2007 Progress Report

Swan Valley Bull Trout Working Group

April 2008

Background

The Swan Valley is home to a stable, healthy bull trout population. Even though bull trout are listed as "Threatened" under the Endangered Species Act, the Swan Lake bull trout population is considered healthy enough to allow limited harvest by anglers. The principal reasons the Swan Valley bull trout population has remained strong are the maintenance of high quality habitat and the lack of competing non-native species (especially lake trout). Lake trout have been attributed to the decline of bull trout populations in the West. In 1998, anglers began catching and reporting adult sized (20-30 inch) lake trout from Swan Lake and the Swan River. In 2003, the level of concern was compounded when Montana Fish, Wildlife & Parks (MFWP) began to capture juvenile lake trout during routine gill net monitoring. This provided evidence of lake trout reproduction in Swan Lake. These data led biologists to conclude that lake trout presence is a growing threat to the bull trout populations of Swan Lake, Lindbergh Lake, and Holland Lake.

These findings served as a catalyst in the formation of a Swan Valley Bull Trout Working Group (SVBTWG) in 2004. The SVBTWG is composed of five government agencies and Trout Unlimited. The SVBTWG agreed that if left unchecked, lake trout would become the dominant predator in the lakes of the Swan River ecosystem. Annual reports have been prepared each year since 2004. This report reviews SVBTWG accomplishments in 2007. Previous annual reports can be found on our website at www.montanatu.org, under the "Swan Valley Bull Trout Working Group" button.

Organization and Vision

After a series of working meetings, six entities formally combined as the *Swan Valley Bull Trout Working Group* (SVBTWG). The SVBTWG consists of representatives from Montana Fish Wildlife and Parks (MFWP), Montana Department of Natural Resources and Conservation (DNRC), Confederated Salish and Kootenai Tribes, Trout Unlimited, U.S. Fish and Wildlife Service (USFWS), and the Flathead National Forest. The group signed a Memorandum of Understanding which pledged to collaborate and share resources to "ensure the long-term, self-sustaining persistence of bull trout as the dominant piscivore within this (Swan) ecosystem".

Research Accomplishments

The primary focus in 2007 was to gain more information about the population size and structure of the lake trout population in Swan Lake and to identify lake trout spawning locations. This information is critical in order to make an informed decision on management options. The SVBTWG had spent considerable time and effort to assess the

lake trout population in 2005-2006 but had only limited success. Roughly 100 juvenile lake trout were captured using available agency boats and nets. This data suggested that the lake trout population was still in the early stages of establishment; however the sampling effort did not provide an estimate of the population size. In addition, these sampling efforts were unsuccessful at capturing mature lake trout.

To address information shortfalls, the SVBTWG contracted with Harbor Fisheries, a Wisconsin based company with specialized equipment and experience in capturing lake trout. The objective was to capture, mark, release and then recapture lake trout in a 3-week period in September using a random sampling technique. Data were also collected from non-target species (such as bull trout) and all fish released. The contract was primarily funded by USFWS with the other partners contributing miscellaneous manpower and expenses. A graduate student with Montana State University collected samples and measurements on the fish captured and prepared the preliminary assessment on the lake trout population structure. Further data collection is planned in 2008 to help refine the assessment.

Harbor Fisheries crewman Steve Warwick deploying gill nets on Swan Lake, MT.

Harbor Fisheries crew processing lake trout captured in gill nets on Swan Lake, MT.

Todd Stuth of Harbor Fisheries displaying a large male bull trout prior to release.

Ben Cox of the Montana Cooperative Fishery Research Unit displaying a large male lake trout sacrificed for age information.

