Public Scoping Report

Change to 2008 Mountain Lakes Fisheries Management Plan

National Park Service
U.S. Department of the Interior

North Cascades National Park Service
Complex and Stephen Mather Wilderness

SUMMARY

The National Park Service (NPS) recently conducted public scoping on a proposal to use a different piscicide to remove fish from select mountain lakes in accordance with the 2008 Mountain Lakes Fishery Management Plan/Final Environmental Impact Statement (Plan/FEIS). This Public Scoping Report describes the comments received and provides a response for each substantive comment. The results of public scoping support proceeding as proposed without further analysis in accordance with the National Environmental Policy Act (NEPA) because the environmental effects of this change would be substantially similar to those described and previously disclosed in the 2008 Plan/FEIS, including impacts to wilderness character. The scoping results also emphasize the need for continued public education and outreach efforts to foster public understanding of the complex scientific and technical aspects of lake restoration in the Stephen Mather Wilderness of North Cascades National Park Service Complex.

BACKGROUND

The NPS recently proposed to continue the restoration of naturally fishless mountain lakes in North Cascades National Park Service Complex in accordance with the 2008 Mountain Lakes Fishery Management Plan/Final Environmental Impact Statement (Plan/FEIS), but to change the piscicide used for fish removal from antimycin to CFT Legumine™, a liquid formulation of the piscicide rotenone. This change is necessary because antimycin is no longer commercially available, existing stocks are depleted, and rotenone is more effective in removing populations of fish from larger/deeper lakes.

The potential need for using rotenone was envisioned in the 2008 Mountain Lakes Fishery Management Plan/Environmental Impact Statement; however, the plan stated that if rotenone was to be used for fish removal actions in the future, additional environmental analysis would be completed and opportunities for public comment would be made available.

The NPS evaluated the environmental effects of changing the preferred piscicide from antimycin to rotenone and documented those findings in a whitepaper entitled *An Assessment of the Environmental and Human Health Risks of Using Rotenone to Implement the Mountain Lakes Fisheries Management Plan in North Cascades National Park Service Complex*. The NPS conducted public scoping on the proposed change from May 13, 2013 to June 14, 2013. The public scoping documentation and distribution methods included:

- a media release describing the proposal;
- a Frequently Asked Questions (FAQ) brochure and cover letter (sent to approximately 180 potentially interested parties as per the mailing list for the Plan/FEIS); and
- a project website (www.parkplanning.nps.gov/restore_sourdough) which included links to the whitepaper and FAQs.

During this 30-day public scoping period, the public was encouraged to submit comments on the proposal via the project website or directly to the Superintendent's office. North Cascades National Park Service Complex received a total of nine unique letters of correspondence during this period.

COMMENTS AND RESPONSES

This section describes the substantive comments1 received during the public scoping period. Each substantive comment is presented as a concern statement for brevity and clarity, with a representative quote from the comments for context. A response is provided for each concern statement.

CONCERN STATEMENT #1: The National Park Service kills undesirable fish only to introduce more desirable species for recreation.

"I find it humorous that in lowland lakes that had a "natural" bass population, government biologists rotenone-d them so they could stock the lakes with non-native trout since that's what sport fishermen prefer to catch."

Response: This proposal continues the implementation of the 2008 Mountain Lakes Fishery Management Plan by eliminating populations of non-native trout in order to reestablish naturally fishless conditions and restore natural ecological conditions. The NPS will not reintroduce any fish into lakes after current fish populations have been eradicated.

CONCERN STATEMENT #2: Fish are a more valuable resource than amphibians.

"Spending significant [money] to remove fish from our high lakes that were put there for the use of we taxpaying citizens is silly. Seriously, [to] save some salamanders? Our fisheries/wildlife management is going totally off the chart as far as common sense."

Response: This issue highlights the differing social values that people have toward wildlife and highlights an issue that was comprehensively addressed in the Final Plan/EIS. We recognize that some members of society clearly believe fish are a more valuable resource than amphibians. Indeed, this belief is what contributed to fish stocking in the first place. The NPS recognizes the economic and recreational benefits generated by recreational fishing and actively works to manage this valued American pastime by supporting fishing opportunities where fish are a native part of the ecosystem, such as throughout the lower elevation waters of the park. As codified in law, regulation, and policies which guide agency stewardship, the NPS values native species in their native habitats. Because fish are not native to the mountain lakes in the Stephen Mather Wilderness of North Cascades National Park Service Complex, the NPS values restoring these naturally fishless conditions and promoting the recovery of native aquatic species, including salamanders.

