**ALBENI FALLS DAM**
**CLARK FORK DRIFT FACILITY**
**10-YEAR MAINTENANCE AND REPAIR**

**Oldtown, Bonner County, Idaho**

**FINDING OF NO SIGNIFICANT IMPACT**

## 1. Background.

The Clark Fork Drift Facility is located approximately 45 river miles upstream of Albeni Falls Dam (AFD), near Clark Fork, Idaho. The drift yard lies on the right bank of the delta where the Clark Fork River meets Lake Pend Oreille. The facility as a whole is spread over three river miles just downstream of Clark Fork, Idaho. The facility operates passively by directing drift floating with the current in the main stem of the Clark Fork River through a series of boom systems and eventually into a drift holding facility where it is contained indefinitely. Drift typically originates from high-water events in nearby Lightning Creek during flood season, but has the potential to appear in the river and delta area year-round based on activities occurring in the area. Drift typically consists of woody debris in a variety of sizes, from small sticks to entire trees with roots intact.

The purpose is to maintain and operate the drift facility into the future, which prevents the majority of the hazardous driftwood from entering Lake Pend Oreille from the Clark Fork River and instead directs it to a storage yard. This keeps Lake Pend Oreille and the lower Clark Fork River safe for navigation.

The Army Corps of Engineers (Corps) recognizes an obligation to operate the drift facility in such a way as to maintain the amount of drift in the reservoir, to the best of our ability, to pre-dam conditions. Failure to do so could result in increased risk to public safety related to navigational and recreational boat usage, both directly and indirectly. Increases in floatable drift would make navigating the reservoir more difficult, could lead to more boating accidents, and delayed response times for emergency responders.

## 2. Proposed Action.

Under the proposed action alternative, sections of the drift facility will be maintained, repaired, or replaced as outlined in the Comprehensive Management Plan. Entire sections of string or shear booms and associated piles will be replaced in stages over a 10-year period, replacing 3 to 5 string or shear booms and up to 6 pilings annually. Based on information provided by a contractor who has performed pile replacement work in the Clark Fork Delta, it is possible to replace up to 10 piles per day and it takes approximately 15 to 20 strikes per pile to drive them in with an impact hammer. Access to the drift facility structure is by boat only; therefore, work will be conducted

in the summer months when the lake is at high pool (2062 feet +/- NGVD 29). In-water or over-water work on the structure is expected to take approximately 30-days (one month) each summer to complete all the tasks. The proposed schedule of repair and maintenance activities is:

- Annual routine maintenance – minor repairs, debris and driftwood removal, vegetation removal.

- Biennial heavy cleaning (power washing). Projected to be accomplished in 2016, 2018, 2020, etc.).

- Annual replacement of three to five shear or string boom sections.

- Annual replacement of up to six individual pilings or two complete dolphins.

- Annual replacement of approximately ten string boom logs.

The no action alternative was rejected for reasons described in the environmental documentation accompanying this Finding of No Significant Impact.

**3. Summary of Impacts.**

Pursuant to the National Environmental Policy Act, an Environmental Assessment (EA) has been prepared. The EA provides an evaluation of the potential environmental consequences of the proposed work, which is briefly described below.

a. Impacts from the project are expected to include minor construction related effects on water quality, vegetation, fish, and wildlife. These impacts would generally be highly localized and short in duration. Minor noise disturbances during pile driving, would be mitigated by the use of a 6-inch minimum thick wood, rubber, or synthetic cushion block.

b. The repair, rehabilitation, or replacement of any previously authorized, currently serviceable, structure or fill, or of any currently serviceable structure or fill is authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Further, the Clean Water Act (CWA) Section 404(f) exempts maintenance and repair of an existing structure so long as the work meets three provisions: no permit required under Section 10 Rivers and Harbors Act, the work does not involve discharge of dredged and/or fill material in to waters of the United States, and the work does not involve discharge of toxic pollutants. The proposed work meets these three provisions; therefore, qualifies for the CWA exemption.

c. The Corps consulted with the Idaho State Historic Preservation Office (SHPO) on March 15, 2016 to define the area of potential effect and to provide background

on the project. On March 29, 2016, the SHPO responded asking for more information on the history of the drift facility. This information was supplied on April 14, 2016, and in a letter dated May 9, 2019, the SHPO concurred with the Corps' determination that the proposed action alternative would have a "No Adverse Effect" on the drift facility. Consultation letters were sent to the Kalispel Tribe of Indians, Confederated Salish and Kootenai Tribes, Cœur d'Alene Tribe, and the Kootenai Tribe of Idaho. No comments were received.

d. The proposed action will have no effect on Canada lynx or woodland caribou or their designated critical habitat and that the proposed project may affect but not likely to adversely affect bull trout, and their designated critical habitat. In a letter dated 9 June 2016, the U.S. Fish and Wildlife Service (USFWS) concurred with this determination. In June 2016, the Clark Fork River Delta was surveyed for presence of active bald eagle nests. Currently the active nests are more than 1,000 feet away from the Drift Facility sections; however, if it is found that eagles have active nests in a proposed work area, the Corps will coordinate with the USFWS.

**4. Best Management Practices and Mitigation**

To minimize environmental impacts during construction and maintenance activities the following Best Management Practices (BMPs) shall be implemented:

- Pile driving or other aquatic noise generating activities is allowed 1 July through 15 September as this is when the water is warmest and cold-water species are least likely to be present.

- All treated wood products would be certified for use in an aquatic environment consistent with Idaho Department of Environmental Quality (IDEQ) guidance (2008) and produced in compliance with the *Best Management Practices (BMPs) for the Use of Treated Wood in Aquatic and Other Sensitive Environments* ("BMP Manual") published by the "Supporting Organizations" (2011 or as updated).

- Pressure-treated wood will not be brushed, cleaned, or cut over water bodies.

- Hammer or vibratory pile-driving equipment is allowed when driving steel piling into the lakebed during in-water work. In-water pile driving requires the use of a bubble curtain and a 6-inch minimum thick wood, rubber or synthetic cushion block between the driving apparatus and the pile while driving the piles. Bubble curtains shall be maintained according to manufacturer's specifications.

- No solvents or chemicals would be utilized in, over, or near water bodies.

**5. Public Involvement.**

The proposed action has been coordinated with appropriate Federal, federally recognized Tribes, state, and local agencies, and businesses, organizations, and

individuals through distribution of AFD Clark Fork Drift Facility 10-YR Maintenance and Repair Draft Environmental Assessment for their review and comment. The 30-day comment period was 1 June through 30 June 2016. One comment letter was received from Idaho Department of Fish and Game.

**6. Finding.**

Based on the analysis described above and provided in more detail in the EA, this project is not a major Federal action significantly affecting the quality of the human or natural environment, and therefore does not require preparation of an environmental impact statement.

7 Jul 16
Date

JOHN G. BUCK
Colonel, Corps of Engineers
Commanding

# FINAL ENVIRONMENTAL ASSESSMENT

## *ALBENI FALLS DAM*
## *CLARK FORK DRIFT FACILITY*
## *10-YEAR MAINTENANCE AND REPAIR*

Oldtown, Idaho

July 2016

Seattle District
Corps of Engineers

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# AFD Clark Fork Drift Facility
# 10-YR Maintenance and Repair
# Environmental Assessment

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# 1 INTRODUCTION

## 1.1 BACKGROUND

Albeni Falls Dam (AFD) is located in Oldtown, Idaho on the Pend Oreille River, west of Sandpoint, Idaho. The U.S. Army Corps of Engineers (Corps) owns and operates the multi-use facility, which is primarily authorized for hydroelectric power generation, flood control, navigation, fish and wildlife conservation, and recreational purposes. As part of regular operations, AFD maintains a debris collection facility on Lake Pend Oreille at the mouth of the Clark Fork River, the main tributary into Lake Pend Oreille. The drift yard facility is located approximately 45 river miles upstream of AFD, near Clark Fork, Idaho. The drift yard lies on the right bank of the delta where the Clark Fork River meets Lake Pend Oreille. The facility as a whole is spread over three river miles just downstream of Clark Fork, Idaho (Figure 1and Figure 2).


**Figure 1. Clark Fork Drift Facility Site overview**

Under pre-dam conditions, debris was passed through the system during high water and/or accumulated on the lakeshore when waters receded, leaving the remaining navigational season free of floating debris. However, dam operations, with the lake held higher during the summer following the spring snowmelt, appeared to affect the amount of drift carried through the system.

Additionally, it was surmised that the issue of floating debris will be compounded annually: less debris will be beached and more will be floatable during the boating season, and that accumulation of floatable debris over time as annual floodwaters will add to debris that was already in the system from previous years (Corps 1954).

In 1954, the Corps determined that it was in the best public interest that the drift conditions caused by operations be addressed and assumed by the Corps as an operational cost to the facility, and that federal funds be allocated for such purposes. The report recommended that a drift capture facility be built as a result of significantly extended, hazardous drift condition periods in the reservoir, unnatural and hazardous drift conditions caused by uniform and regulated lake elevations, and likely expected public demands. Longer periods of hazardous drift conditions in the reservoir were expected to cause impacts to public safety as well as the authorized project purposes of navigation and recreation. Therefore, the facility was constructed with the intent to address worsening drift conditions that were directly attributable to operations of the dam, but not to improve the drift conditions above what was observed prior to construction of the dam. A later report prepared in 1979 under a Corps contract found *a continued moral and legal obligation to maintain Pend Oreille Lake free from debris, which is generated by reason of the operation of the lake as a power reservoir* (Corps 1979). This report recommended physical updates to the drift facility, which were last accomplished in the 1980s. The functional life of the current facility was estimated to be 20 years and is mostly at the end of its lifespan. To go forward, a comprehensive operation and management plan was developed (Corps 2014).

The facility operates passively by directing drift floating with the current in the main stem of the Clark Fork River through a series of boom systems and eventually into a drift holding facility where it is contained indefinitely (Figure 2). Drift typically originates from high-water events in nearby Lightning Creek during flood season, but has the potential to appear in the river and delta area year-round based on activities occurring in the area. Drift typically consists of woody debris in a variety of sizes, from small sticks to entire trees with roots intact. Occasional dock structures that have broken loose from their moorings are found in the facility or stranded along the river banks as water levels fall and structures are beached on the lakebed. Disposal options have consisted of piling the drift by mechanical means on the lakebed during low water periods, removal for conservation projects, and in the past, burning. To preserve air quality, burning debris is no longer conducted.

