

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
1.1		The lakes in question are in our main camp area. We have operated in this area for thirty years and probably know more about the fish in these lakes than anyone associated with this ridiculous plan. These lakes have provided unequalled fishing to our guests and all others that have fished them.
	1.1	This project is designed to preserve this stronghold for native westslope cutthroat trout. This project proposes to re-establish WCT populations in all treated lakes, which will maintain angling opportunities.
1.2		We feel that his plan goes against all that is held sacred in a wilderness area. ... We believe the "Wilderness Act" should be respected and these areas should not be tampered with.
	1.2	Native westslope cutthroat trout are considered a wilderness value. This project is designed to maintain and conserve that value.
1.3		Why should anyone be allowed to tamper with these healthy fish in order to obtain a genetically pure strain of fish?
	1.3	It is the responsibility of MFWP to ensure that this species is conserved and maintained so the public of Montana can continue to use and enjoy it. The species has been at risk of hybridization for some time. MFWP has taken measures to reduce and eliminate the threats (see Section 1.2 of the DEIS). The species has been proposed for ESA listing (see Section 1.4.1 and Appendix B of the DEIS). MFWP is mandated to keep this from happening so the public does not lose the opportunity to use and enjoy WCT (see page 1-8 of the DEIS).
1.4		The plan also flirts with the use of helicopters to carry out the fish kill and poison the lakes. Helicopters are only to be used in the "wilderness" for emergency reasons. Is this an emergency?
	1.4	<p>Both the Wilderness Act and the Fish and Wildlife Management Framework Document for the BMWC provide provisions for using motorized equipment.</p> <p>The Act states specifically states:  <i>...(c) Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including</i></p>

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		<p><i>measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area...(Section 4(c) of the Wilderness Act).</i></p> <p>The <i>Forest Service Manual</i> allows approval of motorized equipment and mechanical transport in the wilderness. (FSM 2326.04). Additionally, the agencies that are involved in this project believe that under the Wilderness Act and the Forest Service's directives implementing it allow the Forest Service to authorize the use of motorized equipment and aircraft to implement this project. The DEIS further explains this in Sections 3.6.3.3 and 3.6.1. The DEIS notes that "[t]he Forest Supervisor may authorize use of motorized equipment or livestock as deemed necessary for the administration of the area and its resources."</p> <p>The agencies believe that the intensity of the wilderness disturbance from the use of motorized equipment and mechanical transport would be very low. There would be no more than 2 of the wilderness lakes or wilderness lake complexes treated in a given year. See Section 2.4.4 of the DEIS.</p> <p>The Fish, Wildlife and Habitat Framework for the Bob Marshall Wilderness Complex goes on:</p> <p><i>The emphasis is on the management of the BMWC as opposed to the management of a particular resource. This language is viewed as discretion that all management activities within the wilderness be done without motor vehicles, motorized equipment, or mechanical transport, unless truly necessary to administer the area or specifically permitted by other provisions in the Act. It means that any such use should be rare and temporary; that no roads can be built; and that wilderness managers must determine such use is the minimum necessary to accomplish the task.</i> Additionally in Section 15 "Use of Motorized Equipment" it states  <i>Guideline: (a) Any use of motorized equipment or mechanical transport requires advance approval through the USFS Forest Supervisor for any management proposal. It is important to include an alternative that does not use motorized equipment. Where there are choices among management options, wilderness values should dominate over other considerations. Managers</i></p>

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		<p><i>should also consider safety and length of time of disturbance to visitors in preparing management options.</i></p> <p>As per this directive, the DEIS considered alternatives to using motorized and mechanized equipment in the wilderness portion of the project area.</p> <p>Section 3.6.5 of the DEIS provides the draft Minimum Tool Analysis that was developed to aid in making decisions about the preferred alternative.</p>
1.5		<p>If anything at all were proposed to eliminate the thriving, healthy fish in these lakes, saturation of the lakes with westslope cutthroats would be the most viable answer. But again, why kill healthy, viable fish only for genetic reasons. We believe this to be true in any location, but especially true in the wilderness which established areas to remain as they are. If fish are allowed to be tampered with in the wilderness, what next?</p>
	1.5	<p>Section 1.2 (pages 1-7, and 1-8) and Section 2.6.4 (page 2-35) of the DEIS addresses this issue.</p>
1.6		<p>These thriving, healthy, big, fat fish [currently in alpine lakes] should not be killed for purely genetic reasons. These fish pose no threat whatsoever to pure westslope cutthroat.</p>
	1.6	<p>It has been known for many years that hybrid trout pose a threat to the remaining pure WCT populations in the SF drainage. See Section 1.2 of the DEIS.</p>
1.7		<p>The plan also flirts with the use of airplanes and powerboats to carry out the fish kill and poison the lakes. Airplanes are only to be used in the "Wilderness" for emergency reasons. Is this an emergency?</p>
	1.7	<p>See response to Comment 1.4.</p>
1.8		<p>What effect on bears etc, eating poisoned fish</p>

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	1.8	<p>See page 3-22 of the DEIS. Appendix D of the DEIS also provide information on the effects of rotenone on mammals.</p> <p>Page 3-56 of the DEIS provides information on human health threats from exposure to antimycin. Much of the information used to derive the values for humans were determined from studies conducted on rats (Stillmeadow 2001). The Schnick (1974a) paper that is cited on page 3-57 of the DEIS reported that guinea pigs and mice have also been used to determine the effects on mammals. The Ritter and Strong (1966) paper that is cited on page 3-57 concluded that mammals suffered no ill effects from eating fish killed with antimycin. On this basis, we would expect the same results with other mammals, including bears, which might consume antimycin-killed fish.</p>
1.9		Another arm of the government obtaining \$ for ridiculous purposes.
	1.9	Comment noted.
2.1		To kill off what you call non-native trout and grayling is the same as killing people because they are not the correct race.
	2.1	Comment noted.
2.2		My family and many of my friends and their families have fished Handkerchief Lake for more than 10 years for the grayling. We make several trips a year to camp and fish for the usually large grayling in the lake. We fly fish in float tubes and release all the fish we catch so we can to continue to experience great grayling fishing. This lake up to last year held the state record for grayling.
	2.2	MFWP would remove as many grayling from Handkerchief Lake using Merwin and Fyke traps and maintain them in a floating net pen in Graves Creek Bay during the treatment of the lake. After the lake is detoxified, these fish would be replaced in Handkerchief Lake.
3.1		It is a good fishery already.

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	3.1	Thank you for your comment and interest in the SF WCT Conservation Program.
3.2		I think if we get involved in it, we will screw up more of the river than just the lakes.
	3.2	Thank you for your comment and interest in the SF WCT Conservation Program.
4.1		We have a healthy fishery right now. We like that the Westslope Cutthroat is a very strong strain and that is pure in the lava areas.
	4.1	Thank you for your comment and interest in the SF WCT Conservation Program.
4.2		It seems like when the fish and game get involved in one of these processes it always takes longer than they think it is going to and usually there is more messes up there than improvements. So we don't want you to fund that process. However, we would like to see you contribute to grade the roads so people can come out to access the national forests. A lot of times these people tear up their vehicles driving up these roads that don't have any funding to go fishing. If they poison those lakes we won't have fish to fish for and roads worth driving on to get to. So a little common sense of letting the fishery that is already there and these lakes remain the same, would save a lot of money maybe a little money to grade roads would allow people to come up in the forest areas to enjoy these lakes. It would be far better use of your money than to allow some government project to be funded that probably won't work in the long run anyway
	4.2	Comment noted.
5.1		During my visits I enjoy fishing some of the wonderful lakes and streams Montana has to offer.

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	5.1	Thank you for your comment and interest in the SF WCT Conservation Program.
5.2		The idea of poisoning some of these wonderful places is frightening. California has tried it with Lake Davis and failed miserably. In my opinion a better plan of attack is letting the anglers handle it by restricting creel limits on native cutthroat and increasing the limits on the unwanted species.
	5.2	This method was evaluated and ruled out due to the reasons listed on page 2-36 of the DEIS.
6.1		I oppose your plan. It will never work in those lakes.
	6.1	Thank you for your comment and interest in the SF WCT Conservation Program.
6.2		There is [sic] 10 pound cutthroat in those lakes. If you kill the fish in the lakes, how many years will it take to get fish that size back? The lakes you want to kill out are the best fishing lakes we have. Leave them alone.
	6.2	Westslope cutthroat trout typically live for 6-7 years in these lake environments. Many of the lakes would be restocked with a number of catchable WCT to restore the fishery as quickly as possible. Assuming 2-3 year old fish are replaced, quality angling would be restored within 1-2 years, and trophy angling would be restored within 4-5 years. However, fish in the 5 to 10 pound range are relatively rare in these mountain lakes. Although anglers have reported fish in this size range, the largest fish confirmed recorded from these high altitude lakes has been about 6 pounds.
6.3		It is a nice gesture on your part, but I think it will be a waste of time and money.
	6.3	Thank you for your comment and interest in the SF WCT Conservation Program.

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7.1		I'm in favor of the concept of preserving the genetic purity of Westslope cutthroat trout in the South Fork drainage.
	7.1	Thank you for your comment and interest in the SF WCT Conservation Program.
7.2		I have low confidence in the ability of the USFS and MFWP to achieve the stated goals.
	7.2	Thank you for your comment and interest in the SF WCT Conservation Program.
7.3		Removing the administration of this program from the hands of federal and state funded agencies would very likely increase the probability of success and reduce costs. Government agencies are much less effective simply because they're not required to be financially responsible. They're not financially responsible because they don't need to show a profit; they're able to spend freely without consequences. And, they tend to make decisions based upon job and benefit preservation. This program is destined burn through a bunch of money with a low probability of success. And, this comment and public meeting-open house forum is a boondoggle – you're going ahead with the program anyway.
	7.3	Thank you for your comment and interest in the SF WCT Conservation Program.
8.1		Although I don't agree with this proposal at all, I can understand the concern regarding brook trout and rainbow trout threatening native bull and cutthroat. Where this is a problem I can understand wanting to prevent widespread population of these species.
	8.1	Thank you for your comment and interest in the SF WCT Conservation Program.
8.2		Grayling are a rare fish in Montana, in the lower 48 states for that matter, and require special habitat to survive. There has been consideration to giving them T&E species protection because of their scarcity. However, because of the rare habitat, they are doing exceptionally well in

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		Handkerchief lake. Other than consuming some food, they do not pose a threat to other fish. Genetically they are no threat to either the Bull Trout or the Cutthroat trout like brooks and rainbows.
	8.2	See page C-8 of the DEIS, which draws a similar conclusion.
8.3		I am an avid fly fisherman, and have fished handkerchief lake for 8 years, multiple times every year. I have caught and released hundreds of fish in this lake and have only caught grayling and cutthroat, never another species.
	8.3	Handkerchief Lake harbors a population of hybrid trout consisting of Yellowstone cutthroat, westslope cutthroat, and rainbow trout. In addition there has been a large number of grayling stocked in the lake since 1954. See page C-8 of the DEIS. Although the fish you caught may look like a cutthroat trout, the genetic make-up of many trout in this lake consists of all three species.
8.4		The proximity of the lake with falls upstream and downstream somewhat confine the grayling. Although some do go downstream to the reservoir, the habitat in the deep water is not conducive to grayling and they cannot compete with the cutthroat and bull trout in this environment. (They probably provide a food source for the large Bull Trout!)
	8.4	Thank you for your comment and interest in the SF WCT Conservation Program.
8.5		Please do not proceed with this poisoning proposal, and if you must, please exclude Handkerchief Lake!!!!!!
	8.5	Handkerchief Lake harbors hybrid fish. This lake is a valuable fishery for both trout and grayling. Provisions are proposed to limit impacts to the grayling fishery by removing many large fish and releasing them back after the treatment. See response to Comment 2.2.
9.1		I think that the less expensive method called (SWAMP OUT) would give the same end results with stocking of native cutthroats until they reproduce into genetically pure populations. The (swamp out) method would leave the lakes fishable while the regeneration takes place.

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	9.1	The swamp out concept has not proven to be completely successful in removing hybrid trout. See response to Comment 1.5.
9.2		The use of rotenone will attract every bear in the surrounding area and would be a threat to hikers and campers for quite some time. I have seen this happen when the Fish and Wildlife used this method on lake Five, Halfmoon and Mud Lake in the 60's. The dead fish ATTRACTED both Grizzly and Black bears from Glacier and the surrounding area.
	9.2	Many things have changed since the 1960s, including the protocol for implementing a rotenone treatment. Since the 1980s, the protocol has included collecting and sinking fish that surface after a rotenone treatment. The same protocol would be implemented in this project. Parker (1970) reported on the factors that influence dead fish surfacing after a rotenone treatment. The DEIS further addresses this issue on pages S-5, 3-20, 3-54, 3-56, 3-58, and in Appendices C and D.
9.3		<p>The rehabilitation of the lakes in the South Fork of the Flathead should not be the responsibility of the BPA.</p> <p>The Montana Fish Wildlife and Parks are the responsible party for the decline of the native Cutthroat and Bull Trout in the Flathead River Drainage System. ...</p> <p>The Montana Fish Wildlife &amp; Parks have to be held accountable for their actions, not the BPA.</p>
	9.3	Thank you for your comment. Please see Section 1.5 of the DEIS.
9.4		<p>There were a number of things that led up to the decline of the native trout. After the devastating flood of 1964 which reduced the number of all fish in the North and Middle Forks of the Flathead the MFWP left the 10 fish limit on Cutthroat rather than do a lesser limit or even better a catch and release method until the fish increased in population. In 1965 I discussed this issue with Montana fish and game officials in Kalispell office and their reply was that no one would buy a license if they put a catch and release or a restricted limit on cutthroat and Bull Trout.</p> <p>It took quite a few years before the FWP put a lesser limit on Cutthroat and a catch and release on Bull Trout. The MFWP would have been better off with the loss of revenue in license sales ,if any than the loss of the Native fish in the Flathead drainage.</p>

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		The MFWP CAN ONLY HOLD THEMSELVES RESPONSIBLE for the loss of the Kokanne salmon in the Flathead river system by the introduction of myhiss [sic] shrimp in Flathead Lake which had already been tried in Idaho without success. The increase of Non -Native Lake Trout in Flathead Lake also took its toll on cutthroat.
	9.4	Comment noted.
9.5		The ILLEAGLE [sic] introduction of Northern Pike into the Flathead drainage is taking its toll on native fish. The [sic] MFWP now have a limit on the NORTHERN PIKE. "WHY"?
	9.5	Northern pike are outside the scope of this EIS.
10.1		George Lake is a self-contained lake with no possible way for the trout to leave that lake. There is a 1,000 ft. waterfall at the end of the lake.
	10.1	Much of the spawning in the high mountain lakes of the Swan Range occurs in inlet streams and also in the short reaches of streams at the lake outlets. This is also true for George Lake. Young fish are frequently washed downstream shortly after hatching, particularly during high flow, and reside in the streams below the lakes. This is the primary mode of hybrid trout leaving the lakes.
10.2		My family, friends and I have been hiking into George Lake for the last two decades and thoroughly enjoyed the fishery in there. It contains eastslope cutthroat and westslope cutthroat. We do not mind at all about the hybrid fish. The reintroduction would eliminate the fishery for five to ten years. We do no want that to happen. The survey I have taken, 100% of my friends and family would like to see this particular lake left as is. So I hope that lake could be an exception to the rule.
	10.2	We acknowledge that George Lake offers quality angling right now. It also harbors hybrid trout that pose a threat to downstream westslope cutthroat trout populations. Please see response to Comment 6.2.
11.1		The EPA supports the stated goals and objectives of the proposed project to preserve native genetically pure fluvial and adfluvial westslope cutthroat trout populations in the South Fork Flathead drainage, and to avoid and minimize adverse environmental impacts.

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	11.1	Thank you for your comment and interest in the SF WCT Conservation Program.
11.2		We also recommend that maintenance of naturally functioning aquatic ecosystems and compliance with State Water Quality Standards be included among the project goals.
	11.2	See response to Comment 11.14.
11.3		One of our primary concerns with the proposed project involves the need for additional details and information regarding project monitoring and evaluation and adaptive management. Monitoring and evaluation and adaptive management should be critical elements of this conservation program, particularly since there is uncertainty associated with the effects of the proposed activities. There should be a continuing process of planning, implementing, monitoring, and evaluating effects of project implementation, and adjusting implementation and/or mitigation when and where necessary.
	11.3	Using historical and recent data collected by MFWP will aid in determining pretreatment conditions. Post treatment monitoring would provide information to compare and inform adaptive management. Project implementation would be continually improved upon where possible to provide the best possible outcome for safety and success.
11.4		We are pleased that the DEIS indicates that post-treatment monitoring would be conducted, but we are concerned that only general descriptions of monitoring activities are provided. The monitoring program to assess post-treatment effects and natural recovery or repopulation of the lakes by indigenous species should be more fully described, particularly monitoring for non-target species present in or around the lakes (e.g., macroinvertebrates, plankton, fish, amphibians, reptiles, birds, wildlife, etc.). Additional details of the monitoring efforts and adaptive management strategy should be presented to assure that consistent and meaningful information/data and is generated to evaluate effects of project implementation.
	11.4	Post treatment monitoring is discussed in the monitoring plan on page 2-25 of the DEIS. Also, see responses to Comments 11.40, 11.43, 11.52, 31.7, and 35.13. We have added more information about monitoring to Section 2.4.5.

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11.5		We also believe it is important to have contingency plans in the event that treatments do not eradicate the entire hybrid trout population, and in the event that continuing illegal reintroduction of non-native trout occurs after the proposed treatments. It is important to project success to both eradicate hybrid trout, and prevent the reintroduction of non-native trout into these lakes. We are concerned that the DEIS contains little information about the actions that would be taken or the strategy that would be employed to reduce these risks, particularly the risk of continuing illegal reintroduction of non-native trout. Contingency planning should also cover the unintended spill or release of toxic or hazardous chemicals during project implementation.
	11.5	See response to Comment 11.27.
11.6		We recommend that a clear and complete list of advantages and disadvantages of the two proposed fish toxins, rotenone and antimycin, be provided, along with further discussion regarding use of one toxicant vs. the other. Such information will assist the decision maker and the public in understanding and evaluating the proposed use of the fish toxins.
	11.6	We have added this table to Appendix D. Appendix C provides a discussion on a lake-by-lake basis about the reasons why one toxicant was preferred over the other. The two principle reasons in choosing one toxicant over the other are the performance advantage for a specific application, and the amount of material required when considering the transport limitations and method.
11.7		We note that it will be important to use appropriate mitigation measures and management practices during project implementation to minimize the potential for human exposure to the piscicides and potassium permanganate.
	11.7	Section 3.9 of the DEIS lists methods of limiting human exposure to the materials.
11.8		The DEIS identifies genetic diversity issues associated with restocking the treated lakes with M012 brood stock. These issues include: 1) potential reduction of westslope cutthroat trout genetic diversity by restocking with a single M012 genetic stock, which may result in a monoculture exhibiting little genetic diversity; and 2) potential dilution of natural genetic uniqueness exhibited in adaptations and phenotypic variations of local westslope cutthroat trout. We recommend that the

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		FEIS explain more fully how these concerns will be addressed.
	11.8	See response to Comment 11.59.
11.9		Also, few specifics are provided regarding potential restocking of the lakes with other native non-target species that may be affected by treatments (e.g., macroinvertebrates, plankton, fish, amphibians, reptiles, birds, wildlife, etc.). We are concerned about potential loss of native non-target species, since proposed fish toxicants and potassium permanganate, used to neutralize the toxins, can be lethal to many aquatic organisms. The loss of non-target species and impacts on overall aquatic ecosystem integrity is an important issue. If some of indigenous species depend on isolated headwater habitat in the lakes or have evolved within the isolated headwater habitat they may not easily repopulate the lakes and may need assistance in repopulation. Restocking and other proposed efforts to restore or compensate for unavoidable impacts that may occur to all affected species should be more fully addressed.
	11.9	See response to Comments 11.47 and 11.60.
11.10		We also believe the potential effects of continuing to restock fish in originally fishless lakes should be more fully evaluated and disclosed in the FEIS. The introduction of trout to support recreational fisheries in lakes that were formally fishless has potential to affect lake ecology. Predation by introduced trout consumes native amphibians and benthic invertebrates and can reduce the population of larger zooplankton, which are effective grazers of the phytoplankton. With the restocking of fish to lakes that were originally fishless, additional biomass is added to the lakes that can influence nutrient cycling and can have unintended effects to water quality and the biological integrity of the lake.
	11.10	Restocking the lakes is not one of the decisions that would be made from the information in this EIS. See Sections 1.4.2.2, 2.4.6, and 3.2.4 of the DEIS. Montana Fish, Wildlife & Parks will manage fish populations in the lakes in the future to maintain established values as described in the DEIS.

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11.11		We recommend that restocking of fish to originally fishless lakes be based on monitoring and evaluation and full understanding of how lake ecology is affected by fish restocking. We recommend that a cautious approach to the trout restocking program be taken and that the stocking program be accompanied by a sufficiently robust monitoring and evaluation program to evaluate ecological effects of stocking fish in lakes that were originally fishless. Maybe some of the lakes should be left fishless for long-term monitoring and ecological comparison with lakes that are restocked? We note that decisions were made in the past to introduce non-native trout to these lakes without careful, thoughtful evaluation, and full consideration of potential ecological effects. This led to the ecological problems creating the need for this proposed project. We think it would be appropriate to proceed cautiously in restocking of fishless lakes, and to base restocking decisions on careful evaluation of monitoring data and information and full understanding of ecological effects.
	11.11	Thank you for your comment. Creating fishless lakes is not a goal of this project.
11.12		Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the South Fork Flathead Westslope Cutthroat Trout Conservation Program DEIS has been rated as Category EC-2 (Environmental Concerns - Insufficient Information).
	11.12	We have added new information in all the resource categories throughout the FEIS.
11.13		The EPA supports the stated goals and objectives (page 1-9) of the proposed project involving preservation of native genetically pure fluvial and adfluvial westslope cutthroat trout populations in the South Fork Flathead drainage, and avoiding and minimizing adverse environmental impacts.
	11.13	Thank you for your comment and interest in the SF WCT Conservation Program.
11.14		We also recommend that maintenance of naturally functioning aquatic ecosystems and compliance with State Water Quality Standards be included among the project goals.

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	11.14	There are many naturally functioning aquatic ecosystems in the project area that would not be affected. We would comply with State Water Quality laws.
11.15		Thank you for including Table 2-1 (page 2-5) showing the lakes proposed for treatment, treatment method, method of equipment transport, outlet streams and detoxification measures, Table 2-4 (page 2-28) summarizing the proposed action, and for including the lake descriptions in Appendix C, and additional information on lake treatments in Table C-2 (page C-59). This greatly increases public ability to understand the proposed project.
	11.15	Thank you for your comment and interest in the SF WCT Conservation Program.
11.16		It is stated that likely rotenone dosage would be 1 mg/l, and antimycin dosage 7.5-8 ug/l (page 2-14), and that these target concentrations are based on assays conducted by MDFWP, although it is also suggested that higher levels may be needed based on water chemistry and fresh water inputs. It is our understanding that the 1 mg/l concentration of rotenone is based on using a five percent rotenone solution, so that the actual target concentration of the rotenone active ingredient would be 50 ug/l of rotenone (1 mg/l x 0.05 = 50 ug/l, page 3-54).
	11.16	The DEIS states on page 2-9 that the liquid rotenone is the preferred formulation for this project, and on page 2-14 is a definition and description of the how the rotenone dosage is calculated. The rotenone label provides information on both formulation and active ingredient. Directions for application, provided on the label, refer to the material as either “formulation” or brand name Toxicant. In some places, the label generically refers to the formulation as “Rotenone.” For ease in interpretation, the DEIS has referred to the toxicant as “rotenone” or “formulation.”
11.17		It is stated that antimycin is shipped by the manufacturer in two parts: the active ingredient of antimycin with some residual fats or lipids, and an acetone - detergent surfactant (page 2-10). We understand that the antimycin formulation used would be a 50:50 mixture by volume of the two parts. It should be clarified if the projected reference dose of 7.5-8 ug/l of antimycin is the concentration of the active antimycin ingredient or of the 50% formulation (which would appear to make the target dose concentration of antimycin approximately ~4 ug/l). Is our understanding regarding the target dosage of the antimycin active ingredient correct?

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	11.17	<p>Concerning rotenone: The label lists the active ingredient rotenone at 5% and other active ingredients that are 5% (or higher in the powder form). A 1 ppm formulation would therefore supply 0.05 ppm of what is called "active rotenone." Common practice has been to refer only to the rotenone powder (or liquid) as the concentration to deliver because that is the final form in which it is shipped to us to apply. This is what we understand when we read the scientific and field literature about applying rotenone formulations and/or powders.</p> <p>Concerning Antimycin: The EPA analyst has attempted to apply the same calculation method to Fintrol Concentrate (antimycin). The difference in this case is that since Antimycin A complex is a relatively pure product compared to rotenone powder/formulation, the dosages have always referred to the amount of Antimycin A (the only active ingredient) when calculating concentrations for application. Since we only calculate dosages based on the active ingredient that is actually delivered, the additional inactive ingredients in the Fintrol Diluent do not affect the final dosage of Antimycin A. The dosage of Antimycin A (which is the active ingredient) is calculated based on the actual amount of the active ingredient being applied and not on the total formulation whether mixed with diluent or not.</p> <p>We generically refer to Antimycin A when calculating the dosage because when Ayerst made the product there were many confusing dosage formulations. For instance, there were sand formulations of Fintrol 5, Fintrol 15, Fintrol 30, a Bar formulation Fintrol as well as the Fintrol Concentrate liquid. Therefore, referring to dosage amounts for the final formulation would have been very confusing because they would have been different for each different formulation.</p>
11.18		<p>We are interested in seeing the lowest concentration of rotenone and antimycin used that will be effective at removing hybrid trout, in order to minimize adverse effects to other non-target species. We recommend that the lowest dosages of rotenone and antimycin that will achieve effective removal of target species be used in order to minimize adverse effects to non-target species. We believe it would be appropriate to identify the maximum expected concentration of these piscicides</p>

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		that would be used in order to better understand the potential impacts of proposed piscicides upon non-target species.
	11.18	The rotenone label provides guidelines for application rate. For normal pond use, the label recommends applying 0.5 to 1.0 ppm of formulation. Lab studies by MFWP indicate that 100% mortality of WCT can be achieved within 2 hours of exposure to 1ppm formulation. Based on this, following the application rate prescribed by the product label, 1ppm formulated rotenone would be sufficient to meet the objectives of this project. The antimycin label provides prescriptions to remove trout. The label also recommends conducting on-site assays to determine the appropriate amount of antimycin required to meet the objective.
11.19		<p>Some websites with useful information on the proposed piscicides include:  <a href="http://www.epa.gov/pesticides/">http://www.epa.gov/pesticides/</a>  <a href="http://www.epa.gov/oppsrrd1/REDs/factsheets/rotenone_fs.pdf">http://www.epa.gov/oppsrrd1/REDs/factsheets/rotenone fs.pdf</a>  <a href="http://msds.pdc.cornell.edu/msds/msdsdod1a92/m95857.htm">http://msds.pdc.cornell.edu/msds/msdsdod1a92/m95857.htm</a>  <a href="http://msds.pdc.comell.edu/msds/msdsdod/a48l/m240264.htm">http://msds.pdc.comell.edu/msds/msdsdod/a48l/m240264.htm</a></p> <p>We understand that Antimycin A currently has 1 active registration, Fintrol Concentrate (registration # 39096-2). The latest label is dated November 29, 1999. This “piscicide” is slated for reregistration sometime after 2006. The current chemical review manager is Mr. Dirk Helder, (phone, 703-305-4610).</p> <p>Rotenone appears to have several active registrations (e.g., registration #'s 299-227, 655-421, 655-422, 655-804, 655-805, 655-806, 769-414, 1439-157, 1439-260, 5481-313, 6458-6) which can be researched at the EPA pesticides website shown above.</p>
	11.19	Thank you for your comment.
11.20		Reasoning is presented (page 3-12) to explain why antimycin is a preferred fish toxin rather than rotenone in the 13 lakes in which bull trout occur downstream of the treated lakes (i.e., rapid detoxification in flowing streams, requires much lower quantity to kill fish, less bulky and easier to transport-fewer aircraft and packtrips and associated transport impacts). Antimycin is also less

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		toxic to amphibians and other non-target species. However, it appears that there is greater experience with using rotenone than with use of antimycin, and that rotenone may be less expensive and more available, and that the chronic exposure public health risk for use of rotenone may be less than for antimycin (see our public health comment #27 below). We believe it would improve public and decision maker understanding to provide a clear and complete list of advantages and disadvantages regarding use of rotenone and antimycin, and further discussion regarding use of one toxicant vs. the other to allow the decision maker and the public to better understand and evaluate advantages and disadvantages of use of either toxicant.
	11.20	We have added this table to Appendix D.
11.21		It may be difficult to apply or precisely maintain consistent piscicide concentrations throughout the lakes due to practical considerations associated with difficulties of maintaining consistent piscicide concentrations horizontally and vertically in the lakes with applications by aircraft, boats, and drip stations and using boats for lake mixing and hoses and pressurized equipment to distribute toxins to deeper depths (page 2-22). It would be of interest to include additional discussion regarding piscicide monitoring and piscicide concentration gradients that may occur during treatments, and how piscicide application and mixing considerations would be managed to maintain the desired range of target dosages. Our interest is understanding how large variations in piscicide concentrations within the lakes and significant exceedances of toxic concentrations, and thus, additional impacts to non-targeted species would be avoided. It is important that efforts to avoid impacts to non-targeted species are described, and that unavoidable impacts to non-targeted species and overall ecosystem integrity are fully disclosed and mitigated.
	11.21	These products are approved by EPA for our proposed use and we would follow all applications instructions and restrictions on the product labels. Both rotenone and antimycin products contain inert ingredients that help them to be soluble in water. For this reason, the toxins are able to penetrate into deep water. Numerous applicators have reported that topical application of both rotenone and antimycin can be made in water bodies up to 30 feet. As an added measure, applicators on this project would apply toxin at varying depths to ensure proper mixing. Laboratory tests conducted by MFWP coupled with numerous field applications support the importance of achieving proper mixing of both compounds.

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		<p>The rotenone label indicates that formulated rotenone "...will disperse readily in water both laterally and vertically, and will penetrate below the thermocline in thermally stratified bodies of water." The label further states that "...product be uniformly applied over the water surface or bubbled through underwater lines." This project will employ both methods to ensure complete distribution throughout the water body.</p> <p>The antimycin Use Direction Leaflet indicates the product "...can be applied to lakes and ponds by the boat bailer method or spray equipment...boat bailer and drip tubes when applied at the propeller wash are useful at greater depths..."</p> <p>The commenter raises questions about "...understanding variation in piscicide concentrations within lakes and significant exceedances of toxic concentrations..." When applied at the prescribed concentration, there should be no significant exceedances. There is no way of precisely determining the concentration of fish toxin in a water body during the application process. It is recognized that proper mixing is both important and required to achieve the desired results. Measures to ensure proper mixing include following mixing directions offered on the product labels, and to use water pumps, ventury apparatus harnessed to outboard motors, and spray apparatus to evenly distribute the compounds to all zones of the lakes and stream, including deep water zones.</p> <p>Some non-target organisms would be impacted including some amphibians, some insects and some plankton. The extensive literature, and MFWP field trials and laboratory studies have demonstrated that these impacts will be minor and short term.</p>
11.22		<p>It is suggested that a dosage of potassium permanganate for detoxification would be 4.5 ppm (page 2-10) which includes 1.5 ppm to neutralize the fish toxin, and 3 ppm to account for the organic demand in the stream, although the amount may vary depending upon stream demand (page 2-14). The DEIS also states that bioassays show potassium pennanganate toxicity to westslope cutthroat trout at 1.5 ppm (page 2-10). It would appear likely, therefore, that there is significant potential for potassium permanganate used for piscicide detoxification to kill aquatic</p>

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		<p>biota itself, including biota of non-target species (e.g., amphibians, invertebrates). What precautions or mitigation measures are proposed to assure minimal effects on non-target species from use of potassium permanganate? Can locations of detoxification stations be identified? How far downstream from detoxification stations on streams will potassium permanganate or piscicide toxicity be evident to aquatic life?</p>
	11.22	<p>The laboratory studies conducted by MFWP represented extended exposure times (24 hours) and were conducted in aquaria with static water and with no other substance available to react with the potassium permanganate. This provided a worst-case scenario to measure toxicity of the compound to fish. It is widely recognized that this compound is very reactive to organic substances, and only requires 20-30 minutes of contact time to neutralize rotenone. The rotenone product label recommends measuring the organic demand of the stream, then over applying to ensure enough of the compound is available to neutralize the rotenone. During natural breakdown, this compound is reduced to its parent constituents which are potassium, manganese and water.</p> <p>Any unintended impacts to aquatic biota would likely be limited to the length of stream within the 30-minute travel zone immediately downstream of a detoxification station. Lab assays by MFWP indicate that tailed frog tadpoles exposed to 3 and 4 ppm potassium permanganate experienced 13% mortality at 16 and 24 hours, respectively. It is not known what the specific impacts would be from potassium permanganate, but given its reactive nature, and the already recognized impacts stemming from rotenone and antimycin exposure, results indicate that there would be no additional impacts beyond those described for the fish toxins.</p>
11.23		<p>It is stated that bull trout are not found in any of the lakes to be treated, but they do occur in associated drainages downstream of some lakes (page 3-9). It is important that the bull trout, a threatened species, is not unduly impacted by the proposed project. We understand that the U.S. Fish &amp; Wildlife Service (USFWS) has concurred that the proposed project does not have potential to cause an adverse effect on bull trout, impair suitable habitat necessary for the survival for the local population of bull trout (i.e., biological determination of, "may effect, but not likely to adversely affect," page 3-14). We note that it is important that toxicity in streams draining the lakes be neutralized before the bull trout sections of the streams are reached.</p>

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	11.23	This project will follow the guidelines recommended by the USFWS during Section 7 ESA consultation. We acknowledge that applying fish toxins and potassium permanganate in waters upstream of bull trout populations may affect some individuals, but is not likely to adversely affect the bull trout population.
11.24		It is stated that sentinel fish cages would be used in concert with potassium permanganate detoxification stations to evaluate effectiveness of treatment and to monitor effectiveness of detoxification (page 2-11). It is also stated that several days are anticipated to carry out detoxification and post-treatment cleanup (page 2-4), and that piscicide treatments are proposed to occur just before lake ice-up occurs (late September to early November). Cold water temperatures, reduced water oxygenation and reduced sunlight after lakes ice-up are likely to reduce the rate of toxin decomposition. It appears, therefore, that unless the fish toxins are fully detoxified before lake ice-up there may be potential for residual toxicity to remain for long periods after the lakes ice over. Will full detoxification be required before lakes ice-up? We would expect additional potential for impacts to non-target species if long periods of toxicity are allowed, particularly with rotenone use. We believe that detoxification should occur before lakes ice up.
	11.24	<p>Waters within the target area would be monitored using caged fish to confirm both lethality and neutrality of treated water both upstream and downstream of potassium permanganate detoxification stations. The product labels recommend this practice. Long periods of toxicity are not likely to occur as there are a number of factors that work to degrade these compounds below levels toxic to fish including pH, temperature, depth and turbidity. These factors can accelerate and/or retard the effect on fish and/or detoxification. The project area would be monitored according to product labels up until the water has been detoxified according to the milestones defined by the label (i.e., caged fish survive 24 hours of exposure to treated waters).</p> <p>The rotenone label re-entry statement indicates "...swimming may occur in treated waters only after the application is completed and treated water is thoroughly mixed according to the label instructions..." The antimycin label re-entry statement indicates "...no swimming, drinking, or irrigation should be allowed until caged fish survive 24 hours in the treated waters..."</p> <p>Literature indicates that both rotenone and antimycin degrade rapidly.</p>

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		<p>Treatments may be implemented in late September and early October to ensure ice up doesn't occur too soon after application. This will take advantage of water temperature, solar radiation, and limnetic turnover to aid in natural detoxification to levels below that toxic to fish.</p> <p>Thermal measurements collected on several lakes over the past few years indicate the lakes experience limnetic turnover and are homoeothermic near the first week of October when water temperatures reach 47 degrees Fahrenheit. Given this, there appears to be an adequate amount of time available for the toxins to degrade before freeze-up, thus preventing long periods of toxicity. . We have also added more information in Appendix D.</p>
11.25		It is suggested that a second piscicide treatment may be implemented if fish are detected following the first treatment (page 2-8), and that resultant action stemming from each treatment and post-treatment evaluation would be considered on a case-by-case basis.
	11.25	Yes, this is what is proposed.
11.26		The DEIS also states that unauthorized, illegal stocking with non-native species may occur as it has in the past (2-27). If unauthorized illegal stocking occurs after proposed treatments it would significantly reduce the effectiveness of this program to eradicate hybrid trout and preserve genetic purity of native westslope cutthroat trout. It appears important to project success to both eradicate hybrid trout and prevent the reintroduction of non-native trout into these lakes.
	11.26	Montana presently has both state law and Fish, Wildlife & Parks Commission rules in place to deter illegal introductions of fish. Nevertheless, this is a practice that still occurs despite the best efforts of state enforcement agents. Restoring the lake fisheries with genetically pure westslope cutthroat trout could reduce the potential for illegal introductions of non-native species. Rapidly reestablishing a native fishery should remove the primary motivation for future illegal introductions in the project area.
11.27		We believe it is important to have contingency plans in the event that treatments do not eradicate the entire hybrid trout population, and in the event that continuing illegal reintroduction of non-native trout occurs after the proposed treatments. Given the importance of these elements of the project, we are concerned that the DEIS contains little information about the actions that would be taken or the strategy that would be employed to reduce these risks, particularly risks of continuing

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		illegal reintroduction of non-native trout.
	11.27	If illegal introductions occur MFWP would assess the situation at that time and determine what action to take. See Section 2.4.2.3 of the DEIS. If those who would stock lakes without authorization understand that their actions may result in additional treatments and temporary fishing closes, authorized restocking may reduce illegal introductions.
11.28		Also, efforts should be made to educate the public on the effects of such illegal introductions [of non-native trout], and to improve enforcement programs and deterrents (fines, creel inspections, etc.) to reduce potential for continuing illegal stocking or introductions of non-native species.
	11.28	See response to Comment 11.26.
11.29		It is stated that liquid rotenone would be the preferred formulation for this project (page 2-9). We recognize the hazards to applicators in using powdered rotenone (page D-6), but have some concerns regarding the aromatic solvents that are used as a dispersant in liquid rotenone formulations (page E-6). These aromatic solvents can include trichloroethylene, naphthalene, 2-methylnaphthalene, and xylene (page D-2), which can be detrimental to public health, and are generally persistent in the environment (i.e., they do not quickly biodegrade). We understand that 5,800 of gallons of liquid rotenone formulations will be used on the eight lakes in which rotenone is the proposed piscicide (Table C-2). Has MDFWP monitored for the presence of these aromatic solvents in rotenone treated waters following treatments in their prior uses of liquid formulations of rotenone? Does BPA or MDFWP propose to monitor the presence and degradation of these compounds in the eight rotenone treated lakes with this proposed project? Are sentinel fish cages the only means of monitoring for toxicity? Is it just assumed that these compounds will dissipate, be diluted, and/or otherwise not result in any adverse effects?
	11.29	MFWP is not, nor has ever been required to monitor surface water treatments for aromatic solvents. Applicators in Montana typically are not required to monitor for EPA registered pesticides.  Pages D-7 and D-8 of the DEIS provide some information on the persistence of some of the elements, and some results of monitoring in California. Furthermore, Skaar (2001) summarized

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		<p>some of the water quality sampling that has occurred in Montana. He wrote "...<i>The Montana Human Health water standards for some of the constituents are: trichloroethylene, 5 ug/L; toluene, 1 mg/L; xylenes 10 mg/L. In addition, the EPA has determined that the water quality criteria for chronic effects of naphthalene and chloroethane to aquatic life are 620 ug/L and 250 mg/L, respectively. None of these levels should be exceeded during a rotenone treatment. At a treatment level of 2 mg/L of formulated rotenone, the maximum expected level of these contaminants are trichloroethylene, 1.1 ug/L; toluene, 84 ug/L; xylenes, 3.4 ug/L; naphthalene 140 ug/L (CDFG 1994). Our own experience at Bootjack Lake in November 1997 showed concentrations to be much lower. In the formulated rotenone products (Noxfish, Prenfish), we found high levels of all of the chemicals mentioned above. However, in samples taken from the lake two days after treatment at a rate of 2 mg/L rotenone, the concentrations of the constituents were: trichloroethylene, &lt;0.5 ug/L; toluene, 2 ug/L; naphthalene, &lt;0.5ug/L; xylenes, 1 ug/L (Attachment 1). Naphthalene was detected later, one week after the treatment, but still at very low levels (57 ug/L). Chloroethane was also detected in Bootjack Lake at low levels (0.8 and 1.2 ug/L) on both day 2 and 7 after treatment. The source of this chemical is unknown since it was not detected in the formulated products. The chemical 1,2,4-trimethylbenzene was also detected in Bootjack Lake water at low levels (2.5 ug/L), but I could find no information on its effects to humans or other animals. Results from the Tetrault Lake sampling were similar to those of Bootjack Lake in that the levels of these chemicals in lake water after treatment were far below water quality standards...</i>" The two examples provided by Skaar (2001) are based on rotenone treatments of 2 ppm, which is twice that proposed for this project.</p> <p>The threat of aromatic solvents is to human health. The principle exposure to humans would be to the applicators. Applicators would be using safety equipment, as specified on the product label, to reduce the threat to human health. The remote nature of the proposed treatment sites would aid in limiting exposure to humans.</p> <p>In 1998 Carpenter Lake, in northwest Montana, was treated with rotenone. Ground water was drawn from a nearby domestic well and no rotenone or solvents were detected 2 weeks and 4 weeks post treatment.</p>

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		Both rotenone and antimycin product labels recommend using sentinel fish cages to monitor for toxicity. See Sections 2.4.1.5 and 2.4.4.2 of the DEIS.
11.30		Also, is it known if less persistent or more biodegradable solvents are available for use in liquid rotenone formulations?
	11.30	MFWP would use an EPA registered brand of rotenone formulation. EPA has approved the inert ingredients used in Prenfish and Noxfish brands of formulated rotenone. It is not known if EPA has approved other solvents for use in formulated rotenone.
11.31		Thank you for providing Appendix D discussing use of rotenone, safety measures, and precautions and measures to be used during storage and transport of rotenone to reduce risk of accidental spills. Is similar information available regarding the history and use of antimycin?
	11.31	<p>We have added information in Appendix D. See also responses to Comments 11.20, 11.24, 11.60, and 37.159. See also responses to Comments 34.20 and 34.35 regarding the known toxicity of antimycin.</p> <p>Antimycin threats to animal and human health have been studied extensively. Ritter and Strong (1966) measured accumulation levels of antimycin in muscle, kidney, liver, heart, gill and skin of several fish species. The range of values of antimycin absorbed by fish was 4-10% of that administered into the water. Mammals and birds required much higher concentrations to effect death. Using these data, the authors calculated that a 4-ounce serving of fish containing 201 micrograms of antimycin per kilogram (<math>\mu\text{g}/\text{kg}</math>) would provide 23 <math>\mu\text{g}</math> of antimycin or 0.33 <math>\mu\text{g}/\text{kg}</math> for a 150 pound human. A dose of even 1 milligram per kilogram (<math>\text{mg}/\text{kg}</math>) (100 times as much), would require a human to eat 3,000 four-ounce servings; the equivalent of one serving per day for 8.2 years. Twenty-one humans associated with this study consumed from one to five such servings and suffered no ill effects. They concluded that antimycin-killed fish would be safe as human food. Schnick (1974a) reported that antimycin is not hazardous to humans whether it is consumed in water or food.</p>
11.32		Thank you also for providing the MSDS sheets on treatment chemicals in Appendix B. A spill contingency plan is mentioned on page 2-13, but we did not see the details of the spill contingency

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		plan included in Appendix D. We believe information on the contingencies in the event of spill or release of toxic or hazardous chemicals should be included in the EIS appendices.
	11.32	<p>A spill contingency plan would be developed by the Transport and Safety Supervisor (item 5 of the table on page 2-13 of the DEIS). The MSDS sheets provided in the Appendix E of the DEIS provides 16 provisions for safe handling, storage, clean up, and hazards, among others. These guidelines would be used as the principal resource for developing the Spill Contingency Plan. Additionally, the Safety Supervisor and Project Commander would develop the logistical and equipment resources necessary to put into action the provisions listed in the 16 items on the MSDS sheet for each compound, and gasoline.</p> <p>We have added information for KMnO4 in Appendix D.</p>
11.33		We are pleased that it is stated that at least one applicator licensed by the Montana Dept. of Agriculture well versed in the state regulatory requirements regarding safe and legal use of the piscicides must be on-site to supervise or administer the project (page D-7). We are also pleased that the staff involved in implementing the project will receive safety training in regard to the proposed use of the toxic and hazardous chemicals.
	11.33	Thank you for your comment and interest in the SF WCT Conservation Program.
11.34		The method of transport of equipment, people and material to the lake sites and degree of disturbance associated with such access and transport provides an important distinguishing difference between Alternatives B and D and Alternative C. It is stated (presumably with Alternatives B and D) that crew sizes in wilderness lakes would not exceed 15 persons and pack strings would be broken into strings of 10 to 12 animals (page 2-16). No pack trains into wilderness areas would occur in Alternative C, since aircraft would be the mode of transport with Alternative C. It is not clear how many strings of 10 to 12 animals would be required in Alternatives B and D. The extent of potential ground disturbance, disturbance to trails and other resources, and other environmental impacts from use of pack train transport of equipment, people and material to the lake sites should be more fully described to provide an improved basis upon which to evaluate and choose among alternatives.