CONCERN STATEMENT #3: How do we know NOCA's mountain lakes were naturally fishless?

"What historical documentation exists to verify these lakes were 'sterile' (with respect to fish) prior to your claimed 'human-planting' of undesired fish? What documentation exists, upon which your proposed fish-killing program is based, that describes the historically-resident (or absence) fish in these lakes?"

Response: This issue was evaluated in the Mountain Lakes Fishery Management Plan/FEIS (p. 155, Origin of Mountain Lake Biota). In short, multiple lines of evidence indicate the mountain lakes in North Cascades National Park Service Complex never contained fish. Without stocking, fish could not access the mountain lakes from lower elevations due to the steep topography that created numerous fish passage barriers in the streams leading to these bodies of water.

1 NPS Policies (http://www.nature.nps.gov/protectingrestoring/do12site/) define substantive comments as those which (a) question, with reasonable basis, the accuracy of the environmental impact analysis; (b) present reasonable alternatives other than those presented in the environmental impact statement; and/or (c) cause changes or revisions in the proposal. Comments in favor of or against the proposed action or alternatives, or comments that only agree or disagree with NPS policy are not considered substantive.

CONCERN STATEMENT #4: Do brook trout really pose a threat to federally listed bull trout?

"What is the likelihood of brook trout migrating downstream from Sourdough Lake to hybridize with Bull trout downstream? If this has not happened over the last few decades (or the last century), is it likely to ever occur? If not, does Sourdough Lake need to be poisoned?"

Response: Numerous eastern brook trout hybrids have been collected and documented in Ross and Gorge lakes by visiting researchers and NPS staff. As discussed on pp. 305-307 in the Mountain Lakes Fishery Management Plan/FEIS, competition and hybridization caused by brook trout dispersing from lakes into bull trout habitat is a threat specifically identified in the Draft Bull Trout Recovery Plan for the Coastal Puget Sound Distinct Population Segment. Considering this threat, this recovery plan identifies the removal of brook trout populations in watersheds containing bull trout as one important method of protecting this threatened species.

CONCERN STATEMENT #5: Re-stock fish after removing "undesirable" fish from the lakes.

"If there is evidence of historically resident fish in lakes prior to "planting of undesirables" by humans, will these fish be re-established after a fish-kill program is completed? If no, why?"

Response: There is no evidence of fish being historically present in the mountain lakes identified for fish removal. Please see response to concern statement #3.

CONCERN STATEMENT #6: Allow anglers to remove all fish from the lakes rather than treating lakes with piscicide.

"Has NPS encouraged unlimited fishing in Sourdough Lake as a means of reducing the fish population?"

"Why haven't other options been tried, like having a fishing "lottery" where avid high lakes fishers can fish out as many as they can? This would not only be cheaper, easier, and safer, but would be great PR for the park!"

Response: Intensive angling as a means of removing fish was considered during development of the Mountain Lakes Fishery Management Plan. The planning team concluded that intensive fishing could reduce populations of fish but would be unlikely to eliminate fish entirely, which is what is needed for successful restoration of these lakes. In addition, encouraging intensive angling to remove fish would have adverse impacts to the fragile shoreline environment, which is very susceptible to trampling. Moreover, removing bag limits on fish could cause confusion among the public and possibly lead to lack of compliance with creel limits elsewhere. For more information on feasibility of fish removal alternatives, including non-chemical methods of fish removal, please refer to pp. 93-96 of the 2008 Mountain Lakes Fishery Management Plan/FEIS.

CONCERN STATEMENT #7: Use piscicide only when completely necessary and all other alternatives have been exhausted.

"We believe use of these chemicals should be used only when completely necessary. Chemical application should only be used when spawning habitat exclusion, gill netting, and other means of restoration that have less potential for unintended consequences have been exhausted. Also, the amount should be limited to the smallest amount needed to be effective."

