

*Flathead Lake  
Flowering Rush Controls  
December 2019*

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Draft Environmental Assessment  
December 2019

Salish Kootenai College  
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Flathead Agency  
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## ENVIRONMENTAL ASSESSMENT

### I. PROJECT PURPOSE AND NEED

**1.1 Purpose:** The federal action (40 CFR 1508.18) is the BIA approval of the New Invader Annual Grass Research Projects, which triggers BIA compliance with the National Environmental Policy Act (NEPA; 42 USC § 4321-4375) and associated regulations (40 CFR 1500-1508, 43 CFR 46). This Environmental Assessment (EA) is prepared to meet the BIA's NEPA responsibilities. The purpose of the action is to be able to implement the activities under the federal action to assist the Confederated Salish and Kootenai Tribes (CSKT) and Salish Kootenai College Extension Program (SKCE) in meeting their primary need for managing the aquatic invasive species flowering rush.

This EA addresses planned herbicide applications to control flowering rush over a ten-year period from 2020 to 2030. It addresses CSKT and area landowner concerns regarding specific Flathead Lake treatment locations and provides specific mitigation to implement treatments.

If implementation of the proposed project successfully develops an ongoing management structure and provided ongoing funding can be secured, it is expected that many Flathead Lake landowners affected with flowering rush will join the project.

**1.2 Proponent:**

- SKCE, contact Virgil Dupuis, SKCE Director
- University of Montana, contact Peter Rice, Research Associate
  - Technical support
- Area Landowners
  - Shoreline Permits
- CSKT:
  - Shoreline Protection Office
  - Environmental Protection
  - Cultural Preservation
  - Tribal Fisheries
  - Tribal Wildlife
  - Tribal Council
- U.S. Army Corps of Engineers (ACE)
- The State of Montana Department of Natural Resources and Conservation (MTDNRC)

**1.3 Name of Project: Flathead Lake Flowering Rush Controls**

**1.4 Type of Action:** The proposed action is to implement sequential annual herbicide treatments to flowering rush infestations during spring lake drawdown to reduce top growth and rhizome growth to reduce the spread around Flathead Lake and down the Flathead, Clark Fork, and Columbia River system.

**1.5 Proposed Implementation Dates:** Chemical applications would be done in April, 2020 - 2030.

**Location:** Littoral zone locations on the South half of Flathead Lake, Flathead Indian Reservation.

**County:** Portions of Lake, Flathead counties located within the exterior boundaries of the Flathead Indian Reservation.

**1.6 Need for the Action:**

Flowering rush was first reported in 1964 in Pleasant Bay on the west shore of Flathead Lake and has since become well established ten miles up the Upper Flathead River, around the north shore, west shore, south bay of Flathead Lake, and fewer spots around the east shore. Flowering rush is now well established in the Lower Flathead River, Clark Fork River, to Noxon Reservoir. There are several hundred acres in Lake Pend Oreille. In the upper and middle Columbia it is becoming established as small individual groups of plants, as well as tributaries to the Columbia.

Flowering rush alters previously open water habitat to closed water habitats that tends to favor invasive fish like northern pike, bass, and yellow perch. It is well documented that northern pike prey heavily on threatened bull trout and westslope cutthroat trout, a species of special concern, in Flathead Lake (Muhlfield 200). There is considerable concern from middle Columbia river managers that flowering rush will convert Columbia River habitat that favors northern pike that can prey on migrating salmon and native trout. Flowering rush interferes with recreational activities as it makes shoreline and lakefront waters non navigable and swimmable due to the presence of the parasite swimmer's itch that is much more prevalent in rush infested waters. Flowering rush may eventually affect property values as it continues to expand and reduce the aesthetics of lake front property.

Background documents:

Flowering Rush White Paper. Rice & Dupuis. 2019 update. Appendix E.

Flowering Rush Extension Bulletin. Mangold. 2010. Appendix F.

**1.7 Objectives:** The objectives of the proposed research are to:

- To reduce top growth to create open water habitat, which will:
  - Reduce predation of native trout by invasive fish
  - Restore boating and swimming usage of infested areas
  - Protect property values
- To reduce rhizome mass which will:
  - Reduce propagule pressure around the lake and downstream

- To reduce small spot infestations beneath boat lifts, behind breakwaters, and along shorelines to prevent them from expanding and connecting over the decades
- To develop and maintain a data base of infestations, affected landowners, and treatment results
- To reduce habitat favorable to invasive fish
- To form a Flathead Lake Flowering Rush Controls Association which will:
  - Create a sustaining management plan for future applications, secure funding, and educate landowners
  - Engage landowners, CSKT, and State and federal agencies in the management of flowering rush in Flathead Lake
  - Encourage management in the north end of Flathead Lake and Upper Flathead River

**Management Direction is provided by the following Documents:**

- CSKT - Comprehensive Resources Plan, Volume 2, page 2-5, Goals—Quality of Environment: “Maintain and enhance water quality by ... protecting Flathead Lake and its shoreline, protecting streams, riparian zones, and wetlands, and using environmentally safe methods to control insects and noxious weeds.”
- CSKT - Integrated Noxious Weed Management Plan (INWP), 1992, and EA, 1993. INWMP, page 16, Management Areas— Critical Surface and Ground Water Areas, Management Objectives: “Protect riparian areas and wetlands from encroachment by noxious weeds while maintaining uncontaminated water supplies for humans, wildlife, livestock, fish, and other aquatic life.
- Integrated Noxious Weed Management Plan and Amendments, (**Plan**, CSKT 1993 b), and the Environmental Assessment for the **Plan** (CSKT 1993 a).
- Flathead Reservation, Comprehensive Resources Plan (CSKT 2001).
- Lower Flathead River Goals and Objectives (CSKT 1993).
- Flathead Lake Co-Management Plan
- Montana Noxious Weed Management Plan
- Columbia Basin Flowering Rush Management Plan (2019)
- US Army Corps of Engineers Environmental Assessment (2019)
- CSKT - Wetlands Conservation Plan for the Flathead Indian Reservation, 1999. See Page 38, Issue: Non-native species:
  - “Non-native aquatic species threaten the diversity and abundance of native aquatic species and the ecological stability of aquatic ecosystems.” Species of concern and management programs are listed.
- Flathead Lake Co-Management Plan (2001-2010)

