyzed in the Idaho Panhandle Forests Road Maintenance Program Biological Assessment, 2004 and determined that road maintenance has the potential to result in minimal sediment input, potential for inputs of road salts or petroleum products to streams although mitigation measures greatly reduces this potential. A letter of concurrence for that activity was received in 2004. All descriptions of actions, design features, and species-specific mitigation measures described in the biological assessment would be adhered to for road maintenance within the Brebner Flat Project area.

Cumulative Effects

Kelley Creek:

Aquatic Habitat

Connected spawning and rearing habitat: The implementation of Alternative B would not alter the amount of connected habitat within Kelley Creek because of the lack of road crossings on fish-bearing streams. The stream would continue to have reduced connectivity because of the barrier on privately managed lands.

Effect to aquatic habitat quality: Private industrial timber land comprises approximately 38 percent of the Kelley Creek drainage. This land has been harvested in the recent past and plans exist to continue harvesting in a similar manner as what occurred in the past. Harvest on private lands must adhere to Idaho State Best Management Practices regarding stream protection buffers and road construction and maintenance.

The hydrology report states that the addition of harvest units to a drainage that has had recent harvest over the majority of the private lands could cause an increase in peak flows, which could result in streambed scour, aggradation and bank erosion. These types of effects to the stream channel would have a negative effect on habitats used by westslope cutthroat trout (for example, pool habitat could become shallower). The effects from the proposed timber harvest, the recent timber harvest on private lands and the proximity of National Forest System road 1237 within the riparian habitat conservation area could combine to have the potential for negative effects to pool frequency and pool quality. Pool frequency is a criterion in the forest plan identified as a feature of desirable stream habitat condition.

Aquatic Species

Effect to bull trout population: The implementation of the proposed action would not affect bull trout populations because bull trout do not use Kelley Creek

Effect to westslope cutthroat trout population: The potential for a reduction in instream habitat quality has the potential to have an effect on individual westslope cutthroat trout in Kelley Creek. The potential reduction in stream habitat in combination with the migration barrier on private lands near the mouth of Kelley Creek has the potential for affecting individual westslope cutthroat trout populations. Kelley Creek is a small stream; therefore, it would never supply a large percent of the westslope cutthroat trout in the St. Joe River drainage. Therefore, this project may impact individual westslope cutthroat trout or habitat, but will not likely contribute to a trend toward federal listing.

Siwash Creek:

Aquatic Habitat

Connected spawning and rearing habitat: There are no barriers on Siwash Creek, and there would be no change to this status following implementation of this project.

Effect to aquatic habitat quality: Private industrial timber land comprises approximately 15 percent of the Siwash Creek drainage. This land has been harvested in the recent past and plans exist to continue harvesting in a similar manner as what occurred in the past. Harvest on private lands must adhere to Idaho State Best Management Practices regarding stream protection buffers and road construction and maintenance. The hydrology report states that the addition of harvest units to this drainage would not alter the condition of the stream channel and thus there would be no change to the quality of aquatic habitat.

Aquatic Species

Effect to bull trout population: The implementation of the proposed action would not affect bull trout populations because bull trout do not use Siwash Creek.

Effect to westslope cutthroat trout population: The implementation of this alternative would not affect the population of westslope cutthroat trout in the Siwash Creek drainage. Siwash Creek is a small stream therefore would never supply a large percent of the westslope cutthroat trout in the St. Joe River drainage.

Blue Grouse Creek:

Aquatic Habitat

Connected spawning and rearing habitat: There are no barriers on Blue Grouse Creek, and there would be no change to this status following implementation of this project.

Effect to aquatic habitat quality: The implementation of the proposed action would maintain or slightly degrade the quality of aquatic habitat within Blue Grouse Creek. Private industrial timber land comprises approximately 26 percent of the Blue Grouse Creek drainage. This land has been harvested in the recent past and plans exist to continue harvesting in a similar manner as what occurred in the past. Harvest on private lands must adhere to Idaho State Best Management Practices regarding stream protection buffers and road construction and maintenance.

The hydrology report states that the addition of harvest units to this drainage would not alter the condition of the stream channel and thus there would be no change to the quality of aquatic habitat.

