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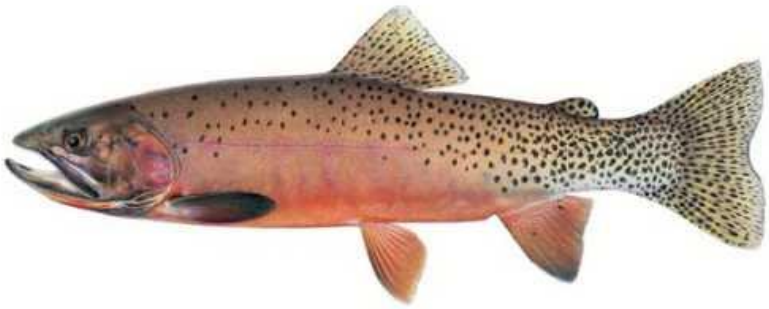
Environmental Assessment

Sekokini Springs Isolation Facility

Hungry Horse and Glacier View Ranger Districts,
Flathead National Forest

Flathead County, Montana



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Hungry Horse Ranger District
Flathead County, Montana

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Sekokini Springs Isolation Facility

ENVIRONMENTAL ASSESSMENT

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INTRODUCTION

The Sekokini Springs facility is located in northern Flathead County, Montana about 10 miles (16.1 km) northeast of Columbia Falls, Montana.

The existing Sekokini Springs facility, formerly a privately operated rainbow trout farm, is on land managed by the Flathead National Forest's (FNF) Hungry Horse Ranger District (HHRD). Montana Fish, Wildlife, and Parks (MFWP) currently operates the facility under a Special Use Permit (SUP) from the HHRD: the permit expires December 31, 2017. MFWP uses the facility to hold wild westslope cutthroat trout (WCT) in isolation until they are certified genetically pure and pathogen-free.

MFWP's Sekokin Springs Isolation Facility Project (project) includes both renovation of existing facilities and construction of new facilities as well as expansion of the site's boundaries to raise up to four genetically unique stocks for use in reestablishing WCT populations within their historic range. The U.S. Department of Energy Bonneville Power Administration (BPA) proposes to partially fund the proposed Sekokini Springs Isolation Facility Project (project).

The U.S.Department of Agriculture Forest Service (Forest Service), as lead agency, and BPA, as cooperating agency, have prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. The EA identifies the project's foreseeable environmental effects to help the agencies determine whether to prepare an Environmental Impact Statement (EIS).

CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

1.1 Need for Action

The Flathead National Forest, Hungry Horse Ranger District (HHRD), is considering the proposed modification of Special Use Permit (SUP) issued to the Montana Fish Wildlife and Parks (MFWP). The modification would allow changes and improvements to the Westslope Cutthroat Trout Isolation Facility at the "Sekokini Springs" site (Figure 1).

MFWP needs to take action to aid in the recovery of genetically unique populations of westslope cutthroat trout (WCT) (*Onchorynchus clarki lewisi*) in the South Fork of the Flathead River system by increasing their abundance and maintaining genetic diversity within their historic range. MFWP proposes to develop a facility that would allow the spawning, rearing, and isolation of up to four genetically unique stocks of WCT originating from parent stocks obtained from the drainages where the offspring would be released (referred to as within-drainage stock).

The Westslope Cutthroat Trout Conservation Agreement (MFWP 1999) and the South Fork Flathead Watershed Westslope Cutthroat Trout Conservation Plan EIS (BPA 2005) established the need for recovery of WCT in northwest Montana (see Section 1.3 of this EA). Fish geneticists have determined that each WCT stream population is genetically distinct, with little genetic mixing. The most conservative approach to WCT restoration is to increase each local population using donor fish from within the same drainage, thus maintaining the genetic diversity observed between stream populations. The proposed Sekokini Springs Facility would support this within-drainage approach by providing stream-specific strains of WCT for conservation programs in the Flathead Subbasin, as an alternative to the MO12[1] strain, which is currently the only WCT source available for planting throughout Montana.

MFWP is currently using the Sekokini Springs facility to hold wild WCT in isolation until they are certified genetically pure and pathogen-free. However, the existing facilities are old and in disrepair and do not provide the type or amount of infrastructure MFWP has determined is necessary for WCT recovery using within-drainage stock.

The alterations to the site as proposed by MFWP would require the Forest Service to modify the existing Special Use Permit, which expires on December 31, 2017. The Forest Service ***needs*** to ensure that lands on the FNF are managed consistent with the Flathead National Forest Land and Resource Management Plan and EIS of December 1985 (USDA Forest Service 1985) and its subsequent amendments, which provide overall guidance for land management activities on the FNF.

BPA, which ***needs*** to continue to meet its obligation to protect, mitigate, and enhance fish and wildlife affected by the development of Hungry Horse Dam, is proposing to partially fund the proposed Sekokini Springs Isolation Facility.

[1] M012 is the identifier of the aggregate strain of cutthroat trout currently raised at the Washoe Park State Trout Hatchery, located in Anaconda, MT.

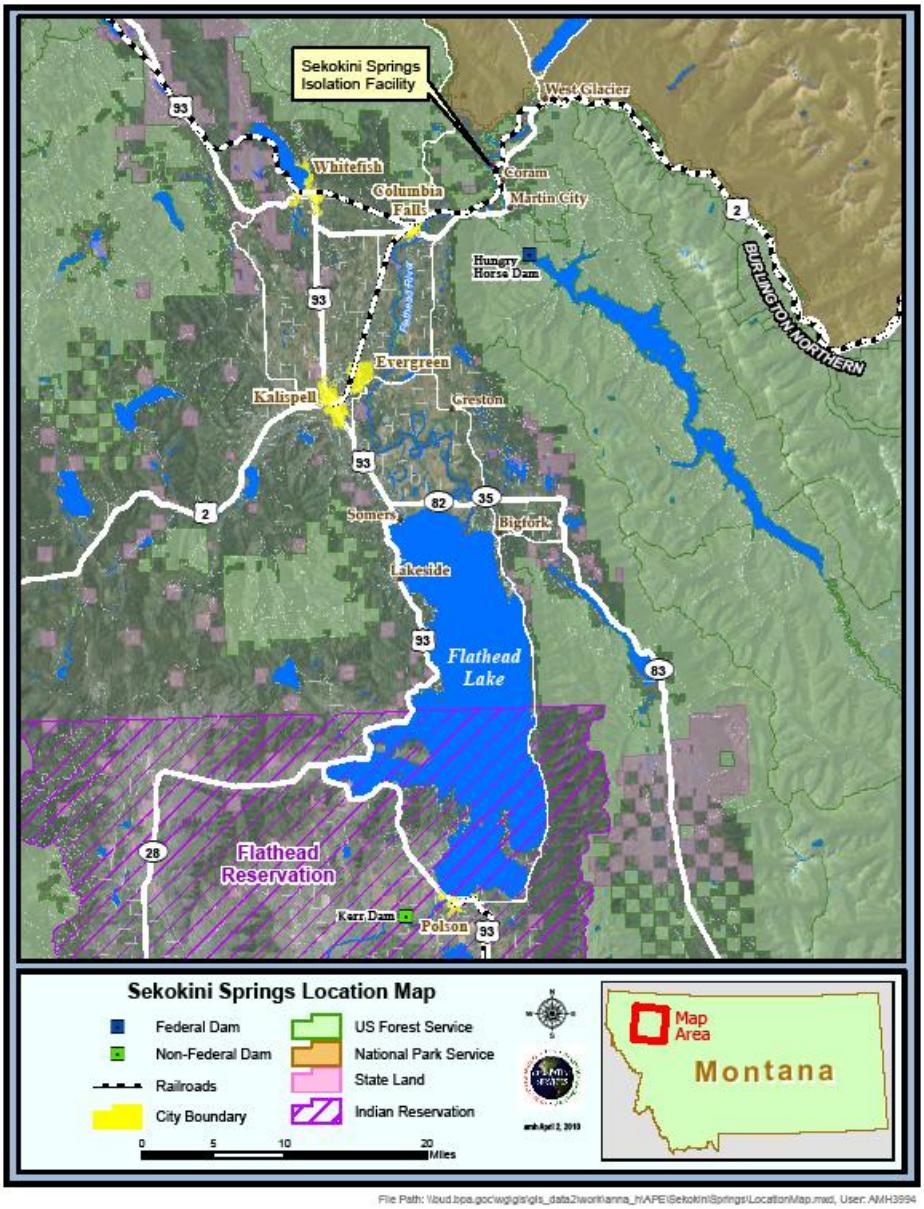

Figure 1. Location of the Sekokini Springs Isolation Facility

1.2 Purposes

Alternatives identified to meet the need should achieve the following purposes:

- Be consistent with the Forest Service policies and plans.
- Be consistent with the goals and objectives of the Pacific Northwest Power and Conservation Council's (Council) Columbia Basin Fish and Wildlife Program.
- Be consistent with the multi-agency Westslope Cutthroat Trout Conservation Agreement.
- Be consistent with State of Montana policies regarding wild fish.
- Be cost-effective.
- Minimize environmental impacts.

1.3 History of Westslope Cutthroat Trout Conservation in the South Fork Flathead River

The South Fork Flathead is a critical stronghold of genetically pure WCT, representing 50 percent of the statewide range for genetically pure, large, interconnected populations (BPA 2005).

In 1999, eight state and federal agencies developed and signed the Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana (MFWP 1999), which provides a framework for cutthroat conservation strategies in Montana. The overarching goal in the Conservation Agreement states:

> "The management goal for westslope cutthroat trout in Montana is to ensure the long-term, self-sustaining persistence of the subspecies within each of the five major river drainages they historically inhabited in Montana . . ."

In 1999, MFWP stepped up its commitment to WCT conservation in the South Fork Flathead basin. From 1999 to 2002, MFWP developed a plan to remove hybrid trout populations that threatened to expand and hybridize with pure populations from lakes and streams throughout the South Fork Flathead River drainage. This plan was evaluated in the South Fork Flathead Watershed Westslope Cutthroat Trout Conservation Program EIS (BPA 2005). On May 1, 2006, BPA issued a Record of Decision (ROD) to fund Alternative B of the EIS. FNF issued a separate ROD for their decision (FNF 2006), and the State of Montana also issued a ROD in compliance with the Montana Environmental Policy Act (MFWP 2006).

The South Fork Flathead Watershed Westslope Cutthroat Trout Conservation Program constitutes a portion of BPA's Hungry Horse Mitigation Program (HHMP). The purpose of the HHMP is to mitigate for losses attributable to the construction and operation of Hungry Horse Dam through restoring habitat, improving fish passage, protecting and recovering native fish populations, and reestablishing fish harvest opportunities. The target species for the HHMP are bull trout, WCT, and mountain whitefish. The program is, in part, designed to preserve the genetically pure fluvial and adfluvial WCT populations in the South Fork drainage of the Flathead River.

1.4 History of Sekokini Springs Facility

Figure 1 shows the location of the Sekokini Springs facility in northwest Montana. Sekokini Springs was formerly a private trout farm that propagated nonnative rainbow trout (RBT) for purchase by private pond owners. The site was not secure and unintentionally released RBT into the Flathead River, where they hybridized with native WCT populations. Evidence suggests that RBT escaped intermittently for nearly 40 years (B. Marotz, MFWP, personal communication, January 24, 2003). HHM first leased the site and removed all RBT from the facility. After removing trout from the water source and performing a comprehensive analysis for fish diseases, the State fish health specialist listed the Sekokini Springs water source as safe from fish pathogens, which allowed for experimental culture of WCT. BPA purchased the facilities on the Forest Service property in 1998, and MFWP secured a no-cost Special Use Permit to use the site for experimental culture of WCT.

From 1997 through 2001, personnel from the Creston National Fish Hatchery (CNFH) east of Kalispell, Montana experimentally hatched and reared WCT at Sekokini Springs to test the water supply and temperature regime. Montana's captive WCT broodstock (genetically pure WCT called M012 by MFWP) from the Washoe Park State Trout Hatchery, located in Anaconda, Montana, were hatched and reared at Sekokini Springs. This experiment showed that the Sekokini Springs water source follows a natural annual flow and temperature regime which allowed facility managers to successfully raise WCT with an exceptional girth-to-length ratio[2] (Don Edsall, USFWS, personal commmunication. 2009).

In 2003, 2004, 2007, and 2009, wild WCT were held in isolation at Sekokini Springs to screen for fish pathogens before collecting milt for infusion into Montana's captive WCT broodstock held at Washoe Park Trout Hatchery. These experiments demonstrated that it was possible to isolate and rear WCT trout indoors at Sekokini Springs.

1.5 Decisions to be Made

The Forest Service must decide whether to authorize an amendment to the Special Use Permit held by Montana Fish Wildlife and Parks, which would allow construction and long-term operation of the proposed Sekokini Springs Isolation Facility, as well as expansion of the site boundaries. The Responsible Official for this decision is Chip Weber, Forest Supervisor of the Flathead National Forest.

BPA must decide whether to partially fund the proposed construction and operation of the Sekokini Springs Isolation Facility. The Responsible Official is the Vice President of Environment, Fish and Wildlife.

MFWP would also use the EA to determine compliance with the Montana Environmental Policy Act. The Responsible Official is MFWP Director, Joe Maurier.

1.6 Scoping Process and Comment Summary

A public scoping letter was sent to interested and potentially affected individuals and entities on December 1, 2009. Comments were accepted until January 15, 2010.

[2] Girth-to-length ratio is an indicator of growth factor, or body condition.

Three comment letters were received: John Blankenship, adjacent landowner, whose land holds the easement allowing access to the Sekokini site crosses; Friends of the Wild Swan; and Swan View Coalition, whose letter concurred with the comments provided by Friends of the Wild Swan.

Comments focused on increased use and visual effects of the area, need for the project, indirect and cumulative effects, and water quality effects to the Flathead River that could result from fish rearing and site development.

Specific issues raised by the commenters are listed below, along with the sections of the EA in which those issues are discussed.

- Scope of EA/need for project. See Sections 1.1 and 1.3.
- Where will fish from the proposed facility be used? See Section 1.3.
- Need for expanded site boundaries. See Section 2.2.
- Location and uses of springs on and near the site. See Sections 2.2 and 3.4.
- Location of proposed parking area and privy. See Section 2.2.
- Water quality impacts to the Flathead River from fish rearing and site development. See Section 3.4.
- Visual effects of the proposal. See Section 3.5.
- Concerns about noise and light pollution. See Section 3.5.
- Dust and traffic impacts from increased use of access road. See Section 3.9.

CHAPTER 2. ALTERNATIVES INCLUDING THE PROPOSED ACTION

The Sekokini Springs site is in the northern part of Flathead County about 10 miles (16.1 km) northeast of Columbia Falls, Montana (Township 31 N., Range 19 W., Sec. 17), southwest of Coram and West Glacier (Figure 1).

The Sekokini Springs site is proposed for the WCT rearing and isolation facility because it offers (1) artesian spring water sources free of fish pathogens, and (2) existing infrastructure that could be upgraded or supplemented rather than requiring completely new construction. Wild trout cannot be transported to state hatcheries, so existing public hatcheries are unavailable (MFWP 2003). In addition, existing facilities do not have the capacity to raise wild native fish in isolation while they are examined for genetic purity and reportable fish pathogens. For these reasons, this EA considers only two alternative actions: No Action and the Proposed Action, described below.

2.1 No Action Alternative

A SUP has been issued to the MFWP for the purpose of "maintaining and operating a fish hatchery with the necessary approved buildings: including the residence contained within the hatchery building, water transmission lines, and internal road system." This permit will expire on December 31, 2017. MFWP has a recorded easement for the access road, which crosses private property, dated April 22, 1998 (Appendix A). The site included in the Special SUP does not have frontage on the Flathead River.

Under the No-Action Alternative, MFWP would continue to operate the existing Sekokini Springs facility at the existing level of use under the existing SUP. There would be no changes in extent of the SUP area or reconstruction of the existing ponds and stream channels. Regular maintenance and efforts to manage noxious weeds and stabilize areas of active erosion would continue.

Typical activity during operation would consist of one person a day on site, 6 days a week, requiring 1 round trip per day or approximately 300 round trips/year. Most activity would be inside or immediately adjacent to the hatchery building. Approximately 4 days every month, one–two additional staff would be onsite for maintenance activities, noxious weed management, and hatchery operations. Several times a year, depending on need, work parties of six–eight staff would be on site for one to three days to perform fisheries duties, control weeds and/or maintain the site. Some portion of this work would be outside and likely occur throughout the site. Total vehicle traffic to and from the site would be approximately 510 round trips/year.

2.2 Proposed Action

The Proposed Action is derived from the *Sekokini Springs Westslope Cutthroat Trout Isolation Facility Master Plan* (Master Plan; MWFP 2009). Under the Proposed Action, the existing infrastructure would be modified to improve the hatchery facility and create naturalized rearing ponds and water conveyance channels. To accomplish this, the following activities would take place:

- Expand the SUP area boundary to provide access to the Flathead River to restore hydrologic stability and habitat at the site;
- Expand the existing hatchery building and construct a roof extension;
- Re-contour existing ponds and construct stream channels connecting ponds and water sources;
- Continue the existing noxious weed management program;
- Prepare a vegetation management plan to guide restoration of portions of the site that are currently in disturbed condition because of past management activities.

The following specific actions are proposed (see Figure 2 for approximate locations):

Site

- Expand the existing SUP area to include land adjacent to the Flathead River (requiring SUP modification). The enlarged area would connect the 10.5 acres in the existing SUP to the Flathead River and would encompass approximately 21.8 acres (Figure 2).
- Reduce the total area in a "disturbed" condition from 5.8 to 1.6 acres through site remediation and restoration (see Table 2 in Section 3.1 of this EA); only the access road, parking area and hatchery building would not be restored to native vegetation communities.
- Continue the site's noxious weed management program and develop a vegetation management plan to increase forest health and reestablish a diverse native plant community.

