

South Fork Flathead Watershed
Westslope Cutthroat Trout Conservation Program

FREQUENTLY ASKED QUESTIONS
(Updated: Posted Sept 2007)

***Montana Fish, Wildlife & Parks, Bonneville Power Administration,
U. S. Forest Service***

Project Goal: Over the next ten years FWP will chemically treat 21 lakes in the South Fork Flathead drainage to remove nonnative rainbow and Yellowstone cutthroat trout that pose a threat to native westslope cutthroat trout and replace them with genetically pure westslope cutthroat trout.

1. Why are you doing this project, and why now?

From the 1920s to 1960 nonnative rainbow and/or Yellowstone cutthroat trout were planted in some South Fork lakes. Nonnative and hybrid trout pose a threat to the native westslope cutthroat in the South Fork Flathead by migrating downstream from headwater lakes. MFWP is responsible for providing angling opportunities for the public but also for protecting or restoring native species to ensure their long-term persistence. Removing the hybrid trout and replacing them with genetically pure westslope cutthroat would remove this threat, and thus safeguard the pure westslope cutthroat in the South Fork Flathead. This project is very large and expensive. MFWP has an opportunity at this time to fund this project through Bonneville Power Administration's Hungry Horse Dam Fisheries Mitigation Program.

2. What is wrong with the fish in the lakes right now?

Hybrid trout are perfectly good fish for angling, and may even be desirable in some locations. But hybrid trout can pose an unacceptable risk to genetically pure native westslope cutthroat through competition and further hybridization, especially in core conservation areas. In these situations, if the problem is not corrected, hybrids will continue mixing with native westslope cutthroat, and important native populations can be greatly reduced or even lost. Right now the South Fork Flathead River drainage contains nearly half of remaining pure populations of westslope cutthroat trout in Montana, a species that is reduced to occupying less

than 10 percent of its historic range. The concern is that, unless we take action, hybrid trout will eventually replace these native populations. Loss of these populations may increase the likelihood that westslope cutthroat trout become a federally protected species under the Endangered Species Act.

3. Does this mean that fish will be removed from every lake in the Bob Marshall Wilderness and Jewel Basin Hiking Area?

No. Fish would be removed only from the lakes that contain hybrid trout that are serving as a source to contaminate downstream populations. Nearly all of the 350 lakes in the South Fork have been surveyed and catalogued. Fifty of those lakes contain fish but only 21 lakes contain hybrid populations. These include 11 in the Bob Marshall Wilderness, 8 in the Jewel Basin Hiking Area, and 2 in other areas of the Flathead National Forest.

4. What is so special about westslope cutthroat trout?

The westslope cutthroat trout is Montana's state fish and a species of special concern throughout its native range. The South Fork drainage contains the largest remaining interconnected populations of the species in our state.

5. If the hybrid trout are removed from the lakes, will westslope cutthroat trout in the South Fork Flathead drainage remain genetically pure?

Implementing this project would remove the primary sources of hybridization in the South Fork drainage, protecting the remaining pure populations.

6. How do we know if this will work?

MFWP, and many other states, have successfully removed fish from lakes and streams using fish toxicants. Since 1986, six lakes in this project area have been successfully treated to remove undesirable fish. Westslope cutthroat trout were restocked in all six lakes, and they currently are all providing recreational fisheries.

7. How long will this project take to implement?

Approximately 2-3 lakes per year would be treated. This would require about 10 years to complete.

8. What fish toxin would be used and why?

Rotenone and antimycin are the most widely used EPA approved fish control agents used today. Each compound has properties that are beneficial in certain situations. Factors such as rate of detoxification, amount of toxicant needed, mode of transport available to access the project sites, effect on non-target species and performance in streams versus lakes each determine which compound works best in different situations.

9. How does antimycin and rotenone kill the fish?

Antimycin and rotenone kill fish by interfering with oxygen transfer at the cellular level in vital organs. The reason fish are more susceptible to the toxin, compared to other animals, is because it quickly enters the blood stream through the thin tissues of the gills.