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	11.34	<p>Section 2.4.3 of the DEIS states that pack string size would be 10-12 animals. The example on page 2-16 indicates that a 17 animal string would be split into multiple strings. This is to reduce trail congestion and comply with FS regulations. Table C-2 provides an estimate of the number of pack animals needed to transport materials to wilderness lakes. Appendix C provides lakes descriptions and disclosed the estimated number of livestock needed to transport personnel and support equipment.</p> <p>Using livestock on establish FS system trails is a conforming activity that does not require an exhaustive analysis. The draft Minimum Tool Analysis on page 3-38 of the DEIS concluded that this was the best approach to accomplish the goals and conform to wilderness values as best as possible.</p>
11.35		Wilderness experience and solitude and wildlife may be affected during transport of equipment, people and material to the lake sites in all action alternatives. It is stated that an estimated nine helicopter flights would be needed to execute the treatment procedure in Blackfoot Lake (page 2-18). Are nine flights estimated to be the average number of flights to each lake?
	11.35	Page 2-18 of the DEIS states that the number of flights would vary depending on the size and complexity of each lake. Table C-2 provides the proposed transport method and estimated number of trips for material. An added number would be required for personnel and equipment, as explained on page 2-18 of the DEIS.
11.36		It appears that environmental impacts and ground disturbance during transport may be least with Alternative C involving use of aircraft for transport of equipment, people, and material to all lakes and use of motor boats for application, although wilderness sites and wildlife would experience additional impacts to solitude from aircraft impacts within wilderness areas with Alternative C. While we realize that wilderness values and wildlife may be impacted in the short-term using Alternative C, it appears that there may be some benefits to Alternative C in reduced ground disturbance from long pack train transport to the wilderness lakes, and shorter disturbance periods. The extent of additional ground disturbance and impacts and intrusion from pack animals and longer durations of intrusion with Alternative B modes of transport should be more clearly and quantitatively compared with the aircraft mode of transport proposed with Alternative C. Improved comparative alternatives evaluation may better define the issues and provide a clearer basis of choice among options for the

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		decision maker and the public in accordance with the NEPA implementing rules (40 CFR 1502.14).
	11.36	Yes, aircraft would have the least ground disturbance, but public comments and the draft Minimum Tool Analysis suggested that wilderness values and other social issues play a major role in determining which method would be best. Although aircraft are quicker, have fewer impacts to the ground, have fewer impacts to local users due to time saving, and are less costly, the social impacts would be greater. In order to balance these issues, Alternative B was modified to include the use of traditional transport methods in the wilderness area, where possible.
11.37		[Specific comment on] Table 2-6 (page 2-44) indicates that Alternative D that avoids use of fish toxins would not eliminate non-native trout from headwater lakes; involves unproven techniques; would be less effective; and would result in longer-term angling loss and fisheries impairment in the headwater lakes. Alternative D, however, would avoid many of the uncertain and difficult to quantify aquatic ecosystem impacts associated with use of fish toxins and potassium permanganate (no risk to plankton, insects, amphibians). We believe additional discussion and comparative evaluation of these benefits of Alternative D vs. the reduced effectiveness and risks to angling and fisheries should be provided to better define the issues and provide a clearer basis of choice among options for the decision maker and the public.
	11.37	Section 2.6 and Chapter 3 of the DEIS discloses the likely impacts to the environmental and social socioeconomic resources if suppression is implemented. This information provides a clear basis for consideration of options, and is helpful in trying to balance which option would allow the objectives to be met while balancing and minimizing impacts to the affected resources.
11.38		The method of transport proposed to restock lakes with genetically pure westslope cutthroat trout is not clear to us. Will pack trains or aerial transport be used to transport fish for restocking wilderness lakes? Will aerial transport be used to transport fish for restocking non-wilderness lakes?
	11.38	Page 3-10 of the DEIS discloses the historical fish stocking methods. Helicopters and airplanes stocked all wilderness lakes listed in this proposal before the Wilderness Act was ratified. Based on this, and the number and sizes of fish that are needed to restore the fishery in the lakes, aircraft would be used to restock them. There are no landings proposed for stocking wilderness lakes. In

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		the 1990s a short-term exemption was allowed for aerial stocking of Woodward and Pyramid lakes to implement genetic swampout. When swampout is discontinued, we would revert back to using livestock to stock those lakes.
11.39		Any effects on water quality (e.g., nutrient enrichment) from dead fish decaying in the lake should be addressed in the Water Resources Section 3.4 (page 3-26). Will nutrients released from decaying fish have any potential effects on trophic levels in Hungry Horse Reservoir or Flathead Lake downstream? Special attention should be made regarding the State's identification of Flathead Lake as a water body with impaired beneficial uses in its Clean Water Act Section 303(d) report. It is important that the proposed project does not further degrade Flathead Lake water quality, and that the conservation program be consistent with long term water quality recovery as proposed in the Flathead Lake Nutrient Management Plan and Total Maximum Daily Load (TMDL) (see <a href="http://www.deq.state.mt.us/wqinfo,TMDUpdf/FlatheadDoc.pdf">http://www.deq.state.mt.us/wqinfo,TMDUpdf/FlatheadDoc.pdf</a> ). Phase 1 of the Flathead Lake TMDL calls for a 25% reduction in nitrogen and phosphorus loads to the lake. The water quality goals for Flathead Lake are: 80 g carbon/m <sup>2</sup> /yr; no declining trend in hypolimnetic dissolved oxygen; no measurable blooms of Anabaena or other pollution algae; 1.0 ug/l chlorophyll a maintaining or decreasing near-shore algal growth on rocks; 5.0 ug/l total phosphorus; <0.5 ug/l soluble reactive phosphorus; 95 ug/l total nitrogen; 30 ug/l nitrate+nitrite; <1.0 ug/l ammonia.
	11.39	Pages 3-30 and 3-31 describe the likely changes in water quality. This information is presented in Section 3.5 (soil and vegetation). We acknowledge that it should be presented in the Water Resources Section (3.4).
11.40		It is stated that MDFWP has administered 74 rotenone applications on 63 lakes in the Flathead Basin, including seven lakes requiring multiple treatments (page 2-8), and that previous monitoring shows that short-term impacts to the fisheries resource caused by chemical treatment (using rotenone or antimycin) are undetectable within the first three years (page 3-13). References should be provided for these monitoring results to better support this statement (similar to the references provided on pages 3-22 and 3-23 regarding previous studies of effects on amphibians, plankton and aquatic insects).
	11.40	The purpose of this statement in the DEIS (page 3-13) was to disclose that the fishery was impacted as a result of using fish toxin to remove the fish populations. Consequently, recreation, angling, and to some degree economics were impacted by these projects. Impacts were short term

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		<p>because in each case, fish were restocked and the fishery resources were restored.</p> <p>Although post treatment monitoring has only recently become a requirement on some treatments in Montana, MFWP has voluntarily conducted pre- and post-treatment monitoring in the last several years. The majority of post treatment evaluations in northwestern Montana have been conducted on waters treated as far back as 1948. These evaluations have provided baseline information regarding the long-term persistence of amphibians following a rotenone treatment. Since 2000, MFWP has conducted annual post treatment monitoring of amphibians and plankton on several lakes to determine the impacts of piscicides on non-target organisms. Aquatic insect have been evaluated on some lakes but not all.</p> <p>See FEIS for more information about monitoring.</p>
11.41		<p>It is our understanding from the information in Chapter 3 that hybrid trout and westslope cutthroat trout are the only fish species present in the lakes to be treated, but that bull trout and whitefish are present in downstream drainages. Is this correct?</p>
	11.41	<p>Yes, hybrid cutthroat trout as well as stocked WCTs are the only fish species in the lake environments. Bull trout and mountain whitefish can be found in some of the stream habitats. Although not common, on occasion, suckers and sculpins can be found in some of the streams. Various electrofishing surveys conducted in the SF drainage since 1987 have revealed that these species are uncommon in the streams listed in this project. The only streams listed in this project where sculpin are known to occur are Youngs Creek and Wheeler Creek.</p>
11.42		<p>It is stated that monitoring of restocked fish would continue for several years to determine population viability and associated characteristics and program success (page 2-5), and that a survey would occur the spring or summer following treatment with setting of gill nets, monitoring of caged fish, and, if possible, the evaluation of the status of non-target organisms like plankton, amphibians, and aquatic insects (page 2-25). Why is it stated that non-target organisms will be evaluated, if possible?</p>
	11.42	<p>Insects, amphibians and plankton surveys would be conducted beginning the summer following the treatment.</p>

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11.43		<p>We believe it is important that before-and-after surveys and evaluation of proposed treatments be conducted for all aquatic and terrestrial biota that could potentially be affected by the proposed use of fish toxins to remove fish from the lakes, not just westslope cutthroat trout. Baseline monitoring should identify all indigenous aquatic species present in the lakes to be treated. The monitoring program to assess post-treatment effects and natural recovery or repopulation of the lakes by indigenous species should be more fully described, particularly monitoring for non-target species present in or around the lakes (e.g., macroinvertebrates, plankton, fish, amphibians, reptiles, birds, wildlife, etc.).</p>
	11.43	<p>Evaluation of all indigenous organisms goes beyond the scope of this project or the mitigation proposed. Nonetheless, in 2004, MFWP instituted a comprehensive survey of amphibians and plankton in which surveys were conducted on 86 streams and 75 lakes in the project area. In 2005 this study will be expanded to include aquatic insects. These data will represent the most comprehensive evaluation of these species in the South Fork. The purpose of these evaluations is to provide base-line information by which to characterize these habitats and organisms. Post treatment evaluations would be conducted to measure variation with pre-treatment observations.</p>
11.44		<p>The DEIS states that amphibian surveys have been conducted at each lake and are ongoing (page 2-12), and that four amphibian species and two reptile species were detected in the project area: long-toed salamanders, Rocky Mountain tailed frogs, western toads, and Columbia spotted frogs, and Western terrestrial garter snake and common garter snake (page 3-18). Four other species were believed to be in the project area, but were undetected (pacific tree frogs, northern leopard frogs, western painted turtles and rubber boa). The DEIS also states that these species are widely distributed throughout the project area.</p> <p>It would be helpful to have a table that listed all aquatic species present in or that use each of the lakes to be treated and their abundance and life history stages at time of treatment (i.e., target and non-target species that occupy or use each lake). if species are present in some lakes that are not present in other lakes that should be identified as much as possible. If such baseline information is not available or unknown that should be clearly stated, although we believe such information should be obtained as much as is possible.</p>

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
	11.44	Although pre-treatment evaluations of non-target organisms are beyond the scope of this project, Table C-2 of the DEIS provides some information on the association of amphibians to the lake environments, and Table 3-5 of the DEIS provides some information on the association of plankton found in lakes in the project area. As stated above, additional, and comprehensive data are being compiled by MFWP on the lakes and streams listed in the DEIS. This information will be available to provide baseline measures for comparison with data collected in the future.
11.45		Are there any wetlands, springs, seeps and any other special or unique habitats on the edge of the lakes and treated streams that may be affected by the proposed project? If so, efforts to avoid adverse impacts to specialized aquatic habitats such as wetlands, springs, and seeps should be identified.
	11.45	Appendix C of the DEIS describes the known water inputs to each lake. Sections 2.4.2 and 2.4.2.2 describe the pretreatment procedures that include evaluations to identify all sources of water that might include springs and seeps. Section 2.4.4 of the DEIS states that fresh water inputs and seeps would be treated to prevent fish from seeking refuge in them. Both the rotenone and antimycin product labels recommend using sprayer apparatus to apply in “lakes and ponds...shoal areas...and ...small isolated ponds,” and in “backwater, stagnant and spring areas” to eliminate refugia for fish to escape the treatment.
11.46		<p>The DEIS states that substantial evidence collected from past rotenone treatments in the Flathead Basin indicates that rotenone would have no long-term impacts on amphibians in the project area, and that laboratory tests conducted by MFWP indicate that antimycin would not have a negative effect on amphibians at the levels prescribed to kill fish (pages 2-25, page 2-26). The DEIS states that effects on amphibians from use of both compounds is “expected to be minimal or short-term” (page 3-23).</p> <p>It does appear that impacts on amphibians from the application of antimycin are likely to be reduced, since antimycin is less toxic to amphibians than rotenone (pages 3-22 and 3-23). The proposed Fall application of piscicides should also reduce potential impacts on amphibians, since adult amphibians are affected less (page D-2), although Rocky Mountain tailed frogs are quite aquatic and even adult species could be significantly impacted by rotenone. We also note that potassium permanganate used for neutralizing the piscicides may also have toxic effects on</p>

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
		amphibians and other aquatic species. We are concerned, therefore, that there may be potential for impacts to occur to amphibians and other aquatic species from the proposed project.
	11.46	See page 3-22 of the DEIS. MFWP has conducted numerous laboratory assays using rotenone, antimycin and potassium permanganate on species like adult and juvenile long toed salamanders, adult and juvenile Columbia spotted frog, and tailed frog tadpoles. Limited laboratory evaluations have been conducted on tailed frog adults. These extensive laboratory assays, coupled with the comprehensive post treatment evaluations of Devine Lake, Tom Tom Lake, and Whale Lake provide a very comprehensive measure of what we could expect the short-term impacts to be from a rotenone or antimycin treatment on a lake. In addition, page 3-22 of the DEIS refers to evaluations on 18 other lakes treated with rotenone in the Flathead Valley over a 44-year period to determine what the long-term persistence of amphibians was following a rotenone treatment. See also Appendix G of the FEIS.
11.47		The DEIS states that if application of either compound show any anomalous effects on local amphibian populations, MDFWP would mitigate those impacts by replacing amphibians that may be impacted (page 2-26). It is stated that a follow-up survey for two years after treatment would be used to confirm whether amphibians are present within treated areas, and whether they need to be replaced. We are concerned, however, that few details are provided regarding follow-up surveys and amphibian monitoring before and after treatments. Lack of information on follow-up surveys and amphibian monitoring does not provide much assurance that any impacts on amphibians that may occur will be detected. More details regarding amphibian monitoring programs and protocols should be provided to assure that any effects to amphibian species are detected, and then mitigated.
	11.47	Amphibians are difficult to detect and collect, especially immediately before winter dormancy. Notwithstanding, we have conducted many laboratory assays, field investigations, and reviewed scientific literature and relevant case histories to predict expected results. The DEIS states that MFWP would measure these segments of the environment to determine if any unforeseen impacts occur, and also lists ways to mitigate potential impacts. We will search for and if found, we will collect amphibians from the site before the treatment and release them back to the project area after the treatment is over.

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Comment Number	Response Number	Comment/Response
11.48		<p>Information is presented in Appendix D that suggests that the temporary overabundance of dead fish immediately following treatment, and the subsequent temporary loss of fish supplies to predators that rely upon such food supplies will have little impact on bird or mammal populations because most animals can utilize other water bodies and sources for food. We understand that piscicide treatments will occur in the Fall (late September to early November) and that restocking will not begin until the following July, and then would occur annually until a population of westslope cutthroat trout is established (page 2-26). This would appear to leave a period of at least 8 or 9 months for each treated lake to be without fish and other aquatic species that are affected by the fish toxins and potassium permanganate, and perhaps it would take years to establish a healthy population of trout and other affected species. While treatments would be staggered spatially over ten years or more to reduce effects on other species as well as angling, it is surprising that lengthy periods of loss of aquatic life in the lakes will not impact the bird or mammal life near the lakes that may have developed a reliance upon fish and other aquatic species for food.</p>
	11.48	<p>Fish eating birds, namely the osprey, are the only animals in the project area that depend on fish for food. Ospreys are occasionally observed at high elevation lakes. Osprey are more likely to use Hungry Horse Reservoir because it is lower elevation than the project lakes, ice recedes earlier, and fish species diversity and abundance are greater. Other birds and mammals using the area are not dependant on fish for food. Extended periods of ice cover at these high altitude lakes makes them less suitable for other fish eating animals like otter and mink. Otter prefer large rivers and streams, but may use low altitude lakes in the project area. Mink are opportunistic feeders on fish, mammals, crustaceans, reptiles, amphibians and birds. They typically follow food sources, as do otters. In the absence of fish prey, these two species would disperse to other areas or feed on non-fish food items. Mink can frequently be observed in small streams with no fish. In 2004 a mink was observed at Skiumah Lake in the Middle Fork Flathead; the lake is fishless. Species like mergansers would also disperse to areas with higher density food items.</p>
11.49		<p>It is also not clear if the statement of predicted lack of impact on bird or mammals is based on actual monitoring of bird and mammal populations after actual piscicide treatments or on supposition. We are concerned that the MDFWP prioritizes monitoring on game fish, and monitoring for effects on other non-game species may be less attentive, so that effects on non-game species may occur without detection. There is a need to monitor for impacts to all species</p>

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
		that may potentially be affected by the proposed use of toxic chemicals in these lakes and streams. We believe the BPA and MDFWP project monitoring and evaluation programs should include evaluation of impacts upon all potentially affected species, including bird and mammal populations that use aquatic species for food. Also, if impacts to bird or mammals from treatment are detected, efforts to mitigate or compensate for such impacts should be made.
	11.49	The literature lists impacts to non-target organisms like birds and mammals due to exposure to these compounds. Any impacts would be temporary, in the form of dispersion from the sites due to increased human activity, and/or lower abundance of food. Monitoring birds and mammals is not part of the proposal.
11.50		<p>Monitoring and evaluation and an adaptive management strategy is critical to the success of project implementation, particularly since there is some uncertainty associated with the effects of the proposed activities. There should be a continuing process of planning, implementing, monitoring, and evaluating effects of project implementation, and adjusting implementation or mitigation where effects are not as predicted. It is only through monitoring of actual effects that occur that the BPA and MDFWP will be able to determine whether:</p> <ol style="list-style-type: none"> <li>1) goals and objectives are being met;</li> <li>2) assumptions/indicators used in developing and implementing the conservation program are valid;</li> <li>3) effects are as predicted (i.e., addressing uncertainties); and</li> <li>4) if mitigation is effective or should be increased or decreased or otherwise adjusted to be [sic] meet project goals and objectives.</li> </ol>
	11.50	Thank you for your comment. See response to Comment 11.3.
11.51		A properly designed monitoring plan will also quantify how well the preferred alternative resolves the issues and concerns identified during scoping and DEIS review, and provides the flexible program for monitoring and feedback of monitoring results to improve predictive methodology and modify mitigation.

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
	11.51	Thank you for your comment. We have proposed treating 2 to 3 lakes per year over an about 10-12 year period to allow ample time for monitoring and corrective feedback.
11.52		We are pleased that the DEIS indicates that post-treatment monitoring would be conducted (page 2-4), but we are concerned that the DEIS provides only general descriptions of monitoring activities that would be undertaken. Additional details of the monitoring efforts should be presented to assure that consistent and meaningful information/data and is generated to evaluate effects of project implementation. A well designed monitoring plan and adaptive management strategy is needed to assure that adequate monitoring is carried out and that results are evaluated and fed back to management for adjustments in project implementation and mitigation when and where necessary.
	11.52	<p>Post treatment evaluations will involve replicating pre treatment evaluations. This provides the most consistent methodology. Pre-treatment plankton evaluations are made by replicate vertical tows using a 5 inch Wisconsin net at 50 feet depth, or maximum lake depth, which ever is greatest. These samples are analyzed to a reasonable degree of taxonomic resolution for average number per species per liter, and by total number per species when feasible. These evaluations have been conducted on monthly intervals, during ice off, in some lakes to capture variation in species richness and abundance in the SF drainage.</p> <p>Amphibian surveys involve walking and dip netting along shorelines, and kick netting and visual observations in streams. Time has been the unit of effort. Monthly amphibian surveys have been conducted on some lakes to capture variation in richness, life stage, abundance and most importantly detectability.</p> <p>Insect evaluations are being designed by MFWP and will begin in 2005. This survey will sample stream and lake insect communities throughout the SF drainage and will determine a baseline by which to compare future insect community status. Kick netting will be used in streams, sweep netting will be used in lakes, where possible, and a sample of lake benthos will be taken from sediments up to 50 feet depth.</p> <p>There is inherent natural variation in insect, plankton and amphibian communities. Evaluations conducted before any treatment would hopefully capture this variation, and therefore be useful in</p>

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Comment Number	Response Number	Comment/Response
		<p>making post treatment conclusions.</p> <p>This information has been added to Section 2.4.5.</p>
11.53		<p>Specifically, we believe that information defining the follow-up actions to the rotenone and antimycin treatments (monitoring and evaluation of effects upon all potentially affected aquatic and terrestrial species, restocking plan for non-target indigenous species, contingency plans, plan for preventing reintroduction of non-native species) should be more completely developed and presented in the EIS. We believe monitoring and evaluation are equally as important as removing hybrid trout from the lakes and restocking with pure strain westslope cutthroat trout, since it is only through monitoring and evaluation that naturally functioning aquatic ecosystems will be restored and protected for the long-term.</p>
	11.53	<p>See response to Comment 11.52.</p> <p>We believe the current level of pre treatment and post treatment evaluation is sufficient to evaluate the non-target aquatic organisms. The DEIS predicts that impacts to these organisms would be short term and minor.</p> <p>Conducting detailed analyses on terrestrial organisms goes beyond the scope of this project.</p> <p>For the purpose of this analysis, the contingency plan speaks of monitoring for only two years post treatment. It is recognized that long-term detailed monitoring offers the greatest probability of detecting subtle or great differences in effects from implementing a treatment.</p>
11.54		<p>We recommend that a monitoring and evaluation plan be completed and included as an appendix to the final EIS (and summarized in the Record of Decision) for the project. We believe that appending the monitoring and evaluation plan to the EIS provides the public with an opportunity to assist in developing and refining the elements of the plan which can potentially result in a better plan.</p>
	11.54	<p>See responses to Comments 11.4, 11.52 and 11.57.</p>

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
11.55		<p>We recommend that the following general components be included in the monitoring plan:</p> <p>Identification of Parameters or Resources to be Monitored — The monitoring plan should specifically identify what is to be measured. For example, if amphibians are to be measured, the amphibian monitoring protocol should be identified. If water quality parameters (e.g., piscicide concentrations, potassium permanganate concentrations, aromatic solvent concentrations, pH, redox, dissolved oxygen, nutrients, temperature, alkalinity, other water chemistry parameters, physical and biological parameters, sentinel fish toxicity, etc.) are to be monitored, the monitoring methods and probable monitoring locations should be identified.</p>
	11.55	See response to Comment 11.52.
11.56		<p>We recommend that the following general components be included in the monitoring plan:</p> <p>Monitoring Methods to be Used-- The monitoring methods we are most familiar with are implemented using Standard Operating Procedures (SOPs) which outline how monitoring approaches could be applied haphazardly with the concomitant inconsistent reporting of the findings from that monitoring. We recommend that SOPs be contained in the monitoring plan or identified as being available by reference.</p>
	11.56	See response to Comment 11.52.
11.57		<p>We recommend that the following general components be included in the monitoring plan:</p> <p>Monitoring Frequency, Duration and Reporting of Results — The monitoring plan should specify the frequency of the monitoring efforts and identify the time-frames within which results would be reported. We suggest that the monitoring plan identify the intended recipients of any monitoring reports and how the reports would relate to evaluating the relative successes and failures of project implementation. We also suggest that the plan identify the duration of the monitoring effort. We recommend that the duration of monitoring efforts be tied to the specific resources or parameters being measured and the reason for measuring them.</p>

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Comment Number	Response Number	Comment/Response
	11.57	See response to Comment 11.52.
11.58		<p>We recommend that the following general components be included in the monitoring plan:</p> <p>Definition of Roles and Responsibilities of Involved Parties — The monitoring plan should identify the parties that would be involved in the monitoring efforts and establish their respective roles (i.e., who will do what). This is particularly important in efforts that involve more than one agency and ensures that roles and expectations are established at the onset of the monitoring program.</p>
	11.58	See response to Comment 11.52.
11.59		<p>The discussion at the top of page 1-11 regarding genetic diversity issues associated with restocking the treated lakes with M012 brood stock raises important concerns. These concerns include: a) potential reduction of westslope cutthroat trout genetic diversity by restocking with a single M012 genetic stock, which may result in a monoculture exhibiting little genetic diversity; and b) potential dilution of natural genetic uniqueness exhibited in adaptations and phenotypic variations of local westslope cutthroat trout. It is not clear to us how these important concerns are addressed with the restocking plan. We recommend that the FEIS explain more fully how these concerns will be addressed.</p>
	11.59	<p>Section 1.4.2 of the DEIS describes the issues we received from scoping comments. One of those issues was that Montana’s captive westslope cutthroat trout brood stock (M012) is somehow inadequate. We disagree and that is why using this stock is part of our proposal. There is no evidence that the M012 is not suitable for use in species conservation. In fact, this brood stock was founded from wild WCT mainly from the South Fork Flathead watershed. Genetic analyses since 1985 demonstrate that the M012 stock remains genetically diverse and hatchery practices have maintained a high level of fitness in this stock. This is currently the only safe source of WCT available. Should another stock from the South Fork drainage become available, we would consider using it.</p> <p>The objective of this project is to remove the present threats to the species in this area. We agree</p>

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Comment Number	Response Number	Comment/Response
		that the description of the present westslope cutthroat trout stock was not clearly identified as the M012 stock on page 1-7 of the DEIS. See response to Comment 11.8.
11.60		Restocking of lakes with pure strain westslope cutthroat trout is discussed in Section 2.4.6 (page 2-26), and there is some discussion of restocking of amphibians. However, few specifics are provided regarding potential restocking of the lakes with other native non-target species that may be affected by treatments (e.g., macroinvertebrates, plankton, fish, amphibians, reptiles, birds, wildlife, etc.). We are concerned about potential loss of native non-target species, since proposed fish toxicants and potassium permanganate, used to neutralize the fish toxins, can be lethal to many aquatic organisms. The loss of non-target species and impacts on overall aquatic ecosystem integrity is an important issue. We believe attention needs to be directed to potential impacts to non-target species.
	11.60	Appendix D of the DEIS discloses the potential impacts to non-target species. Related case histories and numerous reports and publications indicate that impacts to non-target organisms would be minor and short term. See Appendix G on the FEIS.
11.61		If some indigenous species depend on isolated headwater habitat in the lakes or have evolved within the isolated headwater habitat they may not easily repopulate the lakes and may need assistance in repopulation. Restocking and other proposed efforts to restore or compensate for unavoidable impacts that may occur to all affected species should be more fully addressed. We have heard of potential longer term effects to invertebrates as a result of piscicide applications, most notably at Strawberry Reservoir in Utah where invertebrate populations have not been fully restored following rotenone applications there.
	11.61	See response to Comment 11.60. We acknowledge the risks identified here, but our past experience suggests the likelihood of these risks materializing is very low.
11.62		We are pleased that amphibians would be collected for release after treatment (page 2-21), and that MDFWP would replace amphibians that may be impacted (page 2-26). We also note that the DEIS states that tailed frogs could be collected from some streams prior to treatment and replaced following treatment (page 2-26), but does not definitively commit to such collection and restocking of tailed frogs and other amphibian species (i.e., the DEIS should say that all amphibian species will be collected from some streams prior to treatment and replaced following treatment). On page

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		3-23 it is also stated that efforts to mitigate impacts could include transplanting amphibians from neighboring populations, if necessary, and/or capturing specimens from within each project area before treatment then releasing them after it is complete. We believe such amphibian mitigation efforts should be committed to more definitively (i.e., "...would include transplanting amphibians...").
	11.62	Relevant case histories from NW Montana indicate that non-target species numbers rebound naturally after treatment. See response to Comment 11.47.
11.63		We also recommend that an accredited herpetologist be involved in supervising amphibian monitoring and evaluation and mitigation efforts. Amphibians have experienced significant decline in many habitats, and we feel particular precautions need to be taken to assure that populations of native amphibian species will be preserved and restored as much as possible in the treated waters.
	11.63	Please see response to Comments 11.43 and 11.46.
11.64		The potential effects of continuing to restock fish in lakes that were originally fishless should be more fully evaluated and disclosed in the EIS. It is our understanding that most or all of the proposed 21 lakes that are proposed for treatment were originally fishless. Is that correct? The DEIS says that MDFWP proposes to continue historical stocking of fish in these lakes order to maintain the current recreational and socioeconomic standards and to increase "biological integrity" by providing genetically pure westslope cutthroat trout to seed downstream areas (page 1-13). It is also stated (page 2-27) that unauthorized, illegal stocking may occur as it has in the past, and that such illegal stocking is likely to occur if MDFWP dose [sic] not restock the lakes that were originally fishless.
	11.64	Correct, most of the lakes were likely fishless before stocking occurred. All of the lakes proposed for treatment have been planted by aircraft. Fisheries management has included not only native species conservation but also providing quality angling. Please see response to Comment 11.10 and Sections 1.2, 2.4.6, 2.6.4, and 3.2.4 of the DEIS.
11.65		The introduction of fish to fishless lakes to create a recreational fishery can have adverse effects on the aquatic ecosystem. Predation by introduced trout consumes native amphibians and benthic invertebrates and can reduce the population of larger zooplankton, which are effective grazers of the phytoplankton. With the restocking of fish to lakes that were originally fishless, additional

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		biomass is added to the lakes that can influence nutrient cycling, and can have unintended negative effects to water quality and the biological integrity of the lake. It is not clear to us, therefore, if “biological integrity” is increased by introducing fish to lakes that did not originally have fish as part of their naturally functioning ecosystem. A case can be made that biological integrity or ecological integrity is compromised by introduction of fish to fishless lakes.
	11.65	There is no proposal to stock currently fishless lakes. Any fish stocking associated with this proposal involves lakes that have supported fish populations for nearly 50 years.
11.66		We recommend that restocking of fish to originally fishless lakes be based on monitoring and evaluation and full understanding of how lake ecology is affected by fish restocking. We recommend that a cautious approach to the trout restocking program be taken and that the stocking program be accompanied by a sufficiently robust monitoring and evaluation program to evaluate ecological effects of stocking fish in lakes that were originally fishless. Maybe some of the lakes should be left fishless for long-term monitoring and ecological comparison with lakes that are restocked?
	11.66	Please see responses to Comments 11.10 and 37.2.
11.67		We note that decisions were made in the past to introduce non-native trout to these lakes without careful, thoughtful evaluation, and full consideration of potential ecological effects. This led to the ecological problems creating the need for this proposed project. We think it would be appropriate to proceed cautiously in restocking of fishless lakes, and to base restocking decisions on careful evaluation of monitoring data and information and full understanding of potential ecological effects.
	11.67	This project was carefully designed to protect this stronghold for westslope cutthroat trout from nonnative fish and hybridization.
11.68		Thank you for including a discussion of public or human health effects associated with using rotenone and antimycin (beginning on page 3-54).
	11.68	Thank you for your comment and interest in the SF WCT Conservation Program.

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11.69		<p>The DEIS lists the elements used in deriving Clean Water Act Section 304(a) criteria as the basis for calculating the chronic exposure values for rotenone, antimycin and potassium permanganate. This is appropriate, but there are a few corrections that should be made as follows:</p> <p>The new fish consumption value for the Clean Water Act 304(a) criteria is 17.5 grs/day instead of 6.5 grs/day (although you may be limited to 6.5 grs because that is the value in the current version of the State's WQB-7 criteria document).</p>
	11.69	<p>This information has been added to the FEIS in Section 3.9.</p>
11.70		<p>The DEIS lists the elements used in deriving Clean Water Act Section 304(a) criteria as the basis for calculating the chronic exposure values for rotenone, antimycin and potassium permanganate. This is appropriate, but there are a few corrections that should be made as follows:</p> <p>For rotenone, the document lists the appropriate Reference Dose (RfD), but we suggest you provide a citation for the value (i.e., EPA's IRIS document).</p>
	11.70	<p>The DEIS lists that the RfD for rotenone was derived from the EPA IRIS on page 3-54 of the DEIS.</p>
11.71		<p>The DEIS lists the elements used in deriving Clean Water Act Section 304(a) criteria as the basis for calculating the chronic exposure values for rotenone, antimycin and potassium permanganate. This is appropriate, but there are a few corrections that should be made as follows:</p> <p>For antimycin, the 0.5 mg/kg-day is a No Observed Effect Level (NOEL), not a Rfd. To arrive at a RD, this value will have to be adjusted downward based on appropriate uncertainty factors. EPA's Regional toxicologist (Dr. Robert Benson) recommends an overall uncertainty factor of 3,000 rather than 300 based on the following:</p> <ol style="list-style-type: none"> <li>1) a factor of 10 based on uncertainty in the animal to human translation;</li> <li>2) a factor of 10 based on intra-human variability;</li> <li>3) a factor of 10 based on the subchronic/chronic uncertainty; and</li> <li>4) a factor of 3 based on data limitation (i.e., one study) = 3000 as the</li> </ol>

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		<p>overall uncertainty.</p> <p>The RfD for antimycin, then, would be 0.0002 mg/kg-day.</p>
	11.71	This information has been added to the FEIS.
11.72		<p>The DEIS lists the elements used in deriving Clean Water Act Section 304(a) criteria as the basis for calculating the chronic exposure values for rotenone, antimycin and potassium permanganate. This is appropriate, but there are a few corrections that should be made as follows:</p> <p>For antimycin, the document notes that antimycin does not bioconcentrate, and therefore no bio-concentration factor (BCF) is used in the calculation of the human health value. We suggest that there be a reference supporting this conclusion (note: There are a number of toxicants, some metals for example, that do not bioconcentrate appreciably and are said not to concentrate, but even for these, the BCF is often greater than 1).</p>
	11.72	This has been added to the FEIS.
11.73		<p>The DEIS lists the elements used in deriving Clean Water Act Section 304(a) criteria as the basis for calculating the chronic exposure values for rotenone, antimycin and potassium permanganate. This is appropriate, but there are a few corrections that should be made as follows:</p> <p>For potassium permanganate, the document does not present a proposed human health water column value. Dr. Benson has calculated a value. Based on his calculation (see attached) the water column value should not exceed 0.8 mg/L.</p>
	11.73	This information has been added to Appendix D.
11.74		The DEIS lists the elements used in deriving Clean Water Act Section 304(a) criteria as the basis for calculating the chronic exposure values for rotenone, antimycin and potassium permanganate. This is appropriate, but there are a few corrections that should be made as follows:

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		<p>It may be reasonable to base the chronic exposure scenario on the drinking water route of exposure only, since, as the DEIS explains, the fish targeted for removal will be killed quickly and the dead fish will be collected and disposed of (i.e., if the fish are quickly killed and disposed of, there would not appear to be much likelihood of bioconcentration and a fish consumption route of exposure). As a result, the chronic risk assessment calculation for the water column values might be based solely on the drinking water route of exposure. The reasonableness of this assumption, of course, would depend on a 100% (or close to) fish kill, dead fish collection and a short half-life for the chemicals used. Since the objective of a project such as this is generally 100% kill, limited potential for bioconcentration would seem to be a reasonable assumption.</p>																		
	11.74	<p>This information has been added to the FEIS in Section 3.4.</p>																		
11.75		<p>The DEIS lists the elements used in deriving Clean Water Act Section 304(a) criteria as the basis for calculating the chronic exposure values for rotenone, antimycin and potassium permanganate. This is appropriate, but there are a few corrections that should be made as follows:</p> <p>Based on the adjustments discussed above (using the 17.5 grs consumption assumption for the rotenone “water+fish”), we suggest appropriate toxicant target concentrations and human health values would be:</p> <table border="1"> <thead> <tr> <th rowspan="2">TOXICANT VALUE</th> <th rowspan="2">WATER COLUMN TARGET</th> <th colspan="2">HUMAN HEALTH</th> </tr> <tr> <th>Water+Fish</th> <th>Water</th> </tr> </thead> <tbody> <tr> <td>Only Rotenone ug/L</td> <td>50 ug/L</td> <td>18 ug/L</td> <td>140</td> </tr> <tr> <td>Antimycin ug/L</td> <td>7.5-8.0 ug/L or 4 ug/L</td> <td>-</td> <td>7.0</td> </tr> <tr> <td>Potassium Permanganate mg/L</td> <td>4.5 mg/L</td> <td>-</td> <td>0.8</td> </tr> </tbody> </table>	TOXICANT VALUE	WATER COLUMN TARGET	HUMAN HEALTH		Water+Fish	Water	Only Rotenone ug/L	50 ug/L	18 ug/L	140	Antimycin ug/L	7.5-8.0 ug/L or 4 ug/L	-	7.0	Potassium Permanganate mg/L	4.5 mg/L	-	0.8
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Potassium Permanganate mg/L	4.5 mg/L	-	0.8																	

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Comment Number	Response Number	Comment/Response
		Based on the figures in this table, the target concentrations for rotenone (50 ug/l) would be lower by greater magnitude than the estimated chronic "water only" human health value for rotenone (140 ug/L), more so than target concentrations and "water only" human health values for antimycin and potassium permanganate. This suggests that there may be a greater margin of safety in regard to human health risk for use of rotenone (at the proposed target concentrations) than for the other chemicals. Admittedly, this is an observation based on a limited amount of information and application of uncertainty factors, and it should also be noted that proposed target concentrations of these chemicals may be higher than shown to account for water chemistry and fresh water inputs. In any case, it is important that potential human health risks be considered along with other factors (e.g., rate of detoxification, quantity needed to kill fish, ease of bulk transport, toxicity to non-target organisms, piscicide availability, etc.) in weighing the advantages and disadvantages of use of the chemicals.
	11.75	This has been added to the FEIS.
11.76		<p>The DEIS lists the elements used in deriving Clean Water Act Section 304(a) criteria as the basis for calculating the chronic exposure values for rotenone, antimycin and potassium permanganate. This is appropriate, but there are a few corrections that should be made as follows:</p> <p>In regard to acute toxicity and exposure, it appears that the DEIS uses LD50 values from the literature to estimate exposure scenarios that are highly unlikely to occur, such as drinking 12,000 liters of contaminated water in one day, as the basis for dismissing concerns about acute exposures. We believe it is inappropriate to use a lethal dose as the basis for reaching conclusions about public health protection. Also, the extreme exposure scenario approach to presenting the LD50 information may be misleading in a public disclosure document such as an EIS. There appears to be a low amount of data with which to derive safe acute exposure levels for these chemicals. The EIS should disclose the uncertainty in human health exposure effects, and identify the mitigation measures and management practices that will be used to avoid and minimize human exposure.</p>

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Comment Number	Response Number	Comment/Response
	11.76	This information has been added to Appendix D.
11.77		Thank you for identifying the permits and authorizations that would be needed to implement the proposed project (pages 2-14, 2-15), including the water quality exemption permitted under MCA 7 5-5-308 for short-term exemptions from the purpose of elimination of undesirable and nonnative aquatic species (pages 3-26, 4-2, D-5). Generally the Montana DEQ establishes conditions that minimize risks to public health and the extent of exceedances of Water Quality Standards and the length of time during which an exceedance may occur. We believe the FEIS should also disclose the Montana DEQ's conditions for use of the MCA 75-5-308 water quality exemption.
	11.77	MCA 75-5-308 lists the conditions that minimize risk to public health and the proposed project would follow the stipulations on the required permit.
11.78		Also, we did not see Clean Water Act Section 401 water quality certification included among the permits and authorizations discussed. It would be appropriate to discuss Clean Water Act Section 401 water quality certification that may be required from the Montana DEQ.
	11.78	<p>Page 4-3 of the DEIS states “...the Forest Supervisor may authorize use of motorized equipment and chemical applications as deemed necessary for the administration of the area and its resources, such as the proposed action (FSM 2320, Direction for Wilderness, June 1990)...”</p> <p>The FS has provided authorization in past years for the rotenone treatment of Devine Lake in 1994. Issuing a federal permit is the criteria for requiring a Section 401 certification. Because the FS would not be issuing a permit per se' on this project, there would be no need to initiate the 401 process. Approval by the Forest Supervisor or designee is the appropriate level of authorization.</p>
11.79		The EPA issued an Interim Statement and Guidance on Application of Pesticides to Waters of the U.S. in Compliance with FIFRA (Federal Insecticides, Fungicides, and Rodenticides Act) on July 11, 2003 that indicates that application of a pesticide to waters of the U.S., consistent with all relevant requirements of the FIFRA, does not constitute the discharge of a pollutant under the Clean Water Act. It is our understanding that this policy would cover use of piscicides for managing non-native fish species. Thus, EPA's current position is that the use of fish toxicants in waters of

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
		the U.S. for management of non-native fish would not require an NPDES permit (or in Montana-MPDES permit) under Section 402 of the Clean Water Act. You should understand, however, that EPA is still accepting public comments on this position, and that there may be case law with alternative views on such matters.
	11.79	Thank you for your comment and interest in the SF WCT Conservation Program. We will continue to monitor this issue.
11.80		It is stated (page 3-61) that none of the alternatives would affect air quality, although a small possibility of odors from piscicides is noted. We note that there appears to be potential for emissions of air pollutants from aircraft and mechanical equipment used during transport, application and mixing of toxicants. These potential effects, while likely minor, should be assessed and disclosed, especially since emissions may occur in or near the Class 1 air quality areas of the Bob Marshall Wilderness and adjacent Glacier National Park.
	11.80	There will be some jet exhaust and exhaust from outboard motors, but these emissions are expected to be minimal resulting in short term and minor impacts to the air quality. These impacts have been added to Section 3.12.1.
11.81		<p>[BPA should consider the following research]: Suggested Guidance for Application of Manganese RfD to Specific Scenarios</p> <p>In applying the reference dose (RfD) for manganese to a risk assessment, it is important that the assessor consider the ubiquitous nature of manganese, specifically that most individuals will be consuming about 2-5 mg Mn/day in their diet. This is particularly important when one is using the reference dose to determine acceptable concentrations of manganese in water and soils. Following RfD/RfC Work Group deliberations, it was decided that having a single reference dose for total oral intake of manganese is most appropriate, but that guidance should also be provided as to how this reference dose might be applied in specific situations. It is recommended that the upper end of the range recommended by the NRC (5 mg/day, described below) be considered to represent a typical human intake from total dietary sources. For determination of acceptable concentrations of manganese in water and soil, then, the risk assessor would subtract this amount from the level specified by the RfD [i.e., 10 mg/day (RID) - 5 mg/day (typical dietary intake) =5 mg/day (remaining)]. For applying this number to a non-dietary scenario, it is also recommended that a</p>

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		<p>modifying factor of 3 be applied. The rationale for this modifying factor is three-fold. First, while the data described in section I.A.4 of the IRIS file suggest that there is no significant difference between absorption of manganese as a function of the form in which it is ingested (i.e., food versus water), there was some degree of increased uptake from water in fasted individuals. Second, the study by Kondakis et al. (1989) has raised concerns for possible adverse health effects associated with a lifetime ingestion of drinking water containing about 2 mg/l manganese. While no data are available to quantify total intake of manganese, one would not expect this concentration of manganese in water to be a problem based on dietary information revealing intakes ranging from 2 to 10 mg/day that are not associated with adverse health effects. Third, although toxicity has not been demonstrated, there are remaining concerns for infants fed formula which typically has a much higher concentration of manganese than does human milk (see section I.A.4 of the IRIS file for further discussion). If powdered formula is made with drinking water, the manganese in the water would represent an additional source of intake.</p> <p>Using the recommended appropriation of 5 mg Mn/day for dietary contributions and a modifying factor of 3 for exposures from soil and drinking water and a body weight of 70 kg, yields a value of 0.0238 mg/kg-day.</p> <p>Exposure from water + Exposure from soil = <math>(10-5)/(3 \times 70) = 0.0238</math> mg/kg-day</p> <p>Assuming no exposure from soil and a '70 kg person drinking 2 L/day, the suggested advisory level is:  <math>0.0238 \text{ mg/kg-day} \times 70 \text{ kg} \times 1 \text{ day} / 2 \text{ L} = 0.8 \text{ mg/L}</math></p>
	11.81	This has been added to the FEIS.
12.1		The Service reviewed an April 2002 biological assessment prepared by BPA and Montana Fish, Wildlife, and Parks (MFWP) for this project and concurred with the determination that the proposed project is not likely to adversely affect the threatened bull trout ( <i>Salvelinus confluentus</i> ), threatened grizzly bear ( <i>Ursus arctos horribilis</i> ), threatened bald eagle ( <i>Haliaeetus leucocephalus</i> ), threatened Canada lynx ( <i>Lynx canadensis</i> ) and the threatened gray wolf ( <i>Canis lupus</i> ) (UFWS, May 15, 2002,

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		letter of concurrence). Therefore, pursuant to 50 CFR 402.13 (a), formal consultation on the bull trout, or other federally listed species, was not required and incidental take of any threatened and endangered species within the project area is not anticipated. However, although incidental take is not anticipated, should unforeseen circumstances accidentally result in incidental take of a listed species, the Service must be notified. Further, if the final design of the project is changed so that it changes the effects on federally listed species, a revised biological assessment may be required.
	12.1	We will continue to comply with the ESA throughout this project.
12.2		The Service has reviewed the DEIS for the proposed project and supports the activities outlined in the DEIS that would reduce the threats to a native species that has been degraded due to anthropogenic factors, specifically westslope cutthroat trout. The anticipated net effect of the proposed project ... may help prevent westslope cutthroat trout being driven toward federal listing in the future.
	12.2	Thank you for your comment and interest in the SF WCT Conservation Program.
12.3		The anticipated net effect of the proposed project will likely return portions of the Bob Marshall and Great Bear Wilderness areas to a condition that is consistent with the spirit and purpose of the Wilderness Act... .
	12.3	Thank you for your comment and interest in the SF WCT Conservation Program.
12.4		The Service considers alternatives B and C as having the greatest potential of achieving westslope cutthroat trout conservation. We believe that MFWP is cognizant of the public's high regard for the qualities and values in designated wilderness areas, and the MFWP has provided the assurances that the Proposed Action represents a carefully considered attempt to balance objectives that sometimes appear to conflict (i.e., protection of wilderness values opposed to conservation of rare species) with the reality of conducting business in a financially conscientious manner.

