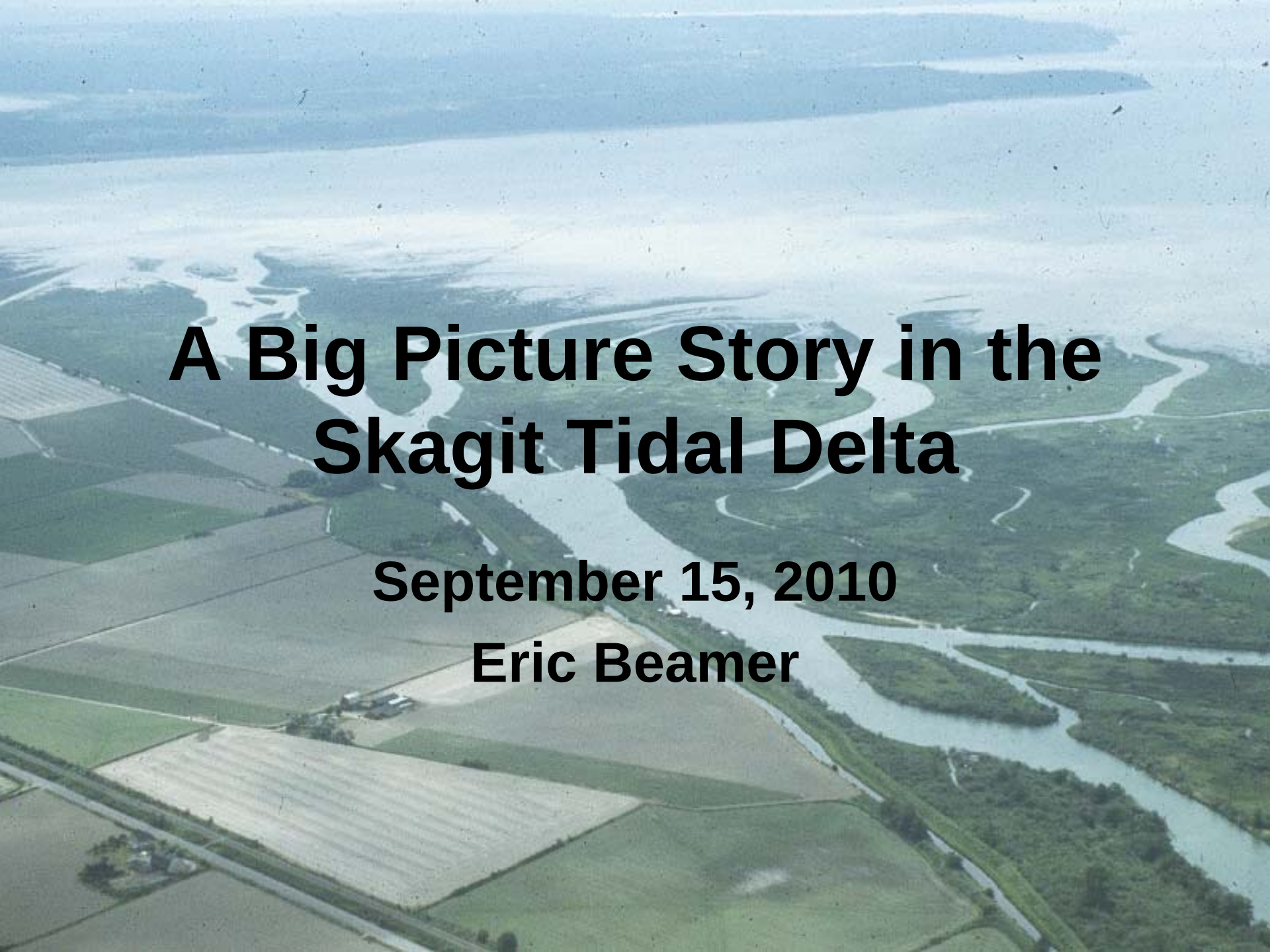
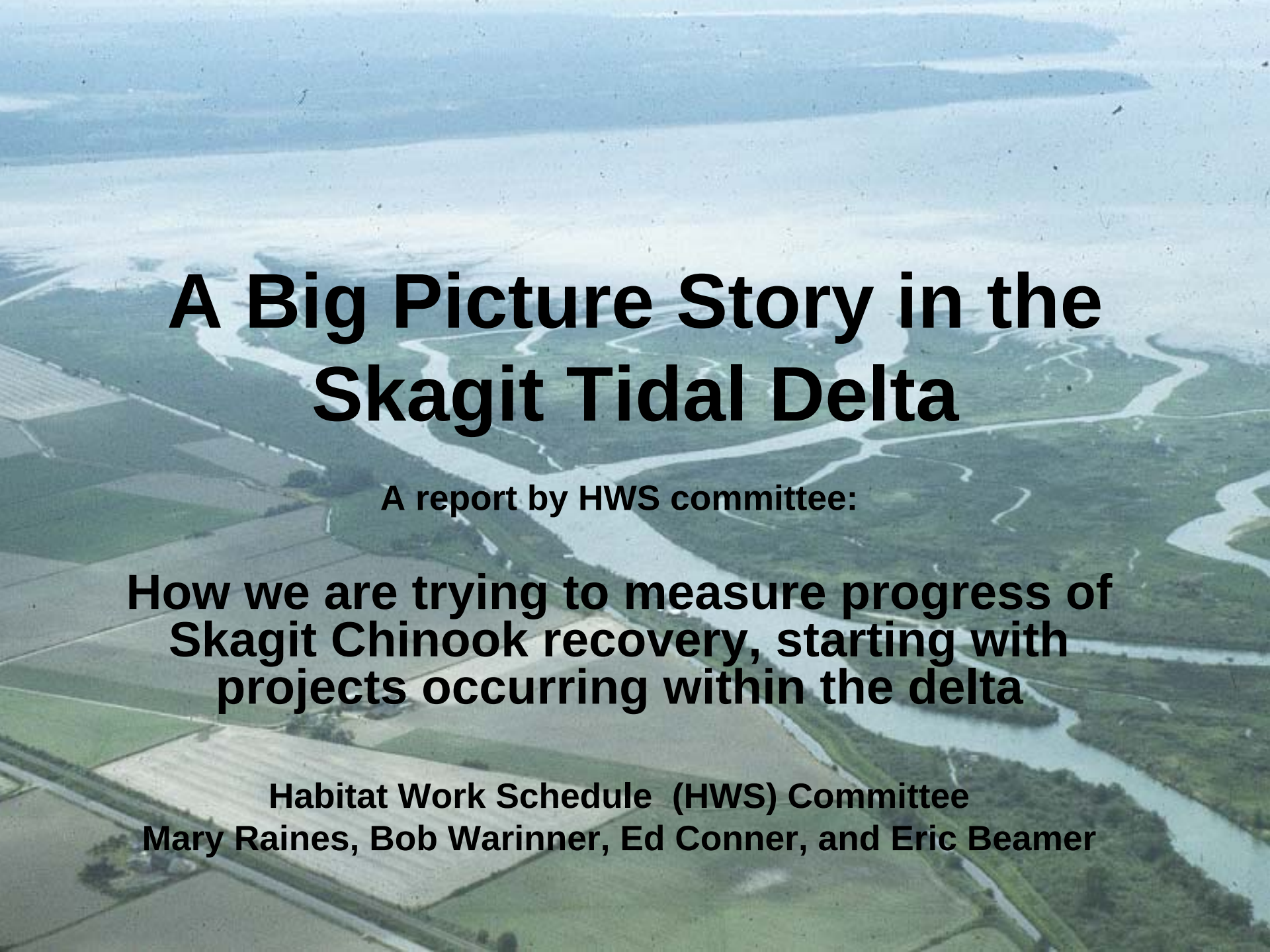


A Big Picture Story in the Skagit Tidal Delta

September 15, 2010

Eric Beamer



A Big Picture Story in the Skagit Tidal Delta

A report by HWS committee:

How we are trying to measure progress of Skagit Chinook recovery, starting with projects occurring within the delta

Habitat Work Schedule (HWS) Committee
Mary Raines, Bob Warinner, Ed Conner, and Eric Beamer

What happens (or could happen) as delta restoration is implemented?

- Individual projects go through stages (concept to constructed and monitored)
- Individual projects can influence other projects (ecologically and socially)
- Restored habitat is not necessarily static after construction
- Planned v. actual restoration can differ

Why are these issues important?

