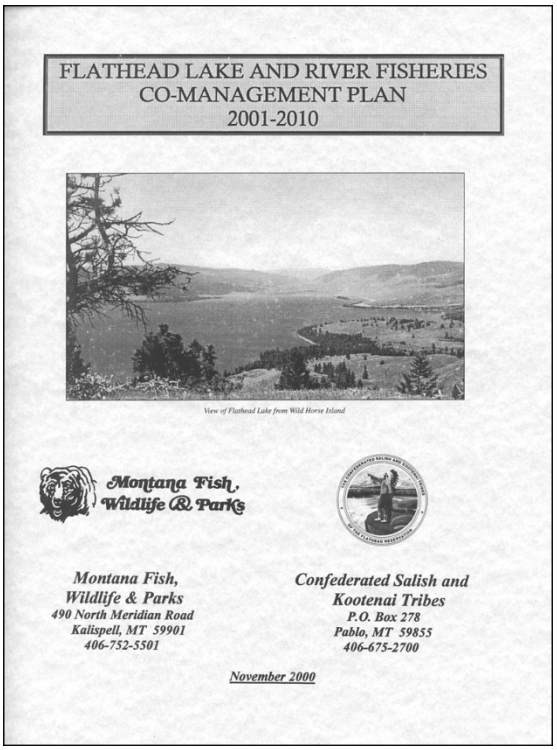
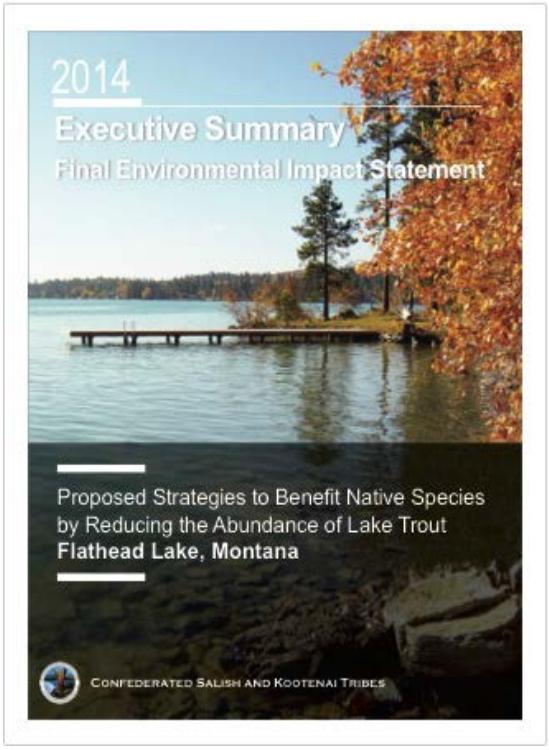
2014 IMPLEMENTATION PLAN
For the
FLATHEAD LAKE AND RIVER FISHERIES CO-MANAGEMENT PLAN





Confederated Salish and Kootenai Tribes

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Contents

Background

The Flathead Lake and River Fisheries CoManagement Plan (2000) (CoPlan) established the goal to increase native trout abundance in the interconnected Flathead system. It acknowledged that lake trout abundance must be reduced to achieve that goal, yet committed the co-managers to maintaining the scale of the recreational fishery. It did not identify numeric goals for fish populations, but did set a minimum acceptable level for recreational angling activity as a means to address these potentially competing objectives. The CoPlan prescribed an incremental process, beginning with angler-based tools and advancing to more aggressive tools if anglers prove insufficient to reduce lake trout abundance. The mid-term review of the Co-Management Plan 2006 concluded that the lake trout population was static and recommended advancing beyond angler-based approaches. In deference to objections from MFWP, the Tribes deferred that action, and re-committed to expanding angler-based programs. The Tribes concluded in 2009 that the expanded efforts using anglers were insufficient to reduce lake trout abundance, and at the request of the governor's office prepared a pilot proposal to employ additional suppression tools. MFWP disapproved of the pilot proposal and requested a NEPA process that would identify a full range of strategies. The Tribes complied with their request and completed a comprehensive Draft EIS on June 21, 2013. The DEIS identified four alternative levels of reduced abundance; the status quo, 25%, 50% and 75% reduction of Age 8+ lake trout. The Flathead Reservation Fish and Wildlife Advisory Board (Board) voted unanimously on August 21, 2013 to recommend to the decision makers that one of the three action alternatives be selected rather than to continue with the status quo. The Tribal Council unanimously selected Alternative D (75% reduction of Age 8+) on September 10, 2013 as their Preferred Alternative.

Finalization of the Environmental Impact Statement

The FEIS was released for public review on February 21, 2014, and the comment period closed on March 23, 2014. A total of 23 comments were received. No new comments were identified in this phase of commenting; all comments received for the Final EIS were a restatement of comments received in response to the Draft EIS. Therefore there were no changes made to the Final EIS. Because no new issues were raised, the Tribes consider that all comments received have been thoroughly addressed. The detailed responses to all the concerns that were raised are located in Appendix 13 which summarizes the findings of the Expert Panel (convened to address those concerns), and in Appendix 14 which itemizes responses to all comments received. The most informative comments received in the final round of comments addressed the perception by some commenters that the Tribes were planning to proceed with lake trout suppression despite the commenter's opposition. The Tribes understand that some commenters disagree with the direction of the CoPlan and disagree with the commitment that the Tribes have made to preserve and enhance native species in the Flathead system. Nonetheless, the Tribes wish to dispel the perception that comments have not been considered and that the process is proceeding in defiance of those opposing opinions. Accordingly, the Tribes have developed a process that allows for the full and open evaluation of suppression results, consideration of the full range of opinions as part of the process of decision-making, and maximum flexibility in making annual adjustments (see Adaptive Management section, page 21).

This Implementation Plan culminates several previous steps, starting with the EIS, followed by the recommendation given by the Reservation Fish and Wildlife Advisory Board and concluding

with the decision by the Tribal Council to select Alternative D as the Preferred Alternative. This Plan constitutes the final step in the ongoing 14 years of efforts to suppress lake trout mandated by the Flathead Lake and River Fisheries CoManagement Plan. This Plan replaces a "Record of Decision" (ROD) that typically follows the completion of an Environmental Impact Statement. The BIA, trust agency for the CSKT, deemed a ROD unnecessary because BIA had previously granted their authority for CSKT to suppress lake trout when giving approval to the Kerr Dam mitigation program. In addition to replacing the Record of Decision, this plan establishes the process that the Confederated Salish and Kootenai Tribes will follow to implement the direction of the CoPlan.

Goals and Objectives of the Implementation Plan

This plan does not identify a rigid future condition to be achieved in a fixed number of years. Instead this plan initiates a process to achieve the goals of the CoPlan in a very deliberative and adaptable manner. The goal of the lake trout suppression program is to increase native trout abundance, as directed in the CoPlan. The basic premise in the CoPlan is that predation by lake trout limits native fish abundance, and therefore lake trout abundance must be reduced to allow an increase in native trout. The best available science was used in the EIS to predict the linkage between the quantity native trout would likely increase for each quantity that lake trout are reduced. Additionally, the CoPlan directed that there be a check on the potential loss of sport fishing opportunity from declines in lake trout abundance, by setting a minimum acceptable level for angling opportunity in Flathead Lake equal to that existing in 2000. The result is a set of legitimate, but competing objectives that make it untenable to prescribe for planning purposes a specific future goal or ideal static condition. We also used the best available science in the EIS to predict the linkage between lake trout abundance and angling opportunity. Despite the guidance the EIS provides, we are unable to plan as if these precise outcomes are a certainty, and therefore have chosen to continue to proceed incrementally and to annually adjust course based on results of monitoring.

The CoPlan does not identify the speed at which native trout should be increased, nor does it identify the extent to which they should be increased. None of these questions can be answered in isolation, and must be evaluated in the context in which each factor is interacting with all the other factors. For example, can bull trout be increased by 75% while maintaining angler pressure at 2000 levels? By selecting Alternative D the Tribes have set the course for a 75% reduction of Age 8 and greater lake trout over the long term. The pace toward that goal will continue to be gradual and incremental. Annually we will evaluate the competing objectives of reduced lake trout abundance and maintenance of fishing activity. The goal in this first year of expanded suppression efforts is to harvest between 90,000 and 100,000 lake trout (Table 1). This target for 2014 exemplifies the need to cautiously and incrementally build a larger suppression program, evaluate by-catch, acquire equipment, develop personnel skills, and refine quantifiable metrics.

The process will require extensive monitoring to quantify key metrics, followed by a transparent analysis process in which all the available evidence is weighed. Annual decisions about changes in abundance, acceptable risk, and target harvest levels will be the end product of several deliberative bodies (see Decision Process, page 23).

This plan addresses the first year of implementation of expanded suppression efforts. Activities in subsequent years will be determined by a specific process that will be conducted at the beginning of each year (see Adaptive Management section, page 22). The primary objective in Year 1 is to cautiously implement and evaluate new methods (gillnetting) of lake trout suppression. In Year 1 we will evaluate techniques to minimize bycatch of bull trout and lake whitefish, and determine costs of suppression. Additional suppression methods, such as bounties and trap netting, are scheduled for development and possible deployment in Year 2 and beyond (see Long Term Planning section). The ongoing methods of lake trout suppression (research, education, access improvements, and fishing contests) will continue concurrent with the new method of targeted gillnetting. This approach is consistent with the Flathead Lake and River Fisheries CoManagement Plan that directs an incremental approach that gradually shifts the relative abundance of species to improve balance, and allows time for adaptive adjustments based on knowledge gained during implementation. In Year 1 we will focus on targeted gillnetting as a new method and will quantify catch rates of lake trout, bycatch (bull trout and lake whitefish), costs per lake trout removed, and distribution potential of harvested fish.

Table 1. Methods, harvest targets, time periods, projected bycatch of bull trout, estimated bycatch mortality rate, and estimated total bull trout mortality for lake trout suppression efforts planned for 2014 (*the total harvest figure is a maximum of a range from 90,000 to 100,000).

