| **Biological Assessment** | **USDA Forest Service** | **Idaho Panhandle National Forests** | **Bonners Ferry Ranger District<br>6286 Main Street<br>Bonners Ferry, ID 83805-9764<br>(208) 267-5561** |
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**File Code:** 2670 **Date:** December 6, 2006

**Subject:** Biological Assessment, *fisheries*, Myrtle HFRA Project

**To:** Bonners Ferry District Ranger

## Introduction

Threatened and Endangered species are managed under authority of the Federal Endangered Species Act (36 U.S.C. 1531-1544) and the National Forest Management Act (16 U.S.C. 1600-1614). In accordance with Section 7 of the Endangered Species Act, federal agencies are required to make certain that all actions they "authorize, fund, or carry out" will not likely jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of designated critical habitat.

USDA Forest Service Policy (FSM 2670) requires a review of programs and activities, through a biological assessment, to determine whether any threatened or endangered species is likely to be affected by the proposed action(s). The purpose of this biological assessment is to evaluate the potential effects to threatened or endangered fish species from the Myrtle HFRA Project.

## Proposed Action

The proposed action would harvest approximately 2,086 acres[1] within the Myrtle Creek, Snow Creek and Deep Creek Watersheds. Of the acres to be treated, 859 acres (41 percent) would be in the Myrtle Creek drainage, 1,191 acres (57 percent) would be in the Snow Creek drainage and 36 acres (2 percent) would be in the Deep Creek drainage. Of the acres to be treated, 1,129 acres (54 percent) would be harvested by helicopter logging, 527 acres (25 percent) would be harvested by ground-based logging and 430 acres (21 percent) would be harvested by skyline logging. Within the proposed treatment areas, 1,031 acres (49 percent) would receive a group selection treatment, 806 acres (39 percent) would be treated with an irregular shelterwood harvest, 190 acres (9 percent) would be treated with a commercial thin and 59 acres (3 percent) would be treated with a seed tree harvest.

All approximately 2,086 acres harvested would receive some type of fuels treatment with 1,038 acres (50 percent) being underburned, 1,022 acres (49 percent) being grapple piled and 25 acres (1 percent) of yarding tops.

[1] All numbers and percentages are approximate and are based on the most accurate information available.

Per INFS and the project design features, the appropriate stream buffers would be implemented on project area streams based upon the stream characteristics (e.g. fish bearing/non-fish bearing, perennial/intermittent) (see Conservation Measures). However, the majority of the harvest units proposed for treatment are at a distance from fish bearing streams that exceeds the RHCAs defined by INFS and would therefore provide additional protection to project area streams.