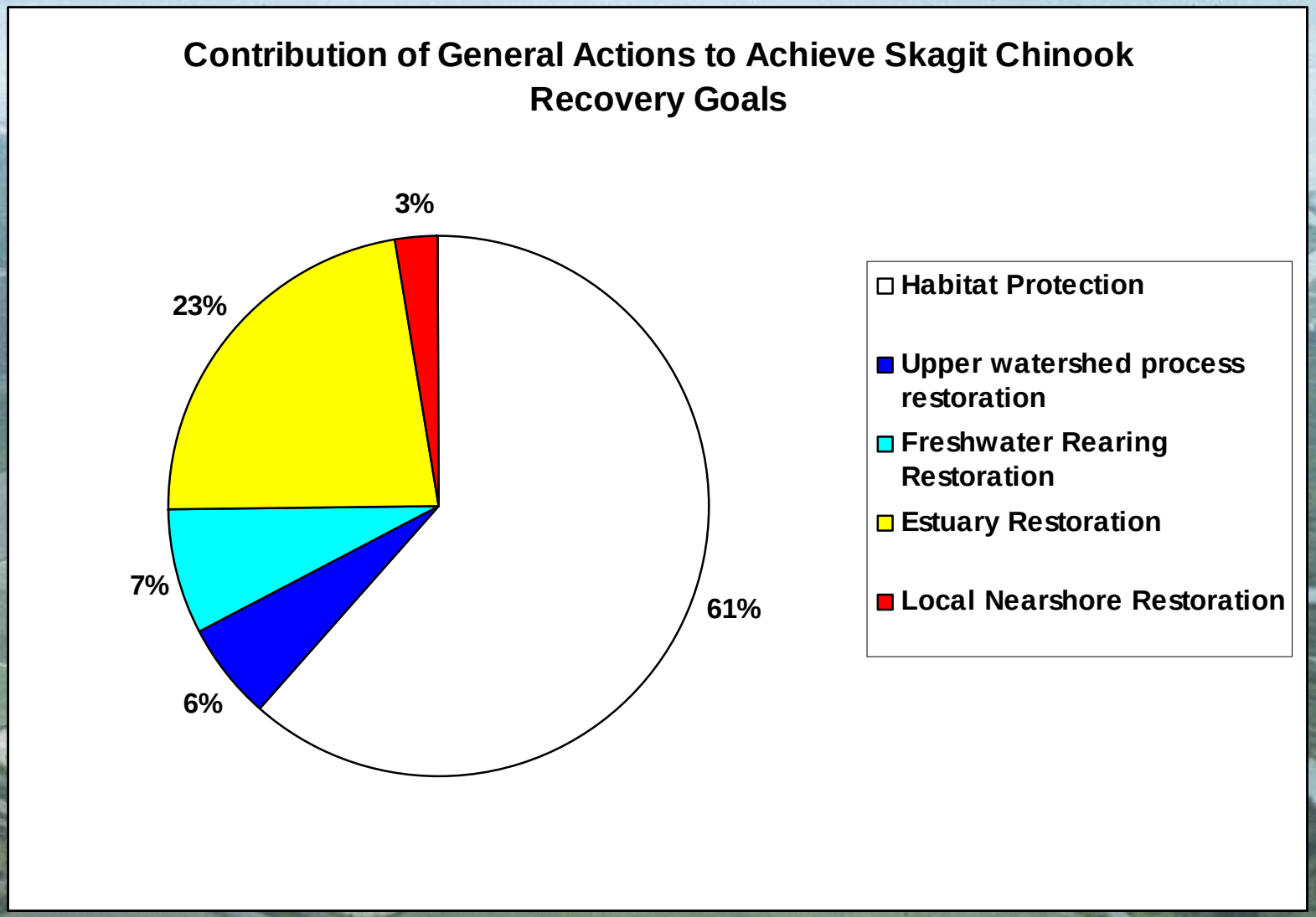
- **Individual projects lead to restoration objectives for the entire delta**
- **The delta restoration objective fits into a larger restoration objective for the entire Skagit**
- **All Skagit restoration objectives fit with all other H objectives. Together, they accomplish the recovery goal (Skagit Chinook Recovery, PS Chinook Recovery)**

- **Use HWS as a tool to track progress (monitor and adaptive management)**

What is needed to understand the big picture?

- A system to tie individual actions together (monitoring and adaptive management)
  - A local (watershed) and regional (Puget Sound) framework to understand recovery progress
  - One of many tools that helps: HWS database
- The right data
  - Sensitive to actions/objectives/goals
- A *commitment* and *capability* to use both:
  - data
  - monitoring and adaptive management framework

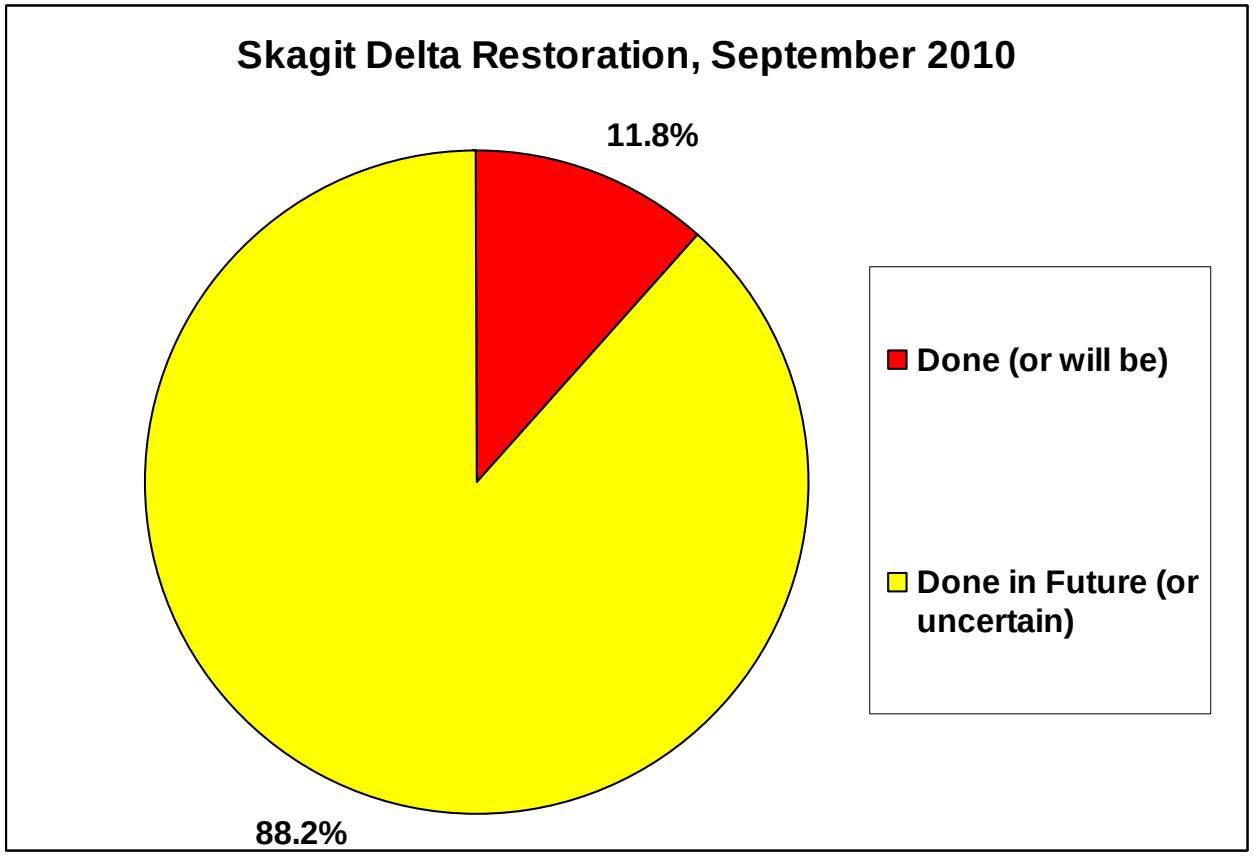
Pie chart of selected “H’s” for meeting the Skagit Chinook Recovery Plan Goals



Status of Skagit Delta Restoration compared to recovery objective in recovery plan

- **Projects are "*identified*" that could reach 104.5% of the 1.35 million Chinook smolt restoration objective for the tidal delta**

- **After 5-7 years, about 12% is done**



Real life examples

- **Focus on Swinomish Channel Corridor (and field trip site: Wiley)**
  - **Good examples for points/lessons learned**
  - **Some monitoring data available**
  - **First hand knowledge**
- **Wiley Slough**
  - **Project stage transition**
  - **Not fully monitored**
  - **Monitoring needs to include more than just environment/ecology**
- **Smokehouse**
  - **Phases**
  - **Chinook benefits planned v actual based on model and monitoring**
- **Swinomish Channel Fill Removal**
  - **Taking advantage of an opportunity**
  - **Habitat sustainability (Rainbow Marsh)**
- **McGlinn Island**
  - **Synergy between projects**

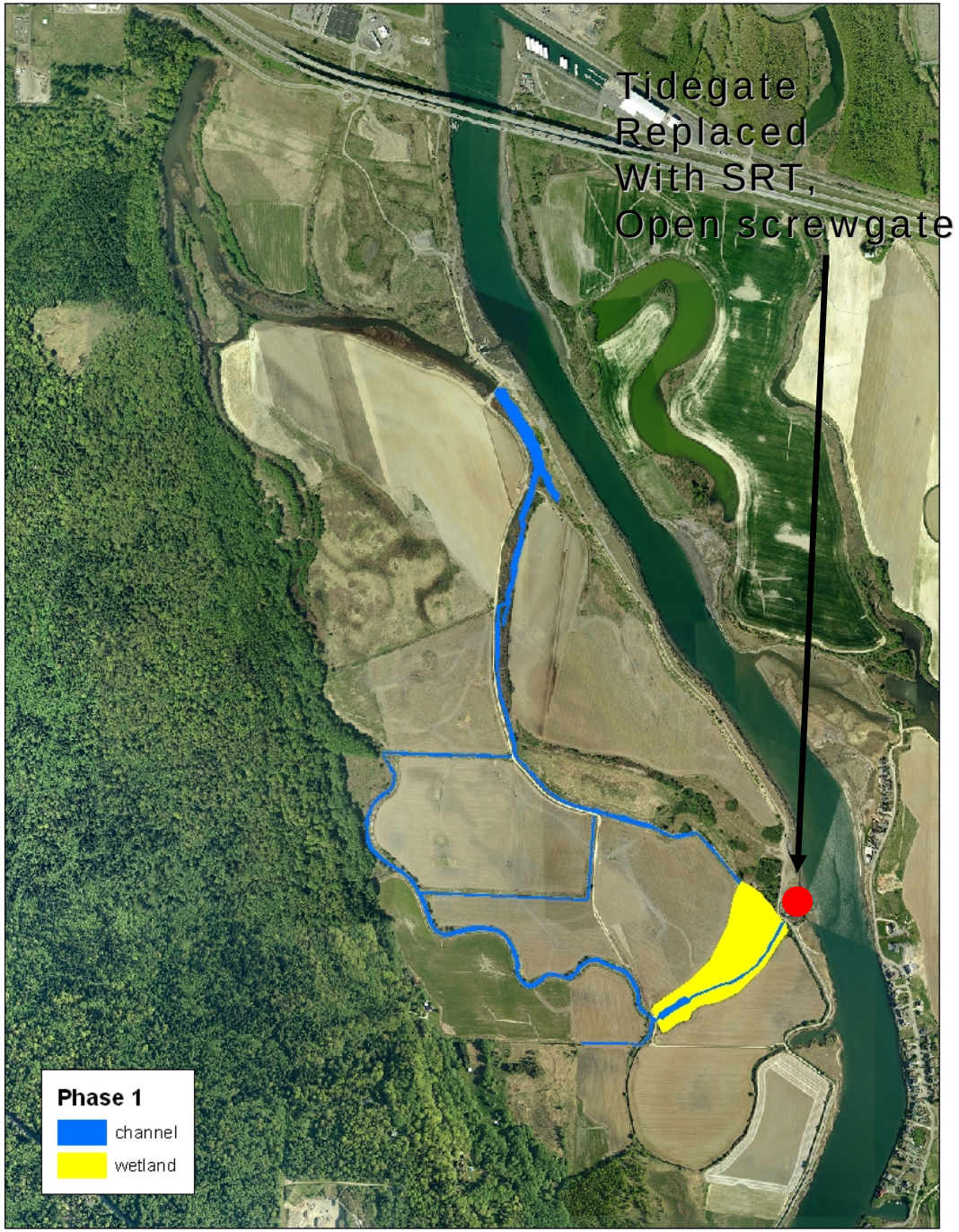
Wiley Slough Restoration Project

- A large, mostly natural process restoration project
- Currently viewed as highly successful (ecological) or not (drainage)
- Example of a project:
  - With very significant Chinook recovery benefits, yet it has complicated issues and design
  - That needs longterm commitment of sponsors, stakeholders, and funders to its total success
- Do the necessary monitoring in order to adaptively manage for ***total*** success

