Draft Environmental Assessment

Environmental Assessment for Montana Fish, Wildlife & Parks Region 3 and 4, Missouri River Basin Northern Pike Suppression Project

7 April 2011

Montana Fish, Wildlife & Parks

Cover Sheet

Environmental Assessment for Fish, Wildlife & Parks Region 3 and 4, Missouri River Basin Northern Pike Suppression Project

Proposed Action: Montana Fish, Wildlife & Parks (FWP) proposes to conduct suppression actions on northern pike to reduce threats to Missouri River wild trout populations and reservoir fisheries. The proposed action would involve finding and removing northern pike from the headwaters of the Madison, Gallatin, and Jefferson River basins downstream to Holter Dam on the Missouri River. Funding for this effort would be through existing budgets. All northern pike removed during this project would be killed; northern pike that are salvageable and of suitable size for consumption would be field dressed, and donated to food banks or other facilities.

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Comment Period: There will be a 30-day comment period through 6 May 2011. Please direct questions or comments to: Travis Horton (R3) and George Liknes (R4); contact information immediately above.

1.0 Purpose of and Need for Action

A. Proposed Action

Montana Fish, Wildlife & Parks (FWP) proposes to suppress northern pike from the headwaters of the Madison, Gallatin, and Jefferson river basins, downstream to Holter Dam on the Missouri River. Northern pike have been detected by FWP in Toston, Canyon Ferry, and Hauser Reservoirs, in inter-reservoir reaches, and upstream of Toston Reservoir into the Gallatin and Jefferson Rivers. Northern pike pose a significant threat to the wild trout fisheries and reservoir fisheries in the Upper Missouri River basin.

Field crews would utilize a variety of techniques to find and remove northern pike from the project area. Suppression efforts will be focused in the lower Madison, Gallatin, and Jefferson rivers, Toston Reservoir, Missouri River downstream from Toston, and Canyon Ferry Reservoir. However if northern pike are detected in other area waters, efforts would be extended to the new waters within the Missouri River Basin. Techniques utilized could include gill nets, trap nets, seines, trammel nets, electrofishing, angling, spearing, and others.

1. Funding

The project is anticipated to cost $20,000 in operating costs over the next five years. Existing operating budgets and personnel services would be used to accomplish this project.

2. Estimated Timeline

The project is anticipated to begin in late spring 2011 and continue until the threat has been reduced to an acceptable level or further efforts are deemed infeasible. Given the habitat preferences of northern pike, FWP anticipates them to be highly vulnerable to the techniques employed in the proposed project. Complete eradication of northern pike is unlikely, but the threat to wild and reservoir fisheries can be minimized. Suppression efforts in combination with regulation changes should result in effectively reducing the threat northern pike pose to wild and reservoir fisheries. In October 2010, the FWP Commission approved fishing regulation changes which allow unlimited harvest of northern pike in the Upper Missouri River basin. The intent of this regulation change was to help reduce threats that northern pike pose on wild trout and reservoir fisheries, and was implemented following input during the public process associated with the Upper Missouri River Reservoir Fisheries Management Plan 2010-2019.

B. Location

The project area includes the Madison, Gallatin, and Jefferson river basins and extends downstream to Holter Dam on the Missouri River. Initially, active suppression efforts would be focused in the lower reaches of the Madison, Jefferson, and Gallatin rivers downstream to the headwaters of Canyon Ferry Reservoir (including Toston Reservoir). If northern pike are found in other project area waters, suppression efforts would be directed to those areas. Northern pike would be removed when encountered during routine sampling efforts in other project waters (e.g., Canyon Ferry, Hauser, and Holter reservoirs and Lake Helena). If population expansion or increased densities are observed, targeted suppression efforts may be initiated in the reservoirs and Lake Helena.

C. Authority

Section 87-1-201 (1) of the Montana Code Annotated (MCA) requires FWP to supervise all wildlife and fish in the state of Montana. The Department may spend money for the protection, preservation, management, and propagation of fish. Section 87-1-201(3), MCA.

D. Scope, History of this Environmental Analysis and Need for the Action

Northern pike are native only to the Saskatchewan River Basin in Montana but have been widely distributed throughout the state by intentional and un-authorized introductions (Brown 1971). Northern pike are top-level predators and have been shown to significantly alter entire fish communities even in large water bodies (McMahon and Bennett 1996). Furthermore, northern pike have been shown to consume waterfowl, but the population-level effects of such predation are poorly understood (Solman 1945; Paasivaara and Pöysä 2004). Food habits of northern pike have been documented throughout their native range, however few diet studies have occurred in the western United States or in areas with recreational trout fisheries (McMahon and Bennett 1996).