## 1.2 AUTHORITY

Construction of the drift facility was authorized in 1951 by the 82nd Congress, Public Law 203, Rivers and Harbors and Flood Control: *for operating and maintaining, keeping in repair, and continuing use without interruption any lock, canal (except the Panama Canal), canalized river, or other public works for the use and benefit of navigation belonging to the United States*.

## 1.3 PROJECT LOCATION

The Clark Fork Drift Facility is in the lower Clark Fork River Delta downstream of the town of Clark Fork, Idaho (Figure 2). The facility consists of three sets of booms:

- A Boom – the upstream end, 3,800 linear feet, guides drift wood to river right
- B Boom – on river right in the delta, 1,200 linear feet
- C Boom – guides the driftwood into the drift yard, approximately 3,900 linear feet

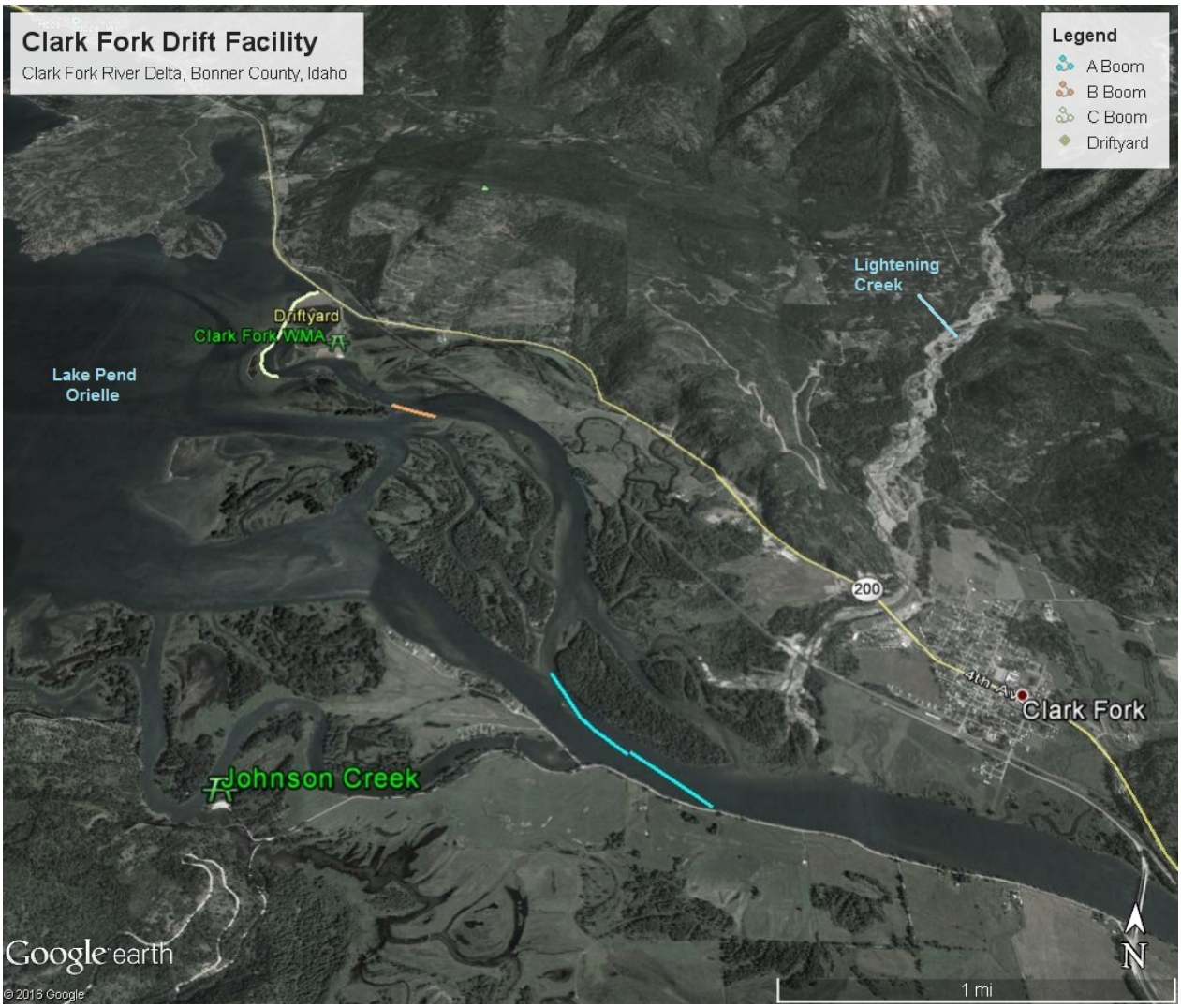


**Figure 2. Clark Fork Drift Facility, lower Clark Fork River, Idaho**

### 1.3.1 System Features

The major system components are identified below. Minor components include hardware to hold material together such as bolts, metal plates, bands and chains.

- Shear Booms: Shear booms consist of three to four floating logs of various lengths laid parallel to each other two to three feet apart. Boom sections vary in length but may be up to 230 feet long. Cross members consisting of dimensional lumber are in place to connect the floating logs. A floating "wing" log with cross braces diverges at an angle from the main boom on the downstream side. The wing log uses a cable connection back to the main boom to encase the piling system. The upstream edge of the boom is faced with dimensional lumber; this face provides a wall for drift to bump up against and deflect debris towards the holding area.

- String Booms: String booms are single logs connected at either end with a chain and float horizontally in the water, acting as floating barriers to the drift and debris captured by the system.
- Pilings: Pilings are individual pilings spaced at various distances. Materials include wood, steel or plastic.
- Dolphins: A dolphin consists of three pilings that have been driven close together at varying angles and are banded or cabled at the top. These provide for the structural integrity of the system and keep the shear boom system in place. Any one piling or the entire set could be replaced in any given year's maintenance cycle.

### 1.3.2 System Structure

The system has been organized and numbered for easier identification. Starting on the upstream end of the facility, a series of four shear boom sets (Upper A, Lower A, B, Upper C) deflect debris towards the holding facility. The shear booms run a total length of approximately 6,450 linear feet. The holding facility, which provides approximately 60 acres of storage, is primarily comprised of 2,100 linear feet of string booms (Lower C). In Lower C, two parallel booms float on opposite sides of a single line of individual pilings, creating additional protection in the event a single string boom fails. Shear booms and string booms are held in place by dolphins or single piles.

**Table 1. System Structure Description**

| Feature | Shear Boom | Dolphin* | String Boom | Piling | Length (ft) |
|---|---|---|---|---|---|
| "Upper A" Boom | 16 | 33 | 0 | 0 | 1,622 |
| "Lower A" Boom | 20 | 41 | 0 | 0 | 2,178 |
| "B" Boom | 10 | 20 | 4 | 4 | 1,200 |
| "Upper C" Boom | 12 | 17 | 8 | 8 | 1,852 |
| Holding Facility ("Lower C") | 0 | 0 | 123 | 41 | 2,100 |
| Total | 58 | 111 | 135 | 53 | 8,952 |
| | | ** 3 piles / dolphin = 333 individual piles* | | | |

# 2 PURPOSE AND NEED

The purpose is to maintain and operate the drift facility into the future, which prevents the majority of the hazardous driftwood from entering Lake Pend Oreille from the Clark Fork River and instead directs it to a storage yard. This keeps Lake Pend Oreille and the lower Clark Fork River safe for navigation.

The Corps recognizes an obligation to operate the drift facility in such a way as to maintain the amount of drift in the reservoir, to the best of our ability, to pre-dam conditions. Failure to do so could result in increased risk to public safety related to navigational and recreational boat usage, both directly and indirectly. Increases in floatable drift makes navigating the reservoir more difficult, potentially leading to more boating accidents and delayed response times for emergency responders.

# 3 PROPOSED ACTION AND ALTERNATIVES

## 3.1 ALTERNATIVE 1: NO ACTION ALTERNATIVE

Under the no action alternative, the drift facility will no longer be repaired or maintained. At some point in the future, the system will fail, allowing driftwood from the Clark Fork River to enter Lake Pend Oreille. This alternative will not meet the goals of maintaining safe navigable waters in Lake Pend Oreille; however, the no action alternative is carried forward to provide a comparison of future conditions.

## 3.2 ALTERNATIVE 2: PROPOSED ACTION ALTERNATIVE

Under the proposed action alternative, sections of the drift facility will be maintained, repaired, or replaced as outlined in the Comprehensive Management Plan. Entire sections of string or shear booms and associated piles will be replaced in stages over a 10-year period, replacing 3 to 5 string or shear booms and up to 6 pilings annually. Based on information provided by a contractor who has performed pile replacement work in the Clark Fork Delta, it is possible to replace up to 10 piles per day and it takes approximately 15 to 20 strikes per pile to drive them in with an impact hammer. Access to the drift facility structure is by boat only; therefore, work will be conducted in the summer months when the lake is at high pool (2062 feet +/- NGVD 29). In-water or over-water work on the structure is expected to take approximately 30-days (one month) each summer to complete all the tasks. The proposed schedule of repair and maintenance activities is:

**Table 2. Repair and maintenance schedule**

| Task | Frequency |
|---|---|
| Routine maintenance – minor repairs, debris and driftwood removal, vegetation removal | Annually |
| Heavy cleaning (power wash) | Every two years (*i.e.* 2016, 2018, 2020, etc.) |
| Replacement of 3 to 5 shear or string boom sections | Annually |
| Replacement of up to 6 individual pilings or 2 complete dolphins. | Annually |
| Replacement of approximately 10 string boom logs | Annually |

### 3.2.1 Annual Inspection and Routine Maintenance

The entire drift facility will be inspected annually to make note of required maintenance or repairs. The inspection and rating of boom system components result in a classification system that acts as a means of prioritizing non-routine maintenance actions.

Necessary general maintenance of the boom system includes removal of vegetation and debris from the surface of the shear boom surfaces, reconnecting disconnected or broken hardware linkages, and dislodging debris hooked onto the booms. Additionally, regular repairs and replacement of minor components of the shear booms are necessary, such as fixing facing

boards, replacing connecting chains, nailing and bolting loose walkway boards and crossbeams, and adding hardware such as wing cabling, bolts, and plates where needed. Any floating logs, trees, snags, or debris that are hung up on, in, or under the shear booms and boom pilings are to be removed and deposited on the shear face side (upstream) of the boom so that it will end up in the holding area.

