

South Fork Flathead Watershed
Westslope Cutthroat Trout Conservation Program

Q&A Fact Sheet: June 8, 2004

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

1. Q. Why are you doing this project, and why now?
 - A. The trout in the lakes are hybridized with Yellowstone cutthroat and/or rainbow trout. These hybrid trout pose a threat to the native westslopes in the South Fork Flathead by hybridizing with them. Not only is MFWP responsible for providing angling opportunities for the public but also for protecting, maintaining and restoring native species, and ensuring the long-term persistence of those species. Removing the hybrid trout and replacing them with genetically pure westslopes would remove this threat, and thus safeguard the pure westslopes in the South Fork Flathead. This project is very large and would be expensive. MFWP has an opportunity at this time to fund this project through Bonneville Power Administration's Hungry Horse Dam Mitigation Program.

2. Q. What is wrong with the fish in the lakes right now?
 - A. Hybrid trout are perfectly good fish for angling, and in some areas are desired, but because they carry exotic trout genes, they are a threat to the genetically pure native westslopes in this area. If the problem is not corrected, these hybrids will continue mixing with the native westslopes, and this native species would be greatly reduced or even lost. Eventually much of the South Fork Flathead drainage would be comprised of hybrid trout. The South Fork Flathead River drainage is unique from other large river systems in Montana because it is dominated by native westslope cutthroat trout. Most other Montana rivers are fabulous trout fisheries, but they contain little to no native trout. The other rivers contain almost exclusively non-native trout. The South Fork is unique because it has such a strong native population. The other rivers represent a model of what could become of the South Fork Flathead if this threat of hybridization is not addressed.

3. Q. Does this mean that fish will be removed from every lake in the Bob Marshall Wilderness and Jewel Basin Hiking Area?
 - A. No. Fish would be removed only from the lakes that contain hybrid trout and are serving as a source to contaminate downstream populations. Nearly all of the lakes in the South Fork have been surveyed and catalogued, and there are 21 lakes identified that have hybrid populations. These include approximately 11 in the Bob Marshall Wilderness, 8 in the Jewel Basin Hiking Area, and 2 in National Forest.

4. Q. What is so special about westslope cutthroat trout?

- A. The westslope cutthroat trout is native to Montana and the South Fork Flathead River, it is Montana's state fish, it is a species of special concern in Montana, and the South Fork drainage is one of the largest intact populations of the species.
5. Q. If the hybrid trout are removed from the lakes, will westslope cutthroat trout in the South Fork Flathead drainage remain genetically pure?
- A. Implementing this project would remove the threat of hybridization to the pure westslopes in the South Fork drainage, thus allowing them to stay genetically pure.
6. Q. How do we know if this will work?
- A. MFWP, and many other states, have successfully removed fish from lakes and streams using fish toxin. 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 providing a fishery.
7. Q. How long will this project take to implement?
- A. Approximately 2-3 lakes per year would be treated. This would require about 10 years to complete.
8. Q. What fish toxin would be used and why?
- A. Rotenone and antimycin are the most widely used fish control agents used today. Each compound has properties that are beneficial in certain situations. Factors like rate of detoxification, amount needed, mode of transport available to access the project sites, and performance in streams versus lakes each contribute to which compound would work best in each situation.
8. Q. How does the antimycin and rotenone kill the fish?
- A. 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, over other animals, is because it quickly enters the blood stream through the thin tissue layer of the gills.
9. Q. What else will antimycin and rotenone kill?
- A. At the levels used to kill trout, antimycin has been proven to have no effects on amphibians, mammals and birds, and only minimal effects on some insects. At trout killing levels, rotenone can kill some insects and amphibians. Studies throughout the nation and in Montana have determined that these species recover after an application within several weeks to several months.
10. Q. Would you treat the streams below the lakes, and if so, how far?
- A. 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 until one of the following conditions is met 1) it is naturally detoxified, 2) the stream is treated down to a waterfall or other fish barrier, 3) or to a safe distance upstream of non-target populations. At some locations, recharge stations would be installed to maintain lethality of the treatment. In other locations, the

stream may be naturally detoxified, or a detoxification station would be installed to neutralize to stream.

11. Q. How would antimycin and rotenone affect other fish species downstream?
 - A. Antimycin breaks down rapidly, and can be contained easily because it naturally detoxifies so quickly. Numerous researchers have found that organic substances in a streambed act as a filter to naturally detoxify antimycin treated water. Rotenone can also break down rapidly, but does not as rapidly as antimycin. These differences in performance of the two compounds ads a great deal of flexibility to the method. Both compounds can be neutralized by 20 minutes of contact from potassium permanganate. In some instances downstream fish may need to be safeguarded during a treatment. This can be accomplished by applying potassium permanganate upstream of these populations.

12. Q. Won't the antimycin and rotenone contaminate ground water?
 - A. 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 like algae in a stream, and leaves that have fallen in a stream.

13. Q. Is antimycin or rotenone a threat to human health?
 - A. The U.S. EPA has issued a "no threat to human health" classification for rotenone and antimycin at levels prescribed to kill fish.

14. Q. Can't you use a different method to remove hybrid trout from the lakes?
 - A. Ten methods of fish removal were considered, they are; 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 in the past been used in the South Fork Flathead. Literature reviews and 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 does not like to use fish toxin, it has a proven record of success, even in this project area.