10. What else will antimycin and rotenone kill?

At the levels used to kill trout, antimycin has been proven to have no effects on mammals or birds, and only minimal effects on certain amphibians and some insects. At levels toxic to trout, rotenone can kill some insects and has only minor effects on amphibians. Studies throughout the nation, including Montana have determined that these species recover within several weeks to several months following treatment.

11. Would you treat the streams below the lakes, and if so, how far?

Yes. It is important to remove hybrid fish from the streams that flow out of each lake. Each outflow stream would be evaluated on a case-by-case basis and would be treated down to a waterfall or other fish barrier, and/or to a safe distance upstream of non-target populations. At some locations, recharge stations would be installed to maintain lethal concentrations during the treatment. In downstream locations, the stream may be naturally detoxified, or a detoxification station would be installed to neutralize the toxin.

12. How would antimycin and rotenone affect other fish species downstream?

Antimycin breaks down rapidly, and can be contained easily because it naturally detoxifies so quickly. Numerous studies have found that organic substances in streambeds act as a filter to naturally detoxify antimycin treated water. Rotenone also breaks down rapidly, but not as

rapidly as antimycin. Differing performance characteristics of the two compounds provide beneficial flexibility for specific purposes. Both compounds can be neutralized by 20 minutes of contact with potassium permanganate. In some locations, downstream fish must be safeguarded during a treatment. This can be accomplished by applying potassium permanganate upstream of these populations.

13. Won't the antimycin and rotenone contaminate ground water?

No. Antimycin and rotenone detoxify rapidly when exposed to sunlight, and organic substances like soil, rock, wood, and leaves. Once these two compounds enter groundwater, they are rapidly neutralized. Studies have shown that rotenone will travel only 1 inch through soil before being neutralized by organic substances. Field trials have shown that antimycin can be completely neutralized by natural substances in streams such as algae and leaves.

14. Is antimycin or rotenone a threat to human health?

The U.S. EPA has issued a "no threat to human health" classification for rotenone and antimycin at levels prescribed to kill fish. Each lake treatment must be permitted by the Montana Department of Environmental Quality and reviewed by an independent FWP committee. All applicators are licensed by the Montana Department of Agriculture.

15. Can't you use a different method to remove hybrid trout from the lakes?

Ten methods of fish removal were considered: angling, barriers, explosives, genetic swamping, gill netting, seining, trap nets, electrofishing, introduction of a predator fish, and fish toxin. Two of these methods, genetic swamping and fish toxin, have been used in the South Fork Flathead. Literature reviews and past experience have shown that all methods, other than fish toxin, have incomplete results. Fish toxin has been used in many lakes in Montana. From 1986 to 2000 MFWP used fish toxin to successfully remove trout from six lakes in the South Fork Flathead, including one in the Bob Marshall Wilderness. Although MFWP would prefer an alternative to using fish toxins, no other method has a proven record of such thorough success.

16. Why can't anglers just catch all the fish in the lakes and keep them?
Angling has never been demonstrated to be effective in removing every fish from lakes this size. These lakes are in remote locations accessible only by hiking or horseback. This greatly limits the number of anglers that use these lakes. Small fish are not susceptible to angling and complete removal could not be accomplished due to continual reproduction.

17. Why can't you stock another kind of fish to eat all the hybrid trout?
This method has never been proven successful in lakes like these. The most voracious fish-eating species are not native to this area and this type of habitat. This would require introducing a non-native species in designated wilderness. Angling would be greatly impaired for many years during an attempt of this nature.

18. Other methods like electric shock, explosives, nets, and dewatering have all been used to kill fish, why don't you try any or all of those methods?

This is true. However, none of these methods have been proven successful in complete removal of fish from lakes of this size. These methods are especially difficult to implement in remote and rugged terrain, some with limited or no trail access. Use of any or all of these methods would require many additional years to implement and would require an extended presence at each lake. The above methods would be much more disruptive to wilderness values than short-term chemical treatment.