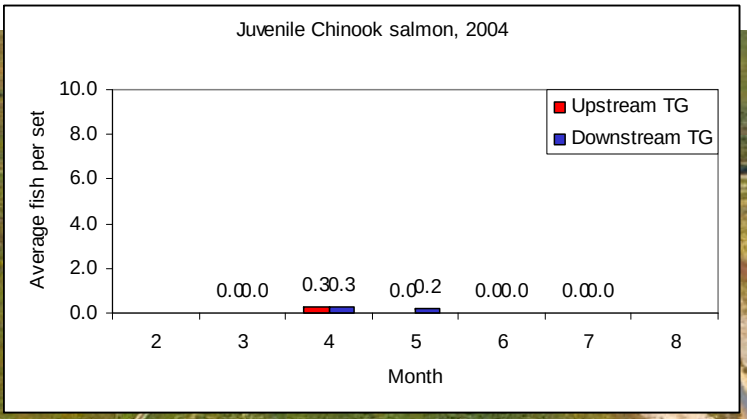
Smokehouse Restoration Project

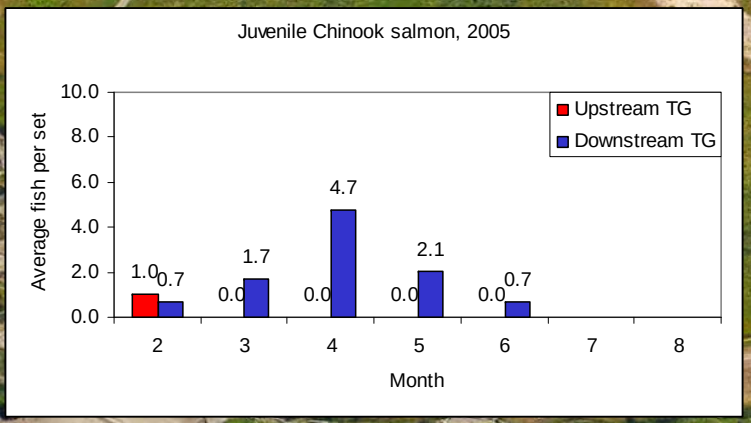
Smokehouse Phase 1

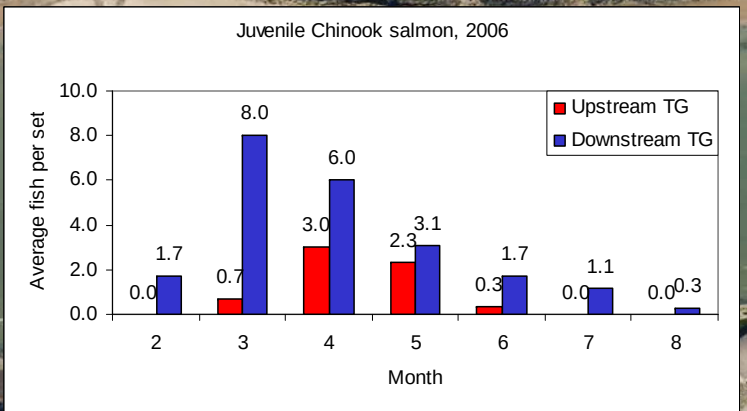
- Completed in 2005/06
- Partial process restoration
- Replaced tidegate with SRT, added open screwgate
- Restored wetland with setback dikes
- Reconnected to tidal influence
  - channel (4.4 ha)
  - marsh (4.9 ha)
- Riparian planting along channels
- Culvert(s) replaced with bridge(s)