Facilities[3]

- Construct new egg incubation facilities inside the existing hatchery building.
- Construct a 40 × 32-foot extension on the southeast end of the existing hatchery building.
- Add a new shed roof extension over the roadway on one side of the building.
- Construct a lift station and septic drain field.
- Construct a parking area and Forest Service-approved vault privy on the east side of the access road near the drain field.
- Install a storage facility.
- Construct a water manifold (infiltration gallery) to capture water from Springs 1–3 (Figure 2) and install outlet pipes to distribute water to the four experimental rearing ponds.
- During dry conditions, install a two-way fish barrier prior to diverting flow into Reach 5, which flows to the Flathead River. The barrier would prevent fish from escaping into the Flathead River or entering the facility from the river.

[3] See Figure 2 for approximate extent and location of the components

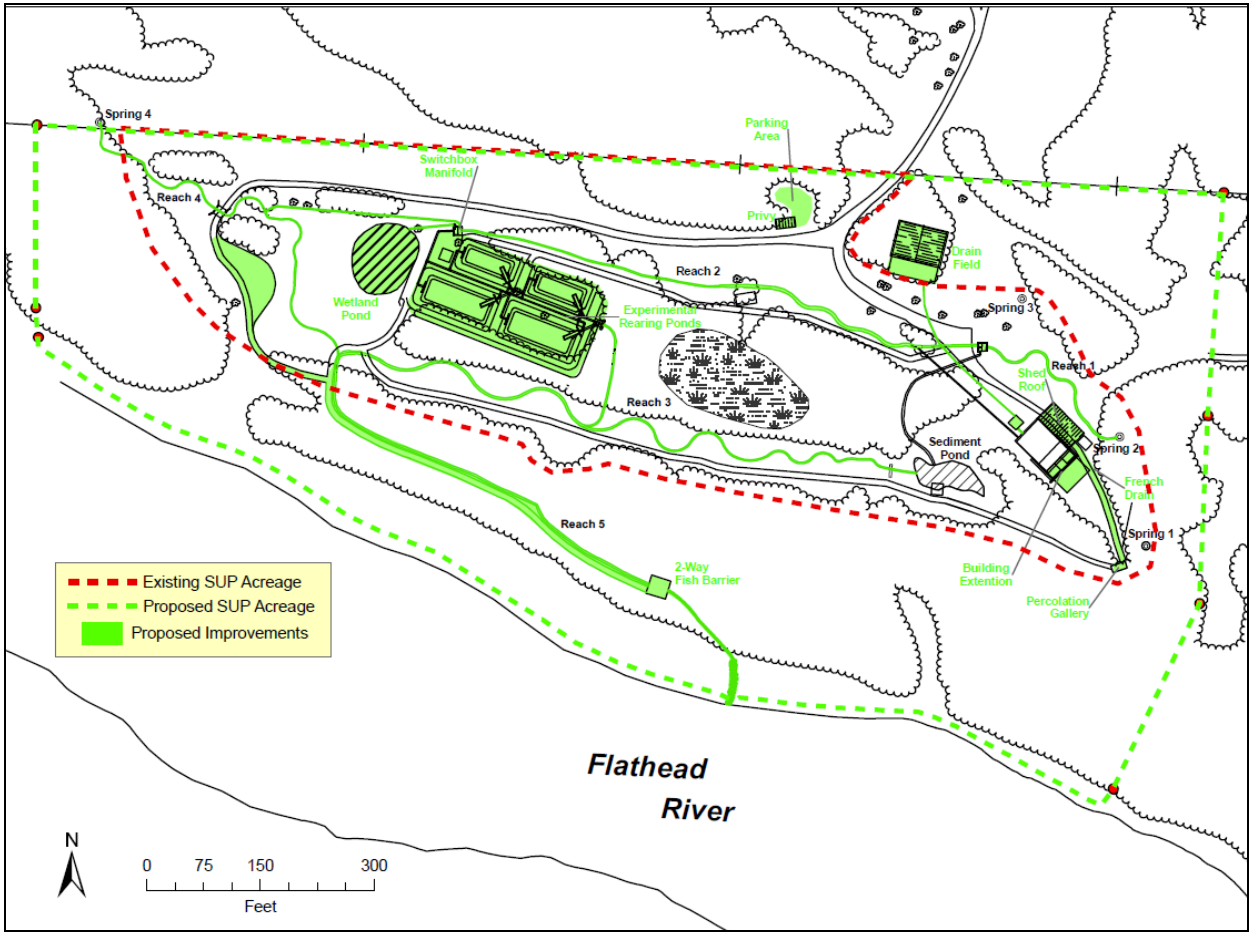

Figure 2. Proposed Improvements and Site Expansion

Comment [BAH1]: See attachment, it will be fixed

"Natural" Features[4]

- Modify the two existing constructed ponds to create four experimental rearing ponds with natural perimeters, substrate, and pond depth contours.
- Construct or restore approximately 3,340 linear feet of natural-type stream habitat, beginning near the existing hatchery building and ending at the Flathead River (Figure 2). Portions of the stream channels would be formed by reconstructing and stabilizing erosion channels and deteriorated rearing ponds from the original private rainbow trout farm.
- In an old roadbed, construct a new channel (Reach 5: Figure 2) to collect and convey water from the experimental ponds and unused water from the springs to the Flathead River.
- Install a water control structure on an existing drained pond to expand wetland habitat by 0.5 acre. Landscape the existing shoreline to make the created wetland appear natural.
- Restore approximately 0.5 acres of forest shrub and 4 acres of meadow.

Potential Future Development

MFWP's plan for the site includes eventually developing interpretive facilities for environmental education. BPA is not proposing to fund the construction of these additional facilities and MFWP does not propose to construct these features simultaneously with construction of the isolation facility. However, MFWP believes that they will be able to secure funding in the future and that construction is reasonably certain to occur, although not until as much as 5 years after completion of production components. Therefore the potential effects of these facilities are analyzed in this EA. Information regarding future development is derived from the (MFWP 2009), and should be considered conceptual as final design and engineering would only occur when funding was available.

Future development components are shown in Figure 2 and include

- Construction of interpretive trails. Paths would be constructed on existing dikes/abandoned road and surfaced with packed, crushed gravel or roadmix to allow all weather access.
- Creation of two viewing structures:
  - one would be on an upper stream riffle pool section.
  - the other would be a two-level viewing gallery on the lower stream (Reach 5) at an oxbow bend.
- Construction of an access path to the natural forested wetland in the center of the site and viewing platform along the western margin.

Operation

The number of people on site and the number of vehicle trips would be the same as under the No Action Alternative. There would be more activity outside related to checking and maintaining the ponds and constructed channels, checking the two-way fish barrier, and feeding, releasing, and capturing fish in the constructed ponds. It is expected that outside activity would average one to two hours/day and all activity would occur during daylight hours.

[4] See Section 2.2.1 Design Details for more specifics

Organized tours for environmental education would be allowed. All tours would be pre-scheduled and accompanied by MFWP staff. The targeted audience would primarily be school groups and educational camps. MFWP anticipates two–five tours/year, and tour groups would consist of 3–16 individuals.

2.2.1 Design Details

The Proposed Action would alter portions of the site and restore approximately 4 acres to natural conditions. Construction of the ponds and streams reaches would occur in the same general alignment and area as the existing drainages and ponds, altering about 2 acres total, including some upland areas. Vegetation that would be affected consists primarily of native grasses and forbs and exotic weed species. Most of the area altered is expected to provide more natural structure vegetation and more stable channels and slopes than is currently present. Tables 1 and 3 provide estimates of project schedule and additional details on project components and the current conditions compared to post-project respectively.

Experimental Rearing Ponds

The goal of semi-natural rearing is to reduce domestication of wild donor populations and to simulate wild conditions for specific experiments. Two existing ponds would be reconfigured into four ponds for on-site experimental rearing of WCT that have passed inspection in the isolation facility. The water supply for the rearing ponds would be provided from Springs 1–3 (Figure 2). The flow available from the upper three springs averages about 3.0 cubic feet per second (cfs) but varies seasonally by ±50 percent. It might be necessary at times to use up to 80 percent of the water from the upper springs to adequately supply the experimental ponds. Spring 4, the coldest of the springs, surfaces adjacent to the lower bench and flows southeast into a restored stream called Reach 4. A water switch box would be installed to divert a portion of the flow from Spring 4 by gravity through a buried pipe to the manifold feeding the experimental rearing ponds. In the event that water temperatures become too warm during the heat of summer, cold water from Spring 4 could be used to cool summer water temperatures in the rearing ponds. All water from Spring 4 that is not needed to supplement the rearing ponds would be directed into stream Reach 4, which would effectively eliminate the existing erosion channel that, during high flows, has flushed sediments into the Flathead River.

Water supply for the ponds would be routed by gravity from the existing switchbox above the driveway into the created stream channel (Reach 2) to a second switch box manifold that distributes water to the experimental rearing ponds and a drained existing pond would become the wetland pond just west of the experimental ponds (Figure 2). The diversion manifold would prevent upstream or downstream movement of fish between the water source and the experimental rearing ponds. Each pond would be fed independently through buried piping to ensure that fish or potential fish pathogens cannot exchange between ponds through the water supply. The distribution system would allow control of the water levels in individual ponds or flow to be shut off when ponds are off-line for maintenance.

The rearing ponds would be irregularly shaped to appear natural, with variable side slopes (3:1 and 4:1), graded with a littoral zone and a deep central area, and lined with an impermeable layer (Figure 3). The liner would be covered with natural substrate, consisting of gravel, rock, or

cobble that matches the color of the substrate in streams where the fish would be released. Woody debris, floating and submerged logs and large rocks would be incorporated in littoral areas to provide cover and reduce aerial predation. The littoral zone could be dewatered by roughly 25 percent to concentrate fish in a deeper portion of the pond that would be devoid of obstacles. A concrete channel would be installed in the bottom of each pond to concentrate fish for capture and to facilitate cleaning.

Native trees, shrubs, and grasses would be planted in clumps around the ponds to stabilize disturbed banks and provide shade to maintain cool water temperatures. Riparian trees would be allowed to fall into, and accumulate in, the littoral zone of the ponds to provide security cover for fish. The rearing ponds would be encircled by permanent bear-proof electric fence to make fish or fish-related attractancts inaccessibl to bear and to protect fish from bears, river otters, and other potential predators.

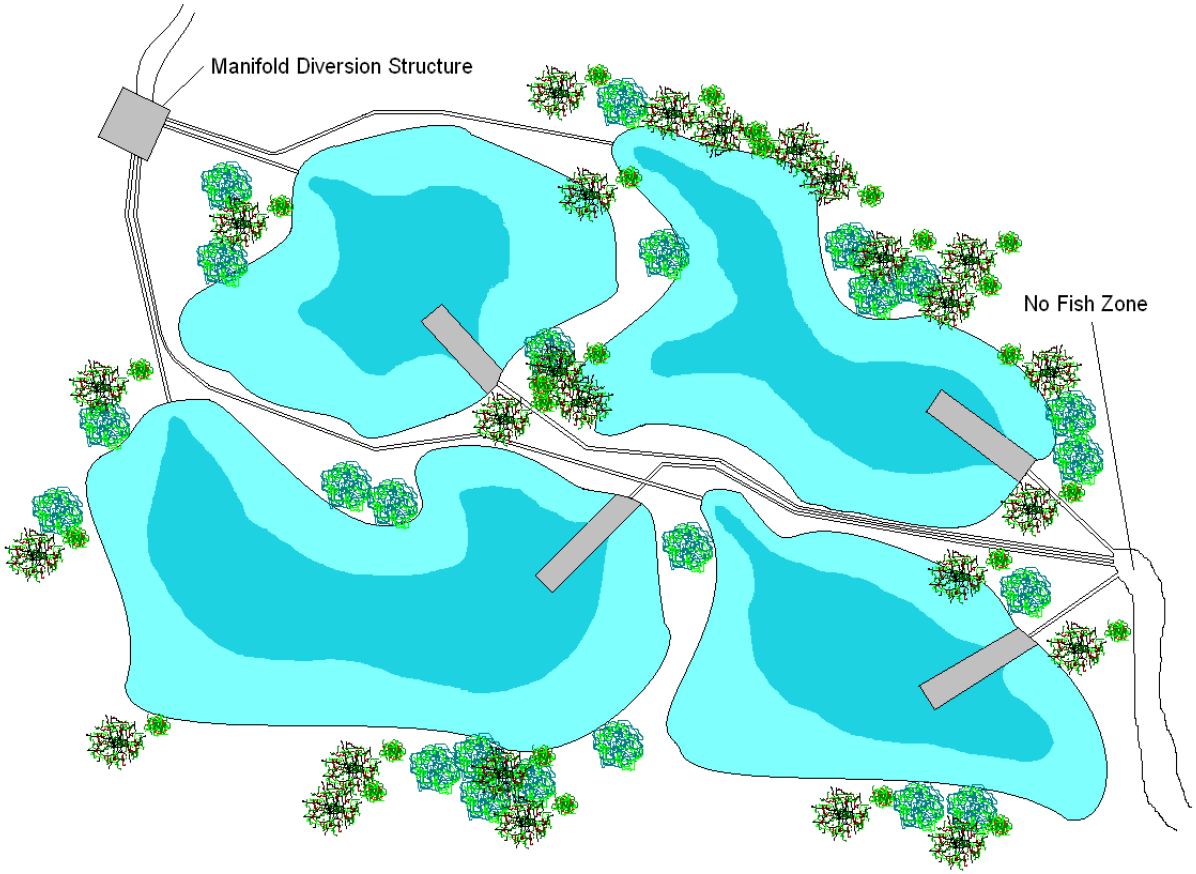

Figure 3. Proposed Experimental Rearing Ponds

Stream Channels

Degraded streams and created streams would be enhanced with features made from native rock and woody debris to mimic local stream types, to create a natural appearance, and to provide appropriate habitat. Channel designs follow the principles and practices of Rosgen's "Applied River Morphology" (Rosgen 1996). The Rosgen method classifies streams into eight categories from "A" to "G" based on channel gradient, shape, and pattern. Further sub-classifications from "1" to "6" are determined by the size of materials making up the channel substrate (1=bedrock to 6=fines). Locally available materials would be used for streambed composition (boulders, river cobbles, gravels, and local soils) and would be designed to mimic local streambed composition.

The stream channel types chosen for Sekokini Springs are A, B, and E types, depending on stream gradient (high to low). A-type channels occur in steep headwater gradients. B-type channels are stable on intermediate slopes, and E-type channels occur in areas of broad meanders with shallow slopes.

The A-type channels on the steeper slopes (4–7.9 percent) would have a slight meandering pattern and a step-pool configuration, with a pool occupying each step down. In a step-pool arrangement, pool length is proportional to pool width, based on the steepness of the channel slope. Each pool would have a weir-like rock structure on the downstream end that would control the water level in the pool. The rock structures would be placed on geotextile fabric covered with river cobble to provide enhanced stability and help control flow through the structures. The stream sections with high gradients would have resting pools. The resting pools have been designed to be twice the size of other pools in a section.

The B-type channels in intermediate gradients were chosen for stability. These channels meander less than E-type channels, making them suitable for short connecting reaches where channel width is limited by steep lateral banks. This would reduce the need to disturb existing trees along the banks of created streams.

The E-type channels on the flatter slopes are typified by broad meanders, usually traversing a bed width of 15–20 feet on slopes from 0.6–1.4 percent. Water would move more slowly through these sections, and it may be desirable during final design to add fish habitat structures and off-channel wetland vegetation for diversity and aesthetics.

Substrate type "3" was chosen for portions of all fish bearing stream channels, based on the geology report, composition of other streams in the area, and economics. The geology report listed river deposits and glacial till (cobbles, gravels, sands, and silts) as the predominant materials at Sekokini Springs; therefore, A and B channels would have a high proportion of cobble-sized material and would mimic existing terrain. Substrate type "2" boulders would be used for grade control in Reaches 2 and 5. E-type channels would be composed primarily of glacial silts and clay, with gravel and cobble patches for diversity.

- Reach 1 would be stabilized as an E3 channel to carry overflow from Springs 2 and 3 from their sources to the first switch gate, where water could be directed into the existing bypass channel or directed into the "living stream" (Reach 2 and downstream).
- Reach 2 would contain A3, B3, and E3 channels from the first switch box, downstream to the second switch box that feeds the experimental rearing ponds and the wetland restoration area. Reach 2 would provide habitat for WCT utilized for viewing, not as a donor source for outplanting.

- Reach 3 would contain a short B3 channel downstream of the rearing ponds to direct pond discharge into an E3 channel, which would be contoured to capture outflow from the existing sediment pond and would meander in a westerly direction to the confluence with Reach 4. A "no fish zone" is proposed immediately downstream of the rearing ponds to isolate the rearing facility from fish downstream, and ensure that any WCT escapees can be captured.
- Reach 4 would contain A3 and B3 channels from Spring 4 to a low-gradient E3 channel at the confluence with reach 3. Reaches 3 and 4 would converge to form Reach 5.
- Reach 5 would combine flow from Reaches 3 and 4 in an A3-type channel, which would extend down an old road grade to the Flathead River. This channel would be lined with an impermeable layer and would have rock and log hydraulic control structures to create one-foot jump pools downstream to the two-way fish trap barrier. From there, an A2 channel would continue to a point below the average high water mark at the Flathead River confluence. A second barrier at the outlet would ensure that fish are prevented from entering the facility from the Flathead River.

2.2.2 Duration and Season of Activities

The project is expected to take between 3 and 5 years to complete (Table 1). All ground disturbing work outside the existing building would be conducted during the dry months. To reduce soil disturbance, some material (cobbles, boulders, large wood material) might be stockpiled at the following year's construction site during winter months when the ground is frozen. In general, construction activities would occur over a 1–2-month period each year due to incremental funding and the need to conduct some work during the "dry period."

