

North Fork Clearwater: Salmonids and land management impacts on fish

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Salmonids in the North Fork Clearwater River

Arnsberg, B. D., and D. P. Statler. 1995. Assessing summer and fall Chinook salmon restoration in the Upper Clearwater River and principal tributaries. Annual report to the Bonneville Power Administration, Project 94-034, Portland, Oregon.

https://docs.cbfwl.org/StreamNet_References/BPAsn29355.pdf

Focuses primarily on temperature assessment in the Upper Clearwater River, finds that temperatures in the North Fork were generally cooler than temperatures in the Lower Clearwater River. Also, surveys redds in the North, Middle and South forks of the Clearwater River and PIT tags for naturally produced Chinook Salmon in the Lower Clearwater River.

Bostrom, J. 2006. Characterize and quantify residual steelhead in the Clearwater River, Idaho. Final report to the Bonneville Power Administration, Project 99-018-00, Portland, Oregon.

<https://www.osti.gov/servlets/purl/903215>

Final report of a 1999-2002 project to assess whether size at release and release site influenced emigration success and survival of hatchery steelhead smolts raised at Dworshak National Fish Hatchery and released into the Clearwater River drainage. Sampled at the Clearwater River, North Fork Clearwater River, Bedrock Creek, Big Canyon Creek, Cottonwood Creek, Jacks Creek and the Dworshak National Fish Hatchery adult ladder.

Congleton, J. L., and Y. Chang. 1989. Occurance and quantity of infectious hematopoietic necrosis virus in the North Fork Clearwater River and Dworshak National Fish Hatchery. Progress Report to Idaho Department of Fish and Game, Project 1-IJ-8.

<https://idahodocs.contentdm.oclc.org/digital/collection/p16293coll7/id/235176/rec/1>

Analyzes the presence of infectious hematopoietic necrosis virus (IHNV) in water drawn from the North Fork of the Clearwater River, and whether IHNV fluctuates seasonally in water sampling. Also aims to detect IHNV in nursery tanks and ponds containing juvenile steelhead, as well as the fish themselves.

Congleton, J. L., and Y. Chang. 1991. Occurrence and quantity of infectious hematopoietic necrosis virus in the North Fork Clearwater River. and Dworshak National Fish Hatchery. Final Report to Idaho Department of Fish and Game, Project 1-IJ-8.

<https://idahodocs.contentdm.oclc.org/digital/collection/p16293coll7/id/235433/rec/3>

Follows up on the 1989 project, with findings that IHNV was not detectable in the hatchery intake water. IHNV was detected in nursery tanks and Burrow's ponds during but not before epizootics. Results indicate that IHNV is horizontally transmittable at relatively low rates of waterborne IHNV.

Flores, A.-M., K. A. Christensen, T. Godin, Y. Palti, M. R. Campbell, G. C. Waldbieser, S. A. Simpson, B. E. Scheffler, S. R. Smith, A. R. Whiteley, R. P. Kovach, G. Luikart, M. C. Boyer, M. Kardos, S. Relyea, C. Wells, and B. F. Koop. 2025. The genome assembly of the Westslope cutthroat trout, *Oncorhynchus lewisi*, reveals interspecific chromosomal rearrangements with the rainbow trout, *Oncorhynchus mykiss*. *G3: Genes, Genomes, Genetics* 15(5).

<https://doi.org/10.1093/g3journal/jkaf064>

Produces a chromosomal-level genome assembly and a genetic map for one of the species in the cutthroat trout species complex, the Westslope cutthroat trout and constructs haplotype-resolved assemblies from a Westslope cutthroat-rainbow trout F1 hybrid. Includes the North Fork Clearwater population of Westslope cutthroat trout.

Hanson, J., E. Schriever, and J. Erhardt. 2014. Bull trout life history investigations in the North Fork Clearwater River basin: regional fisheries management investigations, North Fork Clearwater River bull trout. Final Report to U.S. Army Corps of Engineers, Contract DACW68-96-D-0003.

<https://idahodocs.contentdm.oclc.org/digital/collection/p16293coll7/id/251298/>

This study examines collects and reports on biological and life history information on bull trout in the North Fork Clearwater River and the Dworshak Reservoir. The project aimed to assess bull trout migration patterns, spatial and temporal distributions, and to determine bull trout spawning sites in the North Fork Clearwater basin.

Hunt, J. P., and T. C. Bjornn. 1991. Re-evaluation of the status of fish populations in Kelly Creek, the North Fork of the Clearwater, St. Joe and Lochsa River drainages in 1989. Idaho Department of

Fish and Game.

<https://idahodocs.contentdm.oclc.org/digital/collection/p16293coll7/id/235440/rec/2>

Assesses the of angling efforts, catch rates, anglers' opinions, and species composition in the North Fork Clearwater River watershed. Study finds that rainbow trout were the predominant species of the North Fork Clearwater River downstream of its confluence with Kelly Creek, and cutthroat trout were the predominant species upstream of this confluence.

Lubenau, W. J., T. R. Johnson, B. J. Bowersox, T. Copeland, J. L. McCormick, and M. C. Quist. 2024. Encounter rates and catch-and-release mortality of steelhead in the Snake River Basin. *North American Journal of Fisheries Management* 44(1):3–20. <https://doi.org/10.1002/nafm.10965>

Attempts to provide information on the influence of catch-and-release fisheries on wild steelhead in the Snake River Basin to examine how existing recreational steelhead fisheries influence wild steelhead mortality. Basin-wide focus, but the North Fork Clearwater River/Dworshak Reservoir are given special attention.