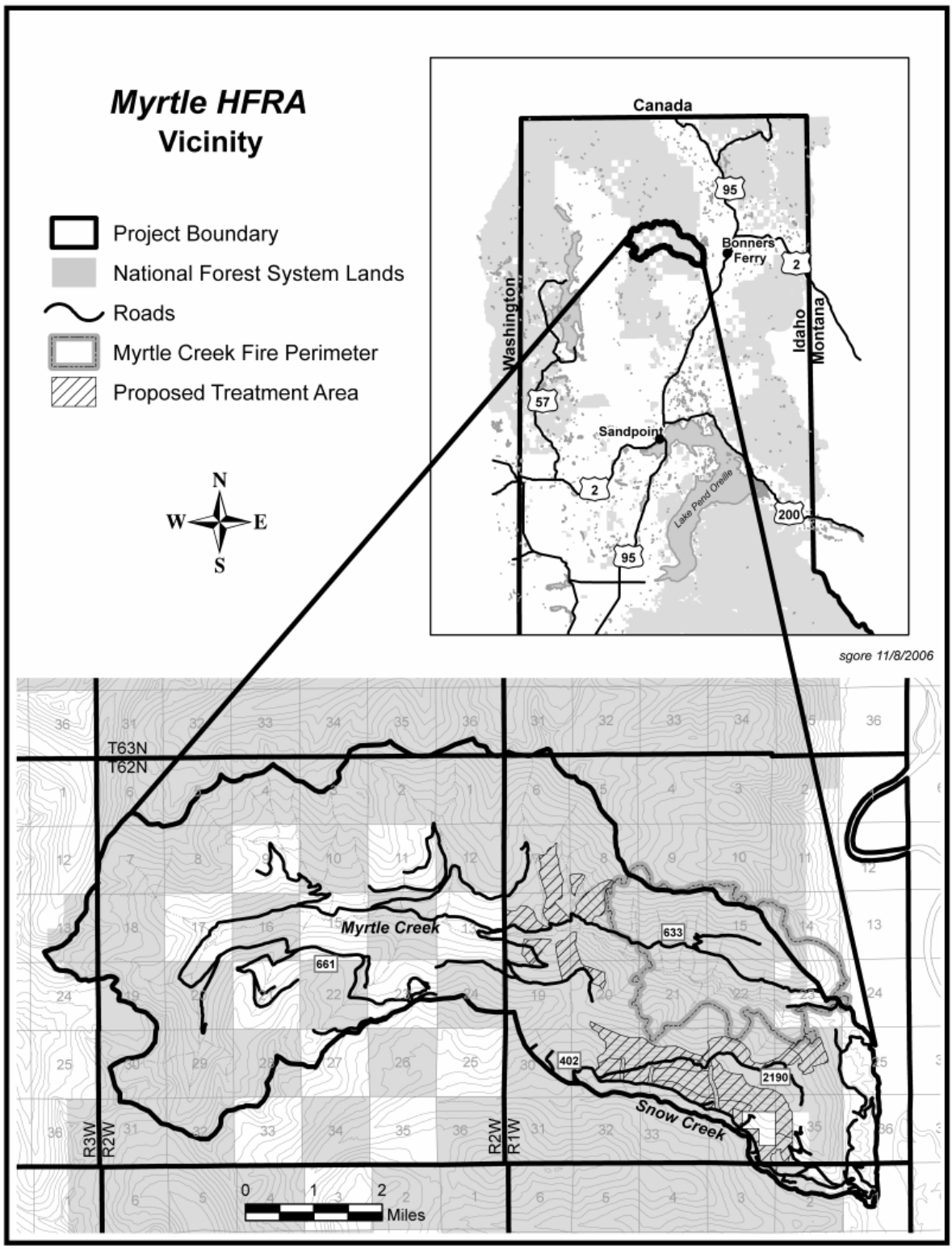
During the prescribed underburning of Units G2, G4, G7S, G7H and G9 in the Snow Creek drainage in the spring, a backing fire would be allowed to creep into the outer edges of the designated 150-foot RHCAs as a low intensity underburn. Units G5 and G6 in the Snow Creek are proposed to be grapple piled, but may also receive some underburning that could enter the outer edges of the adjacent RHCAs. In Units G2, G6, G7H, G7S and G9, there are multiple ephemeral draws with a 50-foot RHCA that would receive a limited harvest within the RHCA to reduce fuels and allow for the underburning of the units during the spring. The limited treatment within these ephemeral draws would consist of no ground based equipment within the RHCA, the retention of all ponderosa pine and western larch, the removal of only Douglas-fir and lodgepole pine smaller than 12 inches dbh and the retention of all tree species larger than 12 inches dbh (see Conservation Measures).

The underburning of these G units in the spring would impact portions of the RHCA of three intermittent, non-fish bearing, unnamed tributaries of Snow Creek and multiple ephemeral draws. No prescribed fire would be allowed within RHCAs during fall burns (see Conservation Measures).

Based on the site specific characteristics of the drainages, the majority of the proposed harvesting in the Snow Creek drainage would be implemented during the dry summer months and all harvesting in the Myrtle Creek drainage would be implemented during the winter. These timing restrictions would increase the level of protection for soil and streams within the project area.

Under the proposed action, Forest Road 402C within the Snow Creek drainage would be temporarily lengthened by approximately 0.6 miles on an existing roadbed. This would involve the reconstruction of a stream crossing on an intermittent, non-fish bearing stream channel approximately 0.33 miles from its confluence with Snow Creek. The stream crossing to be reconstructed is currently an under sized pipe with a small fill failure above it that is currently contributing sediment to the stream channel. This road and stream crossing would be reconstructed during the dry summer months when the channel has little to no flow and would be removed following project activities.

The proposed action would also decommission approximately 1.31 miles of road and recondition existing roads within the project area that have been identified as existing sediment sources or sites that pose a high risk of failure leading to a negative impact on aquatic resources. Road reconditioning activities would include the improvement of stream crossings, the strengthening of cut/fill slopes, increasing the ditch drainage frequency, road surfacing, adding rolling dips and routine road maintenance. All of these activities would act to decrease existing sources of sediment to project area streams and would also decrease the risk of future impacts from the existing road system.


Myrtle HFRA
Vicinity
Project Boundary
National Forest System Lands
Roads
Myrtle Creek Fire Perimeter
Proposed Treatment Area
N
W
E
S
Canada
95
Bonners Ferry
2
Washington
Idaho
Montana
57
Sandpoint
2
Lake Pend Oreille
200
95
sgore 11/8/2006
T63N
T62N
Myrtle Creek
661
633
402
2190
Snow Creek
R3W
R2W
R2W
R1W
0
1
2
Miles

## Prefield and Field Review

Several field reviews of the project area and surveys of project area streams were conducted in 2004, 2005 and 2006 by North Zone Fisheries Biologists and technicians, along with the hydrologist, soil scientist, project silviculturist and project leader at times, to assess the current habitat conditions, to identify possible fisheries issues and to assess the existing and potential use of the area by threatened or endangered fish species. In July 2006, a field trip was taken with several members of the project interdisciplinary team and a representative of the Idaho Department of Environmental Quality (DEQ) to discuss the possibility of limited treatments within the ephemeral draws of a few units in the Snow Creek drainage.