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	12.4	Thank you for your comment and interest in the SF WCT Conservation Program.
12.5		We wish to convey our appreciation of the agencies involved for actions that promote the conservation of westslope cutthroat trout. Projects such as what is proposed in the DEIS will be helpful in protecting the existing range and in increasing the number of populations of the westslope cutthroat trout. Such actions will be extremely beneficial for this rare species and we hope, will factor prominently into preventing the need to add this fish to the Secretary of Interior's list of federally threatened and endangered species.
	12.5	Thank you for your comment and interest in the SF WCT Conservation Program.
13.1		You need a sample fish from Martin Lake tested before you poison them. I was asked to go with a group of people to catch 25 fish as a sample (I was unable to go). The group didn't catch any fish to test.
	13.1	Martin Lake is not part of this proposed project.
13.2		The fish they have been catching from the lake look pure.
	13.2	You are correct; some of the fish are pure. MFWP has been stocking genetically pure fish in these lakes for years to correct the problem and maintain angling quality, but hybrid trout are still there. See Sections 1.1, 1.2 and 2.6.4 of the DEIS.
14.1		We understand the rationale behind this project and we think it is admirable for the BPA, USFS, and Montana Fish, Wildlife, and Parks to try to restore our native fisheries and eliminate introduced trout competition. Unfortunately, we introduced non-natives into these mountain lakes and watershed in the first place during the past years and we may now be playing "God" again when we try to reverse those previous mistakes.
	14.1	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

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		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.
14.2		We believe it is highly unlikely that all hybridization and non-natives would be eliminated in this tremendously expensive project. It is unrealistic to think we can totally correct or "undo" our past.
	14.2	See response to Comment 35.16.  Montana 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.
14.3		If this project does continue as planned, we suggest that initial attempts be limited to one drainage or basin for a test case to be certain that it has the positive outcome you intend.
	14.3	Thank you for your comment and interest in the SF WCT Conservation Program. Section 2.4.1.1 and Appendix D lists examples of successful treatments in this project area.
14.4		The effect upon existing recreation opportunities is substantial! This region has a rapidly expanding human population and the public is continuously demanding improved and increased recreational use days. The South Fork Westslope Cutthroat Trout Program would be harmful to the local public fishing opportunities... . This effect upon the loss of public recreation must be an important consideration during the EIS process.
	14.4	This issue was addressed throughout the DEIS. Starting on page 1-2 of the DEIS, some commenters wish that the wilderness lakes be rendered fishless and left that way. The analysis in the DEIS considered this and determined that there may be a negative and long-term impact to anglers and outfitters if this happened. Section 3.7 and 3.8 of the DEIS provide additional information that was evaluated or considered during this analysis.
14.5		The South Fork Westslope Cutthroat Trout Program would be harmful to ... local outfitters' livelihoods for nearly half a decade following the application of fish toxins.

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	14.5	The DEIS acknowledges this on pages 1-12 and 3-51. Section 3.8.3.1 provides some information on alternatives to dealing with these impacts, including rescheduling clients for different times of the year, and rescheduling destinations to adjacent lake fisheries.
15.1		The Department has reviewed comments submitted by the Montana Office of the EPA dated July 29, 2004, and fully concurs with those comments. The only minor exception pertains to Human Health comment 27. Montana has not adopted the new EPA fish consumption value of 17.5 g/day. The adopted fish consumption value for calculating Human Health criteria is 6.5 g/day. See the extensive comments previously submitted by the Department to the Department of Fish, Wildlife and Parks during the internal draft review pertaining to the calculation of Human Health criteria.
	15.1	This information has been added to Appendix D.
15.2		Since water quality sampling for rotenone may be difficult and a laboratory method for antimycin does not exist, instead of chemical monitoring, DEQ requests that biological monitoring for lakes and streams be performed at least during the first two years of the project. According to Sections 2.4.2.2 and 2.4.5 pre- and post- biological surveys are already planned and some of the information has been collected from lakes within the project area (Sections 3.3.2.2 and 3.3.3.1).
	15.2	Pages 2-25, 26, 27 of the DEIS lists the monitoring plan and we have added new information to the FEIS.
15.3		DEQ requests that information from pre- and post- biological sampling be organized into a report and submitted to Department after each year of treatment to document that no adverse short-term or long-term impacts to non-target species will occur. This information will also justify allowing the project to continue if the information demonstrates water quality and beneficial uses will be protected.
	15.3	Thank you for your comment. We would comply with any reporting requirements stipulated by your office.
15.4		[Specific comment on section] 1.5.4: In addition to the “308 Authorization” DEQ has §401 Certification authority for federal permits (i.e., Forest Service special use permits) that may cause a discharge to state waters. The §318 “Turbidity Authorization” should also be mentioned because

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		construction of dams, weirs or other structures (that cause sediment or turbidity increases) may be installed during the life of the project.
	15.4	Section 2.7.3 of the DEIS discloses and analyzes this as an option, but it was eliminated for further consideration. The FS would not be issuing a "Special Use Permit" but rather would "approve" the activity as was the case in the Devine Lake rotenone treatment of 1994.
15.5		[Specific comment on] 2.4.24 Add provisions for the §401 Certification and possible §318 Authorization. The 308 Authorization conditions listed are an example; additional conditions, such as biological monitoring, may be required by DEQ.
	15.5	See responses to Comments 11.78 and 15.4. MFWP will comply with the terms of the 308 permit.
15.6		<p>[Specific comment on section] 3.4.1 Typical stream types found in the project area generally have gradients from 4 to 10 percent, and are characterized by straight (nonsinusuous) cascading reaches with (REMOVE) "frequently" (INSERT) "closely" spaced pools. Many of the outlet streams associated with the lakes in this project have large waterfalls immediately downstream of the lakes, some reaching 200 feet tall. (REMOVE) "Also common are" Streams with gradients from 2 to 4 percent (REMOVE) "; these-streams" usually occupy narrow valleys with gently sloping sides.</p> <p>There are no federal or Montana numeric water quality standards for rotenone or antimycin. However, the Montana Water Quality Act has narrative standards for water quality that prohibit the introduction of substances into waters that are injurious to aquatic life or that affect exiting uses. Under this project, MFWP would apply piscicide for the expressed purpose of killing unwanted fish. (REMOVE) "There may be some minimal and short term impacts to other aquatic organisms, but the MDEQ will permit an exemption for this activity under section 75-5-308 of the MCA." (INSERT) "The Montana WOA in §75-5-308 MCA and the EPA through FIFRA acknowledge the use of pesticides under special circumstances is beneficial. FIFRA registration and label instructions reduce the potential for impacts to non-target organisms or long-term impacts and protects human health. Conditions imposed by DEQ when it issues a "308 authorization" will add an additional level of protection to non-target organisms and designated beneficial uses. The conditions may include limitations to the time of year the piscicides are applied, monitoring treated waters to ensure</p>

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		detoxification of the piscicides is complete, biological monitoring and ensuring that the duration of toxic conditions is as short as possible, among others."
	15.6	We have corrected this in the FEIS in Section 3.4.1.
15.7		<p>[Specific comment on section] 3.4.3.1 Add a section describing the movement and detoxification of Antimycin by organic sediment.</p> <p>Add a section about the proper management of Rotenone.</p> <p>(REMOVE) "The only downstream users of water would be outfitter and private hunter camps."            (INSERT) "Impact to drinking water use (human health) and livestock uses will be minimized by temporary closure of the project areas; and proper signing and advance notification that would allow users to find alternate sources for water if necessary." (REMOVE)            "Some livestock watering would be expected at some of these downstream locations." A number of (INSERT) "other precautions will" (REMOVE) "factors would" aid in the reduction or elimination of REMOVE "project areas users" exposure to (INSERT) "these compounds by wildlife and other aquatic life proper containment of piscicide treatments (low concentrations used for fish killing do not have harmful effects on mammals); rapid detoxification of both compounds in flowing streams (INSERT) "and the treated lakes;" (REMOVE) "temporary closure of the project areas; and proper signing and advance notification that would allow users to find alternate sources for water if necessary."</p> <p>(INSERT) "Impacts to agricultural uses in the project areas is [sic] expected to be slight to no effect. Recreation (swimming) use impact will also be slight because of the time of year and cold water conditions when the treatments will be applied. Recreational fishing will be impacted until the restocking efforts are complete."</p>
	15.7	We have corrected this in the FEIS in Section 2.4.1.3 and provided additional information.

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Comment Number	Response Number	Comment/Response
15.8		[Specific comment on section] 4.1.5 Add sections discussing the §401 Certification and possible 318 Authorization.
	15.8	See responses to Comments 11.78 and 15.4.
15.9		<p>[Specific comment on] Appendix D Rotenone Effects Describe in detail the environmental factors affecting the decomposition of Rotenone and Antimycin. Discussions with FW&amp;P staff have described toxic conditions in a Rotenone treated lake well in the winter following treatment. Toxic conditions to aquatic life for months after treatment probably will not be considered short term as required in the 308 authorization. Outlet streams will have to be monitored and detoxified until a no effect level is reached.</p>
	15.9	<p>The example you refer to is the treatment of Rogers Lake on November 4, 1993 in which the lake was treated at 1.1 ppm rotenone to remove yellow perch, brook trout and red side shiners. This was the third time in history that Rogers Lake was treated with rotenone (1957, 1967).</p> <p>On March 12, 1994, three lots of caged fish were installed in the lake under the ice and monitored for 24 hours. Lot 1 was installed at the lake surface, Lot 2 at 11 feet depth, and Lot 3 on the bottom at 19 feet depth. At 24 hours exposure to treated water, Lot 1 fish had 100% survival, Lot 2 fish had 71% survival, and lot 3 fish had no survival. Dissolved oxygen (DO) measurements were taken at the corresponding cage depths. At the lake surface DO was 7.1 ppm, at 11 feet deep DO was 4.4 ppm, and at the bottom DO was 0.8 ppm.</p> <p>Rogers Lake toxicity did not persist through March 1994, and low DO levels are the likely explanation for the survival at these different strata. Based on this evaluation, Rogers Lake met the “no longer toxic” requirement listed on the product label, which is necessary for restocking the lake.</p> <p>Rogers Lake has a history of experiencing almost annual DO sags in February and March, which has affected the fish population in this lake.</p>

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15.10		[Specific comment on] Appendix D Regulatory Status Use the correct citations. The citation for 17.30.63 7(3)(b) does not exist. This was brought to your attention during the internal draft review comments.
	15.10	We have updated the text as suggested.
15.11		Specific comment on Appendix D: Municipal Wastewater Applications ...Hydrogen sulfide is (REMOVE) "one of the" (INSERT) "a" deadly (REMOVE) "gases" (INSERT) "gas" that can be formed in the collection and treatment of municipal wastewater...
	15.11	Thank you for your comment. Appendix D of the DEIS should be corrected to read "...Hydrogen sulfide is a deadly gas that can be formed in the collection and treatment of municipal wastewater..."
15.12		Specific Comments on Appendix D: Cleanup  ...sub-sample of the dead (INSERT) "fish" is collected...  Aesthetics is an important reason to clean up the dead fish, but odor control, bacteria and fungus control and removing the potential food source for bears, eagles and other wildlife to consume rotenone killed fish is even more important.
	15.12	The reasons for cleaning up a project site are described on page 2-23 of the DEIS. Page 3-31 of the DEIS specifically addresses the biological benefits of leaving dead fish in a lake.
16.1		First is that we think that any lake that is poisoned needs to be restocked with – [no species listed] to preserve that fishery.
	16.1	Thank you for your comment.
16.2		We would not support poisoning out the existing fish and keeping the lake fishless.

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	16.2	Thank you for your comment.
16.3		The second comment is the use of mechanized equipment in the wilderness or Jewel Basin hiking area. We think it ought to be done in a way that's relatively cost effective as well as maintaining the wilderness qualities and the hiking qualities of the area. So in summary, we support using some mechanized equipment. It seems to be a reasonable balance between maintaining the wilderness qualities as well as being cost effective in dealing with the fishery issue.
	16.3	Thank you for your comment and interest in the SF WCT Conservation Program.
17.1		I fully support the project that's been presented, with one exception. The exception is Handkerchief Lake. It's my view that the resource; that is, the grayling, are of two high of value to be poisoned out. I appreciate the fact that they're going to trap and hold and restock, but it's my opinion that far too many grayling will escape the traps and be killed. And I just don't think that's the approach we should take based on the value of the grayling in our current societal situation.
	17.1	Handkerchief Lake is an important fishery for grayling and trout. To mitigate the impacts to the fishery, MFWP would remove some of the larger grayling and hold them in net pens in Graves Creek Bay until the treated waters are no longer toxic to fish. Handkerchief Lake has a demonstrated ability to produce large grayling and will continue to do so.
17.2		I guess I would support poisoning the Graves Creek from the outlet down to the reservoir, which is where, in my view, the majority of the trout are. I first began to fish Handkerchief in 1958 and have caught very, very, very few trout in the lake itself and lots and lots and lots of grayling.
	17.2	Thank you for your comment and interest in the SF WCT Conservation Program.
17.3		And I just think it's an inappropriate decision, and I'd like to speak for the fish and say, let's just bypass Handkerchief Lake on this one and go ahead with the remainder of the project and just leave that alone.

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	17.3	Thank you for your comment. Please see response to Comment 2.2.
18.1		I would like to voice that there be no fish removal or fish toxins used in the high mountain lakes.
	18.1	Thank you for your comment.
18.2		I would like to see Montana Fish and Wildlife & Parks plant pure strain westslope Cutthroat Trout on existing populations and bring the ninety to ninety-five percent (90/95%) genetically pure fish population up genetically by using a swamp out method instead of killing all the wild Cutthroat. This would be a lot more beneficial than using a fish toxin, and keep the water quality untouched by a foreign chemical in the water/drainage.
	18.2	Section 1.2 (page 1-8) of the DEIS addresses this issue.
18.3		Not to mention the incidental killing of other aquatic life and small animals using the water to drink.
	18.3	See response to Comment 11.60.
18.4		There is an article in the Hungry Horse News from a former Biologist Joe Huston discussing this matter and was very concerned with the notion of MTFWP position on the removal of all these fish.
	18.4	Some people have different opinions about the reasons for proposing a project like this. 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. Mr. Huston had other opinions about this problem that are described in Rick Hulls article "The return of the king" in the 1986 May/June issue of Montana Outdoors. In 1986, Mr. Huston was responsible for implementing the rotenone treatment of the 4

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Comment Number	Response Number	Comment/Response
		Jewel Lakes to remove the threat that rainbow trout posed to the pure WCT in the drainage. That project was a complete success.
18.5		Montana Fish Wildlife & Parks has lost a lot of credibility in recent years and sportsman [sic] like myself would like to see them quit messing with the fish populations in region 1.
	18.5	Thank you for your comment. MFWP's duty is to the resources and those who enjoy them (see page 1-8 of the DEIS).
19.1		(see *18.1) I would like to see Montana Fish Wildlife & Parks plant more pure strain westslope Cutthroat Trout on existing populations and bring the ninety to ninety-five percent (90/95%) pure fish population up genetically instead of killing all the wild Cutthroat.
	19.1	See response to Comment 18.2.
19.2		[Genetic swamping] This would be a lot more beneficial than using a fish toxin, and keep the water quality untouched by a foreign chemical in the water/drainage.
	19.2	Sections 2.1 and 2.6.4 of the DEIS state that many lakes in the SF Flathead, including the wilderness, have been subjected to the genetic swamping management concept for nearly 19 years in an effort to correct this problem.
19.3		(see *18.2) Not to mention the incidental killing of other aquatic mammals and small animals.
	19.3	Aquatic mammals, i.e., otter and mink, are addressed in the response to Comment 11.48 and Section 3.3 of the DEIS addresses other small animals that are likely to be affected.
19.4		Montana Fish Wildlife & Parks has lost a lot of credibility in recent years and sportsman like myself would like to see them quit messing with the fish populations in region 1.

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
	19.4	Thank you for your comment.
19.5		I voice that there be no fish removal in the high mountain lakes.
	19.5	Thank you for your comment.
20.1		Have attended a meeting at FWP and read the DEIS. Please use alternative B.
	20.1	Thank you for your comment and interest in the SF WCT Conservation Program.
20.2		Think the idea of moving some of the grayling from Hankerchief [sic] Lake during the poisoning is good, perhaps could move a few more than planned? I worry you might interrupt the spawning, perhaps similar to Rogers Lake where no one seems to know what is altering the spawning there.
	20.2	Handkerchief Lake is capable of producing a quality grayling fishery. See response to Comment 17.1.
21.1		I don't think we should destroy anymore fisheries by poisoning lakes in the drainage. Most of us fishermen like to catch cutthroat or any trout. I would guess 99.9% of us don't care if the fish we catch has papers or is possibly a pure strain.
	21.1	We understand that not all anglers care about the genetic status of the WCT. MFWP has a dual purpose to enhance hunting and fishing and to preserve and protect native species for future generations; this project would achieve both agency missions. Actions to preserve and protect westslope cutthroat trout are also important when the US Fish and Wildlife Service considers whether this species should be listed as threatened or endangered under the Endangered Species Act (ESA). MFWP, BPA, and the USFS are trying to prevent WCT from being listed under the ESA by reducing the threats to this species in this area. See Section 1.2 of The DEIS.

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
21.2		[The project] seems to me another way to create jobs and destroy more fishing. There is no way there is ever any reason for catch and release if the fisheries program is working. A perfect example of a failed program is keeping fish under 10" along with the salmon that disappeared.
	21.2	Catch and release angling is not being proposed in this project.
21.3		Walleye Comments: Don't poison any more of Montana's waters with pike/walleye-Fort Peck and Yellowtail reservoirs are places for people to already fish for them.
	21.3	Thank you for your comment. There is no proposal to poison pike or walleye.
22.1		Your plan seems well thought out, although given the depth of some lakes I'm not sure fish kill will be as thorough as you would like.
	22.1	See response to Comment 11.21.
22.2		I've spent a lot of time in my 64 years in the Flathead hiking and fishing in these areas and I can tell you that you are going to kill a lot of beautiful fish in some of these lakes. I also have a hard time with wiping out a healthy grayling population in Handkerchief Lake.
	22.2	See response to Comment 2.2.
22.3		Given that there are already several lakes in the area which hold pure Westslope Trout, I question if they really are in danger of being listed as endangered and I wonder why every lake has to contain nothing but pure Westslope Cutthroat.
	22.3	This project balances the issues of providing angling opportunity and conserving the WCT. It is true that Yellowstone cutthroat trout and rainbow trout provide good fishing opportunities; however these species threaten the persistence of pure WCT in this area. Removing the hybrid trout and restocking with pure WCT provides this balance.

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
22.4		In this case, however, I wish you would scale back and downsize the scope of the project. I really think it is being overdone and the money could be better spent.
	22.4	Attempting to correct the problem using less intrusive means has been ongoing for 19 years (see Sections 1.1 and 1.2 of the DEIS). Given the threats facing the species in this area, we believe a more decisive method is warranted.
23.1		But I have a specific concern that is George Lake which I have enjoyed going into and fishing several times with friends and family. ... I am 60 years old and I would like to be able to continue to go in with my friends and family to fish George Lake.
	23.1	Angling would continue at George Lake if this project is implemented.
24.1		The need to establish a pure cutthroat species does not strike me as necessary since your on [sic] information states that the subject lakes originally had no fish in them. If you are trying to go “Pre-European”, restocking with any species is unnecessary.
	24.1	It is the responsibility of MFWP to address this problem, even though it is unpopular. We are not proposing to create fishless lakes.
24.2		The vast majority of tax payers and voters could not differentiate between a cutthroat and a sore throat. This project appears to have all the markings of appeasing a tiny group of elitist conservationists while providing work for some misled wild life professionals.
	24.2	<p>State law (MCA 87-1-201[9ai]) mandates that wildlife professionals of Montana “...manage wildlife, fish, game and non-game animals in a manner that prevents the need for listing by the state (87-5-107) or under the federal Endangered Species Act, and [ii] manage listed species, sensitive species, or a species that is a potential candidate for listing by the state (87-5-107) or under the federal Endangered Species Act in a manner that assists in the maintenance or recovery of those species...”</p> <p>This project serves to meet those mandates.</p>

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
24.3		I am not aware of any such project having any long term success as the interbreeding will undoubtedly re-occur naturally or through the acts of detractors.
	24.3	<p>There are numerous examples of successful projects like this throughout the country, across Montana, and specifically within the South Fork Flathead. In 1986 the four Jewel lakes were treated with rotenone to remove rainbow trout and restocked with genetically pure westslope cutthroats. In 1994, Devine Lake in the Bob Marshall Wilderness was treated with rotenone to remove brook trout, then restocked with westslope cutthroat trout. In 2000, Whale Lake in the North Fork Flathead, and Tom Tom in the South Fork Flathead were treated with rotenone to remove hybrid Yellowstone cutthroat trout. The lakes were restocked with pure westslopes and are providing a fishery. These projects have been successful at removing nonnative fish and maintaining a sport fishery.</p> <p>The threat of sabotage exists at any time and cannot be used to drive the management of a species. Removing all, or as many threats to this species in this area would have a long-term positive benefit to the species, long-term positive benefit to the angling public, and would ensure the long-term persistence of the species in this area.</p>
24.4		The slaughter of thousands of fish to appease the whims of a few is not in the best interest of conservation or society.
	24.4	Comment noted.
25.1		It appears that this project will preserved the integrity of the current westslope population while creating a location to restore a swindling [sic] statewide population.
	25.1	The SF drainage is widely recognized as the largest refuge for this species in the world. Maintaining the integrity of this species will ensure the long-term persistence for conservation and recreation.
25.2		I support the proposed action of removing non-native trout from the lakes in the south fork river drainage. My approved action would be action B, or the proposed action.

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
	25.2	Thank you for your comment and interest in the SF WCT Conservation Program.
25.3		My only concerns would be with the introduced populations not establishing a healthy population in the lakes within the 10 year period and planting fish in historically fishless lakes.
	25.3	Please see response to Comments 24.3, 37.78 and 40.26.
25.4		I am not concerned with angling pressures and would be interested in the process the ecosystem takes when fish are removed and restocked.
	25.4	MFWP has conducted follow up surveys on past rotenone projects in the project area. See pages 3-22 and D-5 of the DEIS and Appendix G of the FEIS.
26.1		We have taken a look at the DEIS and ask that you revisit our scoping letter of June 20, 2003. We still have the same concerns and find that the DEIS fails to put them at rest.
	26.1	We have reviewed the comments you submitted jointly with Friends of the Wild Swan during the scoping process in June 2003. You have commented on eight general areas of concern. <b>1.</b> The evaluation of a full range of alternatives. <i>Response:</i> Chapter 2 of the DEIS specifically considers and analyzes several methods and alternatives to achieve the objectives of this project. Also see the response to Comment 35.2. <b>2.</b> Inappropriateness of restocking fishless lakes. <i>Response:</i> Creating fishless lakes is not an objective of this project. This is disclosed on pages S-2, 1-9, 1-12, and 2-27 of the DEIS. Also see the response to Comments 37.35 and 11.10. <b>3.</b> Concerns related to bull trout. <i>Response:</i> This project will follow the guidelines recommended by the USFWS during Section 7 ESA consultation. See response to Comment 34.3 for additional information. <b>4.</b> The EIS must address effectiveness of antimycin and rotenone and monitoring results of past projects. <i>Response:</i> See Chapters 2 and 3 of the DEIS and responses to Comments 11.40 and 37.109. <b>5.</b> There is a need for a monitoring plan. <i>Response:</i> Pages 2-25, 2-26, and 2-27 of the DEIS lists the monitoring plan and we have added new information to the FEIS. <b>6.</b> History of impure WCT. <i>Response:</i> See DEIS Sections 1.2, 1.4 and 2.1. <b>7.</b> The Wilderness Act prohibits

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
		the use of motor vehicles. <i>Response:</i> See the response to Comment 1.4. 8. Why are you proposing to re-establish WCT in lakes that were naturally fishless and have no trail access and receive little angling use? <i>Response:</i> The objective is to conserve westslope cutthroat trout in the project area. The goal does not include restoring lakes to historic fishless conditions. Restocking the lakes is not one of the decisions that would be made from the information in this EIS. See Sections 1.4.2.2, 2.4.6, and 3.2.4 of the DEIS. Montana will continue to manage fish in the lakes to maintain established values as described in the DEIS.
26.2		In a nutshell, we remain supportive of the restoration of native fish but doubt this project/program will be of much value in this regard. The program would appear to be largely ineffective in totally eliminating non-native and hybrid species of fish so it is likely they will return to these waters over time.
	26.2	Comment noted.
26.3		Moreover, the program is intended largely to attempt to establish pure strain westslope cutthroat in lakes that were historically fishless anyway - so how is this to truly be viewed as restoration?
	26.3	The objective is to conserve westslope cutthroat trout in the project area. Hybrid trout would not continue to expand downstream and the restored native population would help protect genetically pure populations downstream. The proposed action does not propose to restore lakes to historic fishless conditions.
26.4		The lack of a sound monitoring program integrated in a step-by-step manner that moves forward from one lake or stream to the next only after success has been firmly established makes us all the more doubtful that this is a wise expenditure of time and money.
	26.4	Section 2.4.2.2 of the DEIS states that a pre-treatment survey and evaluation would be conducted. As stated in the DEIS, many of the plankton and amphibian surveys and evaluations have been conducted and are ongoing. The post treatment plan is disclosed in Section 2.4.5 of the DEIS. Pages 2-5 and 2-29 of the DEIS state that lessons learned from the treatments would be used to modify successive protocols and treatments. Please also see responses to Comments 11.40, 31.7 and 37.134. More information about monitoring is provided in the FEIS. Please also see Section

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Comment Number	Response Number	Comment/Response
		2.4.1.1 and page D-5 for information about past successful treatments.
26.5		With these doubts in mind, we simply cannot lend our full support to a program that would, according to some alternatives at least, require the use of motorized vehicles and equipment in Wilderness areas, Jewel Basin Hiking Area, and other areas where motorized use is otherwise prohibited or a non-motorized backcountry setting is expected.
	26.5	We understand that the use of motorized equipment and vehicles in the wilderness is objectionable to some. Such use for this project would be infrequent and temporary. We anticipate that successfully completing the project would result in a net reduction of wilderness flights over time. See Section 2.4.6 of the DEIS.
27.1		I [sic] seems your plan is well thought out, however given the depth of some lakes I'm not sure fish kill will be as thorough as you like.
	27.1	See response to Comment 11.21.
27.2		In principal [sic] I'm still opposed to the project. I know from personal experience that you are going to kill a lot of beautiful fish in some of those lakes—4 to 5 pounders. I also don't know how you justify wiping out a healthy grayling population in Handkerchief Lake.
	27.2	The DEIS states that this fishery is acknowledged to be very strong and popular and will be maintained as such (see pages C-7 and C-8). See response to Comment 17.1.
27.3		Given that there are already some lakes in the area that hold pure Westslope Cutthroat I question why every lake has to be for pure Westslope Cutthroat.
	27.3	Any lake or stream that harbors hybrid trout and has an opportunity to hybridize with the pure WCT populations is a threat to the SF WCT population.
27.4		I urge you to downsize the scope of the project, I think the money could be better spent.

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
	27.4	Thank you for your comment and interest in the SF WCT Conservation Program.
28.1		I have mixed feelings about this project. Your intentions are good... your odds of success are not so good. Lakes the size of George, Woodward, or Sunburst are extremely hard to poison out successfully. You will have no way of knowing for years whether or not it was a success.
	28.1	The lakes you refer to are large and deep. We recognize that treating them will present challenges, but implementing a successful treatment should be possible. We propose to use gill netting initially to determine the level of kill, then later to use genetic sampling to confirm purity.
28.2		In the meantime you spoil some first class fisheries in these lakes. You also have to wonder what the risks to the genetic pool in the South Fork really are. Those fish have been in the lakes for a lot of years.
	28.2	Although the hybrid fish have been in the project area for many years, the problem was recognized many years ago and corrective measures were implemented to safeguard the WCT populations (see Section 1.2 of the DEIS). Those measures have slowed the progression of hybridization, but have not eliminated the threat. Once hybrid trout become firmly established in the SF Flathead River or Hungry Horse Reservoir, there is little that can be done to reverse the circumstance. The SF Flathead drainage is unique in the sense that it offers high quality angling for primarily native fish. Other Montana rivers offer very high quality angling, but are comprised mostly of non-native fish. Although the value of those other fisheries is high and irreplaceable, the SF Flathead is unique. Conserving the native fishery and high quality angling opportunity for native fish in this drainage is a responsible course of action.
28.3		A lot of money has been thrown at the problem with the various studies, the overstock program, etc. Maybe that money could be spent by the BPA better somewhere else.
	28.3	BPA funding is available to Montana to mitigate for fish and wildlife impacts from Hungry Horse Dam. It simply cannot be spent in eastern Montana for bass. This project is a direct mitigation effort to aid in conserving and maintain high quality native fish populations, and angling opportunities for native fish.

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
28.4		Last, but not least, you have the distinct possibility of some "bucket biologist" dumping a bucket full of fish into the system at some time in the future.
	28.4	Illegal introductions continue to occur despite education programs and law enforcement. We share your concern about the potential for live fish transport violations. Restoring the fishery rapidly would remove the primary motivation for future illegal introductions.
28.5		I suspect that you're going to upset some people when you poison out their favorite lake.
	28.5	We acknowledge that some will be upset. MFWP is planning on reestablishing a fishery in each lake that is treated.
29.1		I am opposed to the poisoning of the roughly 20 lakes in the South Fork of the Flathead River system, to remove the hybrid trout. I believe the impacts to the total river system is [sic] not fully evaluated.
	29.1	Thank you for your comment. The impacts that have been identified have been disclosed and evaluated in the DEIS.
29.2		Some of those lakes have fantastic fishing opportunities that will be changed for many years. This proposal will add more mistrust between anglers and MTFWP.
	29.2	The DEIS (page 2-26) indicates that fish stocking would occur the next summer following the treatment. Multiple year classes and sizes of fish would be stocked in some lakes to restore angling quality as quickly as possible.
30.1		I have tramped these hills and fished these waters for almost 50 years and I see no reason try to alter what has been fine for 50 years.
	30.1	Thank you for your comment and interest in the SF WCT Conservation Program.
30.2		The likelihood [sic] that these lakes will stay genetically pure is remote. Just look at what has happened to all the other lakes around here with the introduction of other species both by illegal or

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
		legal means. How do you suppose they became slightly impure today?
	30.2	The lakes were stocked with rainbow trout and Yellowstone cutthroat trout from the 1920s through the 1950s by several agencies and individuals. In the late 1950s this practice was halted and the lakes were stocked with westslope cutthroat trout only. Over the years these populations have become mixed, but they still have some non-native genes that stem from the original stocks. The lakes contain hybrid trout that are escaping and posing a threat to the genetically pure westslopes in the SF Flathead River drainage, and in Hungry Horse Reservoir.
30.3		My choice is to keep these lakes as they are now with intermittent stocking of pure westslope cutthroat and this will gradually improve the purity.
	30.3	Thank you for your comment and interest in the SF WCT Conservation Program.
31.1		American Wildlands continues to strongly support the protection and restoration of both pure populations of WCT and their native habitat. However, we do have several concerns regarding the current BPA proposal for the South Fork Flathead Watershed:
	31.1	Comment noted.
31.2		Several of the twenty-one proposed project lakes were historically fishless before Montana Fish, Wildlife and Parks began an aggressive non-native stocking strategy in the 1950's. We would like to see that upon removal of all non-native fish species, each of the historically fishless lakes remain that way. We support the reintroduction of WCT only to those project lakes and streams where WCT historically inhabited. AWL does not believe it is appropriate to "restore" westslope cutthroat trout to lakes and streams where the fish never naturally occupied.
	31.2	Thank you for your comment. Please see response to Comments 11.26 and 30.2.

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
31.3		We also would like to see the project focus first on closed basin lakes, as past projects have shown the difficulty of eradicating hybrids in open basins.
	31.3	None of the lakes are considered closed basins, but barriers prevent upstream movement of fish from downstream sources. Pyramid Lake frequently experiences low to no flow during the summer and fall months, however, the outlet stream does connect with Youngs Creek during spring runoff in most years. Some of the other lakes experience subsurface flow during low flow times of the year. This feature will be used advantageously, as much as possible, to help contain the lake and stream treatments. Lakes where low flow and subsurface flow have been observed include Margaret (see page C-18 of the DEIS), Pilgrim (see page C-19 of the DEIS), and Pyramid (see page C-21 of the DEIS). In 2003, the outlet of Big Hawk Lake flowed underground for approximately 200 yards due to low flow in the fall of the year.
31.4		The federal Wilderness Act defines a wilderness as "an area where the earth and its community of life are untrammelled by man...which is protected and managed so as to preserve its natural conditions...with the imprint of man's work substantially unnoticeable." The utilization of helicopters, planes and motorboats in a wilderness area violates the directive of the Wilderness Act, as the law specifically prohibits the use of motorized equipment unless use demonstrates the minimum necessary for protecting the wilderness resource. American Wildlands therefore does not support the proposed alternative to use motorized mechanization to transport materials, chemicals and staff to the restoration sites. In all project areas within designated wilderness, we would like to see utilizations of solely non-motorized transport. In non-wilderness areas, we support the use of helicopters to transport materials, as this method would avoid conflicting with current Forest Service management prohibiting pack stock in the Jewel Basin.
	31.4	Please see the response to Comment 1.4. The DEIS considers the restrictions placed on wilderness and has worked to determine the best way of accomplishing the objectives.
31.5		The Montana Department of Fish, Wildlife and Parks (FWP) should develop a local "near neighbor" stock of westslope cutthroat trout for restoration purposes. Although it does take time to develop the near neighbor stock, we prefer to see WCT reintroduction take place in its historical habitat with near neighbor stocks and not MO12 hatchery fish that lack the 100 percent locally developed genotype.

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
	31.5	See response to Comment 37.97.
31.6		None of the lakes within designated wilderness should be stocked with MO12 fish.
	31.6	Please see the response to Comment 37.97.
31.7		The Final EIS must disclose specifically how the applications and affects of toxins and piscicide will be monitored.
	31.7	<p>Pages 2-25, 26, 27 of the DEIS lists the monitoring plan and we have added the following information to the FEIS.</p> <p>Monitoring also includes the following:</p> <ul style="list-style-type: none"> <li>• Setting caged fish in lakes and streams to determine the lethality and/or neutrality of treated waters, and when to restock.</li> <li>• Gill netting lakes to determine fish population status.</li> <li>• Visual observation of spawning redds, in part, to determine natural reproduction.</li> <li>• Electrofishing surveys in streams to determine fish abundance.</li> <li>• Sampling lakes with a Wisconsin net to determine plankton species and abundance.</li> <li>• Angler surveys and reports to determine satisfaction.</li> <li>• Sweep netting and kick netting to determine insect species and abundance.</li> <li>• Visual surveys, kick netting, and electrofishing to determine amphibian presence and abundance.</li> </ul>
31.8		The document should detail how undesirable genetic drift will be slowed in the South Fork watershed and eliminated in specific drainages.
	31.8	Section 1.1 of the DEIS describes the problem created by hybrid fish moving downstream from the source populations. When hybrid trout are replaced with pure WCT, genetically pure fish would be

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
		moving downstream. Over the long-term, the trend would be toward genetic purity, safeguarding the downstream pure WCT populations, and ultimately species conservation.
31.9		The FEIS should disclose the specific impacts of the project on each wilderness lake and the impacts to recreational/angling usage.
	31.9	Recreational/angling impacts at the lakes would be similar. Please see Chapter 3 of the DEIS.
31.10		In addition, the project must be carefully monitored to ensure that bull trout populations associated in downstream drainages from the treated lakes are not adversely impacted by the treatment. The FEIS must clearly define how the downstream detoxification stations will function and ensure that bull trout and other native downstream species of concern are protected.
	31.10	Appendix C of the DEIS provides detailed descriptions of the treatment zones in streams. We have also added more information about the stations in Section 2.4.5 of the FEIS.
31.11		We prefer the application of antimycin to remove the hybrid fish species from all the proposed project areas. As antimycin requires less volume per area treated than other piscicides such as rotenone, fewer trips and pack animals are required which would limit associated impacts. In addition, antimycin detoxifies more rapidly in streams after oxidation and photolysis, thus we prefer the use of this toxin to ameliorate any possible impacts on downstream bull trout and other native species.
	31.11	<p>There are advantages and disadvantages to both antimycin and rotenone. See the DEIS (pages 2-16, 2-18). Livestock are not allowed in the JBHA.</p> <p>The reasons you cited for preferential use of antimycin are correct. The DEIS lists these attributes (page 2-10), as well as in the management objectives and preferred course of action for each lake in Appendix C of the DEIS.</p> <p>Although the performance benefits are clearly listed in the DEIS for antimycin, we acknowledge that the DEIS is not clear on the performance advantages that were used to help determine where</p>

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
		<p>rotenone would be used.</p> <p>First, rotenone has performance characteristics in stream environments that can be used to the advantage of an applicator to cover longer reaches of streams in rugged remote terrain. As a result, this does not require as many drip stations to maintain lethality of stream water. In areas where downstream bull trout populations are not at risk of exposure to the fish toxin, rotenone is preferred to make advantage of this. When bull trout are at risk of exposure, antimycin would be used to reduce the impacts to them.</p> <p>Second, MFWP has a long history, success with, and is experienced at using rotenone, specifically within the project area.</p> <p>Finally, aircraft transport in the JBHA is easier to approve than in the wilderness. This is the quickest, safest, and least ground-disturbing mode of transport in the JBHA. Margaret Lake is located on National Forest, but has no trail that would support livestock use. The only other option is to use aircraft.</p> <p>We have added this information to Appendix D.</p> <p>Tables 2-1 and 2-3 of the DEIS provides a list of transport methods by lake and analyzes the options, respectively.</p> <p>Appendix C lists the reasons why aircraft would be used at Lick Lake and George Lake.</p>
32.1		Due to the size and water volume in many of these lakes the cost would be huge. I feel available dollars could be used more wisely on productive projects.
	32.1	See response to Comment 28.3.
32.2		There is also no guarantee of 100% success.

