

patterns (feeding/sheltering), the severity of which will depend on the North Fork Williams Creek channel, and the low flow anticipated during the work window (1st quarter of July to the 2nd quarter of August), the Service does not expect copious sediment inputs into the system. Since suspended sediment input into the system is not expected to be high, and because electroshocking will not be necessary, the Service anticipates effects to bull trout during the period between maximum observed turbidity and the return to pre-project levels will be behavioral, including avoidance and potential effects to feeding rates; no lethal take is expected. As analyzed in the culvert Programmatic (Service 2006), the Service believes that all impacts associated with increased turbidity and suspended sediment will be short-term in nature, with the majority of all effects occurring in a one to two hour period. Also, as analyzed in the Programmatic (Service 2006), we anticipate suspended sediment levels will return to pre-project levels within 600 feet of the culvert project area.

Regarding bull trout habitat, we anticipate that project actions may increase substrate embeddedness, which may result in displacement (Service 2006). This is expected to cause a short-term disruption in normal behavior of bull trout in the area. However, these increased levels of substrate embeddedness are expected to be temporary in nature, as natural flows will mobilize any sediment deposited during project activities. Following project activities, in the long-term, substrate embeddedness and sediment in general are expected to decrease as the placement of Williams Creek road away from the stream is expected to remove chronic sources of sediment.

Sediment deposition into the stream during revegetation/recontouring work associated with movement of the road away from the Creek also may input sediment into Williams Creek; however, similar to the cable car installation in Panther Creek, all work associated with the Williams Creek road reconstruction will adhere to the Upper Salmon River Recommended Instream Work Windows and Fish Periodicity report, including associated BMPs. Adherence to the work windows and installation of BMPs (i.e., silt fences, straw bales, etc.) are expected to minimize sedimentation to the point it is insignificant and would not rise to the level of 'take'.

2. Indirect Effects

Indirect effects are caused by or result from the agency action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the immediate footprint of the Project area, but would occur within the action area. The Service has not identified any indirect effects on bull trout that would result from actions related to the proposed Mine Project.

B. Effects of Interrelated or Interdependent Actions

Interrelated actions are those that are a part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. The Service has not identified any effects on bull trout that would result from actions interrelated to or interdependent on the proposed Mine Project.

V. CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this Opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Previous mining activities at Blackbird Mine have resulted in significant impacts to the fisheries and aquatic life in the Blackbird Creek drainage, and to a lesser extent, Big Deer Creek and Panther Creek. As such, remedial activities associated with an ongoing CERCLA action were initiated in the mid 1990s. Clean-up goals are currently being met in some areas, and are working towards attainment in others. Fish, including bull trout, are beginning to reoccupy portions of the Blackbird Mine impact area where they once avoided (Fish and Wildlife Service 2002); however, full clean-up is still several years away, and there are still areas where impacts from Blackbird Mine are evident and where impacts to aquatic life are occurring.

Fires, such as the Clear Creek Fire in 2000 that burned approximately 170,000 acres in the Panther Creek watershed, also have the potential to occur in the Action Area. Post-fire effects on water quality and aquatic habitat could be significant depending on where the fire occurs. In addition to increased sediment, water yield also may affect aquatic habitat.

VI. CONCLUSION

After reviewing the current status of bull trout, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's Opinion that the Mine Project, as proposed, is not likely to jeopardize the continued existence of the bull trout.

The Service reached this conclusion for the following reasons:

- Under the present environmental baseline conditions, bull trout populations remain reduced from historic levels; however, bull trout are widely distributed across the Salmon River Recovery Unit.
- Based on accident probability, an accident resulting in a spill to an occupied bull trout stream is not likely to occur within the life of the Mine Project. FCC has incorporated a Spill Prevention and Response Plan as part of the Plan of Operations in order to minimize chances for a spill and to allow for immediate response in the unlikely event a spill does occur.
- Based on surveys, bull trout are not present in Big Deer Creek (location of NPDES permit outfall), and there is an impassable falls 2.3 miles downstream from the Outfall location.
- All in-stream work windows and associated BMPs would be adhered to for any in-stream work as outlined in the 2004 Upper Salmon River Recommended Instream Work Windows and Fish Periodicity report. As such, sedimentation into bull trout occupied streams would be minimized to the point it is insignificant and not expected to rise to the level of take.