Table 1. Construction Schedule for Proposed Sekokini Springs Isolation Facility

Year	Construction Action	Details of Action	Action Function
2011 Aug 3 mos	Expand hatchery building	• Expand roof over existing sheds • Build 40 × 32 foot extension on SE end of building with concrete floor and isolation area drain plumbed to French drain • Extension would be 18 inches lower than current building to increase head from spring 1 • Excavate French drain for isolation effluent	• Expansion would nearly double isolation, incubation, and rearing capacity
2011 July 1 mo	Construct waste septic disposal system	• Excavate and install septic tank and drain field	• For bathroom and wet lab sanitation
2011 July 1 wk	Construct storage facility		• Provides secure bear-proof outdoor storage for maintenance equipment, etc.
2011 May 2 wks	Stockpile materials for Spring 4 channel on-site	• Stockpile gravels, cobbles, fill soil and topsoil in preparation for restoring the stream channel #4	• Would replace two existing ponds with a natural stream channel
2012 July 5 mos	Modify two existing ponds to create four experimental rearing ponds	• Drainage designed to allow the surface elevation at each of four ponds to be controlled independently • Four ponds would be completed and stabilized with native vegetation • Pond outlets would have concrete pots to concentrate fish when water elevation is lowered, to prevent fish escapement	• Allows for rearing of unique genetic stocks of pure WCT • Allows for rearing of donor stocks and juveniles to be planted for WCT recovery
2012 July 3 yrs[1]	Naturalize banks along existing spring overflow channel (Reach 1)	• Build up banks with soil and revegetate with native vegetation to increase aesthetics and control invasive weed growth	• Accelerates natural recolonization and ensures native species establish on banks

Year	Construction Action	Details of Action	Action Function
2012 July 3 yrs[1]	Create type A channel to direct spring overflow to ponds (Reach 2)	• Under dry conditions, restore linear ponds that extend down slope from the upper bench to create stream channels • Create Rosgen type A channel with cascade • Continue channel down slope to connect to the four ponds via water diversion manifold • Stabilize bank along stream course in preparation for future fish viewing window	• Provides natural-looking pond connection • Allows convenient site for future fish-viewing window #1 (potential future development)
2012 July 3 yrs[1]	Construct Treatment Wetland within existing linear pond on lower bench (Reach 3)	• Create 700-foot E-type channel with wetland margins (divided into approximately 15 cells) to treat settling pond effluent using varying mixes of native emergent vegetation interspersed with four deeper water cells with reduced connectivity for amphibian habitat • Reinforce/stabilize bank and fill in eroded area below bench	• Provides treatment of main hatchery effluent before discharge into Flathead River • Creates/enhances wetlands for amphibian and waterfowl habitat
2012 Aug 2 yrs[1]	Bury pipe from spring 4 source to water supply manifold and overflow stream (Reach 4)	• Excavate and install 580-foot-long, 6-inch-diameter pipeline • The pipeline will be buried 3 feet below the surface.	• Supplies additional cold water to control water temperature in the four rearing ponds
2012 Aug 2 yrs	Construct type A Rosgen channel to connect to the Flathead River (Reach 5)	• Connect to the Reach 3 channel constructed in 2012	• Type A channel accommodates steep terrain
2013 Aug 2 yrs[1]	Construct type E channel between rearing ponds and treatment wetland (Reach 3)	• Create channel to route outflow from rearing ponds to treatment wetland	• Creates additional riparian habitat complexity while conveying water from ponds for treatment in wetland • Decreases risk of fish escapement from facility

Year	Construction Action	Details of Action	Action Function
2013 Sept 2 wks	Install fish barrier/trap in channel connection to Flathead River (Reach 5)	• Excavate and install concrete fish barrier behind a screen of trees above Flathead River bankfull elevation	• Prevents WCT escapes from facility • Prevents wild river fish from entering facility water bodies
2012 Sep 2 wks	Install water diversion manifold	• Excavate and install concrete diversion structure to collect water from springs 1 & 2 overflow (Reach 2) and Spring 4 discharge (Reach 4) and partition between rearing ponds and wetland pond	• Partitions and controls amount of water flowing into the four rearing ponds and the existing wetland pond
2013 Aug 3 yrs[2]	Revegetate impacted areas	• Plant with native riparian vegetation	• Allows for a more natural landscape and lower maintenance

[1] Work under this element would be completed within one season, but the actual year work started would be dependent on funding and staff/contractor availability.

[2] Revegetation and site stabilization would be an ongoing effort and occur throughout the construction period.

2.2.4 Mitigation Measures

Best management practices (BMPs) would be implemented to reduce soil and vegetation disturbance and avoid mobilizing sediment that could reach the Flathead River. This includes avoidance of areas not to be disturbed, such as the forested wetland in the center of the property (Figure 2), as well as the following:

- compliance with applicable portions of the Forest Service Soil and Water Conservation Practices (FSH2509.22)
- meeting the terms and conditions attached to specific required state permits that may include the Streambed and Land Preservation Act (SPA 124 permit), the Conservation District 310 permit or Department of Environmental Quality's turbidity exemption permit (318 authorization)
- using measures including vehicle washing and replanting with native grass to reduce the potential for increased noxious weeds (See Section 3.1 of this EA.)
- conducting all ground disturbing (excavation) activities during the dry periods of the year (See Table 1) (See Section 3.4 of this EA)
- locating project components that require ground disturbance to avoid and minimize impacts to trees and shrubs; clearing marking construction zones, stockpile areas, access routes, and clearing limits; and informing construction personnel of those areas prior to any ground disturbance activity
- building stream Reaches 2–5 under dry conditions, stabilizing them before water is directed into the restored channels, and containing sediments mobilized immediately after water flows in new channels in a temporary downstream impoundment (See Section 3.4 of this EA.)
- inspecting and cleaning debris from water control devices weekly, or as necessary to maintain water flow
- compliance with the terms of the revised SUP for grizzly bear management, including but not limited to:
    - permanent electric fence encircling rearing ponds
    - human and fish food stored indoors
    - all waste stored in bear-proof containers with regular removal
    - hand feeding of fish in outdoor ponds; no automatic feeders or temporary outside feed storage
    - reporting bear presence and conflicts to the Forest Service and MFWP's Grizzly Bear Management Specialist

CHAPTER 3. AFFECTED ENVIRONMENT / ENVIRONMENTAL EFFECTS

This chapter discusses the existing resource condition and the potential impacts of the alternatives.

The discussions of resources and potential effects take advantage of existing information included in the Flathead National Forest Land and Resource Management Plan (Forest Plan, USDA Forest Service 1985), other project documents, project-specific resource reports and related information, and other sources as indicated. Where applicable, such information is briefly summarized and referenced to minimize duplication.

Several studies and evaluations have taken place at the Sekokini Springs site to support MFWP's management activities and to develop the plans for the proposed expansion. These studies both help describe the existing conditions at and around the site as well as provide an assessment of potential impacts from management actions and are referenced in the appropriate discussions.

Analysis Area

In general, the analysis area for this EA includes the area within the proposed SUP boundary (the Site), the surrounding area that could be influenced by noise or visual activity at the Site during construction and operation, and the section of the Flathead River that could be affected by either the Proposed Action or No Action Alternative. Some resource analyses consider a larger area than the project area boundary if potential effects extend beyond the project area. Within each resource area section, information on the boundaries used for the analysis area are described.

The status of the resources in the larger landscape to support the cumulative effects analysis is summarized from the descriptions in the Belton Fuels Project Environmental Assessment (EA) (FNF 2008). The Belton EA covered a substantially larger area (35,700 acres) and no proposed action therein directly affected the Sekokini project area. It does, however, provide a reasonable description of current and reasonably foreseeable resource conditions in the larger area that can be used to assess the potential effects resulting from either alternative of this EA in a cumulative sense. It should be noted that because of the small size and relatively low intensity of likely effects from either alternative, there would be no or negligible interactions with other effects to individual resources at any scale greater than the immediate project area.

The general management direction of the FNF is found in the Forest Plan (USDA Forest Service 1985) and its applicable amendments. This document provides forest-wide goals and objectives for its diverse resources (pp. II-1 through II-57), as well as more specific management direction for sub-units of the Forest, referred to as Management Areas. Alternative consistency with Forest Plan direction is determined after the effects analysis is completed. Both alternatives are consistent with the Forest Plan.

Site Characteristics

The Sekokini Springs site is in the northern part of Flathead County about 10 miles (16.1 km) northeast of Columbia Falls, Montana (Township 31 N, Range 19 W, Sec. 17), between the towns of Coram and West Glacier (Figure 1).

The site is on the eastern bank of the Flathead River and is within the northern portion of a Forest Service parcel within the HHRD that roughly parallels the Flathead River. The site is

approximately 3,200 feet above sea level. It is within the Lake Five-Desert Mountain Geographic Unit (USDA Forest Service 1985) and is part of the Montane Forest Ecotype[5] (MFWP 2005). Surrounding topography is typical of glacier-carved river valleys: generally flat with low hills and short, steep slopes. Most of the area has been affected by fires, timber harvest, transportation infrastructure, and clearing for agriculture and housing. Vegetation is predominantly mixed-age, mixed-species forest. Land ownership is dominated by the FNF, with large amounts of private land holdings interspersed. For additional information on ownership and landscape patterns in the general area, see the Belton Fuels Reduction EA (USDA Forest Service 2008).

The current SUP permit area is a 10.5-acre parcel of Forest Service land (Figure 2) that is located within the boundaries of the "recreational" portion of the Wild and Scenic Flathead River. The parcel is bounded on the south and west by the Flathead River and on the north by Blankenship Road. Most of the acreage at the site is on a flat bench, delineated by a steep rise on the eastern margin and a steep drop to the river on the southwest edge. The railroad passes the site approximately 800 feet to the east, with Highway 2 beyond the railroad.

The site was extensively modified by past land use practices and private rainbow trout farm operations for over 40 years, supported by a USDA water right dated February 14, 1955. During the 1950s, the previous owner excavated the existing system of ponds and linear ditches, built wooden outlet structures, and installed piping to support trout farm operations. Site improvements include nine earthen ponds, two sediment ponds, a hatchery building, and associated infrastructure. The existing artificial production facility includes a gravel access road and parking area, a hatchery building, three capped springs, and water transport pipes to the building. The existing ponds and "stream" channels are located on the first terrace above the Flathead River, and the access road and buildings are on the second terrace. The ponds are currently drained to control erosion, but are sufficiently sealed to act as sediment control ponds during reconstruction.

The existing plant communities within the project area include hardwood-dominated river bottom forest comprised of birch (*Betula paypyrifera*) and cottonwood (*Populus* spp.) intermixed with conifers—predominantly spruce (*Picea* spp.). The site has been affected by erosion and noxious weeds.

Current use of the site generally consists of one MFWP staff person at the site 6 days a week, with two–four people on-site 4 days a month. Larger numbers of people (six–eight) are present for several days for noxious weed control and other site maintenance. Except for weed control, most activity is inside the buildings.

Human use of the area surrounding the site occurs throughout the year. However, most of the use occurs during the summer and late fall along the river, with rafters and anglers being the predominant users; thus, most human activity is on the river or banks. Upslope activity is generally limited to the transportation corridors, usage by private land owners, and forest management personnel.

[5] An ecotype is an area having similar landscape, climate, geology, and vegetation. Montane indicates the relatively cooler and wetter forested area between the valley bottom/plains/lowlands and the colder subalpine zone.

3.1 Vegetation

Information Sources

The description of site vegetation was derived from previous surveys of the site for TES species (e.g., USDA Forest Service 2002a, 2002b, 2010), and from site visits by MFWP biologists. Vegetation cover types were mapped using aerial photos and GIS (Table 2).

Analysis Area

Analysis of direct and indirect effects to vegetation is primarily limited to the area enclosed by the proposed expanded SUP boundary (Figure 2).

Affected Environment

The subject property is situated at an elevation of approximately 3,200 feet. Several vegetation communities are found on the site. Upland mixed forest (spruce and birch) dominates the site, which also contains small openings dominated by grasses and other herbaceous species, forested wetland, herbaceous wetland (constructed), and riparian/floodplain areas. A majority of the site has been previously disturbed by the original hatchery construction and maintenance activities.

Disturbed areas have been colonized by many nonnative weedy species (e.g., spotted knapweed [*Centaurea stoebe micranthos*], tansy [*Senecio jacobaea*], mullein [*Verbascum* spp.], and Canadian thistle [*Cirsium arvense*]). Despite the diversity of plant types and communities, the individual communities represent only small patches; thus, the site is probably best described as disturbed riparian forest.

A detailed noxious weed management plan consistent with the Flathead National Forest Noxious and Invasive Weed Control Decision Notice and Finding of No Significant Impact (USDA Forest Service 2001a) was prepared by the Forest Service with assistance from MFWP. Noxious weeds were present in large numbers in previously disturbed areas around the ponds and buildings. A noxious weed control program was implemented beginning in 2005 by the Flathead County Weed District in compliance with provisions of the Forest Service SUP. Annual treatments, combined with hand-clearing by volunteers, have greatly reduced weeds at the site, and will continue each year.

Environmental Effects

No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, only general maintenance of spring capture sites, the road, and areas where erosion is occurring or old infrastructure is failing would directly affect vegetation. The areas affected would generally be small, and the activity would be in already disturbed areas (e.g., the road shoulder). MFWP would continue their cooperative noxious weed management with the Forest Service. Noxious weeds would continue to be treated using herbicides and other methods identified in the noxious weed management plans. Treatment of invasive plants would be consistent with the strategy outlined in the 2001 Noxious and Invasive Weed Control Environmental Assessment (USDA Forest Service 2001b). Effects to vegetation resulting from noxious and invasive weed control were considered in that EA, and it was determined that

although there may be some effects to native vegetation, those effects would be localized in nature, affect individuals, not populations, and be substantially minimized by compliance with the strategies adopted by the Decision Notice (USDA Forest Service 2001a)

Noxious weed management, replanting with native species, and stabilizing eroding areas should gradually increase the extent or dominance of native vegetation on the site.

Because ground disturbance activities would be minimal, there would be little change to vegetation cover under the No Action Alternative. The gradual conversion of areas dominated by weeds to native vegetation is expected and would at least maintain native plant species diversity at the site.

Cumulative Effects

Because there is no expected contribution to the larger cumulative condition of vegetation and noxious weeds, no spatial or temporal bounds are set. Various species of noxious weeds are present at the site and in the surrounding area. Current and reasonably foreseeable private, state, and federal actions are likely to create conditions that could result in the introduction and spread of noxious weeds. Awareness of the problem and the development and use of BMPs has likely limited recent introduction and spread, as have eradication and control efforts.

The No Action Alternative would not create conditions that would be expected to increase noxious weed dominance or introduce new weeds to the area. Continued implementation of the noxious weed management program is expected to at least contain weed species to the current distribution at the site. While noxious weeds would continue to be a regional concern, the No Action Alternative is not expected to contribute any effect (increase in density, distribution, or introduction of new species) that would accumulate in the environment.

Proposed Action

Direct and Indirect Effects

Activities to create the stream reaches, reconstruct ponds, install buried plumbing and electrical infrastructure, and construct the proposed drain field would disturb and destroy vegetation. Construction of the roof extension of the building would be on the existing gravel pad; therefore, there would be no effects. The proposed site design takes advantage of existing cleared areas, so tree or shrub removal is expected to be limited. Only grassland would be removed for the construction of the drain field. Construction of the stream channels and ponds would alter approximately 2 acres but would occur in the same general alignment and area as the existing drainages and ponds; some portion of the area affected is already disturbed and not vegetated-thus total area of vegetation impacted would be less than 2 acres. Vegetation that would be affected consists primarily of grass, forb, and weed species.

Heavy equipment, such as track hoes, bulldozers, and dump trucks, would be required for construction activities. Operation of this equipment would crush and damage vegetation and disturb soil; however, most of the access would be along existing roads or through the area where construction would occur and so would not represent additional disturbance. In addition, MFWP may stage construction materials during the winter months when the ground is frozen. This would limit effects to soil and vegetation.

Ground disturbance can create the potential for weed establishment and spread, and weeds already have been identified as a problem at the site. Implementation of BMPs for weed control and continued action under the weed management plan would limit the introduction and spread

of noxious weed species. The noxious weed management plan is expected to eventually suppress or eliminate weed species to the extent that they are not affecting native plant species or vegetation communities on the site. Effects to native vegetation from the weed control are expected to be similar to the No Action Alternative. Some individual plants may be impacted but population level effects would not occur.

BMPs that would be implemented to reduce the likelihood of spread or introduction of noxious weeds would be required by all contractors and others implementing the project and would include

- Equipment intended for use during construction (excluding normal passenger vehicles used by individuals to access the site) would be power-scrubbed or steam-cleaned on the undercarriage and chassis before transport to the project area.
- Areas of soil disturbance that could provide beds for weeds would be seeded with a Montana certified, weed-free grass ground cover as soon as practical after disturbance to provide for site protection until native species are established.

Under the Proposed Action, MFWP would undertake the restoration of sites disturbed by the proposed construction, as well as areas currently in a disturbed condition and areas dominated by noxious weeds. Approximately 5.8 acres of the original SUP site currently are in a degraded or altered condition. Approximately 0.7 acre of this amount would be turned into naturalized ponds (0.2 acre) and wetlands (0.5 acre) (Table 2). The area affected is primarily with mixed weed/native herbaceous species and shrubs. An additional 3.5 acres of the disturbed area would be replanted with forest or grass and herbaceous species. Following remediation efforts, approximately 1.6 acres of the existing disturbed area, comprising the access road, parking area, and existing building, would remain in an altered condition.

Table 2: Comparison of current condition to remediated condition

Habitat Type	Existing Condition (Acres)	Remediated Condition (Acres)	Change (Acres)
Ponds	0.2	0.4	+0.2
Wetland	0.7	1.2	+0.5
Forest	13.3	13.8	+0.5
Grass/herbaceous	1.8	4.8	+3.0
Disturbed Area	5.8	1.6	-4.2

Acreage estimates are based on photo-interpretation that was digitized into a Geographic Information System.

Operational effects would be similar to the No Action Alternative and primarily associated with noxious weed management and implementation of a vegetation management plan. Activities would generally consist of small-scale disturbance (hand/machine pulling/grubbing) followed by replanting with native species.

Cumulative Effects

The influence of the Action Alternative on the vegetation communities in the larger landscape condition is minimal and would not meaningfully change vegetation community age, composition, or diversity at any scale larger than the immediate project area.

Wildfire, timber harvest, housing, transportation, and other infrastructure development have and would continue to alter the vegetation composition and age structure in the larger area. The Proposed Action would remediate slightly more than 4 acres of previously disturbed ground and create native vegetation communities. From a landscape perspective, this change would be minimal but positive over time.