Hunt (1965) investigated the food habits of northern pike in a Wisconsin trout stream. Subsequent to a construction of an impoundment on the lower Mecan River in 1959, northern pike began to appear in increasing numbers in the portion of the river supporting trout fishing. As a result, northern pike food habits were quantified to better understand the impact of northern pike predation on fishes in the portion of the river supporting trout fishing. The 91 northern pike that were sampled for food habits varied in length from 10- to 26-inches long, but 70% were shorter than 15-inches long. All but 24 of the 91 northern pike had empty stomachs. Trout species (brown trout and rainbow trout) represented 54% of the food items observed in the study, and rainbow trout were disproportionately selected for (relative to their abundance in the river) compared to brown trout. Other food items observed in pike stomachs included mottled sculpin, white suckers, blacknose dace, crayfish and a muskrat. The study results also documented that pike longer than 15 inches consume the majority of trout observed in pike stomachs. Although the results of this study demonstrate that northern pike do eat trout species, the population-level impact (bioenergetics) was not explored.

To better understand the population- and community-level impacts that northern pike can have on fisheries in the Intermountain west, Muhlfeld et al. (2008) used bioenergetics modeling to estimate consumption of fishes, Westslope cutthroat and bull trout in particular, in the Flathead River Basin. Muhlfeld et al. (2008) estimated that the population of northern pike in the study area varied from 1,200 to 1,300 individuals during the study period. Anglers were used to capture northern pike in all seasons to quantify food habits. Over the course of the study, 284 northern pike stomachs were sampled to quantify food items. Fish food items included Westslope cutthroat trout, bull trout, whitefishes (Prosopium and Coregonus), yellow perch, sunfish, sculpin, minnows, and suckers. Bioenergetics modeling estimated that total annual consumption of fish species by 1,200 to 1,300 northern pike equaled 8 metric tons (17,637 lbs, or 14 pounds of fish flesh per northern pike in the population per year). Numerically the northern pike population consumed an estimated 342,000 fishes. Cyprinids (minnows) species were

consumed at the highest rate (4.95 mt) followed by whitefish (1.02 mt), bull trout (0.8 mt), yellow perch (0.41 mt), Westslope cutthroat trout (0.34 mt), and other fishes (sunfish and sculpin; 0.14 mt). These results demonstrate the effect that northern pike can have on fish communities and populations in the intermountain west directly through predation. Although not directly addressed by the authors, consumption of fish species (specifically prey species) may result in direct competition with other fish predators (bull trout in the case of Muhlfeld et al. 2008, and walleye, brown trout, and burbot in the Upper Missouri River Basin).

Northern pike have been caught by anglers in Canyon Ferry Reservoir since the 1970s; however very few were detected during FWP monitoring until the late 2000s. Initially, only large northern pike were observed in Canyon Ferry Reservoir. Starting in 2008, FWP crews began detecting young-of-the-year northern pike in the reservoir near Duck Creek indicating an increase in recruitment and success of northern pike spawning, potentially in Canyon Ferry Reservoir and in areas upstream of Canyon Ferry Reservoir.

The initial source of northern pike in the project area is unknown. FWP has been aware of low-level populations of northern pike in the lower Gallatin River since the mid-1990s and Canyon Ferry Reservoir since the 1970s. Also, a northern pike population was confirmed in the early 2000s in a private fish pond near the Gallatin River east of Manhattan. The private pond was chemically treated with rotenone in 2007 to remove pike. Within the last 5 years, northern pike have increased in density and distribution, frequently being found by FWP crews and anglers in Toston Reservoir and in the riverine reach between Toston Dam and the headwaters of Canyon Ferry Reservoir. In addition, northern pike have been detected in the lower reaches of the Gallatin, East Gallatin, and Jefferson rivers and in Hauser Reservoir downstream from Canyon Ferry Dam.

The project area waters support upwards of 25% of all annual fishing effort in the State of Montana (McFarland 2010) including many important wild trout and reservoir fisheries. Many of the fisheries within the project area are at risk due to the presence of northern pike, an effective fish predator). Others may be at future risk due to subsequent expansion of pike presence and increases in pike numbers (naturally or unauthorized introductions).

E. Objectives of the Action

The objective of the proposed action is to reduce threats to recreationally important wild trout and reservoir fisheries. Due to the habitat preferences of northern pike (shallow shoreline areas), FWP anticipates that with control efforts the northern pike threat can be minimized to acceptable levels for all waters in the project area.