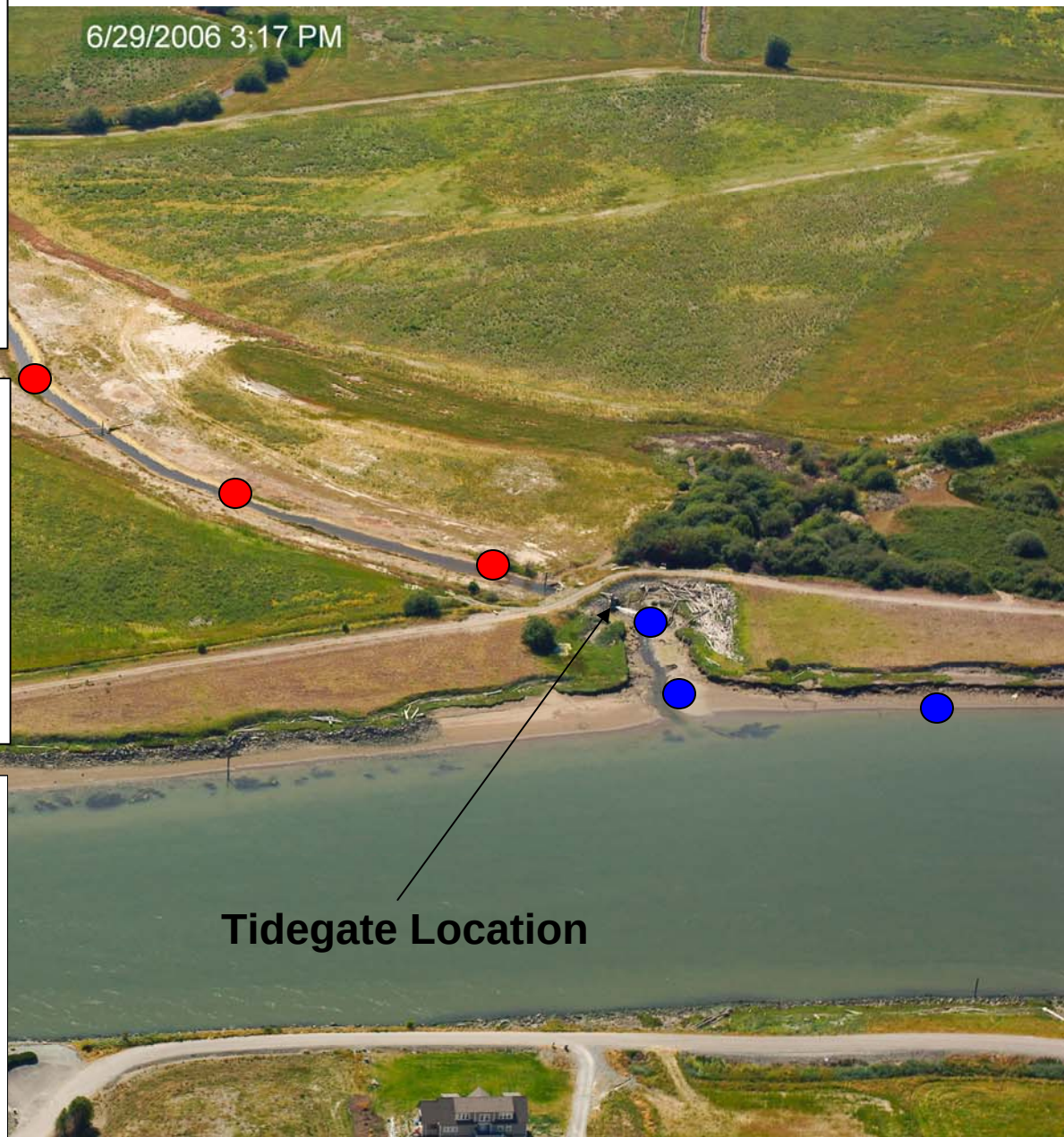


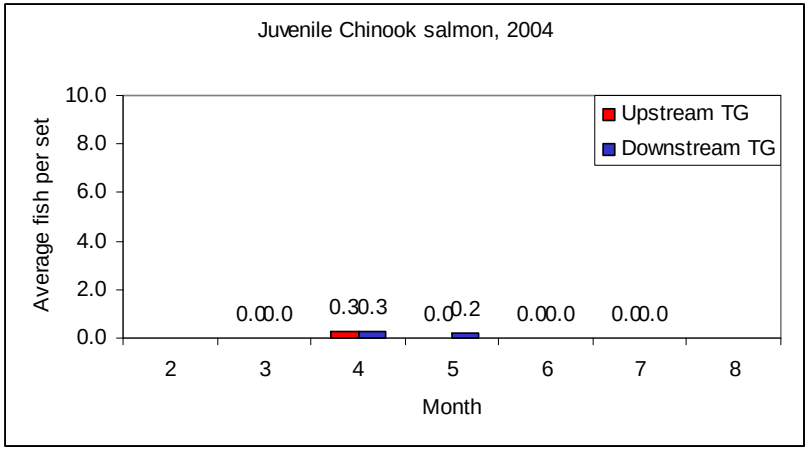
Smokehouse Restoration Phase 1

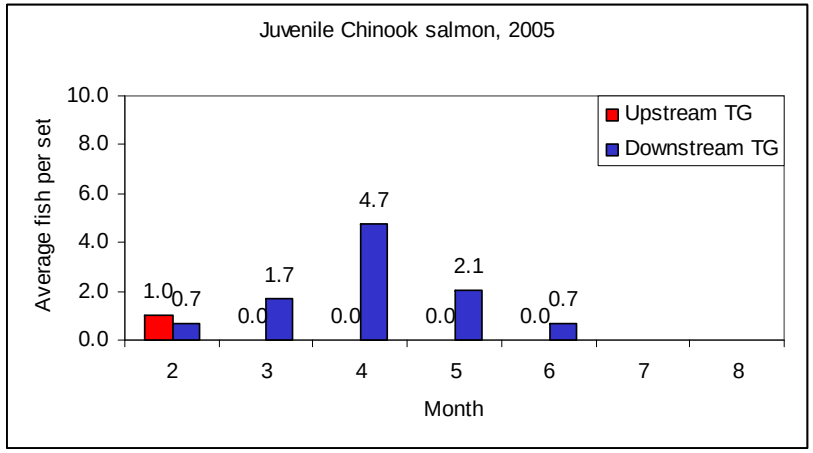


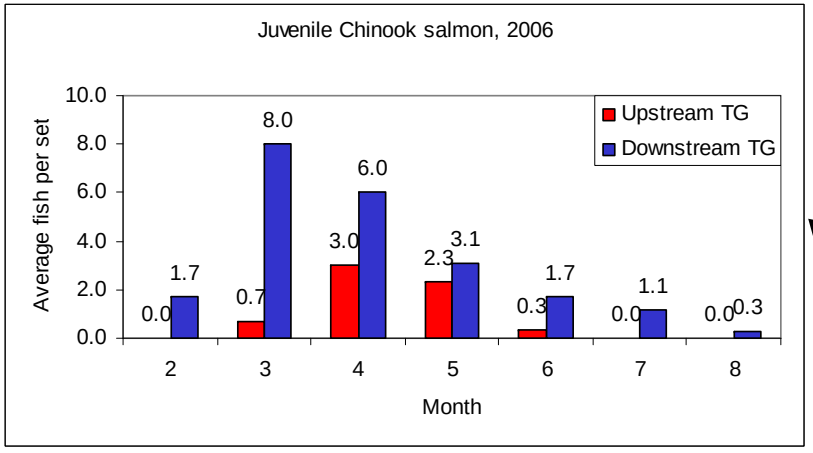






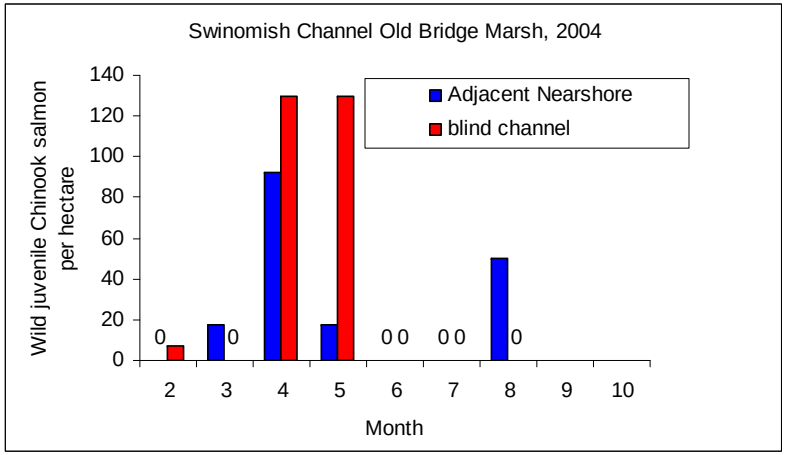


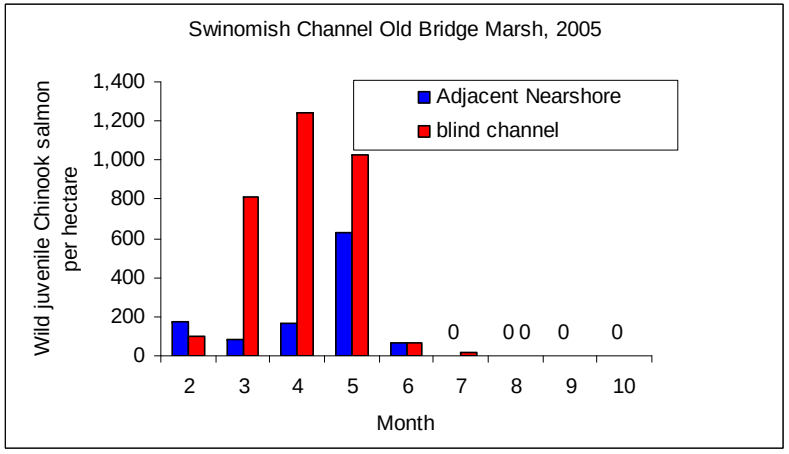


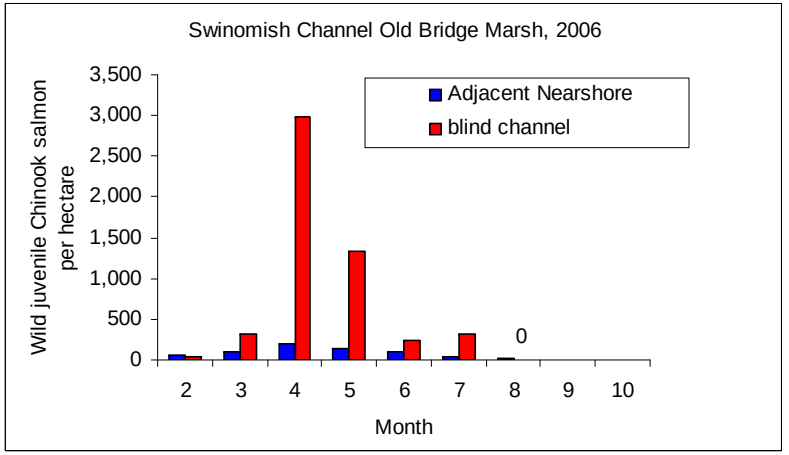


Smokehouse SRT

Reference Site

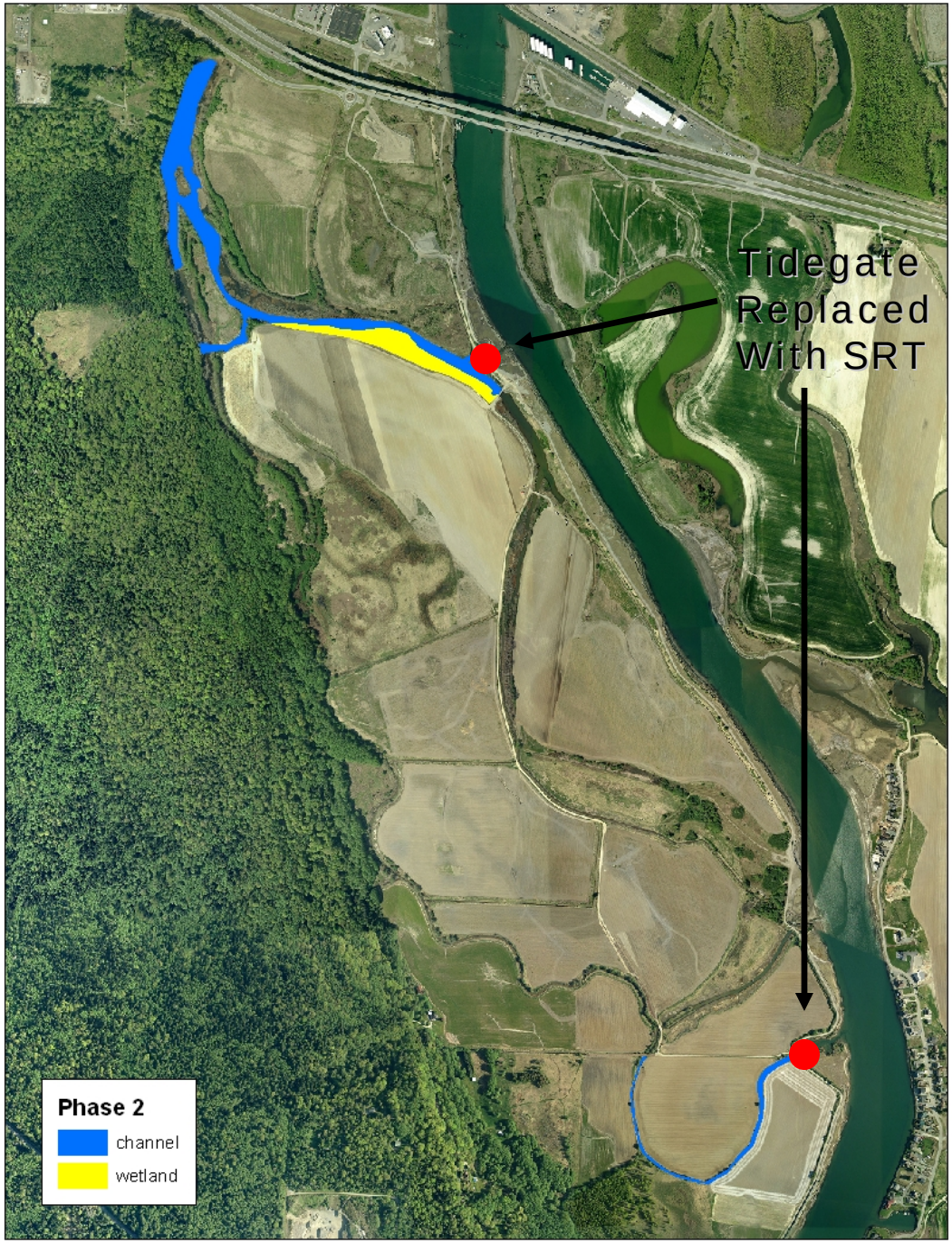




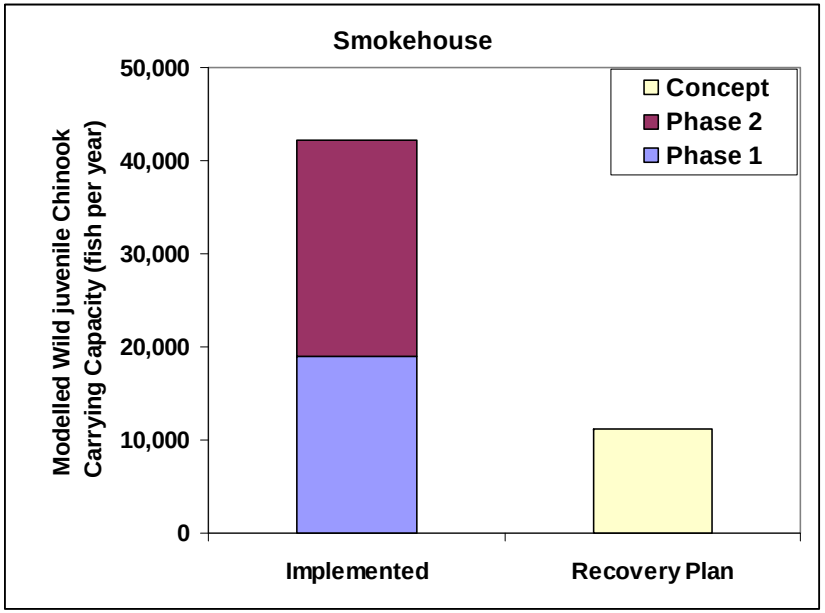


Smokehouse Phase 2

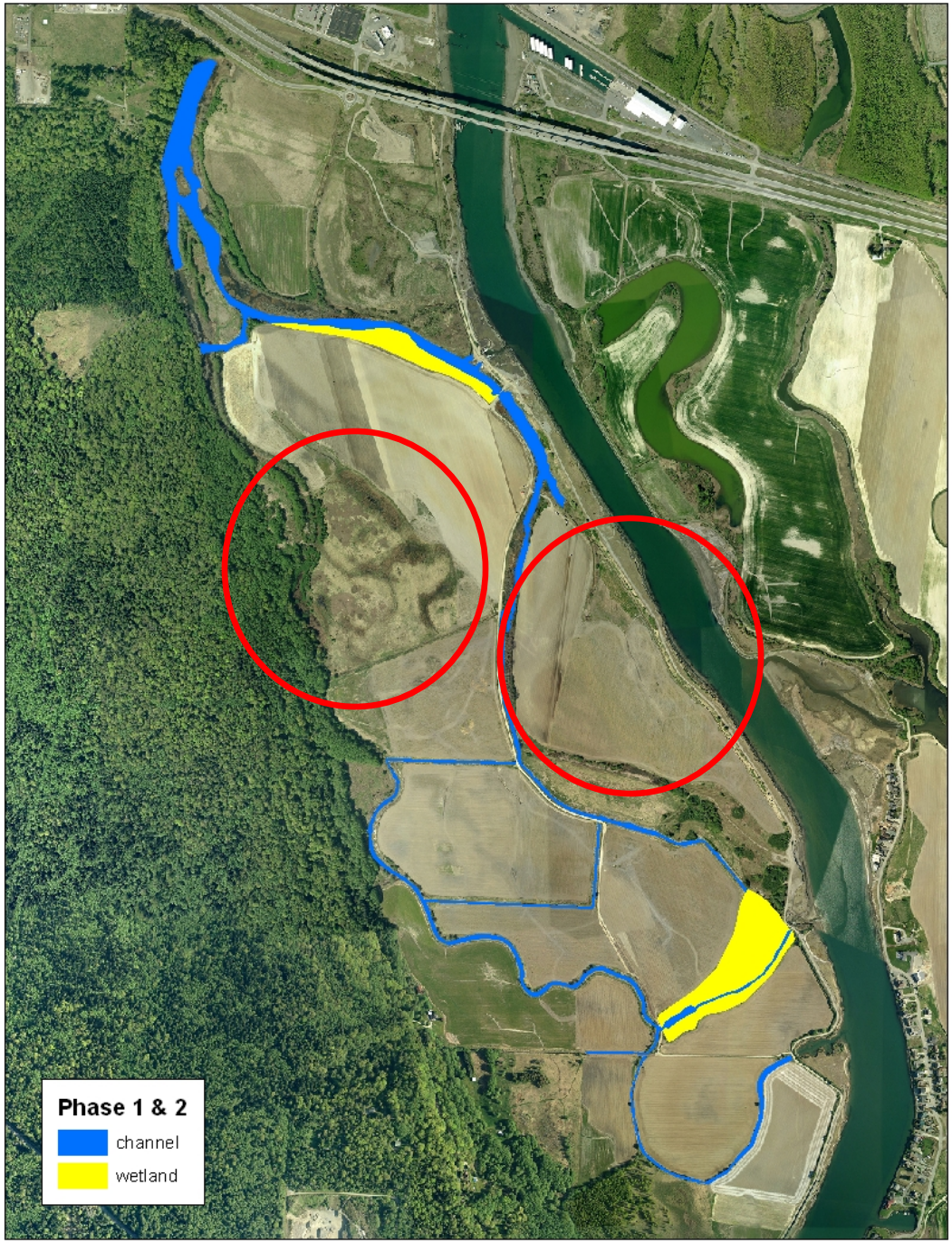
- Completed in 2008
- Partial process restoration