➤ SKC Extension Office 2018-2022

Mission: *The Salish Kootenai College Extension mission is to improve the quality of life of our Tribal community with culturally appropriate, scientifically based education, demonstration, and research that sustains environmental resources and promotes healthy lifestyles for the Séliš, Ksanka and Qlispé people.*

Goal 2. *Reduce the impact of invasive species on the reservation and surrounding regional landscapes restoring productivity.*

Objective 1.1 Control and contain new invasive plants through Building cooperative weed management areas

Activities: A Montana flowering rush response developed as part of a four state Upper Columbia Basin Conservation Area flowering rush initiative

Flathead lakeshore owners control flowering rush

### Literature

- Seed and Vegetative Reproduction of Flowering Rush. Peter Rice, 19 Dec 2007,
- Flowering Rush an Aquatic Invasive Macrophyte Infesting the Headwaters of the Columbia River System. White Paper. Peter Rice, Virgil Dupuis, updated 2018

### Research

- Spatial Model of Flowering rush in Flathead Lake (USDA-NIFA, SKCE & UM, 2009)
- Invasional Meltdown (USDA-NIFA, SKCE & UM 2011)
- Flathead and Clark Fork River Flowering Rush Inventory (MTDNRC, SKCE, 2013)
- Flathead Lake Flowering Rush Inventory (USDA-NIFA, SKCE ongoing progress)
- Flowering Rush Bio-Controls Program (In Progress. Partnership of Washington State University, University of Montana, Salish Kootenai College, including numerous state and federal partners from Oregon, Washington, Idaho, and Montana)
- Flowering Rush Sequential Treatments (MTDNRC, SKCE & UM, 2015-2021)
- Developing an Integrated Management Strategy for Flowering Rush *Butomus umbellatus* (USFS, SKCE & UM)

### Previous Environmental Assessments

- Proposal to Evaluate Flowering Rush Treatments—Various Herbicide Types and Concentrations, and Mechanical Removal, Checklist Environmental Assessment. Rose Leach signed 14 May 2008, at <http://www.cskt.org/tr/nrd.htm>
- Proposed Sequential Herbicide Treatments to Flowering Rush. Categorical Exclusion Checklist. Rose Leach signed July 23, 2010.
- US Army Corps of Engineers, Draft Regional Programmatic Environmental Assessment for Flowering Rush Controls in the Columbia Basin, July, 2019
- Proposed Flowering Rush Treatments-Polson MT. Flathead Indian Reservation. Checklist Environmental Assessment. Signed April 14, 2011.

### Regional Flowering Rush Plans and Environmental Compliance

- Columbia Basin Flowering Rush Management Plan. 2019. Appendix H.
- US Army Corp of Engineers Environmental Assessment Flowering Rush Control in Washington, Idaho, Oregon, and Montana. 2019. Appendix G.
- US Army Corps of Engineers Biological Opinion. 2019. Appendix I.

#### **Funding Sources**

- US Army Corp of Engineers, Aquatic Invasive Species Control Program, Controls
- USDA-NIFA, Tribal College Research and Extension Programs, Planning and Education
- MTDNRC, Aquatic Invasive Species Grant funds, Controls

#### **1.8 Related laws, regulations, and other agencies involved:**

- CSKT Shoreline Protection Office
- CSKT Cultural Preservation Office
- CSKT Natural Resources Department (NRD)
- The US Army Corps of Engineers (ACE) completed a regional programmatic Flowering Rush Controls Environmental Assessment and endangered species consultation with the US Fish and Wildlife Service (FWS) for compliance with the Endangered Species Act (ESA).
- The US Environmental Protection Agency issues a Pesticide General Permit (PGP) in Indian Country in the State of Montana. Project proponent will file an electronic Notice of Intent (eNOI). Applicant and contractor will follow the following mitigations in conducting aquatic herbicide applications:
- Operators must follow applicable conditions found in the Integrated Noxious Weed Management Plan and Amendments (Plan, CSKT 1993 b) and the Herbicide Handling Plan for Flathead Lake Flowering Rush Control Projects (see Appendix A).
- Section 7 of the Endangered Species Act (ESA; 16 U.S.C. 1531 et seq.) of 1973 as amended, and its implementing regulations found at 50 CFR 402, require federal agencies to insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat. Endangered Species Act. SKCE would consult with The Tribal wildlife and fisheries management programs to assess effects to threatened and endangered wildlife and fish species, and to determine if consultation with the US Fish and Wildlife Service-as required by the Endangered Species Act-would be needed.

**1.9 Decisions to be made:** This proposal has been presented to the CSKT Tribal Council for concurrence to proceed with NEPA analysis of the proposed flowering rush controls. The BIA, Flathead Agency, Superintendent must decide if more analysis is needed, or if the action can go forward with this level of analysis.