### 3.2.2 Dolphins and Pilings Replacement

Old pilings will be removed entirely or cut off within 21 inches of the river bottom and disposed of. Any creosote soaked pilings are considered contaminated; therefore, they must be sent to a facility able to take contaminated products for disposal. Within a dolphin grouping, an individual pile or all three piles may be replaced.

- Piles: The lifespan of a driven pile is expected to be 30 to 50 years, however once a pile begins to lose material or becomes loose, the condition will rapidly deteriorate. Old piles will be replaced either with environmentally approved wood treatment materials or with steel. Steel piles will be 12 inches in diameter with one-half inch thickness, and driven to a minimum depth of 15 feet below the riverbed. If new wooden piles are used, they will be treated with aquatic environment approved wood treatments. The new piles will be driven to a minimum depth of 15 feet below the riverbed and driven in by either an impact hammer or vibratory hammer. The replacement rate of the 386 piles will be six per year for this 10-year maintenance plan.
- Hardware: This is predominately steel cabling and it is expected to last the life of the pile. However, piles that become loose or are subject to heavy debris or wave action may need to have the cabling replaced during the life of the pile.

### 3.2.3 Shear Booms and String Booms Replacement

The current timber shear and string boom structures have an expected lifespan of 30 years. The driver for failure of the booms is submergence of the structure due to waterlogged float logs. Maintenance and occasional replacement of the boom subcomponents will be necessary in order for the boom system to continue to operate for its full lifespan. Subcomponents of the shear or string booms are:

- Hardware such as faceplates, hinges, bolts, chains, cabling. Lifespan of hardware is expected to by 10-15 years.
- Crossbeams/walkways and facings are constructed of wood planking and are expected to last the lifetime 15 or more years with routine maintenance. All treated wood products utilized will be environmentally approved treatment materials for use in aquatic environments.
- Floats and String Booms: The lifespan of the float logs and timber string booms is the controlling factor for the overall lifespan of floats and booms. The expected lifespan of a float log is 30 years. Replacement could be with either timber or plastic booms with steel debris screen facing.

### 3.2.4 Emergency Repairs

Emergency Repairs that are anticipated include breaks or failures from severe weather, vandalism, or collisions. The extent of the damage will dictate the type and amount of repair required.

### 3.2.5 Timing of work

Work will be conducted in the summer months when the lake is at high pool (2062 feet +/-) which is reached in mid to late June depending on flood risk, forecasts, and snowpack conditions in the watershed. The lake level is held at high pool through late September. Therefore, routine work will be scheduled in late June through September; however, emergency repairs could be conducted at any time of year.

## 3.3 Alternatives Considered and Eliminated from Further Consideration

Replacement of the entire system will provide the opportunity to upgrade the components and materials to allow increased longevity and reduced maintenance costs associated with the operation of the facility. This alternative will involve removing and replacing all shear booms, string booms, and piles necessary to anchor the new system. Due to budgeting constraints, replacing the entire system or whole sections (e.g. all of Upper A-Boom, then Lower A-Boom), is not feasible.

Alternate locations for the drift facility have also been considered; however, they are likely to not be as effective or result in cost savings. Therefore, the proposal for a complete system replacement will remain in the current configuration.

Different material types were evaluated and considered as part of the complete replacement alternative, including a new wooden structure or a combination of steel and plastic structure. While the existing wood system has functioned well with regular maintenance, past techniques for wood construction typically required a chemical treatment, such as creosote, to prevent rot and decay of the superstructure. Many of the float logs on the shear booms are submerged most of the time and may likely not require treatment, but face panels, planks, and support members are subject to frequent wave action and are expected to have a much shorter life expectancy and increased maintenance cost.

Because of the potential environmental concerns associated with chemical wood treatment, the recommended alternative for complete replacement is a combination of plastic floats with steel/metal face panels to deflect logs and steel piles to replace the existing dolphins.

- Readily available debris control systems for this replacement option consist of plastic booms with steel connectors for the holding yard. For replacement of the shear booms, heavy-duty plastic booms systems with steel frames and mounted steel screens will likely be necessary to accommodate the flow velocities, wave action, and size of debris in the main channel. Lighter duty boom systems may be able to be used in the Shear Boom B area due to more quiescent flows. Shear Boom C will likely be able to accommodate an even lighter duty system than B, except in the area where the boom system is exposed to waves from the lake. The full replacement option also allows for a re-design of the piles and anchoring system, which will likely reduce costs since new booms made of lighter materials will require fewer piles/anchors.
- Boom materials for a complete replacement using high strength plastic booms with steel frames, and debris screens, will cost approximately $4.2 million. This does not include connection hardware, anchors, or installation:
    - 3,800 feet of heavy-duty debris booms on Shear Boom A ($3.1 million)

- 1,200 feet of medium-duty debris boom on Shear Boom B ($0.4 million)
- 675 feet of heavy-duty debris boom on Shear Boom C ($0.6 million)
- 825 feet of light-duty debris boom on Shear Boom C ($0.1 million)

## 3.4 BEST MANAGEMENT PRACTICES

To minimize environmental impacts during construction and maintenance activities the following Best Management Practices (BMPs) will be implemented:

- Pile driving or other aquatic noise generating activities should be when cold-water species are least likely to be present (July-early September).
- All treated wood products will be certified for use in an aquatic environment consistent with Idaho Department of Environmental Quality (IDEQ) guidance (2008) and produced in compliance with the *Best Management Practices (BMPs) for the Use of Treated Wood in Aquatic and Other Sensitive Environments* ("BMP Manual") published by the "Supporting Organizations"[1] (2011).
- Do not brush, clean, or cut pressure-treated wood over water bodies.
- Treated wood should not be burned in open fires or in stoves, fireplaces, or residential boilers because toxic chemicals may be produced as part of the smoke and ashes.
- Hammer or vibratory pile-driving equipment is allowed when driving steel piling into the lakebed during in-water work. In-water pile driving requires the use of a bubble curtain **and** a 6-inch minimum thick wood, rubber or synthetic cushion block between the driving apparatus and the pile while driving the piles. Bubble curtains shall be maintained according to manufacturer's specifications.
- No solvents or chemicals will be utilized.

# 4 EXISTING ENVIRONMENT

The following two chapters focus on those resources specific to the proposed project area that have the potential to be affected by activities connected with the proposed shoreline stabilization project. An environmental effect, or impact, is defined as a modification in the existing environment brought about by mission and support activities. These impacts are described as direct or indirect. Council on Environmental Quality (CEQ) guidelines 40 CFR 1508.8 describes direct impacts as those, which are caused by the action and occur at the same time and place. The CEQ regulations define indirect impacts as those that are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Cumulative impacts are those that result from the incremental impacts of an action added to other past, present, and reasonably foreseeable actions, regardless of who is responsible for such actions.

The following resources were not studied in detail as existing conditions and the project alternatives will not have direct, indirect, or cumulative effects on the resources:

[1] "Supporting Organizations" include the Western Wood Preservers Institute (WWPI), Wood Preservation Canada (WPC), the Southern Pressure Treaters' Association (SPTA), and the Timber Piling Council (TPC).

***Climate***: The Clark Fork River and Lake Pend Oreille lies in the Purcell Trench, a deep, glacial carved, U-shaped valley separating the Cabinet, Selkirk, and Coeur d'Alene mountain ranges. The area has a typical Pacific Northwest climate consisting of cool, wet springs and autumns; dry moderate summers; and cool, relatively long winters with alternating periods of severe and moderate temperatures. In lower elevations, the normal growing season occurs from late April or May through September. At Sandpoint, Idaho, July is the warmest month with an average daily temperature of 65ºF (18.3º C). January is the coldest month, with an average daily temperature of 26º (-3.3ºC). Average annual precipitation is approximately 30.5 inches (77.5 cm) for the overall basin. Most precipitation occurs as snow from November to March, but heavy snowstorms can occur in the higher elevations as early as mid-September or as late as mid-May.

***Land Use:*** The Idaho Department of Lands administers public trust lands, which include all lands submerged below the ordinary high water mark of navigable streams and rivers within the state, for the public benefit. The public's use of the Lake Pend Oreille and the Clark Fork River for recreational activities including various forms of boating. Public access to the immediate areas of the drift facility under maintenance and repair may be restricted for safety reasons. Once the maintenance and repairs are completed, full public access will resume.

***Air Quality and Noise:*** The majority of Bonner County, Idaho is currently listed as in attainment for Air Quality standards set forth by Idaho Department of Environmental Quality[2] (IDEQ, 2016). The operation of boats and barge-mounted equipment associated with the project will temporarily increase air emissions, including greenhouse gases, and noise in the immediate project vicinity. These increases will be minor in scope, temporary in duration, and are not expected to result in significant impacts. The noise generated during pile driving will be muffled using a 6-inch minimum thick wood, rubber or synthetic cushion block between the driving apparatus and the pile. Even short-term noise impacts can affect fisheries, and these effects are discussed in Section 5.3.1.2. The total volatile organic compound emissions for this project during construction were also anticipated to be well below the *de minimis* level of 100 tons per year. Operation of the structure does not require burning of fossil fuels and does not emit air pollutants.

***Geology and Soils:*** Sediments in the Clark Fork drainage, along the valley walls and below high mountain amphitheater-like valleys, are from glaciation and catastrophic floods of glacial Lake Missoula, which occurred between 11 thousand and two million years ago. This ice-dammed lake reached a maximum elevation of 4260 feet in the Clark Fork Valley, formed and blew out numerous times. The river delta is formed by mixed alluvium and deltaic deposits of the Clark Fork River. These materials consist primarily of soft clayey silt that are underlain at depth by late glacial outwash, till, or Missoula Flood deposits. The fine-grained deltaic sediments were deposited in slack water by a low-gradient river. Numerous shifting channels, meanders, and oxbows formed during delta construction. The proposed maintenance and repair of the drift facility does not include removal of river sediments; therefore, other than driving pile through the sediments, the proposed work will not change underlying soils or geology.

[2] The exception is Sandpoint, which is considered as non-attainment for $PM_{10}$. The Clark Fork Delta area is over 15 miles away (by air) and thus is not in the non-attainment area.

## 4.1 WATER RESOURCES AND WATER QUALITY

### 4.1.1 Hydrography and Hydrology

The driftyard facility is located in a reach of the Clark Fork River that is bounded upstream by Cabinet Gorge Dam and downstream by Lake Pend Oreille. The Clark Fork-Pend Oreille watershed drains nearly 26,000 square miles in western Montana, northern Idaho, and northeastern Washington. The Cabinet Gorge project, approximately 8.25 river miles upstream, was constructed in 1952 and has a hydraulic capacity of 36,000 cfs.