Development of the environmental education features on the site (Figure 2), although not proposed as part of this action, is part of MFWP's larger plan and therefore considered reasonably certain to occur. The proposed trails would follow existing abandoned roadways and generally only affect the grass species that have colonized those areas. The proposed viewing galleries would also be constructed along Reaches 2 and 5, along an existing road bed, and in an area that would be disturbed by the construction of Reach 2. Therefore, there would be no additional disturbance to vegetation from its construction. The areas could be accessed by existing roads, but excavation and construction of the structures would disturb or eliminate approximately 200 square feet of existing vegetation. Construction could also result in impacts to vegetation planted as part of the Action Alternative. However, planting these areas with grass species for soil stability and plants that are easily transplantable would reduce impacts and loss of vegetation.

As stated for the No Action Alternative, various species of noxious weeds are present at the site and in the surrounding area and can be expected to both spread and be managed by current and reasonably foreseeable private, state, and federal actions. The Proposed Action would create conditions that could increase noxious weed dominance or introduce new weeds to the area. Use of the BMPs described and continued implementation of the noxious weed management program is expected to at least contain weed species to the current distribution at the site, and should continue to suppress if not eradicate them from the site. While noxious weeds would continue to be a regional concern, the Proposed Action is not expected to contribute to the density, distribution, or expansion of species that would accumulate in the environment.

Regulatory Framework and Consistency

The National Forest Management Act of 1976 (NFMA) has provisions that pertain to vegetation management on National Forest lands. These provisions address a wide range of vegetation management activities and include the consideration and protection of other resources (e.g. soils, water, wildlife) when managing vegetation; the appropriateness of even-aged management systems and adequate site reforestation following such harvests; and the proper consideration of the economic aspects of the project. These provisions, and others, are described in the Forest Service Manual at 1921.12. The proposed project activities have been determined to fully comply with these requirements.

Flathead National Forest Land and Resource Management Plan (Forest Plan) goals include maintaining a diversity of vegetation and habitats across the forest to meet the needs of a variety of wildlife species (Forest Plan, p. II-5). Amendment 21 to the Forest Plan has updated and modified some of the goals, objectives, standards, and guidelines regarding vegetation management on the Flathead National Forest, particularly regarding old-growth forest.

All alternatives meet the goals, objectives, and standards of the Forest Plan for the management areas affected.

Management direction for noxious and invasive weed control on the FNF is set at the national and forest levels. Forest Service policies were developed in response to Federal laws guiding

implementation of noxious weed control actions. These policies are set forth in Amendment 2000-95-5 of the FSM, Chapter 2080, Noxious Weed Management, and have been incorporated into the Forest Plan. Treatment and monitoring of known weed populations in the project area would be implemented under the authority and guidance of the Flathead National Forest Noxious and Invasive Weed Control Decision Notice (May 2001) and EA (March 2001). These were designed to meet legal requirements and Forest Service policies for noxious weed control. The proposed project incorporates and is consistent with the Flathead National Forest Weed Control Decision. Design criteria and management requirements for actions proposed under this project follow requirements documented in the FSM Amendment for Noxious Weed Management, and road and timber management projects.

3.2 Wetlands and Floodplains

Information Sources

The description of wetlands was derived from previous wetland determinations conducted on the site by Forest Service biologists (USDA Forest Service 2002a, 2002b) and MFWP biologists conducting site reviews to support the Master Plan (MFWP 2009) and this EA. The Federal Emergency Management Agency's (FEMA) digital Special Flood Hazard maps showing the 100-year (1 percent chance) and 500-year (0.2 percent chance) flood areas were reviewed for floodplains.

Analysis Area

Analysis of direct and indirect effects to vegetation is primarily limited to the area enclosed by the proposed expanded SUP boundary (Figure 2), including its boundary with the Flathead River.

Affected Environment

Wetlands are unique ecological systems that are transitional between terrestrial and aquatic environments. Wetlands are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Jurisdictional wetlands are subject to Section 404 of the Federal Water Pollution Clean Water Act as administered by the U.S. Army Corps of Engineers.

Preliminary wetland determinations were made using vegetation, hydrology, and soil conditions observable at the time of the site visit (November 5th and 6th, 2002), but wetlands were not formally delineated. Previous site alterations and associated pond construction have resulted in the formation of wetland conditions along many of the existing waterways and ponds. All of the existing ponds and channels are characterized by wetland plant communities, although in some of the ponds, hydrophytic (wetland) plant species are limited to the perimeter of the pond.

An additional wetland was noted in the central portion of the site in an area that was relatively undisturbed by trout farm operations. This forested wetland is located between the proposed rearing ponds and the existing high-gradient overflow channel west of the hatchery building. Pools of standing water and saturated soils were noted in this area during site investigations.

Environmental Effects

No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, there would be no construction outside the existing building footprint. Although regular site maintenance and repair of the failing original infrastructure would be done, wetlands and floodplains would not be affected.

Cumulative Effects

Since there would be no change to wetland distribution or quantity, the No Action Alternative would not contribute to the cumulative effects to wetlands or floodplains

Proposed Action

Direct and Indirect Effects

The project was designed to minimize the amount of wetland impacts and potential impacts to sensitive plant species in the forested wetland. The natural forested wetland area would be avoided and should not be affected by any of the Proposed Actions. However, some wetlands have formed around pond margins and spring conveyance channels as the result of the original construction or lack of maintenance.

Under the Proposed Action, pond margins would be expanded and shallow littoral zones created. Spring flow and discharge from the hatchery building would be captured and routed to constructed natural channels appropriate for substrate and grade, but the constructed channels would generally follow the existing channel alignment. The construction/expansion of the ponds and stream channels would directly and indirectly affect wetlands. Existing narrow pond margin wetlands would be expanded to create shallow open water wetlands with emergent wetland margins. Ultimately, under this alternative, pond habitat (open water wetland) would be increased from 0.2 to 0.4 acre (Table 2) and improved as more natural slopes and shallow littoral zones with wetland margins would be created. Wetlands associated with ponds and streams would be expanded, resulting in an increase in wetland habitat from 0.7 acre to approximately 1.2 acres. The existing natural forested wetland in the center of the site would not be affected.

Although construction of the lower portion of Reach 5 at the confluence with the Flathead River would occur within the Flathead River floodplain, it would not alter floodplain function or result in any feature that reduces the floodplain size or alters existing flood elevations. Reach 5 is designed to carry stream flow to the Flathead River low-flow elevation; it would necessarily be below or at surrounding grade and thus would not change flood capacity.

Cumulative Effects

The Proposed Action would increase the amount and improve the function of wetlands in the area. While these effects are expected to be positive locally, a 0.4 acre increase in wetland is unlikely to result in measureable changes in habitat, run-off detention, or other wetland function at any larger temporal or spatial scale.

Construction of the environmental education features outlined under "Future Developments" in Section 2.2 is not expected to have measurable effects on natural wetlands because they would be located along existing roads or in upland areas that were previously disturbed by construction of elements of the Proposed Action. However, if construction of those features takes place several years after the initial construction is complete, there could be impacts to the created

riparian vegetation and riparian wetlands. These effects would be localized and unlikely to substantially reduce the amount of new wetland resulting from the site remediation proposed under the proposed Action Alternative.

Regulatory Framework and Consistency

Wetlands are protected under Executive Order 11990. This act directs federal agencies to "minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands..." The Proposed Action would avoid or expand and enhance wetlands on the site resulting in a net gain in wetland area and no loss of wetland function. Therefore, all alternatives would meet Executive Order 11990.

Executive Order 11988 (Floodplain Management) directs federal agencies to identify and evaluate the potential effects of actions they may take in areas that are subject to a 1 percent or greater chance of flooding in any given year. Such areas are defined as the 100-year flood zone by the FEMA and are depicted on flood insurance maps that it produces. FEMA's digital Special Flood Hazard maps showing the 100-year (1 percent chance) and 500-year (0.2 percent chance) flood areas were reviewed. No portion of the site is mapped as being within the 100-year or 500-year flood zone. This is likely because of the steep banks in the immediate area and the height of the first terrace above the active floodplain.

3.3 Soils

Information Sources

The description of soils is derived from soil and geological reports prepared to support the Master Plan and this EA (BOR 1999; NTL Engineering 2003).

Analysis Area

Analysis of direct and indirect effects to soils is primarily limited to the area enclosed by the proposed expanded SUP boundary (Figure 2), including its boundary with the Flathead River.

Affected Environment

The Sekokini Springs site is at the southern end of a primarily flat, elongated river terrace about 0.75 mile long and 0.5 mile wide. It is approximately 80–100 feet above the Flathead River. Northeast and upslope from the site are glacial features such as moraine ridges, kettle lakes, and pothole topography. The site consists of a series of river terraces (benches) that have been cut into older glacial debris. Slope angles range from 25–50 degrees. Generally, the slopes are considered stable; however, some areas of the spring conveyance channels are actively eroding, and slope failure downhill from the ponds has been observed, likely due to water overtopping the ponds at some point in the past.

The geologic units exposed at the site consist of a thin veneer of forest soil covering a usually shallow thickness of alluvium overlying a great thickness of glacial debris. The soil is composed of silty fines, fine sand, and organic matter. The alluvium is composed of an unconsolidated, heterogeneous mixture of hard sub-rounded to rounded sand, gravel, and cobbles deposited by the river. The alluvium was derived in part from reworked glacial debris and in places may be up to 50 feet thick (Johns 1963). The glacial debris is composed of a heterogeneous mixture of

crudely layered clay, silty and bouldery glacial till, and thinly bedded, fine-grained lacustrine deposits. The thickness of the glacial debris could be several hundred feet at the site. (See Appendices D and E for additional information regarding site geology.)

A Bureau of Reclamation (BOR) geologist conducted general site-specific geologic studies during the summer of 1999 (BOR 1999), and a short report was issued to MFWP and others. That report indicated general acceptability of the site for the proposed work and is attached as Appendix D. An additional geotechnical evaluation of the overall stability of the site and subsurface conditions in the vicinity of the planned structures was prepared by NTL Engineering and Geoscience (2003), attached as Appendix E. The NTL report noted substantial erosion of the spring conveyance channels and the area around the existing ponds, and warned of the potential for continued erosion and slope movement. The report suggested the use of impermeable liners in ponds and stream channels to prevent surface water infiltration that could increase soil saturation and downslope movement.

Environmental Effects

No Action Alternative

Direct and Indirect Effects

The No Action Alternative does not require earth moving or other ground disturbance that would negatively affect soils. Native vegetation planting and other methods are used to stabilize areas of active erosion resulting from past uses, which could result in surface erosion and overland sediment transport that is less than current conditions; however, the change probably would be minor.

Cumulative Effects

Because there would be little or no change to the existing condition, there would be no cumulative effects to geology or soils.

Proposed Action

Direct and Indirect Effects: Construction

Potential impacts of the Proposed Action include soil erosion and mass failure or soil instability from construction activities such as excavation and reshaping of existing water bodies and construction of the proposed drain field. Approximately 2 acres would be affected by excavation and earth movement for the various components of the proposal. Construction would remove vegetation, and expose soils to erosional processes (e.g., rain, wind, and surface flow) and could result in the loss of the surface organic layer. This could result in increased erosion and sediment transport and create unstable slopes. However, the site design takes past disturbance, soils, topography, and hydrology into account and is intended to create stable stream channels and ponds through design features.

Forest Service Soil and Water Conservation Practices (FSH2509.22; USDA Forest Service 1988) would be combined with Montana State BMPS to ensure that soil and water resources are protected. Equipment usually would be operated on existing or abandoned roads or in areas disturbed by excavation during construction. Therefore, the amount of area subject to soil compaction from heavy equipment operations should be minimal. In some areas existing or new compaction may require soil tilling or scarification to prepare a suitable substrate for planting. Construction would include remediation of areas currently experiencing active erosion and

potential for slope failure, and the incorporated BMPs should reduce the immediate effects of construction by limiting soil exposure to the weather, providing stormwater detention and routing to reducing the potential for overland flow and surface erosion. Correct design and construction of the proposed improvements, taking site conditions into account, should arrest active erosion and limit the potential for future slope failures. Reconstructed stream reaches would incorporate stable designs appropriate for substrate and slope. This should substantially reduce or eliminate the active erosion occurring at the site from spring flow and precipitation. New stream channels, pond margins, and areas of active erosion would be revegetated with native species to stabilize soils. Impermeable liners would be used in the experimental ponds and Reach 5 to prevent saturating adjacent and underlying soils, reducing the potential for slope failures (See Section 2.2.1).

Direct and Indirect Effects: Operation

There should be no effects to soils resulting from operation of the proposed project.

Cumulative Effects

A variety of natural and human activities have affected soils in the landscape surrounding the site. Wildfires, logging, road building and maintenance, and infrastructure development altered soils, removed vegetation, and created conditions that increased surface erosion and decreased slope stability. Actions such as road management and closures and burned area recovery have stabilized soils and reduced erosion—probably reducing the impact of past actions and events. Such practices are expected to ameliorate future effects of human and natural activities as well.

The Proposed Action would have short-term soil impacts during construction, but in the longer term should reduce surface erosion and result in more stable slopes compared to the existing site conditions. The adverse short-term effects are not expected to accumulate and should not cumulatively change the current conditions at any temporal or spatial scale. The expected improvement in soil condition, while beneficial locally, is not likely to result in measurable change to overall soil conditions in the larger landscape.

Construction of the environmental education features would primarily be on old road beds and areas disturbed by the construction of the stream reaches. The construction would be subject to Forest Service trail construction standards and engineering review and requirements. The proposed paths are along existing roads or dikes and, while these areas would not be revegetated, there would not be an overall effect on soil productivity. Correct design and maintenance should prevent any effects to slope stability from surface run-off or effects to site hydrology. Construction of the viewing platforms would require structural engineering to ensure appropriate designs for the site conditions and soil types.

Regulatory Framework and Consistency

The soil analysis indicates that all activities proposed by the alternatives would meet the Region 1 Soil Quality Standards through the implementation of management practices outlined in Section 2.0 and Section 3.3 Soils, including the restoration of impacted areas, if needed, to reduce the total amount of detrimental soil impacts. All Forest Plan management direction would be met by the proposed alternatives.

The Forest Plan management direction–forest-wide standards for soil resources, page II-46, are as follows:

- ensure that all resource management activities would maintain soil productivity and minimize erosion through implementation of
    - management direction presented in the Landtype Guidelines
    - Erosion Prevention Standards (Engineering Handbook Supplement)
- design or modify all management practices as necessary to protect land productivity

3.4 Water Resources

Information Sources

The description of water resources and analysis of effects presented here are derived from data gathered by MFWP biologists conducting site reviews to support the Master Plan and this EA. Scientific literature pertinent to the topic based on similar physical, chemical, biological, or issue parameters were considered and cited.

Analysis Area

Analysis of direct and indirect effects to water resources is primarily limited to the site and the immediately surrounding area including the upslope kettle lakes (glacially formed, deep, spring-fed lakes) and the Flathead River along the proposed SUP boundary. The kettle lakes area is included because they are believed to be hydrologically connected to the springs at the site. Only the portion of the Flathead River immediately adjacent to the SUP boundary is considered because the potential effects are expected to be so minimal as to become undetectable further downstream.

Affected Environment

Stream Channel Condition and Stability

Existing spring conveyance channels are present throughout the site. Conveyance channels for Springs 1–3 are constructed, eroded ditches, while Spring 4 flows primarily through a natural channel. Geologic review suggested that most of these channels are not stable, although the only mass failure was downslope of the existing ponds and believed to be the result of overtopping from a storm event (Appendix E).

Groundwater Supply and Current Use Pattern

Four natural springs occur on the subject property. Springs 1, 2, and 3 are located near the existing hatchery building and the fourth spring originates off-site near northwest corner of the site (Figure 2). Geologic studies indicate that the general trend of both surface and groundwater flows appears to be from the kettle lakes located northeast of the site at elevations 3,265–3,256 feet, towards the Flathead River along the southwest side of the property at 3,100 feet. The on-site springs daylight at an approximate elevation of 3,200 feet. Springs 1, 2, and 3 have been captured into pre-cast concrete collector boxes with valves and overflow pipes, and plumbing has been installed to the hatchery building. A natural stream channel carries the remainder of flows to the settling pond and then through pipes that discharge into stream channels flowing to the Flathead River.

Water Quality

The combined flows from Springs 1–3 vary seasonally between 0.75 and approximately 6 cfs. Maximum water flow for the proposed facilities from Springs 2 and 3 are estimated at 4 cfs. Estimated flow from Spring 4 ranges from 0.25–2.0 cfs.

Water quality samples taken on November 1, 2001, showed that all measured parameters are below levels known to be harmful to fish (see Appendix B for parameters measured and results).

Water temperatures for the four springs that flow onto the site were measured between July 23, 1997, and March 31, 1998 (Appendix C). Springs 2, 3, and 4 showed seasonal fluctuation, with high temperatures in July and August that decline throughout the sampling period (Figure 4). Springs 1 and 4 demonstrated less seasonal fluctuation in temperature than Springs 2 and 3, which follow an annual temperature regime similar to surface waters. Spring 1 was the most stable, with only a 3-degree (F) fluctuation recorded. Spring 1 did show a warming trend from July into January that did not occur in the other spring sources (Figure 4).

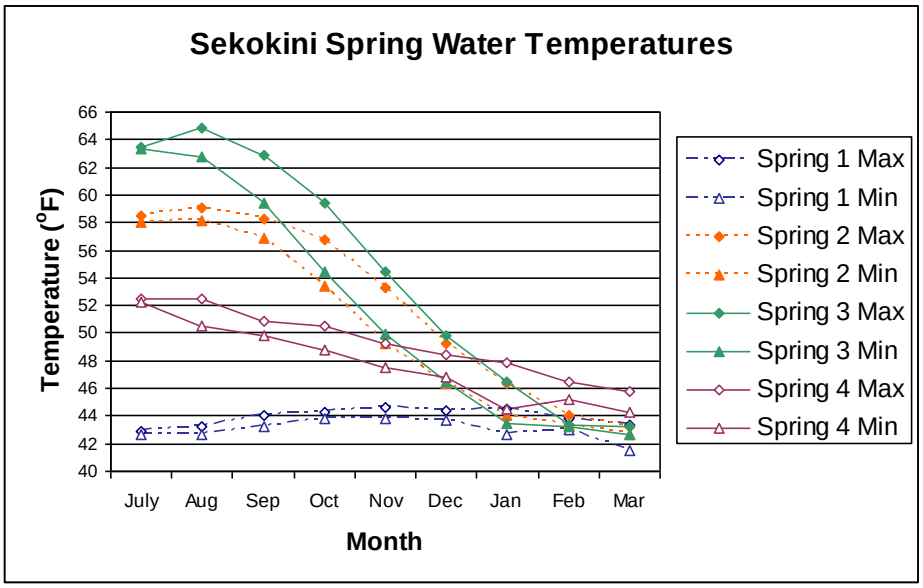

Figure 4. Sekokini Springs Maximum and Minimum Mean Daily Water Temperature Data by Month *

* Temperatures taken between July 23, 1997 and March 31, 1998.