Information was also gathered from district fish and hydrology files, historical records, aerial photographs and published scientific literature. Also, information from the Idaho Department of Fish and Game (IDFG) and U. S. Fish and Wildlife Service (USFWS) provided electrofishing and stocking data, as well as additional knowledge of the fisheries resources in the Kootenai River Basin.

Additional information for the fisheries analysis was compiled from the Lower Kootenai River Geographic Assessment (USDA draft in progress) and the Kootenai River Bull Trout Problem Assessment (PBTTAT 1998 working draft).

Roads and streams within the project area were surveyed or field reviewed in 2001, 2004 and 2005. Fish presence and general habitat surveys within the project area were conducted in Myrtle Creek, Mack Creek, Adverse Creek, Cooks Creek and Snow Creek. Additional stream information from past surveys was reviewed to verify general stream channel types, cross sectional profiles, woody debris composition and stream temperatures.

## Existing Condition

The analysis area for this project has primarily been affected by fires (natural disturbances), as well as logging and road construction (human activity). The disturbance history has played a large role in determining habitat conditions in fish-bearing streams.

<u>Myrtle Creek (Tributary of Kootenai River)</u>

Myrtle Creek is a low to high gradient stream that flows into the Kootenai River approximately seven miles to the northwest of the City of Bonners Ferry. Within the project area, Myrtle Creek can primarily be categorized as a Rosgen stream type “B” with sections of stream type “A” in the headwaters and stream type “C” in the middle portions of the watershed. During habitat surveys, substantial amounts of large woody debris along with ample amounts of pools were noted. Abundant riparian vegetation throughout the watershed was also noted. Past timber harvest and road building in portions of Myrtle Creek have altered its natural hydrological regime. Two segments of Myrtle Creek are currently considered by DEQ to not be fully supporting cold water aquatic life use or salmonid spawning due to thermal modifications.

Although the entire Myrtle Creek watershed is within the cumulative effects area, only approximately the lower half of the stream would be potentially affected by the proposed action due to the location of project activities. A series of steep cascade/falls and a large barrier falls, approximately 120 feet high and 300 to 500 feet in length are located a little over 2 miles upstream from Myrtle Creek's confluence with the Kootenai River. In 2003, a human-caused fire burned portions of the Myrtle Creek drainage above the barrier falls and below the headwaters area.

From the falls upstream through the 2003 fire perimeter, Myrtle Creek is a medium to high gradient, bedrock-controlled channel. This type of channel tends to transport material downstream to lower gradient "response" channels, where it tends to settle out. The response reach in Myrtle Creek is below the falls on the Kootenai River Wildlife Refuge. The lowest approximately 1.6 miles have been diverted and diked, and have a sand-silt substrate. The next half of a mile of stream below the falls has a rubble-boulder substrate with small pockets of gravel.

Overall, the vegetation throughout the Myrtle Creek riparian area did not burn with a high enough fire severity to kill alder, brush and/or trees during the 2003 fire, although surveys did indicate a somewhat lower canopy closure in some portions of the riparian area that burned. The rest of the Myrtle Creek riparian area within the burned area boundary either did not burn at all or burned as a light severity, mosaic underburn.

The largest impact to fisheries from the fire was the delivery of large amounts of sediment to the low gradient response reach of Myrtle Creek below the falls on the Kootenai River Wildlife Refuge, particularly surrounding a rain event in July 2004. This is the reach inhabited by bull trout. Much of this reach has sand/silt substrate as a result of channelization and other past disturbances. The potential for debris torrents and erosional processes within the burned portion of the watershed increases the risk of bull trout habitat degradation in the lower reaches of Myrtle Creek by covering spawning gravels; filling pools, interstitial spaces and other rearing habitat: and decreasing food availability by suppressing aquatic macroinvertebrates.

Deep Creek (Tributary of Kootenai River)

Deep Creek is a low gradient stream that flows into the Kootenai River approximately 3.5 miles to the west of the City of Bonners Ferry. Deep Creek, along with its tributaries, drains the south end of the Kootenai Valley. It runs through sand-alluvial solids, which were part of the historical lakebed of Kootenay Lake. Deep Creek has been heavily impacted by logging, farming, fire, stream channelization, roads and pipeline constructions (PBTTAT 1998). The increased stream loads of sand have covered riffle areas and filled pools, which historically supported adult fish. Six segments of Deep Creek are currently considered by DEQ to not be fully supporting cold water aquatic life use or salmonid spawning due to temperature modifications, siltation and suspended solids.