A total of 2,117 lake trout were captured during the three week sampling period in September 2007, roughly 1,400 of which were marked with PIT tags and an adipose fin clip. The sample length frequency distribution indicates the lake trout population is dominated by small and presumably young fish (Figure 1). Relative weights (W_r) (an index of fish condition) of lake trout in Swan Lake are among the highest currently observed throughout the Northern Rocky Mountain region, indicating resources are likely not limiting and lake trout are at relatively low density (Figure 2). Preliminary analysis of mark-recapture data produced an estimate of at least 3000 lake trout between 9 and 34 inches in Swan Lake. Although a population estimate was calculated, confidence in the accuracy of the estimate was low among SVBTWG members, due to the limited number of recaptured lake trout observed. The low recapture rate could have been due to mortality of tagged lake trout or due to changes in behavior during the three-week period.

Nineteen lake trout implanted with acoustic transmitters were relocated 130 times between 11 October and 9 November 2007 as surface water temperature declined through the optimal spawning temperature for lake trout (10°C or 50°F). Two areas at the southern end of the lake were identified as potential spawning locations (Figure 3). Relocations were distributed throughout the lake, however the density of relocations was highest in two areas along Montana Highway 83 where clean, angular cobble (characteristic of lake trout spawning habitat) dominates bottom substrate (Figure 3).

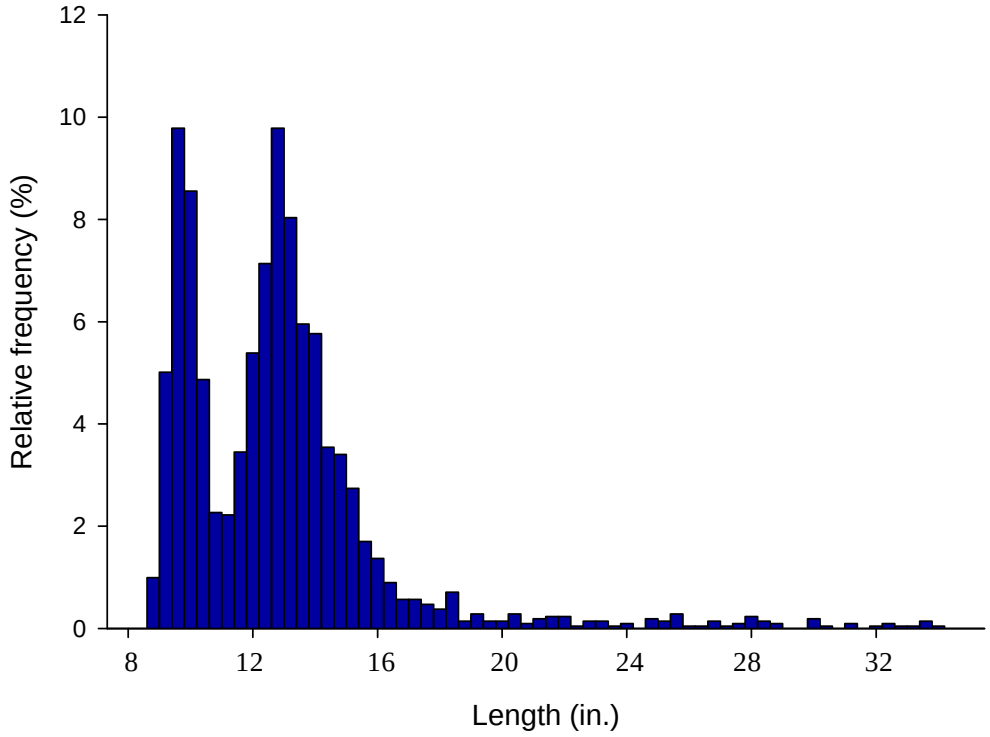

Figure 1. Length-frequency distribution of lake trout captured in gillnets from 17 September- 4 October 2007 from Swan Lake, MT.

