COAL CREEK FISHERIES MONITORING STUDY NO. VII

AND

FOREST-WIDE FISHERIES MONITORING - 1988

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APPENDIX A

Narrative description of stream features
in the Coal Creek Drainage during fall, 1988.

This narrative description of stream features begins in the headwater area of the south fork of Coal Creek. The upper 2.5 km in the south fork of Coal Creek drainage was undeveloped. Sediment sources in this area were all natural, including wind-thrown trees in the channel area and short sections of unstable channel resulting from natural debris accumulation. Materials deposited in highwater channels and on logs across the main channel were generally larger than 2.0 mm (mostly large gravel) and were quite angular. Heavy natural debris accumulations were observed in several spots, consisting principally of larger size materials. Two dry sections were observed, each approximately 100 m in length. A depositional area with a newly cut high water channel created a natural sediment source approximately 0.2 km above the culvert on road 1686. A natural raw bank (10.0 m long x 1.0 m high) and a single wind-thrown tree (6.0 m long x 2.0 m high) were also contributing sediment just above the culvert. The clearcut at the crossing of 1686 had an adequate stream management zone (SMZ) and the culvert itself presented no problems.

The south fork of Coal Creek below the 1686 crossing was higher gradient with boulder-bedrock ledges forming large pools. Several cascades and falls up to 2.0 m high were present in a canyon section extending approximately 2.0 km below the crossing of 1686. The two feeder streams draining the area accessed by road 1604 (in Sections 29 and 30) were both flowing during the survey (9/15/88) and several of the crossings have no culverts. These streams were noticeably turbid after rain in late September. Old logging debris was present throughout the canyon section in the south fork causing excessive deposition of fine material and active channel migration. A cut bank (5.0 m long x 3.0 m high) was present near the center of the confined channel section. An old crossing was located approximately 1.3 km below the upper crossing of road 1686. The bridge was still in place although the road grade has revegetated. A natural barrier to upstream migration was present just below this old crossing, formed by a bedrock falls with an accumulation of large old debris. Below here, the gradient lessens and substrate size is suitable for bull trout spawning. A cut bank (10.0 m long x 5.0 m high) was present near the lower end of the canyon section.

A highly unstable channel area was located from approximately 2.1 km below the upper crossing (1686) downstream to just above the crossing of road 317. Cutting units on both banks had inadequate SMZs; cut stumps were present <u>in</u> the channel. Active channel migration was observed creating a major sediment source. Apparently, some logging debris present in the channel was removed some time after the actual harvest occurred. Portions of the recent clearcut on the North bank are drained by a small feeder stream which was flowing during the survey. This stream was completely burned over and a major depositional area was present where it entered the south fork. Evidence of machine operation in off channel wet areas was also present. Bull trout spawning occurs throughout this area. Deposition from this area is evident downstream as far as the road 317 culvert. The crossing of road 317 was stable and caused no problems.

The headwater portion of the Mathias Creek drainage (Section 7) is a relatively flat, bench-like area with several shallow ponds. The southern most fork was intermittent during the survey and totally dry where it descended the steep slope in the northwest corner of section 8. The northern fork was flowing, although the pond along the north edge of section 7 was dry. This area was undeveloped and the stream channel was more stable than the upper south fork of Coal Creek. A 12.0 m falls blocked upstream fish passage in the northern channel approximately 0.5 km above the upper fork. An unstable area was present in this channel just above the upper fork. This area has been logged, no SMZ was provided and active channel migration was occurring. Considerable deposition was observed on logging debris in the channel. This problem was compounded by frequent avalanches, evident on the steep slope north of the stream. Deposition from this old unit was present in Mathias Creek below the upper fork.

The upper crossing of road 317 created no noticeable damage to Mathias Creek, however, excessive deposition and several old machine crossings were evident in the unit below. Windthrow of leave trees along the channel had recently occurred, adding to the high amounts of old logging debris present in the channel. Bull trout spawning has been documented throughout this area. Approximately 1.3 km below the upper crossing of road 317, a small tributary flows into Mathias Creek from the South. This drainage was found to be one of the most significant sediment contributing areas in the entire drainage. The large majority of material transported into Mathias Creek from this drainage has resulted from old timber management activities. Streambed substrate in Mathias Creek immediately below this area was 100 percent imbedded in fine materials. The recent clearcut unit on the north bank below this area had the potential to further degrade this section, however, an adequate SMZ was provided and careful equipment operations prevented potential problems.

Approximately 1.3 km below the sediment contributing channel, a series of beaver dams have trapped massive amounts of sediment. Windthrown and beaver cut trees in the channel area compound the problem by trapping additional sediment and causing active channel migration. Bull trout redds were observed in this area during our survey. The amount of material stored in this area could have a major impact on downstream spawning and rearing areas if the beaver dams were breached. Streambed substrate in Mathias Creek was relatively unimbedded below this depositional area. An excellent ditching job prevented problems from occurring where road 1642 crossed Mathias Creek. Since no access to road 1642 was available, none of the drainage crossings on it were examined during this survey.

Deposition of slightly larger material was observed at the mouth of the feeder stream draining the northern slopes of Moose Peak and light beaver activity was noted below the junction of Mathias and the south fork of Coal Creek. Two cut banks were present approximately 0.4 km below the junction (10.0 m long x 3.0 m high and 12.0 m long x 4.0 m high) along with a large

depositional area. Bull trout spawning was observed in this area. Two more cut banks (10.0 m long x 5.0 m high and 5.5 m long x 5.0 m high) were present approximately 0.7 km below the junction. A major, off channel accumulation of old debris was present along with an actively slumping bank (5.0 m long x 3.0 m high) 0.8 km below the junction of Mathias and the south fork of Coal Creek.

