WILDLIFE MANAGEMENT INDICATOR HABITAT-AQUATIC

Monitoring Question

What is the quality of lake and stream habitat on the Superior National Forest? How does it affect RFSS, gamefish, and other important fish populations?

Monitoring Conducted

O-WL-36. MIH 14: Lake and stream habitat. Maintain or improve lake and stream habitat quality. Objectives, standards, and guidelines are found primarily under Watershed and Riparian Management direction of the Forest Plan.

NOTE: Complete Monitoring and Evaluation discussions on Stream Monitoring Reaches, Stream Crossing Monitoring & Restoration, and Large Woody Debris can be found in Watershed-Riparian Section of this report. The following discussion is unique to Aquatic Management Indicator Habitats (MIH).

Interagency/Inter-governmental Lake and Stream Fish Population Characteristics

The Superior National Forest cooperated with the Minnesota Department of Natural Resources (MNDNR) Fisheries Division, Fond Du Lac Band of Lake Superior Ojibwe, and the 1854 Tribal Treaty Authority to assess lake and stream fish populations in 2006. Stream electrofishing surveys with the MNDNR occurred within six reaches on the Dark River in an effort to continue collecting fish population information prior to stream channel restoration projects that are planned for 2007-2009.

Superior National Forest employees also assisted the Fond Du Lac Band of Lake Superior Ojibwe and 1854 Tribal Authority to conduct spring walleye assessments on two National Forest lakes in 2006 including Crooked and Four mile Lakes (Photo 4). Borkholder et al. (2007) reported that the walleye population in Crooked Lake had changed little since 2002 and that mortality of walleye was estimated to be 36%. There was some evidence that walleye length distribution was still affected by angling pressure (Borkholder et al. 2007). and that walleye abundance in Four mile Lake had increased substantially and that mortality of age 5-12 fish was estimated to be 48% .

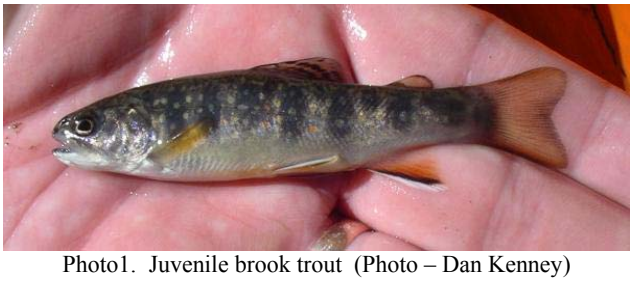

Photo1. Juvenile brook trout (Photo – Dan Kenney)

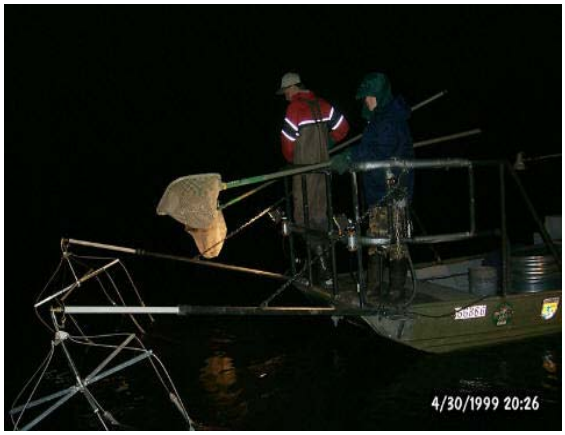

Photo2. Nighttime electrofishing surveys
(Photo Courtesy Andy Edwards & Brian Borkholder)

Birch Lake Erosion Control and Shoreline Habitat Improvement

The Superior National Forest, Fond Du Lac Band of Lake Superior Ojibwe Indians, and the 1854 Tribal Treaty Authority also cooperated to establish long-term fish population monitoring sites to evaluate the success of the 2006 Birch Lake Erosion Control and Shoreline Habitat Improvement Project (Figures 3 and 4). Four electrofishing survey stations were established at both project and control sites to monitor the effectiveness of erosion control measures and their potential benefit to fish habitat and populations. Future electrofishing data and monitoring information will be used to evaluate this lake habitat improvement project.

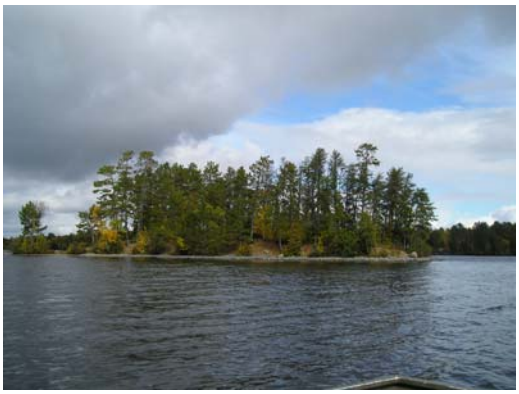

Photo 3. TP Island Erosion Control Site

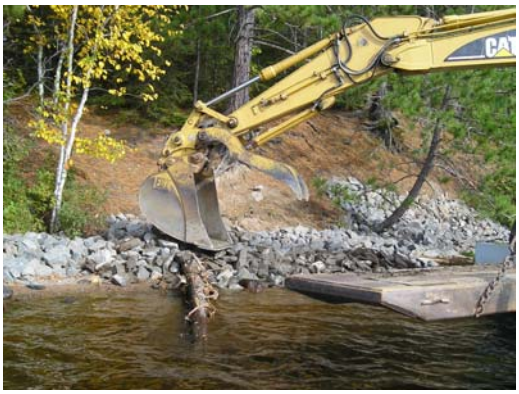

Photo 4. Large woody debris placement.