F. Relevant Plans, EAs, and Other Documents

- Upper Missouri River Reservoir Fisheries Management Plan 2010-2019
- 2011 Montana Fishing Regulations

G. Decisions to be Made

Pat Flowers, FWP Region 3 Supervisor, and Gary Bertellotti, FWP Region 4 Supervisor, will determine the following from this EA after considering all comments submitted by the public:

- Determine if alternatives meet the project objectives.
- Determine which alternative should be selected.
- Determine if the selected alternative would cause significant effects to the human environment, requiring the preparation of an Environmental Impact Statement (EIS).

H. Issues Studied in Detail

1. Fish Species (Issue 1)

Suppressing northern pike in the project area would minimize threats to wild trout and native fish communities as well as stocked (hatchery-raised) fish and reservoir (native and non-native) fish communities. If northern pike become established or expand within the project area, the potential would exist for major fish community changes directly impacting angler opportunity, ecological function, and regional economics.

2. Public Controversy (Issue 2)

The expanding presence of northern pike in the project area has generated substantial concern among fisheries professionals and the public. The proposed actions may cause controversy due to multiple interests and views by the public. Due to the importance of the fishery resources (25% of the state's annual fishing effort) in the project area and the diverse public, some groups may argue against removing northern pike. Others will argue for removal/control of the species to maintain the recreational fisheries present in the project area.

3. Wildlife Impacts (Issue 3)

Food habit studies of northern pike have documented consumption of various wildlife species (mostly amphibians, small mammals and waterfowl; Paasivaara and Pöysä 2004); however, population level impacts of northern pike on wildlife species are poorly understood (Solman 1945). The impact of northern pike on wildlife may be particularly pronounced if northern pike become established in shallow waters with abundant aquatic macrophytes where large-bodied predatory fish species have not previously existed. Establishment of northern pike in the project area would likely add additional threats to sensitive wildlife populations.

I. Issues Eliminated from Further Study

1. Community and Economic Impact

Initially, a northern pike population with trophy size fish produced as a result of fast growth and abundant forage would likely be attractive to anglers. However, in many similar situations after a northern pike population becomes established it would likely reduce or eliminate its prey base, especially in areas with low productivity or with few fish species. The resulting fishery is likely to become stunted, represented by many small northern pike (Vashro 1990). This could significantly change angler use of the project area and indirectly cause economic changes in the community. Most importantly, the greatest potential negative impact of an established northern pike population would be significant negative changes to species composition, density, size structure, and recruitment in wild trout and reservoir fisheries.

J. Applicable Permits, Licenses, and Other Consultation Requirements

1. Permits

No permits would be required of FWP to remove northern pike from project waters utilizing methods in the proposed action.

2. Consultation Requirements

No consultation is required.

2.0 Alternatives Including the Proposed Action

A. Introduction

The purpose of Chapter 2 is to describe and compare the alternatives by summarizing the environmental consequences. This chapter describes the activities of the No Action alternative and all action alternatives. More detailed information can be found in Chapters 3 and 4. This chapter presents the predicted attainment of project objectives and the predicted effects of all alternatives on the quality of the human environment in comparative form, providing a basis for choice among the options for the Decision Maker and the public.

FWP has developed two possible alternatives. The alternatives are 1) the No Action alternative (which includes 2011 fishing regulations), and 2) a multifaceted removal approach targeting northern pike (angling and active removals by FWP).

B. Description of Alternatives

1. Alternative A: No Action Alternative

a. Principal Actions of Alternative A

Under Alternative A, the No Action alternative, no northern pike would be removed from the project area other than those taken by anglers. The intent of the 2011 regulation change (i.e., no harvest limit for northern pike) was to maximize angler harvest of northern pike. Anglers will have some impact through harvest, but due to the large area that pike inhabit angler harvest is likely to have very isolated success in reducing the northern pike population. To successfully reduce the threat to wild and reservoir fisheries, a geographically broad and highly effective effort needs to be utilized. The number of northern pike in the project area would likely not be significantly reduced and the population would likely continue to increase in density and distribution. Under this alternative, FWP will continue annual monitoring of the fish communities in the project area. This monitoring provides relative abundance information that can be used to detect trends in fish populations through time. However, trends detected by this method are often retrospective and may provide insufficient data to forestall major and perhaps irreversible changes in the fish community. This alternative would result in limited abilities to protect important wild trout fisheries, reservoir fisheries and wildlife populations.

b. Past and Present Relevant Actions

FWP has extensive long-term data sets throughout the project area for fish population monitoring, physical habitat features, and invertebrate monitoring.

c. Reasonably Foreseeable Relevant Actions Not Part of the Proposed Action

Northern pike populations would likely continue to grow and expand within the project area thereby impacting important wild trout and reservoir fisheries. Wildlife species may also be impacted from large and well-distributed northern pike populations, especially in some habitats (e.g., Lake Helena). Due to these changes and impacts, it is anticipated public demand for active management of the northern pike population would eventually increase.