- Replaced 2 tidegates with SRTs
- Restored wetland with setback dikes
- Reconnected to tidal influence:
  - channel (6.4 ha)
  - marsh (1.8 ha)
- Riparian planting along channels
- Culvert(s) replaced with bridge(s)



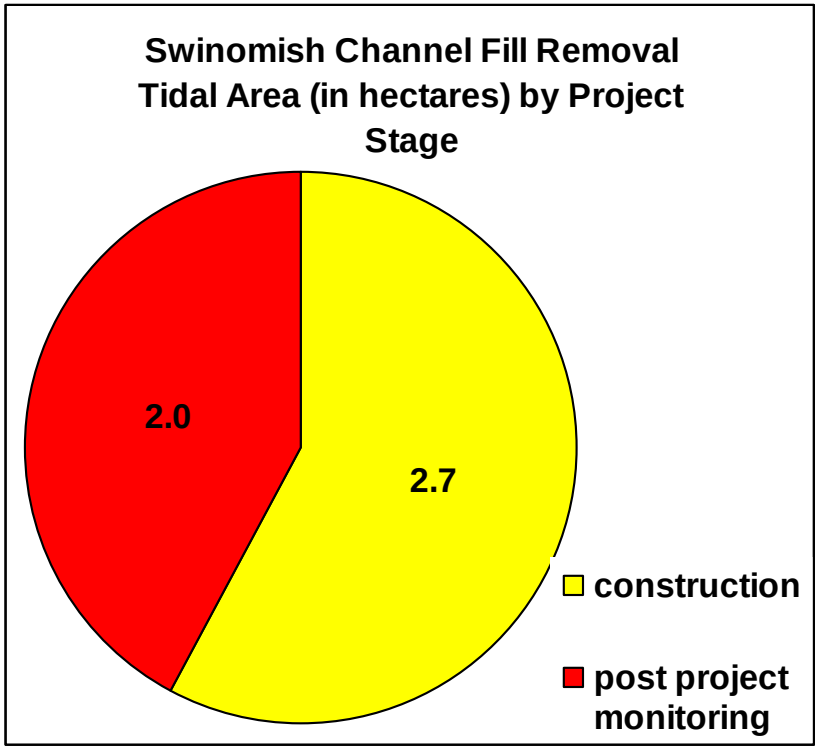
Smokehouse Phase 1&2



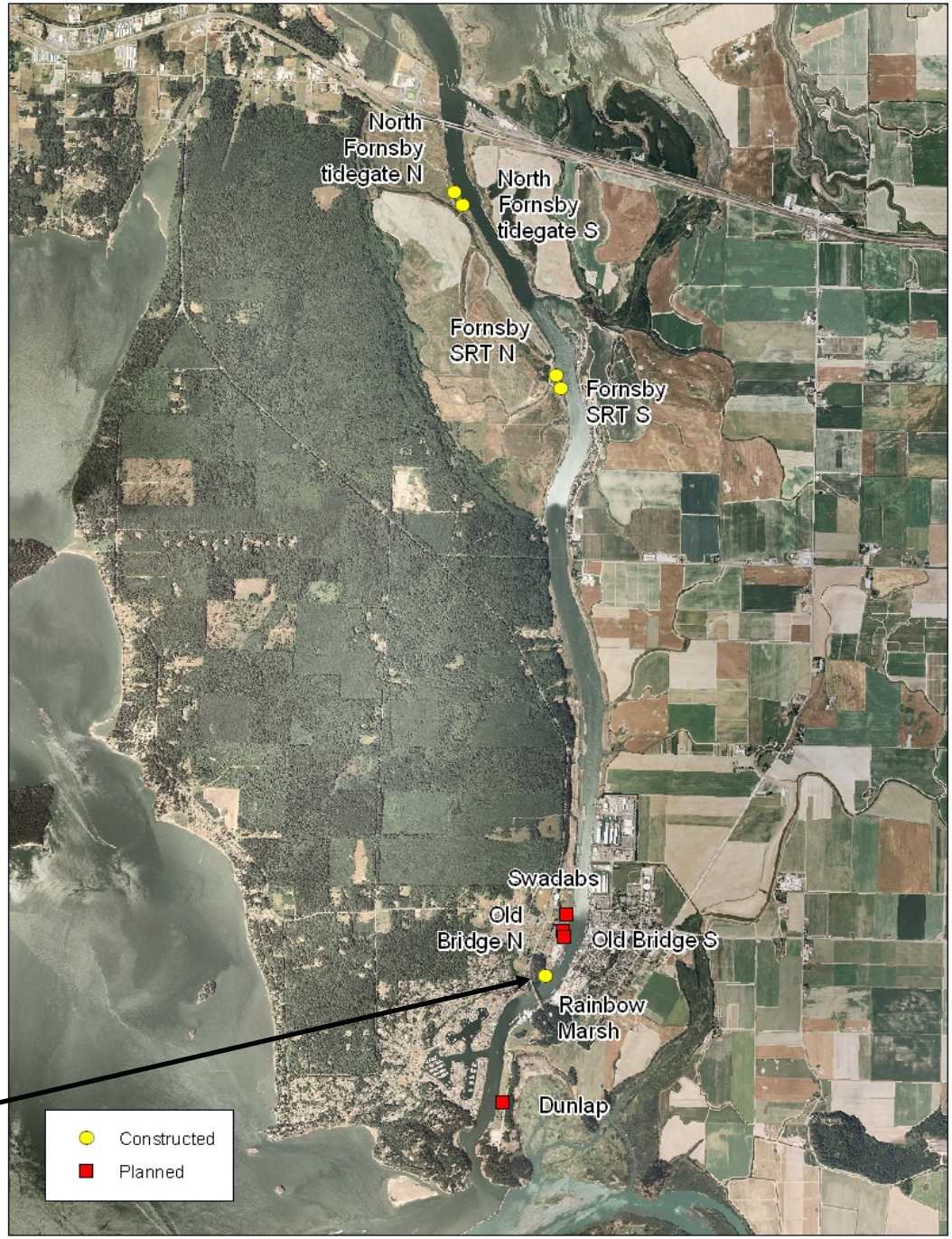
- Potentially 2 areas yet to restore (no certainty)
- Managed setting (structures need maintenance)
- Needs additional monitoring (fish, vegetation, structures, hydrology, soils)
- SRTs likely have lower fish value than predicted by modeled Chinook carrying capacity