Method	Lake Trout Harvest Target	Time Period	Projected Total Bull Trout Bycatch	Projected Bull Trout Mortality Rate and Estimated Mortality	Mis-identification	Total Estimated Bull Trout Mortality
General Recreational Angling	25,000	Year-round	525	10% - 53	4	57
Spring Mack Days	30,000	March 15 - May 15	630	10% - 63	10	73
Spring Gillnetting	10,000	Late April – May	0	50% - 0	0	0
Fall Mack Days	16,000	Sept 23 – Nov 10	340	10% - 34	6	40
Fall Gillnetting	19,000	Oct 1 – Dec 15	less than 10	50% - 5	0	5
Total	100,000*	2014	1,505	155	20	175

Components of Lake Trout Suppression – Year 1

General harvest- 25,000 lake trout

The average recreational lake trout harvest between 2004 and 2008 estimated through creel surveys (Evarts 2010) was 33,000 lake trout. Since 2008, participation in Mack Days has increased substantially, and this has influenced angler activity in the general recreational fishery. We learned, for example, that the fishing contests caused many anglers to shift all or a portion of the days they choose to fish Flathead Lake to days that they can participate in the contests. The result is fewer days fished during the general season and more days fished during Mack Days. We estimate that the average general harvest decreased by about 8,000 fish since 2005 as anglers shifted their activity toward the contests. As a result, we estimate the current annual recreational harvest to be 25,000 lake trout (Evarts 2010).

Bycatch - Bull Trout

We identify two forms of bull trout mortality resulting from fishing contests; 1) bycatch of bull trout that are correctly identified by the angler and released, but results in post-release mortality, and 2) bycatch of bull trout that are mistaken by the angler as lake trout and not released. Between 1998 and 2008 an average of 21 bull trout were caught for every 1,000 lake trout caught in the recreational fishery (CSKT files). We conservatively assume from related studies that estimated between 3 and 10% hooking mortality (Loftus et al. 1988, Persons and Hirsch 1994, Andrusak and Thorley 2013) that 10% of those caught will die as a result of hooking injuries and handling stress. Therefore we assume a total bycatch of 525 bull trout among the 25,000 lake trout harvested, and that 53 of those will die after being released. This estimate is less than would occur if suppression were not taking place, because if the fishing contests were eliminated, participation in the recreational fishery would likely increase.

Of the estimated 525 bull trout caught during the general fishing season, we assume that the rate of misidentification will be comparable to the rate we have documented during Mack Days contests. The average rate of misidentification during spring and fall contests has been one bull trout for every 3,200 lake trout submitted. Therefore in a harvest of 25,000 lake trout, we anticipate that 8 bull trout will be mistakenly identified as lake trout. Unlike in the fishing contests where all sizes are accepted, some of the mistaken fish in the general fishery will be returned because they are smaller than desirable to harvest. We assume that half will be returned and the total mortality for mistaken identification will be four bull trout.

Spring Mack Days – 30,000 lake trout

Harvest during Spring Mack Days averaged 31,858 from 2010 and 2013 (Figure 1). The highest harvest occurred in 2012 in which over 38,000 lake trout were submitted to the contest. We estimate that a reasonably achievable harvest in 2014 Spring Mack Days is 30,000 lake trout, slightly less than the average of the last four years. The length of lake trout harvested in the last four Spring Mack Days events (2010 through 2013) averaged 400 mm TL (Figure 2), and we anticipate the average will be the same in 2014. These fish generally comprise the ages of 5 through 8, most of which are not reproductively mature.

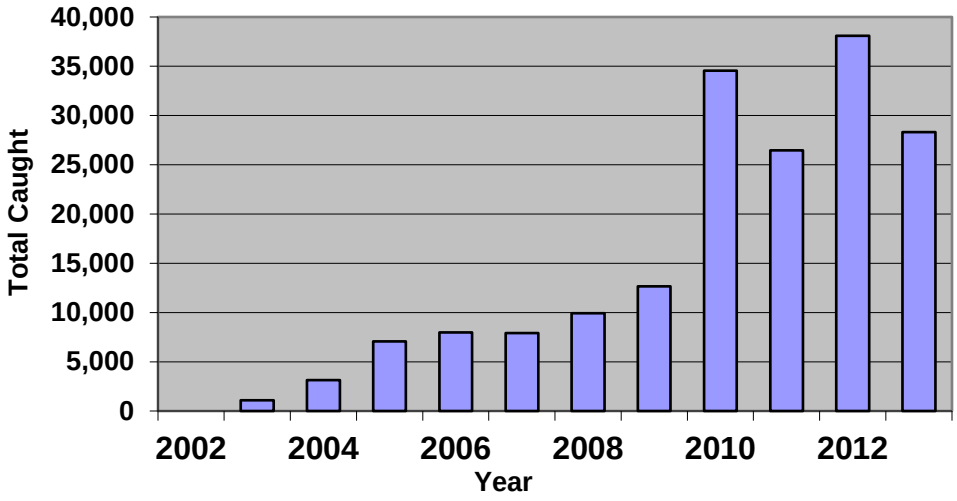

Figure 1. Harvest of lake trout in Spring Mack Days, 2003 to 2013.

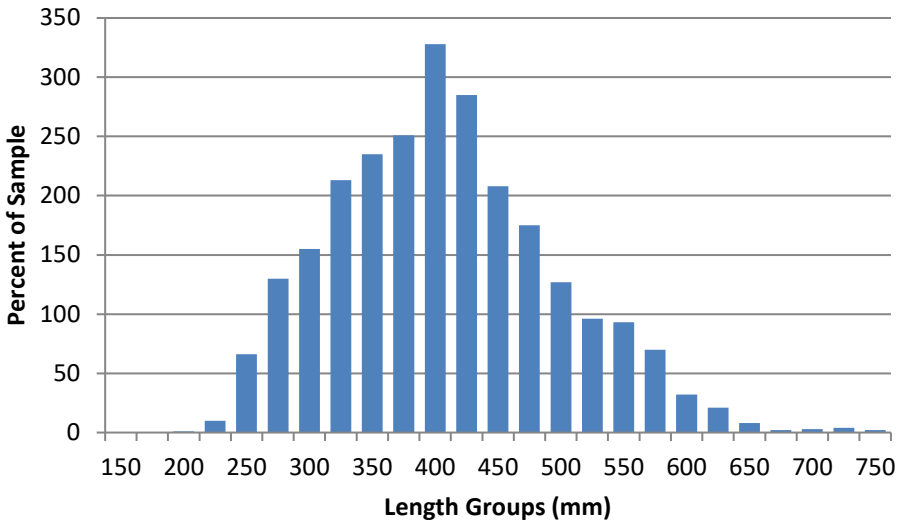

Figure 2. Length distribution of lake trout harvested in Spring Mack Days, 2013.

Bycatch – Bull trout

We identify two forms of bull trout mortality resulting from fishing contests; 1) bycatch of bull trout that is correctly identified by the angler and released, but results in post-release mortality, and 2) bycatch of bull trout that is mistaken by the angler as lake trout and not released. Between 1998 and 2008 an average of 21 bull trout were caught for every 1,000 lake trout caught in the recreational fishery (CSKT files). We conservatively assume from related studies (Loftus et al. 1988, Persons and Hirsch 1994, Andrusak and Thorley 2013) that 10% of those caught will

die as a result of hooking injuries and handling stress. Therefore we assume a total bycatch of 630 bull trout among the 30,000 lake trout harvested, of which 63 will die after being released.

In the last four Spring Mack Days contests (2010 through 2013) an average of 10 bull trout were submitted by contestants mistakenly thinking they were lake trout. In response to this problem of mistaken identification, we have increased education and enforcement of the regulation that anglers be able to properly identify their catch. These efforts will likely reduce the rate of mistaken identification in future contests. Conservatively, we assume that bycatch and mistaken identification of bull trout in 2014 will occur at the same rate as in 2010 through 2013. This rate is equivalent to one bull trout mortality for 3,200 lake trout mortalities and therefore assume 10 bull trout will be mistakenly submitted during 2014 Spring Mack Days. The total estimated bycatch mortality of bull trout is 73.

Bycatch - Lake Whitefish

Bycatch of lake whitefish by anglers during Spring Mack Days has been negligible.

Spring Netting – 5,000 to 10,000 lake trout

The Tribal fisheries staff will work cooperatively with Hickey Brothers Research, Inc. to gillnet a target of 10,000 lake trout during April and May, 2014. Work will be conducted from a 28 ft boat owned by CSKT and equipped with a hydraulic net lifter and net-picking table. The Hickey Brothers team will direct this component of the project and seek to achieve the target harvest while training Tribal staff in use of the boat, minimization of non-target fish mortality, and in professional netting techniques. We will evenly deploy two mesh sizes, 3.5 and 4 inch stretch measure. These mesh sizes will primarily target lake trout from 400 mm to 650 mm TL (Figure 3).

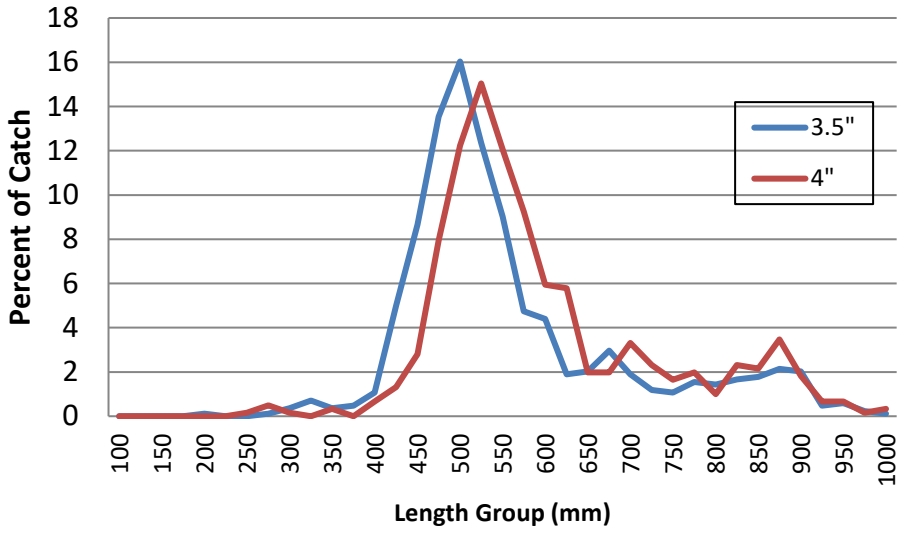

Figure 3. Percent of lake trout from 25 mm length groups captured in 3.5 and 4 inch mesh sizes during random sampling events in Flathead Lake between 1998 and 2013.

Locations of sets will initially be chosen based on areas of lake trout concentrations encountered during previous random sampling. Adaptive adjustments will be made by the netting crew daily as they apply knowledge gained from each net they pull and examine. We will set all nets at 120 ft or deeper and more than one half mile from shore (Figure 4) to avoid bycatch of bull trout (see bycatch section for further explanation).