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
	32.2	<p>See response to Comment 35.16.</p> <p>Chemical treatments are highly effective and have been proven to be 100% effective at removing all fish from both streams and lakes, including some in the project area. Some opponents of this project demand a 100% guarantee. This guarantee cannot be given because there can be unforeseeable circumstances that can confound 100% success. It is best to recognize that there are legitimate circumstances that can confound 100% success. It is also important to recognize that chemical treatments are highly successful and have been 100% successful.</p>
33.1		<p>I have never, in 50 years of fishing in Montana, heard of a more stupid, ill-conceived idea than the present one of poisoning the lakes in the headwaters of the South Fork drainage. You are going to be destroying a precious resource that sportsmen have paid for with their yearly fees.</p>
	33.1	<p>Comment noted.</p>
34.1		<p>Friends of the Wild Swan supports native restoration however, this proposed project violates the Wilderness Act, is risky and does not restore native cutthroat trout.</p>
	34.1	<p>Please see responses to Comments 1.4 and 34.10.</p>
34.2		<p>The money being spent on this project would better serve native fish restoration if it was used to implement the road reclamation authorized under the Forest Service's Paint Emery and Bent Flat Records of the Decision. Road reclamation has proven benefits to native fish and their habitat. The Paint Emery project is located in westslope cutthroat trout streams in the South Fork Flathead drainage and the environmental analysis is completed. However, funding is lacking to reclaim the remaining 72 miles of road that fall under this decision.</p> <p>The Bent Flat project is also located in the South Fork Flathead drainage and the environmental analysis is completed but funding is not available to reclaim the remaining 8 miles of road that fall under this decision. It would be consistent with Hungry Horse mitigation and restoration of cutthroat trout habitat to fund and implement these projects.</p>

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
	34.2	<p>In 2001, BPA funding from Hungry Horse Dam Fisheries mitigation was used to implement the Emery Creek road relocation and stream habitat project, which is related to the Paint/Emery timber project. That project was a success at maintaining the high level of WCT production in the Emery Creek drainage and greater SF Flathead drainage.</p> <p>Rebuilding roads goes beyond the scope of this proposal.</p>
34.3		<p>The DEIS fails to disclose that most suppression projects are not successful and could require repeated applications of the toxins into these lakes and streams. The Montana Bull Trout Scientific Group's paper Assessment of Methods for Removal or Suppression of Introduced Fish to Aid in Bull Trout Recovery concluded that toxicant, use in lakes is more difficult in lakes with springs and inlet and outlet streams. And typically the suppression effort must be repeated every few years because the adversely interacting species usually return to pre-suppression levels. Repeated use of toxicants on these lakes was not analyzed in the DEIS nor disclosed as a possibility. The DEIS does not disclose whether these lakes are spring-fed and the increased difficulty of attempting to eradicate fish from these lakes.</p>
	34.3	<p>Sections 2.6 and 2.7 of the DEIS specifically address suppression methods, the potential for success, and the limitations for success. You may have considered fish toxin as a suppression method based on the descriptions provided in the Bull Trout Scientific Group document (1996). That document was studied and referred to in the DEIS numerous times (pages 2-32, 2-33, 2-34). In fact, as defined in the DEIS, fish toxin is considered an absolute, or near absolute method of achieving complete removal of fish, and when compared to the other fish capture methods, it offers the highest probability of success at meeting the objectives of this project.</p> <p>Page 2-25 of the DEIS discloses that a second treatment may be necessary if the objectives are not met.</p> <p>Pages 2-14 and D-6 of the DEIS specifically lists the importance of identifying all fresh water inputs to each lake in order to facilitate an effective treatment.</p> <p>We believe the 1996 Bull Trout Scientific Group citation was incorrectly cited "...typically the</p>

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		<p>suppression effort must be repeated every few years because the adversely interacting species usually return to pre-suppression levels...” The language cited specifically referred to the Strawberry Reservoir, Utah project, which had objectives to only suppress the target species to improve angling quality. This project has different objectives with different species. MFWP has examples, in this project area, where complete removal of hybrid trout with rotenone was the objective, and has been successful.</p>
34.4		<p>Regarding the use of toxicants in streams the Scientific Group stated that typically toxicants needed to be used for two years in a row on a reach of stream. The DEIS does not analyze the cumulative effects of the repeated use of toxicants in these streams, [and] the success rate of using toxicants in streams... .</p>
	34.4	<p>The anticipated impacts of multiple treatments in streams are expected to be similar to the impacts of a single treatment, only prolonged to account for the second treatment the following year. Page 2-8 of the DEIS provides examples of some lakes in the Flathead basin that have had multiple applications of rotenone. Appendix D of the DEIS provides some information on rotenone use in streams, and Section 2.4.1.3 of the DEIS provides information on antimycin performance in streams.</p> <p>We have expanded the cumulative impacts discussion in the FEIS.</p>
34.5		<p>The DEIS does not analyze the cumulative effects of the impacts of repeated [toxicant] use on amphibians, invertebrates and other wildlife.</p>
	34.5	<p>We have added more information about cumulative impacts to the FEIS. Please see response to Comment 34.4.</p>
34.6		<p>The DEIS fails to disclose that rotenone can persist for up to five months. Higher water temperatures will degrade the rotenone faster. These high mountain lakes do not get warm even in the summer so it should be assumed that it takes longer for the rotenone to break down in these lakes. (Hinson 2000) [Dustin Hinson, Rotenone Characterization and Toxicity in Aquatic Systems, University of Idaho, Principles of Environmental Toxicity, November, 2000.]</p>

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	34.6	The information about the persistence of rotenone is disclosed on pages 2-9, 2-24 and Appendix D of the DEIS. We acknowledge that some environmental conditions may cause rotenone to persist, just as they would cause it to detoxify more rapidly than intended. See Sections 2.4.1.2, 2.4.1.4 and 2.4.4.3 for information about proposals to detoxify the rotenone. We have reviewed the Hinson paper and have added it to our references.
34.7		The DEIS fails to disclose that potassium permanganate can leave fish vulnerable to bacterial and fungal infections. This is a serious effect to downstream native fish populations. (Hinson 2000) [Dustin Hinson, Rotenone Characterization and Toxicity in Aquatic Systems, University of Idaho, Principles of Environmental Toxicity, November, 2000.]
	34.7	We have reviewed the Hinson 2000 report and added it to the reference section. Hinson cites Bradbury (1986) in his discussion on potassium permanganate. We also have reviewed Bradbury (1986), and referred to that paper numerous times throughout the DEIS. It is unclear where Hinson gets the information that potassium permanganate leaves fish more vulnerable to bacterial and fungal infection. However, we cite Lay (1971) on page 2-10 of the DEIS. The Lay (1971) paper also states that potassium permanganate is an effective disease agent used in fish aquaculture with particular success against the control of saprolegnia, achlya, ich, parasitic copepods, and trematodes. This information appears to confound what is reported in Hinson (2000). The DEIS also acknowledges that potassium permanganate can be toxic to fish on page 2-10 of the DEIS.
34.8		Deploying poison in a wilderness area is inconsistent with the Act's legal mandate to preserve wilderness areas in a condition that is "untrammeled" by man. Although National Forest Service regional foresters are given the authority to approve the application of pesticides in wilderness areas, this should be reserved for emergencies that threaten human health or the environment. Other, non-toxic methods have not been tried. Given the health and environmental effects of using these toxicants, they certainly should not be used in a wilderness area.
	34.8	Sections 2.1 and 2.6.4 of the DEIS state that lakes in the SF Flathead, including the wilderness, have been subjected to the genetic swamping management concept for nearly 19 years in an effort to correct this problem. Furthermore, Pages S-1 and 1-2 of the DEIS describe some historical reference to this problem and the methods of correcting it. The Wilderness Management Handbook allows chemical treatment: Using poisons or "[c]hemical

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		<p>treatment may be necessary to prepare waters for the reestablishment of indigenous species, to protect or recover federally threatened or endangered species, or to correct undesirable conditions resulting from the influence of man.” <i>Wilderness Management Handbook</i>, 23.1--7. The Forest Service Manual (FSM 2323.34f.) states: “Chemical Treatment. Chemical treatment may be used to prepare waters for reestablishment of indigenous, threatened or endangered, or native species, or to correct undesirable conditions caused by human influence (FSH 2309.19). The Regional Forester approves all proposed uses of chemicals in wilderness (FSM 2150).”</p> <p>Additionally Item 13 of Chapter IV of the FWMF for the BMWC addresses chemical treatment to control exotic fish. It states:  <i>...Chemical treatment may be necessary to prepare waters for the reestablishment of indigenous species, to protect federally listed Threatened and Endangered species, or to correct undesirable conditions resulting from the influence of humans (for example, the establishment of an exotic fish population that threatens a native gene pool). The action must be necessary to maintain wilderness values or to recover a Threatened and Endangered species. Guidelines: (a) Consider over planting or “swamping” technique to restore indigenous species where practical rather than chemical techniques. Include in the management proposal an alternative using the over-planting technique if practical. (b) If chemical treatment is proposed, design a baseline and post treatment survey of aquatic fauna to gain scientific value from the action. (c) In selecting pesticides, give preference to those that will have the least impact on non-target species and the wilderness environment. (d) Schedule treatments during periods of low human use and immediately dispose of fish in a manner agreed to by FWP and the USFS.</i></p> <p>We believe the limited use of the piscicides is appropriate to help control a problem that began before the BMWC was protected as wilderness. See DEIS Section 3.2.1.</p>
34.9		<p>Use of helicopters, planes and motor boats in the wilderness area violates the Wilderness Act. The Wilderness Act specifically prohibits the use of motor vehicles unless their use is the minimum necessary for protecting the wilderness resource. Wilderness is “...an area where the earth and its community of life are untrammelled by man...retaining its primeval character and influence.. .protected and managed so as to preserve its natural conditions.” This proposal is not consistent</p>

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		with those values nor are we aware of exceptions to the Wilderness Act to conduct this type of project.
	34.9	See the response to Comment 1.4.
34.10		Restocking lakes that were naturally fishless in the wilderness violates the Wilderness Act. This project does not restore the wilderness character of the lakes or westslope cutthroat trout. The wilderness character of these lakes is that they did not contain fish. If the fish are removed from these wilderness lakes they should not be restocked with any fish, that would be restoration. Restoration is the act of putting something back into a prior position, place or condition, the prior condition of these lakes is that they were fishless. Restocking these naturally fishless lakes with westslope cutthroat trout is not restoration of this species because they never naturally occupied this habitat.
	34.10	<p>Restocking the lakes continues as a practice that was well established before the creation of the Bob Marshall Wilderness Complex. See Section 3.2.1. Historically, restocking was done to provide recreational fishing opportunities. And to some extent, though it was not a purpose of the stocking, it supported commercial guides and outfitters. Now, however, restocking has taken on a new and possible greater ecological importance. We believe, based on experiences (see DEIS Section 3.2.4), that substantially reducing hybrid trout, and then restocking with genetically pure WCT is the best way to conserve the WCT while maintaining angling opportunities. See DEIS Section 3.2.3.1. Absent this action, the agencies believe efforts to list the WCT under ESA will continue.</p> <p>These lakes contained fish for many years prior to wilderness designation and fish stocking is among the reasons why the area is regarded as having a high resource value for recreation and other solitude-type experiences. The debate on interpretation of the Wilderness Act, and perception as related to values, is difficult to resolve due to differences in values among people. In that sense, people who wish to use the fishless lake resources of the wilderness are able to in abundance. Not restocking the lakes with fish may have long-term impacts and consequences on the social and economic practices in this wilderness. MFWP does not propose to impact these segments.</p>

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		<p>This is not considered a species restoration project; it is clearly defined as a species conservation project. The word “restoration” appears in the DEIS on 16 occasions, and the word “conservation” appears 324 times. Granted, many of these instances are in titles and page labels, but nevertheless highlight the focus of this project as one of species conservation.</p> <p>See also the response to Comment 37.28.</p> <p>The Wilderness Act considers conditions of the area at the time the area is designated, not at a time before European men inhabited the area. The condition of the area at time of designation is used as a baseline to define “natural” condition. Restocking these lakes after treatment “restores” the natural condition under this definition.</p>
34.11		<p>The DEIS must have a comprehensive monitoring plan to determine success or failure of the project prior to implementing treatment to all lakes so success or failure could be determined and the project halted or modified. It appears that this project will proceed on many lakes in one season with no provision for evaluating environmental effects or success or failure.</p>
	34.11	<p>See responses to Comments 11.40, 11.43, 11.52, 31.7, and 35.13.</p>
34.12		<p>While the petition acknowledges that antimycin will have an initial adverse impact on stream macroinvertebrates, it assumes that the macroinvertebrate community will eventually return to its pretreatment status. But several studies have found that while macroinvertebrate communities frequently return, they may be altered from their original composition. And many unanswered questions remain regarding the long-term effect of antimycin on macroinvertebrates.</p>
	34.12	<p>See response to Comment 11.60. Page 3-24 lists information on the long-term affects of antimycin on aquatic insects. We acknowledge that there may be some variation in response between taxa, regionally. Pre- and post- treatment evaluations would help to describe the likely affects, but these evaluations are not the principle focus of this project. Based on the known reaction of aquatic insects to antimycin field trials, we would expect impacts to be minimal and short term.</p> <p>The antimycin label states that “...in the usual, recommended concentrations it causes no apparent</p>

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		harm to aquatic plants, insects, or bottom fauna..."
34.13		<p>According to a NM Department of Game and Fish study in 2001 by fisheries biologist Steven Sanders, "the use of antimycin for fish eradication is extensive in the USA, but its affects [sic] on benthic populations are not well known".</p> <p>In an Aquatic Macroinvertebrate Survey of Animas, Seco and South Palomas Creeks [in New Mexico], the author states that "a few macroinvertebrate taxa that are particularly sensitive to antimycin and have poor recuperative powers may suffer long-term impacts from the (antimycin) treatment". This would be especially true for organisms with longer reproductive cycles. And there may uniquely adapted macroinvertebrate species that do not return at all. The author also notes that based on the sparse macroinvertebrate community in these streams they are only "marginal trout streams". (McC Campbell, 2002)</p> <p>[Ann McC Campbell, MD, Technical Testimony at the Hearing on New Mexico Game and Fish Department's Petition to Deploy A Piscicide in Animas Creek Watershed before the Water Quality Control Commission, August 14, 2002.]</p>
	34.13	See response to Comment 34.12.
34.14		<p>[BPA should consider the following research]: In an Aquatic Macroinvertebrate Survey of Animas, Seco and South Palomas Creeks [in New Mexico], the author states that "a few macroinvertebrate taxa that are particularly sensitive to antimycin and have poor recuperative powers may suffer long-term impacts from the (antimycin) treatment". This would be especially true for organisms with longer reproductive cycles. And there may uniquely adapted macroinvertebrate species that do not return at all. The author also notes that based on the sparse macroinvertebrate community in these streams they are only "marginal trout streams". (McC Campbell, 2002)</p>
	34.14	See response to Comment 34.12.

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34.15		[BPA should consider the following research]: It is well recognized that there has been a disturbing global decline in amphibian populations in recent years and many scientists suspect that exposures to toxic chemicals are a significant cause. Several studies have linked pesticide exposure to adverse effects in frogs. As mentioned above, one study found that frogs exposed to as little as .1ppb of the herbicide atrazine developed male and female sex organs. Another study found that frogs exposed to either atrazine or a pyrethroid insecticide, esfenvalerate, were more susceptible to infection by a parasitic worm that caused limb deformities. The pesticides appeared to depress the frogs' immune systems even at the low concentrations used, which were within EPA drinking water standards for humans. The authors concluded that "these negative impacts may help explain pathogen-mediated amphibian declines in many regions."
	34.15	Thank you for your comment. We are not proposing to use these compounds for this project.
34.16		[BPA should consider the following research]: In another study, frogs given trace amounts of DDT experienced a near total collapse in their immune systems, which was identical to their exposure to cyclophosphamide. The latter is a drug given to humans to suppress their immune systems so they do not reject organ transplants. The researchers found that as little as 75 ppb DDT caused frogs' immune systems to malfunction.
	34.16	Thank you for your comment. We are not proposing to use DDT for this project.
34.17		To avoid causing harm the environment must be kept as free of pollutants as possible since, as noted above, amphibian immune and endocrine systems are very fragile and can be adversely impacted by even extremely low levels of toxic chemicals. Thus, even if poisons such as antimycin/Fintrol do not kill amphibians immediately, they may still harm them by making them more vulnerable to serious diseases, due to immune suppression, or cause them to have developmental abnormalities or reduced fertility via endocrine disruption. (McCampbell, 2002) [Ann McCampbell, MD, Technical Testimony at the Hearing on New Mexico Game and Fish Department's Petition to Deploy A Piscicide in Animas Creek Watershed before the Water Quality Control Commission, August 14, 2002.]

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	34.17	Thank you for your comment and interest in the SF WCT Conservation Program.
34.18		Impacts to wildlife, bull trout, amphibians, macroinvertebrates and humans from deploying these chemicals were glossed over or ignored in the EIS.
	34.18	Section 3.9 of the DEIS addresses human health issues. Appendix G of the FEIS adds more information about impacts to non-target species.
34.19		[BPA should consider the following research]: The registration of Fintrol by the U.S. Environmental Protection Agency does not mean it is safe to use. The U.S. EPA admits that all registered pesticides pose some risk. The range of potential adverse effects of deploying Fintrol is unknown. It was registered in the 1970's when the EPA required little data prior to registering a pesticide product. Fintrol is now undergoing the reregistration process and there is still an extensive lack of data regarding this product. The potential wildlife and environmental impacts of deploying Fintrol are also unknown because no one has ever done comprehensive post-deployment assessments. California will not register Fintrol in that state because data is missing in at least 22 standard toxicology tests. The New Mexico Department of Health has not approved the use of Fintrol in fish restoration projects. Also, the New Mexico Game and Fish Commission on August 18, 2004 cancelled all use of fish poisons in the state without prior approval.
	34.19	Fintrol is an EPA registered product that is legal to use to control fish and we would follow all the application safety requirements on the product label. See Section 3.9 of the DEIS.
34.20		[BPA should consider the following research]: Fintrol concentrate carries the highest acute toxicity rating given by the U.S. Environmental Protection Agency (EPA), Toxicity Category I. The label contains the warning "DANGER POISON" next to a skull and crossbones. Under "hazards to humans and domestic animals" it says this product is "FATAL IF SWALLOWED" and "MAY BE FATAL IF ABSORBED THROUGH THE SKIN". (McCampbell, 2002)
	34.20	Thank you for your comment. The DEIS discloses the human health threats beginning on page 3-56. We propose following all safety regulations listed on the product labels to protect humans and domestic animals. Antimycin was previously classified by the EPA as a category I toxin which

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		required the label to display the signal words “Danger-Poison” and have the skull and crossbones present. However, on November 3, 2004, the EPA reclassified antimycin to a category II toxin based on oral toxicity tests. The EPA granted permission to the manufacturer to change the label to reflect the reclassification by changing the label to display the signal word “Warning,” and have the skull and crossbones removed.
34.21		[BPA should consider the following research]: The Hazards Information section of the Material Safety Data Sheet states that routes of entry for antimycin A include the skin, inhalation, and ingestion. The ingestion hazard rating is “highly toxic Antimycin A is also noted to be an eye, skin and respiratory irritant. Target organs include eyes, skin, respiratory tract, cardiovascular system, nervous system, kidneys, and possibly fetus. Inhalation of vapors or aerosol can irritate the eyes, nose, and respiratory tract. Direct contact with skin or eyes can produce severe irritation. And systemic intake can produce a decrease in blood pressure, nausea, light headedness, dizziness, excitement, in coordination, weakness, loss of coordinated speech and drowsiness. Medical conditions said to be aggravated by antimycin. A exposure are pre-existing eye, skin, respiratory, kidney, nervous system or cardiovascular ailments.
	34.21	Please see response to Comment 34.20.
34.22		[BPA should consider the following research]: A University of California at Santa Cruz Laboratory Standard Operating Procedure guide on antimycin A states that this material is considered a Particularly Hazardous Substance by the CAL OSILA Lab Standard. It also says that antimycin A is “highly toxic” and “may be fatal if swallowed, absorbed through skin, or inhaled”. It notes that “respiratory distress, impaired reflexes, incoordination, and terminal symptoms consistent with CNS (central nervous system) depression have been reported in experimental animals poisoned by the oral or parenteral route.”
	34.22	Please see response to Comment 34.20.
34.23		[BPA should consider the following research]: ToxNet Hazardous Substance Databank Information on antimycin A, which includes data from PoisonDex, states that respiratory distress, incoordination, impaired reflexes, and CNS (central nervous system) depression have occurred in

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		animals. It further notes that the minimum lethal human exposure level is unknown.
	34.23	Please see response to Comment 34.24.
34.24		[BPA should consider the following research]: Besides its extreme acute toxicity, ToxNet also states that antimycin A is an experimental MUTAGEN. The NIOSH Registry of Toxic Effects of Chemical Substances (RTECS) also includes "mutation data" on antimycin A. And there are 36 references regarding antimycin on the ToxNet Environmental Mutagen Information Center (EMIC) web page. At least one study describes antimycin-induced DNA fragmentation and strand breaks. (McC Campbell, 2002)
	34.24	<p>Please see response to Comment 34.20.</p> <p>There are 218 references to antimycin in ToxNet and several combinations of search keywords were required to give 36 references. This search is likely the one used to derive 36 references that you cite from McC Campbell. There are actually several hundreds of references to Antimycin each year in the scientific literature because Antimycin is used to study all types of bacterial and cellular metabolism. After all, it was first used to control fungus on rice plants. After several attempts in querying ToxNet, it was determined that McC Campbell must have used "Antimycin" and "EMIC" (Environmental Mutagen Information Center) as the search parameters to get exactly 36 "hits."</p> <p>ToxNet disclaims the fact that they might be wrong about things and guarantee nothing in the database. They do make the statement that Antimycin is an experimental mutagen. However, none of the papers show that Antimycin by itself is a mutagen. Antimycin is used with other chemicals to effect/study a mutation. McC Campbell refers to the paper... "The respiratory-chain poison antimycin A promotes the formation of DNA single-strand breaks and reduces toxicity in U937 cells exposed to t-butylhydroperoxide." In this paper title we see that McC Campbell probably truncates it so as to leave out the t-butylhydroperoxide part, which is what causes the mutations to occur. In fact, the Antimycin even reduces the toxicity of the t-butylhydroperoxide. Nevertheless, this does not address Antimycin as a fish pesticide. Perhaps this paper was cited by McC Campbell</p>

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		<p>because the title includes the language "...promotes the formation of DNA single-strand breaks..."</p> <p>One of the other papers in the 36 is titled, "Evaluation of a Genotoxicity Test Measuring DNA-Strand Breaks in Mouse Lymphoma Cells by Alkaline Unwinding and Hydroxyapatite Elution." In this paper, the researchers have come up with a new test as to whether a chemical is a mutagen or not. And of the chemicals (some known mutagens and some not) they choose to test, Antimycin is one of them. The results demonstrate that Antimycin is not a mutagen by two different tests. The new test that they have developed shows Antimycin to not be mutagenic and the regular test for mutagen, the mouse lysosome test also shows Antimycin not to be mutagenic.</p>
34.25		<p>[BPA should consider the following research]: The EPA considers diethyl phthalate to be an endocrine disruptor. Endocrine disruptors mimic natural hormones and have an adverse effect on the structure or functioning of the endocrine system, which includes the pituitary, hypothalamus, thyroid, adrenals, pancreas, thymus, ovaries, and testes. Compounds which are toxic to the endocrine system can cause health effects ranging from hypothyroidism and diabetes to infertility, low sperm count, birth defects, and testicular, breast, and prostate cancer.</p>
	34.25	<p>Thank you for your comment. Please see Section 3.9 of the DEIS for information about plans to limit applicators' and recreationists' exposure during and after treatment.</p>
34.26		<p>[BPA should consider the following research]: There is growing scientific concern about the health impacts of human exposure to endocrine disrupting chemicals, in large part because of their widespread presence in the environment and because their adverse effects can often be caused by extremely minute quantities, at levels not previously considered to be in the toxic range.</p> <p>For example, a recent study found that frogs exposed during larval development to as little as .1 part per billion (ppb) of the herbicide atrazine developed male and female sex organs. The authors concluded that "this widespread compound and other environmental endocrine disruptors may be a factor in global amphibian declines."</p>
	34.26	<p>We are not proposing to use atrazine.</p>

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34.27		[BPA should consider the following research]: Diethyl phthalate is a priority pollutant under the Clean Water Act. It is also listed as a hazardous constituent under the Resource Conservation and Recovery Act and as a hazardous substance under Superfund. The EPA may be considering the removal of diethyl phthalate from all pesticide products.
	34.27	Thank you for your comment. This substance is an inert trace ingredient of antimycin. We would follow all precautions on the product label.
34.28		[BPA should consider the following research]: According to a National Toxicology Program fact sheet, diethyl phthalate is toxic by ingestion and inhalation and poisonous by the intravenous route. It is an irritant of the skin, eyes, mucous membranes and upper respiratory tract. It is a narcotic in high concentrations. It is also listed as an experimental teratogen, which means it can cause birth defects in developing fetuses, and it can cause other experimental reproductive effects. Studies have shown, for example, abnormal development of male fetuses in rats exposed to this chemical.
	34.28	Please see response to Comment 34.27.
34.29		[BPA should consider the following research]: The New Jersey Department of Health and Senior Services Hazardous Substance Fact Sheet notes numerous toxic effects of diethyl phthalate. Exposure to vapors can irritate the nose and throat. Contact can irritate the eyes and skin, and repeated exposure may damage the nervous system. It also notes that chronic (long-term) health effects can occur at some time after exposure to diethyl phthalate even if the exposure levels were not high enough to make someone immediately sick. It also warns that there is evidence that diethyl phthalate is a teratogen in animals and that until further testing is done, this chemical should be treated as a possible teratogen in humans. And while those working directly with diethyl phthalate are at higher risk than the general public, the fact sheet states that people in the community may be exposed to diethyl phthalate in contaminated water and air and that children and people who are already ill would be at the most risk of developing health problems from it.
	34.29	Please see response to Comment 34.27. The lakes proposed for treatment are all in remote areas. Recreationists would be restricted from access during treatment (see Section 3.9 of the DEIS for measures to reduce human exposure).

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34.30		[BPA should consider the following research]: Diethyl phthalate is moderately persistent in the environment and has moderate acute and chronic toxicity to aquatic life. According to one source, the concentration of diethyl phthalate found in fish tissues is expected to be somewhat higher than the average concentration found in the water from which the fish was taken.
	34.30	We understand the concern about the compounds that may be in the materials we are proposing to use. Contamination is part of the production process and is controlled by EPA, not by us. We propose to apply EPA-approved products for an approved use according to the requirements and restrictions on the product label. We propose doing everything possible to reduce impacts to other than targeted animals. We have disclosed information about possible impacts in Sections 3.3 and 3.9 of the DEIS.
34.31		[BPA should consider the following research]: Finally, one can not be sure that the diethyl phthalate in the Fintrol product is not contaminated with other phthalates, such as diethyl-hexyl phthalate (DEJJP), which is listed as a chemical known to the state of California to cause cancer (California's Proposition 65 list, June 22, 2001). (McCampbell, 2002)
	34.31	See response to Comment 34.30.
34.32		[BPA should consider the following research]: According to Philip Dickey in his publication "Troubling bubbles", nonoxyl 9 is an alkylphenol ethoxylate that can disrupt the endocrine systems of fish, birds, and mammals. For example, nonylphenol, a breakdown product of nonylphenol ethoxylate, can cause a reduction in testicular size in rainbow trout and cause male trout to produce an egg-yolk protein that is normally only produced by females. Rats administered nonoxynol-9 in one study produced a statistically significant, dose-related number of fetuses with both extra ribs and slightly dilated pelvic components.
	34.32	See response to Comment 34.30.
34.33		[BPA should consider the following research]: Nonylphenol ethoxylate is also noted for its slow incomplete biodegradation. It tends to persist in the environment and bioconcentrate. Many times the breakdown products are more toxic to aquatic life than the original chemical. There is evidence for synergism between nonylphenolic metabolites, indicating that the adverse effects from a

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		mixture of compounds may be greater than the sum of the effects from the individual compounds. Nonyphenolic compounds have been detected in groundwater. Alkylphenol ethoxylates have been banned in many countries in Europe. And it is the recommendation of the author that the use of alkylphenol ethoxylates as inert ingredients in pesticide formulations applied to aquatic environments be discontinued. (McC Campbell, 2002)
	34.33	See response to Comment 34.30.
34.34		[BPA should consider the following research]: Acetone is a volatile neurotoxic solvent, which can cause central nervous system depression. It constitutes more than 50% of the Fintrol product. (McC Campbell, 2002)
	34.34	See response to Comment 34.30. Acetone is also a naturally produced ketone in human body metabolism and it volatilizes rapidly.
34.35		[BPA should consider the following research]: Clearly, the safety of Fintrol and antimycin has not been established. At the very least, the possible effects of Fintrol on the human environment are highly uncertain and involve unique and unknown risks.
	34.35	See response to Comment 34.20.
34.36		[BPA should consider the following research]: Potassium permanganate is a hazardous caustic alkali. Targets organs include the respiratory and central nervous system, blood, and kidneys. If swallowed, it can cause nausea, vomiting, gastrointestinal irritation and burns to the mouth and throat. It may also cause severe irritation or burns to the eye and skin. Prolonged inhalation of potassium permanganate can cause manganism from a toxic build up of manganese in one's body. According to one Material Safety Data Sheet, potassium permanganate has also been reported to cause reproductive toxicity in laboratory animals and states that the ecological effects of this product have not been evaluated.
	34.36	Pages 2-10, 3-59 and D-9-12 of the DEIS address potassium permanganate.

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34.37		[BPA should consider the following research]: Potassium permanganate can be directly toxic to fish, even at deployment concentrations of 1 part per million. It can also kill phytoplankton and macrophytes that fish use for food.
	34.37	Pages 2-10 and 2-11 of the DEIS specifically addresses the toxicity of $KmNO_4$ to fish.
34.38		[BPA should consider the following research]: Although potassium permanganate will help neutralize the antimycin A it comes in contact with, it does have its limitations. According to the authors of "Limitations on Potassium Permanganate Detoxification of Antimycin" , potassium permanganate rapidly detoxifies antimycin to a toxicity level equivalent to about 4% of the original concentration. From there on, the detoxification is quite slow. They conclude that the use of antimycin-potassium permanganate systems in fish control would probably entail undue risk in most situations involving antimycin-sensitive fish, soft water and a need for rapid detoxification. There will also inevitably be some uneven mixing of potassium permanganate with antimycin A as well as other factors that retard their chemically reacting with each other.
	34.38	Page 2-10 of the DEIS addresses the detoxification of antimycin with potassium permanganate. The Use Direction Leaflet for Antimycin provides direction on how to detoxify the compound using potassium permanganate.
34.39		[BPA should consider the following research]: It is overly optimistic to think that potassium permanganate will totally neutralize antimycin A or that deploying another toxic chemical will return the stream to its former non-polluted condition. It also ignores the fact that potassium permanganate will have little or no effect on the levels of acetone and nonoxyl-9 present. (McCampbell, 2002)
	34.39	See response to Comment 34.38.
34.40		[BPA should consider the following research]: Rotenone is a broad spectrum mitochondrial poison similar to antimycin. It is used to induce Parkinson-like illnesses in lab animals and is more persistent in the environment than antimycin.

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	34.40	Page D-3 of the DEIS addresses the Parkinson-like reaction of rats injected with rotenone. The mode of action of Rotenone is specific to complex 1 of the NADH Succinate chain of ATP production. Rotenone binds with the Fe molecule at this site. The mode of action of antimycin is similar, but it is specific to complex III (two sites down gradient from where rotenone binds) and binds immediately in front of the Fe <sub>2</sub> molecule.
34.41		[BPA should consider the following research]: Rotenone products are often formulated with toxic solvents such as trichloroethylene, xylene, trimethylbenzene, naphthalene, 1-m-naphthalene, 2-m-naphthalene, toluene and the liver poison piperonyl butoxide (PBO). Piperonyl butoxide is a possible human carcinogen according to the EPA and naphthalene and trichloroethylene are known to the state of California to cause cancer. (Dr. Ann McCampbell pers. comm.)
	34.41	Section 3.9.1 and Pages D-2 through D-4 of the DEIS address these issues.
34.42		[BPA should consider the following research]: Montana Bull Trout Scientific Group, Assessment of methods for removal or suppression of introduced fish to aid in bull trout recovery, March, 1996.
	34.42	The DEIS references this report numerous times (see pages 2-32, 2-33, 2-34).
34.43		[BPA should consider the following research]: Dustin Hinson, Rotenone Characterization and Toxicity in Aquatic Systems, University of Idaho, Principles of Environmental Toxicity, November, 2000.
	34.43	We have read the Hinson paper and have included it in our reference section.
34.44		[BPA should consider the following research]: Ann McCampbell, MD, Technical Testimony at the Hearing on New Mexico Game and Fish Department's Petition to Deploy A Piscicide in Animas Creek Watershed before the Water Quality Control Commission, August 14,2002.

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	34.44	We have reviewed this hearing transcript and added it to our reference section.
35.1		Wilderness Watch supports the restoration of native westslope cutthroat trout populations in the Flathead River drainage where that species originally existed. At the same time we believe that fishery programs must be administered in a manner that gives equal consideration to the entire aquatic ecosystem and that respects the resource of Wilderness. For those reasons we have a number of concerns with the proposed project and can not [sic] support it in its current form.
	35.1	Please see responses to Comments 1.4 and 34.10.
35.2		At the outset we would point out that every alternative in the DEIS proposes to stock these naturally fishless lakes. This violates NEPA's requirements to provide a reasonable range of alternatives. Whether to stock these lakes with fish in the future has been a major public and agency issue since the outset of this project. Failing to provide alternative ways to address this issue is a major failure of the process to date.
	35.2	<p>An agency is under no obligation to consider every possible alternative to a proposed action, nor must it consider alternatives that are unlikely to be implemented or those inconsistent with its basic policy objectives. NEPA and CEQ's implementing regulations do not require a "reasonable range of alternatives" (40 CFR 1502.2). Nevertheless, the alternatives in the EIS are indeed reasonable because they cover the feasible alternatives for eliminating non-native fish from the high mountain lakes. The effects of the action alternatives have been examined assuming that MFWP would choose to restock the lakes after hybrids are removed from lakes in the Bob Marshall Wilderness.</p> <p>As the current condition of the wilderness lakes attests, if MFWP does not reestablish pure westslope cutthroat after treatment, hybrid populations could rebound. Another concern is that private citizens who are willing to risk prosecution could stock the lakes with non-native species that threaten westslope cutthroat trout. DEIS at Section 2.4.6. Without some form of restocking, MFWP does not believe that the threat to westslope cutthroat trout from hybridized trout can be removed. Alternatives that considered not restocking were unnecessary because the effects of not restocking are already considered in the EIS and not restocking is already within MFWP's</p>

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		discretion to choose.
35.3		<p>Further, the DEIS is wrong to conclude that the decision to stock these lakes lies solely with the Montana Dept. of Fish, Wildlife and Parks (MDFWP). In fact, Congress has charged the USDA Forest Service with administering the Flathead National Forest and the Bob Marshall Wilderness. It has also been well established by the US Supreme Court that federal agencies retain the authority for administering federal lands and the wildlife that reside thereon. The federal government generally allows the states to regulate hunting, fishing and trapping on public lands; the Wilderness Act did not change that. But the Wilderness Act did mandate that the Forest Service ensure that the area be administered so as to preserve its wilderness character. This mandate applies to both public uses and the actions of the agency(s). Whether or not to restock these lakes must take into account the fact that several of the lakes are within a federally designated Wilderness. The DEIS should have taken into account the federal government's role in determining whether or not stocking is appropriate.</p>
	35.3	<p>This comment appears to find a conflict where the agencies agree there is none. This issue is discussed in DEIS Section 3.2.4. To reiterate: The Forest Service “[r]ecognize[s] that States have jurisdiction and responsibilities for the protection and management of wildlife and fish populations in wilderness.” <i>Forest Service Manual</i> (FSM) 2323.32. The agencies drafting and cooperating on the EIS agreed that, “[t]he decision whether or not to restock the [ lakes] lies solely with MFWP.” DEIS at Section 2.4.6.2; see also Section 1.5.2.</p> <p>The Forest Service will decide whether to approve the use of piscicides within the wilderness areas for the elimination of hybrid trout populations and whether to approve the short-term use of motorized craft and equipment with the wilderness area as needed to accomplish the proposed goals. See Section 1.5.3. The EIS will provide the NEPA compliance for the USFS to grant or deny its authorization.</p> <p>Fish stocking may be conducted by the state agency in coordination with the administering agency, using means appropriate for wilderness when either of the following criteria is met: (a) to reestablish or maintain an indigenous species adversely affected by human influence; or (b)</p>

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		<p>to perpetuate or recover a threatened or endangered species...</p> <p>Barren lakes and streams may be considered for stocking, if there is mutual agreement that no appreciable loss of scientific values or adverse effects on wilderness resources will occur.</p> <p>This guidance is verbatim to that found in the <i>Wilderness Management Handbook</i>, 23.1—9, and tracks closely that in the <i>Forest Service Manual</i> at 2323.34.</p> <p>Moreover, the proposed project and its goals and responsibilities are in accord with the Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana signed by both MFWP and the USFS.</p> <p>The Wilderness Act in Section 4(7) also recognizes that nothing in the Act changes the responsibilities of the states “....nothing in this Act shall be construed as affecting the jurisdiction or responsibilities of the several States with respect to wildlife and fish in the National Forests (16U.S.C. 1133)...</p> <p>Pages 1-8 and 1-9 of the DEIS lists the laws, legislation, and agreements that were used to help plan this project.</p> <p>The decision for each participating agency is provided on pages 1-11 and 1-12 of the DEIS.</p>
35.4		<p>Restocking these lakes violates a principle tenet of the Wilderness Act: that these areas will be untrammelled by humans, retain their primeval character and influence, and be administered so as to preserve their natural conditions. Nothing could be more trammeling or unnatural than to fill naturally fishless lakes with fish. If the fish are removed from these lakes then the lakes should remain fishless and allowed to follow their natural evolutionary path.</p>
	35.4	<p>Please see EIS Section 3.2.4. In some respects, the agencies agree with this comment. However, given the history of private individuals taking BMWFC fisheries management into their own hands without the knowledge or consent of state or federal fisheries managers, we believe the course of action most likely to preserve the greatest sense of an untrammelled wilderness would be to</p>

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		<p>replace the nonnative fish species and hybrids with indigenous westslope cutthroat trout.</p> <p>We understand that some people feel that continuing to stock historically fishless lakes with fish in violation of their wilderness standards. The lakes listed in this proposal were “filled” with fish many years prior to the Wilderness Act. The fishery resources have helped to define the character of this area, and have driven the high social and economic value of this wilderness. Creating fishless lakes may have a negative and long term social and economic impact to the wilderness resources. See Sections 1.4.2.2 and 2.4.6 of the DEIS.</p>
35.5		<p>The DEIS fails to consider the damage to the aquatic ecosystem from restocking these lakes with fish. The scientific literature is filled with studies that show fish stocking reduces the abundance of amphibians in stocked lakes. Recent studies in the Northern Rockies have shown that fish stocking also influences the distribution and abundance of amphibians in entire mountain basins including those lakes which are not stocked and remain fishless (see Pillion and Peterson. Ecosystems (2001) 4:322-333). These studies show that the impacts do not end with stocking, but instead continue to effect [sic] the area (and in all likelihood get worse) as long as fish remain. The DEIS is silent on these impacts which will occur under every alternative that restocks the lakes with fish.</p>
	35.5	<p>The Proposed Action does not include stocking any fishless lakes. Impacts from fish stocking are part of the affected environment. See Sections 1.4.2.2, 2.4.6, and 3.2.4 of the DEIS.</p>
35.6		<p>Likewise, the DEIS failed to consider the damage to the rest of the aquatic biota from stocking these lakes. While "lip-service" is given to the effects of poisons on these species, there is no analysis of the effects of stocking fish on these biota. Again, the literature is replete with evidence of the negative effects of fish stocking in these systems, but that information doesn't make it into the DEIS. The DEIS does acknowledge that restocking is a "connected" action (p. 2-26), however it fails to disclose the environmental effects of those actions.</p>
	35.6	<p>See response to Comment 35.5. Sections 3.2 and 3.3 discuss the impacts to fish and wildlife. Appendix G adds more information about impacts to non-target organisms.</p>

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35.7		Further, the DEIS fails to evaluate the cumulative effects of fish stocking by MDFWP throughout the S. Fork Flathead drainage.
	35.7	<p>For each alternative, we have included cumulative impact sections. Our cumulative impact analysis is not limited to those sections, because of the difficulty in distinguishing clearly between kinds of effects, and may be found throughout the DEIS. DEIS Section 3.2, Fisheries Resources, is the primary basis for determining cumulative effects of the alternatives. See especially Sections 3.2.5.2, 3.2.6.2, and 3.2.8.2.</p> <p>MFWP's stocking program has been credited by the U.S. Fish and Wildlife Service as the kind of activity that protects extant westslope cutthroat stocks throughout their historic range from the adverse effects of nonnative fish (see DEIS at Section 3.2.3.1). MFWP has demonstrated its ability to implement a rotenone treatment and restocking to remove a threatening species and restore angling opportunities for westslope cutthroat trout (see DEIS at Section 3.2.4).</p> <p>Absent these stocking activities, westslope cutthroat would probably become a more likely candidate for listing under the Endangered Species Act. Failure to continue protecting and restoring westslope cutthroat trout could lead to restrictions on angling or other activities in the basin. There are no other reasonably foreseeable similar projects in the basin that would be likely to have similar impacts in addition to those discussed in the EIS.</p> <p>The DEIS recognizes impacts from fish stocking (see Section 3.2). We believe our cumulative impacts discussion has taken past impacts into consideration.</p>
35.8		The Wilderness Act prohibits the use of motorized equipment and mechanical transport "except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act." (emphasis added). The purpose of the Act is to preserve the Wilderness. This project which is designed to establish a westslope cutthroat trout fishery in naturally fishless lakes fails to meet that test.
	35.8	Please see responses to Comments 1.4 and 35.4.