The land use in this reach is mainly forest with pockets of farmland near the river and the small population center of Clark Fork. There is a high degree of wood recruitment for the river, given the forested landscape and four-season climate. Runoff into the Clark Fork is primarily the result of spring snowmelt rather than specific storm events. All maximum discharges on the Clark Fork are the result of snowmelt runoff between April and June. However, weather conditions that can increase the quantity of wood moving into the river – heavy snow, wind, or rainstorm events, etc. – are common for much of the year. The annual average hydrograph of the Clark Fork River just downstream of Cabinet Gorge Dam (1995-2010) can be seen in Figure 3 below.

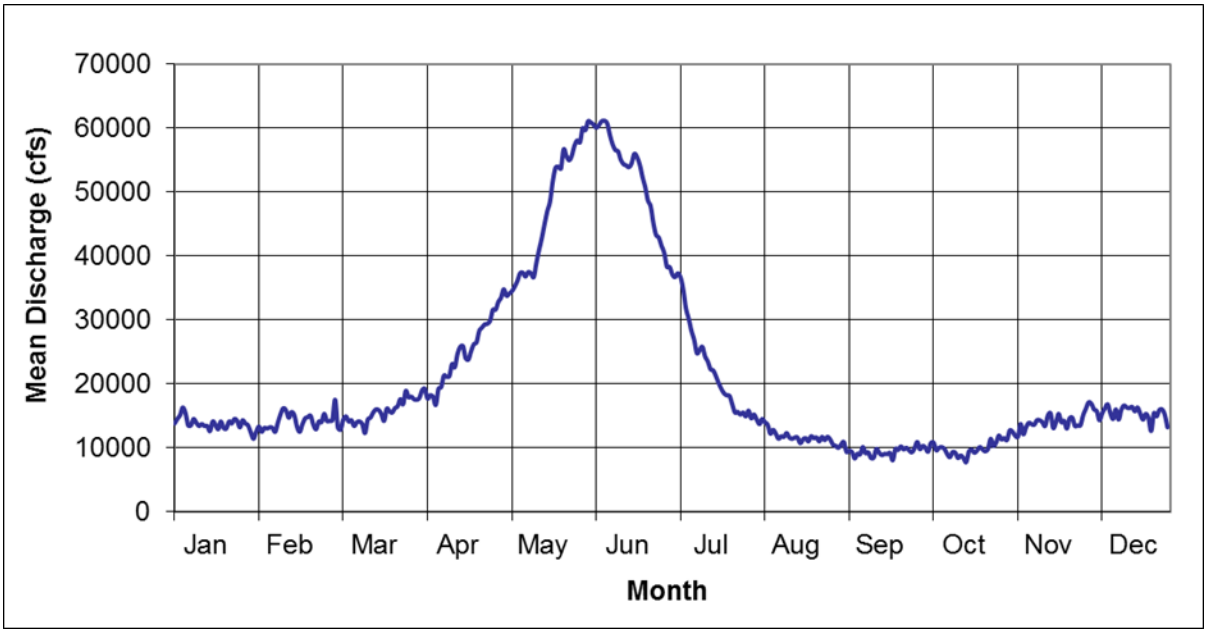


**Figure 3. Average daily outflow at Cabinet Gorge Dam.**

The principal tributary to the Clark Fork River is Lightning Creek, which comes in immediately upstream of the Upper A Boom. Lightning Creek has a history of carrying a heavy sediment load in addition to delivering to woody debris into the Clark Fork. Sediment deposition near the Upper and Lower A Booms has increased over the last several years and a large cobble island is now visible even during the summer months when Lake Pend Oreille is kept at its recreation

pool level. The annual average hydrograph of Lightning Creek using an abbreviated dataset from 1989-1993 can be seen in Figure 4 below.

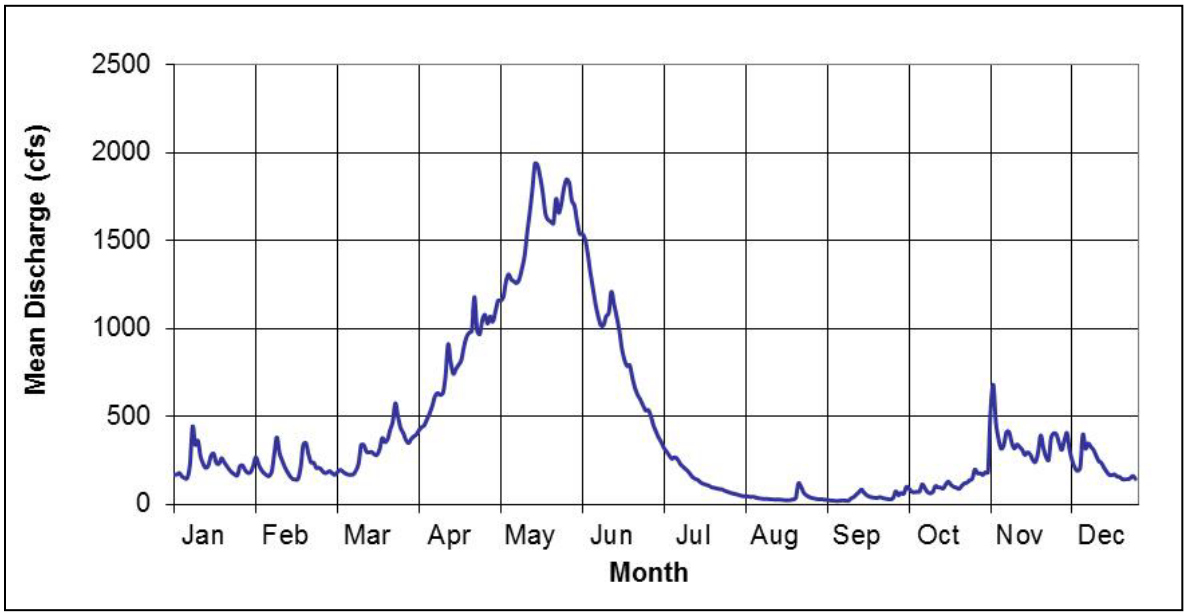


**Figure 4. Average daily discharge for Lightening Creek.**

### 4.1.2 Water Quality

Pollutants of concern in the lower Clark Fork River include sediment, temperature, metals (cadmium, copper, and zinc), and total dissolved gas (entrained atmospheric gases). Sediment and temperature are primarily of concern in the tributaries. The combination of glacially deposited sediments, timber harvest, and road construction create potential sediment issues, and fire and timber harvest have resulted in more open canopy conditions and associated stream warming. Metals and total dissolved gas issues exist in the mainstem river. Historical mining in the headwaters of the Clark Fork River in Montana resulted in deposition of heavy metals (cadmium, zinc, and copper) in the system, and some of these metals have moved downstream and continue to pose water quality risks throughout the basin (IDEQ, 2007). Hydropower development upstream of the delta (for example, Cabinet Gorge Dam) resulted in altered flow and habitat conditions, including elevated levels of total dissolved gas that can potentially threaten aquatic species. Total maximum daily loads (TMDLs) have been developed for metals (cadmium, copper, and zinc) and total dissolved gas in the Clark Fork River and sediment and temperature in several tributaries (including Lightning Creek), and the lower Clark Fork River is listed as impaired for temperature on Idaho's list of threatened and impaired waters (IDEQ, 2014).

## 4.2 VEGETATION AND WETLANDS

Vegetation habitats occurring in the study area include riparian woodland and scrub, wet meadow, and shallow marsh. Submerged aquatic species are very limited in the proposed project area mainly due to the absence of suitable substrate for rooted vascular plants and the influence of wave action in exposed areas.

The dominant riparian woodland species are cottonwood and alder; scrub species include willow, dogwood, hawthorn, blackberry, reed canarygrass, and goldenrod. Wet meadow appears to extend upward to approximately the limit of reed canarygrass or to about two feet above mean high water. These wetland communities provide feeding and nesting habitat for a variety of birds and small mammals. The shallow marsh community is dominated by reed canarygrass and cattail, while sedges, bentgrass, rushes, smartweed, and pondweed are also present in small concentrations. Field investigations indicate that the shallow march community extends from the high-water line (2062.5 feet) down to about 2060 feet. The shallow marsh community is an important feeding and nesting habitat for a wide variety of birds, mammals, and fish.

**Table 3. Vegetation Occurring in the Clark Fork Delta**

| Scientific Name | Common Name |
|---|---|
| **Riparian Communities** | |
| *Populus deltoides* | Cottonwood |
| *Alnus incana* | Alder |
| *Salix spp.* | Willow |
| *Cornus sp.* | Dogwood |
| *Rubus spp.* | Blackberry |
| *Phalaris arundinacea* | Reed canarygrass |
| *Crataegus douglasii* | Black hawthorn |
| **Wetland Communities** | |
| *Agrostis alba* | Bentgrass |
| *Poa spp.* | Bluegrass |
| *Carex spp.* | Sedge |
| *Juncus spp.* | Rushes |
| *Typha spp.* | Cattail |
| *Polygonum punctatum* | Smartweed |
| *Potamogeeton spp.* | Pondweed |
| *Butomus umbellatus* | Flowering rush |

## 4.3 FISH AND WILDLIFE

### 4.3.1 Fish

Lake Pend Oreille and the lower Clark Fork River (including the delta) provide habitat for a variety of native and nonnative fish. Cold-water species tend to occupy the deeper waters of the lake while the warm water species are more prevalent in the near-shore areas and the river. Prevalent species include kokanee (*Oncorhynchus nerka*), bull trout (*Salvelinus confluentus*), rainbow trout (*O. mykiss*), cutthroat trout (*O. clarkii*), bass (*Micropterus spp*.), whitefish (*Prosopium spp*.), perch (*Perca spp*.), and sunfish (*Lepomis spp*.). The significant sport fishery targets trout in the cooler waters and bass in the warmer. In the lake proper, the kokanee fishery had been closed in the past due to the decline in populations. However, with an ongoing increase in population, current regulations allow for 15 fish per day. Some native species include northern pikeminnow (*Ptychocheilus oregoninsis*), peamouth (*Mylocheilus caurinus*), and redside shiner (*Richardsonius balteatus*). The only native salmonids are westslope cutthroat

trout (*Oncorhynchus clarkii lewisi*), bull trout (*Salvelinus confluentus*), pygmy whitefish (*Prosopium coulteri*), and mountain whitefish (*Prosopium williamsoni*) (Idaho Department of Fish and Game (IDFG), 2013).

