

Kootenai/Moyie Subbasin TMDL 5-yr Review

**KVRI Board Meeting
By: Robert Steed,
IDEQ , Surface Water Ecologist
April 18, 2016**



5-Year Review

TITLE 39
HEALTH AND SAFETY
CHAPTER 36
WATER QUALITY

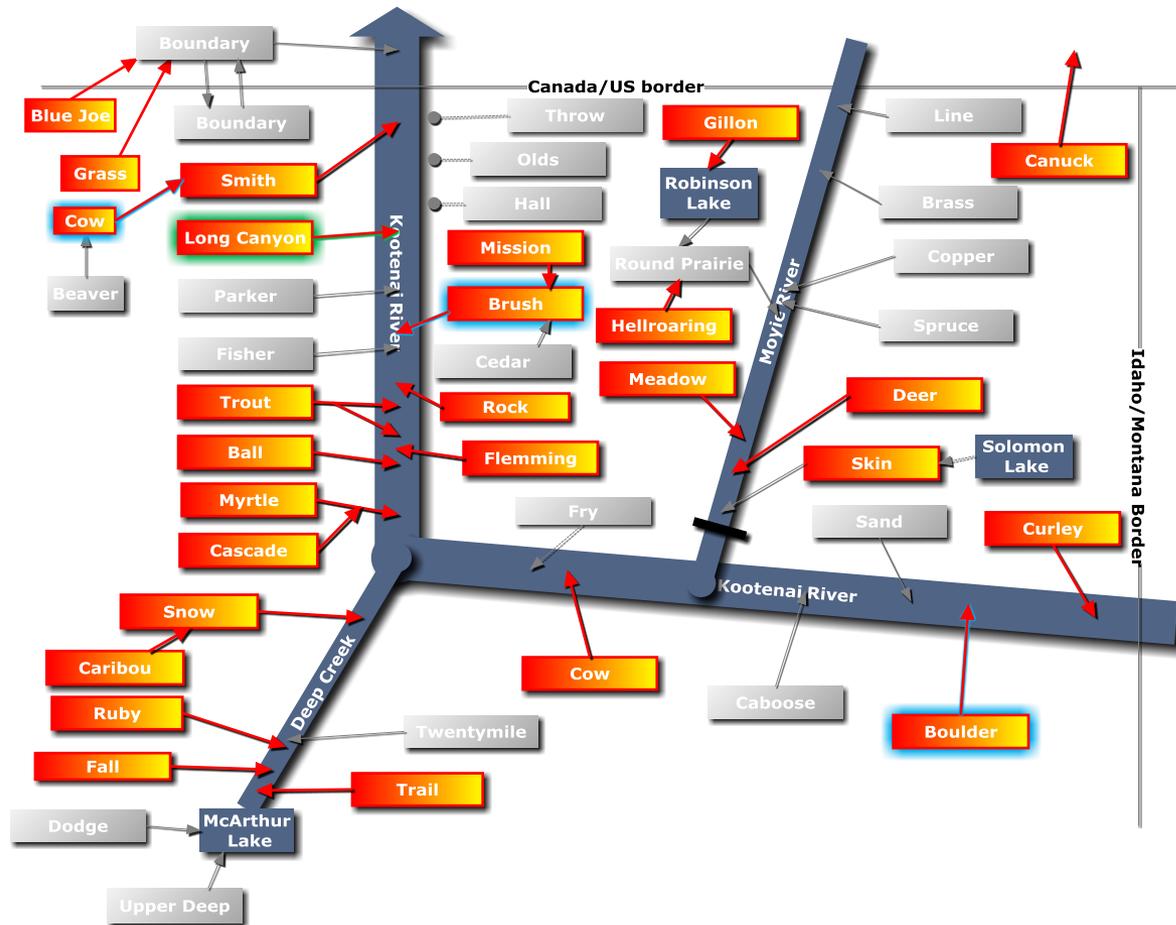
39-3611. DEVELOPMENT AND IMPLEMENTATION OF TOTAL MAXIMUM DAILY LOAD OR EQUIVALENT PROCESSES

(7) The director (DEQ) shall review and reevaluate each TMDL, supporting subbasin assessment, implementation plan(s) and all available data periodically at intervals of no greater than five (5) years. Such reviews shall include the assessments required by section [39-3607](#), Idaho Code, and an evaluation of the water quality criteria, instream targets, pollutant allocations, assumptions and analyses upon which the TMDL and subbasin assessment were based. If the members of the watershed advisory group, with the concurrence of the basin advisory group, advise the director that the water quality standards, the subbasin assessment, or the implementation plan(s) are not attainable or are inappropriate based upon supporting data, the director shall initiate the process or processes to determine whether to make recommended modifications. The director shall report to the legislature annually the results of such reviews.