2. Alternative B: Removal of Northern Pike – Proposed Action

An active northern pike removal project would help to alleviate concerns for northern pike impacts to wild trout fisheries, reservoir fisheries, and wildlife populations. In addition, through time information would be gathered on the efficacy of such actions. Measurable goals and specific success criteria would be used to evaluate the efficacy of these actions and would be assessed on an annual basis. Through this evaluation process, methods may be adjusted to improve efficiency, and plans for future management may be developed. Baseline population information for northern pike populations in the project area have been recorded to date and would continue to be collected as the project progresses. These data would help biologists determine the efficacy of control actions and their cost effectiveness. In addition to the active removal of northern pike, current harvest regulations would still allow for unlimited harvest of northern pike by anglers.

a. Principal Actions of Alternative B

The principal proposed action is to remove northern pike from project area waters. In some cases (e.g., from the Canyon Ferry Headwaters upstream throughout the basin; reservoir and river habitats), removal efforts would be active and directed to known areas of northern pike occurrence. In other areas, removal efforts may be incidental to regular sampling activities. For example, northern pike sampled in Canyon Ferry, Hauser, or Holter reservoirs during routine sampling would be killed and not released back into the system. Removal efforts may be intensified if pike numbers in the reservoir system increase substantially. In some instances, northern pike may be released alive (after being tagged or implanted with a radio transmitter) to identify critical habitats or life history stages for targeted removal efforts. Biological data would be collected from killed northern pike (length, weight, food habits, etc.), and if deemed salvageable (condition and size; size relating to contaminant issues) culled northern pike would be field dressed and distributed to the public for consumption (i.e., food banks), or for other purposes (e.g., raptor rehabilitation centers). Based on previous netting efforts, FWP anticipates an initial removal of 300 to 500 northern pike from the project area in the first few years under Alternative B with the potential for diminishing numbers in future years as the project proceeds. The efficacy, selectivity (by catch), and cost effectiveness of active northern pike removal would be analyzed after three to five years. If deemed ineffective or infeasible, FWP would reassess project goals and methods. However if the project is successful, FWP would continue pike removal actions as needed. Continued pike removal actions may become periodic and less intensive once the population has been reduced from its current state.

b. Mitigation and Monitoring

Bycatch mortality of other non-target fishes would be mitigated by using short duration deployments of gear, and by avoiding areas and times where large concentrations of non-target fishes are present (e.g., trout spawning areas). Standard fish community monitoring efforts would continue to help determine the efficacy of northern pike removal efforts.

c. Evaluation Criteria

Success in this project would be to reduce northern pike in the project area and prevent further dispersal or establishment of northern pike in other areas. Eradication of northern pike may be difficult or impossible. Any reduction in population and size structure of northern pike

populations would help to prevent impacts to wild trout fisheries, reservoir fisheries, and wildlife populations.

Preliminary netting results in Toston Reservoir indicated that with relatively minimal efforts a large proportion of the northern pike population could be sampled. For example, during the spring of 2009 over 120 northern pike were sampled and tagged. During the netting process (approximately 13 days of effort), upwards of one-third of these fish were sampled more than once.

d. Past and Present Relevant Actions

FWP has developed a database of historic fish population and community composition information within the project area. This information would be valuable in interpreting changes in the project area fish communities through time.

C. Process Used to Develop the Alternatives

1. History and Development Process of Alternatives

A limited number of possibilities exist to remove undesirable fish species from aquatic environments. These techniques include but are not limited to mechanical removal (i.e., netting, manipulating water levels, installation of barriers, etc.), chemical treatment, angling harvest, and biological control (examples include the use of predatory fish). These techniques all have benefits and drawbacks and must be selected on a case-by-case basis for specific water bodies. The proposed action will focus on mechanical removal and angler harvest. Use of other techniques would require subsequent environmental assessments and are currently deemed infeasible or unpractical.