Environmental Effects

No Action Alternative

Direct and Indirect Effects

The existing direct and indirect effects to water resources at Sekokini Springs would continue under the No Action Alternative. Stream channel condition would gradually improve, largely through natural processes. However, during the process of the channels reaching an equilibrium condition it is likely that there would be continuing or increased amounts of erosion and

subsequent sediment delivery to the Flathead River. There would be no change in water quality or quantity resulting from continued operations.

Cumulative Effects

Water quality and quantity from the springs could be affected by activities upslope to the northeast because the springs are believed to be hydrologically connected to the kettle lakes and groundwater in that area according to the National Engineering and Geoscience Report (2003) (Appendix E). The magnitude of the effect on water quantity would be dependent on the level of development and any groundwater withdrawal. Any proposed development resulting in new withdrawals or discharges from the springs would be reviewed under the Montana Water Use Act (Title 85: Chapter 2, MCA).

The section of the Flathead River adjacent to the site is not on the Montana 303(d) list of impaired waters and has no TMDLs, although Flathead Lake, located about 50 river miles downstream, is (Steg et al. 2005; Montana Department of Environmental Quality (DEQ) 303(d) List 2010[6]). Historic and future activities, including timber harvest, mining, transportation infrastructure and other human development, have contributed nutrients and sediments and altered water yield to the Flathead River, and will continue to do so. However, the No Action Alternative would not result in any measurable incremental change to water quality or quantity parameters that would increase the potential that Montana DEQ would place the Flathead River on the 303(d) list.

Proposed Action

Direct and Indirect Effects: Construction

- Water Quantity

Construction would not affect water quantity. Spring flows would be routed around construction areas as necessary, but there would be no consumptive use and overall quantity would remain the same.

- Water Quality–Sedimentation

Soil disturbance and removal of vegetation could result in erosion, suspension of fine particulates, and sediment transport to water bodies. The constructed channels would also be potential sources of sediment that could be transported to the Flathead River. However, since all work would be done "in the dry," and water would be introduced only after the reaches and ponds were complete, the erosion and the amount of sediment subsequently transported to the new streams and moved downstream to the Flathead River is expected to be small. Because most flow would be routed through ponds, wetlands, and eventually the two-way fish barrier on Reach 5, most sediment produced would be detained on site. BMPs, including incorporation of temporary settling basins and sediment filters, would further reduce the likelihood of increased turbidity and sediment deposition in the Flathead River. While even relatively small disruptions to stream channels (e.g., culvert removal) can result in large amounts of sediment entering water bodies, appropriate BMPS can reduce sediment yield to minimal levels (Foltz et al. 2008).

[6] http://cwaic.mt.gov/ accessed 4-07-2010

Direct and Indirect Effects: Operation

- Water Quantity

The hatchery itself uses the water from Springs 2 and 3. Due to plumbing constraints, only 1.4 cfs of the total flow can actually enter the hatchery; the remaining spring flow bypasses the facility. Approximately a third to half the flow that enters the hatchery would be used in the isolation area. Outflow from the isolation facility would be piped to a settling tank and then to the drain field, which would reduce the amount of surface water leaving the site and entering the Flathead River by 0.4–0.7 cfs.

When the existing erosion channels that currently flow into the Flathead River are combined into a single restored stream, flow would vary from 3.8 cfs during base flows to 6.5 cfs during spring runoff. Water not used by the hatchery would flow into the constructed stream channel and into the four rearing ponds on the lower bench where the flow from Spring 4 (1.2–2.1 cfs) would be added. Once through the ponds, these waters would be combined with the outflow from the wetland and would flow through Reach 5 and the two-way fish barrier into the Flathead River.

- Water Quality

Effluent from the hatchery facility would contain increased total suspended solids and nutrients from feeding and elimination compared to water entering the hatchery. There are two outlets for the effluent depending on use. Effluent from the isolation area (where wild fish are placed until disease inspection and genetic testing are completed) would be piped into a settling tank and then into an underground drain field. This keeps potential pathogens from reaching the Flathead River. Effluent from the rest of the facility would flow into a settling pond and then into Reach 3. Reach 3 would include 700 linear feet of constructed wetland intended to remove solids and nutrients. Treatment wetlands have been used successfully in removing suspended solids and nutrients (e.g., nitrogen and phosphorus) from hatchery effluent (Hunter et al. 1993; Michael 2003); it is expected that biological uptake and filtering provided by the wetland would reduce nutrient and suspended solids. The small amounts of nutrients/suspended solids that may actually reach the Flathead River are very unlikely to result in a detectable change in the water quality parameters of the river. Total discharge from the site that would come in contact with fish would be less than 7.0 cfs or <0.1 percent of the average daily discharge of the Flathead River in the area (5,880 cfs[7]).

Spring water temperatures range from 44–60 degrees F. The ponds and wetlands would increase solar exposure time and may affect water temperature within those water bodies. However, due to the short residence time in the ponds and the shaded nature of the wetland, it is not expected that the temperature would change by more than 2–3 degrees F during either the summer or the winter. The volume of water reaching the Flathead River would be so small (<0.1 percent average flow) that it would cause no measurable change to water temperatures in the river.

Cumulative Effects

Water quality and quantity from the springs could be affected by activities upslope to the northeast because the springs are believed to be hydrologically connected to the kettle lakes and groundwater in that area (Appendix E). The magnitude of the effect on water quantity would be dependent on the level of development and any groundwater withdrawal.

[7] http://mt.water.usgs.gov/ accessed 4/07/2010

The Flathead River is not on the Montana 303(d) list of impaired waters and has no TMDLs; however, Flathead Lake on the list (Steg et al. 2005; Montana DEQ 303(d) List 2010[8]). Historic and future activities, including timber harvest, mining, transportation infrastructure, and other human development, have contributed nutrients and sediments and altered water yield to the Flathead River, and will continue to do so. The Proposed Action would not result in any measurable incremental change to water quality or quantity parameters that would increase the potential that Montana DEQ would place the Flathead River on the 303(d) list.

The environmental education features proposed for future construction would not require water or occur in water; therefore, they would not add to the cumulative effects that have occurred or will occur in the area.

Regulatory Framework and Consistency

Based on the analysis summarized above, the Proposed Action would meet the Clean Water Act, Montana State Water Quality Standards, Montana Streamside Management Zone Law, and Forest Plan Water Quality Goals.

The facility would operate under the Montana DEQ Concentrated Aquatic Animal /Fish Farm General Permit–Authorization to Discharge under the Montana Pollutant Discharge Elimination System (Fish Farm General Permit). The Fish Farm General Permit does not require a discharge permit or any treatment of discharge from a fish culture facility producing less than 20,000 lbs of fish/year. Facilities qualifying for operation under the General Permit are considered compliant with the Montana Water Quality Act, Title 75, Chapter 5, Montana Code Annotated (MCA), and the "Clean Water Act", 33 U.S.C. 1251 et. seq. The Forest Plan Water Quality Goals are to "Maintain high quality water which meets or exceeds State and Federal water quality standards to protect migratory and resident fisheries, water-based recreation opportunities, and public water supplies." (USDA Forest Service 1985. II-5). Therefore, compliance with the requirements of the Fish Farm General Permit would meet the goals of the Forest Plan.

3.6 Fisheries

Information Sources

The description of fisheries resources and analysis of effects presented here are derived from data gathered by MFWP biologists conducting site reviews to support the Master Plan and this EA. Scientific literature pertinent to the topic based on similar physical, chemical, biological, or issue parameters were considered and cited.

Analysis Area

Analysis of direct and indirect effects to water resources is primarily limited to the site and the immediately surrounding area including the upslope kettle lakes and the Flathead River along the proposed SUP boundary. Only the portion of the Flathead River immediately adjacent to the SUP boundary is considered because the potential effects are expected to be so minimal as to become undetectable further downstream.

[8] http://cwaic.mt.gov/ accessed 4-07-2010

Affected Environment

No fish species listed under the federal Endangered Species Act (ESA) occur at the project site. All rainbow trout were removed from the site in 1994. There is no natural fish habitat on the site.

Bull trout (*Salvelinus confluentus),* listed as Threatened under ESA, are found in the Flathead River, as are westslope cutthroat rainbow trout hybrid (*Oncorhynchus clarki* × *mykiss*), mountain whitefish (*Prosopium williamsoni*), and sculpin (*Cottus* spp). Section 3.8 (Threatened, Endangered, and Sensitive Species) discusses bull trout use of the river.

The section of the Flathead River adjacent to the proposed SUP boundary is a broad riffle/run with an intact riparian area. During normal and low water, a cobble/gravel bar beach is present between the edge of the river and the riparian tree line. The width and size of the river make it unlikely that the riparian vegetation provides a substantial cooling effect to the river, but the vegetation does provide bank stability, litter fall, habitat for invertebrates, and large woody material (Poole and Berman 2001).

Environmental Effects

Actions that increase the sediment load in water bodies (such as excavation), that remove riparian vegetation, or that add pollutants to fish-bearing streams can adversely affect fish by reducing the amount of oxygen in the water, removing cover or food sources, or adding toxins to the habitat.

No Action Alternative

Direct and Indirect Effects

The No Action alternative is not expected to have measurable effects on fish or fisheries habitat. No activity at the site would affect the Flathead River or its riparian area—the only natural fish habitat in the vicinity. Weed control and vegetation management as well as maintenance and repair of failing infrastructure could reduce sediment currently transported to the Flathead River by stabilizing un-vegetated areas and creating more root mass. This would ensure that the riparian area remains functional, but the relatively small area affected makes it unlikely that there would be any detectable change.

Cumulative Effects

The No Action Alternative is not expected to have measurable effects on fish or fisheries and therefore should not contribute to the cumulative effects that have occurred or are likely to occur within the upper portion of the Flathead River.

Proposed Action

Direct and Indirect Effects: Construction

The Proposed Action could produce sediment that reaches the Flathead River and would alter a small area of the active floodplain of the river during the construction of the outfall section of Reach 5. However, the alterations to the floodplain would not result in changes in flood elevation or flow and the likelihood of measureable impacts to fisheries or fish habitat from other actions is very low, as described below.

Activities that would adversely affect the riparian corridor of the Flathead River or alter its function, such as clearing of woody vegetation, are not proposed. Construction of the ponds and connecting stream reaches would occur at least one season prior to construction of Reach 5 (the only direct connection to the river), giving time for introduced sediment in the new waterways to be sorted and settle in the constructed stream channels and detention wetlands. Use of BMPs, including limiting construction to the dry periods of the year and doing all channel and pond construction while they are dry, substantially reduces the threat of erosion and sediment transport when rain falls on newly disturbed areas. Some sediment could be transported in the existing spring conveyance channels and could reach the river; however, surface transport of sediment is unlikely to reach the river due to the width of the vegetation buffer between the construction area and the river (>200 feet).

The section of Reach 5 below the two-way fish barrier would be directly connected to the Flathead River. The alignment of Reach 5 takes advantage of existing openings in riparian vegetation. No more than limited removal of woody vegetation (2-4 shrub/shrub sized trees) if any is expected. Reach 5 would be constructed using clean, small gravel/cobble/small boulder-sized material transported from off-site, limiting the amount of introduced fines and fines that could be easily suspended when flow is introduced. In addition, the reach is designed to be stable for the intended slope and substrate and to be a functioning stream, meaning that it should route and detain sediment naturally, lessening the likelihood of any "pulse" of sediment reaching the Flathead River. Installation of BMPs, (e.g. straw bales or other filter medium) as appropriate, would also substantially reduce any entrained sediment from reaching the river (Foltz et al. 2008).

Although the outfall of Reach 5 would occur in the Flathead floodplain, it should not affect flood hydrology because it would not raise the elevation of any portion of the existing floodplain. Microsite habitat may be altered somewhat through changes in substrate size or distribution within the outfall area and changes in local hydrology. These changes would be limited to the area immediately around the outfall. While these changes may affect individuals (positively or negatively), they are not expected to effect the size or distribution of the local fish populations.

Upon completion of construction, the channels created would be expected to produce less suspended sediment than the existing conveyance channels. The wetland and fish barrier would also trap and detain excess suspended sediment. Compliance with the design criteria (see Section 2.2.1) would be expected to result in no effects or in slightly improved conditions, although any adverse or beneficial effect is unlikely to be detectable.

All proposed construction would occur during the dry periods of the year, and no construction would occur in the wetted portion of any water body; therefore, there would be no construction-related disturbance that would result in sediment being directly introduced to the Flathead River. Construction of the stream channels and the outfall channel would necessarily result in disturbance to the substrate that would increase the availability of fine sediments. When flows are introduced to newly restored stream channels, some fine particulates would be suspended in the flow and likely carried down the reach into a temporary impoundment where most remaining sediments would settle out before reaching the Flathead River. Because the stream designs are intended to create stable channels for the grade and substrate where they would be constructed, it is expected that sediment would be routed and detained, reducing the magnitude of any sediment "pulse," and resulting in only small, local increase in suspended sediment delivery to the area downstream of the outfall channel. A small "plume" of suspended sediment may be visible for a

short time (less than 1 hour) following introduction of flow. At no time is the level of suspended sediment expected to reach a level that would adversely affect fish.

Direct and Indirect Effects: Operation

Operational effects to fish are expected to be very low and likely undetectable. As under the No Action Alternative, weed control and vegetation management could reduce sediment transport to the Flathead River and ensure that the riparian area remains functional, but the relatively small area affected makes it unlikely that there would be any detectable change.

There would be no change in water quantity delivered to the Flathead River compared to the No Action Alternative, and there could possibly be some reduction in sediment transport due to the improved channel stability and the use of treatment wetlands. Spring flow would be routed into the hatchery building as it is now, and some flow would be directed through the rearing ponds, but eventually all flow would be directed through Reach 5 to the Flathead River. The amount of impervious surface would not increase, and the new wetlands would ensure that surface run-off would not increase.

The Proposed Action takes potential effects to water quality into account. Plans have been developed that address the potential for introduced pathogens from the donor stock and any effects to water quality from the fish rearing itself. All potential donor populations would be examined for reportable pathogens in the wild prior to collection and transport to the facility, and all fish outplanted to the ponds would be examined for reportable fish pathogens in the isolation facility. If a pathogen is subsequently detected in the rearing ponds, water would be diverted into the existing bypass channel and the living stream and rearing ponds will be dewatered to control water-born pathogens. Fish brought to the facility will have originated from wild donor populations from the Flathead River headwaters, so any potential pathogens detected at Sekokini Springs will have come from upstream sources within the Flathead system. (See Section 3.4 Water Resources for additional information.)

Cumulative Effects

The Proposed Action is not expected to have measurable effects on fish or fisheries and therefore should not contribute to the cumulative effects that have occurred or are likely to occur within the upper portion of the Flathead River.

Regulatory Framework and Consistency

The Forest Plan is the primary document describing management standards and guidelines governing activity on national forest lands. Management standards for and related to fisheries habitat are contained in the Flathead Forest Plan (USDA Forest Service 1985), pages II-21–II-22, and II-26–II-35. In addition, a separate management area (MA 12) was established for riparian areas where specific standards and guides apply (III-52-60). Originally adopted in 1986, the Flathead Forest Plan was amended in 1990 (Amendment #3) to better define the standards for protection of fish populations.

The Inland Native Fish Strategy (INFISH) (USDA Forest Service 1995) amended the Flathead Forest Plan on August 30, 1995. INFISH is an aquatic conservation strategy developed by the Forest Service to protect habitat and populations of all native fish (USDA Forest Service 1995). This interim strategy was designed to provide additional protection for existing populations of native fish, outside the range of anadromous fish, on 22 National Forests in the Pacific

Northwest, Northern, and Intermountain Regions. All activities associated with the Proposed Action will comply with the applicable INFISH standards and guidelines including LH-4.

3.7 Wildlife

Information Sources

The analysis of potential effects to wildlife presented here is derived from data gathered by MFWP biologists conducting site reviews to support the Master Plan and this EA and supported by scientific literature pertinent to the species/resource. Additional analysis for specific wildlife species is provided in Section 3.8 Threatened, Endangered, and Sensitive Species.

Analysis Area

Analysis of direct and indirect effects to wildlife is primarily limited to the site and the immediately surrounding area. Where appropriate, the condition of the larger surrounding area (generally the area considered in the Belton Fuels Project EA, is considered to provide context to the analysis of potential effects.

Existing Conditions

The site's position adjacent to the river and the relatively diverse vegetation species and age structure in the larger area indicate that the site is probably used by a wide variety of wildlife species for all or some component of their life history. However, given its relatively small size either under the current SUP or the expanded SUP under the Proposed Action, the site represents the entire home range for only a few individuals of small species (song birds, rodents, amphibians) and a minor fraction of the home range of larger species (e.g., ungulates, large carnivores). In addition, the amount of transportation infrastructure and private land and housing in the area likely limit species presence to those that are tolerant or adaptable to human activity.

No Action Alternative

Direct, Indirect, and Cumulative Effects

The No Action Alternative would not directly or indirectly alter habitat for native species. Noxious weed control and vegetation management should improve habitat conditions for some species, although the relatively small area affected would not likely result in any measurable changes to populations.

There would be no increase in vehicle traffic to and from the site and the limited amount of activity that occurs outside under the No Action Alternative. It is expected that the disturbance would be minor and not likely to substantially change use patterns. Most of the vehicle and human activity would occur on a regular schedule. As noted previously, human activity is common in the larger area, and most wildlife that occupy the area are exposed to human disturbance regularly. Sounds and activities to which wildlife would be exposed would be similar to what occurs regularly in the larger area; most wildlife are expected to have habituated in some manner to human activity (Bowles 1995). Ongoing observations of wildlife species at and around the site support this conclusion.