The portion of Deep Creek between Caribou Creek and the confluence of Deep Creek and the Kootenai River (approximately 20% of the drainage) is the only portion of the stream within the cumulative effects area of this project. This lower portion is not considered to contain suitable salmonid spawning habitat (PBTTAT 1998). Although it is likely some salmonid spawning occurs in Deep Creek, most of the trout production occurs in its tributaries.

Snow Creek (Tributary of Deep Creek)

Snow Creek is a low to high gradient stream that flows into Deep Creek approximately 4 miles upstream from its confluence with the Kootenai River. Within the project area, Snow Creek can primarily be categorized as a Rosgen stream type "B" with sections of stream type "A" in the headwaters and stream type "C" in the middle portions of the watershed. Although the entire Snow Creek watershed is within the cumulative effects area, only approximately the lower half of the stream would be potentially affected by the proposed action due to the location of project activities. Two segments of Snow Creek are currently considered by DEQ to not be fully supporting cold water aquatic life use or salmonid spawning due to temperature modifications.

Past logging and road building have led to habitat degradation in Snow Creek and have altered its natural hydrological regime. Sediment levels are excessive and pool filling is occurring in all pool types. Fish migration into the Snow Creek drainage is blocked by a barrier falls approximately 0.5 miles from its confluence with Deep Creek. Approximately the lowest quarter of a mile of Snow Creek contains a good gravel substrate and should provide spawning habitat except in years when the Kootenai River water levels are high enough to back water up and reduce flows. The remaining portion of the stream below the falls contains a boulder-rubble substrate with a few pockets of gravel. Bull trout have been documented in the past in Snow Creek below the barrier falls.

## Listed Species

On March 1, 2006, the U.S. Fish and Wildlife Service issue a list of threatened and endangered species that are present within Boundary County, Idaho and may be present on the Idaho Panhandle National Forests within the evaluation area (USDI Fish and Wildlife Service 2006). These species include the Kootenai River white sturgeon *(Acipenser transmontanus)* and bull trout *(Salvelinus confluentus)*.

Table 1. Threatened and Endangered Species Summary of Conclusion of Effects

| Species | Species or Habitat Present?[2] | Species or Habitat Potentially Affected? | Likelihood of Adverse Effects? | Determination of Effects |
|---|---|---|---|---|
| **Kootenai River White Sturgeon** (*Acipenser transmontanus*) | No | No | None | No Effect |
| **Bull Trout** (*Salvelinus confluentus*) | Yes | Yes | Low | NLAA |

### Rationale for Effects Determination

**Kootenai River White Sturgeon –** In Idaho, the distribution of Kootenai River white sturgeon is limited to the Kootenai River system. The Kootenai River white sturgeon was removed from further analysis because no suitable habitat is present within the proposed action area and the project area lies outside of designated critical habitat for sturgeon. Therefore the proposed action would have ***no effect*** on Kootenai River White Sturgeon

[2] Species presumed to be present within the affected area based on the distribution of the species, habitat conditions required by the species and the current stream habitat conditions of the action area.

**Bull Trout** – Bull trout are listed under the Endangered Species Act as a threatened species. They are known to reside in the Kootenai River Basin, which includes Myrtle Creek, Snow Creek and Deep Creek watersheds. All three bull trout life history forms (resident, fluvial, adfluvial) are present in the Kootenai River Basin (PBTTAT 1998 working draft). Myrtle Creek, Snow Creek and Deep Creek are the only streams within the cumulative effects analysis area with documented bull trout use. However, all three streams provide only limited opportunities for bull trout spawning due to migration barriers and incompatible habitat conditions. No known bull trout populations exist, either historic or current, in the tributary watersheds of Myrtle Creek and Snow Creek above the falls. No other streams within the analysis area are known to support bull trout.

Habitat Requirements

Bull trout appear to have more specific habitat requirements than other salmonids (Rieman and McIntyre 1993). Habitat characteristics including water temperature, stream size, substrate composition, cover and hydraulic complexity have been associated with distribution and abundance (Jakober 1995, Rieman and McIntyre 1993, Pratt 1985). In streams, all life stages of bull trout are associated with some form of cover such as large woody debris, undercut banks, boulders and pools (Fraley and Shepard 1989, Hoelscher and Bjornn 1989, Thomas 1992).