2. Alternatives Eliminated from Detailed Study

Fish removal projects utilizing fish toxicants have been conducted extensively in the western United States. These approaches have proven successful in many cases. FWP has eliminated fish toxicants as an alternative. To effectively use fish toxicants, all waters with northern pike would need to be treated to prevent reestablishment of northern pike. This approach would be cost prohibitive due to the size of waters where northern pike are currently present. In addition, fish toxicants would indiscriminately remove other desirable fish species and public opposition would be high to such an approach.

D. Summary of Comparison of the Activities, the Predicted Achievement of the Project Objectives, and the Predicted Environmental Effects of All Alternatives

1. Summary Comparison of Project Activities

Comparisons of the project activities under the two alternatives are to conduct northern pike removals from the project area using mechanical means (Alternative B), or do not remove northern pike except through angling (Alternative A).

2. Summary Comparison of Predicted Achievement of Project Objectives

The primary objective of this project is to remove northern pike from the project area and prevent the expansion and establishment of northern pike populations throughout the project area. The No Action alternative may minimally satisfy this objective. The No Action Alternative would also limit determination of the feasibility and efficacy of northern pike control options, and would likely not result in a reduction of northern pike in the project area. Under Alternative A, northern pike could continue to expand (population size and distribution). Under Alternative B, removing a substantial proportion of northern pike from the project area would minimize the impacts of northern pike to the existing aquatic and wildlife communities. Alternative B increases the probability of stopping or limiting expansion of the population and may lead to its decline thereby allowing more time to identify and evaluate additional action options to manage northern pike populations.

3. Summary Comparison of Predicted Environmental Effects

FWP predicts that Alternative A would not have any direct or immediate environmental effects. However, Alternative A may have significant long-term environmental consequences (e.g., reduction in important wild trout and reservoir fish communities, potential loss of forage for fish-eating birds and other wildlife, and loss of wildlife through northern pike predation).

FWP predicts that Alternative B would have direct and immediate environmental effects in the project area's aquatic and terrestrial ecosystem. Alternative B would remove many northern pike from the project area, thereby minimizing the impact (in the short-term) of those northern pike on the aquatic and terrestrial communities. In addition, Alternative B would provide information that is invaluable for determining the feasibility and efficacy of long-term northern pike population control options. Alternative B could also have direct impacts on non-target fish communities within the project area through bycatch mortality. However, this mortality would be prevented or mitigated by using short duration gear deployments, rapidly resuscitating and releasing live fish, netting during periods when non-target fish species are not congregated in the project areas, and avoiding areas with known high bycatch of non-target species. Bycatch mortality from this project of non-target fish species would be minor in comparison to the direct negative effect an expanding northern pike population in the project area would invoke.

3.0 Affected Environment

A. Introduction

Chapter 3, Affected Environment, identifies and describes those resources that are affected by the proposed action and is organized by general resource categories and their associated issues. It does not describe any effects of the alternatives as these will be covered in Chapter 4. The descriptions of the existing environment found in this chapter can be used as a baseline for comparison in Chapter 4.

1. General Description and Location of the Project Area.

The Missouri River basin originates in Southwestern Montana. The Madison, Gallatin, and Jefferson river basins convey waters from the east front of the Continental Divide. These three river basins join near Three Forks, Montana, to form the Missouri River. Downstream from the confluence is Toston Reservoir (a medium sized run-of-the-river reservoir) which is the first in a series of four mainstem Missouri River reservoirs. Proceeding downstream from Toston Dam, the Missouri River is impounded by Canyon Ferry Dam which creates a 33,500-acre multiple use water storage reservoir. Water leaving Canyon Ferry Reservoir is quickly impounded by Hauser Dam which creates a 3,800-acre run-of-the-river reservoir and a 2,100-acre off-stream reservoir (Lake Helena). Immediately downstream from Hauser Dam, Holter Dam creates a 4,800-acre run-of-the-river mainstem reservoir. Operating guidelines for Holter and Hauser reservoirs provide for minimal annual water-level fluctuations, and the owner manages these lower reservoirs primarily for power production.

B. Description of Relevant Affected Resources

1. Issue #1 Fish Species

A variety of native and non-native fish species are within the project area. Rainbow trout, brook trout, brown trout and mountain whitefish are typically found throughout the basin. Sculpin, walleye, yellow perch, stonecats, burbot, common carp, longnose dace, fathead minnow, fathead chub, Utah chub, longnose sucker, mountain sucker, and white sucker are found in varying degrees and locations in the basin. The following link provides a mapping service to see fish distributions (http://fwp.mt.gov/fishing/mFish/default.html). Westslope cutthroat trout are limited to the headwaters of the Missouri River basin tributaries and are for the most part disconnected from the mainstem river by man-made and natural barriers. Arctic grayling remain in the Big Hole, Madison, Ruby (reintroduced grayling population), and Red Rock systems.