19. Would the lakes be re-stocked with fish?

Yes. All lakes would be restocked the next summer after treatment with genetically pure westslope cutthroat trout to restore angling and provide a source of genetically pure cutthroat to seed downstream areas.

20. Would you continue to stock these lakes into the future?

All of the lakes would be initially restocked in order to establish a population of westslope cutthroat. Some of the wilderness lakes have no trail access or receive little angling use. These may be managed primarily as wild, naturally sustaining, trout fisheries and would continue to provide angling and provide a source of genetically pure fish for downstream needs. Stocking would continue in the remaining lakes to maintain fish densities and angler satisfaction.

21. How long would it be before I can catch a fish in these lakes?

The fisheries would be restored within 1-3 years of treatment depending on the size of fish restocked. Larger fish would be restocked in high use lakes to expedite restoring the fishery. Whale Lake and Tom Tom Lake were treated with rotenone in 2000 and the fishery was restored 10 months later when catchable fish were stocked.

22. The lake I like to fish has big fish in it now; would it have big fish afterwards, and how long would it take to get them back?

Yes. Many lakes in this project have a demonstrated ability to grow large trout. Pure westslope cutthroat trout up to six pounds were collected during inventory work in the last few years. Our intent is to reduce fish-stocking density after treatment, which would reduce competition for food and space and improve the size of fish in many lakes. Since most wild westslope cutthroat are less than 7 years old, the largest sized fish will be available about 6 years after stocking. If older fish are restocked into some of the more popular lakes, angling can be restored within months and trophy fishing could be restored in as soon as 4-6 years.

23. Are the westslope cutthroat trout in the hatchery good enough to restock into the lakes?

Yes they are. The states' westslope cutthroat brood stock was developed from 12 streams in the South Fork Flathead River, and 2 in the Clark Fork River. It is mostly comprised of South Fork Flathead donor populations, making this the best area to use them. This brood stock is genetically pure, genetically diverse, and is the most extensively tested population in the state. Fish from this stock have been used in the South Fork drainage since 1985. Some of the nation's leading fish geneticists from the UM Conservation Genetics Lab helped develop this brood stock; they continue to consult on the monitoring and maintenance of this stock, and support the use of this stock in the South Fork Flathead drainage. Research continues to develop within-drainage stocks to maintain genetic diversity over time.

24. Would hybrid fish remain in the streams below the lakes, and how would you deal with them?

We intend to remove all hybrid fish downstream of the lakes, at least to a point where they can no longer return to the lake, or to where they occur among non-target species like bull trout. Genetically pure cutthroat

moving downstream from reclaimed lakes will repopulate these sections of stream and genetically dilute any possible remaining hybrids. The ability of fish to move downstream from headwater lakes has been clearly established.

25. Won't hybrid fish re-colonize the lakes from downstream?

No. Most of the lakes are located high in the mountains, and the streams that leave them are steep gradient or have barrier falls that prevent upstream movement. Outflow streams that are not steep would be treated down to a waterfall or other fish barrier, or would be treated as far down as possible while safeguarding non-target populations that are downstream.

26. Weren't these lakes historically fishless?

Yes. The government and the public from the 1920's through the 1960's stocked most of these lakes.

27. Why don't you take the fish out of the lakes and not restock them; after all, they were historically fishless?

These lakes were established fisheries long before the area was designated as wilderness. Although they were likely fishless prior to European settlement, they have provided a wealth of sporting opportunity to the area and have helped define the character of the area. Restocking with genetically pure westslope cutthroat has both biological and social benefits, and would help maintain the character and integrity of the existing genetically pure westslope cutthroat trout populations in the South Fork Flathead drainage.

28. Why can't you let nature take its course in the wilderness and in Jewel Basin and leave it alone?

MFWP has the fisheries management authority and responsibility in the wilderness and the Jewel Basin Hiking Area. It is the responsibility of MFWP to protect, maintain, and restore when necessary native westslope cutthroat trout. Letting nature take its course in this case would mean risking the loss of the largest connected populations of westslope cutthroat trout in Montana and would be irresponsible.