### 4.3.2 Wildlife

A variety of mammals, birds, amphibians, and reptiles use the delta during part or all of the year. Mammals include: (1) large mammals such as moose (*Alces alces*), white-tailed deer (*Odocoileus virginianus leucurus*), black bear (*Ursus americanus*), and elk (*Cervus elaphus roosevelti*); (2) furbearers such as beaver (*Castor Canadensis*), long-tailed weasel (*Mustela frenata*), muskrat (*Ondatra zibethicus*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), and bobcat (*Lynx rufus*); and (3) small rodents such as deer mouse (*Peromyscus maniculatus*), voles (*Microtus spp*.), shrews (*Sorex spp*.), and chipmunks (*Tamias spp*.). Beaver and muskrat populations are not robust because their denning areas become exposed during winter drawdown. Some mammals (white-tailed deer for example) are in the area during favorable hydrologic conditions when the islands can be accessed. Moose and elk are occasionally sighted; however, these animals are most likely transients through the area.

Numerous waterfowl species have been sighted in the Clark Fork Delta area including mallard (*Anas platyrhynchos*), wood duck (*Aix sponsa*), teal (*Anas discors* or *A. cyanoptera*), gadwall (*Anas strepera*), common merganser (*Mergus merganser*), and Canada goose (*Branta canadensis*). Recent surveys lead by Boise State University in conjunction with Corps have recorded over 120 species in the area (Carlisle et al 2015). Bird lists for the area are available on the eBird website[3]. During spring and fall migrations, the delta supports thousands of waterfowl and common loons (*Gavia immer*). These waterfowl species include tundra swans (*Cygnus columbianus*), Canada geese, redhead ducks (*Aythya Americana*), lesser scaups (*Aythya affinis*), common goldeneyes (*Bucephala clangula*), common mergansers (*Mergus merganser*), and mallards. Birds of prey inhabiting riparian and upland areas include hawks (*Buteo spp.*), owls (*Asio spp*., *Strix spp*. and/or *Bubo virginianus*), and ospreys (*Pandion halaetus*), and bald eagles (*Haliaeetus leucocephalus*). Other birds include the great blue heron (*Ardea herodias*) that is a year-round resident. One of the two heronries in the Lake Pend Oreille area is located on the mainland across the North Fork Channel approximately one-half mile downstream from the confluence of Lightening Creek and the Clark Fork River.

## 4.4 THREATENED AND ENDANGERED SPECIES

Bonner County has three listed species protected under the 1973 Endangered Species Act (ESA), as amended, potentially occurring in the project area. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) West Coast Region web sites (USFWS 2016) (NMFS 2016) consulted in February 2016 to determine which species under their respective jurisdictions could occur in the project area. In accordance with ESA Section 7(a)(2) federally funded, constructed, permitted, or licensed project must take into consideration impacts to federally listed and proposed threatened or endangered species (Table 4).

[3] http://ebird.org/ebird/hotspot/L1757482 Clark Fork Delta - Driftwood Yard

**Table 4. Protected species potentially occurring in the project area**

| Species | Listing Status | Critical Habitat |
|---|---|---|
| Bull trout (*Salvelinus confluentus*) | Threatened | Designated |
| Canada lynx (*Lynx canadensis*) | Threatened | Designated – not in project area |
| Woodland caribou (*Rangifer tarandus caribou*) | Endangered | Designated – not in project area |

### 4.4.1 Bull trout (*Salvelinus confluentus*)

Bull Trout spawning and rearing habitat below Lake Pend Oreille is extremely limited due to high summer temperatures that are above the thermal tolerance for the fish. However, bull trout from the Clark Fork River do use it as a migration corridor in the fall and spring to migrate to and from Lake Pend Oreille. Therefore, there is a probability that bull trout will utilize the areas that surround the project.

### 4.4.2 Canada lynx (*Lynx canadensis*)

The distribution of lynx in Idaho is closely associated with the distribution of boreal forest and sub-alpine forests. Within these general forest types, lynx are most likely to persist in areas that receive deep snow and have high-density populations of snowshoe hares, the principal prey of lynx. Because of this habitat preference, they are not expected to be found in the Clark Fork River delta area.

### 4.4.3 Woodland caribou (*Rangifer tarandus caribou*)

Historically woodland caribou inhabited the forests of the northern United States from Maine to Washington State, but have been reduced to one small herd in the Selkirk Mountains of northern Idaho, eastern Washington and southern British Columbia. Caribou are generally found above 4000 ft elevation in Engelmann spruce/sub-alpine fir and western red cedar/western hemlock forest types. The Selkirk herd is reduced to approximately 25 to 30 animals that tend to stay mostly in the Canadian part of its range; therefore, caribou are not expected to be found in the project area.

## 4.5 Cultural Resources

Cultural resources are locations on the physical landscape of past human activity, occupation, or use and typically include archaeological sites such as lithic scatters, villages, procurement areas, resource extractions sites, rock shelters, rock art, shell middens; and historic era sites such as trash scatters, homesteads, railroads, ranches, logging camps, and any structures or buildings that are over 50 years old. Cultural resources include traditional cultural properties, which are aspects of the landscape that are a part of traditional lifeways and practices and are considered important to a community.

### 4.5.1 Architecture

The drift facility itself was constructed in 1955, in response to a higher water level in Lake Pend Oreille caused by the construction of the Albeni Falls Dam. Before the dam was constructed, debris will naturally pass through the area, and accumulate on the lakeshore. After dam construction, debris floated around the lake, becoming a hazard for boaters. Designing the drift

facility in the Clark Fork River will contain and collect the woody debris before it entered Lake Pond Oreille. The design of the facility was similar to others that had be employed to move logs for the timber industry in other parts of the region.

The drift facility was originally constructed out of creosote treated lumber, which extended the lifespan for the wood. However, environmental concerns about having creosote has led to dolphin and pilings being replaced with wood pilings that are non-creosote coated. One 1988 report on the condition of drift facility, noted that from 1980-1988, two-thirds of the dolphins were replaced. It was noted early on that non-creosote dolphins could not last as long. Starting in 1984, some dolphins were replaced with steel of the same dimension. At some point, a few of the pilings and dolphins were replaced with plastic. Today, over 20 percent of the dolphins and pilings have been replaced in something other than wood.

Prior to the early 2000s, there was a mixture of permanent and temporary laborers employed by Albeni Falls Dam who spent up to two months a year performing maintenance activities on the drift facility. With congressional budget cuts, this figure was severely cut back. As such, the condition of the entire facility declined. The entire facility at this time is now in poor to critical condition. Many of the dolphins are leaning at an angle, a sign that they will soon fail. Most of the sheer booms have plants and fungi growing on them, and their wooden planks are rotting, or missing components. Many of the sheer booms have failed to some degree, with debris stuck to their collapsing forms. A 2014 conditions assessment of the drift facility listed several of the dolphins as "*dolphin failed in the past; booms no longer connected to it*", "*dolphin split and rotting at water level*", and "*dolphin swayed in wake without being pushed*".

### 4.5.2 Archeology

There are several archaeological sites in the Area of Potential Effect (APE) of the Clark Fork Drift Facility: 10BR941 located near Boom A: and 10BR653, 10BR657, 10BR658, and 10BR763 located near Boom C. The four sites near Boom C were reviewed as part of a 2014 study titled *A Cultural Resources Inventory of the Clark Fork Delta, Bonner County, Idaho: Albeni Falls Dam Project, Federal Columbia River Power System*, prepared Kevin J. Lyons, M.A. In addition, 10BR653 and 10BR657, the SHPO concurred on an eligibility determination in a 2014 Section 106 letter to the Bonneville Power Administration (Idaho SHPO REV 2013-757 / BPA Project #1992-061-03).

## 4.6 RECREATION

The lower Clark Fork River is in the transition zone between the open-water, large-lake, recreational experiences found at Lake Pend Oreille and the river-oriented recreation found along the Clark Fork River further upstream. Lake Pend Oreille is a major regional recreation resource and provides a multitude of water-oriented recreation opportunities as well as land-based activities on adjacent lands. The section of the Clark Fork River between the delta and the Cabinet Gorge Dam (approximately 9 miles upstream) is composed of a single river channel (and several small islands) that flows through the Clark Fork Valley. This entire section of the river (and the delta) is a no-wake zone and is popular for fishing, kayaking and canoeing. Public access to the waters of the delta is possible from several nearby locations (Table 5 and Figure 5), although two (the Clark Fork Drift yard WMA and the Johnson Creek Launch) are most used because of their proximity to the delta and the quality of their facilities.

**Table 5. Public Recreation Facilities in vicinity of the Clark Fork River Delta**

| Recreation Area | Concrete boat ramp | Gravel boat ramp | Dock | Toilet | Parking | Picnic Tables | Camping | Day Use Only |
|---|---|---|---|---|---|---|---|---|
| Clark Fork Bridge Access (at S River Road) | | x | | | x | | | x |
| Clark Fork Delta and Driftyard WMA | x | | | Portable | x | | x | |
| Colby Landing (walk-in only) | | | | | | | | x |
| Johnson Creek Launch | x | | x | Vault | x | x | x | |
| Lee's Point (boat-in only) | | | x | Vault | | x | x | |