Products to Review

- 2006 Subbasin Assessment
- 2006 TMDLs
 - Boundary Creek (Temperature)
 - Deep Creek (Temperature and Sediment)
 - Cow Creek (Sediment)
- 2014 TMDLs (27 streams, Temperature)

2014 TMDL- Temperature



2006 TMDL – Temperature – Boundary Creek and Deep Creek

PNV TMDLs completed before DEQ's 2009 PNV manual completion used shade targets that were not based on Idaho plant communities, but were borrowed from surrounding states. Older aerial images were relatively poor quality resolution making shade interpretations difficult and prone to errors. DEQ's 2009 PNV manual provided shade targets based on Idaho plant communities that are more consistent with what we see on the ground and are clearly more related to the right plants found in the riparian communities. Revision provides us the opportunity to use current aerial imagery that has very high resolution and allows us to make few incorrect interpretations of shade, and it provides another opportunity to collect additional ground truthing information.

2016 DEQ Field Season

- Beneficial Use Reconnaissance Project
 - 3 person crew (Managed by Craig Nelson (DEQ))
 - 30 Target Sites in the Kootenai/Moyie Subbasins
 - Measures Include
 - Habitat
 - Aquatic Insect
 - Fish

From 2006 Subbasin Assessment

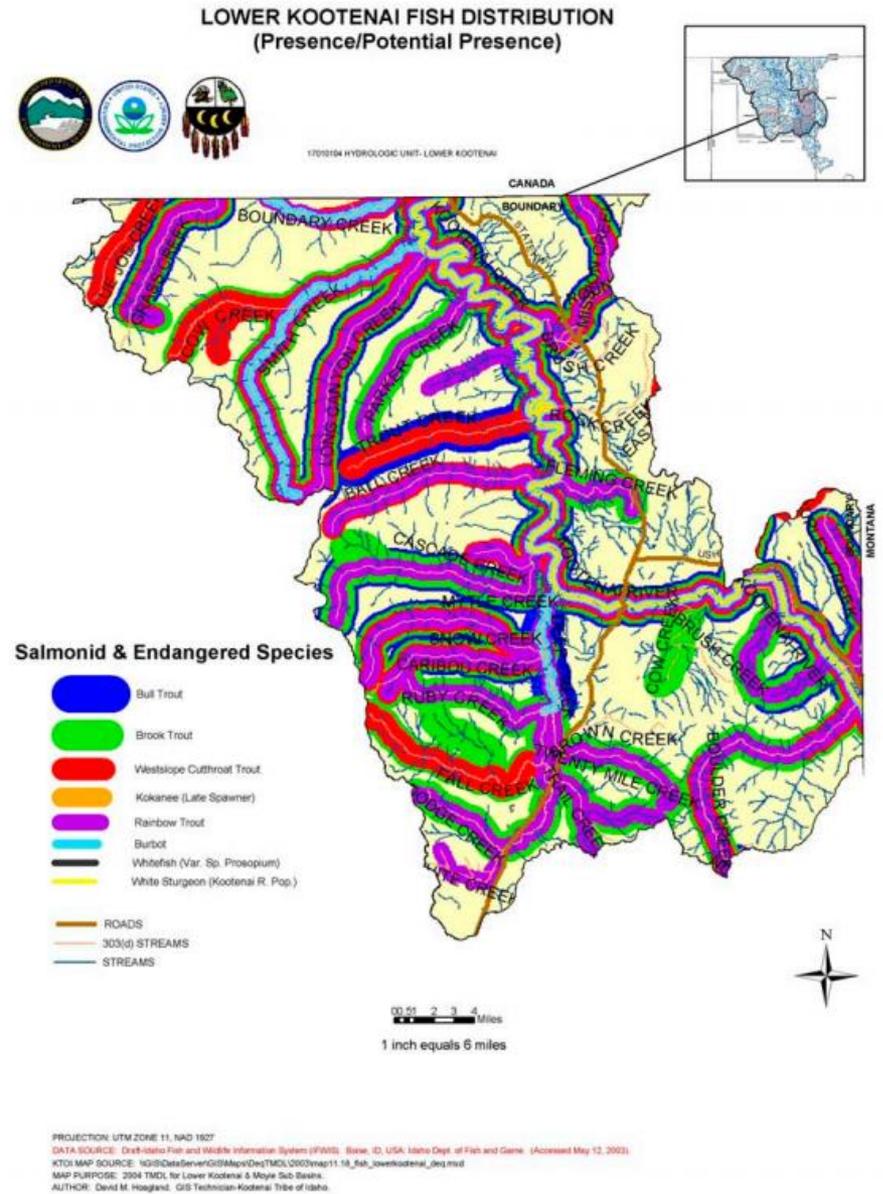


FIGURE 14. Fish Presence for the Lower Kootenai basin

Figure 10. Distribution of fish species in the Lower Kootenai River Subbasin.

From 2006 Subbasin Assessment

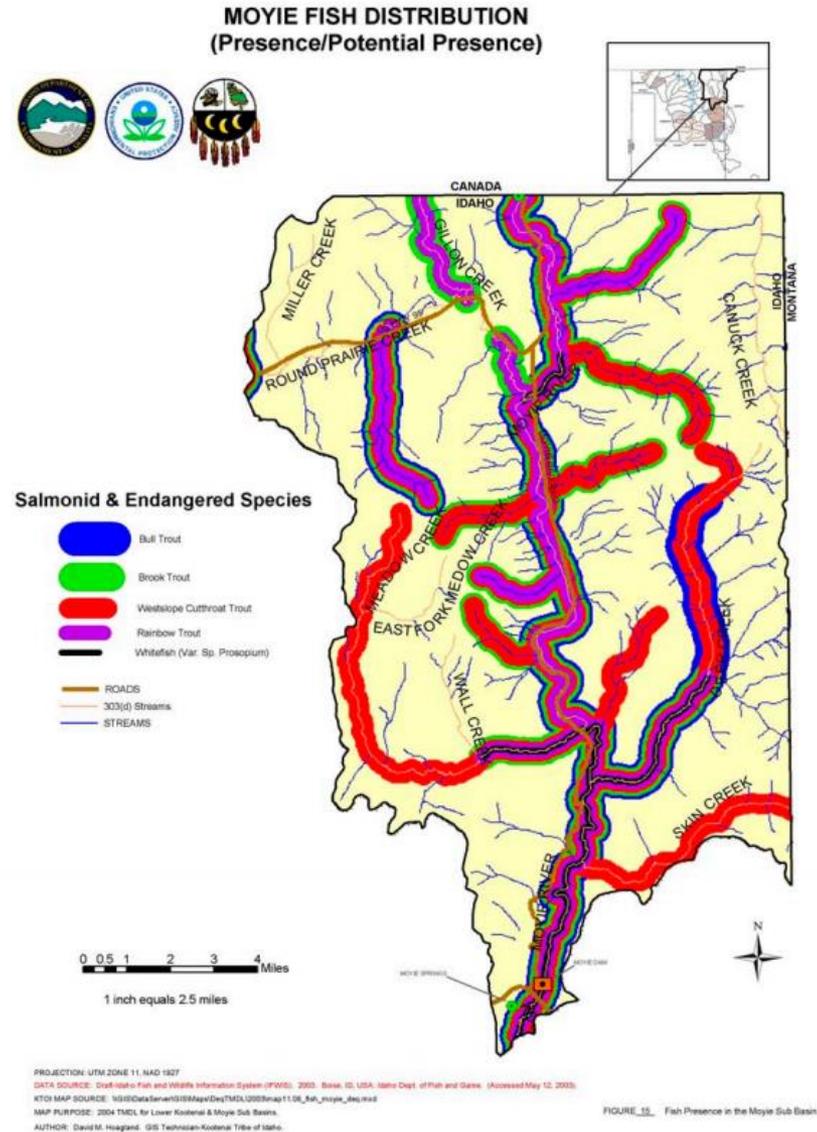


Figure 11. Distribution of fish species in the Moyie River Subbasin.