Proposed Action

Direct and Indirect Effects: Construction

Construction of the ponds and stream channels is expected to take place during summer months over the course of several years, with each construction event taking between 1–2 months. Noise associated with construction, particularly heavy equipment operation, would likely cause wildlife to avoid the area during those periods. The majority of construction activities are planned in areas that have been previously altered, and there would be little removal of native vegetation. Few trees are expected to be removed and most vegetation impacts would occur to weed, grass, or shrub species. Construction at the existing ponds would make it unlikely that the ponds would be used by larger wildlife during the construction periods. Smaller and less mobile wildlife may not leave the area and some individuals (rodents, amphibians, reptiles) may be injured or killed by machinery. The relatively small amount of disturbed area would suggest that the number of animals potentially harmed would also be small.

Direct and Indirect Effects: Operation

Generally the effects from operation would be similar to those of the No Action Alternative. The same number of people would be present and the number of vehicle trips would be the same. However, human outdoor activity would increase in order to maintain the ponds, streams, and other new features; and to feed, place, and remove fish from the ponds. Some individual animals might be displaced during the activity, but most likely only in the immediate vicinity of the activity.

The alteration of the ponds for WCT also would increase habitat for aquatic and riparian associated species (e.g., amphibians, mink [*Mustela vison*]), and noxious weed management, site restoration, and vegetation management would eventually provide new and higher quality habitat for native species. However, if predation of WCT in the ponds reached levels that prevented the recruitment of sufficient fish for out-planting or spawning, MFWP would install fencing or other barriers to limit access. This would reduce the habitat benefit of the more natural ponds for fish predators as well as for other species. Amphibians using the ponds now or in the future would be subject to some level of predation threat from the WCT. However, since WCT are primarily insectivorous (Nakano et al. 1992; McIntyre and Rieman 1995; Schoby 2006), any predation would likely be opportunistic rather than focused. In addition, because all natural wetlands on the site would be preserved, and the structure of new ponds would provide some escape cover for amphibians, the overall effect on the local amphibian population is expected to be minor.

Cumulative Effects

Over time, the activities associated with the Proposed Action would improve local physical habitat conditions but would cause an increase in human activity that could deter some individuals from using the area. Outside human activity in and near the Flathead River is common and will likely increase over time, subjecting wildlife to more disturbance. Forest management and development is expected to continue in the area (e.g., the Belton Fuels Reduction project) and would alter habitat and disturb wildlife on a scale much larger scale (Belton Fuels Reduction Project Area was about 37,000 acres) than the Proposed Action at about 23 acres). The small increase in activity associated with the implementation of the Proposed Action is unlikely to trigger any measurable change in species diversity or numbers at the site or in the region.

Implementation of the environmental education components would result in relatively large groups of people (more than 10) being on the site. Generally, activity would be limited to the

areas adjacent to the constructed stream channels, ponds, and wetlands. Species using areas near these features would be subject to disturbance from regular work activities and likely adapted to disturbance. Effects are expected to be similar in scope to the effects from operation and are not expected to reach a level where wildlife populations are affected.

3.8 Threatened, Endangered, and Sensitive Species

Information Sources

The analysis of Threatened, Endangered, and Sensitive species (TES: all are considered Management Indicator Species (MIS) under the Forest Plan) relies on

- information obtained during site visits and daily operation by MFWP biologists
- information on species presences and habitat requirements is summarized from NatureServe[9], Montana Natural Heritage Program Field Guide[10], and the "Flathead National Forest Evaluation and Compliance with National Forest Management Act Requirements to Provide for Diversity of Animal Communities" (FNF 2010), except where noted by specific citations
- scientific literature pertinent to the resource/species was reviewed and is cited to support the analysis as appropriate

Analysis Area

Analysis of direct and indirect effects to TES species is primarily limited to the site and the immediate area surrounding the SUP area. Where appropriate, and as noted, the species population and habitat is considered at a larger scale to provide context for the potential effects from either of the alternatives.

Affected Environment and Environmental Effects

Table 3 lists species federally listed under the ESA as threatened, endangered, or proposed, and species determined by Region 1 of the Forest Service to be "Sensitive" (Region 1 Sensitive Species List–Wildlife [FINAL] 2007). The FNF Forest Plan designated all threatened and endangered species, sensitive species, and commonly hunted ungulates including elk, mule deer, and white-tailed deer as MIS. . Many of these species were evaluated in the Belton Fuels Reduction EA (USDA Forest Service 2008), and in previous Biological Assessments/Evaluations for work performed at the site (USDA Forest Service 2002a, 2002b; USDA Forest Service 2010). The Belton Fuels Reduction EA project area encompassed the Sekokini Site and approximately 37,000 additional acres west of the site and generally included similar activities (e.g., heavy equipment operation and human activity) although occurring at a larger spatial and temporal extent than would occur at Sekokini. If those analyses found that 1) habitat is absent or 2) individuals or habitat would not be affected by the proposed project to a degree warranting in-depth analysis, no additional discussion beyond the table is provided.

Comment [agd2]: What?

[9]http://www.natureserve.org/explorer/servlet/NatureServe?post_processes=PostReset&loadTemplate=nameSearchSpecies.wmt&Type=Reset

[10] http://fieldguide.mt.gov/

Table 3 describes potential impacts under the Proposed Alternative; impacts under the No Action Alternative would be equal to or less than described in the table.

Table 3. Summary of effects to threatened, endangered, and sensitive species in the project area

Species/Status*	Status	Habitat Summary Project Effects**
Plants		
Water howellia	**T**	***No Effect*** Habitat is not present (USDA Forest Service 2010), but see Section 3.8.1.
Spalding's catchfly	**T**	***No Effect*** Habitat is not present (USDA Forest Service 2010), but see Section 3.8.1.
Sensitive Plant Species	**S**	***MIIH:*** may impact individuals or their habitat, but would not adversely affect the species and is unlikely to cause a decline in population viability or lead to federal listing of this species or its habitat. See Section 3.8.1
Wildlife		
Grizzly Bear	**T**	The project ***May Affect but is not Likely to Adversely Affect*** grizzly bear; see Section 3.8.2 .
Lynx	**T**	Mixed age sub-alpine forest >4000 feet in elevation. Typically forage along ecotone between cover and more open areas. Avoid larger openings but early successional openings provide habitat for primary prey species (snowshoe hare)
		No Effect: The proposed project would not occur within FNF mapped lynx habitat or designated lynx critical habitat (USFWS 2000; USDA Forest Service 2008; Aubry et al. 1999; McKelvey 1999); therefore, it is unlikely that lynx or their habitat would be affected. This project would not change the ability of lynx to move through the area or surrounding landscape.
Gray Wolf	**E**	Potential denning habitat is thought to occur primarily within riparian corridors containing areas of relatively flat or rolling terrain. Rendezvous sites and prey base are important habitat components as well. Prey base largely consists of ungulates, though beaver, other small mammals, and carrion are important components as well. Habitat security (areas remote from human-related mortality risks such as hunting and grazing) is important to the conservation of this species
		May Affect but is not Likely to Adversely Affect Disturbance could temporarily alter normal wolf behaviors in the immediate vicinity during the construction periods. However, this project should not make any measurable difference in how wolves use the larger area and would not adversely affect prey density or distribution. There would essentially be no difference in habitat conditions and/or human use patterns as compared to the existing situation pre- and post-project. Given the small area affected and the lack of any unique features for wolves, the lack of measurable effect on this species or its habitat as a result of modifying the Special Use Permit, effects to wolves will not be further discussed.
Bald Eagle	**S**	Typically nest in old growth or mature stands within a mile of rivers or large lakes with sufficient prey base (primarily fish in summer); prefer visual screening surrounding nesting and foraging areas and tend to select for areas with limited human disturbance for nesting and primary use areas.
		MIIH. There are no nests or roost sites in or near the vicinity of the project (USDA Forest Service 2008). Eagles may fly over the area and forage along the river and could be displaced by construction activity. No roosts, trees used for foraging, or forage species would be disturbed. Forage areas along the Flathead River are not known to be limited and short-term displacement would be unlikely to result in any measurable effects to individuals or the population. It is possible that eagles may attempt to forage on WCT in the outdoor ponds. Since bald eagles would not be adversely affected and any potential disturbances mentioned here would be short term, effects to bald eagles will not be further discussed.

Peregrine Falcon	**S**	Nests on cliffs or similar hard substrate usually within 10 miles of hunting grounds which include: rivers, lakes, marshes, croplands and other similar habitats with abundant bird life.
		No Impact. There are no active peregrine falcon aeries in the immediate area. There are no cliff sites typically associated with peregrine nesting at or near the project site and no areas of concentrated forage species (primarily small birds and waterfowl). There are peregrines in the general area and they may occasionally forage in the general area. Neither alternative would alter potential nesting sites or adversely effect prey species. Therefore, the project would not result in loss of species viability or create a significant trend toward federal listing.
Common Loon	**S**	In Montana, loons generally do not nest on lakes smaller than 13 ac in size or over 5000 ft in elevation; emergent vegetation along islands or lake shore is important for nesting. Nesting pairs are highly territorial. Loons arrive in Montana in April and initiate nests in early May; nests are always within 5 feet of the shoreline, generally on spits or small islands.
		No Impact. There are no lakes in the project area or immediate vicinity and the site provides no forage or nesting habitat (typ. lakes <13 acres with well vegetated shorelines) for loons.
Black-backed Woodpecker	**S**	Subalpine fir, spruce and lodgepole pine forests; somewhat nomadic; populations tend to erupt after stand replacement fires. Feed on wood boring and bark beetles.
		No Impact. They are very unlikely to occur on the site because it lacks features typically associated with their presence. No part of the site contains burned forest that black-backed woodpecker are strongly associated with (Dixon and Saab 2000; Hutto 2008). They may occur outside burned areas but at very low densities. The proposed project would remove only two or three trees for the drain field and these are likely too small for nesting and are not likely to provide any unique foraging opportunities. Burned forest habitat is not lacking in the larger area.
Flammulated Owl	**S**	Mature to old growth lower elevation ponderosa pine or mixed conifer forests with relatively open forest floors; nests in tree cavities; feeds on invertebrates, esp. moths, captured in air.
		No Impact. There is no flammulated owl habitat (typ. dry open canopy ponderosa pine/Douglas-fir) in the project area; therefore, it is very unlikely that the owl would be affected. The owl's habitat would not be affected.
Harlequin Duck	**S**	Breeding habitat consists of relatively undisturbed, forested banks of swiftly flowing mountain streams; streams are generally >15 feet wide with dense riparian vegetation and good water quality; feed primarily on benthic insects during breeding season. Males and females arrive on breeding grounds in late April to May; males depart breeding grounds in June and females with broods depart in September. They winter in coastal areas from northern California to Alaska.
		MIIH: May Impact Individuals or Habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species. See Section 3.8.3.
Wolverine	**S**	A broad variety of mountainous habitats are used; associated with cirque basins forested areas especially subalpine fir forests; dens in caves, avalanche chutes, burrows, fallen logs, and deep snow; large home range; utilizes a wide variety of foods.
		No Impact. Construction of the proposed project would occur during a time when wolverines would be found at higher elevations than this site. The site does not contain typical wolverine habitat (typ. boreal/mountain/subalpine conifer forests). There would be no impact to denning habitat or forage resources.
Fisher	**S**	Fishers occur at very low densities in NW Montana. Fishers are believed associated with forested riparian areas, extensive forests with complex structure (multiple layers, snags, logs) and generally occur in areas of low human activity.
		No Impact.. The site includes riparian areas but tree size and number of large conifer snags/logs appears limited. Neither alternative would alter forest cover or density/size of snags or logs. Disturbance (human activity, construction associated with either alternative may delay movement for a short time (hours), but not to the extent that any adverse affects would occur.

Western Big-Eared Bat	**S**	Uses caves primarily for roosts and nurseries; occasionally uses tree cavities at all elevations; insectivorous; forages nocturnally, mostly in openings. Typically forages high in forest canopies near wet meadows.
		***No Impact.*.** Project activity is not near important bat habitat (type caves, mines). Foraging habitat (trees/shrubs that produce or provide cover for insect forage species) would be minimally altered but the minor extent of clearing is not expected to result in any impacts.
Northern Bog Lemming	**S**	Lives in wet meadows and sphagnum bogs (about 1 acre or larger) (Reichel and Corn 1997); feeds on sphagnum moss, grasses and sedges.
		No Impact. Bog lemming habitat does not exist in or adjacent to the project area. None of the wetlands on the site of any size constitute habitat for bog lemmings.
Western Toad	**S**	Found in a variety of habitats including wetlands, forests, woodlands, sagebrush, meadows, and floodplains. Adults may move more than one-half mile at night and may move more than 2.5 miles away from water after breeding and can remain away from surface water for relatively long periods of time.
		MIIH. The proposed project may impact individuals or their habitat, but would not adversely affect the species and is unlikely to cause a decline in population viability or lead to federal listing of this species or its habitat. See discussion in Section 3.8.3.
Northern Leopard Frog		Typically found in and adjacent to permanent slow moving or standing water bodies with considerable vegetation. Breeding habitat consists of lakes, ponds, beaver ponds and occasionally backwaters; breeding occurs in March and April.
		No Impact. There is no natural habitat for this species within or adjacent to the project area. Not known to occur on the Flathead National Forest.
Fish		
Bull Trout	**T**	Cold, clear, streams, rivers and lakes. Flathead bull trout primarily adfluvial living as adults in lakes and spawning in smaller streams. Spawning streams have clean gravel/cobble substrate and complex cover.
		No Effect bull trout or critical habitat. Bull trout habitat is not present at the Sekokini Springs site. Bull trout do use the Flathead River as a migration corridor; however, this project would not affect the river's ability to provide migration habitat. Because construction of Reach 5 would be done in the dry season, there would be no direct impacts to bull trout or critical habitat.
Westslope Cutthroat Trout	**S**	Cold, clear streams with complex cover and deep pools. Clean gravel substrate for spawning.
		No Impact. Currently, no natural population of westslope cutthroat trout exists at the project site. Renovation of the site would create habitat for this Species of Special Concern. Westslope cutthroat trout do use the Flathead River as a migration corridor and for rearing; however, this project would not have long-term effects on the river (see Section 3.4).

*E =Federally listed as Endangered; T = Federally listed as Threatened; PL = Proposed to be Federally Listed; PD = Proposed to be delisted; S = Forest Service (Region 1) listed as Sensitive. MIS=Management Indicator Species. All TES species are also considered MIS.

MIIH= May Impact Individuals or Habitat but is unlikely to cause a decline in population viability or lead to federal listing of this species or its habitat.

No Impact = this project would result in no impact on population viability and would not lead to a federal listing of the species or its habitat.

****Except as noted species and habitat information is from NatureServe, Montana Field Guide, and Flathead species analysis for NFMA.**

Table 4. Potential Impacts to Management Indicator Species and Other Wildlife

Species	Additional Potential Impacts
Ungulates (Elk, mule and white-tailed deer)	***No Effect***. Neither alternative would alter winter, spring/fall transitional or summer habitat for ungulates.
Old Growth, Snag, and Deadwood Habitat-Associated Species	Potential effects in terms of snag reductions or protections are discussed above in the Black-backed woodpecker section of Table 3. The Proposed Action would have *no impacts* on old-growth species because there is no old-growth forest on or near the site Therefore, it is unlikely that any of the alternatives would have any discernable impacts on old-growth habitat/wildlife species.
Northern Goshawk (MIS)	Alterations to nesting habitat would not be expected given the lack of typical nesting structure at the site. Foraging habitat also would not be substantially altered, although construction activities may reduce the likelihood that the site would be used for foraging during actual construction. The site constitutes a minimal portion of the average home range and any adverse effect from loss of foraging access would be highly unlikely.
Neotropical Migratory Birds	Construction associated disturbance may cause some avoidance of the area. However since most construction is scheduled for mid- to late summer after hatching, construction is unlikely to result in nest abandonment or any injury or mortality from damaging nests. Some late-nesting species, particularly any ground, or low shrub nesters could be impacted. Since most construction would occur in disturbed habitats less likely to be used by native birds, the likelihood and extent of any impact is expected to be low.

3.8.1 TES Plants

Affected Environment

The affected environment for TES plants is the same as described for Vegetation in Section 3.1. Two plant species listed under ESA as Threatened—water howellia (*Howellia aquatilis*) and Spalding's catchfly (*Silene spaldingii*) —are found on the FNF. Forest Service botanists have conducted five separate site surveys to determine the potential presence of TES plant species. Site surveys were conducted on June 8, 1994; September 15, 1999; June 22, 2000; July 10, 2002 (USDA Forest Service 2002a, 2002b); and 2009 (USDA. Forest Service 2010a). No TES species were observed during any of the field visits, however; habitat for some sensitive plant species does occur at the site.

Environmental Effects

No Action Alternative

Direct, Indirect, and Cumulative Effects

No federally listed plants or appropriate habitat have been found at or near the site during multiple surveys (USDA Forest Service 2002b; USDA Forest Service 2010). No direct, indirect or cumulative effects to listed plants would be expected to result from the No Action Alternative.

Sensitive plants may occur in the area, although they have not been detected (USDA Forest Service 2002a; USDA Forest Service 2010). Ground disturbance would be minimal under the

No Action Alternative and limited largely to maintenance of the springs and stabilization of existing infrastructure such as the pond control structures and erosion channels. These areas are disturbed and sensitive plants have not been found in those locations.

Noxious weed management including hand-pulling and herbicide use has the potential to adversely affect sensitive plant species. These activities were evaluated as part of the weed management plan Biological Evaluation (USDA Forest Service 2002a) and it was determined that "*may affect habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability*" for potentially occurring Regional Forester's sensitive plants (see Appendix F) associated with

- aquatic and vernal pools (man-made)
- margins of moist coniferous forest
- marshes, seeps, springs and wet meadows
- mid-elevation moist coniferous forests
- riparian associates
- disturbed areas

This determination is based on the presence of suitable habitat for potentially occurring sensitive plants within the project area and the potential for indirect effects of invasive species competition.