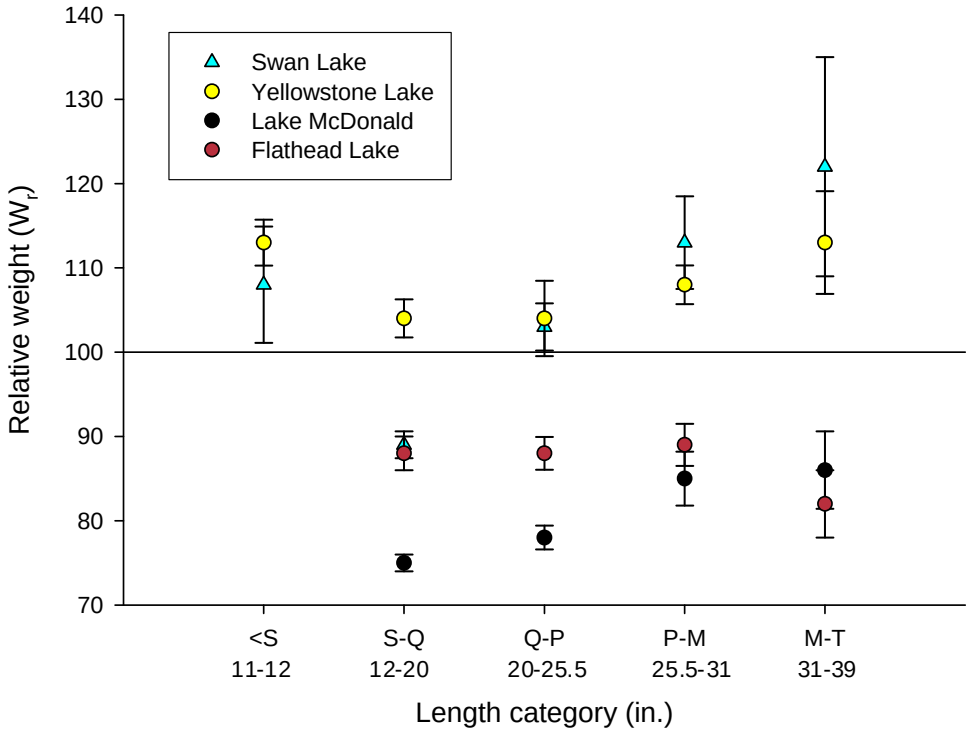

Figure 2. A comparison of relative weights (Wr) of lake trout from several systems in the Northern Rocky Mountain region.

