CASE STUDIES – ECOSYSTEM RESTORATION

Battle Creek Salmon and Steelhead Restoration Project

When the Department of Fish and Game (DFG) announced $67 million in funding to re-establish endangered and threatened Chinook salmon and steelhead in northern California, it was a project to restore Battle Creek, a tributary of the Sacramento River near Manton in Tehama County that took the lion's share, becoming the largest single restoration effort ever funded by DFG.

This project is located in the Battle Creek Watershed, a tributary of the Sacramento River northeast of Red Bluff. The community of Manton lies between the two main forks of Battle Creek. Historically, Battle Creek is the only Sacramento River tributary downstream of Pit River capable of supporting all four runs of Chinook salmon and steelhead. In the early 1900s, miners built numerous diversion dams across the creek to provide hydroelectric power to Iron Mountain Mine near Keswick. The dams blocked migrating salmon and steelhead from accessing their spawning habitat and reduced water quality in Battle Creek to the point where these fish and resident trout could barely exist.

Battle Creek offers the geologic and hydrologic conditions to support the state and federally-listed spring- and winter-run Chinook salmon, as well as steelhead. Restoration of habitat in Battle Creek would allow for improvement of these fish populations, which would serve to improve reliability of state and federal water project operations and salmon harvest. Further, the restoration of a drought-resistant, spring-fed system like Battle Creek is especially important to these, which are dependent on cool water stream habitats. Winter-run Chinook salmon, in particular, are dependent upon habitats like Battle Creek that have stream reaches that are kept cool year-round by natural springs.

The goal of the project is to restore approximately 42 miles of habitat on Battle Creek and an additional 6 miles of habitat on its tributaries, while minimizing the loss of clean and renewable energy produced by hydroelectric generation. To accomplish the restoration, hydroelectric facilities and operations were to be modified, including in-stream flow releases. Restoration components focus on providing increased amounts and quality of spawning and rearing habitat, unimpeded passage past natural and hydroelectric project barriers to preferred

habitats, appropriate water temperatures and temperature continuity, and finally, unambiguous environmental cues used by salmon and steelhead to navigate.

The restoration project, funded by the California Bay Delta Authority, will allow for maximum anadromous fish habitat restoration to support the Central Valley Project Improvement Act. The project includes: removal of five hydropower diversion dams and installation of screens and ladders on three additional hydropower diversion dams; increases in flow releases; dedication of water diversion rights for in-stream purposes at dam removal sites; and elimination of mixing between North Fork Battle Creek and South Fork Battle Creek.

The fact that salmon and steelhead may soon be thriving in an additional 42 miles of Battle Creek is a story of partnerships. Wide support and cooperative efforts between state and federal agencies, the Pacific Gas and Electric Co., environmental groups, local community groups, and sport and commercial fishing organizations are the reason the Battle Creek Salmon and Steelhead Restoration Project has become a reality.

Benefits of the restoration project are not confined to just salmon and steelhead. The project will boost populations of the native wild rainbow trout throughout a large portion of Battle Creek. DFG's fishery biologists expect the trout population in these areas will increase to between 5,000 and 7,000 trout per mile due to restoration habitat changes.