Presentation by Michael Young

**COMPLETING THE LOOP:
Combining Occupancy Modeling, Crowd-sourcing, and eDNA
Sampling to Inventory Bull Trout Across Their U.S. Range
(and its application to other aquatic species)**



The collage consists of several photographs: a small larva on a rock, a young fish held in a hand, a close-up of a fish's head with its mouth open, and several adult bull trout in a white mesh net. The background of the collage is a dark, textured blue.

 Rocky Mountain Research Station

Project Coordinators

Project Coordinators

Michael Young, Dan Isaak, Kevin McKelvey, Michael Schwartz, Kellie Carim, Wade Fredenberg, Taylor Wilcox, Matt Groce, Dave Nagel, Dona Horan, Sherry Wollrab

Collaborators

Bureau of Reclamation
Clark Fork Coalition
Clearwater Resource Council
Coeur d'Alene Tribes
Idaho Department of Fish and Game
Idaho Power Company
Kalispel Tribes
Lewis River Bull Trout Recovery Team
Montana Department of Natural Resources Conservation
Montana Fish, Wildlife & Parks
National Fish and Wildlife Foundation
The Nature Conservancy
Nez Perce Tribes
North Cascades National Park
Oregon Department of Fish and Wildlife
Trout Unlimited

U.S. Fish and Wildlife Service
USFS Beaverhead-Deer Lodge NF
USFS Boise NF
USFS Helena NF
USFS Idaho Panhandle NF
USFS Lolo NF
USFS Payette NF
USFS Salmon-Challis NF
USFS Sawtooth NF
USFS Regions 1, 4, and 6
Washington Department of Fish and Wildlife
Yakama Nation

Sponsors



Institutional Support



http://www.fs.fed.us/rm/boise/AWAE/projects/BullTrout_eDNA.html

The screenshot shows the website header for the Rocky Mountain Research Station, Air, Water, & Aquatic Environments Program. It includes logos for USDA, U.S. Forest Service, and the station itself. Navigation links include ABOUT AWAE, RESEARCH, PROJECTS, TOOLS, & DATA, PUBLICATIONS, and CONTACT US. A search bar is present with a 'GO' button and a checkbox for 'search only AWAE'. The main content area features a large image of a bull trout's head on the left and a man in a red shirt sampling water in a stream on the right. Below these images is the title 'The Rangewide Bull Trout eDNA Project'. To the right of the man is a graphic with logos for Climate Shield, U.S. Forest Service, National Genomics Center for Wildlife and Fish Conservation, NorWeST, and Great Northern. The text 'Funded by:' is visible above the Great Northern logo.

HOME ► PROJECTS ► THE RANGE-WIDE BULL TROUT eDNA PROJECT

The bull trout is an ESA-listed species with a historical range that encompasses many waters across the Northwest. Though once abundant, bull trout have declined in many locations and are at risk from a changing climate, nonnative species, and habitat degradation. Informed conservation planning relies on sound and precise information about the distribution of bull trout in thousands of streams, but gathering this information is a daunting and expensive task. To overcome this problem, we coupled 1) predictions from the range-wide, spatially precise Climate Shield model on the location of natal habitats of bull trout with 2) a sampling template for every 8-digit hydrologic unit in the historical range of bull trout, based on the probability of detecting bull trout presence using environmental DNA (eDNA) sampling (McKelvey et al. 2016). The template consists of a master set of geospatially referenced sampling locations at 1-km intervals within each cold-water habitat. We also identified sampling locations at this same interval based on the USFWS's designation of critical spawning and rearing habitat. Based on field tests of eDNA detection probabilities conducted by the National Genomics Center for Wildlife and Fish Conservation, this sampling approach will reliably determine the presence of populations of bull trout, as well as provide insights on non-spawning habitats used by adult and subadult fish. The result will be a rapid, robust, and repeatable range-wide assessment of natal habitats of this species,

revised by 2018