Response: We agree. Application of a piscicide in any setting, and especially in a wilderness setting, should be the method of last resort. This is why the Mountain Lakes Fishery Management Plan

includes mechanical methods (e.g. gill netting) for smaller lakes where mechanical methods may be feasible, albeit more costly and time consuming. For more information about mechanized methods of fish removal, please refer to "Lake Treatment Methods pp. 85-94 in the Final Plan/EIS.

CONCERN STATEMENT #8: Will the NPS be able to successfully remove all fish in one treatment?

"What is the likelihood of the rotenone in CFT Legumine killing the entire population of brook trout in Sourdough Lake, or will it just knock down the population for a while, requiring perpetual poisonings? What is the expected efficiency for the rotenone to kill the entire population?"

"Can the rotenone penetrate the deep thermal layers of water in Sourdough Lake to accomplish the desired task?"

Response: Rotenone has been used by several national parks to remove fish, and the track record at other parks suggests through careful, scientifically-informed treatment methods, one-time application should suffice. Although it is possible that two treatments could be required to completely eradicate all of the fish in a system with large amounts of complex habitat in inlet and outlet streams, the NPS would not conduct piscicide treatments in situations that will require perpetual applications. Furthermore, the NPS would conduct intensive planning and pre-treatment monitoring for each proposed lake restoration project in order to optimize the treatment of any lake with piscicide.

As a technical matter rotenone may actually be more effective than antimycin in treating particularly deep mountain lakes, such as Sourdough Lake, because the chemical is able to penetrate more dense layers in a lake's thermal stratification. To ensure that the entire water column is diffused with piscicide (and therefore reduce the potential need to treat a lake a second time), NPS staff would additionally pump a predetermined percentage of the chemical below the thermocline for all future lake treatments.

CONCERN STATEMENT #9: The effectiveness of this project is threatened by illegal re-stocking.

"What measures will the NPS put in place to prevent citizen fish-stockers or disgruntled anglers from re-stocking Sourdough Lake after treatment? Washington State has long had programs (e.g., "Hi-Lakers" and "Trail Blazers") for citizens to stock lakes in the North Cascades."

Response: We agree. As described in several sections of the Mountain Lakes Fishery Management Plan/FEIS, the issue of unsanctioned stocking was carefully considered. Enforcement alone will likely not be effective in preventing re-stocking of these mountain lakes due to the remote wilderness locations of the lakes and the very limited capacity to patrol these areas. That is why education is an important component of the plan's implementation. The NPS also closely monitors lakes following treatment, through which we can identify any incompliance with stocking regulations and assess the impact of such actions on a previously treated lake. While any re-stocking would certainly threaten the health of a lake's ecosystem, not all illegal re-stocking would threatened the overall success of these lake treatments as not all stocked fish are naturally reproducing and could die out on their own without further NPS action.

CONCERN STATEMENT #10: Rotenone will impact water quality downstream.

"When I discovered that NoCaNP was using poisons in our high mountain lakes to "restore" them, it made me VERY worried. These lakes are not sole entitites but have outlet streams that connect to the rest of the watershed. Not only do backcountry workers and travelers use this water, but of course, so does resident wildlife."

"Hikers, climbers, fisherpersons, trailcrew, wilderness rangers, and WILDLIFE all depend on the purity of our water. Outlet streams will carry this poison elsewhere - need I say more?"

Response: The National Park Service also greatly values water quality as fundamental to the health of the North Cascades ecosystem and is responsible for the protection of this resource. However, we do not believe this proposal threatens the water quality in North Cascades National Park Service Complex. For one, both antimycin and rotenone break down naturally in the environment, especially when exposed to light and oxygen, as the treated water would be when travelling thousands of feet downstream and over cascades after leaving a lake's outlet. Secondly, all piscicide applications would be completed in the fall, when water flow is at its lowest during the year. For example, the proposed treatment at Sourdough Lake this fall would occur when there is likely to be little (<1 cfs), if any, outflow from the lake. Finally, any impacts to water quality will be mitigated by close adherence to regulations outlined by the Environmental Protection Agency. For example, the NPS would set up a neutralization station at the outlet of the lake to oxidize any rotenone that might remain in the stream and ensure the chemical does not impact water quality downstream. In addition to this neutralization station, the NPS would also monitor water quality through the use of a pocket colorimeter and a sentinel fish station downstream of any treated lake. Please see responses to concern statements #11 and #12 below and refer to the *Assessment of the Environmental and Human Health Risks of Using Rotenone to Implement the Mountain Lakes Fisheries Management Plan in North Cascades National Park Service Complex* for more detail (available at: www.parkplanning.nps.gov/restore_sourdough).