Aquatic Species

Effect to bull trout population: The implementation of the proposed action would not affect the bull trout populations because bull trout do not use Blue Grouse Creek.

Effect to westslope cutthroat trout population: The implementation of the proposed action would not the effect the population of westslope cutthroat trout in the Blue Grouse Creek drainage. Blue Grouse Creek is a small stream therefore would never supply a large percent of the westslope cutthroat trout in the St. Joe River drainage

St. Joe River (at the confluence with Fishhook Creek):

Aquatic Habitat

Connected spawning and rearing habitat: There are no barriers on the St. Joe River, and there would be no change to habitat connectivity following implementation of this project. There is a potential for increased sediment entering the St. Joe from the fish bearing stream, Kelley Creek and the non-fish

bearing streams; Theriault and Williams Creeks. These systems are very small compared to the St. Joe River and therefore influence would be minor.

Effect to aquatic habitat quality: There is a potential for increased sediment entering the St. Joe from the fish bearing stream, Kelley Creek and the non-fish bearing streams; Theriault and Williams Creeks. These systems are very small compared to the St. Joe River and therefore influence would be minor.

Aquatic Species:

Effect to bull trout population: The implementation of the proposed action has a minor short term potential to affect bull trout populations in the St. Joe River. This potential is due to the risk of an indirect increase in sediment entering the St. Joe from the project area. The species determination is that the proposed action may effect but is not likely to adversely affect bull trout populations or their designated critical habitat.

Effect to westslope cutthroat trout population: The implementation of the proposed action has a minor short term potential to affect westslope cutthroat trout populations in the St. Joe River. This potential is due to the risk for an increase in sediment entering the St. Joe from the project area. The determination for the westslope cutthroat trout population is that the project may impact individuals or habitat, but will not likely contribute to a trend toward federal listing.

Compliance with Regulatory Direction

Authority: The National Forest Management Act of 1976 (NFMA)

Policy: Land Management Plan for the Idaho Panhandle National Forests (2015 Revision)

The action alternative would comply with the majority of the desired conditions, objectives, standards and guidelines that relate to aquatic species or aquatic species habitat identified in the 2015 IPNF Forest Plan, however it would not meet FW-DC-AQH-05 due to the potential to effect stream channel conditions. The project also does not meet the goal (GOAL-AQH-01) which states “Restore aquatic habitats where past management activities have affected stream channel morphology or wetland function”. The effects analysis (above) provides the explanation regarding protection of aquatic species and habitats in this project area.

Authority: Endangered Species Act of 1973 (ESA)

The selection of the action alternative would result in a determination “May effect-not likely to adversely affect” determination for both bull trout and bull trout critical habitat when private lands are considered in the analysis. Bull trout do not utilize the tributary streams within the project area but they use the St. Joe River which is the northern boundary of the project area and is used by bull trout as a migratory corridor. The proposed actions have the potential for generating sediment that may reach the St. Joe River. The St. Joe River is designated critical bull trout habitat at this location. The activities proposed could have a slight impact to water quality within the cumulative effects area. The tributary streams in the project area which supply water to the St. Joe have the potential for cumulative effects to channel stability to generate increases in sediment. The implementation of stream buffers (INFS), design features, and BMPs that are part of the proposed activities also limit the amount of disturbance that the proposed actions could have on the watershed but not eliminate all risks.

Policy: Forest Service Manual 2670.31

A biological assessment will be added to the project file.

Authority: National Environmental Policy Act

Policy: Forest Service Manual 2670.32

Sensitive Species Biological Evaluation

Table 5: Determination of Effects to Sensitive Species

Species	Alt A	Alt B
Westslope Cutthroat Trout	NI	MIH
Western Pearlshell Mussel	NI	NI

NI = No Impact

MIH = May Impact Individuals or Habitat But Will Not Likely Contribute To A Trend Towards Federal Listing Or Loss Of Viability To The Population Or Species

WIFV = Will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of viability to the population or species

BI = Beneficial Impact

Authority: Executive Order 12962 Recreational Fisheries as amended by EO 13474 (9/26/2008):

The selection the alternative would comply with this executive order because the alternative does not cause a reduction in the potential of the recreational fishery. The St. Joe River is the only water currently fished and the effects from this project would not be substantial enough to alter the recreational fishing opportunity.

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