

## Item #26 : Fish Habitat

**Evaluation Objectives:** To evaluate the need for fish habitat improvements.

**Methods:** Accomplishments are compared with forest plan projections (average annual acres and structures). The forest plan projected an average accomplishment of 71 acres of habitat improvements per year. In general, fish habitat improvements are no longer reported in acres. Instead, this work is reported in stream miles.

**Evaluation:** During the last several years, fish habitat improvement has focused on the removal of migration barriers. This emphasis was the result of a regional fish barrier assessment and research about the importance of fish movement within and among watersheds. Between 2002 and 2005, the Northern Region conducted a survey of road-stream crossings (i.e. culverts, bridges, etc.) to identify potential barriers to fish passage. Table 26-1 summarizes survey results for the Flathead National Forest (Hendrickson et al. 2008). It is possible that some road-stream crossings were missed during the survey.

**Table 26-1.** Summary of stream-road crossings for juvenile salmonids on the Flathead National Forest

Type of stream-road crossing	Number
Number of Total Barriers	16
Number of Partial Barriers	165
Number of Indeterminate Barriers	45
Number of No Barriers	47
Total Number of Culverts Surveyed	273
Total Miles of Road Included in Survey	3,434

Source: Hendrickson et al. 2008

Since 1999, the forest has removed approximately 45 fish migration barriers primarily for bull trout and/or westslope cutthroat trout. This number is a gross estimate because fish barrier removal has not been tracked on an annual basis. Typically, this work is done through removal of the crossing structure (road decommissioning) or the crossing structure is upgraded. Crossing upgrades have typically included culverts that provide the necessary hydraulic conditions for fish migration.

Removal of fish barriers, either through road decommissioning or crossing upgrades, involves careful design by engineers, fisheries biologists, and hydrologists to ensure fish passage. Most recently, many crossings incorporate stream simulation principles (USDA 2008) to ensure stream continuity and fish passage. Therefore, these fish habitat improvement projects are considered effective means of expanding fish habitat. The stream simulation principles not only benefit fish, but a host of other organisms. Simulation of channels, banks, and floodplains inside the crossing structure also allows for the passage of amphibians and terrestrial animals.

In addition to removing fish barriers and high risk culverts, the forest has been reducing the road system through decommissioning. Amendment 19 to the Forest Plan was signed in 1995 and

contains specific road density standards. Approximately 500 miles of road have been decommissioned since 1995, primarily in the North Fork and lower South Fork Flathead, and Swan River sub-basins. Although this work is designed to benefit grizzly bear habitat, it also contributes to improved habitat for bull trout and westslope cutthroat trout by reducing long term sediment delivery to streams.

**Recommended Action:** It is expected that removal of fish migration barriers and high risk culverts will continue to be the focus of habitat improvement work on the forest. An effort is currently underway to estimate how many fish barriers and high risk culverts have been removed or upgraded during the last several years. In addition, the forest hopes to identify how many fish barriers and high risk culverts are remaining. The forest has made tremendous progress over the years to remove or upgrade stream culverts. At this point, it is important to identify past accomplishments and future needs with more precision. It is recommended that item #26 continue to be reported.