**1.10 SUMMARIZE SCOPING, EXPLAIN RELEVANT ISSUES: (pending)**

**1.11 LIST OF PERMITS NEEDED**

- **The participant landowner must apply to the Tribal Shoreline Office Tribal Shoreline permit (Ordinance # 64A) from the Shoreline Protection Office (SPO).** The applicant and contractor would implement measures listed on any permits received.
- **401 certification** from CSKT Water Quality Program, **EPA Pesticide General Permit (PGP).** SKCE would file a Notice of Intent for control and research projects and obtain a PGP, if required, prior to implementing the project.
- The proposals would be evaluated for certification by CSKT Natural Resource Department, The Office of The Water Quality Regulatory Specialist
- **Cultural and Historic Site Review.** Section 106 of the National Historic Preservation Act (NHPA) as amended, and its implementing regulations found at 36 CFR Part 800, require federal agencies to identify cultural resources for a federal action. The significance of the resources must be evaluated using established criteria outlined at 36 CFR 60.4. Tribal Ordinance 95 requires a cultural and historic site review and project approval prior to implementing proposed flowering rush controls. The CSKT Cultural Preservation Office would consult with the BIA Archeologist concerning the potential impacts of proposed flowering rush controls. This coordinated review and project approval would be required prior to implementing any action. The review would be conducted annually as needed.
- **EPA Pesticide General Permit (PGP).** SKCE would file a Notice of Intent for control and research projects and obtain a PGP, if required, prior to implementing the project.

## II. THE ALTERNATIVES

### 2.0 Description of the Alternatives:

#### Alternative A, No Action.

- The No Action Alternative includes the BIA not approving the proposed flowering rush treatment project and SKCE and landowners would not conduct treatment to help control flowering rush on the Flathead Reservation portion of Flathead Lake at this time.
- This alternative doesn't meet the Purpose and Need of the proposal.
- Grant funding that has already been secured would go unused.
- This would not preclude proposing this or other actions at some future time.

#### Alternative B, proposed Action (Preferred Alternative). Features of the proposed action include:

- The Preferred Action Alternative includes the BIA approving the proposed Flathead Lake Flowering Rush Controls Project. It also includes the BIA and SKCE implementing the activities under this proposal. This Alternative does meet the Purpose and Need of the project.
- The herbicides Imazapyr or imazamox would be applied with methylated seed oil surfactants approved for aquatic application (Current research indicates that annual treatments reduce top growth for one growing season up to 95%, and after six years of sequential treatment, rhizome mass has been reduced approximately 80%).
- Individual contractors would be hired through a competitive bid process to perform herbicide applications.

Herbicides would be used to treat approximately 40 to 200 plus acres per year of flowering rush that occur in large to small infestations in the Flathead Lake littoral zone (see Storymap at <https://arcg.is/1Tzyzb>).

- Site-specific maps, available as GIS layers usable on I-Pad and in the Onyx GPS navigation application, are attached. Herbicides would be applied by:
  - Handgun fed with tanks attached to ATVs on the shore.
  - Handgun fed with tanks attached to an air boat stationed on the shore.
  - Boom sprayer attached to track-equipped ATV's.
  - Backpack sprayer.
- The provisions from the Herbicide Management Plan for Flowering Rush Controls (Appendix A) would be used for mixing, loading, handling, transporting, and applying herbicides and managing herbicide spills. This plan contains alternative provisions from the CSKT Noxious Weed Management Plan that will allow hauling and mixing of aquatic herbicides on boats and mixing of aquatic herbicides for ground applications within 500 feet of water.



- Nurse Trucks would haul water and products to application sites.
- Contractors would have equipment inspected by the CSKT Office of Pesticide and inform them of application schedules
- Contractor's would maintain herbicide application records and GPS data for application sites and make them available to the CSKT Office of Pesticides and SKCE.
- Landowners would make application to the SPO for use of hand tools on the bed of the lake to drain ponded water prior to applications.
- Treatments would be paid for by funds from the State of Montana Department of Natural Resources and the Army Corps of Engineers. Depending on the number of landowners signing up for the program and the amount of treatment funds, landowners may be asked to contribute an equitable portion in order to treat more area.
- From mapped infestations shown in Figure 1, actual treatment sites would be determined in scoping meetings with Confederated Salish and Kootenai Tribes (CSKT) and area landowners including the State of Montana, municipalities, private landowners, and tribal members holding leases or trust land
- Participating landowners would obtain shoreline protection permits as needed.

## **Mitigation measures**

### **Operational**

Project operations would comply with the following conservation measures contained In the U.S Army Corp of Engineers, Draft Programmatic Environmental Assessment, June 2019, as they provide comprehensive mitigation for flowering rush herbicide applications.

- **General Practices:**
  - a. Licensing/Certification: All applicators shall be state licensed or certified, or under the direct visual supervision of a state licensed or certified applicator.
  - b. All applicators shall comply with all applicable Federal, state, and herbicide manufacturer's directions and requirements for handling pesticides, including storage, transportation, application, container disposal, and spill cleanup.
  - c. Herbicide application shall be according to the chemical manufacturer's label recommendations for best results. Applicators shall use caution to minimize the application of herbicides to non-target species and structures within the application areas.
  - d. Clean and inspect all mechanical equipment after using in a waterbody. Post proper signage and notices in treatment and adjacent areas warning of potential chemical exposure through contact, ingestion, or inhalation during activities such as boating, fishing, or swimming.
- **Calibration/Maintenance:**

- a. All application equipment (e.g. booms, back packs, etc.) shall be properly calibrated according to the chemical manufacturer's suggested application rates printed on the chemical label prior to use. Equipment and settings shall be properly maintained for the duration of the contract performance period.
- b. Dyes shall be used to reduce the potential for over-application.
- c. Appropriately sized nozzles shall be used to minimize the potential for drift.
- d. Application equipment would be maintained to ensure proper application rates, minimize leakage, reduce drift, and ensure applicator safety. Equipment would be maintained, and visually inspected prior to each application.