In Year 1 nets will only be set within the boundaries of the Flathead Reservation. We will set up to 18 nets daily, each of a single mesh size and each 900 ft in length. The nets will soak overnight and be retrieved the following morning. Nets will therefore be fished through the highest lake trout activity periods of dusk and dawn to maximize efficiency while maintaining fish that are fresh and suitable for consumption.

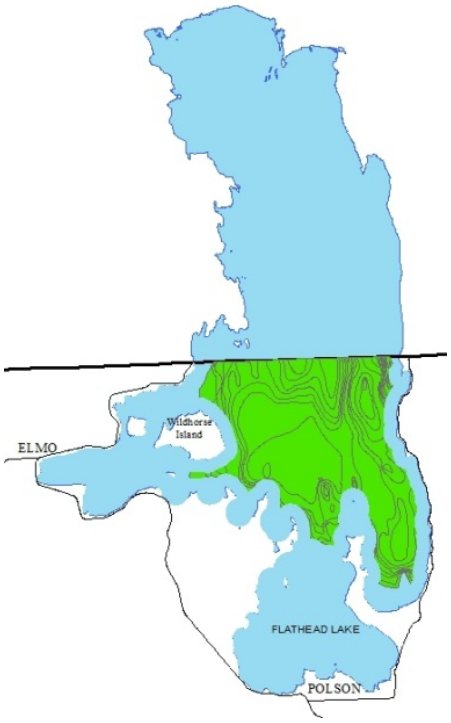

Figure 4. Green shaded area within Flathead Lake signifies locations meeting the criteria of greater than one half mile from shore and deeper than 120 ft to be netted in 2014 to minimize bycatch of bull trout.

Depth and GPS coordinates will be recorded for each net. All fish captured will be returned to the Blue Bay facility for processing, counting and a subsample will be measured. A subsample of the lake trout captured, as determined by condition and size, will be marked, PIT tagged and released to support the ongoing generation of population estimates. All other lake trout will be retained and those under 25" will be distributed to food banks. All live non-target fish will be released. Live lake whitefish will also be released, but dead ones will be retained for distribution to food banks. We will attempt to revive all captured bull trout by use of a chilled and oxygenated recovery chamber (Fraser tank), and all those not determined to be dead after attempts to revive them, will be released. Such fish will be assessed for vitality using a standardized four-category assessment scale, and PIT tagged. The classes are: Class "0" = Mort (dead or moribund); Class "1" = Poor (not orienting, possible bleeding, respiration shallow);

Class “2” = Fair (tired, but orienting and respiring, considered “likely to survive”); Class “3” = Good (vigorous, struggles to escape, swims away upon release). In addition, a tissue sample will be collected for genetic analysis and then live bull trout will be released at depth (if potential barotrauma or warm surface waters are a concern). Bull trout mortalities will be frozen and archived, then used for additional studies on diet, genetics, growth, condition and otolith microchemistry.

Ongoing experimental netting conducted between 1998 and 2013 has produced a capture rate of roughly one lake trout per 25 ft of net. We estimate catch rates during suppression netting of twice that rate based on adjustments for changes in net materials (monofilament versus multifilament), increased lateral leading of fish because of longer nets (900 ft rather than 25 ft), and targeted rather than randomized locations (fishing known concentrations).

We estimate that we will catch one lake trout per 12 feet of net. If 16,200 ft of net are set daily, we anticipate a catch of 1,350 lake trout per day. Assuming these projections are correct, the spring harvest target would be achieved in eight days. If these projections are incorrect, we will make up any shortfall in harvest during autumn gillnetting.

Bycatch – Bull trout

We will employ all known methods to reduce bycatch of bull trout, and expect to learn new ones with knowledge gained as we proceed. We will set all nets at 120 ft or deeper to avoid bycatch of bull trout, whose distribution is greatly reduced beyond 120 ft in depth (Figure 5).

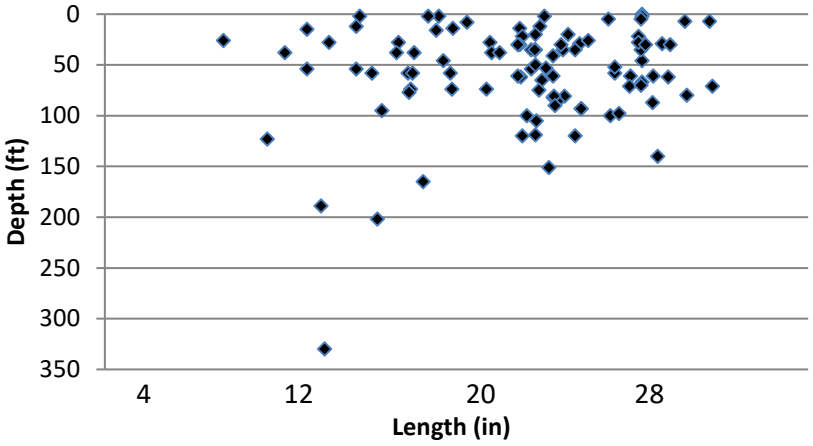

Figure 5. Depth distribution of captures of bull trout during random sampling events in Flathead Lake between 1998 and 2013.

CSKT staff recently determined that juvenile bull trout commonly use depths greater than 120 ft to feed on *Mysis*. While juvenile bull trout may be present in depths where nets will be set, they will be at minimal risk of capture because primarily fish longer than 400 mm TL will be vulnerable to mesh sizes used. Nets will also be located more than one half mile from shore because we have determined that bull trout are mostly distributed within one half mile from shore (Figure 6).

Figure 6. Locations of captures of bull trout during random sampling events in Flathead Lake between 1998 and 2013.

Estimation of potential bycatch is based on results from experimental gillnetting between 1998 and 2013. During that period we set 542 nets at depths shallower than 120 ft and caught only 12 bull trout in the two chosen mesh sizes (3.5 and 4 inch stretch measure). We did not catch any bull trout in those mesh sizes in locations more than one half mile from shore and south of Woods Bay. Therefore we project minimal bycatch of bull trout when setting nets within the restricted parameters, although we cannot be certain of that outcome. Although the presence of bull trout is minimal at netting locations, and mesh sizes are too large to capture small bull trout by wedging, small bull trout may be captured in the nets by entangling their teeth in the monofilament. Entangled fish are usually able to move their gill covers and therefore do not suffocate when captured and have high survival rates when released. Therefore we anticipate causing zero bull trout mortalities during April and May. Estimates of bycatch to be used in planning for subsequent years will incorporate experience from Year 1, and we will update the estimated bycatch projections annually.

Bycatch – Lake Whitefish

Ongoing experimental netting between 1998 and 2013 produced a capture rate of 1.4 lake whitefish per 25 ft of net in 3.5 and 4 inch meshes of fish between 350 and 550 mm TL (Figure 7). We estimate catch rates during suppression netting of twice that rate based on adjustments for changes in net materials (monofilament versus multifilament), and increased lateral leading of fish because of longer nets (900 ft rather than 25 ft). We estimate that we will catch 1.4 lake whitefish per 12 feet of net. If 16,200 ft of net are set daily, we anticipate a catch of 1,890 lake whitefish per day. The total catch during the spring period of eight days will likely be about 15,000 lake whitefish if all eight planned days are fished.

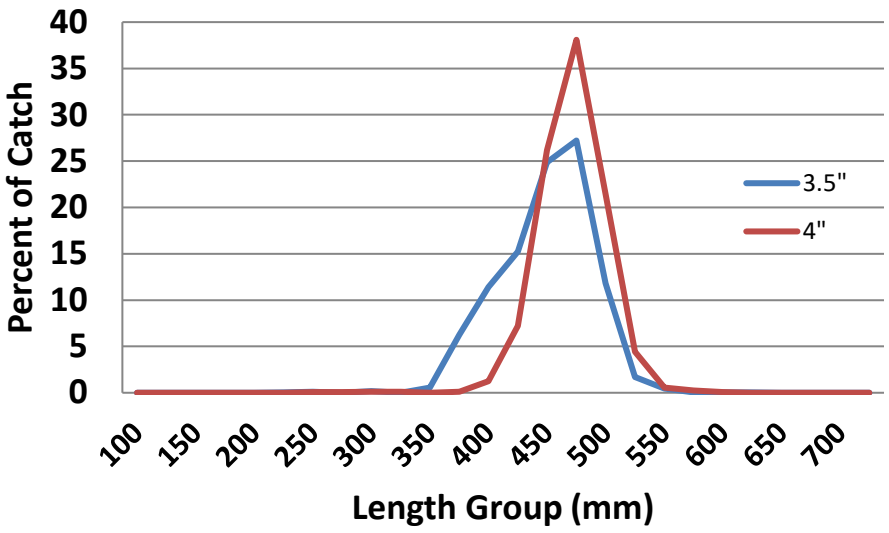

Figure 7. Percent of lake whitefish from 25 mm length groups captured in 3.5 and 4 inch mesh sizes during random sampling events in Flathead Lake between 1998 and 2013.

Fall Mack Days – 16,000 lake trout

Harvest during Fall Mack Days averaged 15,422 lake trout from 2010 to 2013 (Figure 8). The highest harvest occurred in 201, when 18,000 lake trout were harvested. We estimate that a reasonably achievable harvest for 2014 Fall Mack Days is 16,000 lake trout, slightly more than the average for the last four contests, but less than the highest value that has been achieved. Length of lake trout harvested in the last four Fall Mack Days events (2010 through 2013) averaged 482 mm TL, and we anticipate the average will be the same in 2014 (Figure 9). These lengths comprise the ages of 5 through 15.

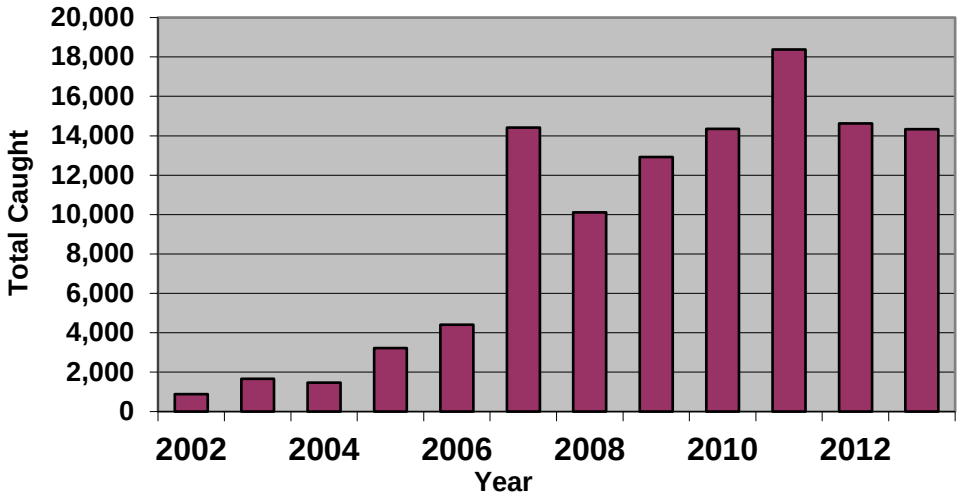

Figure 8. Harvest of lake trout in Fall Mack Days, 2002 to 2013.