- Adverse effects experienced by bull trout from suspended sediments are likely to be localized to Williams Creek and occur at the individual, not the population level; we do not anticipate alterations in distribution or abundance of bull trout within the Panther Creek watershed, as a whole.

While some individuals may be harassed as a result of activities associated with the culvert removal, any impacts will be limited in time and space and will not amount to an appreciable change in the status, distribution, or long-term persistence of the species. The adverse effects are not expected to appreciably reduce the likelihood of survival and recovery of bull trout range-wide in terms of numbers, distribution, or reproduction of the species. No critical habitat has been designated for this species in the Action Area; therefore, none will be affected.

VII. INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Forest so that they become binding conditions of any grant or permit issued to FCC, as appropriate, for the exemption in section 7(o)(2) to apply. The Forest has a continuing duty to regulate the activity covered by the Incidental Take Statement. If the Forest (1) fails to assume and implement the terms and conditions or (2) fails to require FCC to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Forest must report the progress of the action and its impact on the species to the Service as specified in the Incidental Take Statement. [50 CFR §402.14(i)(3)]

A. Amount or Extent of Take Anticipated

The Service anticipates take in the form of harassment of individual fish is reasonably certain to occur as a result of the Williams Creek culvert removal portion of the Mine Project.

Fish density information for the mainstem of Williams Creek is not available, as recent surveys have not identified any bull trout in that stretch. However, bull trout were identified in the South

Fork of Williams creek (which flows into the mainstem just below the Williams Creek road reconstruction), and the Forest biologist's opinion is that he expects bull trout to occur in the Mainstem of Williams Creek and that fish densities in the S. Fork and the mainstem would be comparable (B. Rose, pers. comm. 2008). In the S. Fork of Williams Creek, bull trout were found at a density of 6 bull trout per 100 meters.

The extent of take anticipated for the road reconstruction project would include the 100 meter diversion/work area, as well as the 600 foot (183 meter) extent beyond the project area where suspended sediment is expected to be elevated. Thus the total extent of take is estimated at 283 meters, corresponding to 17 bull trout. Of those 17 bull trout, no more than 6 are expected to be taken by activities associated with hazing the fish out of the project area during dewatering of the project area; take in the form of harassment is likely, resulting in disruption of normal feeding and sheltering behaviors, and no lethal take is anticipated. Eleven bull trout are anticipated to be taken related to elevated suspended sediments resulting from rewatering the channel following culvert removal. Take in the form of disruption of normal feeding and sheltering behavior is anticipated, as is avoidance of the area; no lethal take is expected.

The temporal extent of anticipated take is as follows (and is further analyzed in the Culvert Programmatic (Service 2006):

- Direct injury from sediment will be restricted to the 90 minute period during and immediately following the re-watering of flow through the new crossing structure or back to the existing channel. This is the period when turbidity levels are expected to be the highest and may result in minor to moderate physiological responses such as changes in blood chemistry, coughing, and other respiratory issues and gill trauma.
- Elevated sediment levels will occur as a result of the culvert removal aspect of the Mine Project with levels that result in behavioral effects restricted to the 24 hour period following channel rewatering. During this period we anticipate behavioral and avoidance responses that may cause increased energy expenditures, decreased feeding rates, and/or abandonment of cover. Behavioral effects and injury may occur simultaneously during the initial large sediment pulse immediately following channel rewatering.

To summarize elements considered in this Incidental Take Statement, sublethal take of no more than 17 bull trout is exempted for a 90 minute period during and immediately following flow reintroduction when suspended sediment levels are likely their highest. However, sublethal take is not exempted if suspended sediment levels reach or exceed 22,026 mg/l or remain at 3,000 mg/l for 3 hours or more, which Newcomb and Jensen (1996) anticipates as levels that may be lethal for fish. Take of bull trout resulting from sediment levels beyond those conditions described above are not exempted by this Incidental Take Statement. Elevated suspended sediment levels will return to background levels within a 24 hour period and within 600 feet downstream of the culvert project area.

B. Effect of the Take

In the preceding Opinion, the Service has determined that the level of take anticipated as a result of the proposed action is not likely to jeopardize the Columbia River DPS of bull trout. The proposed culvert work is not expected to reduce the reproduction, status, and distribution of bull trout in the action area, and will not appreciably reduce the likelihood of survival and recovery of the Columbia River DPS.