Stream Monitoring Reaches

In 2006, stream monitoring reaches were established in an effort to continue long-term monitoring of stream habitat, fish populations, water quality, and stream channel conditions (Figures 5 and 6). The stream habitat and fisheries information collected from these monitoring sites will be used for evaluating potential impacts from future land management activities and for monitoring existing and future aquatic and riparian habitat conditions. It is anticipated that monitoring will occur at established sites every 3-5 years depending upon proposed National Forest management, Regional Forester Sensitive Species information needs, and/or environmental conditions. Some monitoring sites will be revisited for the first time in 2007.

Photo 5. Stream electrofishing with MNDNR.

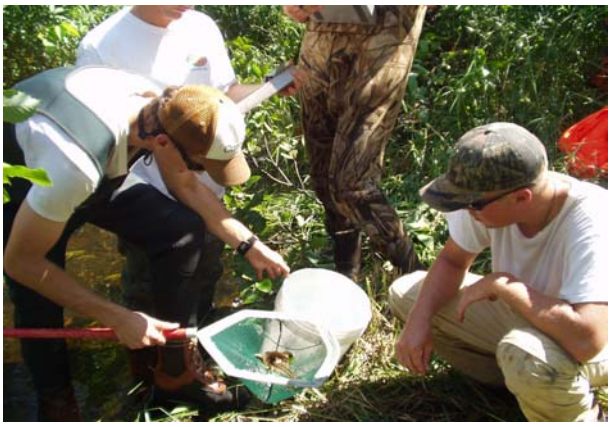

Photo 6. Measuring captured fish.

Evaluation

Interagency/Inter-governmental Lake and Stream Fish Population Characteristics

The SNF has continued cooperative fish population assessments with the Minnesota Department of Natural Resources, Fond Du Lac Band of Lake Superior Ojibwe, and the 1854 Tribal Treaty Authority. Surveys conducted since 2004 indicate that brook trout populations have remained relatively stable, although trout abundance within individual monitoring reaches has varied and is likely influenced by seasonal water temperatures and movement (Donna Dustin, MNDNR, pers. com.) . Fish population monitoring surveys within and near the 2005 Dark River Large Woody Debris Project indicated that brook trout abundance within the project area had increased from 2005 but was still lower than in the natural stream channel control reach. These cooperative lake and stream assessments have increased the SNF's ability to monitor management indicator habitats as well as important lake and stream fish populations. It is expected that future cooperative monitoring efforts will continue to occur in 2007 and beyond.

Lake and Stream Habitat Restoration Project Monitoring

The strategies recently developed to monitor lake and stream habitat restoration projects have been very successful. It is anticipated that the Forest will continue these monitoring activities every 3-5 years throughout the life of the Forest Plan and beyond.

Standards and Guides

Standards and Guides for RFSS are the same as displayed under Watershed-Riparian Section of this report.

Necessary Follow-up and Management Recommendations

The SNF will continue monitoring lake and stream habitat conditions throughout the life of the Forest Plan and beyond. It will be important to explore and possibly adopt new lake and stream habitat monitoring protocols and procedures that will improve data collection and monitoring efforts. It is anticipated that new techniques may be adopted that will assist with biological, chemical, and physical habitat monitoring efforts. Specific actions for Aquatic MIH include:

Follow-up Actions

- Long-term monitoring should occur at established stream monitoring reaches every 3-5 years.
- Monitoring associated with the Dark River Habitat Restoration Project should continue every 2-3 years.
- Continue coordinating with State and Tribal agencies to conduct fishery assessments as well as share fishery information

Management Recommendation

- A lake habitat monitoring protocol should be further developed for the SNF that includes lake habitat, fish population and water quality parameters.

Collaborative Opportunities To Improve Efficiency And Quality Of Program

The SNF coordinated with other agencies and governments to inventory and monitor management indicator species, Regional Forester Sensitive Species, non-native invasive species, and riparian habitat conditions. Potential partners in 2007 and 2008 include the Minnesota Department of Natural Resources, USDA-FS Northern Research Station, Minnesota Pollution Control Agency, U.S. Environmental Protection Agency, Fond Du Lac Band of Lake Superior Ojibwe, 1854 Authority, Trout Unlimited, Arrowhead Fly Fishers, Potlatch Corporation, Laurentian Environmental Center, Minnesota Forest Resources Council, The Nature Conservancy, Voyageurs National Park, and Quetico Provincial Park.

Summary Conclusions

- The Superior National Forest and other agencies assessed lake and stream fish populations within the Dark River, Crooked Lake, and Fourmile Lake. Surveys indicate that stream brook trout populations have remained relatively stable, walleye population in Crooked Lake had changed little since 2002 and walleye abundance in Fourmile Lake had increased substantially.
- Working with the Minnesota Department of Natural Resources, Fond Du Lac Band of Lake Superior Ojibwe, and the 1854 Tribal Treaty Authority has increased the SNF's ability to monitor management indicator habitats as well as important lake and stream fish populations.
- The strategies recently developed to monitor lake and stream habitat restoration projects (7 road/stream crossings) have been very successful.
- Monitoring associated with the Dark River Habitat Restoration Project should continue every 2-3 years.