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35.9		Further, the MDFWP does not administer the Bob Marshall Wilderness and thus MDFWP's activities, unless authorized by the Forest Service as part of the federal agency's mandate to protect the Wilderness, do not fall within the administrative exception in the law.
	35.9	See response to Comment 35.3.
35.10		The only justification given for using helicopters to access George and Lick lakes is that these lakes aren't accessed by system trails. That doesn't mean they are inaccessible by foot or with packstock (horses, donkeys or llamas). Both are within one mile of system trails that could be used to bring materials to within a mile of lakes. There's nothing in the DEIS that suggests materials couldn't be hauled the last mile with horses, mules or donkeys, or by backpacks or llamas to lessen the impact on vegetation and soils. The DEIS should be revised to address the possible use of other non-motorized means for delivering materials, supplies and personnel to George and Lick lakes.
	35.10	<p>The draft Minimum Tool Analysis determined that using livestock in areas that do not have a system trail would create an adverse impact on the soil, vegetation, and ultimately on the wilderness value (see page 3-38 of the DEIS). Transporting with personnel would require a large group of people to be present in the lake vicinities for an extended period of time. Humans are not the most efficient, nor is it safe to rely on humans to backpack outboard motors and large rafts to high altitude lakes in rugged mountainous terrain. For these reasons, and others, it was determined that using aircraft offered the safest, quickest and least intrusive means of transport to achieve the objectives of the project.</p> <p>Some people who commented on the proposed action during public scoping in May 2003, specifically requested that horses not be used to access George Lake, but rather preferred the use of aircraft to reduce impacts to the ground and to expedite the activity.</p>
35.11		Similarly, every scenario assumes that a motorboat must be used, whether its [sic] for gill netting, trap netting, spreading poisons or other uses. It appears to more a matter of convenience than need. The DEIS should be revised to address using non-motorized watercraft on lakes in the Wilderness.

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	35.11	<p>We have added more information in the FEIS. See Section 3.6.5. As listed in the DEIS, the reasons for using a motorboat are listed for each method. The principle reasons for requiring a motorboat include the scope of the project (size of lakes), personnel safety, and the fact that any attempt to use manually powered craft would be considered experimental.</p> <p>During the 1994 rotenone treatment of Devine Lake in the Bob Marshall Wilderness, a raft was used to distribute rotenone. This lake is less than 1 acre in size and is less than 15 feet deep. All of the lakes or lake complexes proposed for treatment in this project are larger than Devine Lake and so are much more complex and require the use of a motorboat to be effective.</p>
35.12		<p>The use of poisons also runs counter to the idea of Wilderness. All Wildernesses have been modified to some degree by human impacts prior to designation, and some of those changes are ubiquitous and ongoing (i.e. human-caused global warming). Yet the choice society makes when designating an area as Wilderness is that from that point forth we will no longer try to "play God." The Wilderness must be allowed to operate freely in the future with intentional human manipulation. MDFWP should stop doing harm by continuing to stock these lakes with alien predators. There may be rare occasions where toxicants are appropriate in Wilderness to save a species that might otherwise be lost forever. But this project is geared toward expanding the range of cutthroat trout into lakes where it did not naturally exist. The use of poisons are [sic] not justified in this context.</p>
	35.12	<p>See response to Comment 34.8.</p> <p>The agencies view the proposed action as protecting the existing range of westslope cutthroat, not expanding it. If the current situation persists, the wilderness would continue to be home to non-indigenous fish species, and the remaining native cutthroat may be lost. The existence of the non-indigenous species in the wilderness is evidence that individuals have and will possibly continue to stock those lakes.</p> <p>In addition we note that that if this commenter's views are taken together, they oppose all the proposed forms of protecting westslope cutthroat trout from the threat of hybridization and, by extension, the very wilderness values—such as indigenous fish (FSM 2320.5(10))—that they cherish. In other words, adhering to the management limitations proposed by these comments would likely be more destructive to the untrammelled nature of the BMWC than would be treating</p>

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		one or two wilderness lakes for a few days once a year over a decade. This project was designed to shift the wilderness and surrounding project area toward a more natural state. Impacts on wildness would be short term and reduce the need for human intervention for species restoration in the future. This project was designed to achieve a trend toward greater wildness over time.
35.13		We are also concerned with the limited information on the impact of poisons on non-target aquatic species. The diversity, abundance and population trends for these species in the Bob Marshall Wilderness are not well known, nor is the effects from rotenone or other poisons.
	35.13	See response to Comment 34.12. The monitoring that is part of this proposal would help to increase the knowledge base for these species in the South Fork including the Bob Marshall Wilderness. We plan to monitor these species after treatment and would share the information that we gather.
35.14		Before embarking on a project of this magnitude in a designated Wilderness, BPA the Forest Service and MDFWP should implement a long-term inventory and monitoring study so that irreparable harm is avoided.
	35.14	Please see response to Comment 11.46.
35.15		The DEIS fails to explain why, after nearly a century of stocking non-indigenous trout in the Flathead drainage the remaining hybrids pose a substantial risk to the remaining westslope cutthroats. Obviously there is something acting to keep the populations isolated from one another, or to inhibit hybridization. How have these populations managed to remain "pure" and why won't that continue if MDFWP no longer stocks the drainage with non-native species.
	35.15	The potential impacts of stocking non-native trout in the project area were recognized by MFWP biologists in the 1950s. Most fish introductions prior to 1950 were unauthorized by MFWP and some were unrecorded. The SF presents a unique example of slowed progression of hybrid trout, for a variety of reasons. Starting in the late 50's and early 60's MFWP determined that stocking only native trout was the best management and conservation approach. This activity was designed to limit the progression of hybrid trout in the drainage. The lakes are not isolated and all drainages downstream of these lakes contain hybridized fish. Hybridization will expand with time if the source

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		<p>populations are not removed. Although we have been fortunate that hybrid expansion has not been more widespread, downstream expansion of hybrids remains the primary threat to pure westslope cutthroat trout in the South Fork upstream of Hungry Horse Dam.</p> <p>If hybrid trout become established throughout the SF drainage, there are no reasonable measures that can be taken to reverse the impacts. Recognizing that a threat still exists is responsible and warrants the attention of the agency responsible for managing this species.</p>
35.16		<p>We want to note that it is doubtful the project will meet the DEIS purpose of preserving "genetically pure" cutthroat trout in the South Fork Flathead drainage. Genetically pure trout are defined as those that are 100 percent pure through the testing of species-specific proteins. Many of the westslope cutthroat in areas of the South Fork drainage that won't be treated are not 100 percent pure. Many of the areas where the range of introgressed trout and bull trout overlap can not be treated. Moreover, because the poisons are not expected to be 100 percent effective, any remaining hybrids will impart their genes into the genetically pure stock that is supposed to be planted in the lakes. Genes go both ways, and the plan to restock these lakes is as likely to result in less than 100 percent pure fish downstream as is not restocking the lakes.</p>
	35.16	<p>The majority of westslopes in the SF drainage have not been influenced by non-native trout.</p> <p>We are proposing a treatment that we expect would be 100% effective. However, we acknowledge that 100% might not be attainable. Please see Section 2.4.5 and Appendix D of the DEIS.</p> <p>After Hungry Horse Dam was installed, the headwater lakes became the only remaining source of non-native genes in the South Fork Watershed. In nearly every case, any remaining hybrids downstream of the lakes cannot recolonize the lakes, so they will not impart their non-native genes into the lake populations. In this sense there is a "one-way flow of genes." Establishing genetically pure cutthroat in the lakes will provide a source of pure genes to any downstream populations.</p>
35.17		<p>If a decision is made that it is necessary to remove the exotic species (fish) from these lakes in order to preserve the wilderness character of the Bob Marshall Wilderness, then we would suggest that the Wilderness lakes remain fishless after the removal. ... Leaving the lakes in their natural condition would not only respect the wilderness values of the area, it would also provide an</p>

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		outstanding opportunity to study the effects of fish removal on the natural aquatic ecosystem and to compare those effects to lakes outside Wilderness where stocking is likely to occur. This kind of scientific inquiry is one of the public purposes of Wilderness and one of the greatest benefits that it can provide to people of present and future generations.
	35.17	See response to Comment 37.78. Conserving the WCT is the priority for this project. There are other studies being conducted to analyze natural systems. Creating fishless lakes may have a long term and negative impact on established social and economic practices in this area.
35.18		The concern that the lakes will be illegally stocked could be largely ameliorated by closing the lakes to fishing.
	35.18	Closing these lakes to fishing would not necessarily eliminate illegal stocking because the public could still access them. Trials could be closed, but again, the public could access the lakes other ways.
36.1		I have again reviewed the proposed action listed above and feel that chemical treatment of these waters should not occur until Montana Department of Fish Wildlife and Parks (MDFWP) thoroughly reviews and considers all the available data regarding current levels of hybridization within these systems.
	36.1	The lake populations and most of the stream populations have been genetically tested; some many times. As long at the lakes contain hybrid fish, they will always serve as a source of non-native genes.
36.2		As I stated in my previous letter many of the lakes they are proposing to chemically treat do not require such a drastic and unnecessary action. For example, upper Three Eagles Lake is over 99% pure westslope, and it cannot be said with certainty that it is not pure westslope. Based on this information how can the chemical treatment of this lake be justified? The answer is that it cannot be justified. There is also lack of justification for the chemical treatment of Black Lake and Pilgrim Lake. Recent genetic data obtained from a 1999 collection of fish from Black Lake and a 2001 collection from Pilgrim Lake indicated that both of these lakes now harbor populations of trout that are also at least 99% pure westslope cutthroat trout. Why is there a need to chemically treat these populations? What is to be gained? Without an absolute guarantee of a100% kill of the current populations within these lakes there is nothing to be gained and even with a 100% kill the

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		overall cost of the treatment, both environmentally and economically, far outweigh any gains that might be realized from such an action.
	36.2	<p>The management objectives have changed. The objectives for this project are to remove the threat of hybridization to the pure WCT trout populations in the SF. Even a fish with a small percentage of non-native genes is a threat to pure fish downstream and could reduce their purity.</p> <p>The data you cited for the Pilgrim Lake sample is based on an 11 fish sample. Based on this, the power is greatly reduced far below 95% probability of detecting non-native markers. Second, the Black Lake sample was determined to contain a first filial hybrid, suggesting that a high level of rainbow trout influence still exists in this population. Furthermore, the analysis was conducted on an incomplete sample (n=21) and concluded that the unusual mixture of markers suggests that this population is not randomly mating, which is a violation of the probability analysis. Finally, this population is stocked heavily with M012 fish, which conclusively violates the probability analysis. The fact that rainbow trout markers are present in this population confirms that the population harbors non-native genes and is a threat to the genetically pure populations in the SF drainage.</p>
36.3		<p>In addition to the examples above where there is absolutely no need for chemical removal, there also appears to have been large decreases in the level of non-native genes present in many of the other lakes proposed for chemical treatment. For example, in the initial genetic surveys conducted on Lena, Necklace, Pyramid and Sunburst Lake no westslope cutthroat trout genes were present. However, in the most recent genetic surveys conducted on these waters for MDFWP's, Lena and the Necklace Lakes contained over 60% westslope cutthroat trout genes, Sunburst Lake contained 82% westslope cutthroat trout genes, and Pyramid Lake contained 97% westslope genes. How can MDFWP pretend that the genetic swamping of these lakes is not effective when the only mechanism for change in these lakes has been the introduction of pure westslope cutthroat trout from their broodstock? In fact, based on this data, there is also little justification for the proposed chemical removal of fish from Pyramid Lake. Similar changes in the genetic composition of other lakes on the chopping block have also been observed, i.e. Lower Big Hawk and Blackfoot Lakes. The level of non-native genes in these systems has been reduced by 40% and 50% respectively through the introduction of westslope from MDFWP's broodstock. In fact in almost every case where the swamp out technique has been implemented there has been a decrease in the overall</p>

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		percentage of non-native genes present. This technique has proven to be highly effective and it should be restarted, not discarded, as is currently being done.
	36.3	The increase in percentage of westslope genes has not been great enough to consider the area safe from non-native influence. The objective of the genetic swamping management concept that was established in 1985 was to "...increase the percentage of westslope cutthroat trout genes..." in several populations using a passive method. This has been effective. However, the social, political and biological environment has changed since the swamping concept was implemented. For these reasons, the management objective has likewise changed and now favors conclusively removing the non-native genes from these populations through an active management strategy.
36.4		MDFWP's also indicates that they will chemically remove fish downstream of many of the lakes that are proposed for chemical treatment. In most cases, however, they lack sufficient genetic data to determine the necessity and extent of this action, and in some cases they are proposing chemical treatment when their own data indicates that it is not warranted. For example, MDWFP's is proposing to chemically treat 3.7 miles of Lick Creek even though no hybridization was detected in a sample of westslope cutthroat trout collected for genetic analysis in 2000. As the stewards of our resources it is irresponsible for MWFP's to disregard available information or to proceed with the chemical treatment of these streams without sufficient data to justify their actions.
	36.4	<p>The information you cite about Lick Creek is inaccurate. The Lick Creek sample you cited was actually collected from Gordon Creek (T19N, R15W, S1, 2) in 2000 and the population was determined by geneticists to be hybrid. Twenty-four percent of the fish sampled in 2000 were derived from a hybrid swarm. The geneticist conducting the evaluation concluded, "hybridization has been occurring in this population for generations."</p> <p>In 2002 another sample was collected from this stream in the same reach and determined to be hybridized. Interestingly, rainbow trout were detected in this sample, but not the 2000 sample.</p> <p>Nevertheless, these tests indicate the population is hybridized.</p>

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36.5		As I stated in my initial June 23rd letter, these examples indicate the need for MDFWP's to carefully evaluate and justify the need for chemical treatment of each of the 21 lakes and downstream reaches they are proposing to poison. They must not be allowed to continue to ignore or disregard their own genetic data indicating that the chemical removal of fish from many of these waters is unwarranted.
	36.5	In past years experimental measures were instituted to address this problem (i.e., "genetic swamp out"). The objective of the proposed project is to address changing political and social issues, which have warranted a more decisive approach in dealing with hybridization in the SF Flathead.
36.6		As I previously commented, the very first action to be taken prior to any chemical removal of fish from any these systems is to genetically retest the populations, using both allozyme and nuclear DNA techniques to determine the current genetic composition of each lake and downstream reach. Most of these lakes were repeatedly stocked with hatchery fish from the states westslope cutthroat trout broodstock after they were first genetically characterized in the mid 1980's and early 1990's, and before any chemical treatment of these waters is conducted the effectiveness of the genetic swamping needs to be thoroughly evaluated. Based on the genetic information presented above, the assertion that this method of removal of non-native genes doesn't work is not supported. In fact, in the lakes discussed above this method has significantly reduced the percentage of non-native trout genes present. The benefits to genetically retesting each lake and downstream reach proposed for chemical treatment should also not be overlooked. First, it will determine which lakes and streams may still require chemical removal of hybrid trout, and also assist in the prioritization of lakes and streams to be treated based on their current genetic composition. Second, it will save money by reducing the number of lakes and streams that need to be treated. Third, it will lower disturbance, leave a smaller footprint, and maintain fishing opportunities that would otherwise be temporarily lost from some lakes. Fourth, it would provide hard scientific data on the effectiveness of genetic swamping for many different systems allowing MDFWP's to fully evaluate its potential as a management tool. Finally, and perhaps most importantly, it will provide baseline data on the current genetic composition of the lakes and streams that are ultimately poisoned so MDFWP's can evaluate the effectiveness of chemical removal on each population poisoned.
	36.6	Many of the genetic samples from the 1980s and 1990s have been updated. For example, samples from Cataract, Smokey, Big Salmon, George, Lick, and Doctor creeks have been

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		analyzed and updated in 2000 and/or 2002. This EIS has been based on the most recent genetic studies we have. To collect the additional data you request would take additional state time and money. We believe our proposal is the safest way to remove the threat these fish pose to the cutthroat. Please see Page 1-7, Section 2.1, and Section 2.6.4 of the DEIS.
37.1		While I think the objective to protect Westslope cutthroat trout from becoming listed as an endangered species is a very good one, I do not believe it should be at the expense of the wilderness resource.
	37.1	The westslope cutthroat trout is considered a wilderness resource. All agencies participating in this project are mandated to safeguard species from becoming listed under ESA, whether they occur in a wilderness area or not. The Wilderness Act does not preclude the responsibilities of state and federal agencies with regard to ESA.
37.2		The draft EIS says that 50 of 355 lakes in the South Fork have fish in them, all except Doctor and Big Salmon Lakes were very likely originally fishless. The draft EIS [sic] proposes to only remove fish from 20 of these 50 lakes that do not have genetically pure WCT in them. Fish are now located mainly in the larger, deeper lakes in the South Fork. Apparently, research has not been done on these South Fork Lakes except in the last couple of years on the proposed lakes to be treated to determine what assemblages of non-fish species inhabited these lakes, marshes, and downstream areas before the introduction of exotic fish predators.
	37.2	You are correct. There are few historic records of all of the non-fish species that existed before lakes were stocked with trout. MFWP is using the existing conditions as the baseline for ongoing surveys of species assemblages.
37.3		Glacier National Park, North Cascades National Park have done research and are doing an EIS to determine what species existed there in lakes before fish. Studies in the Sierras show a dramatic decline in yellow-legged frog due to the introduction of fish. There is so much that we do not know about these natural systems. We tend to focus on species that have immediate, direct benefit to humans- elk, deer, fish, and maybe grizzly bears and wolves because they are large and people can relate to them better. However, it seems that many of human management actions can have dramatic impacts on the associated flora and fauna as humans attempt to manage species so they can more directly benefit human needs. Humans pave, build, and farm on 99% of the United States. It seems only reasonable that at least wilderness should be left as unaltered as possible. In

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		wilderness lately we even try or propose to manipulate habitat and systems to try to undo past human influences - consider lighting fires to make up for the lightning strikes that have been put out over the years. Consider planting whitebark pine to replace trees that have been killed by an exotic blister rust. Consider building new trails or reopening long unused Trails to facilitate more human use and access into the wilderness. If the Bob Marshall Wilderness Complex at 1.5 million acres, the second largest wilderness in the lower 48 states can't have natural processes left basically unaltered in the large size with limited potential effects on areas outside of the wilderness, where can we have places that are not manipulated, turned into gardens to try to undo past human impacts or shape the wilderness landscape into something that is more desirable from a human perspective? Not a natural process perspective, but from current human needs?
	37.3	Thank you for your comment and interest in the SF WCT Conservation Program.
37.4		This draft EIS displays several methods of accessing the area for fish removal, by stock or aircraft. This seems to have a reasonable discussion.
	37.4	Thank you for your comment and interest in the SF WCT Conservation Program.
37.5		For the actual fish removal, the poisons to be considered, rotenone and antimycin, are well discussed, but the gill netting gets minimal consideration. The EIS quotes gill netting might be effective on lakes 7.4 acres in size and 32 feet deep. This would include Necklace Lakes #2, 3, 4, 6,7,9,10,11. With much thought and consideration of minimum tool and the potential effects on non-fish species with the use of poison, it seems like Pyramid Lake at 9.6 acres and 37 feet deep could also be reasonably be considered for gill netting. The EIS then discounts this method because the Montana Bull Trout Scientific Group concluded that gill netting would not result in a complete removal of fish. (p.2-32) in the discussion in Alternative B, the Proposed Actions, one of the excuses for immediate restocking of lakes the next summer after the fall poisoning of each lake, was to ensure genetically pure cutthroat populations in sufficient quantities to ensure domination over any hybrid fish that might remain, and to re-establish the fishery. (P.2-5) this seems to display that rotenone and antimycin are not 100% sure to kill all fish by treatments. If this

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		is the case, then gill netting, trap nets, using explosives might certainly be reasonable to consider.
	37.5	Alternative D considers suppression as a means of achieving the objectives of the project. The analysis of this alternative determined that there would be major and long-term impacts to five of the seven resource categories that were identified. Table 2-7 on page 2-45 of the DEIS summarizes these impacts. See also response to Comment 37.109.
37.6		The DEIS does not say that for each lake and downstream area following fall poisoning, that the following summer, in what manner the lake would be monitored to see if any fish remain for the next year or two. This would serve two purposes, the first to ensure that all fish had been removed and if not, a second treatment would be in order to actually remove those non-wct genes and not just swamp them, and second, it would open the possibility to leave the lake fishless.
	37.6	Page 2-25 of the DEIS states that gill nets would be set in lakes to evaluate the success of the treatment. Section 2.4.1.5 on page 2-11 describes the use of sentinel fish to monitor the success of the treatment and to monitor the success of the detoxification.
37.7		To leave some lakes fishless, to be more in their original condition, especially for non-fish species, would certainly be appropriate for the natural processes to occur in wilderness instead of the initial stocking and continued stocking in the case of some lakes. Of the over 220 wilderness lakes in the South Fork Flathead, the 20 lakes with fish average over 90 acres in size, while the 200 lakes without fish average less than 1 acre. Certainly leaving representative larger lakes in larger basins with other fishless lakes to represent the original natural systems and to allow possible seriously depleted non-fish species to reestablish themselves would be prudent. Pillod's paper, "Evaluating Effects of Fish Stocking on Amphibian Populations in Wilderness Lakes," describes such a strategy method. In Jason Dunham's paper "Assessing the Consequences of Nonnative Trout in Headwater Ecosystems in Western North America"; they list 7 key issues for assessing the consequences of nonnative trout in headwaters ecosystems. The North Cascades National Park in the beginning of their EIS to determine strategy on long-term fish management strategy will look at this alternative to restore natural processes in some historically fishless lakes.
	37.7	Please see response to Comment 37.163.

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37.8		<p>With the seemingly good intentions Montana Fish Wildlife and Parks has now decided that genetically pure Westslope cutthroat trout would be good for the long term for the restocking of these originally fishless lakes and the downstream areas with the fish they want to remove. One thinks of the good intentions of miscis shrimp in Flathead Lake and the disruption on native fisheries. Lead poisoning of hatchery raised fish this summer and how that might affect fish that are stocked in the wilderness. The Hungry Horse dam has cut off the rest of the South Fork Flathead River to protect the upstream section from the various problems of introduced fish down stream. This originally genetically pure Westslope cutthroat trout population has evolved with the stocking of fish (except in these lakes). They have adapted to their places on the 1,898 miles of habitat. A WCT trout likely has different characteristics if it is found in Abbot Bay then [sic] if it is found in Youngs Creek. The basic genetic material may be the same, but the behavior and local adaptations cannot be duplicated, if these hatchery fish that were taken from various streams on the South Fork Flathead and an entirely different Clark Fork drainage and are all mixed together, then are continually stocked into lakes and dribble down into the main originally “pure” WCT area, aren't we potentially polluting these original native genes with our new combo mix genes and saying it is close enough as far as we know now?</p>
	37.8	<p>The citizens of Montana are faced with the westslope cutthroat being listed as a threatened species under the Endangered Species Act. MFWP would like to prevent an ESA listing. We acknowledge that there are unforeseen risks associated with any management action. We believe the risks of no action are greater than those associated with the proposed action.</p> <p>The current WCT brood stock is genetically pure and genetically diverse, founded mainly from donor populations in the South Fork Flathead River drainage. The outmigration of these fish from the lakes poses less threat to native WCT than the present outmigration of hybrid trout. MFWP's long-term goal is to conserve the remaining diversity native WCT.</p>
37.9		<p>Again, 50 years ago as outfitter, angler, and fish and game folks all dumped fish into these barren, useless lakes to try to make productive fisheries out of them, no one gave a second thought to the non-fish species and natural processes that were being disrupted. They just did it. Now it seems, with a broader awareness of ecosystems and how intricately connected everything is, to continue to just dump more exotic fish, even if the basic genetics match, and how humans can so easily</p>

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		mess up things they really do not understand, it is appalling to think that is what is proposed. Most of these lakes have had fish since before the 1964 Wilderness Act, it is a state's right to manage the fishery, so the state will just continue to keep stocking fish as it always has.
	37.9	Comment noted.
37.10		The Forest Service manages the habitat, and for broader landscape systems. Since the state does not really show much more than required cursory concern about non-fish species, it is incumbent on the forest service to look out for non-fish species and natural processes. There is a link and precedent for the forest service to have a say in short and long term impacts of stocking of fish and impacts on habitat. See Peter Landres paper, "The Wilderness Act and Fish Stocking: An Overview of Legislation, Judicial Interpretation, and Agency Implementation."
	37.10	The USFS is a signatory of the WCTCA, and has agreed to protect and conserve the species. The FS role in this project complies with this agreement.
37.11		My proposal for the wilderness lakes would be to consider all lakes with fish, since all but Big Salmon and Doctor were originally fishless. This must be done to correlate the cumulative effects on the wilderness of fish introduction into these fishless lakes. Since almost all lakes with fish have exceeded Limits of Acceptable Change standards, most in one to four of the measured standards, most for all years since the standards were adopted in 1987, over 17 years it should be a major consideration on whether to continue to stock or not stock fish. Opportunity Class should be the main player in trying to balance which of the larger, deep fishless lakes should remain fishless after fish removal. Opportunity Classes I and II are to be managed as an unmodified and and [sic] essentially unmodified natural environment. Ecological and natural process are not measurably affected by the actions of users. Management strongly emphasized sustaining and enhancing the natural ecosystem. These are the most primitive, natural areas within the wilderness. To meet this Forest Plan management requirement, I would remove all fish from Opportunity Class I and II areas and not replant them. Woodward, Lena, Lick, Koessler, George, Devine, Upper and Lower Marshall, and Diamond. I would remove all fish in Opportunity Class 3 and 4 areas and replant them with WCT as a compromise with more recent recreation values, and realizing that continued stocking will likely continue to have LAC standards exceeded well into the future. These two areas

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		<p>are the more impacted end of the wilderness use spectrum. Necklace Lakes, Pyramid, and Sunburst. I would leave Big Salmon and Doctor Lakes alone, since apparently they originally naturally had fish, they have exceeded LAC standards, even though they are in Opportunity Classes 4 and 2 respectively.</p> <p>Westslope cutthroat trout are important, and we want to protect this species. However, WCT is part of the river system, not a part of these alpine wilderness lakes. To artificially continue this fish stocking gives a unique recreation experience for visitors, but at the expense of natural processes. We do not achieve naturalness or wildness. as Landres describes in "Naturalness and Wildness: The Dilemma and Irony of Managing Wilderness."</p> <p>The lakes of the Cascade Mountains in Washington and Oregon, the Sierras of California, the Rocky Mountain Lakes of Idaho and Montana all have had exotic species put into originally fishless lakes. This proposal to remove fish from originally fishless lakes, and then to leave lakes fishless as outlined in the previous paragraph would meet the purpose of action of the project - to preserve genetically pure Westslope cutthroat populations in the South Fork drainage, and to eliminate from headwater lakes and their outflow streams, the non-native trout that threaten genetically pure stocks of Westslope cutthroat trout.</p> <p>My proposal above would even better meet these two goals, and provide additional wilderness resource benefits, by treating these lakes, once, possibly twice to make sure all non-WCT trout were removed, you would know for sure those non-WCT genes were out of the system, never to trickle down to pollute those original pure WCT genes. The opportunity class 1 and 2 lakes remaining fishless would not have any fish to trickle down to pollute river genes. The OC 1 and 2 areas are more remote and would cause less impact on recreational users. Having no fish would reduce for at least some people the draw of going to a lake to fish. This should contribute to LAC standards improving. Also, the non-fish species would have a chance to have a comeback. If remote, nearby ponds, and marshes that did not ever get planted with fish, might allow amphibians, and insects to recolonize and possibly restore at least some of these originally fishless lakes to a more natural system. The state would not continue stocking and further disrupting these lakes.</p>

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		They could eventually be more representative of natural processes in the wilderness. The lakes that would be restocked in OC 3 and 4 areas, would also be tested and monitored after the initial poisoning to ensure all non-WCT genes were gone. Once this was assured, then as a compromise between natural processes and recreation use WCT would be planted into these lakes. If these WCT trickled down to the river, at least every lake would not dribble down these hatchery genes. LAC standards would likely still be exceeded, but this is no worse off then the last 17 years. The original non-fish species of these stocked lakes would be severely suppressed or become extinct, but at least it is in only part of the deep fishless lakes. The state would hopefully just stock these lakes until they became a sustainable fishery and then cease stocking. This would at least leave the human manipulation finished at each lake, and the lake could evolve with these fish. Visitors would not have planes flying over with fish being dumped into them every few years, and a new normal could evolve.
	37.11	Correlating the cumulative effects of fish stocking goes beyond the scope of this project. There is no way of determining what the impacts were, as those impacts occurred many years ago. The Interdisciplinary Team of the Forest Service (IDT) in preparing this document and analysis considered many of the same factors you have described, if not all, and reviewed available literature and case histories of similar projects. Within the DEIS restocking is discussed in Section 2.4.6. In addition the genetics and hatchery issues have been described. The LAC is the means to evaluate the resource conditions within the wilderness – it sets the monitoring guidance and then as managers we can select actions to take that will manage these indicators appropriately. Limiting public access and/or trail closures are examples of appropriate mechanisms to reduce public use at designated sites, and improve resource conditions and/or monitoring results.
37.12		Additional background that shows the impact of fish on non-fish species: Ptarmigan Lake Project, Glacier National Park, Jack Stanford- Ptarmigan Lake and two nearby control lakes were studied 2001-2002 and the biotic assemblages that exist in the three study lakes differ noticeably from one another during the 2001-2002 sampling seasons.
	37.12	Please see responses to Comments 37.105 and 37.108.

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37.13		<p>Additional background that shows the impact of fish on non-fish species: Amphibians of Glacier National Park, Leo Marnell- the introduction of sport fish into a large number of formerly fishless lakes may have contributed to the loss or decline of several amphibians in portions of Glacier National Park. The presence of fish has been implicated in the decline of some amphibian species. Long-toed salamanders were particularly vulnerable to predation by introduced fishes in portions of the Cascade Mountains in western Washington and Oregon. Long-toed salamander larvae were not observed in any Glacier National Park water harboring fish, and this species existed close to fish at only 2 of 25 sites. The extent of damage to native amphibians in Glacier National Park as a consequence of fish introductions may never be fully understood.</p>
	37.13	<p>We agree that the full extent of impacts of introduced fish on amphibians will never be known.</p> <p>The MFWP 2004 SF lake survey found long-toed salamanders in 26 (35%) of the 75 lakes surveyed. Salamanders were found between elevations of 3,720 feet to 7,150 feet above sea level. The mean number of salamanders found at each site was 33 (1-328). The salamander was the second most abundant amphibian found in the SF during the 2004 survey representing about 8% of all amphibians found in lakes.</p> <p>Results indicated that salamander numbers are not driven exclusively by the presence of fish. Habitat availability was the most influential factor driving amphibian numbers. Please see Appendix G of the FEIS for more information about amphibians.</p>
37.14		<p>Additional background that shows the impact of fish on non-fish species: The Fish-stocking Controversy, North Cascades National Park Service Complex, 1968-2003, David Louter- the consent decree required that the agency review the fish stocking program through an EIS. The research program, carried out by Oregon State University, lasted for 12 years instead of 3, and only recently concluded in July 2002. The research concluded that zooplankton, insects and amphibian in lakes with high densities of reproducing fish have undergone statistically significant changes in abundance and species composition.</p>
	37.14	<p>Thank you for your comment and interest in the SF WCT Conservation Program.</p>

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37.15		Additional background that shows the impact of fish on non-fish species: An evaluation of Restoration Efforts in Fishless Lakes Stocked with Exotic Trout, Deanne Drake-Diatom assemblages in two restored lakes have not returned, with several potential explanations- First, recovery may take longer than the 20-30 years since fishes were removed from the lakes. Second, ecological conditions in stocked lakes may have been driven past a threshold of change- exceeding the bounds or resiliency- from which they will not return spontaneously. Third, other disturbances, such as loss of lakeshore vegetation, may also have affected diatom communities in lakes over the last 30 years. Because few ecosystems are well understood in terms of history, function, or structure, the results of our study imply that ecological restoration of other systems also may be more difficult than managers expect.
	37.15	Thank you for your comment and interest in the SF WCT Conservation Program.
37.16		If the project is to proceed on any lakes, I feel the following items should be included: Trails that do not have a well maintained system trail should not have stock used to transport people, gear and chemicals into them - this includes Woodward, Lena, Lick, George, and Koessler.
	37.16	The draft Minimum Tool Analysis listed on page 3-38 of the DEIS acknowledges your point with the exception of Woodward, Lena and Koessler. In 2002, the FS trail crew cleared avalanche debris from the trail to Koessler Lake. The FS concluded that livestock could be used to access those three sites. Page 2-3, and Table 2-3 provide information on this subject.
37.17		If the project is to proceed on any lakes, I feel the following items should be included: Any stock carrying in people, gear, supplies should be round tripped out back to the trailhead if this mileage is 20-22 miles. It sounds like each lake will take 3-7 or more days to complete. At these sensitive alpine lakes, have many head of riding and pack stock staying for 3-7 nights would largely contribute to the continued exceeded LAC standards. Round tripping stock out to the trailhead should include - Sunburst, Necklace, Pyramid, and possibly Woodward.
	37.17	In many cases stock would be returned to trailheads. In some cases the Forest Service would have stock overnight at appropriate locations and would require using nearby administrative sites or setting up camps.

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37.18		If the project is to proceed on any lakes, I feel the following items should be included: If boats with motors have to be used to effectively mix in poisons, it seems like electric motors or at least 4 stroke cleaner motors should be used. They are quieter, would not spill fuel, and would not give off fumes. It would only seem like the state would have to buy an electric motor.
	37.18	Four stroke motors would be used in the wilderness portion of this project. Electric motors require support equipment like batteries, and don't have the thrust of an internal combustion engine. There is a risk of spill of battery acid, which would have more of a threat to operators using the batteries. As both are mechanized apparatus, the internal combustion engine offers the best chance of success at meeting the project objectives.
37.19		[Specific draft EIS comment on section] S-3- the EIS implies that more lakes and streams than the 21 listed might be treated if hybridization was determined. I assume a new EIS would be prepared if this came to pass.
	37.19	Please see Sections 2.2 and 2.4.2.5 of the DEIS.
37.20		[Specific draft EIS comment on section] 5-4- in Alternative B, the EIS says that all lakes that have fish removed would have WCT stocked in the lake without sampling to see if all of the fish in each lake were killed. Why wouldn't another poisoning occur to make sure all non-WCT genes were removed from each lake instead of just swamping over the top? For each lake and stream below each lake to be treated, what is the expected success rate for the proposed action, 80%, 90%, 99%, 100%?
	37.20	Section 2.4.5 of the DEIS states that post treatment evaluations would be made to determine the effectiveness of a treatment, and determine if a second treatment is warranted.
37.21		[Specific draft EIS comment on section] S-4- in Alternative D, the EIS says that when fish numbers are reduced, intensive fish stocking would be used to swamp the remaining fish. How does this compare to Alternative B in the number of fish that would be swamped, percentage of success, etc.? It sounds like they are they same alternative except that in some cases some lakes in alternative B would have fewer fish remaining to be swamped.

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	37.21	These two alternatives differ greatly in the associated impacts. Table 2-7 of the DEIS lists the comparison of effects and provides a measure of impacts associated with each affected resource. This table points out substantive differences between Alternative B and Alternative D. Fish stocking density is related to the surface area of a lake. In the presence of the genetic swamp out management concept, numbers of fish may be increased or the frequency of stocking may be increased. Alternative B does not propose post treatment swamping. Page 2-26 of the DEIS states that stocking is for the purpose of dominating any remaining hybrids that might exist after a treatment.
37.22		[Specific draft EIS comment on section] S-5- gathering and sinking dead fish in the treated lake would stimulate plankton growth as a food source for restocked WCT. The poisoned fish as well as the restocked fish are exotic species to the wilderness. The poisoned fish should be removed. The wilderness should not be considered a garden when the original natural processes are manipulated for human perceived better conditions.
	37.22	Please see responses to Comments 11.10 and 37.2.
37.23		[Specific draft EIS comment on section] S-6- Alternative D- gill netting would require long term camping and storage of equipment to accomplish and this lead to trampling and site degradation. This is what currently exists at almost all lakes with fish. Limits of Acceptable Change standards are exceeded, largely because of the human impacts of people being attracted to lakes with artificially placed fish. Many stock users, outfitters, and hikers come to fish at lakes and cause LAC standards to be exceeded because of these fish. By saying that gill netting might cause standards to be exceeded might be a short term price to pay if the fish were removed and not replanted, so fewer people would come to each lake without the unnatural fish attractant.
	37.23	Page S-6 of the DEIS that you refer to discloses the direct and indirect effects on this method. If LAC scores are exceeded at the sites you've indicated, this method would likely make the scores worse. Further, long-term camping and operation of a boat at the sites would have a negative impact on solitude, noise and wilderness experience. Finally, the fishery would be impaired for 5-10 years. These impacts are believed to be greater in effect and intensity than others evaluated.

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37.24		[Specific draft EIS comment on section] 1-8- the 1999 MOU and Conservation Agreement for WCT, says WCT is to be managed within its historic range in Montana. These fishless lakes are not within its historic range.
	37.24	This project was designed to conserve westslope cutthroat trout in the South Fork Flathead drainage which is the historic range of this species. The MOU recommends that the species not be restored to geographic areas and drainages that are not within its historic range. Examples of this would include eastern Montana, or the Yellowstone River drainage.
37.25		[Specific draft EIS comment on section] 1-8-Protect all genetically pure WCT. The South Fork Flathead River is the only genetically pure WCT. Get rid of all fish in its headwater lakes and the river WCT will take care of itself. The more we try to garden fish management, the more disruptive this is to fish and non-fish species, especially in wilderness where natural processes are to dominate.
	37.25	Thank you for your comment.
37.26		[Specific draft EIS comment on section] 1-9- purpose- eliminate from headwater lakes the non-native trout. Removing all WCT and non-WCT from these lakes and not restocking them meets this purpose very well. This is not displayed as an alternative to be considered.
	37.26	Though there may be a debate about the definition of native, the Forest Service Manual defines native as “any species of flora or fauna that naturally occurs in the United States and that was not introduced by man“ FSM 2320.5. We consider the WCT native and so this proposed project would meet this purpose. See also response to Comment 35.2.
37.27		[Specific draft EIS comment on section] 1-13- MFWP is proposing to continue historical practices of stocking fish for recreation and to increase biological integrity. Again, not having any fish, WCT or non-WCT in lakes or streams from these lakes, does the best job of protecting the genetics of the native WCT in the South Fork Flathead River.
	37.27	Fish stocking and native fish management in the wilderness section of the South Fork Flathead was occurring before the area was designated as wilderness. This project proposes to reduce the threat of hybridization (also see response to Comments 37.100 and 37.103).

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37.28		[Specific draft EIS comment on section] 2-4- management goals for the fisheries in the South Fork focus on managing fisheries consistent with wilderness management guidelines - the fact that it is proposed to do at least some of this project with primitive tools, stock versus aircraft, is a plus. However, in the bigger picture, removing fish and then putting more fish back into originally fishless lakes has the bigger impact to the overall natural processes that are supposed to be occurring in wilderness. Your proposal does certainly not meet wilderness values.
	37.28	Fish existed in the lakes long before a portion of the project area was designated wilderness. Fish stocking with genetically pure WCT would replace hybrid trout and maintain established social and economic practices.
37.29		[Specific draft EIS comment on section] 2-5- alt b. again, [sic] it is not displayed what the expected outcome is by lake for poison treatment. is [sic] Lick Lake expected to have 100 of the original 1,000 fish remain alive after poisoning, then it is restocked with 10,000 WCT so the genetic swamping dominates more quickly than waiting for 40 years? If the objective really is to remove all non-WCT genes from the South Fork Flathead River drainage, would it not be prudent to sample each lake after poisoning to confirm if all fish are dead and then re-treat the lake if fish still live? And if indeed fish are finally all gone, does that not meet the objective of not having any polluting non-native WCT genes dribbling down to the main South Fork Flathead River?
	37.29	This information is stated in Sections 1.3, and 2.4.5 of the DEIS. Section 1.3 of the DEIS states that maintaining angling is an objective. This point was made numerous times throughout the DEIS including the analysis of socioeconomic impacts in Table 2-7, Chapter 3, and Table C-1.
37.30		[Specific draft EIS comment on section] 2-8- speaks to a post treatment survey, but does not commit to anything besides just restocking with more fish.
	37.30	Section 2.4.5 of the DEIS details the post treatment survey. See response to Comment 31.7.
37.31		[Specific draft EIS comment on section] 2-12 amphibian surveys have been conducted at each lake. Surveys have not been done at all large, deep lakes in the South Fork to see what non-fish species do or did exist at these lakes. Fish certainly had an impact on non-fish species, and by only looking and comparing what exists at lakes with fish, you are not looking at what species have been lost and how stocking and restocking effects them in the short and long term.