We do not anticipate appreciable changes in the numbers, distribution, or reproduction of bull trout in any of the core areas or local populations that occur in the action area. Over the long term, the culvert portion of the Mine Project is expected to contribute to the conservation and recovery of bull trout throughout the action area, and the Columbia River DPS.

C. Reasonable and Prudent Measures

The Service believes that the following Reasonable and Prudent Measures are necessary and appropriate to further minimize take from the Mine Project in the Panther Creek Watershed.

1. Minimize disturbance to aquatic habitats and potential take to bull trout from the Williams Creek culvert removal portion of the Mine Project.

D. Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, the Forest must ensure compliance with the following Terms and Conditions that implement the Reasonable and Prudent Measures described above. These Terms and Conditions are non-discretionary.

- 1a. The Forest shall adhere to the Upper Salmon River Recommended Instream Work Windows and Fish Periodicity report for timing of in-stream work and implementation of associated BMPs.
- 1b. The Forest shall adhere to all project design criteria and BMPs provided in the Programmatic Biological Opinion for Stream Crossing Structure Replacement and Removal (Service 2006) when implementing the Williams Creek road culvert removal.
- 1c. Blocknets will be deployed at the upstream end of the site to prevent additional fish from entering the work area during dewatering and construction activities.
- 1d. Water flows/levels in the Williams Creek culvert project area shall be ramped down slowly as the stream reach is dewatered to encourage voluntary movement of bull trout to escape downstream easily.

- 1e. Following installation of the upper block net, fish should be 'hazed' out of the dewatered section by walking seines downstream from the upstream block net location to the end of the work site in an attempt to 'herd' fish out of the worksite. A downstream block net would then be installed and efforts to capture remaining fish with dip-nets would follow. Due to the small size of the stream and minimal flows, electroshocking is not authorized.
- 1f. Following culvert removal, the work site will be pre-washed prior to diversion dam removal and reintroduction of flow in order to minimize suspended sediments being flushed downstream.
- 1g. Reintroduction of water through the Williams Creek stream channel shall occur in a slow, gradual manner in order to minimize suspended sediments being flushed downstream.
- 1h. The Forest shall ensure the Service has the opportunity to review and approve the engineering/project design for the Williams Creek culvert removal to ensure all appropriate conservation measures are in place to minimize impacts to bull trout.

Reporting and Monitoring Requirements

In order to be exempt from the prohibitions of section 9 of the Act, the Forest must comply with the following Reporting and Monitoring Requirements. The Reporting and Monitoring Requirements are non-discretionary and must be undertaken by the Forest, or be made a binding condition of any permit issued to the applicant, as appropriate.

1. In order to confirm the assumption that dilution in Big Deer Creek will reduce concentrations of the constituents discharged in the effluent to concentrations below which adverse affects are expected, sampling of Big Deer Creek surface water shall be conducted. In order to document the concentrations of constituents in the effluent just below the impassable cascade, the Forest will ensure one sampling event for all constituents discharged per the NPDES permit, at a point immediately below the impassable cascade in Big Deer Creek. This sampling event shall occur once full mining (not pre-mining) activities have been underway for 1 year, and sampling shall occur during high (spring) flows. A report (and associated data) from this sampling shall be provided to the Service within 4 months of the sampling event. Should sampling indicate concentrations of constituents in the effluent are occurring below the cascade at levels above those reported to cause adverse affects, the Forest and Service will meet to discuss the possible need for reinitiation.
2. Should it be necessary to implement additional treatments (biological and ion exchange using zeolites) in order to meet effluent limits for nitrate and ammonia, respectively, the Service requests notification. This notification should include documentation on the exceedances, timing of implementation of treatments, and confirmation of compliance once additional treatment is implemented.

3. Screening shall be conducted for any new reagent/formulation not considered in the Assessment. Should screening reveal the new reagent/formulation contain higher toxicity levels than those outlined in the Assessment, the Forest must submit a brief report to the Service discussing what, if any, impacts might occur and the possible need for reinitiation.
4. Reports generated from testing required as part of the NPDES permit (i.e., WET testing, toxicity tests, etc.) shall be submitted to the Service for our review as they become available. Additionally, any notifications of violations of compliance with the NPDES permit shall be submitted to the Service as they occur.
5. The Forest shall monitor turbidity at the Williams Creek culvert project to assure that the incidental take exempted in this Opinion and associated with suspended sediment (intensity, duration) has not been exceeded. The Forest shall ensure that turbidity monitoring results are provided to the Fish and Wildlife Service's Eastern Idaho Field Office in Chubbuck, Idaho.