➤ **Spill Management:**

- a. All applicators shall carry a Spill Prevention and Control Plan. The Plan shall provide detailed descriptions on how to prevent a spill or ensure effective and timely containment of any chemical spill. The Spill Prevention and Control Plan shall include spill control, containment, clean up, and reporting procedures.
- b. A spill kit must be available to all applicators and shall be within 150 feet of the application site.
- c. Equipment refueling will not occur within 100 feet of open water. This includes ATVs, trucks, and tractors.
- d. All concentrated or mixed solution pesticides shall be placed in locked storage in closed containers with watertight lids and placed in secondary containment vessels of 100% plus freeboard (worst annual rain event, which for this area is one inch over a square yard, which equals 2.385 gallons). A good rule of thumb is 110% of capacity.
- e. All mixing for spray bottles, and backpack sprayers shall be done within secondary containment of 110% capacity of the liquid.

➤ **Disposal:** a. Disposal of waste materials shall occur in accordance with the label and in accordance with all applicable Federal, state, and county laws regulations, as well as label restrictions and instructions.

➤ **Water Quality:** a. Only aquatic approved herbicides and surfactants would be authorized for use within 15 feet of "live" waters or areas with shallow water tables. Herbicides would not be applied directly to water. b. Contractors would apply the herbicide products to emerging flowering rush plants while the lakebed is de-watered during early spring between April 10 and May 10 depending on winter and spring conditions. c. Anti-siphon equipment would be used to pump lake water into chemical tanks for mixing. d. The contractor would not apply herbicides to ponded or flowing water and would maintain a one-foot no-spray buffer around streams entering the lake and crossing the treatment zones.

➤ Herbicide applications will be conducted only by persons licensed in the proper use of herbicides.

➤ **Nontarget Vegetation**

- To minimize impact on non-target vegetation and locations, herbicide will not be applied during temperature inversions, when wind speed exceeds 10 mph, and when air temperature exceeds 85 degrees Fahrenheit.
- Herbicide will not be applied to outside of flowering rush infestations. Flowering rush does grow at times intermixed with native vegetation. The native vegetation will be killed when treating flowering rush intermixed with native vegetation.
- Bulrush patches are being invaded by flowering rush. Herbicide applications will only be applied up to the edge of bulrush patches.

#### **Recreation**

- Signs would be posted at public access locations to notify the users of herbicide applications in the immediate area.

#### **Water**

- Applications of imazapyr would not occur within ½ mile of active potable drinking water sources. The participant application form asks whether potable drinking water is taken from the lake.
- Herbicide applications would comply with herbicide label requirements and direction from herbicide professionals to meet requirements (see Appendix A for specific direction on treatments near irrigation intakes).
- Observable water intake locations in the vicinity of treatment areas are mapped and will be provided to contractors, landowners and CSKT.
- Concentrations of imazamox and imazapyr would be within label specifications, so no further mitigation would be needed related to potable water.

#### **Fish, Wildlife, Amphibians**

- All equipment used on-site would be pressure-washed to remove or reduce the potential for noxious plant seed dispersal and to prevent **Whirling Disease** dispersal.
- Boats and aquatic ATV's will be pressure washed and inspected for Aquatic Invasive Species prior to use.
- Contractors would also adhere to the specifications contained in Appendix D to avoid **Whirling Disease**
- For the **grizzly bear**:
  - a. All operations would be confined to daylight hours.
  - b. Grizzly bear sightings and any bear-human conflicts as well as mountain lion conflicts would be reported to the CSKT Wildlife Program within 24 hours. Food items would be stored in closed vehicles.
- Contractor's would comply with the following provisions when operating near active bald eagle nest site:
  - a. If using a boat, move slowly and maintain no wake speeds.
  - b. For all applications, work would begin farthest away from nesting sites and then gradually move toward the nest.

- c. Air boats would not be used within \_\_\_ ft. of an active bald eagle and swan nesting site to avoid noise disturbance.
- The CSKT Wildlife Program would be notified immediately if lethargic or dead **amphibians** are found following herbicide applications.
- Consultation with the CSKT Wildlife Program would be maintained throughout the project to identify and follow measures to avoid potential conflicts with **swan** nesting sites.

## **2.1 Other Alternatives Considered:**

- There are limited control alternatives. UM has screened all aquatic herbicides available in greenhouse bucket trials and did not identify better control options than the two selected for this project. UM and SKCE with partner Lake Restoration tested three herbicide water column injection treatments in Flathead Lake with limited single year control results and no multiyear controls.
- An Aquatic Vegetation Rake (AVR) has been developed that excavates the rhizomes effectively to approximately the depth of six inches. This is an appropriate use for irrigation ditches and man-made structures but is not a likely candidate for use in natural water bodies. Hand removals are effective, however, they are labor-intensive, require multiple attempts, and highly dependent on skilled persons conducting the removal.
- Bottom barriers of weed block that allow gas exchange have been tested. These mats suppress flowering rush where they are placed only and not outside of these locations. They require considerable management and monitoring by landowners that is burdensome. There are several non-permitted black plastic barriers in Flathead Lake, however, the plastic blocks gas exchange, cannot be removed, and is not permitted by CSKT Shoreline Protection Office.
- Burning is not valid as the top growth in spring is very wet and will not carry fire and the reproductive rhizome would not be affected. Steam injections has been suggested, but not tested. The steam treatments would have to be intense enough to destroy the rhizome, and all other life to a depth of at least six inches in the lakebed.
- A biological control development project is underway and has identified potential biological vectors that are undergoing several years of evaluation and, if efficacious, several more years for release approval.

## **III. AFFECTED ENVIRONMENT**

- Descriptions of pertinent Affected Environments follow. Other Flathead Lake environments have been described in the CSKT Comprehensive Resources Plan (August 2015), the Flathead Lake and River Co-Management Plan (2001 - 2010), Lower Flathead System Fisheries Study, Final Report (June 1988). Readers are encouraged to reference these documents for information on other lake environments and values.