Stream channel equilibrium (stability) is the balance between sediment yield, water yield, and channel morphology that exists within a stream system. Studies indicate that shifts away from channel equilibrium can result in negative changes in the structure and function of stream ecosystems (Bilby and Likens 1980, Schlosser 1982, Fraley and Shepard 1989) and their dependent fish populations. Bisson and Sedell (1982) reported that where stream channels became destabilized, riffles elongated and in many cases extended through former pool locations resulting in loss of pool volume. They suggested that declines in larger, adult bull trout might be the result of their dependency upon deeper water habitats. Maintaining lateral and instream habitat complexity, in association with channel stability, can best provide persistence of bull trout over time (Karr and Freemark 1983, Karr and Dudley 1981, Gorman and Karr 1978).

Stream temperature (below 15 º Celsius; Goetz 1989) and substrate composition are important characteristics of suitable bull trout habitats. Bull trout have repeatedly been associated with the coldest stream reaches within basins. The lower limits of many strong bull trout distributions mapped by Lee et al. (1997) correspond to a mean annual air temperature of about 4 degrees Celsius (ranging from 3 to 6 degrees Celsius) and should equate to ground water temperatures of about 5 to 10 degrees Celsius (Meisner 1990). Water temperature can be strongly influenced by land management activities (Henjum et al. 1994).

Vegetation can strongly influence the habitat conditions of bull trout streams. Canopy cover adjacent to streams provides shade and helps to maintain cooler water temperatures during the summer months. During the winter, conifers can also reduce the risk of freezing and the formation of anchor ice by providing insulation (PBTTAT 1998). Large trees that fall into the stream channel can benefit habitat conditions by creating pools, providing cover and shade, introducing nutrients, contributing to channel stability and dissipating stream energy (Murphy and Meehan 1991).

Bull trout are fall spawners and their preferred spawning habitat generally consists of lower gradient stream reaches with loose, clean gravel (Fraley and Shepard 1989). However, if the substrate and habitat attributes are suitable, spawning can occur in steeper reaches.

Risks to Bull Trout Populations and Habitat

Bull trout are vulnerable to human-induced factors that increase water temperature and sediment loads, change flow regimes, block migration routes, and establish non-native trout, particularly brook trout (Behnke 2002)

Resident forms of bull trout appear to be absent in the cumulative effects area and fluvial forms are perilously low, although habitat connectivity remains available in the lower portions of Myrtle Creek, Snow Creek and Deep Creek. However, levee construction and channelization of the lower portions of Myrtle Creek for Kootenai National Wildlife Refuge purposes has altered stream dynamics such as bed load movement and sediment depositional areas, which has negatively impacted potential spawning and rearing habitat. Also, bull trout habitat in the valley reaches are influenced by Kootenai River level and temperature fluctuations.

Several obstacles toward the re-establishment of a healthy bull trout population in the cumulative effects area exist, including 1) the presence of eastern brook trout throughout the system, which have the potential to out-compete bull trout for limited rearing and spawning habitat and food, 2) the perilously low population of bull trout in the Kootenai River, 3) natural migration barriers render the majority of the cumulative effects area inaccessible to bull trout, and 4) the impacts of roads, past logging, farming, stream channelization and other past disturbances which have increased the sand load in the lower portions of the creeks, covering riffle areas and filling pools, which historically supported adult bull trout.

## Analysis of Effects

Ultimately, the effect of the project on stream habitat is the main concern for fisheries resources. The analysis of direct and indirect effects is based on how the various components of the project (e.g. location, size of cutting units, methods of logging systems, road maintenance and reasonably foreseeable actions) are expected to affect stream habitat (e.g. changes in sediment and/or water yield) within the analysis area.

### Direct and Indirect Effects

Project activities that have the potential to impact stream habitat include timber harvesting (e.g. helicopter, skyline and tractor logging), road maintenance and prescribed burning. Important fish parameters potentially affected by these activities include water temperature, large woody debris frequency, sediment yield and water yield, width to depth ratios, pool quality/frequency.

Several factors limit the potential impact of project activities on stream habitat parameters. The project design (e.g. mostly helicopter or skyline logging, limited (0.6 miles) new temporary road construction on an existing roadbed, no new road construction, timing restrictions on project activities, location of treatment units) significantly reduces the potential impacts of harvesting activities on soil compaction/disturbance and erosion, which in turn reduces the potential impact to adjacent streams from sediment. The designation of RHCAs and the associated limitations on activities within them also substantially reduces or eliminates effects from the project on stream habitat. Research studies and monitoring results conducted on the IPNF verify that when RHCAs are implemented during timber harvesting, sediment delivery to stream channels is “not measurable” or “is negligible” (USDA 1999, 2000, 2001, 2002, 2003, Belt et al 1992, Reid and Hilton 1998). In addition, the implementation of BMPs further reduces the potential for negative impacts to streams as a result of the proposed action.