An active cut bank (10.0 m long x 1.5 m high) and a debris accumulation were present 0.2 km below the crossing of road 1687. Just below this crossing the south fork enters a heavily logged area. No SMZ was provided and the channel becomes highly unstable for approximately 1.1 km. Throughout this area, active channel migration was occurring and evidence of mechanical channelization was present. Some beaver activity was observed and the two 1988 habitat enhancement sections were located here. The entire area was a major sediment source.

Extensive deposition from this area was evident on accumulations of natural and logging related debris all the way down to the junction of main Coal Creek. The combination of high levels of large, stable debris and excessive deposition resulted in active channel migration in five separate areas. Several large cut banks were also present in this area (10.0 m long x 2.0 m high, 15.0 m long x 10.0 m high, 80.0 m long x 20.0 m high and 50.0 m long x 10.0 m high).

The fork of main Coal Creek flowing out of Haines Pass covered a distance of 4.8 km from the headwaters (Section 36) to the junction with main Coal Creek in the northwest corner of section 19. The upper 1.0 km drained an undeveloped area, however, slopes north of the pass were highly erosive; natural slumping was noted in several areas. The channel in this area was steep but stable and deposited material was generally larger than 2.0 mm. The upper most cutting unit in this fork was approximately 1.4 km below the headwaters. The SMZ below this unit was adequate, however, a backhoe dug ditch drained this unit directly into the stream. Fill material piled along this ditch has not revegetated. An old trailhead (#26) was located at this point where substantial erosion had resulted from water running down the trail. A small feeder stream draining another old clearcut unit entered from the north, just below this point. This stream appeared stable but was full of organic material and fine sediment. This whole area was a major sediment source. The old crossing of road 1684 was relatively stable and water barring along the old grade was adequate. Deposition was evident below this area and slight channel migration had occurred. Another old crossing was present 2.0 km below the pass and active cutting was noted here (3.0 m long x 1.5 m high). Several small feeder streams entered 2.5 km below the pass draining cutting units on both banks. These streams were generally stable but had transported considerable amounts of fine material in past years. Deposition on stable channel debris in the area was evident and streambed substrate in low gradient areas was highly imbedded. Another old crossing and a 6.0 m high cascade were present just above the culvert on road 10801. This culvert was in good condition but a debris

accumulation near the upstream end caused some deposition. Approximately 150 m above the junction with main Coal Creek a large debris accumulation caused substantial deposition, forming a potential barrier to upstream migration. Two bull trout redds between this jam and the junction were the uppermost observed in the drainage.

Main Coal Creek flowing out of the unnamed lake on the western edge of section 23 was steep and stable. The upper 1.3 km of this fork were undeveloped; several falls and cascades were present. The feeder stream on the north 1.0 km below the lake was also stable. The upper development in the main Coal Creek drainage was a clearcut unit on the north side. The fire line along the upper edge of this unit was a potential sediment source and large amounts of slash were present on the stream bank. Two cascade areas (10.0 m and 15.0 m high) were observed bordering this unit. An old crossing or landing was located just below this area where extensive deposition had occurred, resulting in channel migration and cutting. The road on the south side drained directly into the channel creating a sediment source just above an old crossing located 1.6 km below the lake. Water flowing in from the old grade on the south bank formed several additional sediment sources in this area. The upper crossing of 317B was relatively stable, however, the culvert where it crossed the feeder stream in the southwest corner of section 13 was partially washed out. This drainage was flowing during our survey. High imbeddedness was noted in Coal Creek below here. Three actively slumping banks were present in this area (10.0 m long x 15.0 m high, 5.0 m long x 15.0 m high and 20.0 m long x 12 m high).

An active cut bank (15.0 m long x 3.0 m high) was present 0.3 km below the upper fork in Coal Creek (Section 19). The stream entered an old clearcut below here with no SMZ provided along the north bank. Several cut stumps were observed in the channel area and extensive deposition resulted in active channel migration. Off channel beaver activity was noted 0.9 km below the upper fork. An old equipment crossing was present 1.1 km below the fork. Sediment deposition has occurred on large, stable debris throughout this section. A large cut bank (40.0 m long x 5.5 m high) was observed along with a major debris accumulation. Many cut ends and stumps were present in this jam (logging related). This blockage has recently caused overland flow and active channel cutting. Extreme deposition has occurred, totally filling the channel in several places. This was a major problem area located 2.3 km below the upper fork. Bull trout spawning was observed just below this point.

A portion of the current Raghorn Timber Sale was located on the slope south of road 1684 near this area. During our survey we noticed several skid trails without water barring. One was actually running water at the time, creating a potential sediment source. The road ditch and several culverts in this area were also inadequate to prevent substantial problems during runoff. This potential problem was brought to the attention of USFS personnel. Timber harvest activity in the drainage in section 20

accessed by road 5270 was also identified as a potential sediment source due to an inadequate SMZ. Road 5270 was blocked by downed trees in the southeast corner of section 16, so none of the drainage crossings past this point were examined.

Several more debris accumulations and depositional areas were observed in main Coal Creek below this area, however, between here and the junction of the south fork of Coal Creek, no major problem areas were observed. Below the junction of South and main Coal Creeks cululative effects of the various channel problems mentioned in this narrative resulted in extensive sediment deposition and high imbeddedness from section 20 all the way down to Dead Horse Creek. This exact section happens to be the major bull trout spawning area in the Coal Creek drainage and streambed conditions are reflected in annual core sampling information. Results of the 1988 sampling in this area will be presented in the near future. It should also be noted that a portion of Coal Creek in section 29 was dry this summer.