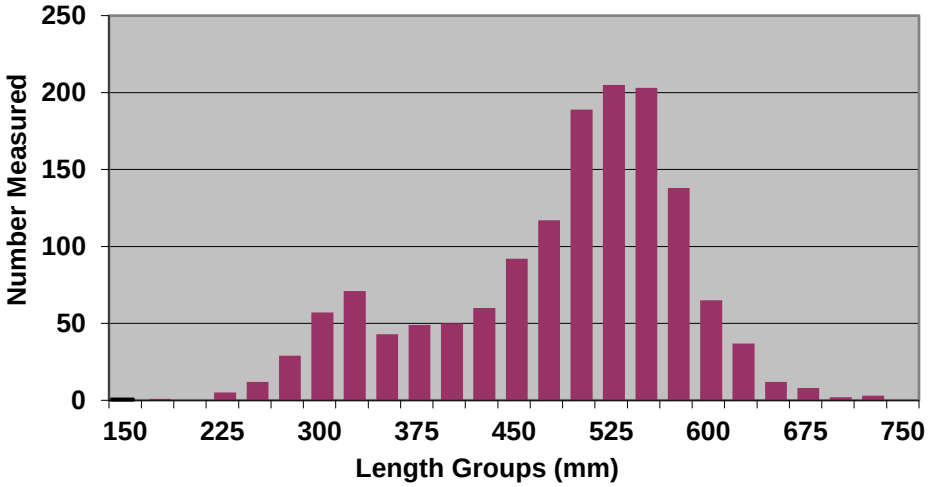

Figure 9. Length distribution of lake trout harvested in Fall Mack Days, 2013.

Bycatch – Bull trout

We identify two forms of bull trout mortality resulting from fishing contests; 1) bycatch of bull trout that are correctly identified by anglers and released, but results in post-release mortality, and 2) bycatch of bull trout that are mistaken by anglers as lake trout and not released. Between 1998 and 2008 an average of 21 bull trout were caught for every 1,000 lake trout caught in the recreational fishery (CSKT files). We assume from related studies (Loftus et al. 1988, Persons and Hirsch 1994, Andrusak and Thorley 2013) that 10% of those caught will die as a result of hooking injuries and handling stress. Therefore we assume a total bycatch of 340 bull trout among 16,000 lake trout harvested, of which 34 will die after being released.

In the last four Fall Mack Days contests (2010 through 2013) an average of 5 bull trout were submitted by contestants mistakenly thinking they were lake trout. In response to this problem of mistaken identification, we increased education and enforcement of the regulation that anglers be able to properly identify their catch. These efforts will likely reduce the rate of mistaken identification. Conservatively, we assume that bycatch and mistaken identification of bull trout in 2014 will occur at the same rate as in the period of 2010 through 2013. This rate is equivalent to one bull trout mortality for every 3,200 lake trout mortalities. We assume 5 bull trout will be mistakenly submitted during 2014 Spring Mack Days. We therefore assume a total bull trout bycatch mortality from hooking and mistaken identity of 39.

Bycatch - Lake Whitefish

Bycatch of lake whitefish by anglers will be negligible during Fall Mack Days.

Autumn Gillnetting – 14,000 to 19,000 lake trout

The Tribal fisheries staff will work cooperatively with Hickey Brothers Research, Inc. to gillnet a target of 19,000 lake trout between October 1, and December 31, 2014. This work will continue after the conclusion of both fishing contests and the spring netting series. Therefore autumn netting will be used to ensure that any shortfall remaining from the previous three

periods is corrected to achieve the target harvest level of 90,000-100,000 lake trout. Work will be conducted from a 28 ft boat owned by CSKT and equipped with a hydraulic net lifter and net-picking table. The Hickey Brothers team will initially oversee this component of the project and transfer control of the netting program based on the training status of the Tribal staff and evaluation of skills gained during spring netting.

In addition to 3.5 and 4 inch meshes deployed in spring, we will introduce 2 and 3-inch meshes to evaluate their effectiveness. The 3-inch mesh is a productive size (Figure 10) that targets fish from 325 mm to 550 mm TL. The 2 inch mesh is also a productive mesh (Figure 10) that targets lake trout from 225 to 350 mm TL, sizes of lake trout that have not fully shifted to piscivory. The 2-inch mesh also has the potential to capture the enhanced recruitment that may result from suppression. The disadvantage of small meshes is the increased potential for bycatch.

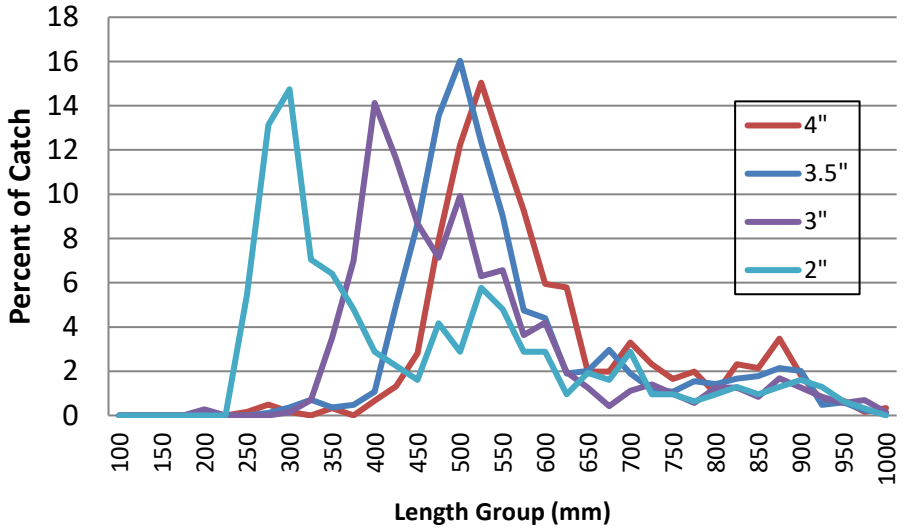

Figure 10. Percent of 25 mm length groups of lake trout captured in 2, 3, 3.5, and 4 inch mesh sizes during random sampling events in Flathead Lake between 1998 and 2013.

We will set all nets at 120 ft or greater to avoid bycatch of bull trout, whose distribution is greatly reduced at those depths (Figure 3). Locations of sets will be initially chosen based on known areas of lake trout concentrations, with adaptive adjustments made by the netting crew. In Year 1 nets will not be set north of the Reservation boundary. We will set 16 nets daily, each of a single mesh size and each 900 ft in length. Nets will soak overnight and be retrieved the following morning. Nets will therefore be fished through the highest lake trout activity periods of dusk and dawn to maximize efficiency while maintaining fish that are fresh and suitable for consumption. Based on past experimental netting, adjusted for changes in net materials (monofilament versus multifilament) and targeted rather than randomized locations, we anticipate catching one lake trout per 12 feet of net. If 16,200 ft of net will be set daily, we anticipate a catch of 1,350 lake trout per day. Assuming these projections are correct, the autumn harvest target would be achieved in 14 days. If these projections are incorrect, we will adjust the number of days to achieve the 19,000 lake trout target, as well as any additional harvest required to achieve the total harvest goal of 90,000-100,000 lake trout.

Bycatch – Bull Trout

We apply the same assumptions to autumn netting as we did to spring netting and therefore anticipate catching minimal bull trout in 3.5, and 4-inch meshes between October 1st and December 31st. New meshes of 2 and 3-inch stretch measure introduced for this period also did not catch bull trout in random sampling between 1998 and 2013, but present a larger risk of bycatch than larger meshes. The increased risk results from the known occurrence of juvenile bull trout in deep water seeking *Mysis*, and the greater potential for larger fish becoming entangled in smaller meshes. Therefore despite the absence of a record of captures, we assume a small number of bull trout will be captured in the 2 and 3-inch stretch meshes.

Bycatch – Lake Whitefish

Ongoing experimental netting conducted between 1998 and 2013 has produced a capture rate of 1.4 lake whitefish per 25 ft of net in 2, 3, 3.5 and 4-inch meshes of fish between 200 and 550 mm TL (Figure 11). We estimate catch rates during suppression netting of twice that rate based on adjustments for changes in net materials (monofilament versus multifilament), and increased lateral leading of fish because of longer nets (900 ft rather than 25 ft). We estimate that we will catch 1.4 lake whitefish per 12 feet of net. If 16,200 ft of net will be set daily, we anticipate a catch of 1,890 lake whitefish per day. The total catch during the autumn period of 14 days will likely be about 26,000 lake whitefish.

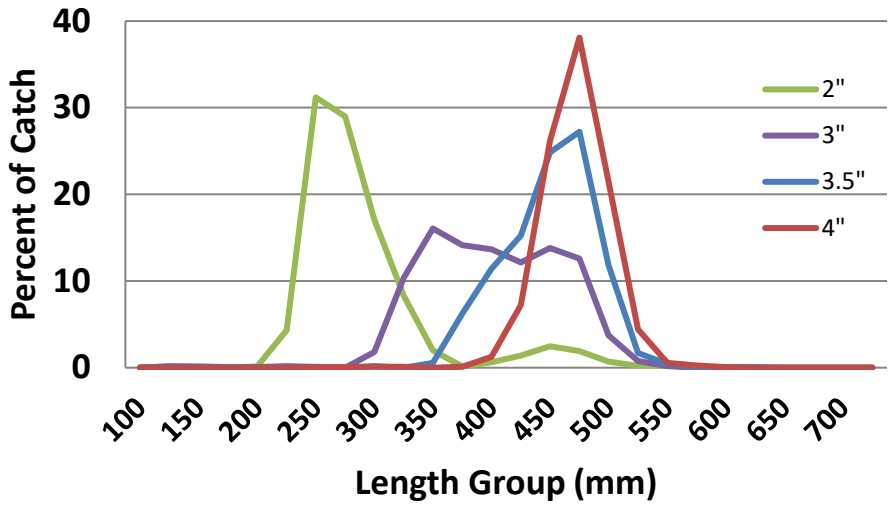

Figure 11. Percent of lake whitefish in 25 mm length groups captured in 1, 1.5, 1.75, 2, and 2.25 inch mesh sizes during random sampling events in Flathead Lake between 1998 and 2013.

