

Restoration Update: Kootenai River Habitat Restoration Program

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Project Website: www.restoringthekootenai.org

The purpose of the Kootenai Tribe of Idaho's Kootenai River Habitat Restoration Program (KRHRP) is to improve habitat conditions to support all life stages of endangered Kootenai River white sturgeon, burbot and other native fish. Historical diking, agricultural conversion, infrastructure development, and construction and operations of Libby Dam have changed the river morphology, upland and riparian vegetation, and aquatic habitat. These changes limit the ability of many native fish populations, including the endangered Kootenai River white sturgeon and burbot (ling), to survive and thrive in the Kootenai River.

The KRHRP consists of many individual projects addressing site-specific river conditions that currently limit the success of native fish in the Idaho portion of the Kootenai River. The multiple KRHRP projects will work together to improve habitat conditions at the larger river-reach scale. The KRHRP is an ecosystem-based program that takes into account the habitat needs of all life stages of multiple fish species, the food web, and many other factors. The projects are also designed to respect and work with local land uses, Libby Dam river operations, and local community values. Each project is designed to function within a range of dam operated river flows and to improve fish habitat without requiring additional flows or increasing local flood risks. In addition to restoring habitat conditions, construction of the projects also contributes to the local economy through purchases of many local goods and a broad range of services. The goals of KRHRP include:

- *Morphology*: Restore river and floodplain ecological processes within the constraints of Libby Dam operations and current land uses.
- *Aquatic*: Restore conditions that support all life stages of native fish and help maintain sustainable populations.
- *Riparian vegetation*: Create streambank and floodplain conditions that help plant communities develop.
- *River stewardship*: Support and create opportunities for river stewardship.

The Kootenai Tribe of Idaho completed a Master Plan for the KRHRP in 2009. From 2011 through 2016 the Tribe completed construction of nine restoration projects, and another two-phase restoration project will be constructed between 2017 and 2018. These projects include the following restoration treatments:

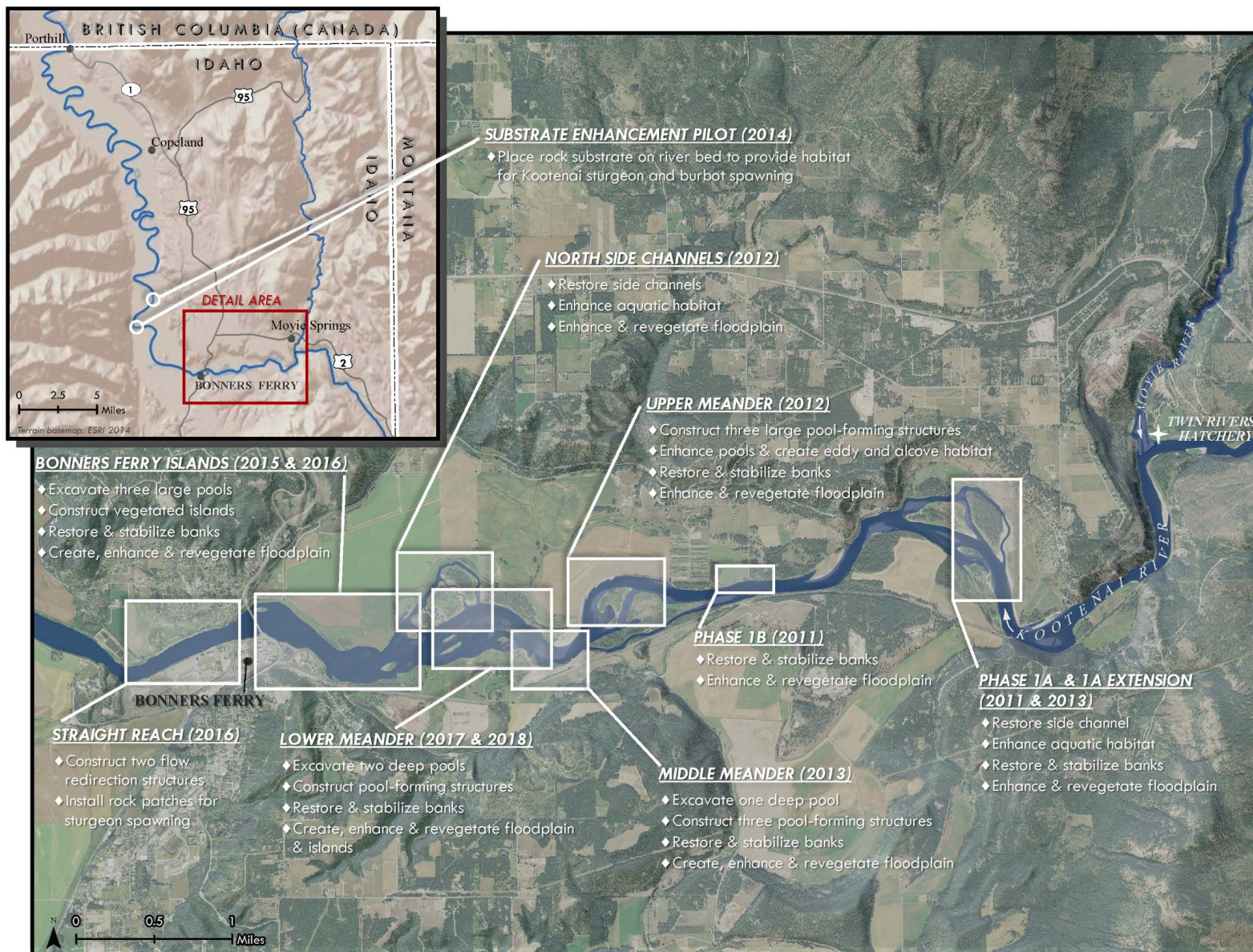
- Pool excavation and enhancement of pools to create a 'ladder' of deep pools through the restored reach to provide resting habitat and potentially staging areas for upstream migration of Kootenai River white sturgeon.
- Pool-forming and flow redirection structures built of wood piles and rock that extend into the channel, directing flows to scour and maintain pools.
- Substrate enhancement by placing rock patches on the bed of the river where Kootenai River white sturgeon currently spawn over sand and clay; the rock can provide more suitable substrate for egg attachment and larvae can hide in the spaces between the rocks.

- Bank restoration and stabilization including large and small wood structures and revegetation to reduce erosion and create additional floodplain surfaces that support riparian vegetation.
- Side channel restoration and reconnection including reshaping overwide side channels or reconnecting disconnected side channels to provide aquatic habitat for native fish and contribute nutrients to the main Kootenai River channel.
- Floodplain enhancement or creation by adding floodplain roughness and topographic diversity to existing surfaces and creating new floodplain and island surfaces connected to overbank flows in the river to support the development of riparian vegetation communities that contribute nutrients to the food web.
- Native riparian revegetation including planting native trees and shrubs and supporting the natural recruitment and establishment of cottonwood and willow seedlings that contribute to the food web, provide long-term streambank and floodplain stability, and provide important habitat for wildlife and bird species.

The Bonneville Power Administration provides the majority of funding (ratepayer dollars) for the KRHRP through the Northwest Power and Conservation Council's Fish and Wildlife Program, as directed under the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (www.nwccouncil.org).



Middle Meander Project (2013)



Overview of the KRHRP restoration project areas.