*Water Temperature*

Water temperature is one of the most important variables affecting salmonids and other aquatic organisms, influencing the timing of migration and spawning, egg maturation, growth, diseases, and pollutants (Bjornn and Reiser 1991). High water temperatures can delay or stop salmonid migration, spawning, egg development, and rearing (Bjornn and Reiser 1991). Potential increases in stream temperature are addressed by assessing the degree of activities in riparian areas that may result in increased solar radiation to streams. Water temperatures are affected by the amount of shade provided by riparian vegetation.

The proposed action would not reduce the amount of riparian vegetation in the vast majority of the RHCAs due to the implementation of the appropriate RHCAs per the INFS Standards and Guidelines, which limits management activities within the RHCAs (see Conservation Measures). The RHCAs that could receive some underburning along their edges could lose some ground cover and small brush in the affected areas, but would not be subject to prescribed burning with enough intensity to impact large brush or trees. Also, some ephemeral draws would receive limited timber harvest, but all larger diameter trees and consequently the trees with the fullest crowns would be designated as leave trees. These draws do not typically transport water above ground and given that, in conjunction with the fact that the majority of the overstory would be retained, the proposed action in these draws would not affect water temperature.

Consequently, there would be no reduction in the overstory canopy or in the recruitment/development of future shade trees in the majority of RHCAs, including the RHCAs of all perennial and intermittent streams. Any reduction in the overstory canopy or reduction in the recruitment/development of future shade trees within the designated ephemeral draws of a few units in Snow Creek would be limited and would not affect water temperature due to the lack of surface water. Therefore, no change in water temperature is expected to occur as a result of the proposed action. Thus the proposed action would not further degrade water temperature and would be in compliance with DEQ regulations.

*Large Woody Debris*

Large woody debris (LWD) is a component of habitat quality and complexity and is also an important contributor to stream productivity, cover and food production for fish and other aquatic organisms. LWD in streams also contributes to channel stability in small, low order streams. Under natural conditions, LWD is contributed to streams from the surrounding riparian areas as individual trees fall over or in large numbers as a result of disturbance events such as wind storms, wildfires, or floods, which potentially wash large amounts of material into the stream.

Large woody debris is one of the most important sources of habitat and cover for salmonids in streams. Bisson et al. (1997) found that relationships exist between LWD, habitat complexity and salmonid production. LWD is also an important stream component for pool quality and frequency, width to depth ration, bank stability, water velocity reduction and the trapping of gravels.

The proposed action would not reduce the amount of LWD currently in streams due to the implementation of RHCAs per the INFS Standards and Guidelines, which limits management activities within the RHCAs. In addition, through the use of these buffers, the retention of riparian vegetation would maintain the recruitment of future LWD from existing trees within the RHCA. The RHCAs that could receive some underburning along their edges and the ephemeral draws that could be underburned would not be subject to prescribed burning with enough intensity to impact the recruitment of future LWD. Therefore, there would no measurable impact on LWD within the cumulative effects area as a result of the proposed action.

*Water Yield*

Increases in water yield may indirectly affect fish habitat through increased bank erosion, channel down cutting, increased accumulation of larger streambed materials, reduction in the number of pools and overall reduction in habitat complexity.

The drainages in the analysis area and the native fish species present within them evolved under water flow regimes associated with a more open vegetative pattern caused by periodic fire on the landscape. The effective use of fire suppression over approximately the last 90 years has allowed for an increasingly dense vegetative layer not historically found in the majority of the project area, which has decreased water yield.

Under the proposed action, the level of vegetative openings created would not exceed the natural range of variability. Therefore, water yield would not be outside natural conditions. Although there is expected to be a small increase in water yield in Myrtle and Snow Creeks associated with the proposed action, the affect is expected to be limited to the short term (5 to 10 years) and to be well within the capabilities of the watersheds. Additional bedload scour during high flows would not be expected. Redds existing in the cumulative effects area would not be affected by this undetectable or slight increase in water yield.

*Sediment*

Increased sediment deposition can adversely affect salmonid spawning and rearing habitat. Salmonid production was found to be inversely proportional to cobble embeddedness and fines in spawning gravel (Stowell et al. 1983, Bjornn and Rieser 1991, Everest et al. 1987). Excessive sediment interferes with water flowing through spawning gravels and reduces the transport of oxygen to incubating eggs (Chapman 1988), which in turn lowers egg and fry survival (Stowell et al. 1983, Burton et al. 1990). Fine sediments in cobble substrate fill interstitial spaces and reduce summer and winter rearing habitat for salmonids, as well as impacting macroinvertebrate abundance and diversity, an important food source for salmonids, particularly juveniles (Bjornn et al 1977, Chapman and McCleod 1987). Sediment can also reduce the volume of pools, further degrading summer and winter rearing habitats for salmonids.