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	37.31	Surveying all lakes, or even all large deep fishless lakes, in the SF Flathead is not feasible and is not an objective of this project. In 2004, MFWP initiated a study to survey plankton and amphibians at 75 lakes and 86 streams in the SF. Surveys will continue during 2005. To date, no unusual species with restricted geographical range have been identified in the project area. See also Appendix G of the FEIS.
37.32		[Specific comment on section] 2-25- post treatment gill nets. If live fish remain, a determination would be made to impellent another treatment. Are you supposed to remove all non-WCT genes or not? What is the threshold that will be used to remove the last fish or just dump 10,000 more fish on top of them? What are the professionals anticipating the success is? See S-4 above.
	37.32	Page 2-25 of the DEIS discloses the post treatment evaluation. If fish are not detected by visual observation and gill netting, then the lake would be considered fishless. If fish remain in the lake, a determination would be made whether to implement a second treatment.
37.33		[Specific draft EIS comment on section] 2-25- rotenone would have on long-term adverse impacts on amphibians in the project area. it is not displayed what the range of amphibians currently are at the proposed treatment lakes, much less what amphibians were there before fish.
	37.33	Table C-2 of the DEIS lists the relationship of amphibians at the project lakes. In addition the 2004 MFWP surveys of 75 lakes and 86 streams in the SF further describes the status and distribution of amphibians in the drainage. See also Appendix G of the FEIS. Please see response to Comment 11.46.
37.34		[Specific draft EIS comment on section] 2-26- isolated fish have survived piscicide treatment. So you are saying that no treatment at these lakes is 100% effective. All treatments at removing fish are really to reduce as many fish as possible and continue long term swamping. If this is the case, poison, gill netting, and explosives all seem reasonable methods to use and may have less impact on non-fish species.
	37.34	Chapter 2 of the DEIS considers alternatives, evaluates them, and proposes the most effective alternative that will meet the project objectives.
37.35		[Specific comment on section] 2-27 - there is not a “no restocking” option. This is a reasonable alternative to be displayed to show what the effects on possible non-WCT genes dribbling out of lakes might be, what types of non-fish species could recolonize deep, fishless lakes, etc.

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	37.35	This option was ruled out of the scope of analysis on page 1-12 of the DEIS. The reasons stated are that the goal to replace hybrids with pure WCT would be compromised and that the socioeconomic impacts would be too great. The possibility of creating fishless lakes was considered as a result of public scoping, but was eliminated from detailed analysis. See also response to Comment 35.2.
37.36		[Specific comment on section] 2-27- restocking decisions - the flat out statement that all lakes would be subject to illegal restocking is not accurate. With some credible education of the public about natural processes in the wilderness, the only places that they have any chance to possibly work with little human manipulation, and FWP puts fish into basically every lake outside of wilderness, putting fish back into opportunity class 3 and 4 areas, and not restocking in opportunity class 1 and 2 areas, would keep the more pristine, remote areas that way and more likely to return to Limits of Acceptable Change standards.
	37.36	Illegal introductions documented by MFWP demonstrate that determined people will transport fish to difficult locations. Education about the damage caused by species introductions is important to reduce future violations, especially in wilderness. The Limits of Acceptable Change (LAC) is the means to evaluate the resource conditions within the wilderness and establish monitoring guidance so that managers can select actions to manage these indicators appropriately. Limiting public access and/or trail closures are examples of appropriate mechanisms to reduce public use at designated sites, and improve resource conditions and/or monitoring results.
37.37		[Specific comment on section] 2-27- Just restocking all lakes shows little appreciation or understanding of the wilderness resource, or natural processes. Wilderness is just another recreation place to hunt and fish, it does not have any roads, but fish and wildlife can be manipulated like they can in any non-wilderness area.
	37.37	See response to Comment 34.10.
37.38		[Specific comment on section] 2-35- genetic swamping may not be able to completely remove the genetic introgression. Genetic swamping seems to be part of all alternatives, it just varies by how many fish are being swamped. In this event, none of the alternatives completely remove all non-WCT genes. If that is the case, then the project is to just take out as many potential non-WCT

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		genes as we can.
	37.38	Please see response to Comment 37.172.
37.39		[Specific comment on section] 2-39- explosives estimate 85-95% fish kill. This is from one persons [sic] estimate. It seems like maybe 5 people should be asked their opinion, or maybe do a test lake. If poisons and gill nets do an estimated 95-98%, is that that much better?
	37.39	One local person was consulted who has expertise in general demolition and underwater demolition. Section 2.7.4 of the DEIS also considered information provided in Campbell and O'Neil (1999) and Lennon (1970). In both instances, these authors concluded that explosives and pneumatics killed fish but would not likely meet the objectives defined for this project.
37.40		[Specific comment on section] 2-45- not discuss wilderness in terms of naturalness and wildness in terms of short and long term impacts as per Landres paper.
	37.40	Please see response to Comments 37.147 and 37.179.
37.41		[Specific comment on section] 3-2- bob marshall wilderness complex is 1.5 million acres, about 110 miles north to south from hwy 2 to lincoln.
	37.41	Thank you for your comment and interest in the SF WCT Conservation Program. There are many ways to describe the area included in the Bob Marshall Wilderness Complex.
37.42		[Specific comment on section] 3-7- protect and restore WCT in their historic range. Outside wilderness, maybe the FWP is empowered to do more manipulation, but it still should consider natural processes. Inside wilderness, natural processes should be dominant, and putting exotic fish into originally fishless lakes does not promote natural processes today or into the future. Growing WCT in the wilderness lakes where they were not historically located does no service to natural processes in the one area where natural processes are to prevail.

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	37.42	Please see response to Comment 37.28.
37.43		[Specific comment on section] 3-10- there is internal and external debate as to when a fish should be considered indigenous. If 1964 is the date, then hybrids should count as indigenous. Continuing to stock fish in fishless lakes regardless of semantics does not serve the natural processes of wilderness.
	37.43	Please see Section 3.2.4 of the DEIS. Though there may be a debate about the definition of indigenous, the Forest Service Manual defines it as “any species of flora or fauna that naturally occurs in a wilderness and that was not introduced by man” FSM 2320.5.
37.44		[Specific comment on section] 3-12 – protect bull trout by removing as many hybrid WCT as possible. Again, it sounds like some, if not quantified, WCT will remain after poisoning to protect bull trout, and because poisons might not be effective in every nook and cranny of every lake and stream. If this is so, say so and what the anticipated success is for each lake and stream segment. This display might help determine which treatment is best for each area.
	37.44	Page 3-12 of the DEIS reads “... it will be necessary to protect as many downstream bull trout populations while removing as many hybrid trout from those streams as possible...” We propose using safeguards to protect the bull trout. However, in our biological assessment for this project we acknowledge that some bull trout may be lost. See Sections 4.1.1 and 4.2.
37.45		[Specific comment on section] 3-13 if piscicides [sic] combined with swamping any remaining non-WCT should reduce but not eliminate non-WCT genes. Again, what are the chances of success by lake and stream segment? If some are very assured of success, this would rate that segment much higher in remaining fishless.
	37.45	See page 1-12 of the DEIS. Creating fishless lakes is not proposed for this project.
37.46		[Specific comment on section] 3-13- using the same MO 12 stock for all lakes again seems economical, but likely will lead to future genetic contamination of the really, original genetically pure WCT in the main South Fork Flathead. If the proposal persists in wanting to stock WCT into lakes, the least that should be done is to get WCT fish that live in the main stem and use these fish to stock lakes that drain into them. For example, for Lick, Koessler and George Lakes, use WCT that

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		naturally live where Gordon Creek empties into the South Fork for brood stock. Plant these fish into Lick, Koessler and George Lakes. If over the years, fish happen to dribble down from the lakes to the main river, at least these fish will carry the genetics of the original fish from the drainage.
	37.46	The M012 has been used in the South Fork Flathead for 19 years. It is genetically pure, genetically diverse, and we believe it would not “genetically contaminate” the drainage.
37.47		[Specific comment on section] 3-18 - amphibian baseline data has been collected from the project area that indicates that these species are widely distributed throughout the project area. Apparently, the amphibian survey did not consider other large, possibly deep fishless lakes to compare what the lakes currently stocked with fish might have had for non-fish life forms before fish. Lakes without fish, such as Palisades, Olor lakes, Crimson, Pendant, Christopher, Hart, Recluse, Rubble, Marshall Mt., Cooney, Lion Creek, Terrace, are some examples of the many larger and possibly deep lakes that could be surveyed to see what amphibian, reptile, plankton, aquatic insect, etc. may have existed in these lake prior to fish introduction. Until the surveys are done on all large lakes with and without fish, it seems that saying none of the alternatives would have any effects is premature.
	37.47	Thank you for your comment and interest in the SF WCT Conservation Program. Six of the lakes you listed have been surveyed in recent years. The detailed study you describe was not conducted on each lake because this project does not include those areas.
37.48		[Specific comment on section] 3-20- basing a Glacier National Park FONSI that said noise would not effect wildlife, without displaying what the FONSI said, the project background, etc. seems pretty presumptuous in saying the same effects apply for this project.
	37.48	We acknowledge that the DEIS failed to adequately describe the scope of the EA to <i>CONDUCT ADDITIONAL ADMINISTRATIVE HELICOPTER AND FIXED WING FLIGHTS IN 2003, GLACIER NATIONAL PARK, WEST GLACIER, MONTANA</i> , and the associated FONSI. The EA reads “...Approximately 34 helicopter flights are proposed to remove untreated human waste from the public toilets at Granite Park Chalet before it can open for the season, remove untreated human waste, and remove a failing composting toilet at the administrative patrol cabin in that area. Approximately 30 helicopter flights are proposed to rehabilitate the Porcupine Lookout in the backcountry and 6-8 helicopter flights are proposed to conduct radio tower maintenance

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		<i>throughout the backcountry of the park. In addition 15-30 fixed-wing flights are proposed to conduct wildlife monitoring for research purposes of bald eagles, bighorn sheep, bull trout, Canada lynx, gray wolves, grizzly bears and wolverine...</i> The proposed action involved conducting only one landing at these sites. Based on this finding, we expect impacts to be similar.
37.49		[Specific comment on section] 3-22- what food storage method would be used at lakes? Camp occupancy or bear resistant containers? Will piscide [sic] be stored in bear resistant containers? Although they are not a food consumed by humans, it could be odorous and intriguing to a grizzly bear to just check it out and tear it open or bite it to see what it is, like has been know to happen with oil and gasoline containers.
	37.49	Page 3-22 of the DEIS states that the proper food storage orders would be followed.
37.50		[Specific comment on section] 3-23- impacts on amphibians would be minimal. If piscide [sic] use kills all fish, it seems likely that it will kill all amphibians in the water. It might be true that some amphibians would still be around after treatment, it does not go into the various life cycles that different amphibians have, where over several years they go from pond, to marsh to lake, and depending on time of year, treatments can be deadly to different species.
	37.50	Numerous reviews of scientific literature case histories, field trials and MFWP laboratory assays were used to evaluate possible effects on amphibians in general, and specific life stages of amphibians. Some of these findings are listed on pages 3-22 and 3-23 of the DEIS. We are proposing to initiate action in the fall when most adult amphibians are not in the lakes and other life stages are metamorphosing, specifically to reduce the potential for impacts to non-target organisms.
37.51		[Specific comment on section] 3-28 - spills from pumps and outboard motors. It seems like electric motors instead of those run from gasoline would prevent this possible problem.
	37.51	See responses to Comment 37.18.

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37.52		[Specific comment on section] 3-26- "Maintain wilderness in such a manner that ecosystems are unaffected by human manipulation and influences so that plants and animals develop and respond to natural forces." This project is supposed to help correct imbalances cause by past actions. People put fish in lakes in the past. We do not like those fish, so we want to kill off the old fish and everything else that lives in these lakes and streams, then put in new fish into these originally fishless lakes, and continue to stock them with fish so people can fish for them. What about this description sounds like wilderness responding to natural forces?
	37.52	The project goal is to protect and conserve WCT and to maintain established socioeconomic and recreational practices.
37.53		[Specific comment on section] 3-37- "where a choice must be made between wilderness values and visitor and other activity, preserving the wilderness resource is the overriding value." Maybe taking the fish out of lakes might help preserve the wilderness resource, but putting them back into every lake to continue an unnatural process certainly does little to preserve the wilderness resource.
	37.53	Thank you for your comment and interest in the SF WCT Conservation Program.
37.54		[Specific comment on section] 3-37 maintaining naturalness and wildness should dominate what is done in this proposal. Natural and Wildness: The Dilemma and Irony of Managing Wilderness, Peter Landres' paper says that wildness is free from human control or manipulation. Naturalness is native, indigenous. Both are essential elements of wilderness. The present and future of these originally fishless lakes meets neither. In the past fish were planted in fishless lakes- human control of stocking, manipulating the setting, and making less native. Every time the lakes are stocked it is more human manipulation of a non-native organism put into a lake at the expense of those species that were there before fish. This proposal would have deadly human manipulation to remove most life from lakes and affected streams, and then put non-native fish in the short and long term back into these lakes. Neither naturalness nor wildness is met by any measure.
	37.54	Please see response to Comment 37.28 and 37.147.

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37.55		[Specific comment on section] 3-38 a final minimum tool analysis it not normally completed prior to having an approved decision. At a minimum the analysis and decision go side by side. If a decision is made without knowing what the minimal tool choices are, it is not a very informed decision. The EIS should display what minimum tool is for each lake and stream segment. To say that it will be discussed in the details after a broader decision is made does not reasonably display to the public and decision maker what the various consequences are to each decision.
	37.55	The draft Minimum Tools Analysis on page 3-38 of the DEIS considered the project as a whole, considered the major differences in the possible outcomes, and narrowed the decision space based on land use restrictions, and methods of transport and application.
37.56		[Specific comment on section] 3-39 - cumulative effects on wilderness resources. There are 50 lakes in the South Fork stocked with fish; all but two were originally fishless. Almost all are in designated or proposed wilderness. The cumulative effects of having 50 of 355 large, deep lakes stocked with exotic fish, on the non-fish species needs to be displayed as an effect on wilderness resources.
	37.56	Please see response to Comment 35.5.
37.57		[Specific comment on section] 3-40- it is not clear how gill netting and other suppression techniques would disrupt natural wilderness processes and adding poisons and swamping would not.
	37.57	The analyses for these methods describes the likely impacts on “wildness” and “naturalness” including extended stays at lake sites, impacts to the soil and vegetation from extended camping, impaired fisheries, and extended presence at the sites. See Section 2.6 of the DEIS.
37.58		[Specific comment on section] 3-42-it seems to misrepresent the fishing impacts of listing 21 lakes for this project, and adding them up to represent the 157th out of 1,529 fisheries in the state. Each is a widely separated lake and the highest any lake rates is 320. To then say all of these together represent the 157th biggest fishery does not seem to make sense. One lake ranks at 1,175 out of 1,529.
	37.58	It is widely accepted that anglers using the high mountain lakes in the Swan Range frequently fish more than a single lake during a trip. In fact, it is very common for anglers using lakes in the

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		Gordon and Big Salmon drainages to fish multiple lakes during an extended trip. The data presented in Table 3-6 of the DEIS does not include the recreational value of the SF River, or the angler use of lakes that are not listed in this proposal but are important fisheries in the SF drainage (Big Salmon, Spotted Bear, Beta, Jenny, North Biglow, Seven Acres, Cliff, Crater, and Doctor). If these were added, the importance of these fisheries would rank higher than described in the table.
37.59		[Specific comment on section] 3-43- Limits of Acceptable Change- most lakes with fish have exceeded standards. Most have one and up to four measured standards, most have been exceeded for all 17 years since these standards were established. Lakes stocked with fish play a major role in attracting people to lakes. The fact that the forest plan states that wilderness is to be managed within standards should prevail, the fact that some lakes might be getting closer to being within standard, but are still are outside standard after 17 years should be part of the display of information and have a bearing on which, if any lakes should be considered for restocking with fish.
	37.59	The intent of the LAC monitoring was to know the existing conditions, to have managers understand the indicators, both independently and jointly with factors, and then to make informed decisions about means to continue to improve the wilderness resource conditions. As described on page 3-43 of the DEIS, overall the standards are improving.
37.60		[Specific comment on section] 3-48 - the EIS notes that the LAC standards are not expected to change in alternative B. The connected action of restocking lakes will continue to have lakes not being managed within LAC standards. An alternative that would not restock some or all lakes based on Opportunity Class would likely have at least the lakes that were not stocked come back within LAC standards.
	37.60	Restocking is addressed in Section 2.4.6. There are many actions that could contribute to a change in the LAC monitoring results.
37.61		In general, even though we will never know all we need to know before making a decision on these lakes, I still believe there is a basic level we need to know on the larger, deep fishless lakes. Do we have representative basins that can reflect what non-fish species were present before the introduction of fish?
	37.61	This information could be gathered from lakes in the project area that do not have fish. Although MFWP has conducted surveys on amphibians, surveying fishless lakes is not part of this proposal.

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37.62		Can we keep the most pristine areas fishless as they originally were in Opportunity Class 1 and 2 areas whether they have any fish at all?
	37.62	As identified on Page 1-12, since all lakes included in this proposal within the wilderness had established fish populations at the time of wilderness designation, and when opportunity classes were established, managing these fish populations by MFWP was a preexisting activity.
37.63		If we must remove fish from all lakes and restock them into some lakes for compromise or political or social reasons, can we stock the fish for one or two years, and then let them become self-maintaining or not, and try to restore as much naturalness and wildness as we can to wilderness without continued human manipulation?
	37.63	Page 2-27 of the DEIS states that where possible, stocking would be reduced in the absence of the "genetic swamp out" management concept.
37.64		In the proposed wilderness for Jewel Basin, can you keep the more remote lakes fishless to represent natural processes in other areas as well, especially those areas likely to become wilderness?
	37.64	Please see response to Comment 37.163.
37.65		Your EIS addressed many of the issues I outlined in attachment A, and did not seem to embrace and include much of the wilderness and amphibian research outlined in attachment B.
	37.65	Please see response to Comment 35.2. The research has been considered and included in the references.
37.66		This EIS is still not a very balanced document. Poison non - WCT in some lakes, put WCT back in, and keep providing a recreational fishery. This does not contribute to natural processes, naturalness or wildness, as part of wilderness; it is totally subservient to fish. A dangerous precedent to manage for a wildlife species at the expense of the overall wilderness resource.
	37.66	The westslope cutthroat trout and angling are wilderness values also. This project considers striking a balance between natural processes, promoting naturalness and wildness over time, and conserving the genetic integrity of WCT.

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37.67		Alternative methods to remove fish: Alternatives include ending all fish stocking, liberal angling rules, netting, electrofishing, targeting spawning areas, stocking with predatory sterile hybrids, etc. All alternatives should be fully considered and displayed, not just for convenience and economics.
	37.67	Your recommendations have been considered and analyzed in Chapter 2 of the DEIS.
37.68		Alternative methods to remove fish: Non-toxic alternatives such as trapping, and screening off of spawning beds. These alternatives could be combined with gill netting and other non-toxic methods in treating some lakes.
	37.68	See Chapter 2 of the DEIS. Non-toxic alternatives were considered.
37.69		Alternative methods to remove fish: Antimycin, advantages should be listed. You need 115 the volume of rotenone so for wilderness situations it has merit. Its effect on nontarget organisms is less than rotenone. Antimycin is used in the Wilderness lakes but rotenone is proposed in the non-wilderness. Both sets of lakes have non-fish species that are sensitive to chemicals and areas of streams below lakes that have hybrids. Explain why there is the difference in the types of chemicals being used.
	37.69	Although the performance benefits of antimycin are listed in the DEIS, we acknowledge that, aside from the references in Section 3.6.5 of the DEIS, it is not clear on the performance advantages that were used to help determine where rotenone would be used. See response to Comment 31.11. We have added this information to the FEIS.
37.70		Alternative methods to remove fish: Gill netting has been shown to be effective in lakes up to 33 feet deep and 8 acres in size. (Knapp and Matthews June 1998) this method should be seriously evaluated and considered for the Necklace Lakes and Pyramid Lake.
	37.70	The Knapp and Matthews (1998) paper was cited on page 2-31 of the DEIS. Alternative D of the DEIS considers suppression as a means of achieving the objectives of the project. The analysis of this alternative determined that there would be major and long-term impacts to five of the seven resource categories that were identified. Table 2-7 on page 2-45 of the DEIS summarizes these impacts.

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37.71		Alternative methods to remove fish: Lakes with chemicals flown in — have people walk in, stay there, walk out. To minimize flights, serious consideration should be given to having people walk in instead of riding stock and then having stock not stay at the lake but taken out to the trailhead to minimize impacts to trails and to lakeshore areas.
	37.71	Thank you for your comment.
37.72		<p>Bull trout spawning and rearing tributaries. It will be critical that a failsafe method be adopted to preclude the accidental discharge of toxified water downstream from these removal efforts. How many miles of stream have both bull trout and hybrid fish? In those areas with both types of fish, is the hope that potential dribble down of planted wct from the lakes will swamp out any hybrids in these sections? If wct were not planted in the lakes, couldn't any hybrids be swamped out with pure native wct from the South Fork Flathead River?</p> <p>What is uppermost bull trout distribution in each of these drainages? Also, assuming that most of the uppermost reaches end at some kind of barriers or falls. Again, why can't hybrid wct above the barriers be removed, and not replant wct in the lakes and in the streams above the barriers? If these toxins are supposed to be so effective, there should not be a problem with not having to plant wct in lakes to dribble down to do more swamping.</p>
	37.72	<p>It is not known precisely how many miles of stream have both bull trout and hybrid fish.</p> <p>Yes, Section 1.1, page 1-7, and page 2-27 of the DEIS, describes the mode in which headwater lake fish have moved downstream and will likely continue.</p> <p>Translocation of fish from the SF River requires extensive genetic and disease testing to absolutely determine no hybrid fish or pathogens are transferred into the lakes or creeks downstream. Second, translocations of wild fluvial fish from the river to a lake environment must be limited to avoid impacting the donor population. The number of fish available using this method may not be sufficient to reestablish lake populations or meet genetic purity objectives. Depleting fish from the SF River may have a negative impact in the integrity of that population, and ultimately on the recreational angling in the SF River.</p>

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		<p>Appendix C of the DEIS provides details on the distribution of bull trout in their respective drainages as well as Table 3-2.</p> <p>Not replanting lakes with fish could create social and economic impacts to the recreational and commercial enterprises in the area. See Sections 1.4.2.2 and 2.4.6. There is no proposal to impact angling other than that described during the repopulating phase following a chemical treatment.</p> <p>Also please see the response to Comment 37.44.</p>
37.73		<p>FSM 2320.22: Objectives — “Maintain wilderness in such a manner that ecosystems are unaffected by human manipulation and influences so that plants and animals develop and respond to natural forces”. This is not being proposed based on past actions of planting by FWP, by fish removal, then proposed continued restocking of lakes forever.</p>
	37.73	<p>Thank you for your comment.</p>
37.74		<p>FSM 2320.3: Directs FS Line Officers to select an action alternative which gives precedent to maintenance of wilderness values where there are alternatives among management decisions... except where limited by the Wilderness Act, subsequent legislation or regulations. Maintaining naturalness and wildness should dominate what the Forest Service does and what the Forest Service does in partnership with Fish, Wildlife and Parks. Both agencies need to consider wilderness values, not just specific wants and needs for one project like this fish removal and restocking proposal.</p>
	37.74	<p>This project has included an in-depth analysis of the wilderness and potential effects related to the westslope cutthroat trout conservation.</p>
37.75		<p>FSM 2320.6: “where a choice must be made between wilderness values and visitor or any other activity, preserving the wilderness resource is the overriding value.” Wilderness values should dominate all agencies decisions, not just Forest Service decisions based on one species of fish.</p>
	37.75	<p>Thank you for your comment.</p>

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37.76		<p>Inconsistency between FSM direction and MOU guidelines/criteria -</p> <p>Define statutory authorities given court rulings. (Landres and Meyers 2000). This paper notes that “backed by the Supreme Court decisions, federal managers can be involved in wildlife management decisions to defend wilderness values.” By having the Forest Service say that the state can stock and continue to stock fish in any and all wilderness lakes that it so chooses, is an abdication of federal responsibility of protecting long term wilderness values, natural processes, and minimizing continued human manipulation of the wilderness.</p>
	37.76	As described in the DEIS, the agencies have followed the appropriate direction. See Chapter 4 of the DEIS.
37.77		<p>Inconsistency between FSM direction and MOU guidelines/criteria -</p> <p>“Territorial imperative” is a barrier to wilderness management - There is some comfort level with the current perception that State has jurisdiction over fish stocking in wilderness as long as there is recognition of shared responsibility for meeting intent of the Act, as well as, other laws that regulate Forest Service actions. There does not appear to be any shared responsibility for meeting the intent of the Wilderness Act. This project is purposely divided into decisions that each agency is supposed to make independently, without cooperation or adherence to the much touted Bob Marshall Wilderness Complex framework of cooperation between the Forest Service and FWP. There should be shared responsibility for meeting needs of wet as well as wilderness values. Believe that the Forest Service does not have the authority to allow the State to perform this procedure. It does not seem to meet the Forest Service mission of maintaining wilderness values and natural processes by just letting the state perform exotic fish removal from lakes, and then just let them put in different exotic fish back into these lakes.</p>
	37.77	Thank you for your comment. The Forest Service and the State are working cooperatively to make stocking decisions as described in the Bob Marshall Wilderness Complex Framework.
37.78		We have a very unique and rare opportunity to recreate many large fishless lakes.

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	37.78	There are presently a number of fishless lakes in the wilderness portion of the project area that provide unique recreational opportunities (Rubble, Upper Terrace, Lower Terrace, Christopher). Other wilderness lakes that are believed to be fishless include Diamond, unnamed Little Salmon, unnamed Youngs Creek, Otis, and Prisoner, among others. These are representative of complete naturally-functioning ecosystems that are not influenced by fish stocking. Fishless lakes are available both inside and outside the wilderness for use by the public in proportion to the demand.
37.79		Stocking fish in naturally fishless waters has had a devastating effect on native aquatic biological diversity and biological integrity. I don't believe non-fish species in these originally fishless lakes has been fully considered. What did all fishless lakes look like prior to fish? What is left in these and the remaining lakes as far as non-fish species diversity and makeup?
	37.79	Please see response to Comment 11.10.
37.80		Use such [fishless] lakes for the study of recolonization by amphibians and affected aquatic insect populations? For any of the lakes that don't end up being restocked, they should be studied to see what the recolonization by non-fish species looks like.
	37.80	The proposal is to restock lakes and we would monitor the recolonization of amphibians and aquatic insect populations after treatment.
37.81		How many of these 355 lakes are capable of sustaining fish. [sic] A rough guess is that 95-100% of lakes that can sustain fish in the South Fork have fish in them. Bottom line is that there are few to no large deep fishless lakes due to stocking practices. Large, deep fishless lakes likely have different, if not unique, assemblages of non-fish species. Even though most lakes in the Wilderness lakes have not had fish planted in them, most of the lakes with fish planted, are the largest and deepest. Some of the largest and deepest lakes need to be left fishless.
	37.81	It is unknown how many of the fishless lakes are capable of sustaining fish (see response to Comment 37.78).
37.82		There were some lakes, Marshall and Crimson that were stocked by FWP after Wilderness designation. Of all of the lakes in the wilderness, when was each lake likely stocked and by whom, and when was each lake first officially stocked? If any lakes were first stocked after 1964 they stock

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		[sic] have all fish removed and not replanted.
	37.82	Marshall and Crimson lakes are not part of this project. When each lake was first stocked is also outside the scope of this project. The DEIS does provide some background information about stocking.
37.83		Which lakes are most likely to have 100% fish kill? This should be a strong consideration for lakes to be left fishless.
	37.83	Our goal is to get a 100% fish kill at all the lakes that we treat. Creating fishless lakes is not part of our proposal.
37.84		From a genetic standpoint, it is important that we provide for local adaptations-and phenotypic variation. We thought that it would not make any difference to plant lake trout, Kokanee, and shrimp in Flathead Lake, and now a lot of the native fish populations are declining. How do [sic] know that using M012 brood stock from 2 Clark Fork and 10 South Fork drainage streams will not seriously impact the pure native wct that is in the South Fork Flathead River? Is it possible that the unique adaptations that the wct have in the main river and the side streams may allow unique opportunities to survive and thrive?
	37.84	<p>We do not believe stocking genetically pure westslope cutthroat trout that were largely derived from the South Fork would impact the WCT in the South Fork. Allowing non-native fish to continue hybridizing with the WCT will have a serious impact on the pure native WCT. Current measures of genetic differences in WCT do not provide a measure of “unique adaptations.”</p> <p>At this time, removing introgressed populations and establishing pure WCT populations in the lakes presents fewer risks to the SF WCT populations than leaving the existing hybridized populations. Drainage specific stocks are not yet available. If they become available MFWP would consider using them to implement this type of conservation strategy.</p>
37.85		The South Fork is the best wct river system that we have left. We have kind of messed up the lakes and some streams from them with hybrid fish. What makes us think by the continued gardening of adding fish with genes not of the exact local streams may lead to genetic pollution and the eventual

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		losing of this native species?
	37.85	This project serves to mitigate the threat to native westslope cutthroat trout caused by historic stocking of non-native fish in headwater lakes. Case histories from other American rivers and lakes serve as examples of what could occur in the SF if the native WCT metapopulation becomes hybridized further. Fish from the exact local stream may be considered if they become available.
37.86		What is the best WCT source for rebuilding the lake fishery? Can a downstream pure WCT population or other nearby wild WCT populations serve as the donor? This might take more time and expense for the short term, but for the long term would this be a better consideration?
	37.86	See response to Comments 37.85 and 37.84.
37.87		MOU for Wct in Montana, "Protect all genetically pure populations," "Thus, each tributary that supports WCT, regardless of its length, constitutes a population." If this is the case, M012 should not be used to stock lakes or other streams.
	37.87	See response to Comment 11.59.
37.88		We have been told that the genetic diversity among WCT populations may be the result of founder effects or genetic drift. How likely is this?
	37.88	Determining the origin of genetic differences between individual WCT populations is beyond the scope of this project.
37.89		What is the Committee's best informed estimate on the issue of whether or not the diversity of these local populations reflects a significant amount of local adaptations rather than founder effects or genetic drift?
	37.89	See response to Comment 37.88.

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37.90		Suppose the appropriate genetics data formed into, say four or five clusters of local populations. And suppose a lake cluster brood stocks were formed by taking stock over the tributaries in each cluster. Would the use of such stocks (compared to MO 12's serve to: a) decrease the chances of losing alleles, b) decreases [sic] the extent of loss of local adaptations, and c) decrease that loss of genetic diversity among the local populations? Extensive discussion on the genetic implications of this project is needed.
	37.90	This is a hypothetical question that goes beyond the scope of this analysis.
37.91		We have been told that, since MO 12's have been in these lakes for some time now as part of the "swamp-out" program, the downstream WCT populations are probably already inter bred with the MO 12's. Is this simply a guess, or is there evidence for this claim? Is there any reason to think that there are pure local populations in sections of the tributaries that are not interbred with the MO 12's? Are there any genetic markers that can be used to distinguish (with a fairly high degree of confidence) pure WCT's that have MO 12 genes from those that have not?
	37.91	The diversity and number of protein markers are used, at times, to determine differences among populations. In some instances, these markers have been used to infer the influence or the presence of the M012 in some streams. It is unknown how these differences relate to adaptations, or whether they are beneficial or detrimental to the population or the species.
37.92		It has been suggested that the leaking of MO 12's into the downstream local populations could provide a remedy (or prevent) inbreeding depression. Is there any evidence that these populations are suffering from (or on the verge of) inbreeding depression? If so, is interbreeding with MO 12's the best way to deal with the problem from the conservation genetics standpoint?
	37.92	Genetic surveys have not detected or measured inbreeding depression in wild populations or the M012 broodstock. No WCT populations located downstream of waters stocked with M012s have been documented as being extirpated. It is unlikely that downstream populations are at such low levels that inbreeding depression would occur.
37.93		If there is currently insufficient genetics (or other) data to answer many of the above questions, does the Committee believe that — strictly from the standpoint of the conservation biology of the project — acquiring the relevant data before restocking these lakes with MO 12's would be the

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		appropriate course of action?
	37.93	The DEIS in Section 1.2 states that over 130 genetic tests have been completed. The DEIS in Sections 2.4.2.1 describes where we need more genetic testing. We believe this is sufficient genetics data to propose these activities.
37.94		We are deeply concerned about the ongoing hybridization in thee [sic] tributaries, and agree that the immediate remedy is to eliminate the non-native (and hatchery cutthroat) lake populations using techniques most compatible with wilderness.
	37.94	Thank you for your comment and interest in the SF WCT Conservation Program.
37.95		We believe that in a project of this magnitude and potential impact on wild native WCT populations, it is extremely important that it not be launched until the scientific issues most relevant to its success as a conservation project are considered and resolved in accord with the best available science.
	37.95	Thank you for your comment. Scientists for the Forest Service, MFWP, BPA and the USFWS all support this proposal and the accompanying analysis. This support is based on full consideration of opposing scientific views to the proposed action. "Best available science" does not resolve scientific issues; it simply informs decision makers who must use it in good faith, and in a reasonable manner to reach policy decisions.
37.96		Our preliminary review of the genetics data available indicates that it is focused on the hybridization issue and is insufficient in scope to provide a basis for assessing the overall genetic makeup of the tributaries affected by the project.
	37.96	See response to Comment 37.93.
37.97		Before restocking, we would like to see a thorough review of alternatives to restocking with a single generic brood stock. (Raise local brood stocks instream, or at a local hatchery, or plant lakes directly from their associated tributaries?)

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	37.97	At present we do not have drainage-specific stocks. Developing drainage specific stocks is not part of this proposal. However, if a stock becomes available in the future, Montana would consider using it.
37.98		Restocking with M012 WCT appears to be in conflict with the Upper Missouri Westslope Cutthroat Trout Committee. We do not now recommend that WCT be introduced into waters containing or connected to waters that contain pure WCT populations unless the existing pure population is the source of the introduced fish. This recommendation will prevent the possibility of breaking down local adaptations due to interbreeding of extant fish with introduced fish.
	37.98	Recommendations of the Upper Missouri Westslope Cutthroat Trout Committee do not apply to conservation efforts in the Flathead Valley. Section 1.2 gives information about how this proposal meets the goals of conservation plans in the Flathead Valley. It was developed specifically for conservation and management of the SF Flathead, and has been used extensively in the SF for 20 years.
37.99		At a minimum FWP should address the consequences from stocking M012 on phenotypic variation versus the consequences of a few remaining hybrids (if a complete fish kill is not achieved) on the downstream native fish population.
	37.99	Phenotypic variation is not used to determine the genetic purity of a population. A genetically diverse population will have a wide range of phenotypic variation as well. MFWP relies on genetic testing (genotyping) of fish populations to determine their purity.
37.100		It is highly possible that once hybrid genes are removed from lakes that seeding and swamping of remaining hybrids in the stream is achieved by pure wild fish moving upstream. This possibility without restocking the lakes should be displayed.
	37.100	Upstream movement into all of the lakes is not possible. All of the lakes have waterfalls or other fish barriers that prevent upstream movement. If upstream movement were possible, the lakes would have complete native fish assemblages (i.e., bull trout, westslope cutthroat trout, mountain whitefish, sculpins and possibly suckers).
37.101		Given that hybrids have been present for 70 years, it is important to remove hybrids, but not sure of the urgency. Whatever we do, let's do it right with the best information that we have, or with more information to collect if needed.

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Comment Number	Response Number	Comment/Response
	37.101	Thank you for your comment and interest in the SF WCT Conservation Program.
37.102		If we are stocking with MO 12 is viability an issue since there is always a hatchery source?
	37.102	The M012 is a genetically pure, genetically diverse and performance proven stock of westslope cutthroat trout. This stock of fish was developed using wild westslope cutthroat trout mainly from the South Fork Flathead River drainage and is used extensively throughout the project area now.
37.103		We know that there are WCT downstream. We don't have enough genetic info yet but in all likelihood there is a gradient of hybridization with the highest near the lake to little or no downstream at confluence. If hybrids are removed from lake and trickle down effect is removed or reduced doesn't seeding also happen from downstream pure wild fish upstream? In other words, wild pure fish swamp out hybrid stream fish since hybrid source is gone from lake.
	37.103	<p>Most of the high gradient streams below these lakes did not historically contain fish. Since the development of fish populations in headwater lakes, the suitable high gradient stream reaches below also developed populations from downstream drift. Fish move upstream from Hungry Horse Reservoir and from the South Fork Flathead River system to spawn and deposit their eggs. Most of the young fish produced in this manner return to the larger streams, rivers and reservoir downstream. Upstream movement is limited by waterfalls and other barriers.</p> <p>It is likely that pure fish would help repopulate the treated reaches of these streams. Restocking pure fish in the headwaters would also serve this objective, especially in areas where upstream movement is limited by natural barriers.</p>
37.104		Indicate how the thousands of poisoned fish will be disposed. If they are not removed from the wilderness, what will be the effects on wildlife, including threatened and endangered species like grizzly bears, that feed on the poisoned carcasses and to whom fish will be food attractants?
	37.104	Page 2-23 of the DEIS states that dead fish would be removed from lakeshores and as much of the streams as possible. Dead fish would be sunk in the lakes to boost phosphorus and ultimately plankton production. Section 3.5.6.1 of the DEIS describes the affect on water chemistry and plankton from this action.

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		<p>See page 3-22 of the DEIS. Appendix D of the DEIS also provides information on the effects of rotenone on mammals.</p> <p>Page 3-56 of the DEIS provides information on human health threats from exposure to antimycin. Much of the information used to derive the values for mammals were determined from studies conducted on rats (Stillmeadow 2001). The Schnick (1974a) paper that is cited on page 3-57 of the DEIS reported that guinea pigs and mice have also been used to determine the effects on mammals. The Ritter and Strong (1966) paper that is cited on page 3-57 concluded that mammals suffered no ill effects from eating fish killed with antimycin. On this basis, we would expect the same results with other mammals, including bears, which might consume antimycin-killed fish.</p>
37.105		<p>Fish are not a natural part of this ecosystem- all dead fish should be removed from site by packing or flying out to minimize unnatural food sources for grizzly bears and to minimize artificial nutrient additions to this area. To sink dead fish to add to the unnatural nutrient loading of the lake further disrupts natural processes.</p>
	37.105	<p>We are using existing conditions as the baseline for this project and fish currently inhabit these lakes. Sinking dead fish in the lake would release nutrients and stimulate primary production of the lakes. Bradbury (1986) reported that approximately 70% of rotenone fish killed in Washington lakes never surface. Although no trout were involved with his study, Parker (1970) reported that at water temperatures of 40°F and less, dead fish required 20-41 days to surface. The most important factors inhibiting fish from ever surfacing are cooler water (&lt;50°F) and deep water (&gt;15 feet). Nearly all of the lakes listed in this proposal meet those criteria and they usually have ice formation by the end of October. Bradbury (1986) reported that 9 of 11 water bodies in Washington treated with rotenone experienced an algae bloom shortly after treatment. This is attributed to the input of phosphorus to the water as a result of decaying fish. Bradbury further notes that approximately 70% of the phosphorus content of the fish stock will be released into the lake through bacterial decay. This action stimulates phytoplankton production, then zooplankton production, and starts the lake toward production of food for fish.</p>
37.106		<p>In response to the concern that outfitters or other will illegally stock these waters with exotic fish, we would suggest that if the existing fish are removed, the State of Montana should permanently</p>

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		close these lakes to angling. This should be included as mitigation in alternatives.
	37.106	Montana will have the choice to restock or not. However, closing waters to angling would impact the social and economic interests in the area. Closing lakes to angling and closing trails would not necessarily prevent illegal introductions.
37.107		The success of chemical rehabilitation should be assessed through pre and post treatment inventory using gill nets, electrofishing, and/or underwater visual inspection. If this isn't done, FWP will never know how successful their treatments were.
	37.107	Page 2-25 of the DEIS acknowledges this.
37.108		The full extent of the impact of introduced fish on amphibians (specifically Columbian spotted frogs) will probably only be able to be determined through experimental removal or introduction of fish with post, pre and post treatment estimates of relative abundance.
	37.108	<p>The full extent of impacts of introduced fish on amphibians (specifically Columbian spotted frogs) may never be fully documented because any possible impacts would have occurred beginning in 1926 when the first fish were stocked in the project area.</p> <p>The MFWP 2004 SF lake survey found Columbia spotted frogs in 40 (53%) of the 75 lakes surveyed. Frogs were found between elevations of 3,464 feet to 7,208 feet above sea level. The mean number of frogs found at each site was 217 (1-1856). The Columbia spotted frog was the most abundant amphibian found in the SF during the 2004 survey representing 91% of all amphibians found in lakes.</p> <p>Results indicated that frog numbers are not driven exclusively by the presence of fish. Habitat availability was the most influential factor driving amphibian numbers. See Appendix G for more information about amphibians.</p>
37.109		We have been told that one reason for immediately restocking the lakes is to swamp out any remaining Yellowstone cutthroat trout or rainbow that remain after rotenone or antimycin treatment. This project has as its goal the total removal of all exotics in the lakes involved. It is technically

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		reasonable to suppose that (at least in some cases) the rotenone or antimycin treatment will be totally successful? Could a program of subsequent monitoring (say, by netting) give reasonable assurance of the completeness of the treatment program?
	37.109	It is reasonable to conclude that antimycin and rotenone treatments can be 100% successful at removing all fish. It is also responsible to disclose that some chemical treatments have not been 100% successful for a variety of reasons. Section 2.4.1 of the DEIS describes both circumstances. Page 2-25 of the DEIS acknowledges the post treatment gillnetting to evaluate success.
37.110		Some amphibian surveys have been done over the last year or two, but I don't believe they have been done on all 350 lakes to determine what biota is out there or what used to be out there. What is the likelihood that a species like the mountain yellow-legged frog exists near extinction or is extinct from past fish introduction? What type and amount of surveys should reasonably be done to be satisfied what species are or have been out there?
	37.110	Surveying amphibians at each one of the 350 lakes in the SF drainage is not feasible and is not an objective of this project. Montana is not within the known range of the Yellow legged frog.
37.111		This project should not proceed without substantial information on the biota of the lakes being treated. It is critical to know what species of zooplankton, invertebrates and amphibians live in these lakes prior to treating them. This project has focused on the fish and barely addressed the other organisms in the lakes.
	37.111	<p>In 2004 MFWP initiated a comprehensive survey to evaluate amphibians and plankton in lakes and streams in the SF drainage. This will continue in 2005 and insect surveys in lakes and streams will be added to the scope of that project.</p> <p>Table C-2 of the DEIS provides information on the relation of amphibians to each lake, and Table 3-5 of the DEIS provides information on other aquatic invertebrates sampled from lakes in the project area, many of which are included in this project.</p>
37.112		The best way for this project to proceed it to use 2-3 lakes as a pilot to document the impacts, or lack of impacts, on these aquatic communities to justify proceeding with the full scale watershed restoration project. I highly recommend doing a BACI (Before, After, Control, Impact) type pilot study to document the potential effects of this project before proceeding. This could be completed

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		in 2004 and 2005, and would not hold the project up because (1) 3 lakes could be treated in 2004 as part of the pilot study and (2) the pilot study could provide useful information by the end of 2005. By conducting biotic inventories prior to treatment, this project could be used as a model for future restoration work throughout the west and provide important and timely scientific information.
	37.112	Conducting a comprehensive analysis on historic impacts from fish stocking is not an objective of this project. The potential effects from this project were based on case histories from other chemical treatment projects including the Jewel lakes, Tom Tom Lake and Devine Lake. See Section 2.4.1.1; D-5; Section 3.2.4.; and Section 3.3.4.1.
37.113		We specifically request discussion of impacts to non-target organisms such as amphibians and invertebrates from local and national research.
	37.113	Impacts from chemical treatment is provided on pages 3-22 through 3-24 of the DEIS, and in Section 3.5.6.1.
37.114		There is an assumption by FWP that we may not get a complete fish kill. The effectiveness of the treatment will vary by lake, the most compounding factors being depth and volume. We should be ranking lakes from low to high on what our expectations are for a complete kill and then monitor to determine if we get a complete fish kill. We could defer stocking for 1-2 years at a minimum in high probability lakes (of getting complete fish kill) to determine if we met our objective to remove hybrids. If we get a complete kill, this should eliminate the need to stock a lake to “swamp” the remaining hybrids. We can couple this information with angler days, remoteness, chances of bait bucket reintroduction, needs of non-fish species, etc. to identify lakes which provide the best opportunity to return to fishless characteristics. To date FWP has had a 100% success rate on the 7 treated lakes to remove trout. Observations from the lakes that have been treated in the Flathead over the last 7 years was that a complete kill was achieved in all cases. Professional fisheries biologists concur that complete kills for trout are common in lakes.
	37.114	Returning lakes to a fishless condition is not an objective of this project. Page 1-12 of the DEIS addresses this issue.