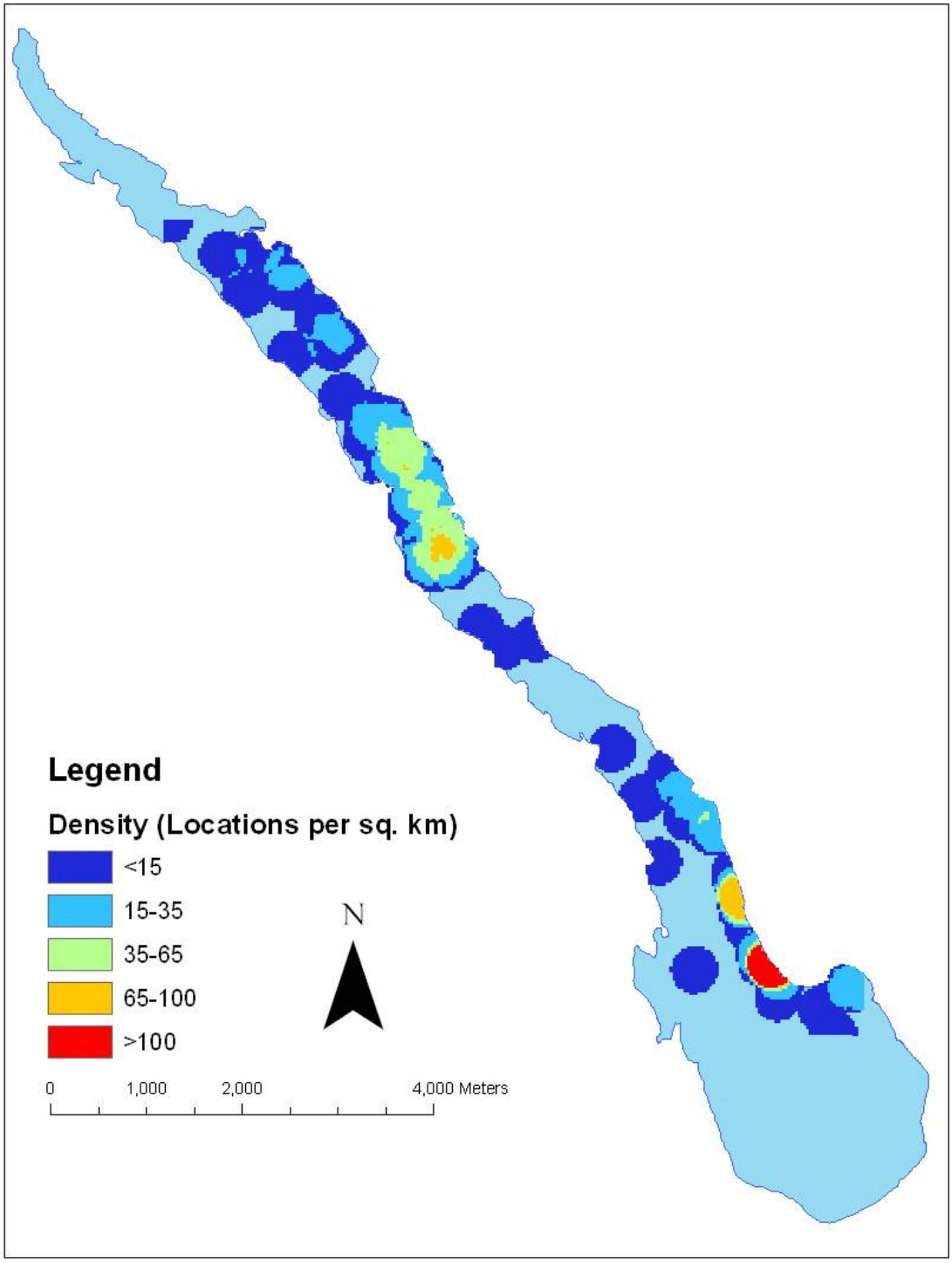

Figure 3. Map displaying density of lake trout locations collected from 11 October to 9 November 2007. Units are locations per km^2.

Public Outreach

The SVBTWG fully recognizes the necessity of good communication with the public and is committed to creating a high level of angler awareness of the problem with lake trout. Ultimately, the SVBTWG hopes to use angler participation in tracking and reducing the lake trout threat. Efforts in 2008 will strive to identify and evaluate possible approaches for managing the lake trout population in Swan River Basin. Once the SVBTWG has analyzed potential solutions, a comprehensive public input process will be initiated. This process will include drafting an Environmental Assessment and conducting public meetings in the area.

In 2007 the SVBTWG communicated through a series of news releases to local media. Members of the SVBTWG also provided briefings to the Swan Lake Homeowners Association, the Swan Lakers, and the Bigfork Chamber of Commerce to keep community leaders informed of the situation. Brochures printed in 2005 continue to be available to the public.

In 2005 the Flathead National Forest contracted with Constellation Services to produce a bathymetric map and a substrate map of Swan Lake to aid in fishery research. This map is now available to the public at various sporting good retailers and through the following link: `http://lakemaps.foliosnap.com`. It is hoped the map will aid anglers in targeting lake trout.

Monitoring of Bull Trout and Ecosystem Trends

The ultimate goal of the SVBTWG is the protection of the existing bull trout population in the Swan drainage by minimizing negative impacts of lake trout. For that reason, it is important to track bull trout populations and other indicators to gauge success. MFWP completed its annual monitoring trend of bull trout spawning bed counts in the Swan Valley and found the counts remain strong in 2007. Annual surveys of kokanee salmon and *Mysis* shrimp densities have not yet indicated any changes to the Swan Lake ecosystem; however, it is likely that other changes (e.g., decreased survival of juvenile bull trout) may be occurring undetected.