VIII. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act, directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation Recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop information. The Service has not identified any Conservation Recommendations applicable to the Mine Project.

IX. REINITIATION--CLOSING STATEMENT

This concludes formal consultation for the potential effects of the Mine Project on bull trout. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Activities that would trigger reinitiation would include, but not be limited to, an accident involving a spill, or in-stream work that does not adhere to the recommended instream work windows and associated BMPs. Should a spill occur, the Forest shall ensure the Service is notified immediately. Information provided should include, but not be limited to: location and time of spill, material spilled, immediate impacts to bull trout and bull trout habitat observed,

clean-up actions taken at that time and what actions are expected to continue, and what plans are in place for sampling to monitor extent of spill.

LITERATURE CITED

- Beauchamp, D. A., and J. J. Van Tassell. 2001. Modeling seasonal trophic interactions of adfluvial bull trout in Lake Billy Chinook, Oregon. *Transactions of the American Fisheries Society* 130:204-216.
- BC Research Inc. 1998. Brenda mines sulphate and molybdenum toxicity testing. Prepared for Noranda Mining and Exploration Inc., Brenda Mines Div. Project No: 2-11-825/826 (as cited in Singleton, H. 2000).
- Birge, W.J., and J.A. Black. 1980. Aquatic toxicology of nickel. *In* J.O. Nriagu, (Ed.). *Nickel in the environment*. John Wiley and Sons, New York. Pp. 349-366.
- Birge, W.J., J.A. Black, A.G. Westerman, and J.E. Hudson, 1979. The effects of mercury on reproduction of fish and amphibians. *In*: J.O. Nriagu (Ed.), *Biogeochemistry of Mercury in the Environment*. Elsevier/North-Holland Biomedical Press, New York, NY. Pp. 629-655.
- Birge, W.J., J.A. Black, and B.A. Ramey. 1981. The reproductive toxicology of aquatic contaminants. *In*: Saxena, J., and F. Fisher (Eds.). *Hazard assessment of chemicals: current developments*. Academic Press, New York, NY. Pp. 59-115.
- Bjornn, T. and D. Reiser. 1991. *Habitat Requirements of Salmonids in Streams*. American Fisheries Society Special Publication 19: 17-46.
- Bonneau, J.L. and D.L. Scarnecchia. 1996. Distribution of juvenile bull trout in a thermal gradient of a plunge pool in Granite Creek, Idaho. *Transactions of the American Fisheries Society* 125: 628-630.
- Buchanan, D. M. and S. V. Gregory. 1997. Development of Water Temperature Standards to Protect and Restore Habitat for Bull Trout and Other Cold Water Species in Oregon. Pages 1-8 in Mackay, W.C., M.K. Brewin and M. Monita. *Friends of the Bull Trout Conference Proceedings*.
- Davies, T. D. and K.J. Hall 2007. Importance of calcium in modifying the acute toxicity of sodium sulphate to *Hyallorella zateca* and *Daphnia magna*. *Chemosphere* 26 (6), 1243-1247.
- Doudoroff, P. and M. Katz. 1950. Critical Review of Literature on the Toxicity of Industrial Wastes and Toxic Components to Fish. *Sewage and Industrial Wastes*. 22, 132. *in* J.E. McKee and H. W. Wolf, editors, *Water Quality Criteria*. Second Edition. California State Water Quality Control Board. 1963.
- Ecometrix. 2006. *Biomonitoring Study: Panther Creek Watershed September 2005 Report* prepared for: Blackbird Mine Site Group, Salmon, Idaho. Report prepared by: EcoMetrix Inc. Brampton, Ontario.
- Eisler, R. 1981. *Trace metal concentrations in marine organisms*. Pergamon Press, New York. 687 pp.
- Eisler, R. 1985. *Cadmium hazards to fish, wildlife, and invertebrates: A synoptic review*. U.S. Department of the Interior, Fish and Wildlife Service. *Biological Report* 85(1.2). 46 pp.
- Eisler, R. 1987. *Mercury hazards to fish, wildlife, and invertebrates: A synoptic review*. U.S. Department of the Interior, Fish and Wildlife Service. *Biological Report* 85(1.10). 90 pp.