15. Q. Why can't anglers just catch all the fish in the lakes and keep them?
 - A. Angling has never been demonstrated to be effective in removing every fish from lakes this size. These lakes are located in remote locations and require hiking or riding a horse long distance and 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.

16. Q. Why can't you stock another kind of fish to eat all the hybrid trout?
- A. 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.
17. Q. 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?
- A. This is true. However, none of these methods have been proven successful in complete removal of fish from lakes of this size. Even an attempt to use any or all of these methods would require many years to implement and would require an extended presence at each lake. These methods are ineffective at completely removing fish from streams, and are difficult to implement in remote and rugged terrain, some with limited or no trail access.
18. Q. Would the lakes be re-stocked with fish?
- A. Yes. All lakes would be restocked with genetically pure westslope cutthroat trout to restore angling and provide a source of genetically pure cutthroat to seed downstream areas.
19. Q. Would you continue to stock these lakes into the future?
- A. Yes, all of the lakes would be restocked in order to establish a population of 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 population viability and angler satisfaction.
20. Q. How long would it be before I can catch a fish in these lakes?
- A. The fisheries would be restored within 1-3 years 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. Although these fish were not the same size as those removed, it did restore angling and expedited restoring the quality of fishery that was removed.
21. Q. 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?
- A. 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, which would reduce competition for food and space, and improve the size of fish in many lakes. The lifespan of a typical cutthroat trout in these high mountain lake environments is about 6 years. 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 years.

22. Q. Are the westslope cutthroat trout in the hatchery good enough to re-stock into the lakes?
- A. 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 nations leading fish geneticists were closely involved with the development of this brood stock, they continue to consult on the monitoring and maintenance of this stock, they support the use of this stock in the South Fork Flathead drainage, and specifically support it's use in this project.
23. Q. Would hybrid fish remain in the streams below the lakes, and how would you deal with them?
- A. It is the intent to remove all hybrid fish from downstream of the lakes, at least to a point where they can no longer return to the lake, or at the point where they occur among non-target species like bull trout. Genetically pure fish stocked in the lakes would repopulate these sections of stream and genetically dilute any possible remaining hybrids. The ability of fish from the lakes to move downstream has been clearly established, and this tool would be used to accomplish these goals.
24. Q. Won't hybrid fish recolonize the lakes from downstream?
- A. No. Most of the lakes are located high in the mountains, and the streams that leave them are steep gradient, which prevents 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.
25. Q. Weren't these lakes historically fishless?
- A. Yes. Most of these lakes were stocked by the government and the public from the 1920's through the 1960's.
26. Q. Why don't you take the fish out of the lakes and not restock them; after all, that is how they were historically?
- A. 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.

27. Q. Why can't you let nature take its course in the wilderness and in Jewel Basin and leave it alone?
- A. 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 the risk of losing one of the largest populations of westslope cutthroat trout. MFWP also has the fisheries management authority and responsibility in the wilderness and the Jewel Basin Hiking Area. Not addressing this problem would mean risking losing the westslope cutthroat in this area, and would be irresponsible.
28. Q. Why don't we just live with the decisions that were made in the past to stock these lakes with non-native trout?
- A. These lakes were stocked with different needs in mind, for different social reasons, and before preservation and conservation were concerns of our country and culture. History has shown us that it is difficult, to near impossible, to restore a species once it is gone. It would be irresponsible to allow the westslope cutthroat trout in the South Fork Flathead drainage to become hybridized even further.
29. Q. Is it MFWP's intention to take our fishing opportunities away?
- A. No. MFWP is mandated by state law to provide an abundance and diversity of angling opportunities for the public. MFWP is also mandated to safeguard sensitive species and make efforts to prevent sensitive species from becoming extinct. All lakes would be restocked with genetically pure westslope cutthroat trout.
30. Q. Won't dead fish that result from this project attract bears to the lakes?
- A. Lake water temperatures in the fall of the year 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. This would promote plankton growth, which is a food source for westslope cutthroat trout. Dead fish in streams have a tendency to settle out 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.
31. Q. Won't all this activity disturb the wildlife in the area?
- A. 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 of 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.

32. Q. Why do you need to use a motorboat and water pump in a wilderness area?
- A. Compounds like antimycin and rotenone are administered in such low concentrations that it must be properly mixed to be effective. In order for a treatment to be effective, it must be administered and properly mixed in a single day. A motorboat facilitates quick and complete distribution.
33. Q. How can MFWP use motorized equipment in the wilderness and in Jewel Basin Hiking Area, but the public cannot?
- A. The Forest Service has the authority to authorize short-term use of mechanized equipment to administer the resources of the area. Examples of this have included fire suppression, fish and wildlife management, trail clearing, and search and rescue.
34. Q. How can MFWP kill fish and leave them in the lake, but if I do that I'll get a citation?
- A. MFWP has the statutory authority to manage fish and that includes, but is not limited to, studying, collecting, removing and planting fish throughout the state for the public good. No other person or entity has such authority unless permitted by MFWP. It is the responsibility of MFWP to remove these hybrid trout and replace them with pure westslopes.
35. Q. What are the roles of the agencies involved in this project?
- A. 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 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.