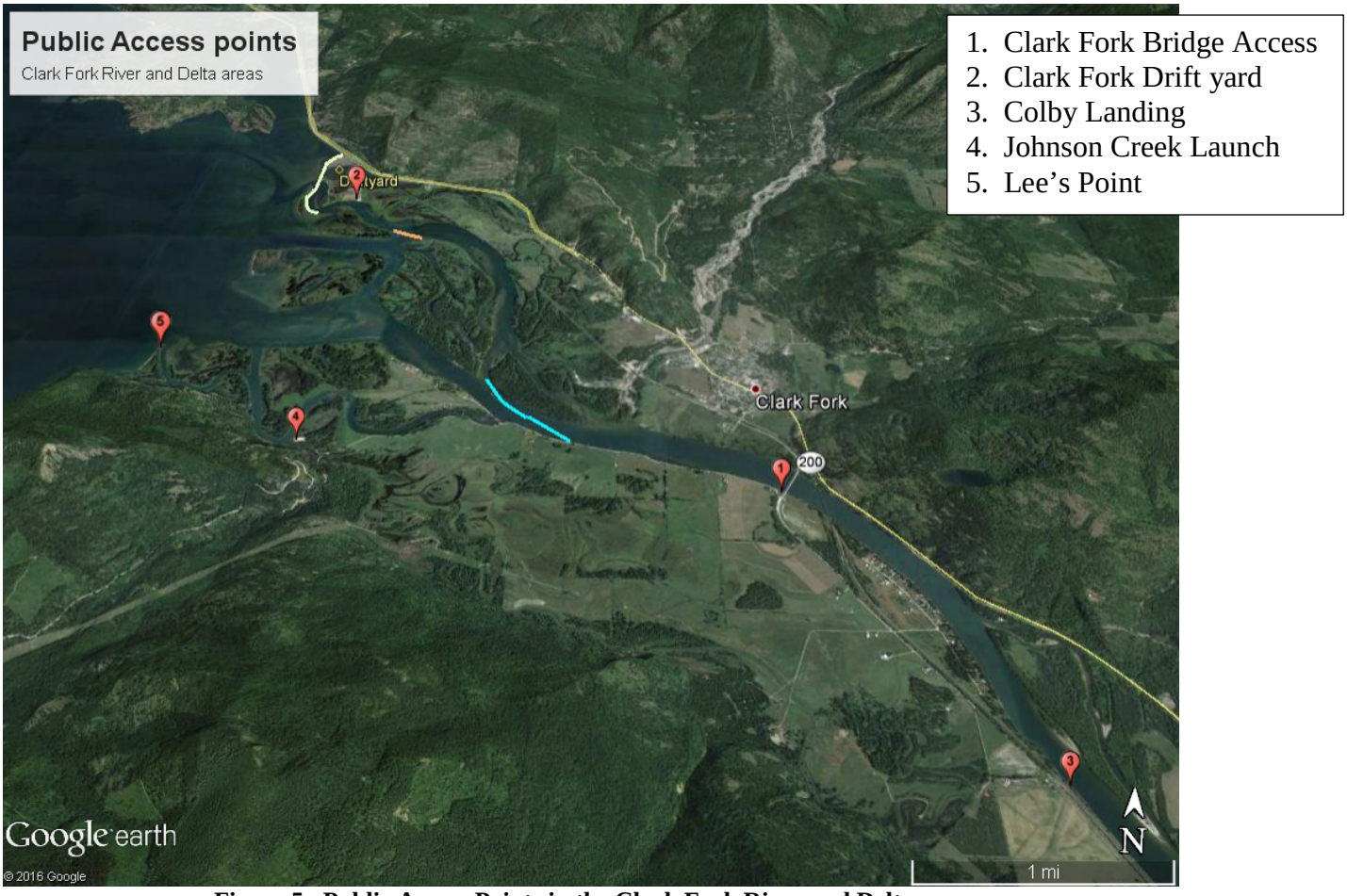


**Figure 5. Public Access Points in the Clark Fork River and Delta area**

The islands, channels, sloughs, beaches, and associated habitat types found in the Clark Fork River delta offer recreational experiences that are different from those found at Lake Pend Oreille and the upstream portion of the Clark Fork. With the exception of seasonal closures related to nesting and other wildlife concerns, access by the public to the lands and shorelines of the WMA is permitted, and people disembark on the islands and shorelines to recreate.

In addition to flat-water boating, fishing is a popular activity within the study area. Rainbow trout, bull trout, cutthroat trout, lake trout, and brown trout; kokanee; northern pike; mountain whitefish; smallmouth and largemouth bass; crappie; yellow perch; bullhead catfish; and pumpkinseed can be found in Lake Pend Oreille and some parts of the Clark Fork (IDFG, 2016).

**Table 6. Recreational activities at Public Access points**

| Recreation Area | Bird Watching | Fishing | Hiking | Paddling | Swimming | Wildlife Viewing |
|---|---|---|---|---|---|---|
| Clark Fork Bridge Access (at S River Road) | | x | x | x | | |
| Clark Fork Delta and Drift Yard WMA | x | x | | x | | x |
| Colby Landing (walk-in only) | | x | x | | | |
| Johnson Creek Launch | x | | | x | | x |
| Lee's Point (boat-in only) | x | x | | x | x | x |

Most hunting in the vicinity of the drift facility is for waterfowl and occurs within the WMA or nearby waters, although some deer and elk hunting also takes place in the delta. The complex river channels, sloughs, open water, uplands, and variety of wetlands attract migrating and wintering waterfowl in large numbers. Species that are hunted include Canada geese, American widgeon, redheads, mallards, common goldeneye, and bufflehead duck (IDFG, 2015). Some hunting that occurs on the WMA takes place from shore, but many hunt from boats. Waterfowl hunting (ducks and geese) in the study area typically occurs between mid-October and late January (IDFG, 2015).

# 5 ENVIRONMENTAL EFFECTS

## 5.1 WATER RESOURCES AND WATER QUALITY

### 5.1.1 Hydrography and Hydrology

#### *5.1.1.1 No Action*

Under the no-action alternative, existing conditions are expected to continue. In that, the drift facility is passive and does not directly affect water flow or quantity. However, eventually the drift facility will fall into further disrepair, breaking apart.

#### *5.1.1.2 Repair and Maintenance Alternative*

Under the proposed action alternative, the drift facility will continue to operate as designed, shunting large woody debris that floats down the Clark Fork River into the drift yard, ultimately decreasing the amount of drift (wood and debris) that reaches AFD.

### 5.1.2 Water Quality

#### *5.1.2.1 No Action*

Under the no-action alternative, older piles that may have been treated with creosote will persist. These could leach the contaminant into the water column. Alternatively, if the piles broke apart, the contaminated wood could float away, appearing elsewhere along the shore of Lake Pend Oreille or pass further downstream.

#### *5.1.2.2 Repair and Maintenance Alternative*

Under the proposed action, short-term, any remaining creosote treated piles will be replaced. In addition, during pile removal and pile driving activities, water quality will have localized detrimental effects, in the form of increased turbidity from displaced sediments. Once pile-pulling or pile-driving activities have ceased, effects to water quality are expected to recover quickly, returning to background, pre-activity, conditions. Small bits of woody debris and vegetation may fall into river during mechanical removal of the vegetative overgrowth or wood pieces. All salvageable pieces will be captured, contained, and removed from the river area. Driftwood hung up on the drift facility booms will be worked free, moved to the northern side of the drift facility, ultimately winding up in the drift yard. Overall, water quality will be expected to improve slightly with the decrease in the number creosote pilings.

## 5.2 VEGETATION AND WETLANDS

### 5.2.1 No Action

Under the no-action alternative, vegetation will continue to colonize the structure of the drift facility, making it unsafe and increasing the likelihood of failure.

### 5.2.2 Repair and Maintenance Alternative

With the repair and maintenance alternative, colonizing vegetation will be removed through either mechanical (power washing) means or manually (by hand, or hand-held tools). Riparian vegetation growing along the riverbanks will not be displaced or disturbed.

## 5.3 FISH AND WILDLIFE

### 5.3.1 Fish

#### *5.3.1.1 No Action*

Under the no-action alternative, the drift facility will deteriorate over time allowing more driftwood to circulate around the lake depending on wind and water currents. This could create more habitat for fish species, such as places of refuge for small fish escaping out of the reach of larger fish. However, either creosote treated drift, debris from the deteriorated drift facility itself, or from further upstream that will have normally been caught by the former functional facility, will cause a localized decrease in water quality that is detrimental to fish.

#### *5.3.1.2 Repair and Maintenance Alternative*

Pile-driving activities of the project will generate underwater noise and the sound waves generated by percussive pile driving could affect fish in several ways (for example, altered behavior, physical injury, or mortality). These effects depend on the intensity and characteristics of the sound; the duration; the distance and location of fish in the water column relative to the sound source; the size and mass of the fish; and the fish's anatomical characteristics (Yelverton et al. 1975). Van Derwalker (1967) found that steelhead responded maximally to sounds between 35 and 170 Hz, but the fish did not move more than 60 cm from the sound source. Salmonids may be able to hear only in low ranges, generally 10Hz to 600 Hz (Blaxter and Hoss 1981 and Knudsen et al. 1992). Abbott (1972) observed no response at 600 Hz in rainbow trout which otherwise responded generally to signals at 150 and 300 Hz. The following are noise thresholds for salmonids for pile driving, which is characterized as impulsive noise (Hastings 2002, NMFS et al. 2008, and underwater noise.org.uk 2014):

- 150 dB root mean square ($dB_{RMS}$)[4] for harassment for continuous noise for fish of all sizes
- 187dB cumulative Sound Exposure level (SEL)[5] for injury of fish ≥ 2 grams[6]
- 183dB cumulative SEL for injury of fish < 2 grams
- 206 $dB_{peak}$ for injury of fish of all sizes

These thresholds indicate that larger fish are less affected by underwater noise disturbance than smaller fish. Impact pile driving of 12-inch diameter pipes has been shown to generate noise levels up to 195 $dB_{RMS}$ and 170 dB SEL. This is well above the harassment threshold but below the injury thresholds as listed above. Vibratory pile driving of 12-inch diameter pipes has been shown to generate noise levels up to 155 $dB_{RMS}$ and 155 dB SEL. This is slightly above the injury threshold and below the harassment threshold. These data came from the marine environment, where sound behaves differently compared to inland fresh water systems (Illingworth and Rodkin 2007). During pile driving the noise and percussive sound wave will drive fish out of the area, or could physiologically harm the fish. Younger fish (larval and fry) will have less energy stores, and will be less likely to be able to escape. The physiological changes from this increase stress load has been shown to cause mortality and non-lethal injuries (Popper et al 2006). For adult fish, the behavioral effects could mean that mean that fish are scared away from fishing banks and areas (Popper et al 2006, Dalen 2007). It can thus be of indirect but significant importance for the fisheries due to reduced abundance of fish to catch and thus smaller catches. Another issue is potential disturbances that spawning fish may be exposed to in spawning areas and during concentrated spawning journeys to the spawning grounds. This can change the areas that are used for spawning, and possibly the timing of the spawning, so that spawning conditions become less favorable (Dalen 2007).