Anticipated Results of Suppression

Fish population changes – lake trout

A harvest of 90-100,000 lake trout in 2014 would be about 25,000 greater than the average of the last four years, and should increase total annual mortality to about 31%. Accurate estimates of lake trout population size are essential to informed management and to gauging success of the suppression program. Two population estimates will be generated annually. The spring estimate will consist of marking fish captured by anglers and in nets from March 15, 2013 to March 14, 2014. The recapture period will go from March 15, 2014 to May 18, 2014 and consist of fish caught primarily in Spring Mack Days, but also from suppression netting. The autumn estimate will consist of marking of fish captured by anglers and in nets from September 25, 2013 to September 24, 2014. The recapture period will go from September 26, 2014 to November 10, 2014, and consist of fish caught primarily in Fall Mack Days, but also from suppression netting.

Catch rates in standardized gillnet sampling during spring and autumn provide a valuable metric of trends in abundance. The spring series has been non-trending with an average catch of 1.7 lake trout per net (Figure 12), while there has been a gradual decline in catch per net in the autumn series since 2009 (Figure 13).

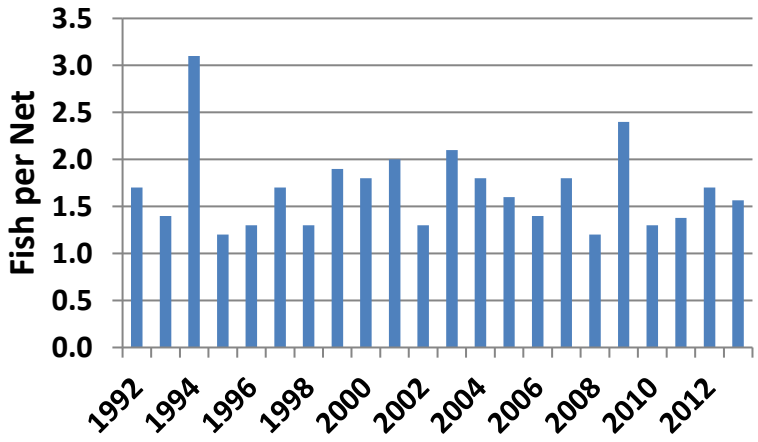

Figure 12. Mean catch rates of lake trout in fixed gillnet sampling during spring in Flathead Lake, 1992-2013 (data from MFWP).

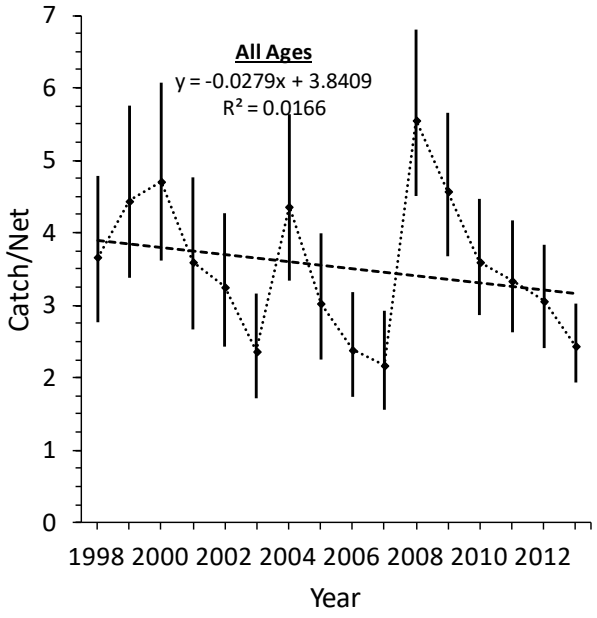

Figure 13. Geometric mean catch rates of all lake trout in stratified random gillnet sampling in Flathead Lake, 1998-2013.

Suppression netting will be conducted in non-experimental type nets in which each 900 ft net will consist of a single mesh size. Although these nets will not be set in random locations, and attempts will be made to progressively improve catch rates, catches in these nets will provide useful information on trends in abundance of lake trout vulnerable to those meshes. Averages catches will be computed for each net of a single mesh size by season. We more than 25 sets for each mesh each season. Monitoring of this metric will begin in 2014.

The condition of individual fish is often highly correlated with density, and usually increases as density decreases. Relative weight is a measure of condition is will likely increase over time as lake trout density decreases. Lake trout in Flathead Lake currently have an average relative weight of 86 (Figures 14 and 15).

Sustained increases in harvest of lake trout will cause increases in mortality rate which is a useful indicator of the effectiveness of suppression. The annual mortality rate is currently at about 17% (Figure 16).

The length at which lake trout reach maturity is likely to change with changes in the population size of lake trout. The length at which 50% of lake trout in samples reach maturity is about 475 mm (Figure 17).

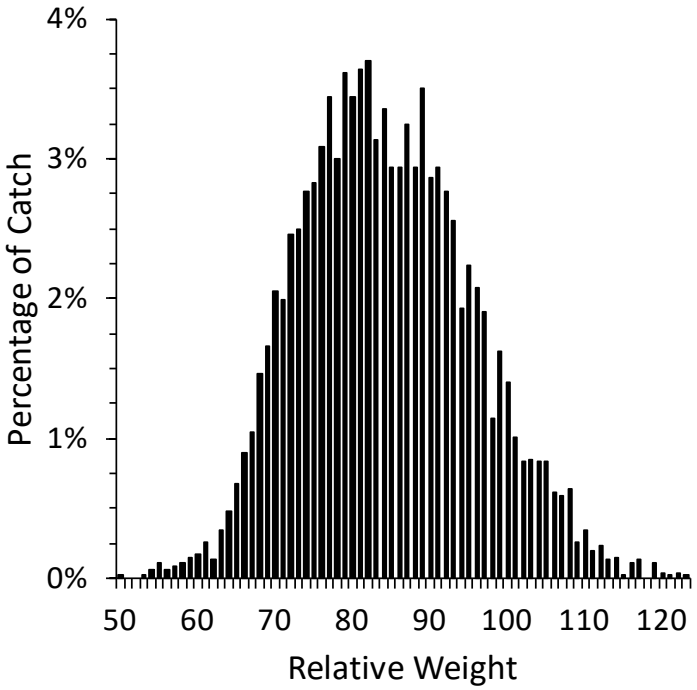

Figure 14. Relative weight of 4,347 lake trout caught in standardized-gillnet surveys in Flathead Lake, Montana during 1998–2013.

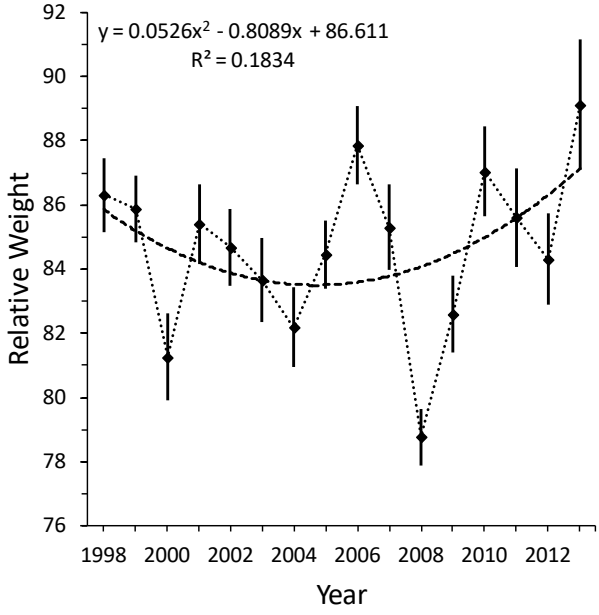

Figure 15. Mean annual relative weight (± 95% confidence limits) of lake trout (N = 4,565; 179–437 per year) caught in standardized-gillnet surveys in Flathead Lake, Montana during 1998–

2013. The dashed line and equation depicts the nonlinear trend through time of mean annual relative weight during 1998–2013.

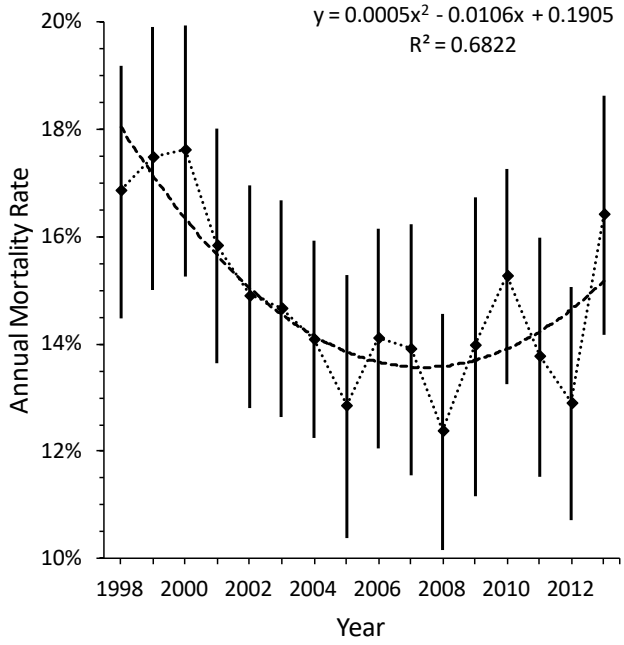

Figure 16. Mean annual mortality (± 95% confidence limits) estimated from age frequency samples of lake trout caught in standardized-gillnet surveys in Flathead Lake, Montana during 1998–2013. The dashed line and equation depicts the nonlinear trend through time of annual mortality during 1998–2013.

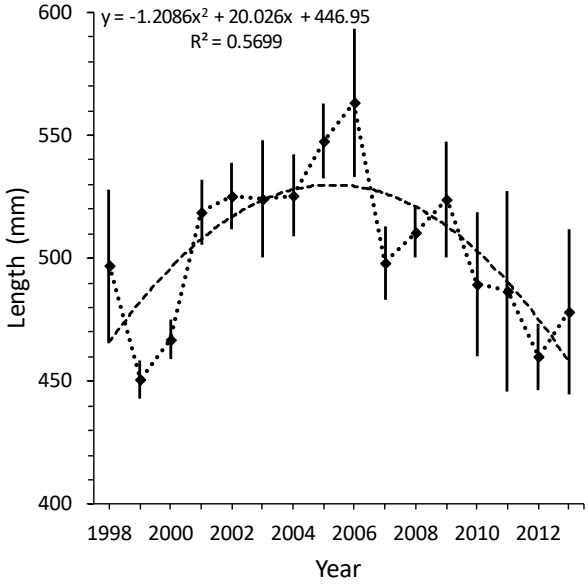

Figure 17. Length at which 50% of lake trout were mature (± 95% confidence limits) from standardized-gillnet surveys in Flathead Lake, Montana during 1998–2013. The dashed line depicts the nonlinear trend through time in length at 50% maturity.