Swinomish Channel Fill Removal



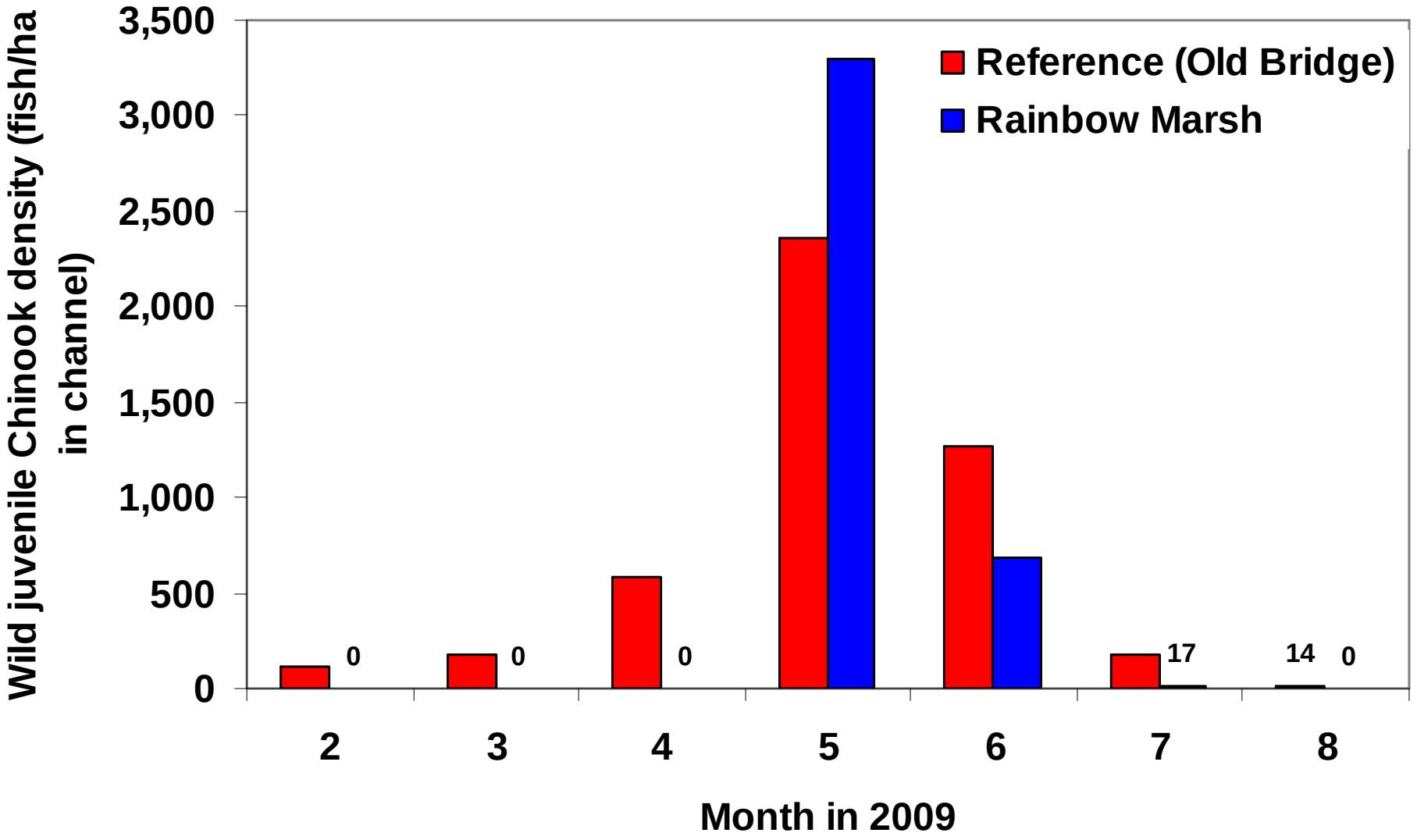
Rainbow Marsh: a monitored example



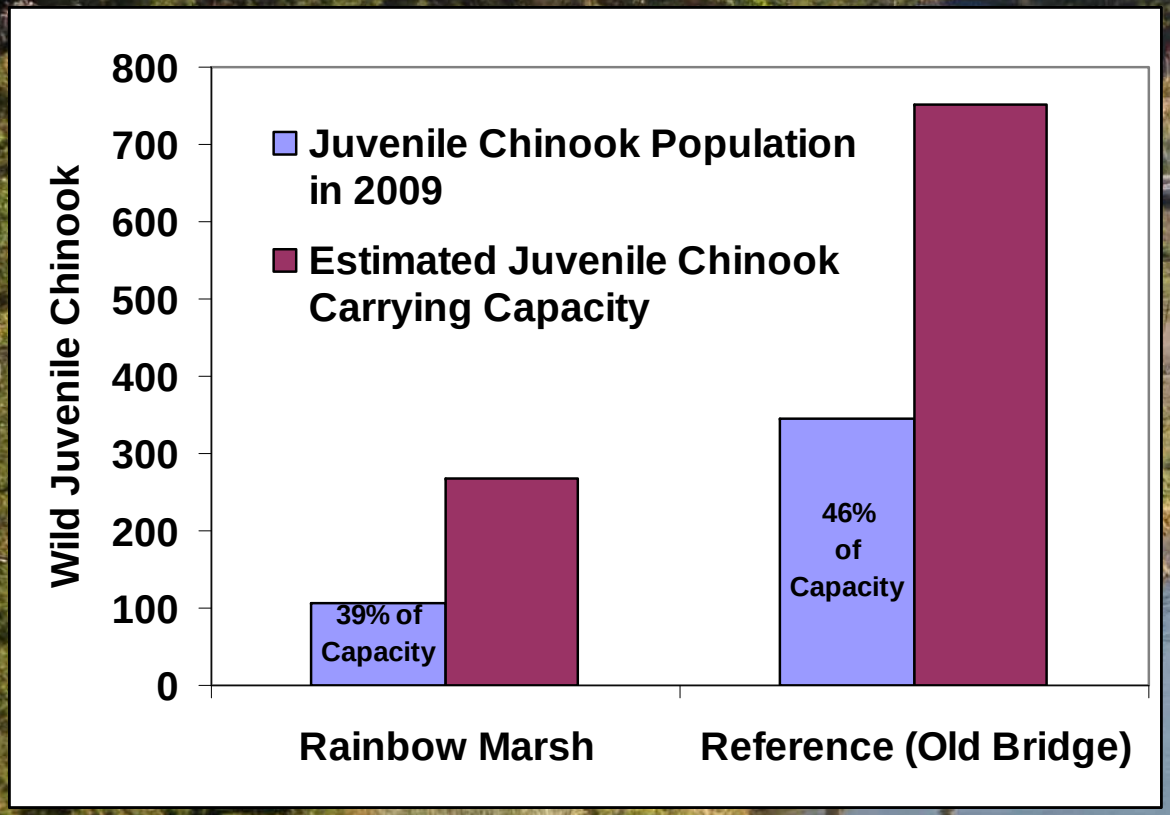

Rainbow Marsh
Const. finished Oct. 2008
0.25 hectares of tidal habitat
Photo taken Apr. 14, 2009

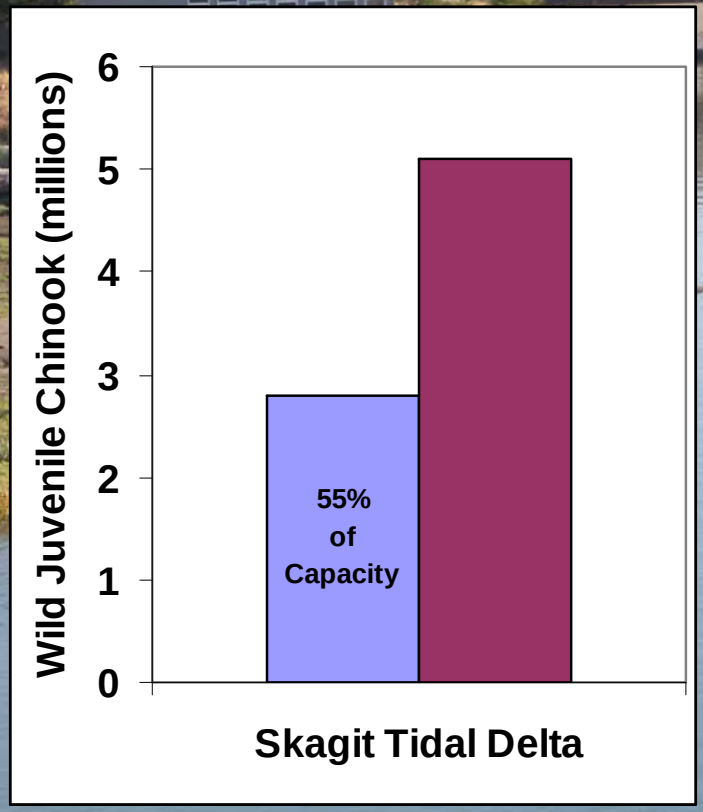

Rainbow Marsh
Aug. 25, 2010
Natural vegetation

If you build it, they will come?