**Vegetation.** The littoral zone of the south half of Flathead Lake has been invaded by flowering rush forming dense monocultures in East Bay, Elmo Bay, and mouth of Dayton Creek. Several marinas have developed dense flowering rush beds as well. The invasion in these situations create dense, monotypic stands in areas that were formerly open water, or a mix of open water and native aquatic macrophytes. Native aquatic macrophytes currently tend to occupy deeper waters than the flowering rush and seem to be in decline throughout East Bay.

Flowering rush is now well distributed around the south and west shore of Flathead Lake, occurring in small spot infestations of 4 sq. foot up to 400 sq. feet, often occurring under boat launches and lifts. Other infestations are polygons ranging from less than .1 of an acre (4,000 sq. feet) up to several acres, that occur in narrow bays. Large monocultures at East Bay, Elmo Bay, and mouth of Dayton Creek are estimated to be from 300 to 1,000 acres. We would expect the invasion on the west shore to continue to expand with patches becoming connected due to the substrate being more muck and cobbles, whereas the substrate on east shore is mostly gravels over sand in the littoral zone. The east shore has flowering rush in marinas. However, flowering rush has been found growing through 10 inches of gravel as individual plants in the littoral zone on the east shore. At deeper areas and below the littoral zone, the substrate is mostly sand that will likely be infested as the invasion expands if no action is taken to reduce propagule pressure.

Approximately 250 acres of flowering rush has been mapped in small spots and patches. This does not include the large patches in East Bay, Elmo Bay, or Dayton estimated to be 300 acres plus, as additional field information is needed to assess those patches.

### **Native Vegetation**

Native aquatic vegetation was termed “limited” or 5.4% vegetative cover in South Bay of Flathead Lake in the 1985 Lower Flathead System Fisheries Study, and was considered important for success of invasive yellow perch. The Lower Flathead System Goose Study in 1985 sampled vegetation conditions at several locations in South Bay, East Bay, Elmo Bay, and the Lower Flathead River where flowering rush had a frequency of occurrence of .09% to .1%. Flowering rush has since significantly increased. Known submersed and emergent native vegetation in Flathead Lake consists largely of:

Sago pondweed	<i>Potamogeton pectinatus</i>
Common Elodea	<i>Elodea canadensis</i>
Coontail	<i>Ceratophyllum demersum</i>
Northern Watermilfoil	<i>Myriophyllum sibiricum</i>
Richardson's Pondweed	<i>Potamogeton richardsonii</i>

Hardstem Bulrush	<i>Schoenoplectus acutus</i>
Cattail	<i>Typha spp</i>
Mare's tail	<i>Hippuris vulgaris</i>
Bladder wort	<i>Utricularia spp</i>
Flowering rush	<i>Butomus umbellatus</i>

**Cultural Resources.** For centuries, tribal people have hunted, fished, camped and performed spiritual activities along the shoreline of Flathead Lake. Cultural resource potentially affected by the propose action are generally described as...(pending completion)

**Wildlife.** A wide variety of wildlife species occupy shoreline areas that provide habitat for waterfowl and upland birds, big game, furbearers, and other species. Big game commonly found along the shoreline include.... Common upland birds and waterfowl consist of.... Furbearers and other species include...

Threatened and Endangered wildlife species and Species of Special Concern (a state designation) occupying shoreline areas consist of...

**Fish.** Native fish of Special Concern in Flathead Lake consist of the bull trout and westslope cutthroat trout. Other natives include the northern pike minnow, longnose and large scaly suckers, peamouth chub, and slimy sculpin. There are also three native minnow species.

Several species have been introduced since 1910. Among these, common game fish include largemouth bass, northern pike, yellow perch, pumpkinseed sunfish, rainbow trout, and brook trout.

**Recreation.** (pending)

**Water Quality.** (pending)

#### IV. EFFECTS ON THE PHYSICAL AND HUMAN ENVIRONMENTS

- The purpose of preparing an EA is to determine whether or not the proposed action and associated activities will/may significantly affect the human environment. Analyze in this section includes all potentially significant effects/impacts (beneficial and adverse) on the components of the human environment. The analysis will concentrate on those components of the affected environment that will truly be affected.

##### 4.1 Definitions:

- The **Project Area** includes the immediate area(s) identified by inventory around Flathead Lake that may experience the treatments. Actual treatment sites treated depends upon scoping with public, Confederated Salish and Kootenai Tribes, and the State of Montana.
- **Direct and Indirect Effects** (from CEQ regulations in Title 40 CFR 1508.8):

- **Direct effects:** are caused by the action and occur at the same time and place.
- **Indirect effects:** are caused by the action and occur later in time or farther removed in distance but are still reasonably foreseeable.
- Duration of effects (e.g., **short-term, long-term**) may or may not be discussed for a given issue. If mentioned, short- and long-term are defined when they appear in the text.
- **Cumulative effects** (from CEQ regulations in Title 40 CF 1508.7) accrue in the Cumulative Effects Analysis Area (**analysis area** or **CEAA**).
  - **Cumulative effects:** result from the incremental effects from the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency, group, or person undertakes them.
- The **Cumulative Effects Analysis Area (CEAA)** is defined by and appropriate to each relevant issue.
- The CEAA may be the same area for several issues, or it may differ.
- For this proposal, the CEAA was generally based on the surrounding vicinity of the project areas which are primarily private lakeside homes, parks, commercial marinas, and vacant lands.
- In the CEAA:
- Tribal lands in the vicinity of Flathead Lake would continue to be managed as Tribal homesite leases, commercial marinas (Blue Bay, Kwa Taq Nuk, Polson Marina, Big Arm Marina. State Parks and Fishing Access sites including Yellow Bay, Big Arm, Walstad, Finley Point State Parks, and Ducharme Fishing Access. City parks Sacajewea, Salish Point, and the Fairgrounds.