29. Why don't we just live with the decisions that were made in the past to stock these lakes with non-native trout?

These lakes were stocked with different needs in mind, for different social reasons, and before species preservation and conservation were concerns of our country and culture. History has shown us that it is difficult and costly to restore a species when it is nearly gone. It would be irresponsible to allow the westslope cutthroat trout in the South Fork Flathead drainage to become hybridized even further. Wild populations are needed to restore other fisheries and maintain westslope cutthroat broodstocks held in hatcheries.

30. Is it MFWP's intention to take our fishing opportunities away?

No. MFWP is mandated by state law to provide an abundance of angling opportunities for the public. MFWP is also mandated to safeguard sensitive species and to take efforts to prevent sensitive species from becoming extinct. All lakes would be restocked with genetically pure westslope cutthroat trout. The South Fork Flathead River and Bob Marshall Wilderness lakes are nationally known for their outstanding fishing opportunities and that will be preserved.

31. Won't dead fish that result from this project attract bears to the lakes?

Lake water temperatures in the fall of the year when the lakes will be treated are typically between 41°F and 46°F. Studies have shown that during cool water treatments, only about 30% of the dead fish ever rise to the surface. Immediately after the treatment, the fish that do rise to the surface would be gathered and sunk in the middle of the lake. Recycled nutrients promote plankton and aquatic insect growth, which are food for westslope cutthroat trout. Dead fish in streams have a tendency to settle in deeper pools and in slow water. Cool temperatures in streams prolong decomposition of fish and would delay the decomposition into the winter months when streams are iced over and most bears are hibernating. Bears (and birds) that eat dead fish will not be affected by the chemicals used.

32. Won't all this activity disturb the wildlife in the area?

There would be minimal disturbance from increased activity in the immediate area. Each treatment would require approximately 4 days or less for set-up, implementation, and clean up. Application by motorboat would last for a single day, and clean up would last a few hours on a

second day. Additional time would be required to pack materials to wilderness lakes with livestock, but this method of transport is in agreement with wilderness values.

33. Why do you need to use a motorboat and water pump in a wilderness area?

Compounds like antimycin and rotenone are administered in such low concentrations that it must be properly mixed to be effective. To assure that the treatment is effective, it must be administered and properly mixed in a single day. A motorboat facilitates quick and complete distribution.

34. How can MFWP use motorized equipment in the wilderness and in Jewel Basin Hiking Area, but the public cannot?

The Forest Service has the authority to authorize short-term use of mechanized equipment to administer the resources of the area. Examples of this include fire suppression, fish and wildlife management, trail clearing, and search and rescue.

35. How can MFWP kill fish and leave them in the lake, but if I do that I'll get a citation?

Unlike private individuals, MFWP has legal authorities to manage public fisheries that include, but are not limited to, studying, collecting, removing, and stocking fish throughout the state. In this instance dead fish are intentionally sunk in the lake away from shore to fertilize the lake for more rapid recovery from treatment. This action is among many biologically based decisions intended to re-establish pure westslope cutthroat populations in these lakes as soon as possible after treatment to remove hybrids is completed.

36. What are the roles of the agencies involved in this project?

With regard to this project, MFWP is charged with maintaining and conserving westslope cutthroat trout for Montana's citizens, and ensuring angling opportunities whenever possible. MFWP decides the species and planting schedules and fishing regulations for fish in these lakes. The Forest Service is in charge of administering the national forest and wilderness lands in the project area, and access to them. The Bonneville Power Administration has the responsibility of mitigating the effects of Hungry Horse Dam on the fisheries of the drainage. This native fish project is part of that mitigation. Bonneville Power Administration

provides this funding under the guidance of the Northwest Power Planning Act and the Northwest Power Planning Council. The U.S. Fish and Wildlife Service has oversight for listed species such as grizzly bears, lynx, eagles and bull trout in the project area. This project went through extensive biological and public review through an Environmental Impact Statement. Decision notices to proceed were signed by all three agencies in 2006.