2. Issue #2 Threatened and Endangered Species

No threatened or endangered fish species occur within the project area; however, Arctic grayling and Westslope cutthroat trout have been petitioned for listing under the Endangered Species Act. FWP does not expect either alternative would have significant impacts on any other threatened or endangered species that may be present in the project area.

3. Issue # 3 Sensitive Species

Westslope cutthroat trout, burbot, and Arctic grayling are sensitive species that are present within the basin. Westslope cutthroat trout are typically isolated from the mainstem Missouri River by natural and man-made barriers. Arctic grayling exist in several lakes in the project areas, and in the Big Hole, Ruby, Madison and Red Rock river basins. Northern pike are not currently established within areas containing Arctic grayling, but if they were to become established it could lead to significant impacts to the grayling populations. Finally, many of the areas containing northern pike also have burbot populations. The potential impact of northern pike on burbot populations is unknown.

4. Issue # 4 Public Controversy

Overall, the potential exists for public controversy regarding decisions considered within this EA and future management actions targeted at northern pike in the project area. A growing segment of the public want the impacts of non-native unauthorized fish introductions on native fish and sport fish communities mitigated to prevent declines and extirpation of species they consider more valuable. Conversely, some anglers resist non-native removal programs because they enjoy angling for the targeted species. Northern pike fisheries can be popular, but many other northern pike fisheries exist within the State of Montana. Public input received during development of the Upper Missouri River Reservoir Management Plan 2010-2019 widely supported suppression or removal of northern pike from the reservoir system. Similar sentiment was expressed during the 2011 fishing regulation setting process when FWP proposed lifting the harvest limit for northern pike in the upper Missouri River. Thirteen comments were received in favor of removing the harvest limit while none were received against the change.

4.0 Environmental Consequences

A. Introduction

Chapter 4 describes the environmental effects of each alternative on the resources described in Chapter 3 and contains the scientific and analytic basis for the alternatives comparison summarized in Chapter 2. It is organized in the same manner as Chapter 3 by general resource categories and their associated issues.

B. Predicted Attainment of the Project Objective for all Alternatives

1. Predicted Attainment of the Project Objective

a. Alternative A: No Action Alternative

The No Action alternative would not adequately satisfy the objective of significantly reducing or eliminating northern pike in the project area. Anglers may be able to reduce northern pike numbers in some cases, but likely not at a significant level due to the number of anglers, angling effectiveness on all size groups of northern pike, and general efficiency (as catch rates drop, anglers often stop fishing). Northern pike populations would continue to establish and spread throughout the basin potentially causing impacts to important wild trout fisheries, reservoir fisheries, and wildlife populations.

b. Alternative B: Removal of Northern Pike

Alternative B has a higher likelihood than Alternative A of reducing northern pike in the project area and minimizing the impact of northern pike on important wild trout fisheries, reservoir fisheries, and wildlife populations. Further, Alternative B would help to prevent the establishment of northern pike throughout the project area. Northern pike removal in the project area would provide the best information possible on the feasibility and efficacy of management options for the newly formed populations. This information would be invaluable in identifying additional and future management alternatives.

C. Predicted Effects on Relevant Affected Resources of All Alternatives

1. Predicted Effects on Fish Species (Issue #1)

a. Effects of Alternative A: No Action Alternative on Issue #1, Fish Species

- Direct Effects - The No Action alternative would not have any direct or immediate effects on fish and wildlife given that no additional actions would take place. Northern pike harvest by angler would continue under the new unlimited harvest regulations, but likely would not result in large changes to the northern pike populations.
- Indirect Effects - The No Action alternative would have indirect effects on the fish and wildlife communities within the project area. The No Action alternative would result in minimal removal of northern pike from the project area. Without removal of northern pike in the project area, the distribution and density of northern pike would likely expand making

future options for managing the northern pike population expansion or restoring lost species complexes more difficult, expensive, and decrease the potential for success. Not taking advantage of the early stage of northern pike establishment in the project area may ultimately have significant negative consequences for wild trout fisheries, reservoir fisheries (hatchery trout, white suckers, etc.), and wildlife populations within the project area.