Except for the potential for underburning along the edges of the RHCAs described above and the limited timber harvest and underburning of the designated ephemeral draws, all project activities would occur outside of RHCAs and in most cases the distance from streams to the boundaries of harvest units is greater than the defined INFS RHCA distances. The design criteria established for the limited timber harvest in the designated ephemeral draws would greatly reduce or eliminate the likelihood of sediment generation or transport through excluding ground based equipment within the draws, restricting tree removal based on species and size and requiring spring burning only (see Conservation Measures) because these criteria would limit ground disturbing activity within the draws and would maintain the overall characteristics of the draws by retaining the majority of the overstory and conducting prescribed burning only when soil moisture content would limit fire intensity.

Therefore, the risk of any sediment generated by logging activities actually reaching a live channel is very low and likely immeasurable (Belt et al. 1992, Reid and Hilton 1998). Sediment mobilized by harvest activities would be likely be filtered and captured by vegetation remaining in the RHCAs before reaching streams. In the areas where underburning would be allowed to creep into the outer edges of the RHCAs, the risk of sediment delivery to streams would be lower than allowing the construction of firelines along the RHCA boundaries, which would have the potential to channelize sediment and increase the likelihood that it would reach live water, particularly in areas with steep slopes.

In addition, the reconditioning and decommissioning of roads and their associated stream crossings within the Myrtle Creek and Snow Creek drainages, as part of the proposed action, would ultimately reduce the amount of sediment currently being directly inputted into project area streams, which would increase the effectiveness of the drainages for salmonid production. The reduced baseline sediment yield resulting from the road reconditioning and decommissioning would aid in the recovery of the watershed. The proposed action would also decrease the risk of a large-scale stand replacing fire within the cumulative effects area, which would have the potential to substantially increase the amount of sediment in the drainage.

Since the reconstruction of an additional 0.6 miles of road to temporarily lengthen Forest Road 402C would involve the reconstruction of a stream crossing on a small, unnamed tributary of Snow Creek (approximately 0.33 miles upstream from its confluence with Snow Creek), there is the potential to increase the amount of sediment delivered to the stream during reconstruction. However, the existing stream crossing is comprised of an undersized culvert that has a small fill failure above it, which is currently contributing sediment directly to the stream and the reconstruction of the crossing would eliminate this sediment source. In addition, it is an intermittent, non-fish bearing stream and the construction would take place during the dry summer months during low or no flow with the newly construction portion of the road to be removed following project implementation. Impacts to the stream would further be reduced by the implementation of all applicable INFS Standards and Guidelines and BMPs during the reconstruction and subsequent removal of the reconstructed road segment. Therefore, the potential of the road and stream crossing reconstruction to increase sediment delivery to a fish bearing stream at a level that would negatively impact the fisheries resource is low.

Consequently, although a slight increase in sediment within the project area is possible during road and stream crossing reconditioning, following these activities, there would be a decrease in the amount of sediment into the Myrtle Creek and Snow Creek drainages and fish habitat conditions would likely improve. Therefore, there is expected to be no change or a slight decrease in the amount of sediment input into Deep Creek, the only stream within the project area DEQ designated as having sediment concerns, and thus the proposed action would be in compliance with DEQ regulations.

**Cumulative Effects**

Suppression of human-caused fire starts and wildfires under jurisdiction of the U. S. Forest Service or State of Idaho Department of Lands

There has been a history of fire suppression within the analysis area over the past 90 years, which has led to an increase in tree density caused by the encroachment of shade tolerant species within dry site habitat. In stands outside of the 2003 Myrtle fire, the higher tree densities, along with the associated increase in insect and disease leading to increased mortality, has increased the risk of a catastrophic wildfire outside of the natural range of variability, which has the potential to negatively impact stream habitat. Since changes in water yield are associated with vegetation conditions, the existing and future vegetative trends would have an effect on water yield.

Activities on Private Land

Timber harvest activities within the cumulative effects area are expected to occur on private land within the next 5 years. Timber harvest on private land must follow the rules and Best Management Practices set by the Idaho Forest Practices Act (Title 38, Chapter 13, Idaho Code). These rules and BMPs are designed to help prevent sediment delivery to stream channels and to prevent any cumulative watershed effects. However, activities on private land that yield sediment delivery to streams or remove recruitable large woody debris, or otherwise affect fish habitat, would contribute to the cumulative condition. Due to stream habitat degradation associated with activities on private land within the cumulative effects area, the portions of the streams located on National Forest lands are vital for the continued existence of salmonid species.