### 5.3.2 Wildlife

#### *5.3.2.1 No Action*

Under the No Action plan, the drift facility will not be repaired or maintained. As the facility deteriorates, more driftwood and pieces of the facility itself will enter Lake Pend Oreille or travel

[4] $dB_{RMS}$ – sound pressure levels measured over the duration of a sound pulse
[5] SEL – Sound exposure level for one second of continuous driving, based on cast-in steel shell.
[6] Injury thresholds are based on pile driving (pulsed noise).

further. This additional driftwood could become habitat-building materials, should it land in shallow waters or became jammed into the shoreline. However, along the developed areas of the lakeshore, most likely the driftwood will be removed by private landowners.

#### *5.3.2.2 Repair and Maintenance Alternative*

Under the repair and maintenance alternative, noise associated with the project will have a temporary effect on wildlife populations in the vicinity during nosier operations such as pile driving or pressure washing. Maintenance tasks such as adjusting fittings is not expected to be as noisy, and therefore, not as disturbing. The impacts of any sound disturbance will likely result in displacement of animals rather than injury. No breeding or nesting areas will be directly impacted from noise disturbances since the drift facility is located in the river. Therefore, any impacts to wildlife from noise will be minor and localized.

With continued operation of the drift facility, upstream driftwood is shunted to the drift yard for storage, or until it deteriorates. This driftwood could be utilized elsewhere for habitat restoration projects.

## 5.4 THREATENED AND ENDANGERED SPECIES

### 5.4.1 No Action

Under the no action alternative, the drift facility will not be repaired or maintained, and will deteriorate over time. The presence or absence of the drift facility has no effect to Canada lynx or woodland caribou. Effects to bull trout are expected to be the same as effects to fisheries in general.

### 5.4.2 Repair and Maintenance Alternative

Repair and maintenance of the drift facility will not affect Canada lynx or woodland caribou, as they are not riverine habitat species.

Listed bull trout that may be in the area during construction will likely be adults due to the proposed mid to late summer work schedule, further reducing potential impacts to listed species (ICF, Jones & Stokes, and Illingworth and Rodkin, Inc. 2009). In addition, bull trout in the area will not be stationary, especially during pile driving, and will be expected to avoid construction noise by changing orientation, actively move away from the area of highest sound, or be transported by flow through the more intense regions of the sound field (Popper et al 2006). These avoidance behaviors will further minimize and reduce any potential effects. A wood block or bubble curtain will be installed (prior to the driving of piles) to further reduce the effects on fish of noise and vibration associated with pile-driving activities.

The proposed work will be in the summer months when Lake Pend Oreille is at high pool (2062 ft), but at the same time inflow from Cabinet Gorge Dam and mountain streams are at their lowest. Although thermal refugia will exist in deeper areas of the Clark Fork River, or in Lake Pend Oreille, the lower river will tend to be warmer, exceeding 15ºC (59ºF). As this is higher than the tolerance range for bull trout, they will likely avoid the area. With the conservation measures (listed in Section 3.4) in place, no significant impacts to bull trout and other fish from noise and vibration associated with pile driving are anticipated.

A Biological Evaluation (BE) of the impacts of the Federal action was submitted to USFWS on May 19, 2016 (Appendix A). The Corps determined that the proposed maintenance and repairs will have **no effect** on Canada lynx or woodland caribou or their designated critical habitat and that the proposed project **may affect but not likely to adversely affect** bull trout, and their designated critical habitat. In a letter dated June 9, 2016, the USFWS concurred with the Corps' determination

## 5.5 CULTURAL RESOURCES

### 5.5.1 No Action

Under the no action alternative, the drift facility will not be repaired or maintained, and will deteriorate over time. This eventually will lead to the collapse of this resource.

### 5.5.2 Repair and Maintenance Alternative

The repair and maintenance of the drift facility will help preserve the resource. The annual inspection will help identify maintenance projects early on, and the replacement of deteriorated dolphins, pilings, shear booms, and string booms will allow the facility to remain in use. Since the shear booms and string booms will be replaced with treated (not with creosote) lumber that matching in dimension the existing components, and the dolphins and pilings will be replaced with steel, in the same dimension as the existing components no adverse effect is anticipated.

#### *5.5.2.1 Architecture*

The Corps has determined that the drift facility is not eligible for the National Register of Historic Places. While the system design is similar to drift facilities used for the logging industry, this particular drift facility was never directly associated with logging. The integrity of the facility has also been compromised with additions in size, and changes in materials starting in the 1980s. The scope of the work will be to assess the drift facility and replace components as needed. In particular, the preferred alternative is to replace the wood dolphins and pilings with steel, while it will further deviate from the original 1955 all wood piling construction, the new steel components are a reasonable facsimile of the original wood in size, shape, color, and location.

#### *5.5.2.2 Archeology*

Although there are known archeological sites in the APE, in particular near A Boom and C Boom, the method of replacement is the removal of the old component and placement of the new piling or dolphin in the same location. Thus, no additional footprint will be disturbed, and no adverse effect is anticipated to any of the sites.

## 5.6 RECREATION

### 5.6.1 No Action

Under the no-action alternative, there is an increased risk of large pieces of drift materials making their way into Lake Pend Oreille as the drift facility fails. No longer will the drift materials be shunted to the drift yard in the Clark Fork WMA, but they will become hazards to navigation in the lake. Boaters will need to be especially careful during low visibility conditions such as fog, or early mornings and evenings, to avoid hitting the floating debris. Any embedded

piles stubs remaining from broken piles could become serious sub-surface boating hazards, depending on depth of water and the height of the remaining stub.

### 5.6.2 Repair and Maintenance Alternative

With continued repairs and maintenance of the drift facility, a major source of boating hazards are removed from the lake. The structure itself is somewhat of a navigation hazard, chiefly A-Boom as it diagonally crosses the Clark Fork River, or in the vicinity of C-Boom (the drift yard) near the Clark Fork WMA. However, there are breaks in the structure to allow boat passage. Bonner County boating regulations stipulate no-wake zones in the Clark Fork River to be within 100 feet from any shoreline, dock, pier, bridge, or other structure or any person in the water. In Lake Pend Oreille, the no-wake zone is within 200 feet of any shoreline, dock, pier, bridges, or other structures or persons in the water[7]. Boat operators adhering to these regulations can safely pass through constructed gaps in the drift facility without risk of injury or damage to themselves, their boats, or to the structure.

# 6 UNAVOIDABLE AND ADVERSE EFFECTS

It is anticipated that project adverse impacts will be minor. The primary unavoidable adverse impact will be a minor and temporary disruption to area recreation and possible disturbance to threatened and endangered species (salmonids) from construction-related noise and vibrations during construction. However, as the work will be highly localized, effects will be minimal and will be expected to recover quickly.

# 7 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and natural or cultural resources. These resources are irretrievable in that they will be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource.

Implementation of the proposed action will involve human labor, the consumption of fuel, oil, and lubricants for construction vehicles and loss of natural resources. The proposed repair and maintenance of the drift facility will not entail any significant irretrievable or irreversible commitments of resources.

# 8 CUMULATIVE EFFECTS

Continued repair and maintenance of the drift facility will continue the passive removal of driftwood flowing downstream at the Clark Fork River delta, and shunting it to the holding yard at the Clark Fork WMA, which lessens a large source of habitat building materials in the Clark Fork River delta. This decreases the potential to creating island habitat and reducing the effects

[7] http://www.bonnerso.org/boating-regulations.php and Bonner County Public Waters Ordinance, Title 3. http://www.sterlingcodifiers.com/codebook/index.php?book_id=827

of erosion due to lake level fluctuations and wave action. Where wood lodges, it changes water flow, trapping sediments and contributes to island building. Woody debris also contributes organic material to wetland areas, adding nutrients and creating complex habitat for fisheries and wildlife. Woody debris that does not lodge in the Clark Fork River delta area drifts throughout Lake Pend Oreille, becoming a potential hazard to the boating public. By shunting the driftwood to the Driftyard, this boating hazard is reduced.

Short-term disruptions will include increased demand for space on the boat ramp at the Clark Fork WMA, as this is the likely staging area for drift facility maintenance crews and equipment. Boating traffic in the launch area and the work area will increase as the only way to work on the drift facility is by boat. Short-term negative impacts will be the increased noise, especially during pile driving. However, as only five or six piles will be replaced in any given year, the increase in noise will be temporary.

Cumulative impacts of this project will be highly localized, and will not significantly affect the quality of the natural or built environments. The inconvenience of minor short-term disruptions is outweighed by long-term potential benefits of boating safety.

# 9 COORDINATION

The following agencies and entities have been involved with the environmental coordination of the proposed project:

- Bonneville Power Administration (BPA)
- U.S. Fish and Wildlife Service (USFWS)
- Idaho Department of Fish and Game (IDFG)
- Idaho Department of Environmental Quality (IDEQ)
- Idaho State Historic Preservation Officer (Idaho SHPO)
- Idaho Department of Lands
- Kalispel Tribe of Indians
- Confederated Salish and Kootenai Tribes
- Kootenai Tribe of Idaho
- Coeur d'Alene Tribe

# 10 ENVIRONMENTAL COMPLIANCE

This Environmental Assessment (EA) is being prepared pursuant to Sec. 102(C) of the National Environmental Policy Act (NEPA), and includes compliance with other laws, regulations and Executive Orders as discussed below.

## 10.1 NATIONAL ENVIRONMENTAL POLICY ACT

In accordance with the NEPA, federal projects are required to evaluate potential environmental impacts of federal actions. The Council On Environmental Quality implementing regulations for the National Environmental Policy Act (NEPA) of 1969 provide at 40 C.F.R.§ 1500.1(c): "*The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and*

*enhance the environment*." 40 C.F.R. § 1508.9(a)(1) provides that an environmental assessment is required to "*provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact*" on actions authorized, funded, or carried out by the federal government. As required by NEPA, this Draft EA describes existing environmental conditions at the project site, the proposed action and alternatives, potential environmental impacts of the proposed project, and measures to minimize environmental impacts. The draft EA was made available for public review and comment on May 31 through June 30, 2016, via mailings and posting on the public Corps website. Public comments received during the public review period will be included and incorporated into the Final EA. The submittal of the Final EA and the signed Finding of No Significant Impacts (FONSI) will complete the NEPA process and fully comply with this Act.

## 10.2 ENDANGERED SPECIES ACT

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed or proposed threatened or endangered species and their critical habitats. As a part of the coordination, a Biological Evaluation (BE) was sent to the USFWS on May 19, 2016 (Appendix A), requesting their concurrence that the proposed maintenance and repairs will have no effect on Canada lynx or woodland caribou or their designated critical habitat and that the proposed project may affect but not likely to adversely affect bull trout, and their designated critical habitat. In a letter dated June 9, 2016, the USFWS concurred with the Corps' determination.