CONCERN STATEMENT #11: Rotenone could persist in the system for a long time and may need to be neutralized for a longer period than planned.

"According to one of the studies cited in the document, rotenone persisted in the environment for up to 160 days in Yellowstone National Park. How long will the rotenone persist in Sourdough Lake, and how long will potassium permanganate be used to neutralize it?"

Response: In their review of the literature about rotenone, Yellowstone National Park found that the longest reported persistence of rotenone in a lake was 160 days (EPA 2007b in NPS 2011). (Point of clarification: the lake was not located in Yellowstone National Park; rather, the finding was identified in the literature on rotenone.) However, it is important to note that this was in a lake with cold water treated with 250 ppb of rotenone, a concentration five times higher than the proposed piscicidal concentration that would be used in implementation of the Mountain Lakes Fishery Management Plan and the proposed action. Testing conducted in two deep, cold-water lakes after rotenone treatments, Lake Davis in California and Diamond Lake in Oregon, revealed that rotenone fell below detection limits (2 ppb) within thirty-nine days (USEPA 2006c; David Lumis, Oregon Department of Fish and Wildlife, Project Manager, telephone communication, May 15, 2007 in Turner et al. 2007). Based on this information and guidance obtained from the American Fisheries Society manual on rotenone treatments (Finlayson et al. 2000), we expect that rotenone could remain toxic to gill breathing organisms in the surface of NOCA's lakes, including Sourdough Lake, for and up to four weeks after an application.

Detoxification will only take place in streams that drain lakes treated with rotenone, and detoxification procedures will vary depending on water temperature, lake depth, the amount of inlet and outlet flow, and the amount of dilution that occurs in the streams as they travel through the watershed. For Sourdough Lake, the NPS has determined that 10 days of detoxification is required to protect non-target organisms downstream of the treatment area.

CONCERN STATEMENT #12: Potassium permanganate, the neutralizing agent, will also impact aquatic life.

"The document states that potassium permanganate will be used to neutralize the rotenone downstream, but potassium permanganate is itself toxic to aquatic and terrestrial organisms (p. 12). How far downstream of Sourdough Lake will potassium permanganate kill aquatic life? Is there a neutralizing agent for potassium permanganate?"

Response: Potassium permanganate is a potent oxidizing agent, which means it could impact aquatic life. However, the impacts are likely to be very limited in scale because it will quickly react with (oxidize) a wide variety of substances once introduced into the environment. The high degree of reactivity limits its capacity to travel downstream in concentrations that could prove harmful to aquatic life. For more information about the potential impacts of potassium permanganate, please refer to pp. 92-93 of the Mountain Lakes Fishery Management Plan/FEIS and the various sections in Chapter IV, Environmental Consequences.

CONCERN STATEMENT #13: Have survey been completed to ensure unique, rare, or subspecies will not be lost?

"Have surveys of these aquatic systems been conducted so the full suite of impacted species is known? Such studies in the High Sierras found a high degree of endemism in individual lakes/streams. Unique, rare species or subspecies could be lost to a single poisoning event."

Response: The goal of controlling non-native fish is to restore and protect native species and restore natural ecosystem function. The NPS typically completes at least two years of monitoring prior to implementing a piscicide treatment to determine the species of amphibians, zooplankton, and benthic invertebrate that are present in a lake. This information is used to determine the appropriateness of using rotenone in fish eradication activities. If rare, endangered, or endemic species are found in these surveys, it is highly unlikely that rotenone would be used unless the impacts to non-target organisms could be substantially reduced and mitigated.

CONCERN STATEMENT #14: The use of rotenone may impact the tailed frog more than other methods.

