EARTHWATCH INSTITUTE FIELD REPORT

Project Title: Saving Wild Salmon

Principal Investigator (s): Steve Hinton, Greg Hood

Position/Affiliations: Programme Director, Skagit River System Cooperative

Senior Restoration Ecologist, Skagit River System Cooperative

Research Sites:

Deepwater Slough; Fir Island Washington

Wiley Slough; Fir Island Washington

Fornsby Creek/Smokehouse Floodplain; LaConner Washington

Hansen Creek; Sedro Woolley Washington

Local Management Status of the Research Sites:

Deepwater Slough; Washington State Department of Fish and Wildlife: Wildlife Management Area

Fornsby Creek/Smokehouse Floodplain: Tribal Reservation Trust Land

Hansen Creek: State and County Park Lands

Scientific names of primary species being studied:

Oncorhynchus tshawytscha (Chinook salmon)

Key Research Objectives:

- To evaluate the effectiveness of large scale estuarine restoration projects (Deepwater)
- To measure post-project habitat response in an estuarine environment (Deepwater)
- To gather data on pre-project baseline habitat condition (Fornsby & Wiley)
- To implement restoration actions on a tributary to the Skagit River (Hansen)
- To gather data on salmonid use of estuarine habitats

Date this report was completed: December 10 2004

RESEARCH

Data Collection and Results

- Pre-project channel morphology
- Vegetation response to restoration activities
- Vegetation type @ elevation X
- % Survival by species in test plots
- Channel planform changes to restoration actions
- Channel development in response to restoration activities
- Pore water salinity
- Groundwater well installation
- Benchmark establishment
- Topography

Summary of Results

Deepwater Slough -The Deepwater Restoration site continues to show significant channel development in both distributary and blind channel corridors. Cross sectional data indicate expansion of channel planform geometry. Measures of channel complexity (edge type, LWD accumulation, vegetation, and off channel development) indicate positive gains in habitat availability. New blind channel development continues to expand in area. No significant change was noted in established marsh vegetation communities (i.e. Cattail and Reeds Canary Grass)

Fornsby Creek/Wiley Slough - Data collected were used to establish pre-project condition for vegetation, hydrology, salinity, fish use, channel planform, channel cross sections and benchmark information. This information was used to map treatment areas and aid restoration planning for eventual buffer establishment, channel construction and re-establishment of tidal flows and fish passage to isolated habitats.

Hansen Creek - Earthwatch volunteers aided in implementation of a channel construction project in which fish were captured and moved safely from areas to be dewatered. Project volunteers also assisted in LWD placement, and plantings of native vegetation on the site.

Significance/Benefits of Research

- Local
  Estuarine habitats have been shown to be limiting to chinook production within the Skagit River basin (Beamer, et al. 2003). These projects sites represent large scale efforts to restore estuarine habitat, with the intent of boosting local salmonid populations such as chinook.

- National
  The restoration of estuarine habitats is an evolving science with an expanding population of practitioners throughout the States. Lessons from the Skagit are of particular interest to those with the Pacific Northwest, especially the Puget Sound region. However, locations with similar estuarine/bay environments, such as the

Sacramento or Chesapeake regions, will find these studies to be of particular interest.

- International
  As with other national locations there are numerous fiord bays throughout the Northern and Southern hemispheres that have similar geomorphic forces at play that are found in the Puget Sound trough. We would expect immediate applications in Canadians waters close to the Puget Sound.

Contributions to Sustainability

The restoration of habitats that support salmonids measurably contributes to the sustainability of these populations within our region. Recent listings under the Endangered Species Act only highlight the plight of our wild populations of these important fish. And our research over the past decade has shown how estuarine habitats are limiting the productivity of these populations. By providing more habitat for these magnificent fish we are giving these populations a critical means to sustain their numbers in face of growing pressures from modern society.

Moreover, chinook salmon in particular are the foundation of local indigenous populations. Without this food staple the indigenous populations would loose the spiritual and substantive core of their society, and therefore would be unable to even sustain their ancient cultures. Therefore, we believe the fate of these fish and people in this region are linked, each feeding the other in ways that we are only beginning to understand.

Dissemination of Results

- Scientific papers
  - Manuscript is currently being written by Greg Hood on Channel allometry of the Wiley Slough site.
- Management plans and reports
  - Data collected on the Wiley Slough site is being directly incorporated into a project design report been written for the Washington State Department of Fish and Wildlife. Data collected for Deepwater slough was used for a progress report to funding agencies.
- Presentations
  - Presentations have been made before local farm organizations and diking districts affected by these projects.
- Popular articles or films
  - Local news articles have been written on these projects by the Skagit Valley Herald, Seattle PI, and Bellingham Herald
- Books, chapters, illustrations