Average lengths of lake trout caught during Mack Days fishing events are potentially indicative of changes in age structure resulting from suppression. This metric can be confounded by changes in locations targeted and methods used by anglers, and by changes in growth rates. Average lengths of lake trout caught in the spring event have declined by nearly 50 mm since 2010 (Figure 18). This metric may be confounded by an increasing shift by anglers during spring toward deeper water where smaller fish predominate. Average lengths of lake trout caught in the fall event have been non-trending since 2010 (Figure 19).

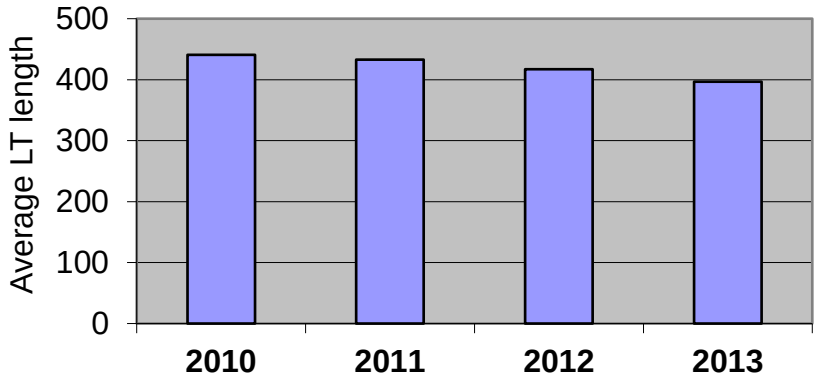

Figure 18. Average lengths of lake trout submitted to the Spring Mack Days contests, 2010-2013.

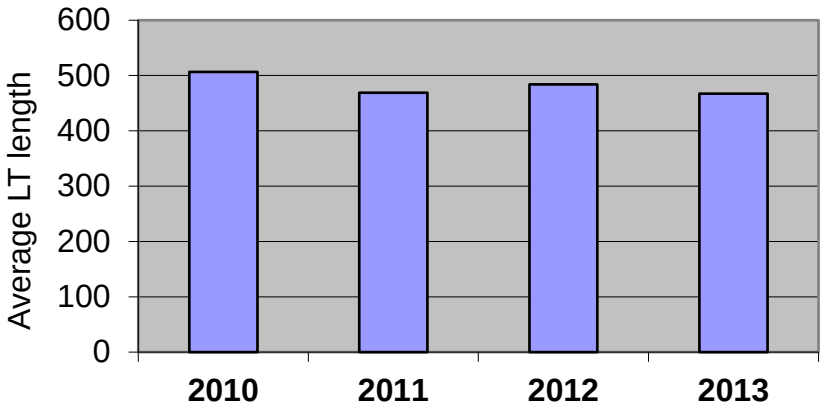

Figure 19. Average lengths of lake trout submitted to the Fall Mack Days contests, 2010-2013.

Fish population changes – bull trout

Bull trout are the primary species intended to benefit from reduction of lake trout abundance. We will monitor adult bull trout by redd counts in natal streams (Figure 20) and in Flathead Lake during spring (Figure 21) and during autumn (Figure 22).

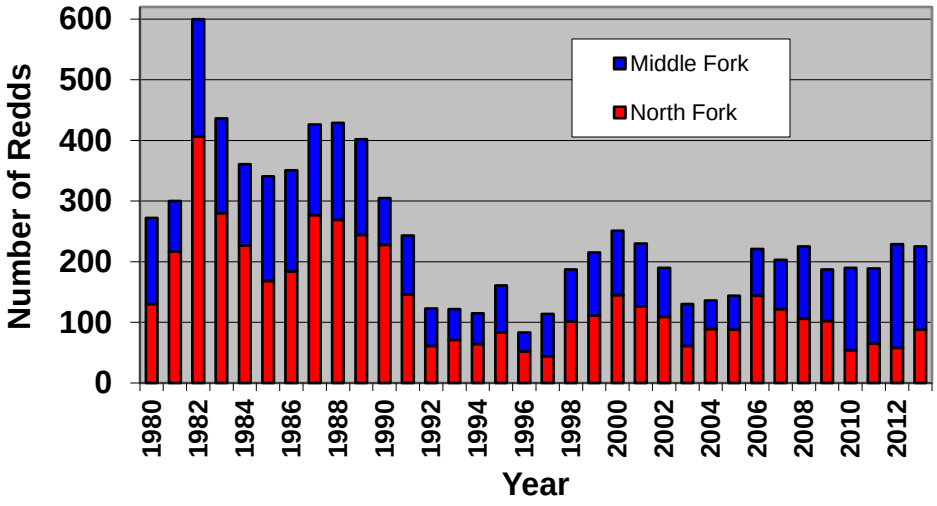

Figure 20. Bull trout redd counts in eight index streams tributary to the North and Middle Forks of the Flathead River, 1980 to 2013 (data from MFWP).

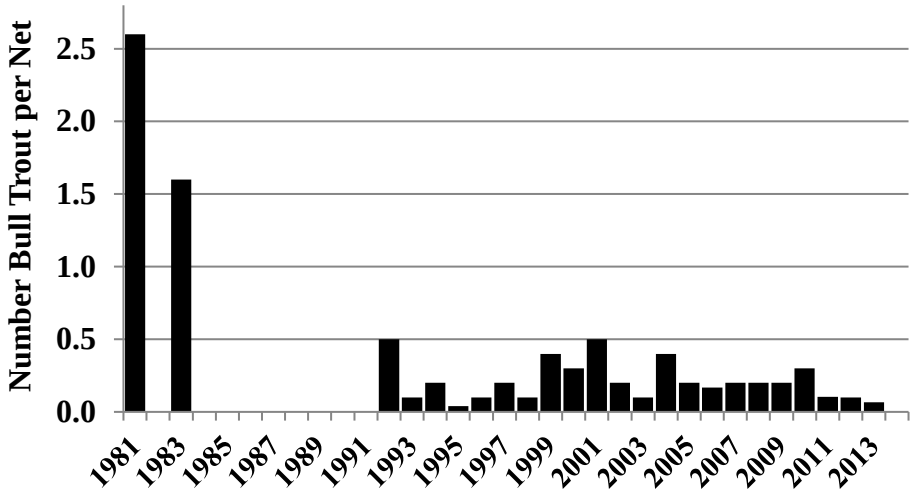

Figure 21. Average annual catches of bull trout in 15 standardized gillnets set in spring, 1981 to 2013 (data from MFWP).

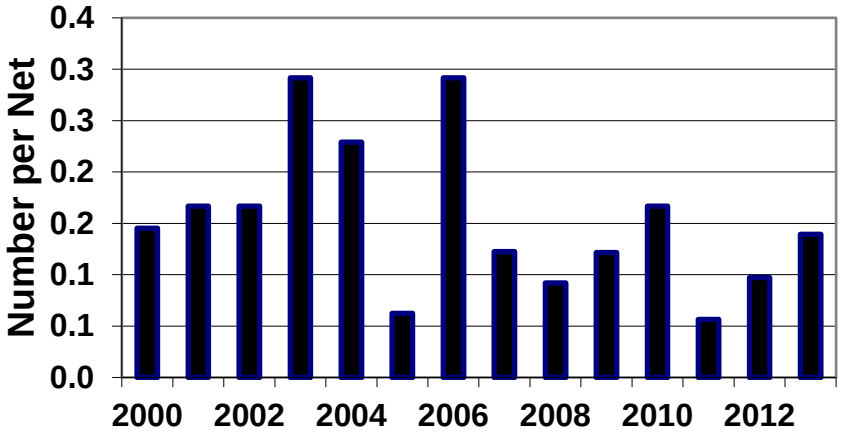

Figure 22. Average annual catches of bull trout in stratified random gillnets (48-94 nets) set in autumn, 2000 to 2013.

Fish population changes – westslope cutthroat trout

Westslope cutthroat trout will likely benefit from reduced predation by lake trout. The primary index of westslope cutthroat abundance is derived from annual catches in gillnets in Flathead Lake during spring (Figure 23).

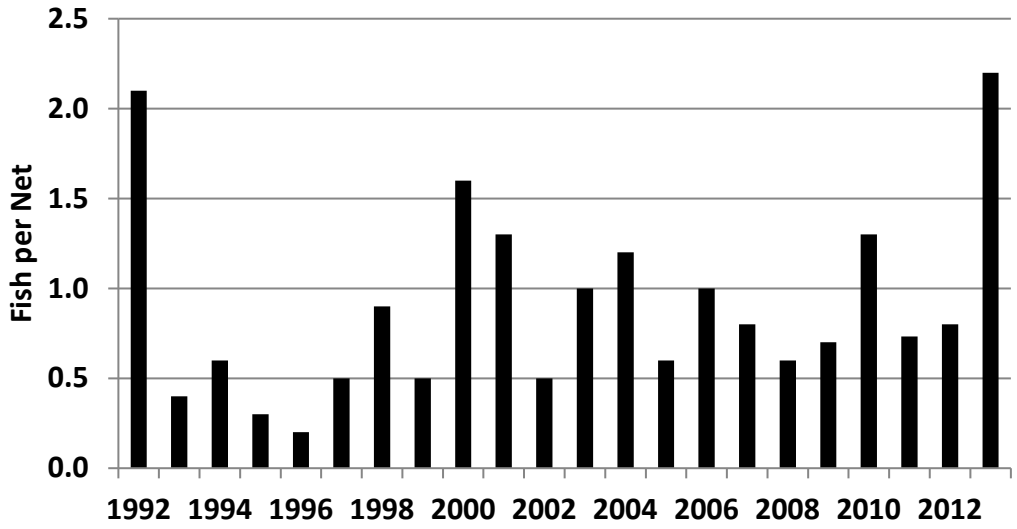

Figure 23. Average annual catches of westslope cutthroat trout in 15 standardized gillnets set in spring, 1992 to 2013 (data from MFWP).

Fish population changes – lake whitefish

We predict a total bycatch of 41,000 lake whitefish ranging in size from 200 to 550 mm TL. This scale of bycatch is not likely to measurably influence abundance of lake whitefish. Changes

in abundance will be monitored by fixed location gillnetting during spring (Figure 24) and random location gillnetting in autumn (Figure 25).