Proposed Action

Direct and Indirect Effects

The Forest Botanist has prepared a Biological Assessment (BA) and determined that the Proposed Action would have no effect on the threatened water howellia or Spalding's catchfly, their habitat, or potential habitat for these species. This determination is based on the lack of known occurrences within the project area and the lack of habitat within the action area (USDA Forest Service 2002b; USDA Forest Service 2010).

The Forest Botanist has prepared a Biological Evaluation (BE) and determined that the Sekokini Springs Project would have no effect for all Regional Forester's sensitive plants with habitat affinities for

- vernally moist cliffs or vernally moist talus slopes
- canyon walls, crevices, rock outcrops and slides
- dry grasslands and openings in ponderosa pine and dry Douglas-fir forests
- alpine
- subalpine forests
- mid-montane/subalpine grass/forb
- fens and fen margins

This determination is based on the absence of the above-listed habitat guilds in the project area and the lack of documentation of known sensitive plant species or potential habitat in the project area (USDA Forest Service 2010).

No plant species on the Regional Forester's sensitive species list has been detected on the site during any of the five site visits, and none are known to occur in the general vicinity (USDA Forest Service 2002b, 2010). However, habitat is present and the timing, intensity, or extent of the surveys was not sufficient to rule out the species' presence. Therefore, the botanist determined that this project "may affect habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability" for potentially occurring Regional Forester's sensitive plants (see Appendix F) associated with

- aquatic and vernal pools (man-made)
- margins of moist coniferous forest
- marshes, seeps, springs and wet meadows
- mid-elevation moist coniferous forests
- riparian associates
- disturbed areas

This determination is based on the presence of habitat for potentially occurring sensitive plants within the project area and the potential for indirect effects of invasive species competition.

Cumulative Effects

Past, present, and foreseeable actions within the project area (federal, state, and private) that may have affected or may affect sensitive plants include wildfire, timber harvesting, road construction, maintenance, reclamation, recreational activities, forest product gathering, noxious weed control, mushroom harvesting, and wildland fire and fire suppression. These actions may have historically affected sensitive plant populations and habitat and may continue to have effects. While the action alternative may impact individuals of sensitive plant species, the relative contribution to ongoing cumulative effects is expected to be negligible due the lack of observations of any population and the relatively small areas that would be affected by the Proposed Actions.

3.8.2 ESA-Listed Wildlife

Grizzly Bear (Threatened)

Affected Environment

The project area is within North Continental Divide Ecosystem Recovery Zone for Grizzly Bears, North Fork Flathead River Bear Management Unit, Coram Lake Five Subunit (CLF). Increasing human activity and development in this subunit are believed to substantially limit grizzly bear use and the effectiveness of available habitat (USDA Forest Service 2008). The project site is designated as Grizzly Bear Management Situation 2, which means the area is considered unnecessary for survival and recovery of grizzly bears or the need has not been determined (IGBC 1986; USDA Forest Service).

Prior to MFWP taking over operation of the site, a subadult grizzly bear was observed eating fish food and was also observed in the fish pond catching fish. A trap was set for the bear, but it wasn't captured and moved on.
(T. Manley, MFWP, personal communication 2010). Since site operation was taken over by MFWP, at least one bear has been directly observed by the facility staff (B. Marotz, MFWP

personal communication 2010), and several radio-collared grizzly bears have moved through the area over the years (T. Manley, MFWP, personal communication 2010). Grizzly bears are also reported on a regular basis in the Blankenship, Lake Five, Coram, and Teakettle areas. The Apgar Range has some of the highest concentrations of grizzly bears during the summer when they travel to the Apgars to feed on huckleberries. The Apgars are just to the north of Sekokini Springs and bears are known to routinely travel between the Apgars and Teakettle Mountain(T. Manley, MFWP, personal communication 2010), with Clusters of radio collar relocations occur in the Apgar range to the north, Teakettle Mountain to the northwest, and Desert Mountain to the east of Sekokini Springs (R. Mace, MFWP, personal communication 2009).

From 1993-2010, there were 30 captures of 19 individual grizzly bears (some bears were captured more than once) due to conflicts within 3 miles of Sekokini Springs (T. Manley, MFWP, personal communication 2010). The captures included all age and sex classes (females with cubs, subadult females, solitary adult males and females, and subadult males). Conflicts were primarily bears getting into unsecured attractants including garbage, bird feeders, fruit trees, pet food, and trout feed. Some of the bears also killed poultry and goats. All of the captures occurred on private lands.

Grizzly bears in Montana typically den at elevations greater than 6,000 feet (LeFranc Jr et al. 1987; Mace et al. 1999; McLellan and Hovey 2001). The nearest denning habitat within this elevational range is Desert Mountain, 4.7 miles east of Sekokini Springs; however, no grizzly bear dens have been documented in this location (MFWP unpublished data) and no grizzly bear dens are known to occur within the Coram Lake Five subunit (USDA Forest Service 2008).

A total of 13 grizzly bears died or were removed in management actions between 1993 and 2010 within 3 miles of Sekokini Springs(T. Manley, MFWP, personal communication 2010). Most of the mortalities and removals were the result of management removals due to continued conflicts with humans; additional mortalities included train kills, mistaken identity by black bear hunters, and self defense(T. Manley, MFWP, personal communication 2010).

Environmental Effects

No Action Alternative

Direct, Indirect, and Cumulative Effects

Under the No Action Alternative, there would be no changes in operation. Grizzlies are likely intermittent visitors to the site as they move through their home range or disperse. Human activity at the site, including vehicle traffic, may cause bears to temporarily avoid the immediate vicinity of the action (McLellan and Shackleton 1989; Mace and Waller 1996).

MFWP would continue to follow the bear management requirements outlined in their SUP, including sealing all food in bear-proof containers (human and fish food is stored indoors) and using bear-proof containers for garbage or other mechanisms to reduce the likelihood of attracting bears. In addition, no fish would be kept or raised outside of the hatchery.

The No Action Alternative would not increase road density, human activity, or disturb denning or foraging habitat.

Proposed Action

Direct and Indirect Effects: Construction

The Proposed Action would not increase road density or disturb denning or foraging habitat. No adverse direct effects to habitat presumed important to bears would occur. This alternative would result in an increase in outdoor human activity, particularly during construction periods. This may increase the likelihood of human-bear encounters or increase avoidance of the area by bears relative to the No Action Alternative.

Construction disturbance would be limited to the daylight hours during mid-summer. It may result in bears moving around the project site rather than directly through, or limiting movement until evening when construction has ceased. Because bear use of the site is believed to be rare, and because the site provides no special habitat or resources, these potential disturbance effects are expected to have minimal, if any, effects on a very small number of bears (one–three over the life of the construction period). This estimate is based on the assumption that the site may be within the normal summer range of one–two females and one male[11]—not all of which would visit the site—and on the potential that dispersing juveniles move through the site.

Direct and Indirect Effects: Operation

During operation there would typically be one roundtrip vehicle trip daily. Most activity would be inside the building, although a daily check of the ponds and two-way fish barrier would occur. Additional outdoor activity would occur during noxious weed/vegetation management work, lasting 2–3 days/year, and when placing or removing fish from the constructed ponds. This activity may disrupt any bear movement across the site, but given the relatively limited durations, it is unlikely to result in any substantial effects to bears.

The Action Alternative does increase the potential for bear-human interactions, as humans would be outside more frequently than under the No Action Alternative. The presence of WCT in the outdoor ponds could attract bears. Fish food stored outdoors in automatic feeders and possibly rainbow trout attracted at least one bear to the site prior to MFWP operation. Under the Action Alternative, fish food would be stored indoors, feeding would be limited and done by hand, and fish would be close to or at natural densities in the ponds. Permanent bear proof electric fencing will be installed encircling the rearing ponds, so that any grizzlies attracted to the site would not have access to fish or any residual fish food dropped during feeding (this would not receive any food rewards associated with the ponds). These deterrent fences have been effective in discouraging bears from entering campsites and other areas with potential food (Gunther et al. 2004).

Grizzly bears have been seen in the area in the past and have been known to have encounters with humans during poor berry years. There are no known den sites in the project area. Use of the site is likely random and it does not provide any important attributes for grizzly bear. However, the potential for bear/human interactions exists, although based on low likelihood of occurrence and potential for impact, the likelihood of adverse affect is negligible.

Cumulative Effects

Cumulative effects to grizzly bears in the CLF subunit are summarized in the Belton EA and incorporated here by reference (USDA Forest Service 2008). Past and ongoing actions by the

[11] This assumption is based on average reported home range sizes reported in LeFranc Jr., et al. 1987 and Mace et al. 1996.

Forest Service and private landowners, among others, have created habitat and vegetation diversity for grizzly bears. Ungulates, which sometimes become a source of food for grizzly bears, have also benefited from forest management activities because of increased foraging opportunities. The Proposed Action would not increase the diversity of habitat conditions or reduce the amount of security habitat, but it would slightly increase the amount of regular outdoor activity by humans. This increase is likely negligible when considered in the context of the approximately 36,000 acre CLF subunit and the amount of human activity that regularly occurs; it is not likely to change bear use of the larger area or have any effect on survival or reproduction. There would be no increase in open roads or physical changes to habitat; therefore, the Forest Plan standards relative to grizzly bear security habitat and open road density (USDA Forest Service 1985; 1994); would not be exceeded by the incremental effects associated with the Proposed Action. The Forest Plan standards relative to grizzly bears would be met.

The Proposed Action is not expected to result in measureable effects to grizzly bear at the site. It is not expected to substantially disrupt movement along the Flathead River corridor, although movement may be delayed due to construction activity. Delays, if they occur, would probably not extend past hours of construction. No adverse affects would occur to denning or other core habitat features. Any incremental addition to the existing or reasonably foreseeable future condition from the Proposed Action is expected to be minimal and likely not detectable at the CLF management subunit level.

3.8.3 Sensitive Wildlife Species

Sensitive species are those identified by the Forest Service to receive special management emphasis to ensure their viability and to preclude trends that could threaten the species with extinction, which could result in federal listing under the ESA (FSM 2672.1). Fourteen sensitive wildlife species occur on the FNF (Region 1 sensitive species list 2007). As noted in Table 3, either the following species do not use the site, habitat does not exist for them on site or in the area, or potential effects are so minimal that no further discussion is warranted:, , bald eagle, peregrine falcon, common loon, black-backed woodpecker, flammulated owl, wolverine, fisher, western big-eared bat, bog lemming, and westslope cutthroat trout.

Harlequin Duck

Affected Environment

Harlequin ducks are not known to nest in the project area but may use the Flathead River during breeding season and as a migration corridor (USDA Forest Service 2000). Nesting in the area occurs along tributaries to the North, South, and Middle Fork Flathead rivers (Hendricks 2005). Spring migration may extend from March through June but most are at breeding areas in May (Cassirer and Groves 1991). Males depart soon after breeding, and females may leave from mid-July through September. Unsuccessful females leave earlier, successful females that abandon their broods leave in late July–early August, and females that remain with their broods do not leave until late August/September (Kuchel 1977; Reichel and Genter 1994; Reichel 1996; Reichel and Genter 1996; Hendricks and Reichel 1998).

The Flathead River adjacent to the site does not provide typical nesting habitat for harlequin ducks. Nesting is typically limited to the flatter sections of high gradient, fast water streams with overhanging vegetation (Robertson and Goudie 1999). There are no reported instances of nesting along the mainstem Flathead River (Hendricks 2005). Post-hatching behavior of females with

broods is poorly reported, but females typically accompany broods downstream into areas assumed to have greater food resources, and more loafing resting spots are typically within the stream corridor (Robertson and Goudie 1999; Wiggins 2005). Use of the mainstem Flathead River by broods, hens, and males occurs pre- and post-breeding, but the river's importance and comparative level of use is unknown.

Environmental Effects

No Action Alternative

Direct, Indirect, and Cumulative Effects

No activities would take place under the No Action Alternative that would have any effect on harlequin ducks. Harlequin use of the larger area is expected to be as a migration corridor with birds present in early spring and late summer-early fall. Activities proposed under the No Action Alternative are not expected to interfere with these migratory movements. Therefore, there would be no direct, indirect, or cumulative effects on harlequin ducks resulting from the No Action Alternative and no impact to species viability or its habitat.

Proposed Action

Direct and Indirect Effects: Construction

The section of the Flathead River adjacent to the site is believed to be a migratory corridor for harlequin ducks (USDA Forest Service 2000) and is used during summer months by hens with broods prior to migration through September. Nesting and primary brood-rearing occur in smaller streams further upriver. Proposed construction activities would not alter the function of the river as a migratory corridor. Some construction noise is likely to be occasionally detectable on the river when harlequins may be present (July through September). Construction of the outfall of Reach 5 into the Flathead River would require several days of construction at the edge of the wetted river channel. Because this work needs to be done during the low water period of the year (September), there would be some overlap with the harlequins' fall migration period. The river corridor is heavily used by recreationists and anglers during this period; so migrating harlequins have to adapt to some level of human activity. However, it is not clear how those birds would react to equipment and people working, and whether this additional increment of disturbance would result in increased adverse effect. Harlequins are suggested to be sensitive to human disturbance at breeding sites. Flushing and abandonment of nesting areas have been observed (Cassirer et al. 1996; Wiggins 2005), however; comparative studies are lacking to suggest relative impact (Wiggins 2005) and no studies of effects to older broods are known. Flushing of females from nests by researchers did not result in abandonment of nests or nest failure (Hunt 1998; Robertson and Goudie 1999; Wiggins 2005) but repeated flushing from unintentional approaches (e.g., anglers) may be more likely to result in abandonment.

The most likely reaction of harlequins to the proposed project would be avoidance of the immediate area once disturbance intensity exceeded their tolerance threshold. Cassirer et al. (1996) suggested that displacement from disturbance was mostly likely to adversely affect nesting and early brood rearing (May through July). Broods with females in September on streams on the Kenai Peninsula in Alaska appear tolerant of close (<15 feet) and intense human activity (sport fishing; B. Hollen, personal observation).

The most intensive (visible and auditory) disturbance would be construction of the outflow channel of Reach 5, which would occur in late August or September. Avoidance and flushing of

individuals resulting from disturbance is expected, but given the timing of construction (September–late brood rearing) and the relatively small area of the Flathead River that would be affected by disturbance, it is unlikely that any detectable adverse impacts to population parameters would occur.

Direct and Indirect Effects: Operation

Effects to harlequin ducks from the Proposed Action are expected to be similar to the No Action Alternative. No activity is expected to occur that would alter the ability of the river corridor to provide migratory habitat for harlequin ducks. Humans working outside would be screened from the river by approximately 200 feet of riparian forest, and outside noise extremes would be limited to the occasional use of powered hand tools.

Cumulative Effects

Alteration of the riparian forest by human actions (resource extraction, development) and by natural events (fire, slides) have likely changed the ecological character of the section of the Flathead River used by harlequins for migration. In addition, recreational uses (boating, angling) are believed to have increased through time. Development of private lands and recreational use are expected to increase in the area into the future. The primary effect of these activities or changes on harlequins is likely limited to disturbance, when human activity causes the birds to flush or to move up or downstream—movements that require energy expenditure. Construction effects from Reach 5 would increase the potential for disturbance effects to occur for a short period of time (approximately 30–45 days; Table 1) over the course of two seasons. Operation of the project facility would have no additive effect. The potential future environmental educational facilities would not extend into the river corridor or otherwise create a disturbance or habitat effect that would alter harlequin use of the river as a migration corridor.

Western Toad

Affected Environment

Western toads are widespread but considered rare in western Montana (Maxwell et al. 2009). Western toads occur in a variety of terrestrial and wet habitats but primarily breed in slow moving or still waters. Dispersal after breeding periods may be over relatively long distances, and toads may not remain immediately adjacent to water bodies (additional life history information is available at the Montana Natural Heritage Database[12] and Maxwell et al [2009]). The vegetation in and around the site and the existing fish ponds and forested wetland provide habitat for all stages of western toad life history. Western toads have been recorded in the larger area surrounding the site (Montana Natural Heritage Database[13]) and one adult toad was observed in front of the hatchery building in August of 2010 (S. Relyea, MWFP, personal observation). MFWP biologists working at the site also have observed Columbia spotted frogs (*Rana luteiventris*) and Pacific chorus frogs (*Pseudacris regilla*) (S. Relyea, MFWP, personal communication 2010).

[12]http://fieldguide.mt.gov/detail_AAABB01030.aspx

[13]http://fieldguide.mt.gov/detail_AAABB01030.aspx

Environmental Effects

No Action Alternative

Direct, Indirect, and Cumulative Effects

There is very little likelihood that the No Action Alternative would result in adverse impacts to western toads. Existing wetlands on the site would not be altered. Maintenance activities around the spring collectors that require ground disturbance would be infrequent and generally conducted by hand, so any amphibian could be avoided. Vegetation management activities may displace toads in terrestrial environments but would be unlikely to result in any adverse effects, as the activities would not alter potential breeding habitat.

Proposed Action

Direct and Indirect Effects: Construction

Other amphibians have been regularly observed by MWFP staff at the site, but only one observation of a western toad has been reported (S. Relyea, MWFP, personal observation). This suggests that either western toads occur at the site in very low densities or the individual that was observed was a dispersing individual from elsewhere. For the purposes of this EA it is assumed that western toads are present in low numbers. Construction activities under the Proposed Action would be the most likely to result in some harm to western toads. The greatest potential for adverse effects would occur during the construction activities around the existing ponds, because construction would occur prior to young-of-the-year metamorphosing. Excavation and vehicle traffic have the potential to crush burrows or directly kill individual toads during the construction process. The proposed reconstruction of the ponds could result in either desiccation of juveniles or direct mortality from equipment.

Ultimately, the construction activities at the pond would create habitat more suitable for breeding and rearing of western toads through the development of the shallower littoral zones and introduction of natural structure and vegetation. These features would provide egg substrate, hiding cover, and foraging opportunities.

Direct and Indirect Effects: Operation

Effects of operation would be as described for the No Action Alternative with the exception of introduction of WCT into the outdoor ponds. Toads using the ponds now or in the future would be subject to some level of predation threat from the WCT. However, since WCT are primarily insectivorous (Nakano et al. 1992; McIntyre and Rieman 1995; Schoby 2006), any predation would likely be opportunistic rather than focused.