Timber Management Areas in the Jette area would be used for timber production. Tribal lands managed for other natural resource values would include Tribal mitigation-managed lands managed for wetland and riparian habitat restoration, upland, wildlife habitat, and fisheries recovery, involving KERR, ARCO, BPA, and other Fisheries Program- and Wildlife Program-managed lands. Tribal lands along the lower Flathead River would be managed as grazing lands. Federal lands on the lower Flathead River at the Pablo Pumping Plant (source of introduction to Pablo Wildlife Refuge that are Tribally owned, would be managed as are currently, or considering alternatives for water withdrawal that would lessen flowering rush propagule introduction.

Private lands (generally, fee status) would continue as lakeside homes, or vacant lands that could be developed.

Long term management of flowering rush in Flathead Lake depends upon establishing a Management Area with funding for planning, data base management, expanding to the north end of Flathead Lake, and cost sharing.

## **4.2 ALTERNATIVE A, No Action**

### **POTENTIAL EFFECTS**

#### **ALL RESOURCES**

Unless otherwise stated below, there would be continued direct, indirect, and cumulative negative effects to wetland and riparian habitats, because:

- The sites would continue to be infested with flowering rush that would continue to spread until dense monocultures exist where it was previously open water or native plants.
- The environmental effects of flowering rush would continue to increase providing additional habitat for invasive fish, swimmer's, and decreased recreational use of Flathead Lake.
- The cooperators would not be able to use their secured grant funding.

#### **Overall**

- No treatments would occur.
- There would be no short-term change from the current condition.
- Over the long-term, the rush infestation would spread.
- Future removal of this undesired species would be more expensive, involve more lakeside cooperators, and take longer to start seeing decreased population of flowering rush than if controls occurred.

## **4.3 ALTERNATIVE B, Proposed Action**

### **EFFECTS ON THE PHYSICAL ENVIRONMENT**

#### **LIST of RESOURCES**

#### **4.4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:**

Are fragile, compactible or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations?

- Soils vary through the treatment sites from sand, mud, high organic peat soils (East Bay), and lakebed sediments (lower Flathead River).

### **POTENTIAL EFFECTS**

There would be minor short-term negative direct and indirect effects to lakebed soils from disturbance from:



- Using ATVs and air boat to implement hand spraying would minimally impact the lakebed or shoreline areas.
- Boom applications with track equipped ATVs can cause rutting of the lakebed under wetter conditions. Ongoing research trials in Ducharme Bay with a tracked machine leave minimally noticeable tracks in the lakebed.
- Lakebed modifications using hand tools to assist drainage of surface water permitted through the Shoreline Protection Office if allowed.
- Use of design features and mitigation measures (Section 2) would reduce short-term negative effects.
- There would be no measurable short-term negative cumulative effects, due to the small areas treated and the large area the infestation covers. No change from current conditions.

There would be long-term direct, indirect, and cumulative benefits be decreasing the canopy coverage and rhizome mass of rush through the treatments.

- There are peat soils located in the East Bay area that can be considered sensitive in that the potential for getting ATVs stuck is high. Contractors would be noticed of the potential for peat soils, and to exercise caution in those areas. Air boats would be better adapted such areas.
- While the lakebed could be considered an unusual feature, the disturbance from the tracks of ATVs and air boat would be no more disruptive than those occurring naturally from lake water movements.

#### **4.5 WATER QUALITY, QUANTITY AND DISTRIBUTION:**

Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality

##### **Potential Effects**

Flathead Lake is an important surface water resource in the project and analysis areas. With design features and mitigation measures in place, there would be no measurable negative direct, indirect, or cumulative effects to water quality as a result of the proposal.

- Use of design features and mitigation measures (Section 2), and the Herbicide Handling Plan (Appendix A) would reduce the potential for any negative effects.
- The lake is large compared to the area that would experience the treatments, so that effects to water quality would be impossible to measure.
- The herbicides and methylated seed oil surfactants are approved for use in aquatic environments (See Appendix B for imazamox, imazapyr, and surfactant specimen labels).

- The herbicides would be sprayed on the leaves and stems of the plants, and lakebed sediments where the herbicide is held suppressing the development of flowering rush, even if it does not directly hit plants.
- No water sources will be directly treated with herbicides.
- For imazamox, we would be within label compliance related to herbicide use located within 1/4 mile of potable water sources.
- For imazapyr, we would be within label compliance related to herbicide use located within 1/2 mile of potable water sources.
- The proponent has identified water intakes visible from the lake, and the participant landowners will state known locations of potable and irrigation water diversions in the vicinity of treated docks and marinas.
- The proponent has developed a treatment protocol that mitigates potential impact for pesticide chemistry impact to site waters by treating prior to site inundation as the lake comes to full-pool volume. Any pesticide concentrations released into the localized water column through depuration or the temporary suspension of treated sediments into the water column are expected to be negligible.
- The proponent has developed treatment site water column testing protocol as outlined in (Appendix A) to run standard analysis for pesticide concentration levels of concern in water samples drawn from the treatment site, post-inundation.
- The proponent would provide affected landowners bottled water if needed.

#### 4.6 AIR QUALITY:

Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?

**There would be negative direct and indirect effects** to target noxious and flowering rush, an aquatic invasive weed species from implementing the proposal.

- The proposal was designed to remove the aquatic noxious plant, flowering rush.
- Use of design features and mitigation measures (Section 2) would reduce potential negative effects to non-target species.

**There would be no measurable negative cumulative effect**, due to the large area that would experience no change from current conditions.

**There would be long-term direct, indirect, and cumulative benefits** by removing the flowering rush and thereby improving vegetative conditions on the sites. As rush is removed, desirable open water conditions would be improved, particularly at docks and marinas.

- As rush is removed, native plant species could recolonize the wetland sites.
- Implementing the monitoring portions of the proposal would provide information on how rush infestations respond to treatments.