## 10.3 CLEAN WATER ACT

The object of the Federal Water Pollution Control Act (33 U.S.C § 1252 et seq.), commonly referred to as Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands.

The repair, rehabilitation, or replacement of any previously authorized, currently serviceable, structure or fill, or of any currently serviceable structure or fill is authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area including those due to changes in materials, construction techniques, or current construction codes or safety standards which are necessary to make repair, rehabilitation, or replacement are permitted, provided the environmental effects resulting from such repair, rehabilitation, or replacement are minimal. Currently serviceable means useable as is or with some maintenance, but not so degraded as to require reconstruction. Maintenance and repair of an existing structure is exempt under Section 404(f) of the CWA so long as the work meets the following three provisions.

### 10.3.1 Navigable Waters

*If a permit is required under Section 10 of the Rivers and Harbors Act of 1899.*
Construction of the drift facility was authorized in 1951 by the 82nd Congress, Public Law 203, Rivers and Harbors and Flood Control. The proposed repairs and maintenance will not change

the size nor function of the drift facility structure, which was built under Congressional authorization; therefore, this provision is met.

### 10.3.2 Recapture Provision

*If the work will include discharge of dredged and/or fill material into "waters of the U.S.", including wetlands.*

The proposed maintenance and repairs of the drift facility structure will not involve the discharge of dredged and/or fill material; therefore this provision is met.

### 10.3.3 Toxic Pollutants

*If the work will include discharge of toxic pollutants listed under Section 307 of the CWA.*

The proposed maintenance and repairs of the drift facility structure will not include the discharge of toxic pollutants designated pursuant to Section 307 of the Clean Water Act; therefore, this provision is met.

## 10.4 Clean Air Act of 1972

Section 176 of the Clean Air Act prohibits Federal agencies from approving any action that does not conform to an approved state or Federal implementation plan. During construction, effects on air quality will be temporary, localized, and insignificant. The Corps has determined that these effects will be localized and temporary. Emissions will not exceed EPA's *de minimis* threshold levels (100 tons/year for carbon monoxide and 50 ton/year for ozone) or affect implementation of Idaho's Clean Air Act implementation plan. Therefore, effects will be insignificant.

## 10.5 National Historic Preservation Act of 1966

Section 106 of the National Historic Preservation Act (NHPA) requires that Federal agencies, prior to approving an undertaking, take into account the effects of their actions on historic properties. The implementing regulations for Section 106 are published in 36 C.F.R. §800. The regulations describe the process by which an agency complies with Section 106. The regulations emphasize a process of consultation with various parties to identify, evaluate and consider effects on historic properties. Consulting parties include the Advisory Council on Historic Preservation (ACHP), the State Historic Preservation Officer (SHPO), Indian tribes, State and municipal governments, and organizations or individuals with a specific interest in the undertaking.

In general, an agency moves through the consultation process in several steps. These include identifying and documenting the Area of Potential Effect (APE), identifying cultural resources in the APE and evaluating properties using the Criteria of the National Register of Historic Places, assessing the effects of the undertaking on historic properties, taking steps to avoid or mitigate adverse effects. Where adverse effects are identified, the agency must resolve the effect in consultation with the consulting parties. The resolution of adverse effect is normally codified in a Memorandum of Agreement (MOA) among the parties. A signed and executed MOA concludes Section 106 for undertakings that have an adverse effect.

The Corps consulted with the Idaho SHPO on March 15, 2016 to define the APE and give background on the project. On March 29, 2016, the SHPO responded asking for more information on the history of the drift facility. This information was supplied on April 14, 2016, and the SHPO concurred with the Corps' determination that the proposed action alternative will

have a "No Adverse Effect" on the drift facility on May 9, 2016. The correspondence for this compliance can be found in Appendix B.

## 10.6 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C § 4701), as amended, requires that wildlife conservation receive equal consideration and be coordinated with other features of water resource development projects. A Fish and Wildlife Coordination Act Report is not required for maintenance and repair work.

## 10.7 Migratory Bird Treaty act of 1918 and Executive Order 13186, Migratory Bird Habitat Protection

The Migratory Bird Treaty Act (16 U.S.C. §703-712) as amended protects over 800 bird species and their habitat, and commits that the U.S. will take measures to protect identified ecosystems of special importance to migratory birds against pollution, detrimental alterations, and other environmental degradations. EO 13186 directs federal agencies to evaluate the effects of their actions on migratory birds, with emphasis on species of concern, and inform the USFWS of potential negative effects to migratory birds.

The proposed maintenance and repairs of the drift facility structure will be conducted during the summer months (late June through September) when water is at high pool which begins in the later portion of the regional nesting season for migratory birds (April 1 through July 15). No nest trees or shrubs will be removed due to the proposed work and the drift structure itself does not provide nesting habitat. The maintenance and repair activities could temporarily disturb birds loafing, or feeding in the work area; however, mitigation measures for noise will minimize or negate these effects.

## 10.8 Bald and Golden Eagle Act of 1940

The Bald and Golden Eagle Protection Act (16 U.S.C. § 668-668c) applies to Corps civil works projects through the protection of bald and golden eagles from disturbance. Bald Eagles are known to nest along the lower Clark Fork River. The noise associated with the maintenance and repair activities could disturb nesting eagles if the proposed work is within 660 ft of an active nest. Routine maintenance and repair work will be outside the critical nesting season of late February through June, which decreases the likelihood of disturbing eagles. In June 2016, the Clark Fork River Delta was surveyed by Corps personnel for presence of active bald eagle nests. Currently, the active nests are more than 1,000 feet away from the Drift Facility sections. However, if it is found that eagles build nests within 660 feet[8] of a proposed work area, the Corps will coordinate with the USFWS.

## 10.9 Executive Order 12898, Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 directs federal agencies to take the appropriate steps to identify and address any disproportionately high and adverse human health or environmental effects of federal programs, policies, and activities on minority and low-income populations. Minority

[8] Current buffer zone is 660 feet from active nests, if this buffer zone changes, the Corps will comply with the revised conservation buffer.

populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, and Pacific Islander. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population.

The proposed repairs will ensure Clark Fork Drift Facility continues to function as designed, with beneficial effect to all populations. Therefore, the proposed action will not disproportionately affect minority or low-income populations nor have any adverse human health impacts. No interaction with other projects will result in any such disproportionate impacts. No cumulative impacts to Environmental Justice will be expected from interaction of the proposed action with other past, present, and reasonably foreseeable projects. Further, tribal governments that are also environmental justice communities in the project area have been engaged and informed about the proposed action.

# 11 SUMMARY / CONCLUSION

The following table summarizes the potential effects to the environment from the proposed maintenance and repair of the Clark Fork Drift Facility:

**Table 7. Effects Summary Table**

| Resource | No Action Alternative | Proposed Action Alternative |
|---|---|---|
| Air Quality | No effect | Construction work will be well below the *de minimis* level of 100 tons per year. Operation is passive and does not require the burning of fossil fuels. |
| Noise | No effect | Minor disturbance during pile driving, will be mitigated by the use of a 6-inch minimum thick wood, rubber, or synthetic cushion block. |
| Geology and Soils | No effect | Minor displacement of sediments from pile driving |
| Water Resources and Water Quality | No effect | Minor temporary increase in turbidity from pile driving and power washing. |
| Hydrography and Hydrology | Overtime the drift facility will fall into further disrepair, breaking apart. | Drift facility will continue to shunt driftwood into the holding facility (drift yard). |
| Fish | No effect | Temporary localized disturbance due to underwater noise and vibration. |
| Wildlife | Loss of potential habitat building materials | Temporary disturbance due to noise. Upstream driftwood moved to the drift facility and could be used for habitat restoration elsewhere. |

| Resource | No Action Alternative | Proposed Action Alternative |
|---|---|---|
| Threatened and Endangered Species | No effect | Not likely to adversely affect bull trout or its critical habitat.<br>No effect to woodland caribou or Canada lynx or their critical habitats |
| Cultural Resources and Historic Properties | Overtime the drift facility will fall into further disrepair, breaking apart. | No adverse effect to cultural resources or historic properties. |
| Recreation | Increased risk to boater safety as more driftwood enters Lake Pend Oreille. | Reduced risk to boater safety.<br>Increased temporary demand for space at boat launch (likely Clark Fork WMA) when work is being conducted. |

Based on this Environmental Assessment and on coordination with Federal agencies, a Native American Tribe, and State Agencies, repair and maintenance of the Clark Fork Drift Facility is not expected to result in significant adverse environmental impacts. The Clark Fork Drift Facility Maintenance Project is not considered a major Federal action having a significant impact on the human environment. Therefore, the preparation of an environmental impact statement is not required.

# 12 LIST OF PREPARERS

- Craig Brengle, Natural Resources Manager
- Chemine Jackels, Fisheries Biologist
- Beth McCasland, Biologist / NEPA lead
- Julie Weisgerber, Architectural Historian

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# 14 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AFD | Albeni Falls Dam |
| APE | Area of Potential Effect |
| BE | Biological Evaluation |
| BMP | Best Management Practice |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| Corps | U.S. Army Corps of Engineers |
| ºC or ºF | Degrees Celsius or Fahrenheit |
| dB or $dB_{RMS}$ | Decibel or Decibel root mean square |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act |
| FERC | Federal Energy Regulatory Commission |
| ft | Foot, feet |
| FR | Federal Register |
| Hz | Hertz |
| IDEQ | Idaho Department of Environmental Quality |
| IDFG | Idaho Department of Fish and Game |

| | |
|---|---|
| IDL | Idaho Department of Lands |
| IFPA | Idaho Forestry Practices Ac |
| NGVD | National Geodetic Vertical Datum |
| NMFS | National Marine Fisheries Service |
| PBTTAT | Panhandle Bull Trout Technical Advisory Team |
| PM | Parts per million |
| SEL | Sound exposure level |
| SHPO | State Historic Preservation Office / Officer |
| SPZ | Stream protection zone |
| TMDL | Total Maximum Daily Load |
| USFWS | U.S. Fish and Wildlife Service |
| WMA | Wildlife Management Area |

# 15 APPENDICES

Appendix A – Threatened and Endangered Species Coordination
Appendix B – Cultural Resources coordination
Appendix C – Notice of Availability and letters received