- Cumulative Effects - The indirect effects of Alternative A on the fish community in the project area may cause cumulative and indirect effects on the fishing opportunities and the wildlife community. The additional impact of northern pike predation on wildlife species may have cumulative effects that affect population levels and the quality of fisheries resources in the project area. The further establishment of northern pike would likely lead to fish community changes in the project area that have already been exacerbated by other authorized and unauthorized fish introductions.

b. Effects of Alternative B: Removal of Northern Pike Issue #1, Fish Species

- Direct Effects – Removing northern pike from the project areas would directly reduce the northern pike populations. Incidental bycatch mortality could also directly affect other fish species (rainbow trout, brown trout, white suckers, etc.) that reside in the project area. Bycatch mortality is expected to be a minimal impact within the project area (broad scale and specific areas with northern pike removals), in particular when compared to the impact of predation from northern pike. Further, bycatch mortality can be mitigated by gear choice and by avoiding areas and times where bycatch is high and would not affect the fisheries at the population level.
- Indirect Effects - Reducing the northern pike in the project area would have indirect effects on the remaining aquatic and terrestrial communities in the project area. Reduced numbers of northern pike would help to prevent negative impacts to wild trout fisheries, reservoir fisheries, and wildlife populations within the project area.
- Cumulative Effects – The bycatch of non-target fish species within the project area may have impacts to local populations of some species. However, significant impacts at the population level to non-target fish populations are not expected and would be lower than the potential impact of an established and widely distributed northern pike population.

3. Predicted Effects on Sensitive Species (Issue #3)

a. Effects of Alternative A: No Action Alternative on Issue #3, Sensitive Species,

- Direct Effects – none.
- Indirect Effects – minimal. Westslope cutthroat trout, Arctic grayling, and burbot exist within the project area; however, burbot is the only species currently coexisting with northern pike. The impact of northern pike on burbot populations is unknown but anticipated to be minimal.
- Cumulative Effects –The No Action Alternative may allow for the further expansion and dispersal of northern pike within the project area. If northern pike were to expand into areas with Arctic grayling, cumulative impacts may be significant. An expansion of northern pike could result in competition with burbot populations for limited resources in some of the project area; some burbot populations appear to be decreasing in the project area.

b. Effects of Alternative B: Removal of Northern Pike.

- Direct Effects – Removal of northern pike within the project area may have direct effects on non-target fish species through bycatch mortality; however, it is likely that bycatch mortality would be low in general and particularly on sensitive species.
- Indirect Effects – The removal of northern pike would cause a direct reduction in the northern pike populations thereby reducing the potential for predation or competition from northern pike on sensitive species, burbot in particular burbot.
- Cumulative Effects – No cumulative effects are anticipated.

4. Predicted Effects on Public Controversy (Issue #4)

a. Effects of Alternative A: No Action Alternative on Issue #4, Public Controversy

- Direct Effects - The No Action alternative may have direct effects on public controversy by not satisfying the objective of the project and not protecting interests of anglers in existing fisheries resources in the project area.
- Indirect Effects - Indirectly, the No Action alternative may lead to public controversy if northern pike numbers are not reduced and their distribution continues to expand. If northern pike populations expand and become more abundant, impacts to salmonid populations are likely to occur. Reductions in salmonid populations would indirectly affect established and traditional angling opportunities. Reduced salmonid fishing may have local or regional economic impacts (e.g., outfitting, fishing tackle retailers, etc.).
- Cumulative Effects - The No Action alternative would likely affect characteristics of the fishery in the upper Missouri River Basin since significant fish community changes would likely occur. Continued expansion of northern pike in the Upper Missouri River basin may eventually lead to the establishment of northern pike in Ennis Lake, Harrison Lake, and other area rivers, lakes or reservoirs.

b. Effects of Alternative B: Removal of Northern Pike on Issue #4, Public Controversy

- Direct Effects - A large removal effort of northern pike in Upper Missouri River Basin may directly cause public controversy from anglers that like to fish for northern pike in the project area. To date, public support has been communicated (via the Upper Missouri River Reservoir Management Planning Process and northern pike harvest regulation change process) for removal of northern pike. Misinformation on this project would be minimized through educational opportunities and public meetings.
- Indirect Effects - Some anglers may be temporarily disrupted, precluded from fishing in certain locations, or disturbed by sampling activities. However, because of the timing of this project (primary efforts in spring) and the short duration, such effects would be minimal.
- Cumulative Effects – No cumulative effects are anticipated.