"The conclusion on page 23 states that rotenone poses the highest risk for larval amphibians and invertebrates that use gills for respiration. The conclusion also states that larvae of the tailed frog are also one of the most sensitive non-target organisms to rotenone. Has the NPS analyzed and compared the effects of non-chemical brook trout removal (gill-netting, etc.) on the tailed frog versus the use of rotenone and the impacts of the tailed frog?"

"The conclusion on page 23 also dismisses the impacts of rotenone on the tailed frog by stating that no studies have been done on the use of antimycin on the tailed frog. Why has the NPS not conducted such an analysis?"

Response: Neither rotenone nor gill-netting are expected to negatively impact tailed frog as this species primarily inhabits streams, and only small sections of streams, associated with lake-outlet habitats, would be affected. It should also be noted that amphibian surveys conducted in lakes with reproducing populations of fish have not detected any larval amphibians (Reed Glesne, Aquatic Ecologist, North Cascades National Park, personal communication). These findings are most likely the result of fish predation which has eliminated this vulnerable life history stage. Additionally, since adult

amphibians are not affected by rotenone, these populations make rapid recoveries, with population numbers exceeding pretreatment levels due to the absence of fish predation.

Since antimycin is no longer commercially available conducting toxicity testing is not feasible or warranted.

CONCERN STATEMENT #15: Use and application of rotenone should be limited to times of the year when impacts to non-targeted species can be limited or reduced.

"Use and application of rotenone should be limited to times of the year when impacts to non-targeted species can be limited or reduced. This includes avoiding times of year when high numbers of larval amphibians are known to be present in Sourdough Lake. Special consideration for the tailed frog needs to occur as it is one of the most sensitive non-target organisms to rotenone and all efforts to prevent exposure by this species should be taken."

Response: We agree. Every effort will be made to reduce the potential adverse impacts to non-target species. This is one reason why a fall treatment window has been identified. Flows from the lake would be greatly reduced and thus primarily contain rotenone within the lake.

CONCERN STATEMENT #16: Rotenone has been linked to the onset of Parkinson's.

"You might be interested in reading Hugh Holub's 03/07/11 article in the Tucson Citizen regarding the use of Rotenone as piscicide and it's endangerment to humans downstream."

Response: Hugh Holub's Tuscon Citizen article concerns the potential link between rotenone use and Parkinson's Disease. This risk was evaluated as part of the whitepaper *An Assessment of the Environmental and Human Health Risks of Using Rotenone to Implement the Mountain Lakes Fisheries Management Plan in North Cascades National Park Service Complex* which is available on the project website: www.parkplanning.nps.gov/restore_sourdough. As part of this assessment and in reviewing Hugh Holub's article, the NPS finds no evidence to suggest a connection between the piscicidal application of rotenone and Parkinson's Disease. Please see the white paper for more information pertaining to this research and findings.

CONCERN STATEMENT #17: Monitor impacts and take action to reverse or mitigate impacts if conditions are degraded beyond expected or acceptable levels.

"One of the most important aspects of implementing this proposal is the creation of a monitoring strategy to recognize unacceptable impacts or impairment and take immediate action. This approach includes monitoring of impacts to non-target species in Sourdough Lake as well as the detection or levels of rotenone found in downstream waterways. Such a strategy will need to describe a course of action to be taken if conditions in the lake or downstream areas have been degraded beyond expected or acceptable levels. This must also include specific management actions taken to reverse or mitigate impacts to areas that have fallen below certain threshold levels."

Response: Careful pre- and post- treatment monitoring of lakes is a very important component of the plan. Please refer to Volume II, Appendix I of the Mountain Lakes Fishery Management Plan/FEIS for more information regarding the monitoring component of this action.

CONCERN STATEMENT #18: A minimum tool analysis must be completed for all use of poisons, motorized equipment, or motorized transport in wilderness and impacts to wilderness character must be analyzed and documented.

"The park's ok to fly folks and equipment in and out [is outrageous] when no one else is allowed to."

"As a general rule, Wilderness Watch supports efforts to end fish stocking and to remove fish from naturally fishless lakes. We have serious concerns, however, when those efforts involve the use of poisons, motorized equipment or motorized transport."

"Will motorized uses be needed for this project, either motorboats or helicopters? If so, has there been any analysis on the degradation of wilderness character from this project?"