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37.115		Several times over two seasons survey all 44 lakes with fish and their surroundings to determine existing biota to determine, which, if any lakes should remain fishless. This should capture most of the life cycles of non-fish species.
	37.115	Much of this work has been completed, or is ongoing. See responses to Comments 37.111, and 37.113.
37.116		Agencies should set a good example by conforming to the regulations that make Wilderness Areas special places.
	37.116	<p>The purpose of this project is to conserve a native species that relies on portions of the wilderness for its persistence. The WCT is a wilderness value that would be conserved through this project.</p> <p>We are also conforming to state law and preventing the need for the USFWS to implement protection of the species under the Endangered Species Act.</p>
37.117		I think the only way this project can justify the use of helicopters and motorboats in federally designated wilderness is if doing so will result in higher success of exotic fish eradication. And then, how much higher success?
	37.117	<p>The use of a helicopter to carry out the wilderness portion of this project is not a factor in determining success or failure. A helicopter was considered because it would reduce impacts caused while trying to access lakes with no system trail. A helicopter would provide less impact. Comparison of transport methods is provided in Table 2-3 of the DEIS.</p> <p>The reasons and benefits of using a motorboat were listed in the DEIS (see pages 3-38 and D-6). Using a motorboat offers the greatest level of success, it allows for proper mixing, it is the safest method, and is the quickest. For example, overcoming a simple environmental factor, such as wind, by manual rowing, could influence the success of a chemical treatment, especially on lakes that are large (&gt;5 acres). The judgments of applicators were used to determine whether a motorboat was necessary. Rosenlund and Stevens (1992) have described in detail the procedures for implementing a successful antimycin project. They reported that an outboard motor is absolutely necessary to obtain an effective mix of antimycin during a lake application, because it is applied in such low concentrations, and the compound requires thorough mixing. If an outboard motor cannot</p>

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		be used, they recommended not conducting the treatment.
37.118		Outboard motor use should be specified to consider 4 stroke motors or other low pollution models such as electric motors. We request further substantiation that rowing is infeasible.
	37.118	A four-stroke outboard motor would be used in the wilderness area to reduce air, water and noise pollution.
37.119		<p>Helicopters are noisy and obtrusive. The noise assessment should include the numerous overhead trips affecting residents living in adjacent wilderness and users of wilderness expecting freedom from such motorized obtrusion.</p> <p>I urge you to avoid setting an undesirable precedent by using motorized equipment for this purpose.</p>
	37.119	Sections 3.7.1.4 through 3.7.5.2 and page 3-20 provide information about the effects of noise on the soundscapes.
37.120		This is definitely not an emergency. If this is not a cost effective project, by using conventional methods such as horseback or on foot, then it should not be done.
	37.120	Please see response to Comment 1.4.
37.121		<p>I hope that at some point there is some strong consideration given to using an efficient helicopter. Cost can't be the only factor considered. There needs to be some discussion of the value of reducing the number of flights.</p> <p>The number of flights and cost could be reduced by leaving the crew on site over night in non-wilderness lakes. People should walk in, or ride in if they must, but stock should not overnight at the lakes.</p>

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	37.121	Cost is one reason why the SEAT airplane method was evaluated and found to be a better alternative than rotor wing aircraft.
37.122		Would it be better to disturb 2 lakes in the same area in a year rather than 2 lakes in 2 very different areas?
	37.122	Yes, if logistics and costs are the only issues being considered. However, spatially staggering lakes would reduce the socioeconomic impacts in a particular area. See Section 3.2.6.2.
37.123		Motorized use precedent from the past. For ALL lakes with fish, identify when fish were first officially or unofficially planted by foot or stock, and then each was first planted by aircraft.
	37.123	Please see Sections 1.1 and 1.2 of the DEIS.
37.124		When were Sunburst, Pyramid and Woodward Lakes planted?
	37.124	The first known stocking was Sunburst-1939, Pyramid-1950, Woodward-1928.
37.125		It should be clearly displayed when and how fish were originally stocked in the lakes. If they were stocked before the Wilderness Act in 1964, there might be an argument for a preexisting condition, but any lakes originally officially stocked after 1964 for the first time really should have done so with analysis and public review in context with the Wilderness Act and I do not believe this has been done. This current proposed project should take into account the cumulative effect of the Wilderness and non-Wilderness lakes of the South, Middle, and North Forks, and put it in context with the rest of the Bob Marshall Wilderness Complex and how many lakes remain in their original fishless state. Put this in context with the western United States as to how many lakes of any size and depth really remain fishless to fully represent the non-fish flora and faun of these unique ecosystems.

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	37.125	<p>MFWP file information and stocking records indicate all of the lakes listed in this proposal were stocked prior to 1964. Some of the stocks were unauthorized and therefore are not included in official records. Letters to the file indicate that fish managers reported the presences of rainbow trout and Yellowstone cutthroat trout in many lakes, and were unaware of how or when some of these fish were planted.</p> <p>Evaluating cumulative effects on lakes in the North Fork and Middle Fork Flathead drainages, and in other parts of the United States goes beyond the scope of this project.</p>
37.126		<p>The wear and tear of the trails can be done by lighter loads and traveling when the trails are dry. Consider packing in any chemicals in bear resistant containers in August when the trails are more apt to be dry.</p>
	37.126	<p>Thank you for your suggestion and interest in the SF WCT Conservation Program. We are concerned about the potential for vandalism to supplies of materials left unattended in the forest or wilderness. If we packed the chemicals in earlier than we planned to use them, we would be bound by Department of Agriculture requirements that stipulate a person must be present to attend to the proper storage and protection of the materials.</p>
37.127		<p>Non-motorized project: No size and number limit Yellowstone Cutthroat, Rainbow, cutthroat, for a three-year period.</p> <p>But this may ultimately be a social issue where some compromises become necessary to gain public acceptance. A more limited use of motorized equipment may be feasible for some of the lakes.</p>
	37.127	<p>Page 2-36 addresses this comment: ... <i>MFWP would pursue lifting bag limits two full seasons prior to any removal effort to reduce the number of fish in most lakes, and to allow anglers to harvest fish for consumption...</i></p>
37.128		<p>We realize that some of the lakes will be hard to access, but with a little work and some ingenuity we are sure a non-motorized solution can be found. One of the things that make wilderness areas stand out from the other 99% of the land in the United States is that motorized and mechanized</p>

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		equipment are not allowed.  The management of wilderness is not always cost efficient.
	37.128	Please see response to Comment 1.4.
37.129		Where round trip travel is less than 20-22 miles consider taking stock out of the wilderness rather than camping with stock at the lakes.
	37.129	Sections 2. 4 and 2.5 of the DEIS discuss the reasons why each mode of transportation was selected. Additionally many lakes are in the Jewel Basin Hiking Area and no pack stock are allowed.
37.130		So will non-motorized boats with oars be used to go around each lake for 2-3 days to make sure all fish are picked up and removed from wilderness?
	37.130	We acknowledge that this information was not made clear in the DEIS. The motorized rafts that are used for the treatment would be used in the clean-up of dead fish at the lakes. We would also use dip nets to collect fish from around the shoreline.
37.131		Once extirpated from a lake, the large-bodied species may not be able to recolonize, even if fish are removed, due to their limited ability to disperse.
	37.131	We agree with your assessment. Thank you for your comment.
37.132		Loss of amphibian species and populations are of global concerns. Declines for both endemic and widespread amphibians are believed to be the result of habitat degradation and alteration. Despite widespread declines of amphibians, we still to not have a definite answer with regards to our local species, spotted frog, long toed salamander, and boreal toad. Deferring stocking will enable us to search for answers.
	37.132	Much of the research referred to in Comments 37.108 and 37.131 will add to our knowledge base of these species.

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37.133		Describe what other species exist in these lakes, and how they might be affected by rotenone or antimycin. What will happen to the native amphibians, zooplankton, macroinvertebrates, and the wealth of native biota that may still exist?
	37.133	The anticipated impacts to non-target species have been disclosed in Chapter 3 of the DEIS. Please see Appendix G of the FEIS for more information about amphibians.
37.134		Trout reproduction was occurring in inlet/outlet streams (presence of juveniles) which indicate that rotenone or antimycin would have to be applied to the streams also, not just the lakes. Result of applying rotenone to feeder streams would be the probable loss of 4 years of tailed frog cohorts.
	37.134	<p>There is no data to support the claims that 4-year classes of tailed frog would be lost during the application of rotenone to a stream. In fact, MFWP data suggests the opposite. For instance, Tom Tom and Whale lakes were treated with rotenone in 2000 and subsequent amphibian surveys demonstrated that tailed frogs persist at these lakes and their outlet streams.</p> <p>Please see Appendix G of the FEIS for more information about amphibians.</p>
37.135		Leave the lakes fishless, so the native biota can regenerate. Regeneration of the native biota will be in the long-term interest, support, and preservation of the Concept of Wilderness and the wild character of this area.
	37.135	MFWP considers the westslope cutthroat trout a “native biota” and a “wilderness value” and believes this proposal would help maintain the character of the wilderness and surrounding forest for future generations.
37.136		While it is possible that fish stocking has extirpated species from local sites and portions of watersheds they clearly have not extirpated either of these species [no species specified] from the entire landscape.
	37.136	Thank you for your comment and interest in the SF WCT Conservation Program.
37.137		We concluded that various life stages of 4 species could be negatively affected by the use of chemicals.

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	37.137	See Chapter 3 of the DEIS for information about impacts. Please see Appendix G of the FEIS for more information about amphibians.
37.138		The effects from inbreeding depression and changes in local adaptations should be discussed. What are the effects of restocking on amphibians, WCT, invertebrates. What is the effect on impacts around the lakes, etc?
	37.138	See response to Comments 35.5, 37.92, 37.108, and 37.13. Section 3.6 of the DEIS addresses impacts around the lakes.
37.139		For all 44-50 lakes with fish in the South Fork, a strategy will be determined to insure that native amphibians and other biota are represented in natural processes to restore or maintain these populations.
	37.139	Thank you for your comment and interest in the SF WCT Conservation Program.
37.140		Are there any thoughts of how to treat non-lake origin streams that contain non-native genes?  It would also be useful to complete more genetic surveys of the tributaries in question to get some measure of the genetic diversity of these populations.
	37.140	Section 2.2 of the DEIS states the scope of this project, the known hybrid populations, and what actions would occur if new populations are discovered. Treating non-lake environments is discussed in Section 2.4.4 of the DEIS, and also in some of the lake descriptions in Appendix C of the DEIS.
37.141		Start developing "subbasin management plans" which should cover how we manage all aquatic (including fishless lakes, amphibians, etc.)
	37.141	Developing a sub-basin management plan goes beyond the scope of this project. However, a Flathead Subbasin Plan was completed in 2004 and adopted by the Northwest Power and Conservation Council. This project is consistent with this approved subbasin plan. There are also fisheries management plans and the Conservation Agreement for Westslope Cutthroat Trout, to help guide the conservation, management, and recreational goals in the area.

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37.142		I propose that there are several lakes in the South Fork that can be considered isolated and thus should have fish removed and not replanted.
	37.142	Thank you for your comment and interest in the SF WCT Conservation Program.
37.143		Identify the lakes which pose the greatest threat to WCT genetic integrity.
	37.143	All of the lakes that harbor hybrid trout and have an outflow stream pose a threat. Prioritizing the sequence in which the hybrids would be removed would consider many issues including biological, social, economical, and logistical.
37.144		The main purpose for this proposed action seems to maintain the integrity of westslope cutthroat trout. I believe at least an equally compelling reason for this project is to restore and maintain naturally occurring processes in the Wilderness as required by the 1964 Wilderness Act.
	37.144	Thank you for your comment and interest in the SF WCT Conservation Program.
37.145		How can we ensure the persistence of native amphibians at the level of a local watershed for the long term given that fish may not be the only management issue of concern while maintaining enough sport fishing opportunities to maintain public support?
	37.145	Please see responses to Comments 37.13 and 37.108. That information will be useful in measuring the status of native amphibians in the South Fork.
37.146		From a cumulative effect and looking at the short and term effects of allowing natural processes to operate at least in the wilderness, should the different environments that the 350 lakes represent - size, depth, elevation, wetlands, amphibian habitat, etc. be sorted into some kind of representative groups for the 350 lakes, and then see how many of the total 46 lakes with fish should be kept fishless to represent natural processes in these groups? If only the 27 of 46 lakes with fish are looked at for removing fish, the 19 lakes with wct that aren't being considered to have fish removed might have better representative habitat for being fishless for the long term.

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Comment Number	Response Number	Comment/Response
	37.146	Conducting a comprehensive analysis of every lake in the SF drainage goes beyond the scope of this project. The DEIS states the goal of the project is to replace nonnative fish species and hybrids with genetically pure WCT after treatment. Although creating fishless lakes may, for a short while, move the lakes closer to their original condition, it may compromise the objective of reducing the threat of hybridization and create long-term impacts to established social and economic practices in the area. See Section 2.4.6 of the DEIS.
37.147		<p>I think this project is somewhat misguided. Wilderness lakes should not be used as genetic refuges or a source of genetic swamping for westslope cutthroat trout at the expense of native biota. This approach may be appropriate management for non-wilderness lakes, but wilderness lakes should be managed to maximize both naturalness and wildness. Removing an exotic fish using invasive procedures (helicopters, boats, poison) only to restock with a different non-native fish (to those ecosystems) is inappropriate for wilderness. From the wilderness perspective, leaving the lakes as they are is far better than what this project proposes to do. However, given the status of westslope cutthroat trout and the perpetual (and real) problems with downstream movement of exotic fish out of these mountain lakes, I recommend leaving the lakes fishless after treating with rotenone or antimycin. The argument against this approach is that any fish that were not killed by the treatment would repopulate the lake. If this is true, then maybe an alternative or combination of fish eradication procedures should be implemented to insure success. Leaving the lakes fishless would serve several purposes:</p> <p>(1) protect downstream pure strain populations of westslope cutthroat trout, (2) allow amphibian populations to recover (there are many well documented studies that demonstrate that introduced salmonids suppress native amphibian populations), (3) allow other native flora and fauna to recover, restoring the natural ecosystem processes of the lakes, (4) gain support from wilderness advocates.</p>
	37.147	Thank you for your recommendation, however, it does not meet the need for action. The DEIS states that this project was designed to safeguard the pure cutthroat trout populations in the SF, not the lake populations themselves. It is our intent to increase naturalness by protecting an important ecosystem component; native westslope cutthroat trout. The action itself would have short term impacts to wildness, but would result in less intentional manipulation in the future, so wild conditions would be restored over time. There are established social and economic practices

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		(angling and outfitting) that may be impacted if the lakes were rendered fishless.
37.148		A recent federal court ruling now requires, under the Clean Water Act, a National Pollution Discharge Elimination System permit?
	37.148	See Comment 11.79.
37.149		Our original intent with forming the Limits of Acceptable Change approach to planning and dealing with Wilderness issues was to involve as many diverse citizen interests as possible. In doing so, we hoped a better understanding of state and federal responsibilities could be achieved (i.e. “consensus building”). It appeared to be a better way of doing business.
	37.149	Comment noted.
37.150		High mountain lakes have had little research conducted on them. There is so much that we do not understand. Are there unique assemblages of zooplankton or aquatic invertebrates in large, deep, fishless lakes that do not occur in shallower lakes because of potential winter kill?
	37.150	Studies by MFWP that began in 2004 will help determine the attributes of the community structure of the SF Flathead lakes. See Appendix G for more information.
37.151		One of the objectives would also be to conduct research in cooperation with the State and the Aldo Leopold Wilderness Research Institute.
	37.151	Please see the response to Comment 35.13.
37.152		Discuss the effectiveness of the rotenone and antimycin treatment for killing all the existing fish in the lakes. Without that information there is no way to determine how MDFWP’s preferred method stacks up against other potential methods of fish removal.

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Comment Number	Response Number	Comment/Response
	37.152	Chapter 2 of the DEIS discusses the proposed action and alternatives and compares them.
37.153		The effects of the rotenone or antimycin downstream as water flows from lakes.
	37.153	Appendix C of the DEIS provides descriptions on a case-by-case basis of what the desired effects are for stream segments downstream of the lakes.
37.154		There should be analysis of impacts to other species such as amphibians, plants, insects, invertebrates and other sensitive taxa from using rotenone or antimycin.
	37.154	See Chapter 3 and Appendix D of the DEIS. We have also added information in Appendix G of the FEIS. Please also see response to Comment 11.60.
37.155		Poison making their way down creeks via the extensive faulting of sedimentary rock in this area? How long will the poison persist in the lake? The creek and other streams?
	37.155	<p>We are not aware of extensive faulting in the area. Basic geologic information suggests that high altitude glacial cirques would not exist if there was “extensive faulting” in this area. If extensive faulting were present in this area, the lakes would have drained through those faults and would not exist. Also, the streams would not be flowing on the surface. There are some instances of losing reaches, but this is a natural process that is quite common in many streams-worldwide.</p> <p>In the case of rotenone, the product label states that it will likely persist for 1 to 4 weeks. There will likely be some variance in this range based on existing environmental conditions. As for Antimycin, the use direction leaflet indicates the product detoxifies so rapidly that the waters may be restocked within about a week or as soon as caged fish survive in treated water for 48 hours.</p>
37.156		What about the thousands of dead and decaying fish after treatment and affect on water quality? The nutrients from the dead fish are not part of the natural system.

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Comment Number	Response Number	Comment/Response
	37.156	Pages 3-30 and 3-31 of the DEIS address this.
37.157		Does rotenone or antimycin pose any threat to other species — birds, mammals, aquatic micro-organisms?
	37.157	Chapters 2 and 3, and Appendix D of the DEIS disclose this. We have also added information to the FEIS in Appendix G. Please see response to Comment 11.60.
37.158		Concerns with the use of potassium permanganate (KmnO4).
	37.158	See pages 2-10, 2-24 through 2-25, and Appendix D of the DEIS.
37.159		rotenone and antimycin: What would be the tradeoffs of powdered vs. liquid in terms of weight? If pack animals are to be used it might be worth pursuing an analysis?
	37.159	Powdered rotenone has been added as an option in the proposal. See the FEIS.
37.160		To date FWP has had a 100% complete kill on mountain lakes. Options also exist to do a 2nd treatment rather than stocking to remove remaining fish if a complete kill is not achieved. What are the economics of a 2nd treatment vs. restocking to remove remaining hybrids if any?
	37.160	Restocking would occur in any case. The purpose of conducting a second treatment would be to remove any detectable fish that remain after the first treatment. See Page 2-25 of the DEIS.
37.161		Fish would be removed from the shoreline. How would they be disposed of?
	37.161	See Page 2-23 of the DEIS.

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37.162		KMnO <sub>4</sub> can be applied using detox stations far downstream of the lakes, but still above bull trout range. This implies that streams may be treated so the effects should be analyzed and sites disclosed.
	37.162	The DEIS addresses the anticipated impacts and other information about potassium permanganate on page(s) 2-10, 2-14, 2-24, and Section 3.9. Appendix C discloses information about specific treatment zones of each stream below each lake. Pages D-9 through D-12 provide more information on potassium permanganate.
37.163		If rotenone and antimycin are supposed to be so effective, why is there a need to restock? It doesn't seem reasonable to not consider gill netting or other methods than chemicals because they aren't 100% effective, and then propose chemical use as very effective. But if chemicals too are not 100% effective, and then say you must swamp just in case, then all methods of treatment should be reasonably considered.
	37.163	<p>Creating fishless lakes is not an objective of this project. This is disclosed on pages S-2, 1-9, 1-12, and 2-27 of the DEIS.</p> <p>Chapter 2 of the DEIS specifically considers and analyzes several methods and alternatives to achieve the objectives of this project.</p>
37.164		An alternative would be to request a one time stocking that will minimize long term mechanized impacts from aerial stocking.
	37.164	Aerial stocking for most lakes is a pre-existing condition to wilderness designation and is outside the scope of the analysis. Although this issue is outside the scope for analysis, page 2-27 of the DEIS provides information about the reduction in flights that could result if the proposed action is implemented.
37.165		<p>Likelihood to be restocked by public — size, access, ease in getting to lake, amount of use, wilderness opportunity class, LAC standards, average angler use, outfitted use, year originally stocked- if so, by who? Should help determine which lakes remain fishless.</p> <p>“Accessibility” by the public would seem to be criteria for stocking.</p>

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	37.165	Section 2.4.6 of the DEIS states our reasons for reestablishing fish populations.
37.166		I do not believe this project can be fully accomplished as planned due to your statements that the Big Salmon Lake would not be treated because of its size would be impossible to do so. Therefore, there would always be the exotic fish in the wilderness.
	37.166	Big Salmon Lake is not a lake proposed for action. Appendix C of the DEIS recognizes that some hybrid trout may remain, and also describes why restocking would aid in mitigating that circumstance. We believe that most or all of the hybrids would be removed and by doing so the project would be successful at removing sources of hybrid trout in the SF drainage over time. Removing hybrids and restocking with genetically pure WCT would remove and/or reduce the threat to the remaining pure WCT in the SF drainage.
37.167		If stocking after rotenone or antimycin is proposed because there may not be a complete kill, is it possible to pursue these other alternatives and achieve similar objectives and outcomes? It appears that they may have been dismissed too quickly.
	37.167	Page 1-12 discloses the reason why restocking would be conducted.
37.168		Has swamping out worked in many cases and has failed in other cases?
	37.168	This management concept has met its original (1980s era) desired goal of increasing the percentage of westslope cutthroat trout genes in lake populations. There is no known example of this management concept eliminating the non-native genes.
37.169		You also state that populations have not responded to swamp-out over a 16 year period. Has swamping out been working on other lakes and their outlet streams and can this be proven with genetic data?
	37.169	Genetic swamp out is a management concept that was started in the early 1980s. This strategy has met its original goal of increasing the level of westslope genes in a population. However, hybrid trout still exist.

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37.170		If we attempt to remove exotic fish, and not all are successfully removed, do we need to keep adding more fish to these lakes indefinitely to try to swamp out the exotics? What is the probability of success with swamping lakes, and when do we know when we have succeeded?
	37.170	See Section 2.4.6 of the DEIS.
37.171		“Swamping” could occur from wild pure fish downstream rather than from M012 from the lake.
	37.171	See responses to Comments 37.100 and 37.103.
37.172		Swamping has been attempted and cannot assure complete eradication of exotic species — why then is swamping all lakes still part of the proposed action?
	37.172	“Swamping” is a loosely defined term that has been misused or misinterpreted over the years. Sections 1.1, 1.2, and 2.6.4 of the DEIS provide information on genetic swamping. Swamping refers to “stocking high numbers of fish on a frequent or annual basis.” The original intent of this action was to reduce non-native genes to an undetectable level. The DEIS does not propose swamping after a chemical treatment. Swamping would only be implemented under Alternatives A and D. Alternatives B and C propose restocking after a chemical treatment. Page 2-26 of the DEIS specifically states that restocking would occur after a chemical treatment, and part of that objective would be to dominate any possible remaining hybrids. Other reasons for restocking are listed on page 2-26 of the DEIS.
37.173		Limits of Acceptable change standards from the 1988-1992 period and changes to the 1993-1997 period and on to the 1998-2002 period should be reviewed to determine which lakes might benefit by not restocking to reduce the human impacts on these Wilderness lakes.
	37.173	The LAC is the means to evaluate the resource conditions within the wilderness – it sets the monitoring guidance and then, as managers, we can select actions to take that will manage these indicators appropriately. Limiting public access and/or trail closures are examples of appropriate mechanisms to reduce public use at designated sites, and improve resource conditions and/or

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		monitoring results.
37.174		Once designated as Wilderness, nature must be allowed to operate unrestrained or untrammelled. Thus, unless there is a management requirement (such as protecting an endangered species) or a specific exception in the law (such as fire control), the existing condition should evolve on nature's terms. This should be discussed related to wildness and naturalness.
	37.174	We have added more information about this issue to the FEIS to Section 3.7. Please see response to Comment 1.4.
37.175		While FWP may view economic considerations as the overriding factor for the alternative it chooses, the Forest Service is required to put Wilderness first. "Where there are alternatives among management decisions, wilderness values shall dominate over all other considerations..." FSM 2320.3 "Where a choice must be made between wilderness values and visitor or any other activity, preserving the wilderness resource is the overriding value. Economy, convenience, commercial value, and comfort are not standards of management or use of wilderness." FSM 2320.6 FWP cannot undertake this project without Forest Service approval, and is should strive to meet the standards of the federal agency and the Wilderness Act before requesting it.
	37.175	The intent of the proponents of this project, including the FS, is to carry it out under FS regulations guidelines. Please see page S-2 of the DEIS for a description of FS responsibilities.
37.176		A minimum requirement decision guide evaluation including a minimum tool analysis should be completed for each lake that is determined to be restocked with western cutthroat trout.
	37.176	Fish stocking of the lakes in the wilderness is an activity that predates wilderness designation, therefore no analysis is required to continue this activity. The MFWP and the FS are working together to best accomplish the restocking and value the wilderness resource.
37.177		How accessible are the lakes to stocking/ [sic] consideration [sic] should be given to how many miles in by maintained stock trail? How many miles by user made trail? How many angler days occur at each lake now? Are one or more Limits of Acceptable Change standards at a lake exceeded? The lakes in the most pristine opportunity classes 1 and 2 should have as natural

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		occurring processes and be as fishless as possible.
	37.177	Fish occurred in these lakes long before the LAC process was developed. That process was neither developed to reduce recreational opportunity of the wilderness, nor to curb the biological integrity of native species that occur in the wilderness. The Forest Service has evaluated conditions at each lake and the details are included (see pages 3-44 – 3-46 of the DEIS). MFWP has included estimates of the angler use at the lakes (see page 3-42, Table 3-6 of the DEIS).
37.178		The sight and sound of helicopters and motor boats in these areas is offensive to those who enjoy and recreate in these areas.
	37.178	Yes, we understand that the sounds of aircraft and motorized boats in the Wilderness are offensive to people. We also understand that using these vehicles may be offensive to those who won't be in the wilderness at the time. All activities involving aircraft would be short term and temporary.
37.179		Highlight wilderness solitude versus outside wilderness.
	37.179	Page 3-37 of the DEIS provides information on wilderness naturalness. Sections 3.6.4 through 3.6.9 of the DEIS provides information about wilderness solitude. Section 3.7 of the DEIS also addresses this issue. We have also added more information about this issue to the FEIS in Section 3.7.
37.180		The State wants to remove fish from just those lakes containing non-wct, and then put wct back into those lakes to maintain recreation fishing opportunities. They want to do this as economically and efficiently as possible and do not want to consider any other variables or options.
	37.180	The draft Minimum Tool Analysis referred to on page 3-38 of the DEIS considered things like economics, social issues, recreation, wilderness values, etc. The quickest way of implementing the project in the wilderness is to use exclusively motorized equipment. Although that was an alternative considered (Alternative C), Alternative B (combined motorized and traditional transport means) is preferred.

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37.181		Most of this proposed project is located in Wilderness, whose legal mandate is to retain its primeval character and influence, and is protected and managed so as to preserve its natural condition. Wilderness should promote both wildness- an area free from human control or manipulation, and naturalness- native and indigenous systems in Wilderness. Wilderness is intended to be managed with minimal human intrusion and to let natural systems operate freely.
	37.181	Thank you for your comment and interest in the SF WCT Conservation Program.
37.182		Past and continued fish stocking provides recreational fishing opportunities, but does not promote or provide for natural processes within Wilderness.
	37.182	Please see response to Comment 34.10.
37.183		Fish stocking impacts many non-fish species, such as amphibians, zooplankton, and invertebrates and the unique food webs that each lake represents.
	37.183	Thank you for your comment and interest in the SF WCT Conservation Program.
37.184		Almost all of the other lakes proposed for fish removal and restocking are located in areas that are proposed as wilderness in the Flathead National Forest Plan, and management direction states that no action can occur which will reduce these area's wilderness attributes.
	37.184	The FS considered the "proposed wilderness" status of the JBHA when working through the draft Minimum Tool Analysis listed on page 3-38 of the DEIS. This project would conserve native westslope cutthroat trout and would not diminish wilderness attributes.
37.185		Initial issues that should be considered in developing the purpose and need and creating a proposed action — (see attachment A) [responses 37.69 to 37.179] I believe that all of these issues should be considered in the assessment of this project.
	37.185	Thank you for your comment.

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37.186		<p>From the research I have read (See attachment B) [responses 37.b1 to 37.b39] related to this project, I believe a broader study should evaluate all 224 Wilderness lakes and also the 134 non-wilderness lakes in the South Fork Flathead River drainage. In Wilderness determining how many lakes have ever been stocked, how many still have fish (17?), how many may have fish (10?), and what the non-fish flora and fauna currently looks like at each lake. What deep lakes need to remain or which lakes need to become fishless so that at least representative natural systems can remain in place and endure for the long term? Right now in the wilderness, the average size of all lakes is 8 acres, while the size of the lakes with fish is 83 acres. For the non-wilderness lakes the average size of all lakes is 5 acres and the size of lakes with fish is 17 acres. The point is, that even though there are many lakes without fish, most of them are very small, and probably freeze out every winter and have very different characteristics than the larger, deep lakes with fish that probably don't freeze out and support different types of non-fish life.</p>
	37.186	<p>Your recommendation goes beyond the scope of this project. The information we have about lakes is different from the information you present. Rubble Lake is fishless and is 87 feet deep, Upper Terrace Lake is fishless and is 32 feet deep, Lower Terrace lake is fishless and is 34.4 feet deep, Christopher Lake is fishless and is 21 feet deep. There is some empirical information that suggests the two Terrace lakes were stocked in 1928-30 with rainbow trout, during the lake stocking in the upper Big Salmon Creek drainage. MFWP records indicate the two Terrace lakes were stocked with 10,000 cutthroat trout in 1946, but that stock apparently did not become self sustaining. A survey in 2002 revealed that the lakes are fishless, indicating neither stock was successful.</p>
37.187		<p>All of this referenced research indicates that there is so much more to consider in these wilderness lakes than just the westslope cutthroat trout and hybrid trout that people have put into these lakes. I think All of these referenced research papers should be considered to develop a better proposal. Two articles seem to be especially relevant, "Local and Landscape Effects of Introduced Trout on Amphibians in Historically Fishless Watersheds" and "Evaluating Effects of Fish Stocking on Amphibian Populations in Wilderness Lakes", both by David S. Pilliod and Charles R. Peterson.</p>
	37.187	<p>Thank you for your comment. We have considered the research you have listed.</p>

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Comment Number	Response Number	Comment/Response
37.188		To restore natural processes it would be important to consider and evaluate removing all fish from all lakes that were originally fishless. (Except Big Salmon and Doctor Lakes that apparently originally had fish).
	37.188	Thank you for your comment and interest in the SF WCT Conservation Program.
37.189		For Wilderness character and values, the effects on wildness and naturalness should be fully considered. The use of motorized equipment, chemicals, gill nets and other tools should be fully evaluated with the minimum tool analysis to determine, which lakes, if any, might warrant some kind of manipulation.
	37.189	See the draft Minimum Tools Analysis listed on page 3-38 of the DEIS.
37.190		The action of restocking lakes with westslope cutthroat trout that have had fish removed should be evaluated separately and fully consider whether stocked lakes are necessary to provide a recreational fishing as a wilderness-dependent activity. A balance between recreation fishing opportunities and natural processes needs to be assessed, with the effects of exotic fish on non-fish native species, and the short and long term impacts of stocking considered, evaluated, with effects displayed.
	37.190	<p>The proposed action strives to achieve this balance. Both the wilderness and non-wilderness portions of the project area contain fishless lakes that provide natural ecosystem processes and unique opportunities for recreation.</p> <p>Evaluating the effects of fish stocking on non-fish species goes beyond the scope of this project. Any impacts from fish stocking occurred many years ago, prior to wilderness designation.</p>
37.191		While westslope trout conservation and protection is a very important objective, I don't believe it should be the primary or the only objective for this proposal. I think the purpose and need should protect westslope cutthroat trout, but also maintain and restore natural processes, to increase wildness and naturalness, to manage wilderness within limits of acceptable change standards, and to manage the wilderness for the use and enjoyment by visitors, but keep the lands unimpaired for future use and enjoyment as wilderness. Limiting the purpose and need to just fisheries values and

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		not including wilderness with its natural processes and native non-fish species seems to be an abdication of Forest Service management responsibilities to use this opportunity of this fisheries driven proposal to help in restoration of wilderness natural systems. All lakes in the South Fork should be assessed for the cumulative impacts of past actions from the historical base of not having fish in any of the lakes but two. The proposed restocking of new exotic fish by the state into these lakes is a foreseeable connected action, and needs to be considered for the short and long term effects.
	37.191	<p>The impacts from fish stocking occurred many years ago prior to wilderness designation. The wilderness component of this project represents only half of the lakes listed in this proposal. The WCT is a wilderness value, as is angling, as is outfitting. These values already exist. Any attempt to impact these biologic and socioeconomic segments further than defined in the DEIS, may preclude the project from being implemented. Some people have proposed that we implement detailed studies on non-target organisms, leave lakes fishless, and reduce public use of the wilderness by removing fish. These issues were brought up in scoping, but go beyond the scope of this project, and if implemented may cause severe and long-term impacts on established socioeconomic practices. This consideration is listed on page 2-27 of the DEIS.</p> <p>Further, many commenters, including you, seem to imply that this project is the only opportunity for research. The opportunity for research exists today, whether this project is implemented or not. MFWP has been responsible in implementing many surveys and research efforts to understand basic status and distribution aspects of amphibians, fishless lakes, plankton, and aquatic insects in the SF Flathead.</p>
37.192		I would offer these types of alternatives to be considered to meet your proposed purpose and need, while also meeting other wilderness values. (See Attachment C) I believe that this is a reasonable range of alternatives to consider for this EIS that would still meet your proposed primary objective of protecting wct.
	37.192	Please see response to Comment 35.2.

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37.193		With what I know about the entire project, I would offer my Attachment D as my preferred alternative to be evaluated. This would provide some recreational fishing opportunities in the more accessible opportunity classes of the wilderness, while maintaining fishless status and more pristine conditions in the more remote areas. Note that I would consider ALL lakes for their potential for fish removal, whether wet or hybrid. This would meet your proposed primary objective of protecting wet, but would also protect the wilderness values of naturalness, wildness, and natural processes.
	37.193	Thank you for your comment. Please see response to Comment 35.2.
37.b1		It is perfectly clear to me that there is so much more to the issue recreational fishing of westslope cutthroat trout in Wilderness Lakes. Wilderness values, effects on the original non-fish species, and disruption of natural processes have as much weight, if not more, then a potentially threatened fish species being considered to be stocked in originally-barren, fishless lakes in the Wilderness.
	37.b1	Thank you for your comment and interest in the SF WCT Conservation Program.
37.b2		These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: He concludes that in the face of increasing public support for protecting natural process, the continued stocking of fish into wilderness ecosystems is no longer justified.
	37.b2	Thank you for your comment.
37.b3		These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: They conclude that although US federal policy currently grants the authority for fish stocking to the states, case law allows the federal agencies to be directly involved in decisions regarding fish stocking wilderness areas.

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	37.b3	The Flathead National Forest is a cooperating agency in this EIS. See Section 1.5 of the DEIS.
37.b4		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: This work shows that the introduction of salmonid fishes into headwater lakes can result in disproportionately larger effects on native fishes than introductions lower in drainages. However, introductions of nonnative fishes into headwater lakes provide point sources capable of invading all downstream habitats, as the fish surmount barriers that normally hinder upstream-directed invasions.</p> <p>These results suggest that widespread fish stocking has caused substantial changes to nutrient cycles in hundreds of lakes throughout montane-protected areas of western North America, with impacts being greatest in lakes stocked with high densities of trout.</p>
	37.b4	Please see Appendix G.
37.b5		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: They report that at a local scale, after accounting for habitat differences between fish-containing and fishless water bodies, the abundance of all life stages of long-toed salamanders and spotted frogs was lower in water bodies containing nonnative trout than in water bodies remaining in a fishless condition. At the landscape scale, the presence of fish in some water bodies had important influences on the abundance of amphibians in the remaining fishless water bodies.</p>
	37.b5	Please see Appendix G.
37.b6		Of the two large zooplankton species believed to have been present in the lake prior to fish introductions, one reappeared while another failed to do so, apparently because the egg bank of this latter species had been depleted during the 30 years of fish presence.

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	37.b6	It is unclear where these sources of information can be found. Because this comment does not list specific information that we should consider, we are unable to dedicate the time to secure these articles, review these articles, and find information that would relate to this project.
37.b7		These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: Collectively, these papers indicate that the effects of widespread trout introductions into wilderness landscapes are not limited simply to direct effects on prey taxa, but instead can be transmitted throughout lake food webs and even beyond the shorelines of fish-containing lakes to fishless lakes. In addition, following fish removal, full recovery of ecosystem structure and function may not occur.
	37.b7	It is difficult to determine where the quotes in this comment are derived from. However, the project does not propose to provide a full recovery of ecosystem structure and function.
37.b8		These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: If managers are to truly balance these often opposing goals, it is imperative that current fisheries management practices be evaluated in the context of their effects on ecosystem structure and function may not occur.
	37.b8	It is difficult to determine where the quotes in this comment are derived from. However, the project does not propose to provide a full recovery of ecosystem structure and function.
37.b9		These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: The highly utilitarian ethic that drove resource management until well into the 1960s was gradually replaced by one that acknowledges the value of all life forms and their ecological complexity, a view currently supported even by many anglers. The necessity for wilderness fish stocking is now the subject of widespread debate, especially in view of changing social values and priorities. Options for future generations cannot be preserved if introductions continue to erode the

Table 1-2. Responses to Comments

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		<p>biodiversity of mountain lake ecosystems.</p> <p>Future management of waters that already contain introduced trout must be directed toward overall ecosystem health and stability, with biodiversity and ecosystem integrity as a paramount objective.</p> <p>Options for future generations cannot be preserved if introductions continue to erode the biodiversity of mountain lake ecosystems. This should be our greatest concern.</p>
	37.b9	Please see response to Comment 35.2. The research has been considered and included in the references.
37.b10		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: Further, although current federal regulations recognize state authority for fish stocking, judicial interpretation gives federal agencies the authority for direct involvement in decisions regarding fish stocking in wilderness.</p> <p>Fish stocking does compromise certain wilderness values, and wilderness designation does impose restrictions on the types of wildlife management actions that are appropriate in wilderness areas. In some cases, these compromises and restrictions have led to an “either/or” dichotomous view that pits state fish stocking programs against federal responsibility for protecting wilderness values. Differences in agency missions, traditions, and cultures also tend to exacerbate “us vs them” attitudes.</p> <p>Backed by Supreme Court decisions, federal managers can be involved in wildlife management decisions to defend wilderness values.</p>
	37.b10	Thank you for your comment.

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Comment Number	Response Number	Comment/Response
37.b11		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: [sic], headwater lake stocking provides source populations that may be capable of invading most downstream habitats, including headwater refugia of native fishes.</p> <p>Trout introductions to high-elevation headwater lakes thus pose disproportionately large risks to native fishes—even when the place of introduction may appear to be spatially dissociated from populations of the native species.</p> <p>It is important to consider, however, that stocking of a mere handful of lakes could allow nonnative fishes access to nearly an entire stream network.</p>
	37.b11	<p>The information you provide supports the reason for implementing this project is to stop the downstream progression of hybrid trout in the South Fork Flathead River. Escapement from headwater lakes is the primary threat to westslope cutthroat trout downstream. Removing the sources of hybrid trout will interrupt their expansion throughout the drainage. This project proposes to remove the source of non-native fish species from the project area for the long-term protection of westslope cutthroat trout.</p> <p>We are proposing to stock only native fish species to lakes following the treatment (with the exception of Handkerchief Lake, see page C-8 of the DEIS).</p>
37.b12		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: Similarly, the stream area negatively affected by nonnatives could be minimized by stocking multiple lakes in one tributary basin instead of one lake each in multiple basins. Systems where nonnative fishes have emigrated from headwater lakes-and occupy, but have not successfully colonized, the outlet streams should be considered good candidates for eradication projects.</p>

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Comment Number	Response Number	Comment/Response
		<p>Introduced fish may alter lake nutrient cycles and primary production, but the magnitude and variation of these effects have not been fully explored.</p> <p>The results of our modeling and paleolimnological analyses indicate that introduced trout fundamentally alter nutrient cycles and stimulate primary production by accessing benthic P sources that are not normally available to pelagic communities in oligotrophic mountain lakes. These effects pose a difficult challenge for managers charged with balancing the demand for recreational fisheries with the need to maintain natural ecosystem processes.</p>
	37.b12	Thank you for your comment.
37.b13		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: Conserving natural biodiversity and maintaining functioning ecosystems is a goal of protected area management. The results of this study suggest that wildlife managers need to consider restoring a few deep lakes in each basin to create fishless breeding and overwintering habitat for amphibians (Knapp 1996; Knapp and Matthews 1998; Pilliod and Peterson 2000).</p>
	37.b13	<p>Knapp and Mathews 1998 is cited in Section 2.6.1 of the DEIS. We have read Pilliod and Peterson 2000 and have added it to the references section. Please see responses to Comments 11.46 and 37.78.</p>
37.b14		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]: Gill netting is a viable fish eradication technique for smaller (less than 10 ha, (25 acres)), shallow (less than 10 m (33 feet) deep)) lakes that lack habitable inflows and outflows or other sensitive species. Further work is required to define appropriate removal methods for larger lakes and watersheds.</p>
	37.b14	See response to Comment 37.70.