- There are no known rare plants or cover types in the project areas.
- Desired (native) vegetative communities would not be permanently altered.
- Desired (native) vegetative communities would be enhanced as flowering rush declines and native vegetation recovers.

#### **4.7 TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:**

Is there substantial use of the area by important wildlife, birds or fish?

There would be negative direct and indirect effects to the non-native plant species portion of the selected aquatic habitats, from implementing the proposal.

The proposal was designed to remove the aquatic noxious plant, flowering rush. In this sense, the negative effects of flowering rush removal is the desired result.

Use of design features and mitigation measures (Section 2) would reduce potential negative effects to non-target (native) species.

There would be no measurable negative cumulative effects, due to the large area that would experience no change from current conditions.

There would be long-term direct, indirect, and cumulative benefits by removing the flowering rush and thereby improving vegetative conditions on the sites.

See Section 3.4 above.

There are important birds, fish, and other native species in the project and analysis area.

Conditions for these species should be improved by;

- Decreasing the cover of flowering rush favored by invasive fish thereby benefiting native fish.
- Native plant loses at flowering rush treatment locations is a negative effect. With continuing flowering rush herbicide treatments, there is an opportunity for restoring native aquatic vegetation.
- Improving our knowledge of how to treat other sites dominated by flowering rush.

Conditions for birds may be decreased by:

- Decreasing grazing opportunities on flowering rush by ducks and geese

#### **4.8 UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:**

Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Sensitive Species or Species of Special Concern?

There are federally listed species, wetlands, and species of concern (e.g., game and non-game wildlife and fish, etc.) in the project and analysis areas (See Figures 1 and 2).

There would be no negative effects to bull trout or bald eagles, as a result of the proposal.

- Use of design features and mitigation measures (Section 2) would reduce the potential for negative effects.
- The area affected is small, compared to the areas used by federally listed fish and wildlife species.

There would be long-term direct, indirect, and cumulative benefits to lake and wetland habitats—and species that might use them—by improving vegetative conditions on the sites. Benefits would be localized, because the areas affected would be small compared to the areas used by federally listed fish and wildlife species, and species of concern.

The proposal was designed to improve conditions on these sites by:

- Removing flowering rush to reduce rhizome mass reducing propagule pressure causing continued spread, return open water conditions to increasingly closed water systems, and restore the recreational use of Flathead Lake Shoreline.
- Increasing our understanding of how to best manage flowering rush in the future and on other sites.

#### **4.9 HISTORICAL AND ARCHAEOLOGICAL SITES:**

Are any historical, archaeological or paleontological resources present?

There would be no substantial direct, indirect, or cumulative effects to historical sites by the proposal.

Use of design features and mitigation measures (Section 2) would reduce effects from the current proposal. The sites would be reviewed in the cultural clearance process with the proponent (SKC, or future Flowering Rush Weed Management Area) assisting shoreline applicant in the application process. The proponent would follow all stipulations listed in the cultural clearance.

#### **4.10 AESTHETICS:**

Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?

There would be no negative direct, indirect, or cumulative effects to aesthetics as a result of the proposal.

There would be long-term direct, indirect, and cumulative benefits by removing flowering rush and thereby improving vegetative and open water conditions at the sites.

Aesthetics would be improved by:

- Decreasing or eliminating the coverage of a non-native plant species and the possible re-establishment of the sites with desired (native) plant species.
- Re-establishment of native species would depend on the potential seed or propagule sources in the vicinity (see 2008 EA).

The sites are generally highly visible.

There would not be excessive noise or light during or after the proposal.

#### **4.11 OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:**

Are there other studies, plans or projects on this tract?

There are other environmental assessments, permits, and reports on past and current research on controls, environmental impacts, and inventory within and outside the analysis areas.

Related documents and management plans are listed in **Section 1.3** above. The current proposal is consistent with these documents.

#### **4.12 HUMAN HEALTH AND SAFETY:**

Will this project add to health and safety risks in the area?

There would be potential short-term negative direct and indirect effects to safety, by implementing the proposal.

- Use of design features and mitigation measures (Section 2) would reduce the potential for negative effects.
- The SKC Extension Program staff, Lake County staff, CSKT staff, and the UM Research staff have been trained to spray or manipulate vegetation in upland and aquatic habitats.
- Staff would follow herbicide labels, current guidelines, and any other pertinent specifications for these activities.

There would be no measurable cumulative effects to health and safety, due to the large area that would experience no change from current conditions.

There would be long-term direct, indirect, and cumulative benefits to health and safety, by removing the non-native plant species from the sites and opening up dock access.

#### **4.13 INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:**

Will the project add to or alter these activities?

There would be no effects to agricultural or industrial uses, because:

- The sites occur in a large lake. (The Reservation portion is approximately 65,000 acres.) The largest agricultural diversion is the Pablo Pumping Plant that is downstream from treatment sites on the Lower Flathead River. Treatments will not be made directly to irrigation waters during irrigation season. Treatments are in low water conditions in early April. There are other known agricultural uses for cropland and orchards that treatments will not affect.

It is possible that future commercial uses related to marina development could be promoted because of this proposal?

Several marinas, private, commercial, and private have been identified with flowering rush. Continued unabated spread of flowering rush will affect the operation of those marinas.

That is, there could be direct, indirect, and cumulative effects to commercial development with the proposal.

Development of marinas on Flathead Lake have been followed with flowering rush invasion. Marinas still the water and congregate boats that are prime areas for establishment of flowering rush.

These methods of controlling flowering rush have been favorable accepted by several marinas on the Lake that have been implementing annual treatments with enthusiasm. The costs are not low; however the benefits have been well worth it for several participants.

#### **4.14 QUANTITY AND DISTRIBUTION OF EMPLOYMENT:**

Will the project create, move, or eliminate jobs? If so estimated number.

This project presents economic opportunity for those interested in contracting aquatic herbicide application work.