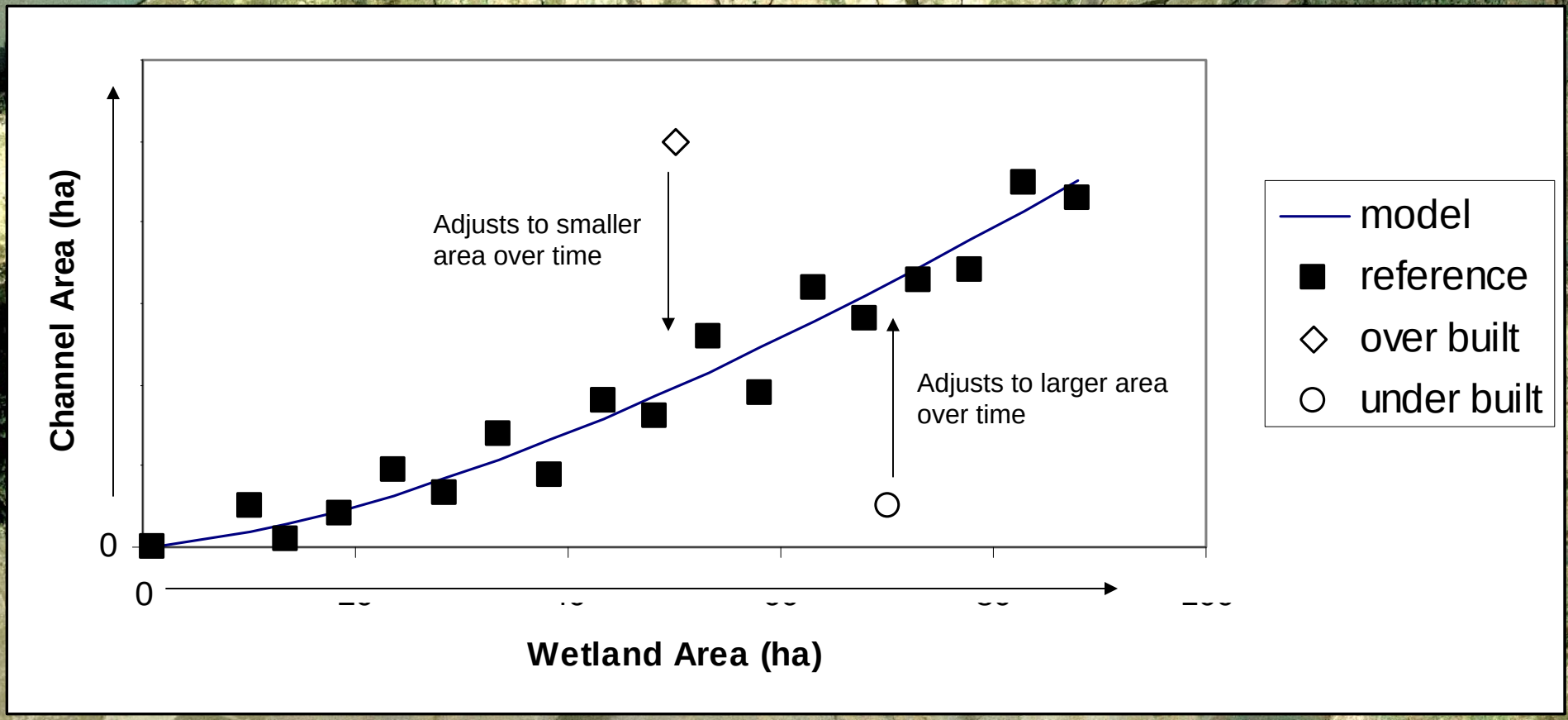
How well is it working?



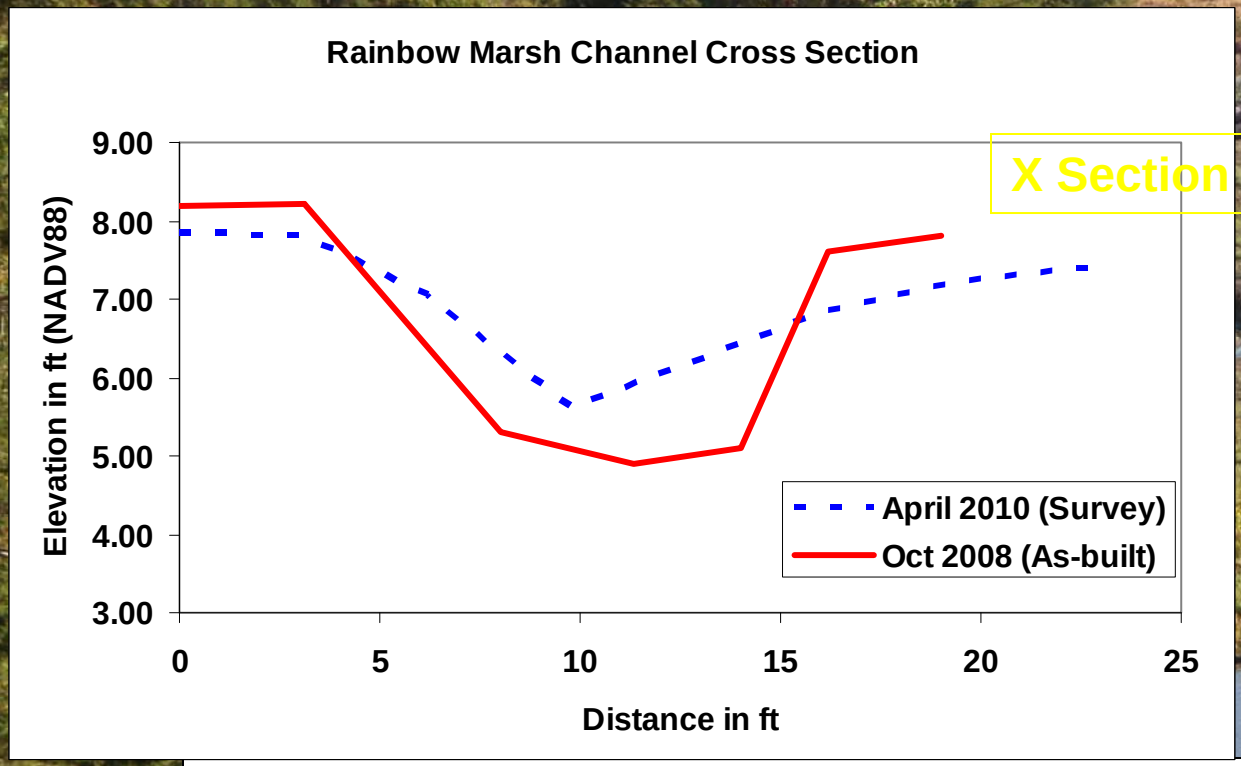


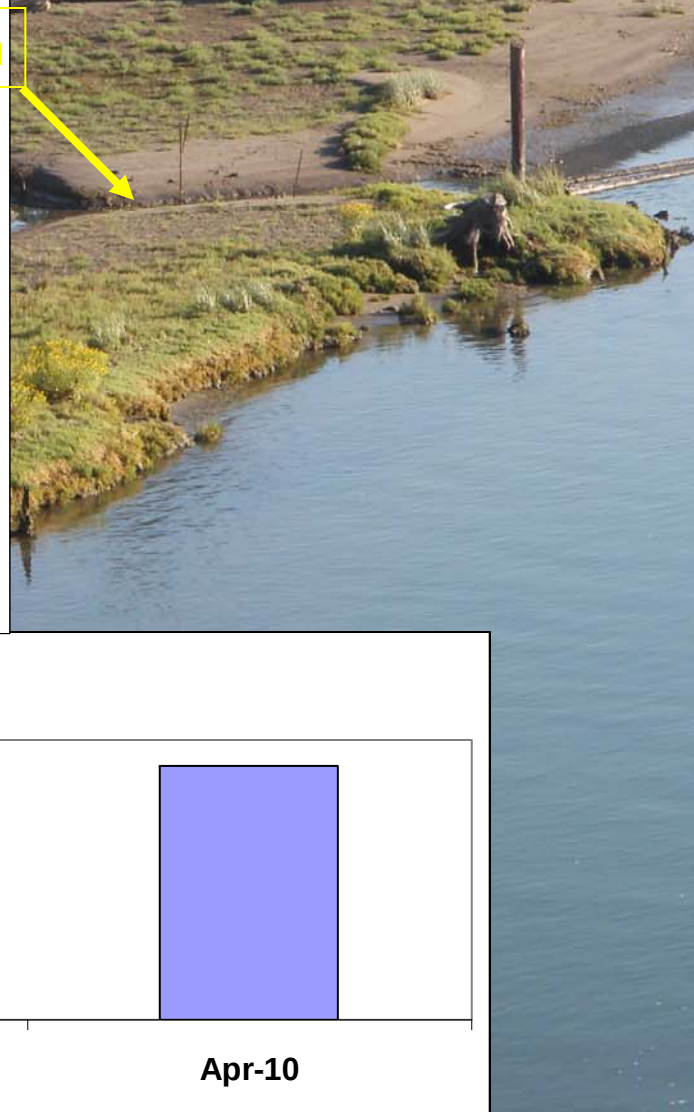
Restored habitat is not necessarily static