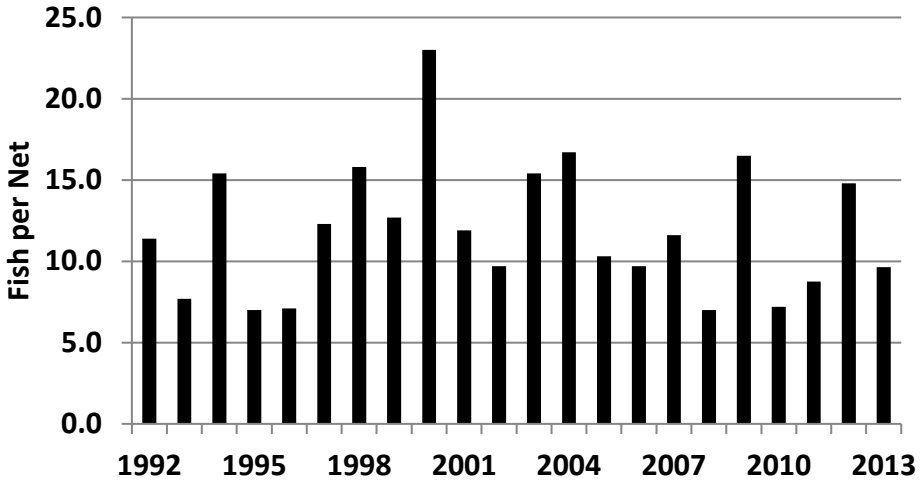

Figure 24. Average annual catches of lake whitefish in 15 standardized gillnets set in spring, 1992 to 2013 (data from MFWP).

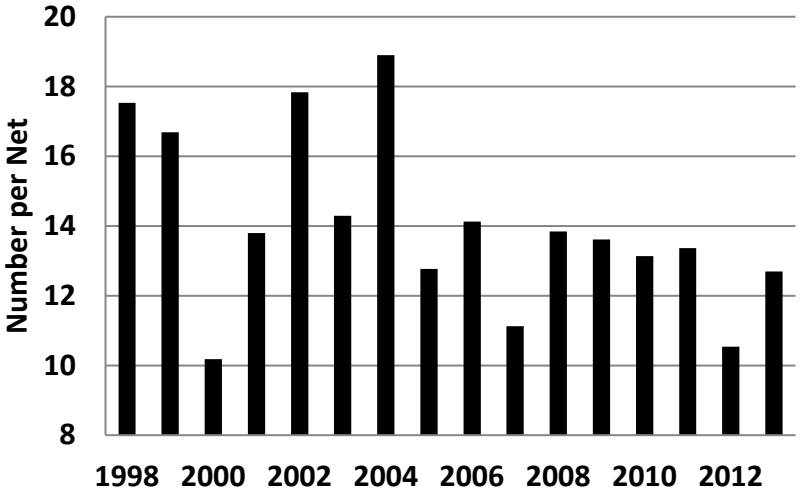

Figure 25. Average annual catches of lake whitefish in stratified random gillnets (from 48 to 96) set in autumn, 1998 to 2013.

Fish population changes – yellow perch

Yellow perch are not monitored effectively because their distribution is very specific to shallow bays. Yellow perch occasionally support very popular fisheries in concentrated areas for short periods of time. We will work to develop better metrics of yellow perch abundance and the fishing activity they support because of the potential for them to change as lake trout abundance changes.

Invertebrate population changes – Mysis diluviana

Mysis are likely to increase in abundance in response to decreased abundance of lake trout. We will coordinate with University of Montana Biological Station to monitor changes in Mysis over time.

Phytoplankton population changes – Chlorophyll A

Phytoplankton are likely to increase in abundance in response to increased abundance of Mysis. We will coordinate with University of Montana Biological Station to monitor changes in phytoplankton over time.

Total angler activity and lake trout catch rates

In 2014 we expect no change in angler pressure on Flathead Lake from previous years. The Flathead Lake and River Fisheries CoManagement Plan directs managers to maintain a viable recreational fishery during the process of reducing lake trout abundance. The CoPlan identified a metric of 50,000 angler-days on Flathead Lake as the definition of a viable fishery. This level has been achieved in only three of the six years in which it was measured (Figure 26). We do not attribute that poor record to any real or perceived changes in the fishery because the data collected to date do not indicate a reduction in the lake trout population or in catch rates for lake trout.

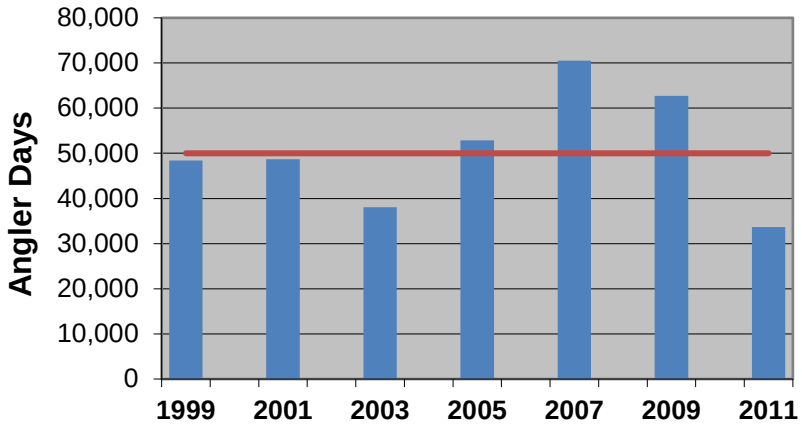

Figure 26. Total angler pressure on Flathead Lake derived from mail-in surveys by MFWP, 1999 to 2011. Red line indicates goal defined in Flathead Lake and River Fisheries CoManagement Plan.

The CoPlan identified a metric of 40,000 angler-days within the entire Flathead River system as a baseline reference to be maintained while reducing lake trout abundance. Current activity in the river system equates to about 50,000 angler days (Figure 27).

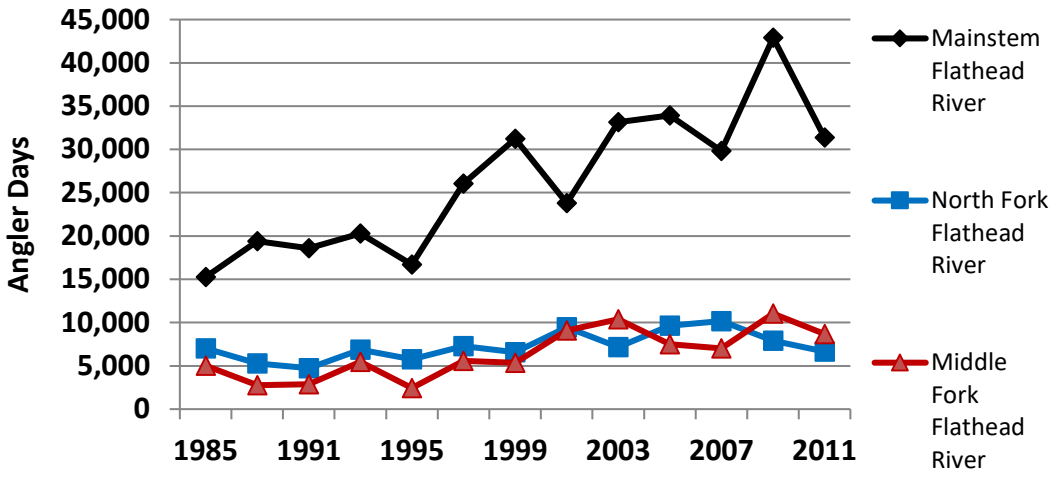

Figure 27. Total angler pressure on segments of the Flathead River system derived from mail-in surveys by MFWP, 1999 to 2011.

Mail-in creel surveys are conducted in odd years by Montana Fish, Wildlife and Parks. The Tribes have suspended annual aerial surveys, so annual estimates of angler activity levels are no longer available. A useful surrogate measure is the number of participants in Mack Days contests (Figure 28). Interpretation of these data requires some caution because of the potential for some anglers to choose to boycott the contests while continuing to fish Flathead Lake.

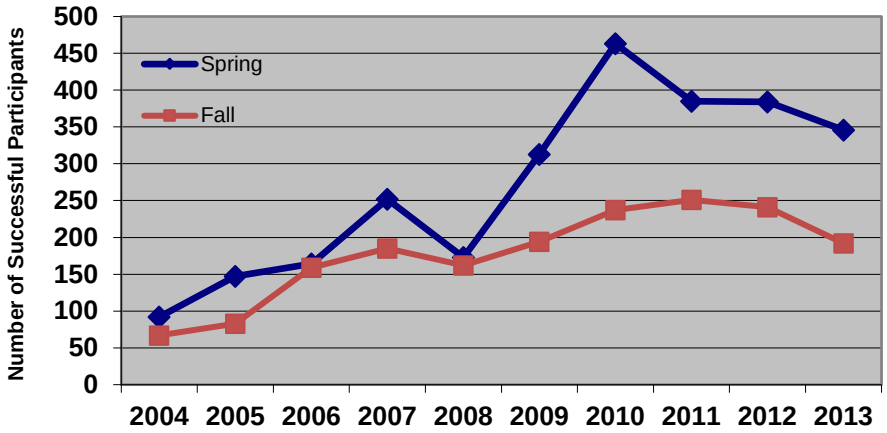

Figure 28. Number of successful participants in the Spring Mack Days (blue) and Fall Mack Days (red), 2004-2013.

In 2014, we do not expect any change in recreational angler's catch rate for lake trout. The average baseline condition, established between 2000 and 2008, for angling catch rates from boats for lake trout is 0.61 lake trout per hour (Evarts 2010). Because we are currently not conducting on-site creel surveys, we no longer generate catch-rate estimates that are comparable to the baseline. Instead we will use a surrogate index to monitor lake trout catch rates during the fishing contests that are based on the daily catches submitted by contestants.

We do not collect specific trip-length information from contestants so we cannot compute standard metrics of hourly catch rates. In addition, we also do not contact contestants on days in which they did not catch any fish and therefore the resulting metric does not include unsuccessful days, which biases the estimate upward. Despite these differences from standard metrics, we expect the bias to be consistent through time, and therefore consider these data to have high utility for determining trends in catch rates over time. We developed two groups based on the top 25 participants and on all participants. We start the trend series in 2009 because that is the year the bag limit was changed from 50 to 100 lake trout.