The proposal in the first year will provide approximately \$80,000 in gross income to a herbicide applicator contractors during early spring when limited opportunity exists.

Benefits would occur during the time of active implementation.

Long term success of this depends upon establishing a Flathead Lake Flowering Rush Management Area with the funding base for management, implementation, oversight, and landowner participation. This would create several part-time jobs with contractor opportunities.

#### **4.15 LOCAL AND STATE TAX BASE AND TAX REVENUES:**

Will the project create or eliminate tax revenue?

No taxes would be created or eliminated.

**4.16 DEMAND FOR GOVERNMENT SERVICES:**

Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?

There would be no effects to traffic or to the demand for government services.

**4.17 LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:**

Are there State, County, City, USFS, BLM, Tribal, etc., zoning or management plans that would affect the proposal?

Other than the documents listed in Section 1.3, the proposal would not be affected by any locally adopted plans from other agencies.

**4.18 ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:**

Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?

There would be no effects to recreation access in the sense of where boats may be lawfully allowed to launch.

There would be no effects to wilderness access from the proposal.

There would be direct, indirect, and cumulative benefits to recreation access potential, by removing the flowering rush from the treated sites.

Boating would be improved in the sense that boats could more easily be launched and move through the water without encountering and potentially spreading the flowering rush.

Downstream recreational use should improve with less flowering rush propagule pressure, fewer new and expanding invasions, and lessen habitat degradation for invasive fish.

**4.19 DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:**

Will the project add to the population and require additional housing?

There would be no effects to housing needs or population density

**4.20 SOCIAL STRUCTURES AND MORES:**

Is some disruption of native or traditional lifestyles or communities possible?

There would be no effects to social structures.

There would be slight and long-term direct, indirect, and cumulative benefits to native communities and the ability to practice native lifestyles, by improving vegetative conditions at the sites.

#### **4.21 CULTURAL UNIQUENESS AND DIVERSITY:**

Will the action cause a shift in some unique quality of the area?

There would be no negative effects to cultural uniqueness or diversity.

There would be long-term direct, indirect, and cumulative benefits to cultural uniqueness by improving native vegetative conditions at the sites.

#### **4.22 OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:**

Is there a potential for other future uses for the area other than for the proposed type of management? Is future use hypothetical?

There would be no measurable direct, indirect, or cumulative effects to potential future uses from this proposal.

- The area of treatment is small compared to the entire lake and shoreline area, so that effects of removing the rush would not be measurable.
- Removing flowering rush from existing marinas and from shoreline properties, enhances the long-term economic value of those properties and will become an ongoing maintenance requirement.

### **V. OTHER EFFECTS**

#### **5.1. RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY**

Implementation of the proposal would have unavoidable adverse effects during the time of active spraying including ground disturbance, Increased noise and introduction of herbicides to the sites.

Anticipated adverse effects have been mitigated to the greatest extent practicable by design features and mitigation measures (Section 2).

Long-term benefits would outweigh short-term inconveniences

#### **5.2 RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY**

Short-term uses—such as local access and perhaps use of some potable water intake lines—would experience slight disturbances during implementation of the proposal.

- Long-term productivity including; Benefits to vegetation, and



- Increased knowledge of how to treat flowering rush would outweigh short-term inconveniences and negative effects.

Negative effects to short-term uses have been mitigated to the extent practicable by design features and mitigation measures (Section 2).

### 5.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

**Irreversible** losses (those that *cannot be undone*) would include the:

- Use of fuel and materials used in herbicides.
- Loss of vegetation that would be killed or removed in the trials.

In this case, it is the goal of the project to decrease the coverage of an undesirable and non-native plant species, flowering rush.

**Irretrievable** losses (those that would be lost for a period of time) would include:

- Relative peace and quiet during implementation.
- Applications would be planned to allow use of potable water sources. The likelihood of not being able to use a lake potable water source for several days following treatment is low.
- Short-term losses of vegetation as a result of the herbicide treatment.

These losses would be reversed as the sites re-vegetate with open water or desired native species.

### 5.4 ANY OTHER DISCLOSURES?

No

### 5.5 LIST of PREPARERS, AGENCIES, and OTHER PERSONS CONSULTED:

Agencies, Companies, and Other Persons Consulted:

Peter Rice, BA Environmental Biology, University of Montana Research Associate, Ecology and Environmental Science 1970-present.

Army Corps of Engineers, Contact

US Environmental Protection Agency, SWPPP-NOI, Washington, D.C.

Individuals:

Virgil Dupuis, SKC, Extension Program

Doug Dupuis, Range Management Contractor

Alvin Mitchell, SKC

Andrew Skibo, PhD, Amaruq Environmental Services, Missoula, MT

Pete Gillard, Geographic Information Systems Program Manager (GIS-NRD), MA Geography, years GIS experience in Natural Resources.

Whisper Camel, CSKT-NRD, Wildlife Management Program, MS Fish and Wildlife Management, year's experience.

Dan Lipscomb, CSKT-NRD, Shoreline Protection Program Manager, BS Wildlife Biology with a minor in zoology and botany, years.

Lester Bigcrane, CSKT-NRD, Recreation Program Manager, years experience.

Shannon Clairmont, CSKT-NRD, Wildlife Management Program, BS Wildlife Biology, years experience.

Checklist Prepared by:

*Name*

*Title*

\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
*Date*

## VI. FINDING

ALTERNATIVE SELECTED:

**Alternative B**, the Proposed Action

LEVEL OF POTENTIAL EFFECTS:

Finding of No Significant Impact to Resources,  
With mitigation and design features in place.

Need for Further Environmental Analysis:

☐ EIS

☐ More Detailed EA

☐ No Further Analysis Needed

EA Checklist Approved by:

\_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_, Superintendent, Flathead Agency

Attachments:

- Attachment A – Response to resource specialists scoping comments
- Signed FONSI