Response: We agree. Volume II, Appendix K of the Final Plan/FEIS contains a programmatic Minimum Requirements Analysis (MRA) for lake restoration actions, including fish removal using the piscicide antimycin. We have revised this MRA to document the proposed change in piscicide application using rotenone in place of antimycin. In addition, because each lake if unique, a minimum tool analysis will be conducted for each lake-specific treatment project in the future to ensure the appropriate minimum tools are used for a given project. Please refer to the project website for more information, including the MRA (www.parkplanning.nps.gov/restore_sourdough).

CONCERN STATEMENT #19: The public has not been adequately notified of these projects.

"[People]. . .were concerned that the public was not well informed, and X-C permits [have been issued] to folks fishing Sourdough Lake just last fall, for example."

"Until now, the targeted lakes were kept a secret from the public!"

Response: Public notification is always a challenge because there is no easy method to reach all interested stakeholders and no means of clarifying if someone has not received information. The 2008 Mountain Lakes Fishery Management Plan/FEIS was heavily covered in the media both locally and regionally, and the NPS took numerous actions to involve the public throughout the planning process, including Federal Register notices, press releases, mailings, website information, and public meetings (see pages 459-469 in Volume I of the Mountain Lakes Fishery Management Plan/FEIS for a summary of the public involvement process for this plan). To ensure this proposed change from antimycin to rotenone received public review, the NPS reached out again to a broad list of constituents via a press release and mailing (181 individuals/organizations) and augmented materials sent by mail with information online. Several local and regional news media also covered this proposed action, giving it a wider audience. Additionally, all specific lake treatment projects that utilize piscicide require the completion of a public communications plan that will, at minimum, ensure park visitors in the vicinity of the lake slated for treatment are notified of the project. Given these circumstances, the NPS believes sufficient notification has taken and will take place; however, we will continue to pursue additional ways of expanding outreach efforts.

CONCERN STATEMENT #20: The NEPA (National Environmental Policy Act) process for this proposal is unclear

"It is unclear to us whether this is the scoping phase of environmental review, or whether the NPS is merely asking for public comments on this document."

Response: We understand how this proposal could cause confusion because it does not follow a more common NEPA pathway, such as preparation of an environmental assessment- (EA) or environmental

impact statement- (EIS) level of NEPA documentation. Instead, the NPS has chosen to conduct public scoping on a proposal that could be categorically excluded from further NEPA analysis, as tied to the Mountain Lakes Fishery Management Plan/FEIS. In this instance, the categorical exclusion that would apply is: "Changes or amendments to an approved plan, when such changes have no potential for environmental impact"

Prior to public scoping, this proposal underwent internal review and analysis, as documented in a whitepaper on the project website (www.parkplanning.nps.gov/restore_sourdough), which is entitled *An Assessment of the Environmental and Human Health Risks of Using Rotenone to Implement the Mountain Lakes Fisheries Management Plan in North Cascades National Park Service Complex*. This internal analysis indicated there would be very minor differences between rotenone and antimycin, and those differences would result in substantially similar levels of effect. In spite of these findings, and as provided in NPS policies for NEPA implementation (Director's Oder #12), the NPS has conducted public scoping on this proposed change in order to determine whether there are any extraordinary circumstances which would warrant preparation of an EA or an EIS.

The issues and concerns identified during public scoping, as described in this document, have largely been addressed in the 2008 Mountain Lakes Fishery Management Plan/FEIS, and the additional comments outside the scope of that analysis have not indicated the need for preparing an EA or an EIS-level of NEPA documentation.

CONCERN STATEMENT #21: The NPS should complete additional environmental analyses

"We request that the NPS conduct additional environmental analyses to answer [concerns raised above]"

"[We] strongly [urge] the NPS not to proceed with this project until the additional analyses are conducted."

Response: Considerable analysis has been conducted in the 2008 Mountain Lakes Fishery Management Plan/FEIS and more recently in the documentation and analyses prepared to assess the effects of the proposed piscicide change. These analyses indicate the potential impacts of this change would be substantially similar to those previously identified and disclosed in the 2008 Plan/FEIS. The NPS has determined that additional environmental analyses to answer [concerns raised above]" are not warranted.