The baseline condition (average of the last three years) in Spring Mack Days is 25 lake trout per day for the "top 25 group" and 14 for the "all participants" group (Figures 29 and 30). The baseline condition in Fall Mack Days is 27 per day for the "top 25 group" and 17 for the "all participants" group (Figures 31 and 32).

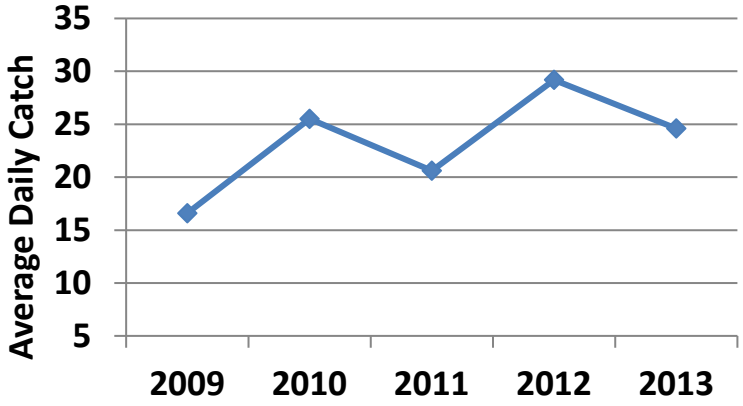

Figure 26. Average daily catch of the "top 25 anglers group" in Spring Mack Days, 2009 to 2013.

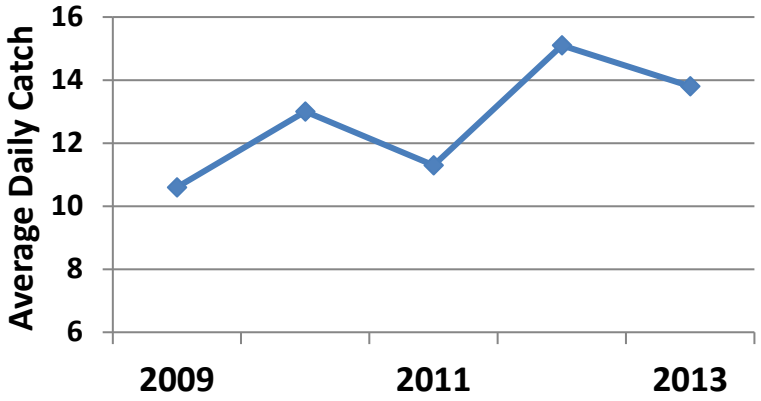

Figure 27. Average daily catch of the "all successful anglers" group in Spring Mack Days, 2009 to 2013.

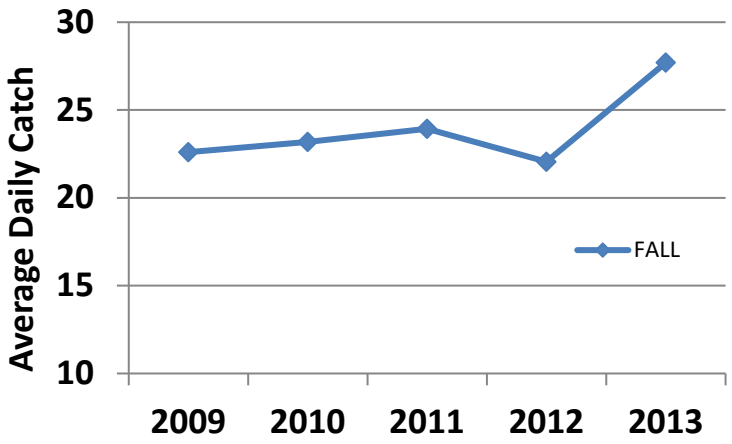

Figure 28. Average daily catch of the "top 25 anglers" group in Fall Mack Days, 2009 to 2012.

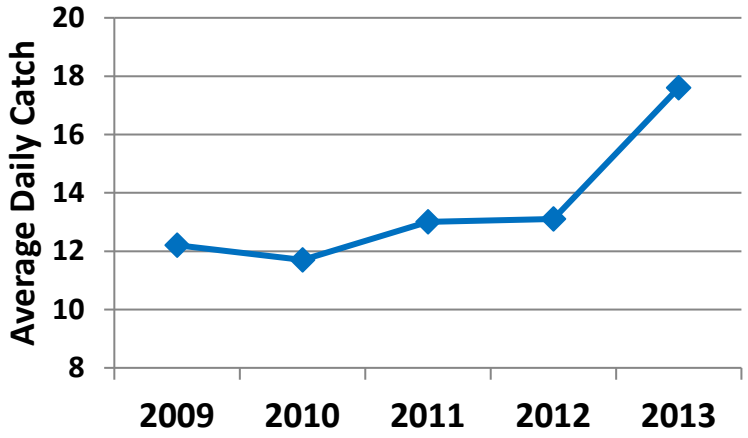

Figure 29. Average daily catch of the "all successful anglers" group in Fall Mack Days, 2009 to 2013.

Decision Process and Adaptive management

Implementation of the suppression program will be evaluated annually. We do not identify any single or even multiple set of metrics to exactly define success or failure of the program. Measurements of biological changes are too imprecise and the system is too complex to distill into simple stand-alone metrics. The Tribes will seek input of all stakeholders in the decision process. The decision process will begin with a technical team resembling the InterDisciplinary Team that prepared the EIS, and represents all the stakeholder agencies in the watershed. The team will include:US Forest Service, National Park Service, US Fish and Wildlife Service, Department of Lands, University of Montana, US Geologic Survey and CSKT.

Analysis process

In January of each year the technical team will convene to review the data collected the previous year. The purpose of the team will be purely to objectively evaluate the data and draw conclusions about the meaning of the data. The team will not be asked to make value judgments or to make management recommendations. The deliberations will proceed in the following steps:

1) CSKT staff will summarize all relevant data collected the previous year.

2) CSKT staff will circulate a summary of the data to the technical team and a predetermined group of external experts.

3) CSKT will present a summary of the data collected the previous year, and the results of expert analysis to the technical team.

4) The team will deliberate on the information provided and produce a consensus summary of the meaning of the results. For example, is a particular metric increasing, decreasing, or uninterpretable.

5) The IDT will prepare a report answering the following questions:

a) Is the lake trout population declining?

b) Is the bull trout population increasing?

c) Is total angler activity declining, static or increasing?

d) Have there been unanticipated consequences (biological changes), or were responses outside the expected range? Likely examples are the effects of bycatch on lake whitefish and indirect effects of lake trout reduction on *Mysis diluviana*.

e) Have the risks (to bull trout, angling activity, etc.) of continued suppression efforts increased? Do those risks warrant an evaluation of continuation of the suppression program?

Based on the answers given for the above questions, the IDT will develop a recommendation for a lake trout harvest target for that year. The report of the technical team will be posted on the mackdays.com website.

Decision process

1) CSKT staff will present the report of the IDT to the Reservation Fish and Wildlife Advisory Board in a public meeting in February.

2) Comments will be solicited by the Board from the public which will have had the opportunity to review the report (available online) prior to the meeting and will be able to ask questions at the meeting.

3) The Board will deliberate on the presentation by CSKT staff and on comments received from the public.

4) The Board will develop recommendations to the Tribal Council based on their conclusion regarding whether the risks to bull trout, to angling activity, etc. of continued suppression efforts are acceptably low, neutral, or unacceptably high?

a) If the Board concludes that risks (to bull trout, to angling activity, etc.) are unacceptably high, the Board will recommend to the Tribal Council that the suppression program be modified or terminated,

b) If the Board concludes that risks are neutral or acceptably low, the Board will recommend to the Tribal Council that the suppression program continue and will then endorse or modify the harvest target generated by the IDT.

c) Tribal Staff will present to the Tribal Council recommendations of the Advisory Board and seek a decision on whether to continue suppression, and if so, approval of an annual harvest target.

d) Tribal staff will take the decision of the Tribal Council and prepare an implementation plan for that year and post it on the mackdays.com website.

Long term Planning

Long term planning will proceed in three stages. The first stage (2014 through 2016) will serve to evaluate the "proof of concept" in which we will determine whether lake trout suppression in Flathead Lake is achievable within the existing budget and whether bycatch of bull trout can be restricted to a level that does not negate beneficial effects of reduced predation by lake trout. If these criteria are not met the suppression program will be defined as either unsustainable (too expensive) or detrimental (too much bull trout mortality) and terminated

In the second year of Stage 1 (2015), we would likely increase the annual lake trout harvest target by increments that will be determined in the annual review process and based on results in the first year. We would likely evaluate trapnetting relative to gillnetting. We would also likely evaluate expanded or restructured bounty-fishing relative to the other angler-based methods of suppression. The scale of a bounty program (whether it would occur off the Reservation) will be subject to approval by the Montana legislature, and details of implementation will be developed in 2015.

In the third year of Stage 1, we would likely gradually increase the annual lake trout harvest target by increments that will be determined in the annual review based on results of the second year of suppression fishing. The range of tools to be employed during the third year will be determined after a full evaluation of the results of the first two years of suppression (see adaptive management section for explanation of evaluation process). Our objective will be to have implemented and evaluated all possible suppression tools before the end of the first stage. At the conclusion of the third year we will comprehensively evaluate risk criteria (affordability of the tools and biological effect of bull trout bycatch) and determine whether proceeding to Stage 2 is warranted.

If these criteria are met and Stage 1 of the suppression program is deemed successful, Stage 2 of the suppression program will begin in 2017 and continue for approximately 7 years. Adaptive changes will be continually evaluated and implemented when appropriate. Results of the program will be disseminated in annual public meetings, and annual reports will be prepared for the Advisory Board, funding agencies and grant organizations, and the USFWS as a condition of the Bull Trout Recovery Permit. Stage 2 bridges the period between Stage 1 and Stage 3 and is unique in that risk criteria will not be evaluated during this period. Stage 2 serves to extend the program through the lag period in which biological responses gradually develop.

Provided there are no unforeseen problems identified in the second stage, Stage 3 of the program will begin in 2024 and will introduce success criteria based on responses of native fish. The 10 year point is selected to accommodate the fact that biological responses to management actions will require at least two generations of bull trout (five years to maturity) and one generation of lake trout (eight years to maturity) after the onset of increased suppression efforts to reasonably evaluate the results. We initially define success as 1) an increase in bull trout and westslope cutthroat trout abundance and 2) maintenance of a level of fishing activity on Flathead Lake equal to or greater than the baseline level occurring prior to efforts to reduce lake trout abundance. These criteria will be evaluated and refined as new information is obtained.