**Determination of Effect**

The proposed action would result in a short-term increase in sediment (during project implementation), but an overall reduction in sediment risk following project implementation. Based on the direct and indirect effects discussed above, the risk of any sediment delivery from harvest activities actually reaching a live channel is low. The short-term increase in sediment yield associated with the proposed action is small compared to the overall reduction in sediment yield and the risk of sediment delivery resulting from the decommissioning of roads, the reconditioning of existing roads within the project area as described in the above analysis and the decrease in the risk of a large-scale stand replacing fire.

The potential short-term increase in sediment may affect, but is not likely to adversely affect bull trout. However, the overall reduction in sediment over the long term as a result of the proposed action would be expected to benefit the individual survival of bull trout. In the long term, because of the absence of harvesting activities within the RHCAs of fish bearing streams, very limited activities within a few non-fish bearing streams, the absence of new road construction or manmade sediment sources, only approximately 0.6 miles reconstruction of a temporary road that crosses a non-fish bearing stream and the reconditioning of roads and stream crossings, the streams within the project area would be expected to continue passive restoration through processes such as the maturing of trees within the RHCA to provide for stream shading and in-stream large woody debris recruitment.

## Conservation Measures

The following conservation measures would be included to eliminate or reduce any potential conflicts. These measures are non-discretionary and are necessary to achieve the current determination of effects.

1. If any endangered or threatened species are located within the areas affected by the proposed action, project activities would be altered, as necessary, in order for the proper protection measures to be taken.

2. Inland Native Fish Strategy – Standards and guidelines established by the Inland Native Fish Strategy (INFS) would be used to protect water quality and fish habitat, including the designation of Riparian Habitat Conservation Areas (RHCAs). These zones include 300-foot (slope distance) protection zones for fish-bearing streams, 150-foot (slope distance) protection zones for permanently flowing (perennial) non-fish bearing streams, ponds, lakes, reservoirs and wetlands greater than one acre and a 50-foot (slope distance) protection zone for intermittent streams and sensitive landtypes. Commercial timber harvesting would be prohibited in these RHCAs.

Ephemeral draws would have a 50-foot (slope distance) protection zone if they are either directly tied to an intermittent channel or lack large woody debris and vegetation that prevent scouring or head cutting. Limited timber harvesting would be conducted in designated draws under the limitations described in the “Ephemeral Draws” design feature described below.

3. Ephemeral Draws – Limited activities would be allowed to occur within the 50-foot RHCA of the specified ephemeral draws in Units G2, G6, G7H, G7S and G9 to reduce the level of hazardous fuels within the draws under the following restrictions:

- No ground based equipment within the RHCAs to prevent ground disturbance. If crossing one of these draws is necessary in order to reduce the need for multiple breaches of the road cut-slope to provide access for tractor skidding in Unit G6, the hydrologist would be consulted to determine the best location of the crossing, taking into account BMPs, topography, methods (e.g. snow road, log cribs) as is appropriate.
- Hand felling and whole tree yarding would be allowed in the draws where a feller buncher cannot reach in order to reduce fuels within the draw.
- Only lodgepole pine and Douglas-fir less than 12 inches dbh would be allowed to be removed.

- All ponderosa pine and western larch would be designated as leave trees because they are more fire resistant and western larch would continue to add needles annually to the RHCA organic profile.
- Underburning would be allowed only in the spring to allow for a moist soil mantle and to avoid the consumption of large woody material during the fire.

4. Protection of RHCAs during Prescribed Burning – There would be no prescribed fire ignitions or fireline construction within any RHCAs. During spring prescribed burning in Units G2, G4, G5, G6, G7H, G7S and G9, a backing fire would be allowed to creep into the outer edges of the designated 150-foot RHCAs as a low intensity underburn. No prescribed fire would be allowed within RHCAs during fall burns.

5. Protection of Aquatic Habitat During In Stream Work – Activities that would take place within perennial streams (e.g. culvert removal/replacement) would take place after July 15 and prior to September 15 to minimize erosion and sedimentation from these ground-disturbing activities, thereby reducing the risk of effects from sediment during spring runoff and to avoid effects to westslope cutthroat trout redds and staging or spawning bull trout downstream.

6. Protection of Fish When Using Streams for Prescribed Burning Control – to avoid adverse effects to fish and redds while using natural water sources, water removal may not exceed 90 gallons per minute and pumping sites would be located away from spawning gravels. The intake hose would be screened to prevent accidental intake of small fish. An emergency spill clean up kit would be on site in the unlikely event of a fuel spill outside the containment system. This is consistent with INFS direction (USDA 1995; RA-5).

## Statement of Findings

Based on the above analysis, I conclude that the proposed action would have ***no effect*** on the Kootenai River white sturgeon and ***may affect, not likely to adversely affect*** bull trout.

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