D. Relationship of Short-term Uses and Long-Term Productivity (on all resources)

1. Alternative A: No Action Alternative

Under the No Action alternative, the short-term ability to effectively identify and evaluate control options for northern pike in the Upper Missouri River Basin would be considerably reduced if not completely lost. In a long-term perspective, because the No Action alternative would not result in a reduction of northern pike numbers, the ability to control northern pike populations at an early stage of establishment would be lost. If the larger cohorts of young northern pike reach sexual maturity before any control measures are implemented, the population may exhibit an exponential growth phase after which the feasibility of effective control measures are severely reduced. This course of events would likely result in reductions of area fisheries and wildlife populations, and dramatically increase the difficulty of reestablishing or recovering them.

2. Alternative B: Removal of Northern Pike

Under the removal alternative, the objectives of the project would be satisfied. First and foremost, adequate information would be obtained to evaluate control options for northern pike in the upper Missouri Basin. Secondly, this removal effort would have an immediate impact on the size of the northern pike population. This may have significant long-term benefits by preventing northern pike from reaching a point of exponential population growth where the feasibility of population control is greatly diminished.

E. Any Other Disclosures

Although other unauthorized, non-native species currently exist in the Upper Missouri Basin (e.g., walleye), FWP has no intention to pursue removal of these species as their removal is not feasible or they have coexisted for long periods of time with little observed effects. FWP is pursuing suppression of northern pike in the Missouri River system due to the early stage of establishment of the populations and because the main source (Toston Reservoir) is the primary focus of the active suppression. FWP anticipates that reduction or removal of northern pike from Toston Reservoir is feasible due to the available reservoir habitats (e.g., shallow waters) and the habitat preferences of northern pike (e.g., primarily shoreline oriented).

5.0 Identification, Rationale, and Recommendation for Preferred Project Alternative

A. Introduction

In this chapter, the preferred project alternative is identified and recommended with the supporting rationale.

B. Identification and rationale for preferred alternative

1. Preferred Alternative

The preferred alternative is Alternative B, the removal of northern pike, which was identified as the proposed action.

2. Support Rationale

a. Environmental Protection Rationale

Although the preferred alternative would cause minor direct impacts to other fish species populations through bycatch mortality and may result in public controversy, it would provide for identification and evaluation of long-term management approaches for northern pike in the Upper Missouri River Basin. Controlling northern pike would reduce the chances that northern pike would spread in the system including future unauthorized introductions. If northern pike are not effectively controlled, the impacts to native species and important sport fisheries would be far more severe than the potential bycatch mortality resulting from this project.

b. Project Objectives Rationale

The preferred alternative would satisfy the objectives identified and provide a conservative approach to maintain existing fisheries resources in the project area.

C. Monitoring commitments

FWP would continue monitoring fish populations in Upper Missouri River Basin using standard procedures and equipment regardless of the alternative chosen.

D. Why an EA is Appropriate Level of Review

Based on an evaluation of impacts to the physical and human environment under MEPA, this environmental review revealed one potential impact (public controversy) that could not be mitigated from the proposed action. Removing fish species from a water body is not a new or unusual FWP action, it would not set a precedent, and it would not conflict with local, state, or federal laws or formal plans. Furthermore, the proposed action is designed so important resources to the state and society would be protected. Due to these factors, an EIS is not necessary and an environmental assessment is the appropriate level of analysis. A narrative EA was performed because this proposed action may generate public controversy, the proposed action has potentially noteworthy impacts that can be mitigated, and FWP wants to involve the public throughout the entire decision-making process.

6.0 Public Participation

The public will be notified in the following ways to comment on the EA for Upper Missouri River Basin Northern Pike Removal Project:

- Legal notices will be published in the Bozeman Chronicle, the Great Falls Tribune, the Montana Standard, and Helena Independent Record. News releases will be given to the same newspapers and other media outlets.
- The draft EA and any subsequent decision notice will be posted on the FWP web site: http://fwp.mt.gov/news/publicNotices.
- Draft EAs would be available at the FWP Region 3 Headquarters in Bozeman, FWP Region 4 Headquarters in Great Falls, and the FWP State Headquarters in Helena.

This level of public involvement is appropriate for a project of this scale.

The following is a list of agencies consulted in preparation of this EA:

- Montana Fish, Wildlife & Parks, Wildlife Bureau, Bozeman
- Montana Fish, Wildlife & Parks, Legal Unit, Helena

Duration of comment period, if any:

The public comment period will be 30 days. A public meeting or open house may be held at one or more locations to gather input within that time period if there is sufficient public interest (based on phone calls, e-mails and comments received). Comments may be emailed to thorton@mt.gov or written comments may be sent to the following address:

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7.0 List of Individuals Associated With the Project

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