

Lapwai Multidisciplinary Project

Lapwai Creek is a tributary to the Clearwater River just upstream from the confluence with the Snake River. The Creek is located within the Nez Perce Indian Reservation, primarily within Nez Perce County, and within the state of Idaho. In 1855, when the Lapwai Creek watershed was first included within the territory subject to treaty between the United States and the Nez Perce, the watershed provided healthy spawning habitat for Snake River steelhead (*Oncorhynchus mykiss*), now listed as endangered under the federal Endangered Species Act. Although steelhead must run the gauntlet of hydropower dams, harvest of fish, and competition with hatchery fish in their journey from the ocean to Lapwai Creek to spawn, threats to spawning and rearing habitat also exist within the Lapwai Creek basin. Those threats include dewatering, sediment load, river channelization, and increased water temperature related to development within and outside the basin. This project will focus on one source of human-caused threats for steelhead: activity within the floodplain of the creek and its tributaries, including activity that harms steelhead habitat and activity intended to restore that habitat. Issues within the basin are complicated by checkerboard land status. This means that land within the floodplain is held as private fee land, tribal trust land, and allotted trust land. The team status in this project is as neutral researchers. You are not an advocate for any party, but are simply trying to help the basin solve its problems.

Multidisciplinary Project Assignment #1: You are to turn in a 5-10 page, double spaced, report, using the citation method common to your discipline, on the following assignment listed below that is applicable to you. In addition, you should provide your report to the instructors in electronic form with a listing of all your sources. This electronic information will be posted on the website for use by all class members in the interdisciplinary project.

Assignment to team legal counsel: Research the various legal avenues for regulating activity within the floodplain that impacts an aquatic endangered species. Your research should include the Endangered Species Act, the Clean Water Act provisions on non-point source pollution, and tribal and county planning and zoning and what the jurisdiction of each entity is over land use zoning in the basin. In addition, you have been informed that the Nez Perce Tribe is considering setting TMDL's under the Clean Water Act for Lapwai Creek and its tributaries. Research whether the Tribe has authority to do so. For both jurisdictional questions (TMDL jurisdiction and land use zoning jurisdiction, you will be given the appropriate cases and will merely need to analyze them.

Assignment to team aquatic biologist: The original Biological Opinion (2006) and the recent legal decision to set that BO aside (April 2008) have relied extensively on whether Lapwai basin serves as an overall **source** or **sink** to the Clearwater-Lower Mainstem (CRLMA) steelhead (*O. mykiss*) population. While the goal under the Endangered Species Act is to ensure the *survival* AND *recovery* of the Distinct Population Segment within the entire CRLMA, it is generally acknowledged that habitat conditions in general are declining and that each subpopulation warrants special attention when justified by special conditions. Your assignment is to briefly explore the trends in **habitat conditions**

of the CRLMA as a whole and the Lapwai basin specifically. Next consider, the **population trends** for steelhead at both spatial scales (CRLMA and Lapwai) and use data and simple models to determine under what realistic population scenarios the Lapwai basin *O. mykiss* should be considered a sink population where mortality exceeds reproduction. Finally, use metapopulation theory, population viability analysis and your educated opinions about population connectedness to form a defensible opinion about how subpopulations should be considered when interpreting the population trends and recovery of an endangered salmon.

Assignment to team physical scientist: The Lapwai Creek floodplain has not been fully delineated, in part because of checkerboard land ownership. For this assignment, you are to research floodplain delineation from the Federal Emergency Management Agency (FEMA) perspective, collect and analyze the relevant hydrologic data, and compute the floodplain boundaries for a short reach of Lapwai Creek (consistent with locations studied in the other disciplinary components). You should also look at the existing floodplain boundaries.

Assignment to team social scientist: One of the major hurdles in steelhead restoration in the Lapwai watershed is the fractious nature of the various interests involved and the multiple jurisdictions involved in management of water and the riparian area. Your assignment is to research the perspectives of some of the key interests in the basin. We will divide the research on the perspectives of the following groups among you: the Nez Perce Tribe, Nez Perce County, Lewiston Orchards Irrigation District, commodity interests in the basin (agriculture and timber). Two members of the social science students in the class are in the process of interviewing the various interest groups in the basin. Their assignment will be to continue and to provide the class with their information. The rest of you will rely on those interviews and the following types of sources: briefs and orders from litigation in the basin, and newspaper editorials, articles, and reports on public meetings

Group Multidisciplinary Presentation:

You will have one day in class to pull together a team presentation. You will have had the reports of your team members for a week. One suggestion on how to spend class time: (1) Have each group member take 5 minutes maximum to explain their project and their findings; (2) Take each team member individually and spend an additional 5 minutes discussing how their project relates to/informs/turns up barriers to, etc. the other projects; (3) identify a common theme; and (4) outline a presentation and make assignments to each team member.