Moffit, C. M., and T. C. Bjornn. 1984. Fish abundance upstream from Dworshak Dam following exclusion of steelhead trout. Idaho Water and Energy Resources Research Institute, Report G839-04, Moscow, Idaho. <https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/PB85249167.xhtml>

Examines fish populations in 12 tributary streams of the North Fork Clearwater River. Compares fish numbers, species composition and fish density to previous studies fifteen years after the construction of the Dworshak Dam excluded anadromous fish.

Pettit, S. W. 1976. 1974-1977. Dworshak fisheries studies job completion report. Idaho Fish and Game Department. <https://idahodocs.contentdm.oclc.org/digital/collection/p16293coll7/id/234321/rec/8>

Evaluates changes in the game fish populations of the North Fork and tributaries above Dworshak Reservoir as the reservoir ages and post-impoundment fish populations are established. Examines composition and abundance of species, fish relationships with water quality, and the limnological characteristics and fisheries of Dworshak Reservoir.

Reingold, M. 1964. Fisheries studies in connection with Dworshak (Bruces Eddy) Dam and Reservoir. Idaho Fish and Game Department. <https://idahodocs.contentdm.oclc.org/digital/collection/p16293coll7/id/47991/rec/1>

This project aimed to develop and implement a fish trapping system that could be used to sample spring steelhead smolt migration in the North Fork Clearwater River. The trapping system could aid in the assessment of steelhead migration times, numbers of migrating steelhead, and environmental factors impacting Steelhead migration.

Schriever, E., and P.D. Murphy. 2001. Native fish enhancement project on the Potlatch Corporation operating area in northern Idaho: 2000 annual report. Idaho Department of Fish and Game Report 01-22.

<https://idahodocs.contentdm.oclc.org/digital/collection/p16293coll7/id/279593/rec/4>

Analyzes cutthroat trout abundance, distribution and community structure within the Potlatch Corporation operating area. Also examines the cutthroat trout responses to habitat alterations within the operating area. The project also documents efforts to suppress non-native brook trout populations and cutthroat trout responses to these efforts.

Weigel, D. E. 1997. Genetic inventory of westslope cutthroat trout in the North Fork Clearwater basin, Idaho. Annual report to Bonneville Power Administration, Project 95-016-00, Portland, Oregon.

https://docs.cbfwl.org/StreamNet_References/BPAsn29645.pdf

Uses genetic inventories to chart and assess the impacts of ingression of rainbow trout and Yellowstone cutthroat trout on native westslope cutthroat trout. Finds that hybridization with exotic trout species is one of the biggest threats to westslope cutthroat trout and recommends changes in stocking practices, namely, lowering the amount of introduced rainbow trout.

Effects of Land Use on Fish in the North Fork Clearwater

Ecovista, Nez Perce Tribe Wildlife Division, and Washington State University Center for Environmental Education. 2003. Draft Clearwater Subbasin assessment. <https://www.nwcouncil.org/subbasin-plans/clearwater-subbasin-plan/>

While the assessment considers the whole Clearwater River Basin, there are sections focused on the North Fork Clearwater River. The work considers the biodiversity, geography, geology, hydrology, and land use impacts of the basin.

Fisher, R. J., G. G. Harrington, and L. Kronneman. 1980. Plan for fish and wildlife habitat treatments Dworshak Reservoir North Fork Clearwater River. U.S. Fish and Wildlife Service, Boise, Idaho.

<https://books.google.com/books?id=g4fEUeIOm4IC&pg=PP5#v=onepage&q&f=false>

Develops and discusses plans to alter and improve habitats for wildlife and fish around the Dworshak Reservoir. Assesses the current state of aquatic and terrestrial animal populations, examines the contemporary land uses, and potential projects that can improve habitats.

Henderson, R. D. 2002. Lower North Fork Clearwater River subbasin assessment and TMDL. Idaho Department of Environmental Quality, Lewiston, Idaho.

<https://www2.deq.idaho.gov/admin/LEIA/api/document/download/11821>

Assesses the water quality of the Lower North Fork Clearwater River subbasin. Assesses the impacts of land use, namely: mining, forestry, grazing, recreation, and transportation. The assessment also considers sediments, temperatures and bacteria.

Henderson, R. D. 2003. Upper North Fork Clearwater River subbasin assessment and Total Maximum Daily Loads. Idaho Department of Environmental Quality, Lewiston, Idaho.

<https://www2.deq.idaho.gov/admin/LEIA/api/document/download/11817>

Update on the previous entry. Assesses the water quality of the Lower North Fork Clearwater River subbasin. Assesses the impacts of land use, namely: mining, forestry, grazing, recreation, and transportation. The assessment also considers sediments, temperatures and bacteria.

Parr, C. A., F. D. Rydalch, J. D. Erickson, R. Graham, J. L. Jordan, E. Rainey, J. R. Rigby, and T. T. Uhling. 1996. Idaho comprehensive state water plan North Fork Clearwater Basin. Idaho Water

Resource Board, Boise, Idaho. <https://idwr.idaho.gov/wp-content/uploads/sites/2/iwrb/1996/19960112-Comprehensive-State-Water-Plan-North-Fork-Clearwater.pdf>

Evaluates and describes the water resources of the North Fork Clearwater River. In addition to the water itself, the document describes the related economic activities, cultural records, and natural resources within the basin.