Cumulative Effects

Individual actions in the past likely have altered and destroyed habitat for western toads, and ongoing private development and public and private forest management likely will destroy and alter toad habitat into the future. Other, larger scale factors appear to be the primary drivers of toad population dynamics, primarily the apparent spread of the *Batrachochytrium dendrobatidis*, a fungus that causes chytridiomycosis in amphibians (see summary in Maxwell et al. 2005). Western toads appear to be terrestrial habitat generalists (Nussbaum et al. 1983; Blaustein et al. 1995) and capable of reproducing in temporary and permanent water bodies providing egg substrate and slow water conditions; thus, they are fairly resistant to habitat modification or

destruction at individual sites. The Proposed Action may potentially impact a few individuals or some portion of one year's production, but the only long-term effect would be improved habitat conditions. Therefore, effects from implementing the Proposed Action are not likely to be a measurable contribution to any cumulative adverse effects.

Regulatory Framework and Consistency

The Endangered Species Act, recovery plans for threatened and endangered species, and FNF Forest Plan standards provide habitat management direction for threatened and endangered species.

Amendment 19 related access densities will not change as a result of the Proposed Action. Thus, the effects of the Proposed Action would be consistent with Forest Plan Standards, and Interagency Grizzly Bear Guidelines (1987).

The National Forest Management Act of 1976, Forest Service Manual 2670, and the Forest Plan (and Amendment 21) provide habitat management direction for Northern Region Sensitive Species. The Forest Plan provides habitat management direction for other MIS (e.g., deer and elk). The proposed project is judged to be consistent with the regulatory framework, and the proposed Forest Service action will not contribute to the loss of viability of native species.

3.9 Aesthetic and Recreational Resources

Information Sources

Potential effects to recreation were evaluated based on the sites current and historical status and use, the management guidance from the FNF Forest Plan, and the regulations associated with the Wild and Scenic Rivers Act.

Analysis Area

Analysis of direct and indirect effects to recreation is primarily limited to the site and the immediately surrounding area, including the Flathead River, along the proposed SUP boundary. Only the portion of the Flathead River immediately adjacent to the SUP boundary is considered because the potential effects are expected to be so minimal as to become undetectable beyond that point.

Affected Environment

The Sekokini Springs site is located within Management Area 18, as described by the FNF Forest Plan (USDA Forest Service 1985). The site has been managed under SUPs for fish production for decades and has not been generally available to the public. There are no trails or dispersed uses on or near the site, and the existing site improvements are not visible from the river corridor. The Flathead River corridor is designated as a wild and scenic river under the 1968 federal Wild and Scenic Rivers Act. There are three levels of protection for rivers under the law. Rivers or sections of river may be designated as wild, scenic, or recreational areas. The particular reach of the river adjacent to the site is designated as a recreational river corridor, which affords protection but still allows for site improvements to be made as long as there is minimal visual impact. The recreational section of the Flathead River is used by recreational boaters and anglers. A boat launch is approximately 1 mile upstream of the project site.

Environmental Effects

No Action Alternative

Direct, Indirect, and Cumulative Effects

The No Action Alternative would have no effect on aesthetic and recreational resources. No changes in visual conditions would occur and no alteration that would affect user experience of the river corridor or surrounding area would be implemented.

Proposed Action

Direct and Indirect Effects: Construction

The primary effect on visual and recreational resources from the Proposed Action would be noise associated with construction. Noise from heavy equipment necessary for excavation of the stream channels and ponds is expected to be detectable from the river corridor. Equipment operation would occur over the course of several days to 4 weeks every year during the summer months for about 3 years.

The sound produced by conventional construction equipment ranges from about 80–90 decibels (dB). Sound from a point source attenuates by about 7.5 dB as distance doubles, where vegetation is present to absorb noise (WSDOT 2007). Atmospheric conditions and topography also strongly influence attenuation. The zone of effect is considered to extend from the source of the noise to the point at which the noise attenuates to ambient levels. Ambient noise levels at the project site are unknown. Conditions are likely noisier than a typical rural area, which would have an ambient noise level of 35–40 dB (WSDOT 2007), because of the background noise contributed by the Flathead River. Ambient noise would also include regular intrusions from traffic on the surrounding roads, including Highway 2, and from the adjacent railway. Based on the formula above for attenuation over distance, a backhoe operating at the site could be heard above ambient noise as much as 0.5 mile away; however, the actual extent of disturbance around the site would likely be much smaller, because it would be attenuated by topography and masked by noise from the surrounding area.

It is unlikely that any equipment or construction activity would be visible from outside the proposed SUP boundary, with the exception of construction of a short portion of Reach 5 downstream from the two-way fish barrier to the Flathead River. During construction, an all-terrain excavator and several people would be visible from the river for several days, and construction noise may be detectable at the river for several additional days. Although construction would take place during the period of highest recreational use of the river, construction activities would be of such short duration that relatively few users are expected to be affected.

Direct and Indirect Effects: Operation

The Proposed Action would include construction of Reach 5, which would empty into the Flathead River. The stream was designed to mimic a natural stream channel, appropriate for the existing substrate and grade. The two-way fish barrier would not be visible from the river corridor. River users would encounter this stream channel but it would appear natural and should not detract from the users' experience of the river corridor.

Day-to-day operations of the facility would not be visible and likely not detectable from the river corridor and generally would not be different from the No Action Alternative.

Cumulative Effects

Because the Proposed Action would not alter recreational access or affect the recreational experience through changes to the visual experience, there would be no accumulation of effects. During the construction periods, the work would add incrementally to the anthropogenic noise experienced in the area, after which time noise levels would revert to pre-construction levels. Visual disturbances associated with construction of Reach 5 would be short-lived and would not accumulate through time.

Construction of the environmental education features would result in similar impacts to recreation as construction of other portions of the facility. None of the proposed features would be visible from the river corridor, and while some noise would be detectable, it would last for only 2–4 weeks during the summer months. Because access to the site would be by invitation only and for environmental education purposes, there would be no real increase in recreational opportunities.

Regulatory Framework and Consistency

The Action Alternative would meet the direction of the Forest Service Manual 2300 (Recreation) and be consistent with the Forest Plan direction related to recreation.

3.10 Air Quality

Information Sources

Existing air quality conditions were obtained from Fenn et al. 2003; http://www.nps.gov/archive/glac/resources/air1.htm. The basic framework for controlling air pollutants in the United States is the 1970 Clean Air Act (CAA), as amended in 1990 and 1999 (42 U.S.C. 7401 et seq.). Under the CAA, the Environmental Protection Agency (EPA) sets standards for air quality to provide both health and visibility protection. Montana has also set standards to help protect air quality.

Analysis Area

Because the concern for air quality determined during scoping was the effects of road dust the analysis focuses on the site and surrounding area in the context of the larger Airshed. The Montana Air Quality Bureau divides the State of Montana into ten airsheds. Airshed 2 encompasses Flathead, Lake, Sanders, and the northern portions of Missoula and Powell counties.

Affected Environment

Air quality in the region of the site is likely affected by vehicle emissions, natural and prescribed fire, and residential heating. However, overall air quality at the site is assumed to be high and reflected in air quality measurements taken in Glacier National Park (Fenn et al. 2003; http://www.nps.gov/archive/glac/resources/air1.htm). Road dust from vehicle traffic on the unpaved roads at and near the site is likely the most prevalent impact to local air quality.

Environmental Effects

No Action Alternative

Direct, Indirect, and Cumulative Effects

Under the No Action Alternative, there would be no additional effects to air quality compared to current conditions. Vehicle trips to and from the site would remain similar to the current level and there would be no change in emissions from site operation.

Proposed Action

Direct and Indirect Effects: Construction

Construction vehicles transporting heavy equipment and materials to the site would create road dust from Blankenship Road and the site access road. This would be temporary since equipment trucks would only access the site at the beginning of construction and the end. Material hauling would occur over a longer period of time, perhaps as much as a week during the construction period. Dust abatement would be used if needed on the access road to minimize the effects of road dust. This would reduce negative effects to air quality in the local area. Emissions from construction equipment and fugitive dust from the excavation activities would also temporarily degrade local air quality. These effects would dissipate when construction ceased.

Direct and Indirect Effects: Operation

Operational effects would be similar to those under the No Action Alternative. Although there would be several more vehicle trips per year, the effects to air quality are not expected to be discernable from existing conditions.

Cumulative Effects

Road dust and equipment emissions associated with the project could combine with air pollutants from other projects in the area, such as prescribed burning, road dust from private vehicles using the area, and vehicle emissions including trains. This could adversely affect the air quality in the analysis area and surrounding area temporarily.

Regulatory Framework and Consistency

As designated by law, state air quality rules, and the Flathead Forest Plan, the FNF cooperates with the State Air Quality Bureau. The Forest Service is a member of the Montana/Idaho State Airshed Group. This coordination ensures that during project implementation burning only occurs under conditions that would protect air quality and meet state and national standards.

3.11 Heritage Resources

Information Sources

To gather information on heritage resources at the site, the forest archaeologist conducted a files search and review of Flathead National Forest (FNF) site database and literature sources to identify the location of both known, previously-recorded heritage resources on the FNF lands and previous cultural resource inventories within the analysis area. The records review identified no recorded historic or prehistoric sites with in the project area.

Environmental Effects

No Action and Proposed Action Alternatives

The site was inventoried by a records search and an on-the-ground survey; these did not result in the discovery of any historical or cultural sites. Any unknown sites found during project

implementation would be protected through provisions attached to the SUP and the inadvertent discovery provisions of MWFP contract with BPA. Thus, there would be no direct, indirect, or cumulative effects to heritage/cultural resources, and this project complies with the National Historic Preservation Act of 1966 (NHPA) Public Law 89-665.

Cumulative Effects

There are no past, present or reasonably foreseeable future actions that could effect heritage resources that are either listed on the National Register of Historic Places or eligible for listing on the National Register.

Regulatory Framework and Consistency

The Forest Service has obligations under the American Indian Religious Freedom Act (AIRFA) of 1978 to "protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian" [Public Law 95-442].

Besides AIRFA, the USDA Forest Service is also mandated to comply with the NHPA. "Section 106 of the NHPA requires that Federal agencies with direct or indirect jurisdiction over Federal, federally assisted, or federally licensed undertakings afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity for comment on such undertakings that affect properties included in or eligible for inclusion in the National Register of Historic Places (NRHP) prior to the agency's approval of any such undertaking" [36 CFR 800.1]. Historic properties are identified by a cultural resource inventory and are determined as either eligible or not eligible for the National Register. Eligibility is reviewed, and concurrence given, by the MtSHPO. Sites that are determined as eligible are then either protected in-place or adverse impacts must be mitigated. This process takes place prior to any decisions relative to the project.

The FNF participates in the Region One Programmatic Agreement (R1PA) with MTSHPO and the Advisory Council that provides for a more efficient process for conducting cultural resource inventories and meeting Section 106 compliance. Under the R1PA, if there are no eligible properties affected by the undertaking either through project redesign or because there are no properties located within the undertaking, then the undertaking is included in an annual report to MTSHPO and compliance is completed without project consultation. On the other hand, if an eligible property is affected by the proposed undertaking, then compliance is completed in the standard way with consultation with MTSHPO.

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PERSONS AND AGENCIES CONSULTED

APPENDIX A ACCESS ROAD EASEMENT

APPENDIX B WATER QUALITY

APPENDIX C WATER TEMPERATURES

APPENDIX D BOR GEOLOGIST REPORT (1999)

APPENDIX E NTL ENGINEERING AND GEOSCIENCE REPORT (2003)

APPENDIX F

Habitat groups for Regional Forester's sensitive species and rare species on the Flathead National Forest.

AQUATIC AND VERNAL POOLS

Bidens beckii
Brasenia schreberi
Heteranthera dubia
Howellia aquatilis
*Najas guadalupensis**
Nymphaea tetragona ssp. *leibergii**
Potamogeton obtusifolius
Schoenoplectus subterminalis
*Utricularia intermedia**

FENS AND FEN MARGINS

*Amblyodon dealbatus** (B)
Amerorchis rotundifolia
Carex chordorrhiza
Carex lacustris
*Carex prairea**
*Carex rostrata**
*Carex tenuiflora**
Cypripedium parviflorum
Cypripedium passerinum
Drosera anglica
Drosera linearis
Dryopteris cristata
Eleocharis rostellata
Epipactis gigantea
Eriophorum gracile
Kalmia polifolia
Liparis loeselii
Lycopodiella inundata
Meesia triquetra (B)

MARSHES, SEEPS, SPRINGS, AND WET MEADOWS

Amerorchis rotundifolia
Botrychium ascendens
Botrychium campestre
Botrychium crenulatum
Botrychium paradoxum
Botrychium pedunculosum
Camassia quamash
Carex chordorrhiza
*Carex comosa**
Carex lacustris
*Carex stenoptila**
*Carex sychnocephala**
*Carex tincta**
*Cirsium brevistylum**
*Cyperus erythrorhizos**
Cypripedium parviflorum
Cypripedium passerinum
*Delphinium ×burkei**
*Dicranella grevilleana** (B)
Dryopteris cristata
*Gratiola ebracteata**
Epipactis gigantea
*Heterocodon rariflorum**
Hierochloe hirta ssp. *arctica*
Kalmia polifolia
Lewisia pygmaea
Mimulus breviflorus
Mimulus patulus
Ophioglossum pusillum

RIPARIAN ASSOCIATES

Amerorchis rotundifolia
Botrychium ascendens
Botrychium campestre
Botrychium crenulatum
Botrychium hesperium
Botrychium pedunculosum
Camassia quamash
*Carex stenoptila**
*Carex sychnocephala**
Collema curtisporum (L)
Corydalis sempervirens
*Cyperus erythrorhizos**
Cypripedium parviflorum
Cypripedium passerinum
*Delphinium ×burkei**
Dryopteris cristata
Epipactis gigantea
*Heterocodon rariflorum**
Hierochloe hirta ssp. *arctica*
Kalmia polifolia
Listera borealis
Petasites frigidus var. *nivalis*
*Phegopteris connectilis**
*Symphyotrichum frondosum**
*Viola selkirkii**

VERNALLY MOIST CLIFFS OR MOSSY TALUS SLOPES

*Asplenium trichomanes**
*Dicranella grevilleana** (B)

Ophioglossum pusillum
Petasites frigidus var. *nivalis*
Scheuchzeria palustris
Scorpidium scorpioides (B)
Sphagnum magellanicum (B)
Trichophorum alpinum
Trichophorum caespitosum
*Trichophorum pumilum**

MID-ELEVATION MOIST CONIFEROUS FORESTS

Botrychium ascendens
Botrychium crenulatum
Botrychium hesperium
Botrychium pedunculosum
Cypripedium fasciculatum
Goodyera repens
Listera borealis
*Lycopodium dendroideum**
*Vaccinium myrtilloides**
*Viola selkirkii**

*Packera pauciflora**
Petasites frigidus var. *nivalis*
Scheuchzeria palustris
*Symphyotrichum frondosum**

MARGINS OF MOIST CONIFEROUS FORESTS

Amerorchis rotundifolia
Botrychium crenulatum
Botrychium pedunculosum
Collema curtisporum (L)
Cypripedium parviflorum
Cypripedium passerinum
Dryopteris cristata
Epipactis gigantea
Listera borealis
Petasites frigidus var. *nivalis*
*Viola selkirkii**

*Grimmia brittoniae** (B)
*Heterocodon rariflorum**
Idahoa scapigera
Mimulus breviflorus
Mimulus patulus
*Packera pauciflora**
*Phegopteris connectilis**
*Tayloria lingulata** (B)

CANYON WALLS, CREVICES, ROCK OUTCROPS AND SLIDES

*Asplenium trichomanes**
Cardamine oligosperma var. *kamtschatica*
*Collomia tinctoria**
Corydalis sempervirens
Erigeron eatonii ssp. *eatonii**
Lewisia pygmaea
Lewisia rediviva
Lewisia triphylla
Orobanche fasciculata
*Parmelia omphalodes** (L)
Polygonum douglasii ssp. *austiniae*
Potentilla nivea var. *pentaphylla*

MID-MONTANE/SUBALPINE GRASS/FORB

Botrychium ascendens
Botrychium crenulatum
Botrychium hesperium
Botrychium paradoxum
*Carex stenoptila**
*Carex tincta**
*Cirsium brevistylum**
Pedicularis contorta var. *ctenophora**

SUBALPINE FORESTS

DRY GRASSLANDS & OPENINGS IN PONDEROSA PINE AND DRY DOUGLAS-FIR FORESTS

*Arctostaphylos patula**
Botrychium ascendens
Botrychium hesperium
*Botrychium pallidum**
Botrychium paradoxum
*Botrychium spathulatum**
*Carex stenoptila**
*Carex tincta**
*Castilleja cervina**
*Castilleja covilleana**

Botrychium crenulatum
Cardamine oligosperma var. *kamtschatica*
*Lycopodium lagopus**
*Packera pauciflora**
Pedicularis contorta var. *ctenophora**
*Salix barrattiana**

ALPINE

Cardamine oligosperma var. *kamtschatica*
Carex lenticularis var. *dolia**
*Carex petricosa**
*Castilleja covilleana**
Draba densifolia
*Draba macounii**
Draba paysonii var. *paysonii**
Erigeron lackschewitzii
*Erigeron lanatus**
*Lycopodium lagopus**
*Nodobryoria subdivergens** (L)
*Oxytropis podocarpa**
*Parmelia omphalodes** (L)
*Packera pauciflora**
Papaver pygmaeum
Potentilla nivea var. *pentaphylla*
*Sagina nivalis**
*Salix barrattiana**
*Tofieldia pusilla**
*Collomia tinctoria**
Corydalis sempervirens
Erigeron eatonii ssp. *eatonii**
Grindelia howellii
*Lathyrus bijugatus**
Lewisia rediviva
Orobanche fasciculata
Polygonum douglasii ssp. *austiniae*
*Silene spaldingii**
Sidalcea oregana

DISTURBED AREAS

Botrychium ascendens
Botrychium crenulatum
Botrychium hesperium
*Botrychium pallidum**
Botrychium pedunculosum
*Botrychium spathulatum**
*Cirsium brevistylum**
Corydalis sempervirens
Grindelia howellii

* suspected on the Flathead National Forest
(B) bryophyte
(L) lichen