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Comment Number	Response Number	Comment/Response
37.b15		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]:</p> <p>We believe that shallower lakes (less than 10 m deep) of up to 10 ha should be amenable to gill net eradication of nonnative fishes over reasonably short periods, without resorting to rotenone or other poisons.</p> <p>If the restoration of substantially larger or deeper lakes is proposed, alternate methods of fish removal including, but not limited to, electrofishing, trap netting on spawning grounds, disturbing spawning habitat, creating under-ice anoxia by the addition of nutrients (see Brunskill and others 1980 for a possible method), lake drawdown and/or the application of piscicides should be given consideration in addition to, or as a replacement for gill nets. These alternate methods will be controversial, but they may be more practical for removing fish from certain lakes. Canadian national parks managers have previously used chemical agents in their attempt to eradicate fish from dozens of lakes.</p>
	37.b15	<p>Many of the fish removal methods you recommended were considered in the evaluation in Chapter 2 of the DEIS.</p>
37.b16		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]:</p> <p>Further, nontarget species such as Harlequin Ducks (<i>Histrionicus histrionicus</i>) and even bears might be adversely affected by restoration activities on some water bodies.</p>
	37.b16	<p>Impacts on avian species and mammals are in the DEIS in Section 3.3. We have added information about the impacts to Harlequin ducks.</p>

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Comment Number	Response Number	Comment/Response
37.b17		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]:</p> <p>Last, because organisms such as Gammarus may be extirpated but leave no trace of their prior existence, it will be difficult to ascertain that full food web restoration has been achieved for the many lakes that lack prestocking records of their original invertebrate communities.</p>
	37.b17	Please see Sections 1.5.2 and 2.4.6 of the DEIS.
37.b18		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]:</p> <p>Further experimental restoration work is needed to better define the practical limits of gill netting as a management tool and to provide alternate solutions for larger or otherwise “difficult” stocked lakes. A better understanding of our few remaining pristine ecosystems is also needed if we wish to undo a century of past fisheries management practices and return a small suite of lakes to their natural state [sic]</p>
	37.b18	Gill netting was considered in the evaluation in Chapter 2 of the DEIS.
37.b19		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]:</p> <p>Life history traits vary among amphibian species, however, the fish stocking may affect species differently. In addition, amphibian population structure may be affected at a broad scale when a</p>

Table 1-2. Responses to Comments

Comment Number	Response Number	Comment/Response
		portion of lakes and streams in a watershed are stocked. This habitat fragmentation may isolate amphibian populations and result in increased extinction rates.
	37.b19	Please see Sections 1.5.2 and 2.4.6 of the DEIS. Please see Appendix G for more information about amphibians.
37.b20		<p>These are quotes from the research paper summaries that follow. ... I believe that at least all of these referenced research papers should be considered in a balanced proposal to address fish removal and the possible replanting of fish into originally fishless lakes in the Wilderness. [No source cited]:</p> <p>Amphibian Research and Monitoring Initiative</p> <p>Initiate long-term monitoring to determine trends in amphibian populations</p> <p>Conduct research into causes of amphibian declines and malformations</p> <p>Habitat alteration and destruction have long been major causes of amphibian declines. More recently, significant declines have occurred in protected areas in the western United States that have not shown obvious changes in habitat. These unexplained declines may be caused by contaminants, non-native species, or disease.</p>
	37.b20	See Chapter 7 for our references.
37.b21		<p>Research related to the effects of stocking fish in fishless lakes within Wilderness:</p> <p>The paper “The Introduction of Nonnative Fish into Wilderness Lakes: Good Intentions, Conflicting Mandates, and Unintended Consequences” [Roland A. Knapp, Paul Stephen Corn, and Daniel E. Schindler] references 6 other papers which describe the effects of stocking fish in wilderness lakes. The abstracts and conclusions of these 6 papers follow. At the end of these papers are additional references that are relevant to the fish stocking issue.</p>

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Comment Number	Response Number	Comment/Response
		No public concern listed.
	37.b21	Thank you for your comment. This research was reviewed and cited in the references section.
37.b22		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: "Wilderness Fish Stocking: History and Perspective", Edwin P. Pister. At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b22	Thank you for your comment. This research was reviewed and cited in the references section.
37.b23		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: "The Wilderness Act and Fish Stocking: An Overview of Legislation, Judicial Interpretation, and Agency Implementation," Peter Landres, Shannon Meyer, and Sue Matthews. At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b23	Thank you for your comment. This research was reviewed and cited in the references section.
37.b24		[BPA should consider the following research] related to the effects of stocking fish in fishless lakes within Wilderness: "Geography of Invasion in Mountain Streams: Consequences of Headwater Lake Fish Introductions" Susan B. Adams, Christopher A. Frissell, and Bruce B. Rieman. At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b24	We reviewed the Adams et al. (2001) paper in 2002. They reported "...headwater lake stocking provides source populations that may be capable of invading most downstream habitats, including headwater refugia of native fishes..." This paper supports the conclusions of MFWP, the associated genetic results, and the foundation for this proposal, in that, the headwater lakes in this proposal are serving as a source of hybrid trout that pose a threat to the genetically pure populations downstream. Adams et al. (2001) concluded that "...headwater stocking allows fish access to more stream area within a watershed than does main stem or low elevation stocking..." This paper focuses on brook trout, which are more aggressive at pioneering new habitats. Based

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		on the already known ability of fish in these headwater lakes to out-migrate and become established downstream, which is supported by the Adams et al. (2001) paper, we would rely on this strategy for newly stocked genetically pure westslope cutthroat trout to establish new populations in downstream habitats.
37.b25		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: "Alteration of Nutrient Cycles and Algal Production Resulting from Fish Introductions into Mountain Lakes", Daniel E. Schindler, Roland A. Knapp, and Peter R. Leavitt At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b25	We have read the Schindler et al. (2001) paper you cited and added it to the reference section. Although the conclusions made by these authors may support the thesis of removing fish from lakes in the Sierra Nevada Mountains and Canadian Rocky Mountains, the study provided anecdotal information by which to base conclusions about the implications that such actions would have on recreation angling and established social practices. The DEIS acknowledges that if the proposed action is implemented, fish stocking frequency would be reduced from present levels in most, but not all lakes in the wilderness section of this project. In part, this is what Schindler et al. (2001) is advocating.
37.b26		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: "Local and Landscape Effects of Introduced Trout on Amphibians in Historically Fishless Watersheds", David S. Pilliod and Charles R. Peterson. At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b26	We have read Pilliod and Peterson (2001) and have added it to the reference section. Those authors cite 61 references. We can not dedicate the amount of time necessary to acquire and review each of these papers.
37.b27		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: "The Effects of Stocking and Removal of a Nonnative Salmonid on the Plankton of an Alpine Lake", B.R. Parker, D.W. Schindler, D.B. Donald, and R.S. Anderson. At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b27	We read the Parker et al. (2001) paper in 2002 and cited it in the MFWP Specialist Report (Grisak 2003c). We also cite it in the DEIS, and we retrieved and cited information from 2 of the sources listed as references in Parker et al. (2001) to formulate the DEIS. Those authors cite 52 papers in

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Comment Number	Response Number	Comment/Response
		their reference section. We can not dedicate the amount of time necessary to acquire and review each of these papers.
37.b28		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: "Naturalness and Wildness: The Dilemma and Irony of Managing Wilderness", Peter B. Landres, Mark W. Brunson, Linda Merigliano, Charisse Sydoriak, and Steve Morton. At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b28	Thank you for your comment. We were unable to find this research, but considered other references suggested by this commentor.
37.b29		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: "Evaluating Effects of Fish Stocking on Amphibian Populations in Wilderness Lakes", David S. Pilliod, Charles R. Peterson. At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b29	We assume this refers to the same paper that is cited in Comment 37.b26. Please see response to Comment 37.b26.
37.b30		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: "Fish Stocking in Protected Areas: Summary of a Workshop", Paul Stephen Corn, Roland A. Knapp At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b30	Thank you for your comment. We were unable to find this research, but considered other references suggested by this commenter.
37.b31		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: "IMPACTS OF TROUT STOCKING ON AMPHIBIAN POPULATIONS", David S. Pilliod, Charles R. Peterson, Peter B. Landres At the end of these papers are additional references that are relevant to the fish stocking issue.

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	37.b31	It is unclear where these sources of information can be found. Because this comment does not list specific information that we should consider, we are unable to dedicate the time to secure these articles, review these articles, and find information that would relate to this project.
37.b32		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: “Amphibian declines: review of some current hypotheses”, Corn, Paul Stephen. At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b32	Please see response to Comment 37.b31.
37.b33		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: “Perspectives from the Aldo Leopold Wilderness Research Institute: amphibians and wilderness”, Corn, Paul Stephen. At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b33	Thank you for your comment. We were unable to find this research, but considered other references suggested by this commenter.
37.b34		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: Leopold Institute, Current Wildlife Research Projects, Amphibian Research and Monitoring Initiative. At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b34	Please see response to Comment 37.b31.
37.b35		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: Leopold Institute’s Wildlife Publications (1991-2002) WILDLIFE MANAGEMENT ACTIVITIES IN WILDERNESS. At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b35	Please see response to Comment 37.b39.

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Comment Number	Response Number	Comment/Response
37.b36		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: Leopold Institute's Wildlife Publications (1991-2002) RECREATION IMPACTS - GENERAL At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b36	Please see response to Comment 37.b39.
37.b37		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: Leopold Institute's Wildlife Publications (1991-2002) EFFECTS OF HUMAN INTRUSIONS ON BIRDS At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b37	Please see response to Comment 37.b39.
37.b38		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: Leopold Institute's Wildlife Publications (1991-2002) AMPHIBIAN CONSERVATION AND FISH STOCKING FISH STOCKING At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b38	Please see response to Comment 37.b39.
37.b39		BPA should consider the following research related to the effects of stocking fish in fishless lakes within Wilderness: Leopold Institute's Wildlife Publications (1991-2002) FISH STOCKING IMPACTS TO MOUNTAIN LAKE ECOSYSTEMS At the end of these papers are additional references that are relevant to the fish stocking issue.
	37.b39	This commentor does not list specific literature, but all literature produced by the Aldo Leopold Institute over a 12-year period. We are unable to dedicate the time to secure these articles, review them, and find information that would relate to this project.
38.1		Professional Wilderness Outfitters Association does support a healthy and viable native cutthroat trout population in the upper South Fork of the Flathead River drainage in the Bob Marshall Wilderness Complex.

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	38.1	Thank you for your comment and interest in the project.
38.2		We question the technique proposed for the poisoning. Such as motorized boats, helicopters and the poison itself. The Wilderness Act states "no motorized equipment" to be used unless in emergency.
	38.2	Thank you for your comment. Please see response to Comment 1.4.
38.3		Also how safe is the poison to human [sic] ...?
	38.3	See Section 3.9 of the DEIS.
38.4		Also how safe is the poison to ... wildlife?
	38.4	<p>See Chapter 3 of the DEIS. Appendix D of the DEIS also provides information on the effects of rotenone on mammals.</p> <p>Page 3-56 of the DEIS provides information on human health threats from exposure to antimycin. Much of the information used to derive the values for humans were determined from studies conducted on rats (Stillmeadow 2001). The Schnick (1974a) paper that is cited on page 3-57 of the DEIS reported that guinea pigs and mice have also been used to determine the effects on mammals. The Ritter and Strong (1966) paper that is cited on page 3-57 concluded that mammals suffered no ill effects from eating fish killed with antimycin. On this basis, we would expect the same results with other mammals, including bears that might consume antimycin-killed fish.</p>
38.5		Our concerns [include]: The size and the scope of this project and the lake sizes is [sic] untested in relation to getting a good kill on the existing fish populations.

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	38.5	Please see response to Comment 28.1.
38.6		Our concerns [include]: there is little evidence that non-native species are infiltrating down the tributaries and into the main river.
	38.6	Genetic tests prove that hybrid trout reside in the lakes and the streams below the lakes (see Sections 1.1, 1.2, and 2.4.2.1 of the DEIS). You are correct that there is little evidence that non-native species are in the main river. One goal of this proposed project is to prevent hybrids from reaching the main river.
38.7		Our concerns are: loss of recreational opportunities for non-outfitted and outfitter public.
	38.7	The impacts to recreational anglers and outfitters would be short term and minor. There would be some change in angling quality and quantity for up to 3 years, and would vary from site to site. In smaller lakes, the fishery can be restored rather quickly (within 1-3 years), whereas it is anticipated that restoring the fishery in larger lakes would likely require 2-4 years to achieve some level of quality. See Sections 2.4.6, 3.7 and 3.8 of the DEIS.
38.8		At this time there is there [sic] seems to be no imminent threat to the native cutthroat trout in this area.
	38.8	Please see response to Comment 38.6.
38.9		Our concerns [include] chances of litigation to prevent the restocking of the lakes due to Bonneville Power Assn and Montana Fish, Wildlife and Parks doing separate portions of the project.
	38.9	BPA and MFWP are working together on this proposal and have and will continue to follow all applicable legal and policy requirements to make sure the proposal has a complete public and agency review. BPA is proposing to fund this project and MFWP is proposing to implement it. No

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		decision on the project has been made at this time. Neither BPA nor MFWP can control any person or group who might want to prevent the project from going forward through litigation.
39.1		Recently I had the good fortune of fishing Sunburst Lake in the Bob Marshall wilderness. What a wonderful fishery that is. Being able to catch Westslope and Yellowstone cutthroat in the same lake is quite a thrill. It just doesn't make any sense to me to poison all of these lakes that provide such successful angling right now.
	39.1	Thank you for your comment and interest in the SF WCT Conservation Program.
39.2		Besides, if there are already hybrid fish in these lakes and streams that flow out of them, your [sic] not going to be able to reverse that unless you poison everything. And that would be the wrong thing to do.
	39.2	We believe removing hybrid trout would safeguard the species. Thank you for your comment.
40.1		As a signatory to the Westslope Cutthroat Trout Conservation Agreement, we fully support the goal to preserve the genetic purity of populations in the South Fork of the Flathead River drainage. We also agree with the immediate need to remove hybrid source populations from identified lakes and to replace them with genetically pure and appropriate stocks of WCT in most cases. The proposed activity to remove non-native species from 21 lakes, therefore, is an important conservation action for WCT on which we would like to comment.
	40.1	Thank you for your comment.
40.2		First, we would like to make it clear that MCAFS strongly supports the concept of removing non-native species from the South Fork Flathead River basin. We concur that non-native fish (hybridized cutthroat trout) pose a serious threat to the long-term conservation and persistence of westslope cutthroat trout.
	40.2	Thank you for your comment and interest in the SF WCT Conservation Program.

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40.3		We also believe that reestablishment of fishless conditions in some of the high mountain lakes is desirable. We are pleased that the Bonneville Power Administration, Montana Fish, Wildlife & Parks (FWP), and the U.S. Forest Service are willing to take on such a bold conservation action. The South Fork Flathead is a rare ecosystem because it is one of the largest sub-basins in the West that supports a native, intact species assemblage, with the glaring exception of hybrid and non-native fish in some of its high mountain lakes.
	40.3	Thank you for your comment. We are not proposing to create any new fishless lakes.
40.4		MCAFS also concurs that the only viable method to remove non-native species from these 21 lakes is the application of either antimycin or rotenone. While we appreciate that chemical reclamation can be controversial, we think that the risks to non-target species are acceptable and that FWP has sufficient experience to implement the project.
	40.4	Thank you for your comment and interest in the SF WCT Conservation Program.
40.5		The proposed actions implement the chemical reclamation by a variety of means (fixed-wing airplane, helicopter and boats, livestock) based on social, economic, and logistical concerns for each lake. This is a commendable approach and it should help reduce the controversy around working in the Bob Marshall Wilderness or the Jewell Basin Hiking Area.
	40.5	Thank you for your comment and interest in the SF WCT Conservation Program.
40.6		However, the DEIS does not contain a matrix upon which to base biological, logistical, political, recreational, and economical prioritization of this phased approach. This matrix should include a detailed analysis of risks and benefits associated with the treatment and subsequent stocking or non-stocking of each lake among others. The matrix should also contain biological information (fish genetics and relative abundance, invertebrate and amphibian communities etc.) for each lake to characterize physical and biological conditions upon which treatment decisions will be made.

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	40.6	A number of factors would be used to determine the treatment schedule including size of lake, complexity of treatment, weather, social and economic issues, logistical requirements, etc. Thank you for your comment. Please see responses to Comments 11.10, 37.143 and the added Appendix G.
40.7		We recommend that the most critical lakes be addressed first in case the funding or political situation changes in the future. Lakes that pose the greatest and most immediate threat to neighboring WCT populations should be given the highest priority, since that is the goal of the project. High priority should be given to lakes located in the Bob Marshal [sic] Wilderness and those that contain hybrid populations that have significant non-native contributions (e.g., degree of introgression) and large population sizes.
	40.7	Please see response to Comment 40.6.
40.8		In the case of mixed stocks assemblages (i.e., M012s planted on hybrid swarms), we recommend that the degree of introgression should be calculated on those individual fish in the sample that contain non-native rainbow trout genes. This may require collecting additional genetics samples, as sample sizes will likely be reduced.
	40.8	Please see response to Comment 40.11.
40.9		We commend your plan to develop an adaptive approach that carefully analyzes risks and benefits to prioritize treatment and non-treatment lakes. However, a sound adaptive management plan should also include a research plan to guide the ensuing treatment phases, and in turn guide a comprehensive long-term adaptive aquatic ecosystem monitoring program. We suggest that prioritization consider the degree of hybridization, the likelihood of maintaining the lake as a pure population (or fishless), the potential for recolonization by native amphibians and zooplankton assemblages, recreational and wilderness values, and the degree of purity of WCT downstream, among others. Each lake should be analyzed independently and then placed in geographic context with neighboring lakes and streams; only then can a wide range of uses and values be accommodated through the proposed actions.

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	40.9	See response to Comment 40.6.
40.10		We recommend that drainage or stream specific donor stocks be used for WCT reintroductions in lakes of the South Fork Flathead River in the Bob Marshal Wilderness. The best available scientific information has clearly shown that using a “nearest neighbor” approach for reintroduction of WCT in the South Fork is the best conservation strategy to ensure the long-term genetic integrity of remaining populations. We recognize that this may conflict with a prioritized schedule based upon degree of introgression, therefore some lakes may need to be deferred until after a “nearest neighbor” brood is developed.
	40.10	See response to Comment 37.97.
40.11		Recent genetics studies have shown that genetic differentiation between populations is a key factor for WCT reintroductions in South Fork lakes: Leary (2002) concluded: “Since substantial genetic differences exist between the M012 fish and the westslope cutthroat trout populations in Big Salmon Lake, Gordon Creek, and Danaher Creek, and the supposed middle Wheeler Creek population, continued introduction of M012 fish into these drainages genetically does not represent the best conservation approach. This practice could potentially result in significant genetic changes in the downstream populations. Whether or not these changes will negatively affect the viability of the downstream populations is unknown, but the possibility they may negatively impact viability exists. Thus, from a genetics perspective a less risky conservation strategy would be to use westslope cutthroat trout either collected directly, or descended from those collected directly, from each of these drainages as the source of fish for introductions within each respective drainage.
	40.11	<p>The Leary (2002) letter you cited indicates that Big Salmon, Gordon, and Wheeler Creeks all have non-hybridized populations in them. However, the same Leary (2002) letter provides Table 1 that lists the history of genetic sampling used to make that determination.</p> <p>In the case of Big Salmon drainage, there are three headwater lakes that have hybrid populations, and one of the Big Salmon Creek samples showed slight hybridization. The analysis failed to</p>

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		<p>consider the 8/13/00 sample from Cataract Creek (immediately downstream from Woodward Lake), which showed 91% influence of rainbow trout. On this basis alone, there appears to be substantial influence of non-native genes in the Big Salmon Creek drainage and therefore substantial risk in developing a brood stock from this drainage that is not influenced by rainbow trout and Yellowstone cutthroat trout. With this considered, it does not offer the best conservation strategy for WCT in this drainage or the SF.</p> <p>In the case of Gordon Creek, three of the four lakes in this drainage have documented hybridization. The 8/06/00 sample from Lick Creek, that was used to make this determination, was misnamed and was actually collected from Gordon Creek. The legal description for this sample is T19N, R15W S1, 2. George Creek was also sampled at this time and found to be hybridized. On this basis, there appears to be influence of non-native genes in the Gordon Creek drainage and therefore substantial risk in developing a brood stock from this drainage that is not influenced by non-native trout.</p> <p>In the case of Wheeler Creek, the sample that was used to make this determination was collected in 1991, and based on a seven fish sample. Leary (2002) admittedly recognizes the low statistical power with such a small sample size. Table 1 from the letter correctly lists genetic test conducted in 1994 and 1999, taken both upstream and downstream, of the 1991 sample site, respectively. Both samples showed hybridization with Yellowstone cutthroat trout. Based on the history of the non-native Yellowstone cutthroat in Tom Tom Lake located in its headwaters, this is not surprising. On this basis, there appears to be influence of non-native genes in the Wheeler Creek drainage and therefore substantial risk in developing a brood stock from this drainage that is not influenced by Yellowstone cutthroat trout.</p> <p>When considering the previous and subsequent history of these three drainages, from a fish management perspective, a less risky conservation strategy rather, would be to NOT use westslope cutthroat trout either collected directly from, or descended from those collected directly, from each of these drainages as the source of fish for introductions within ANY drainage in the SF Flathead. There is substantial risk in perpetuating non-native genes if donors are collected from</p>

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		streams known to harbor hybrid fish.
40.12		Recent genetics studies have shown that genetic differentiation between populations is a key factor for WCT reintroductions in South Fork lakes: Leary (2002) concluded: Similarly, Dunning and Knudsen (2004) determined the genetic relationships among WCT in the upper Flathead River system and found that samples from the South Fork were significantly differentiated from those of the North and Middle Forks, and that Youngs Creek was the only one that showed significant differentiation between sites in the entire basin.
	40.12	We have read the Dunning and Knudsen (2004) paper. Please see response to Comment 37.97.
40.13		Recent genetics studies have shown that genetic differentiation between populations is a key factor for WCT reintroductions in South Fork lakes: The Montana Westslope Trout Technical Committee (1998) also recommended using using [sic] a “nearest neighbor” strategy for WCT reintroductions and concluded that “we do not now recommend that WCT be introduced into waters containing or connected to waters that contain a pure WCT population unless the existing pure population is the source of the introduced fish.” Furthermore the report states: “The allelic diversity of westslope cutthroat trout also suggests that historically there has been very little gene flow among populations, except possibly at a very local level (Wright 1932). In this situation, even fairly weak natural selection can effectively establish local adaptations. Thus, there is a good possibility that some populations of westslope cutthroat trout may have some degree of local adaptation (e.g. Fox 1993, Phillip and Clausen 1995) which could be broken down, compromising population viability, if the native fish interbreed with westslope cutthroat trout from other populations.”
	40.13	See response to Comment 40.11.
40.14		Thus, the combined information clearly demonstrates the need to implement a “nearest neighbor” approach for reintroduction of WCT in the South Fork. Our comments on this approach are best summarized by Dunning and Knudsen (2004): “In the case of managing populations using the “nearest neighbor” approach within the Upper Flathead drainage, it is advisable that genetic

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		differentiation between populations be taken into consideration. Management actions that increase the amount of genetic exchange among locally adapted populations, such as transferring fish between streams, could be detrimental if these local adaptations are lost due to outbreeding depression (Allendorf et al. 2001, 2004). Also, given the complex life history of westslope cutthroat in this system, we cannot be certain that migratory forms from one area will thrive in another. However, if a population is actually part of a larger metapopulation, then the threats of transfer of fish to such a population may be overestimated. Management of populations should be done on a case by case basis, depending on the demographic and genetic makeup of the populations at risk.”
	40.14	We have read the Dunning and Knudsen (2004) paper. See responses to Comments 40.11 and 37.97. Management of the SF Flathead WCT populations involves consideration of many factors that include conservation of the species, angling quality, economics, wilderness management, logistics, and application of all five that can reasonably be balanced to achieve the overall objective of managing the SF Flathead WCT populations.
40.15		Sekokini Springs Natural Rearing Facility provides an ideal opportunity to develop stream-specific donor populations for WCT reintroduction in the South Fork. Donor populations should be selected based on the degree of genetic relatedness using microsallelite or allozyme genetic analyses (Dunning and Knudsen 2004). Again, the document should identify specific lakes that will be reintroduced with pure WCT using the "nearest neighbor" approach. This is a critical component of the rehabilitation process for each lake and needs to be addressed and disclosed in the DEIS.
	40.15	The SSNRF is currently under administrative review for funding and development. It is not part of this proposal.
40.16		Loss of amphibian species and populations are of global concern. In recent years, there has been an increased number of species declines in the United States, from 5 species in 1980 to 33 in 1998. Declines for both endemic and widespread amphibians are believed to be the result of habitat degradation and alteration. A complicating factor is the inexplicable loss of amphibians in “pristine” areas such as wilderness areas and National Parks that generally lack obvious loss or alteration of habitat. These declines in remote areas appear to be the result of pollutants or effects from introduced species, such as trout. Despite widespread declines of amphibians, however, we still do not have a definitive answer with regards to our local species, like the spotted frog, long toed salamander, and boreal toad.

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	40.16	We have added more information in Appendix G on the status of amphibians in the project area.
40.17		Fish stocking in the 1.5 million-acre Bob Marshall Wilderness complex appears to be a controversial fisheries management issue due to the potential conflicts with wilderness values and impacts on native fish fauna, invertebrates, and amphibians.
	40.17	Thank you for your comment and interest in the SF WCT Conservation Program.
40.18		The basic question is whether to stock all the 21 lakes, or leave some fishless due to potential impacts to invertebrates and amphibians. The DEIS addresses this as an important issue, so we believe that the proposing agencies should consider leaving some lake fishless as a viable alternative. If the fishless issue jeopardizes this project from moving forward, we urge you to consider leaving a couple lakes fishless to ensure that this important project proceeds and achieves our mutual goal.
	40.18	See response to Comment 37.78.
40.19		Leaving a couple lakes fishless could also provide a scientific framework to evaluate the potential changes to the fish, invertebrate and amphibian communities; fishless lakes could serve as controls and the stocked lakes could serve as experimental treatment groups. This experimental approach would ensure that the best scientific information is used to evaluate the potential impacts of chemical treatments on lake and river systems using an adaptive management approach.
	40.19	Please see responses to Comments 11.46 and 37.78.
40.20		We suggest that the scientific design and interpretation of the existing data regarding the potential impacts of fish on invertebrates and amphibians in the Flathead are inconclusive. While these data suggest limited impacts, we recommend that more rigorous studies will be necessary to conclusively prove that impacts from fish on invertebrates and amphibians in mountain lakes of the South Fork are inconsequential. We strongly recommend that this uncertainty be disclosed in the

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		DEIS. We believe studies to address these issues should be recommended as part of the adaptive management plan for the South Fork. Ideally, these studies should be designed and implemented so that their results could be published in peer-reviewed journals.
	40.20	Please see response to Comment 37.13.
40.21		We encourage FWP to conduct additional research because little is known about high mountain lake ecosystems. Are there unique assemblages of zooplankton or aquatic invertebrates in large, deep, fishless lakes that do not occur in shallower lakes because of potential winterkill? For example, zooplankton communities in high elevation, fishless lakes are dominated by large-bodied species. Introduction of trout results in the rapid elimination of these species and replacement by smaller-bodied forms. Once extirpated from a lake, the large-bodied species may not be able to recolonize, even if fish are removed, due to their limited ability to disperse. How do recolonization rates of amphibians differ between lakes restocked with fish versus those that are not stocked? What happens to re-established amphibian populations when fish are re-stocked on top of that amphibian population? In the past, we have only been able to infer impacts because fish have been present in these lakes for so long. Now we have a chance to actually determine what impacts may or may not occur. The DEIS fails to mention these research opportunities and the proposal to stock all lakes will result in a tremendous loss of opportunity to further our knowledge in this area.
	40.21	Studying the over winter abundance of plankton is not an objective of this project. MFWP has instituted surveys on the status and distribution of plankton and amphibians in 75 lakes and 86 streams in the SF that began in 2004. This study will continue over the next few years and be expanded spatially, and would also include sampling of insect communities. Please see response to Comment 40.20. See Appendix G.
40.22		There is an assumption in the DEIS that a complete fish kill may not be achieved. The effectiveness of the treatment will vary by lake, with the most influential factors being depth and volume. Lakes should be ranked from low to high using these factors on what the expectations are for a complete kill and subsequently monitored to determine if a complete fish kill is achieved. Stocking could be deferred for 1-2 years (at a minimum) in high probability lakes for a complete kill to determine if objectives were met to remove hybrids. If a complete kill is achieved, this may

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		reduce the need to stock a lake to “swamp” the remaining hybrids.
	40.22	<p>The DEIS acknowledges and discloses the fact that not every piscicide treatment can guarantee 100% success. Although many remove 100% of the fish, including those in this project area, there are others that have not achieved 100% removal. Section 2.4.1.1 of the DEIS provides most of this information.</p> <p>If stocking is deferred, this will allow any possible remaining hybrids to gain a foothold once again. Obviously there are limitations in the length of time that can be invested in evaluating if 100% of the fish were removed. If gill netting and visual observation do not detect fish, then a reasonable assumption can be made that the project removed all of the fish.</p> <p>Restocking the lakes is an objective of the project. If the lakes were not restocked, the goal of replacing the hybrids with pure WCT would be compromised and there may be negative and long-term impacts on established social and economic values.</p> <p>Monitoring and evaluating the effectiveness of each treatment is a project component identified in the DEIS. See response to Comment 11.52.</p>
40.23		The potential for future illegal introductions should be elaborated on in the DEIS. Lakes should be rated according to risk of illegal introductions. All the proposed wilderness lakes are remote and the risk is low, whereas outside of the wilderness only one lake (Handkerchief) can be reached by road.
	40.23	<p>See response to Comment 40.37.</p> <p>Several lakes in the wilderness portion of this project area including Devine Lake, Palisade Lake, Marshall lakes, and two unnamed lakes in Palisade Creek drainage have been stocked by illegal and/or unauthorized means. The lakes are located in very remote and rugged terrain with trail access only. MFWP has successfully stocked eyed eggs or small fish in numerous lakes by backpack (Devine) and horseback (Woodward, Pyramid, Sunburst) in wilderness. MFWP has also had reports of unauthorized fish stocking by aircraft which is in the realm of possibility for all lakes</p>

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		<p>in this proposal.</p> <p>MFWP records indicate that in 1957 biologists discovered rainbow trout in the Graves Creek drainage. There are no records of rainbow trout being stocked in that drainage. MFWP records indicate that in 1965 biologists discovered rainbow trout in the Big Salmon Creek drainage, and there are no known records of this occurring other than through empirical information. These are two examples of widespread and indiscriminant stocking conducted in primitive areas and with primitive methods that were available in 1957. It is reasonable to assume that more determined people using the modern technology of 2005 could make unauthorized stocks of fish. It is also responsible to recognize the possibility of this happening based on the history of this area and comments made by the public during this process.</p>
40.24		<p>[Specific comment on] Section 1.2. The DEIS fails to list which lakes were previously “swamped” and to describe the potential genetic effects from the years of “swamping”. For example, has inbreeding depression or the potential for changing local adaptations associated with the large amounts of M012 occurred?</p>
	40.24	<p>See Section 2.4.2.1 in the DEIS for information about genetic testing. This proposal does not address which lakes were previously swamped, but rather focuses on the existing genetics in the lakes. Sampling protocols for genetic testing are not designed to detect or measure inbreeding depression in wild populations. No WCT populations below waters stocked with M012s have been documented as being extirpated by effects of stocking M012s adjacent to them.</p>
40.25		<p>[Specific comment on] Section 1.4. During the scoping process, BPA received 71 comments. A summary is presented in this section. It will be important in the FEIS to respond to these comments as to whether they were substantive and lead to alternative development or were beyond the scope of the project. A detailed analysis of the comments (grouped by theme) is desirable.</p>
	40.25	<p>The FEIS responds to comments on the DEIS as required by NEPA. We used the comments that we received during scoping to refine the alternatives and develop the DEIS, and a summary of the comments was provided.</p>

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40.26		[Specific comment on] Page 1-13. MCAFS questions whether biological integrity will be increased by stocking. Conversely, the aquatic ecosystem and biological integrity of that system is being altered by restocking/perpetuating fish in a previously fishless ecosystem.
	40.26	Any damage to aquatic ecosystems from fish planting occurred many years ago. This project attempts to correct previous damage to the ecosystem by replacing hybrid trout with genetically pure, native westslope cutthroat trout. The project does not propose to create fishless lakes.
40.27		[Specific comment on] Section 2.3. The ESA and USFWS would look at a reduction of imminent threats range wide for the species. To prevent a listing there would have to be significant efforts range wide. A case could be made if the statement "The No Action alternative could also lead to a WCT ESA listing..." was true why not propose actions in the MF, NF or throughout the Flathead. This statement has little validity, although in concept it may be good. This project is a great conservation measure, however, implemented alone it is unlikely that it would prevent an ESA listing.
	40.27	Thank you for your comment. We did not mean to suggest this project alone would avoid ESA listing of the WCT. This kind of project, along with others (such as habitat improvement and isolating WCT from non-natives with barriers), offers the WCT its best chance at maintaining healthy abundance and distribution levels.
40.28		[Specific comment on] Section 2.4. Pages 2-5 and 2-8. It is commendable that adaptive management will be applied by using lessons learned from previous treatments. It would be worthwhile to mention what was learned. For example, if previous treatments were 100% successful then restocking to swamp out remaining fish would not be necessary but it may be for recreational angling. It is our understanding that FWP has had a 100% success rate (a complete kill was achieved) on the 6 treated lakes to remove trout over the last 10 years. It is our Chapter's understanding that complete kills for trout are common in lakes when trout are the targeted species. Another option is to design the project for a second treatment as in the case of Cherry Lake. If a second treatment is truly needed then this should be presented up front and the environmental effects analyzed in the FEIS.

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	40.28	<p>Retreatment may be necessary and is recognized in the plan. Effects would be the same or similar to effects of the first treatment. Section 2.4.5 of the DEIS discloses the possibility of implementing a second application.</p> <p>We have expanded the cumulative impacts discussion in the FEIS. See response to Comment 34.4.</p>
40.29		<p>The post treatment plan will be critical to the success of this project as will a pre-treatment plan that would determine if a lake should be stocked and, if yes, with what brood (M012 or nearest neighbor) and at what frequency. Adaptive management learned over the last decade should allow for these decisions to be made in the FEIS rather than post treatment.</p>
	40.29	<p>See responses to Comments 11.3, 11.4, 37.13 and 40.28.</p>
40.30		<p>We appreciate the thorough discussion associated with the treatment. The use of antimycin and rotenone being applied by various methods will enhance our knowledge in this field.</p>
	40.30	<p>Thank you for your comment and interest in the SF WCT Conservation Program.</p>
40.31		<p>We appreciate your attention to downstream aquatic organisms such as tailed frogs and bull trout.</p>
	40.31	<p>Thank you for your comment and interest in the SF WCT Conservation Program.</p>
40.32		<p>[Specific comment on] Pages 2-26 and 2-27. There should be some discussion about using nearest neighbor fish and the effects of inbreeding and changes in local adaptations associated with M012. The WCT Tech. Committee recommendations should be noted and followed. It is assumed that M012 will be used in all lakes since stocking will be conducted the following year with a variety of age classes. Once again, here is an opportunity to put together a pre-treatment plan that would have a variety of restocking options. The statement “restocking streams would expedite the restoration of a viable fish population” is confusing. Does this infer that viable populations</p>

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		currently do not exist in streams below these lakes? If portions of stream segments are treated immediately below the lakes down to a barrier, leaving these stream segments unstocked should be harmless for several reasons. 1) they are rarely fished, 2) the hybrid source is removed from the lake, 3) pure M012 would trickle out to "swamp" remaining hybrid stream fish, 4) little spawning habitat seldom exists in these high gradient reaches and 5) pure endemic SF WCT can move up from downstream until that barrier is reached.
	40.32	Please see response to Comment 37.97. See also the DEIS in Section 1.4.2.1. Our purpose for restocking streams is to repopulate them at a rate faster than would occur through normal drift out of the lake. These fish in addition to those that trickle out of the lake will provide the source of pure fish to repopulate these sections of the streams.
40.33		[Specific comment on] Section 2.7 The MCAFS supports the decision not to use tiger muskies to reduce trout populations and to refrain from creating barriers in wilderness areas.
	40.33	Thank you for your comment and interest in the SF WCT Conservation Program.
40.34		[Specific comment on] Section 2.7 We fully agree that rotenone and antimycin provide the best chance of removing non-native trout from these lakes. Impacts associated with the use of these compounds will be limited in duration.
	40.34	Thank you for your comment and interest in the SF WCT Conservation Program.
40.35		[Specific comment on] Section 3.2 Page 3-9. Mention is made of bull trout fishing being re-opened in the South Fork, which we agree is a great opportunity for the angling public. However, the DEIS fails to analyze the socioeconomic affects [sic] to outfitters associated with this action. Would this not enhance if at least replace any lost angling opportunities these outfitters may have if a lake was left fishless in their area?
	40.35	Analyzing the socioeconomic effects of the bull trout fishery is beyond the scope of this project. Additionally, the current experimental bull trout fishery is only authorized by the USFWS, via a Section 10 permit, through 2005. The decision to extend this permit has not been made and will not be made until late in 2005. It is currently illegal to angle for bull trout in any lake in the SF

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		<p>except Hungry Horse Reservoir. Consumptive use or angling for bull trout is not allowed in any wilderness waters. The only reason this information is in the DEIS is to describe the present status of this species in the project area.</p> <p>Creating fishless lakes would likely direct angling pressure to adjacent lake and river fisheries in the project area. This would cause an increase in use and would likely cause long-term unintentional impacts on the resources at those sites, ground disturbance, etc. This project does not propose to cause long-term impacts to adjacent fisheries through a “no restocking” option.</p>
40.36		<p>[Specific comment on] Page 3-12. We appreciate the efforts that are being made to safeguard bull trout populations. The section on direct and indirect effects fails to mention impacts on WCT, such as the purpose of the project to reduce the likelihood of introgression and direct mortality to hybrids. Furthermore, effects upon sculpins, whitefish, or suckers are not disclosed.</p>
	40.36	<p>Page 3-12 of the DEIS states “... it will be necessary to protect as many downstream bull trout populations while removing as many hybrid trout from those streams as possible...” This section also discloses the recognized limitations in removing all of the hybrids from certain stream segments.</p> <p>We acknowledge that the impacts to other fish species was not clearly stated in the DEIS. Pages 3-9 and 3-10 discuss the likely impacts to the mountain whitefish. The primary reason the other species were not discussed in detail is based upon their limited distribution in the project area. For example, there is no record of suckers occurring in any of the streams listed in this proposal. We cannot discount the possibility of suckers using some of the streams for certain life stages, but based on the information we have, it is likely a rare occurrence. Sculpins were documented in Youngs Creek in 1993 (Fredenberg) and were characterized at that time as rare. In 2001 and 2002 sculpins were electrofished from Wheeler Creek during post treatment evaluations of the Tom Tom Lake rotenone project. Annual electrofishing of Hungry Horse Reservoir tributaries consistently does not produce any evidence of sculpins or suckers.</p>
40.37		<p>Page 3-13. The MCAFS agrees that illegal bait bucket biology is a risk in any given water body. Illegal introductions are often driven by the availability of fish and access. We request that a risk assessment is completed for each of the treated lakes that would look at the likelihood of illegal</p>

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		introductions and where the potential source would come from. For example, most wilderness lakes, especially those without trails would have a very low likelihood of illegal introductions due to their remoteness and the closest source would be a neighbor lake or fish downstream in the creek. Illegal introductions with these fish may have less genetic risks associated with them than use of M012. The risk assessment would break this issue down from a programmatic risk that “it could happen anywhere” to a site-specific risk that may be very low on a certain waterbody such as Lick Lake. Many of the issues cited are programmatic in nature and given the scale of the proposal don’t necessarily apply to every lake that is proposed.
	40.37	Humans on foot or horseback stocked nearly all of the lakes described in this EIS beginning in the 1920s. Warm water fish like yellow perch, black bullhead, walleye pike, black crappie, fathead minnow, pumpkinseed sunfish, and bluegill sunfish have been routinely introduced to western Montana waters that are located 100s of miles from the nearest sources for these species. Eyed eggs and young fish can be bought from private hatcheries, or moved from wild sources. Although some lakes are more easily accessed than others, the threat of illegal introductions includes all lakes, limited only by the determination of humans.
40.38		[Specific comment on] Section 3.3 Table 3-5. This table would be much more useful if divided between fish versus fishless lakes. Adding presence, densities, sizes, etc would allow for a better understanding of potential impacts associated with the proposal.
	40.38	<p>Thank you for your comment. This table was not designed to qualify or quantify the planktonic species from lakes with or without fish. It is designed to provide a measure of known diversity and abundance within the project area. In 2004 FWP instituted a more comprehensive analysis of plankton in 35 lakes in the project area. That study was designed to measure seasonal variation in abundance and diversity, and attempt to measure any spatial variation. Lakes with fish and without fish have been sampled.</p> <p>A revised Table 3-5 has been added to the FEIS.</p>
40.39		As you may be aware, many studies have documented the changes associated with zooplankton communities in the presence of fish (see Knapp et al. 2001).

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	40.39	We are aware that fish use zooplankton for food.
40.40		Page 3-22. There is a good discussion associated with impacts associated with the chemical treatment but no discussion about the effects upon amphibians and zooplankton associated with restocking. We request that the effects of restocking should be analyzed and included in this section.
	40.40	<p>Please see the responses to Comments 11.10 and 37.2.</p> <p>By restocking lakes after a treatment, we are maintaining conditions similar to those that existed prior to the treatment. No additional impacts are expected from continuing to stock fish.</p>
40.41		Section 3.6 Page 3-40. Cumulative effects on the wilderness resource would vary depending on the number of chemical treatments and if the lakes become self-sustaining versus a rotational stocking. A pre-treatment plan that determines how each lake will be treated, i.e., fishless, one time stocking, rotational stocking, would lead to a better cumulative effects analysis.
	40.41	A post treatment plan is provided in Sections 2.4.5 and 2.4.6 that addresses your concerns. Much of the information that is needed to make these determinations cannot be made until after the treatment has occurred and an evaluation has been made.
40.42		The South Fork Flathead Watershed WCT Conservation Project is a opportunity to protect existing pure and appropriate WCT to their former distribution and abundance. We urge your agencies to consider our recommendations to conserve WCT in the South Fork Flathead, as the decisions made now will influence these important conservation areas for many years.
	40.42	Thank you for your comment and interest in the SF WCT Conservation Program.