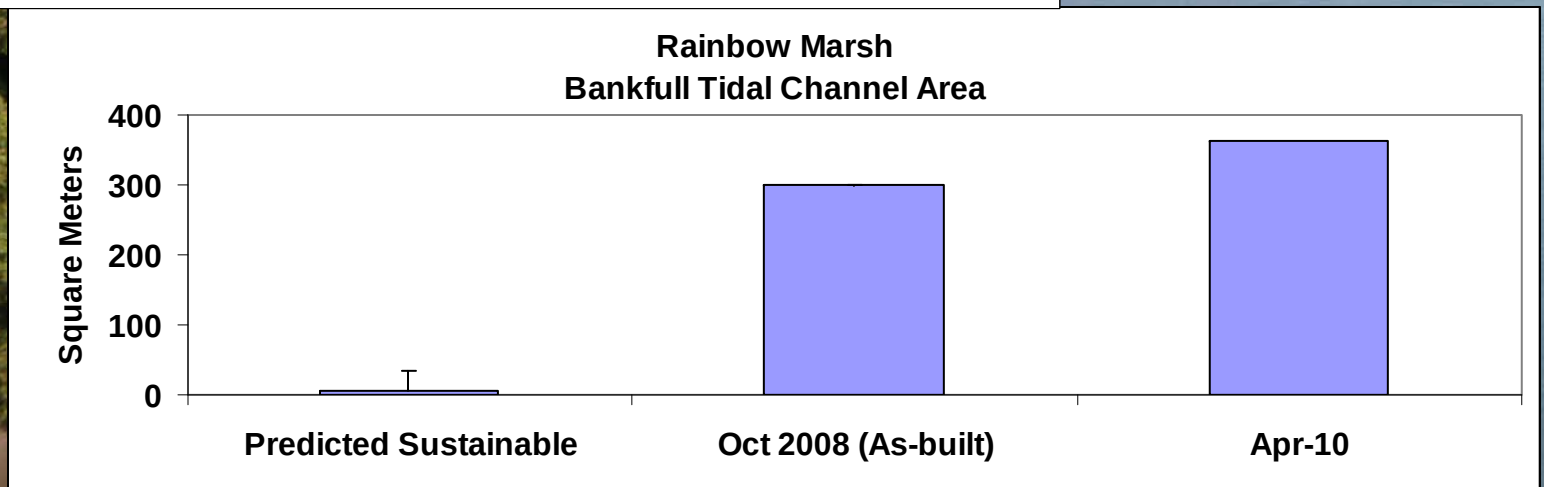
- We need to know the sustained benefit of restoration projects



Is Rainbow Marsh Sustainable?







McGlinn Island Connectivity Restoration Project

- Design report with two alternatives:
  - jetty
  - causeway
- Project products complete sufficient to begin process of "gaining permission"
- Predicted large Chinook recovery benefits

McGlinn Island Causeway & Jetty

Habitat Restoration Feasibility
Phase 1: Establishing the Viability of Hydraulic Connectivity between Skagit & Padilla Bays

Puget Sound, Washington
January 2008

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U.S. Geological Survey

Photo Courtesy of Washington State Department of Ecology, 1994 Oblique Photo Series


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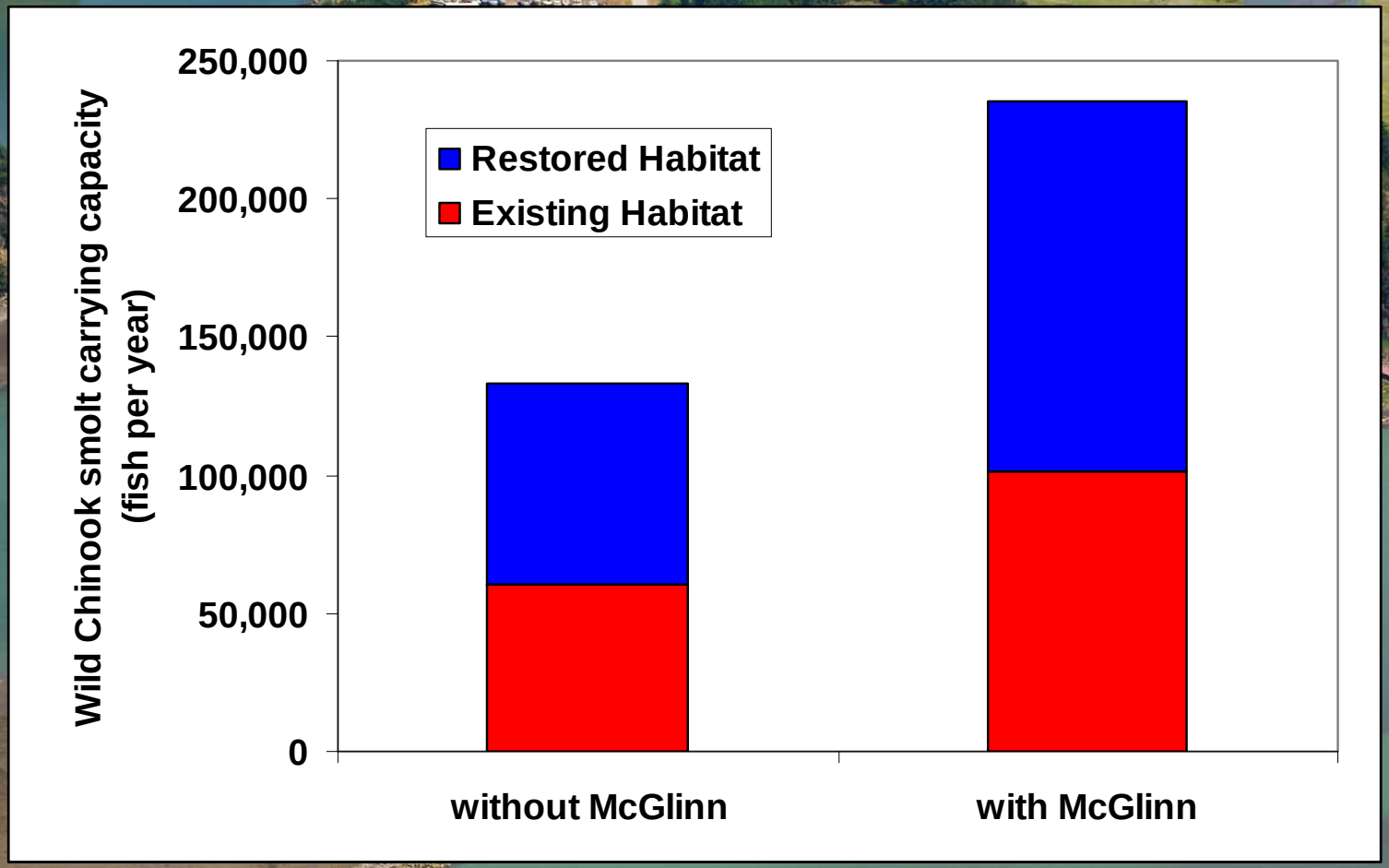
McGlinn Island Connectivity Restoration Project

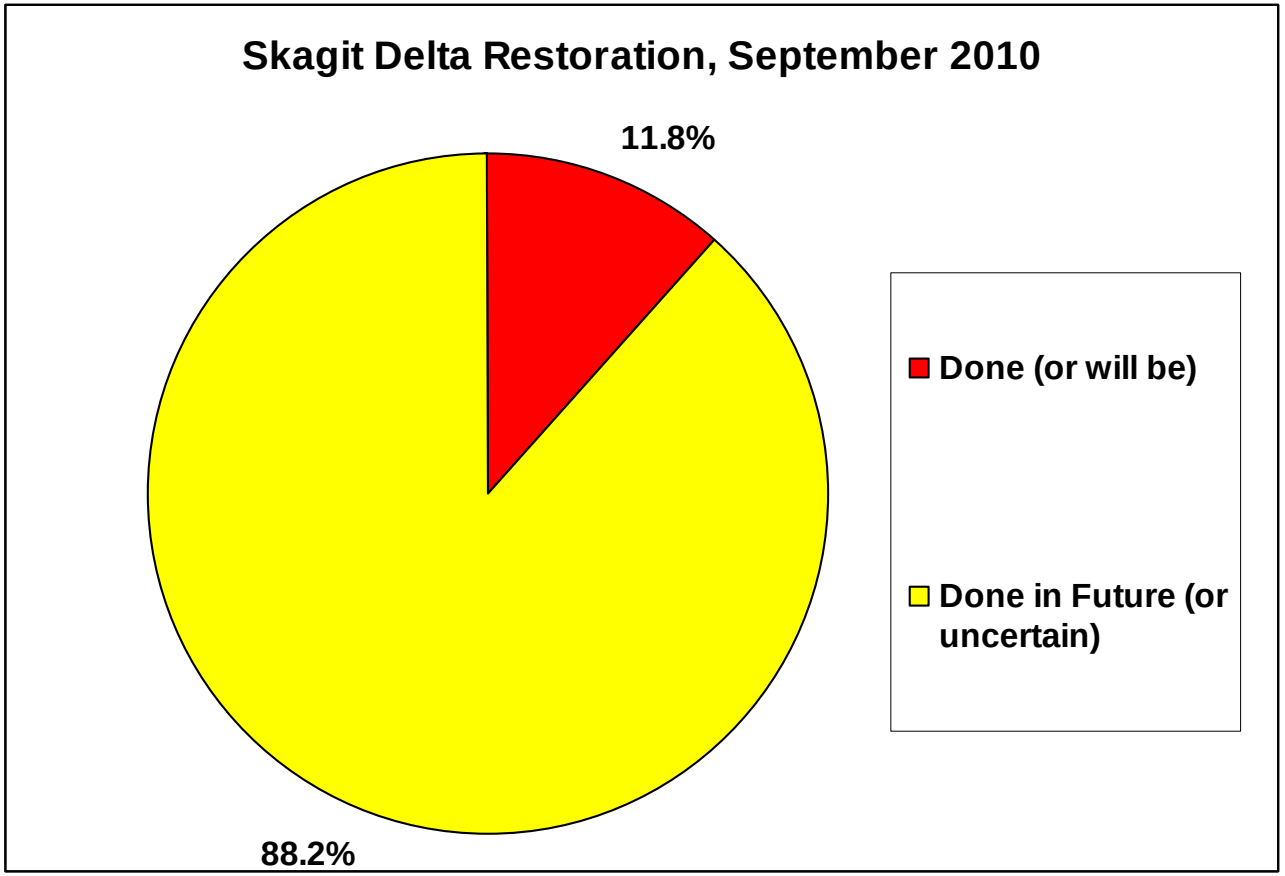
McGlinn Island Connectivity Restoration Project



Are we headed the right way?

What is coming in the door?

- Cottonwood?
- McGlinn?
- Fir Island Farm?
- ??

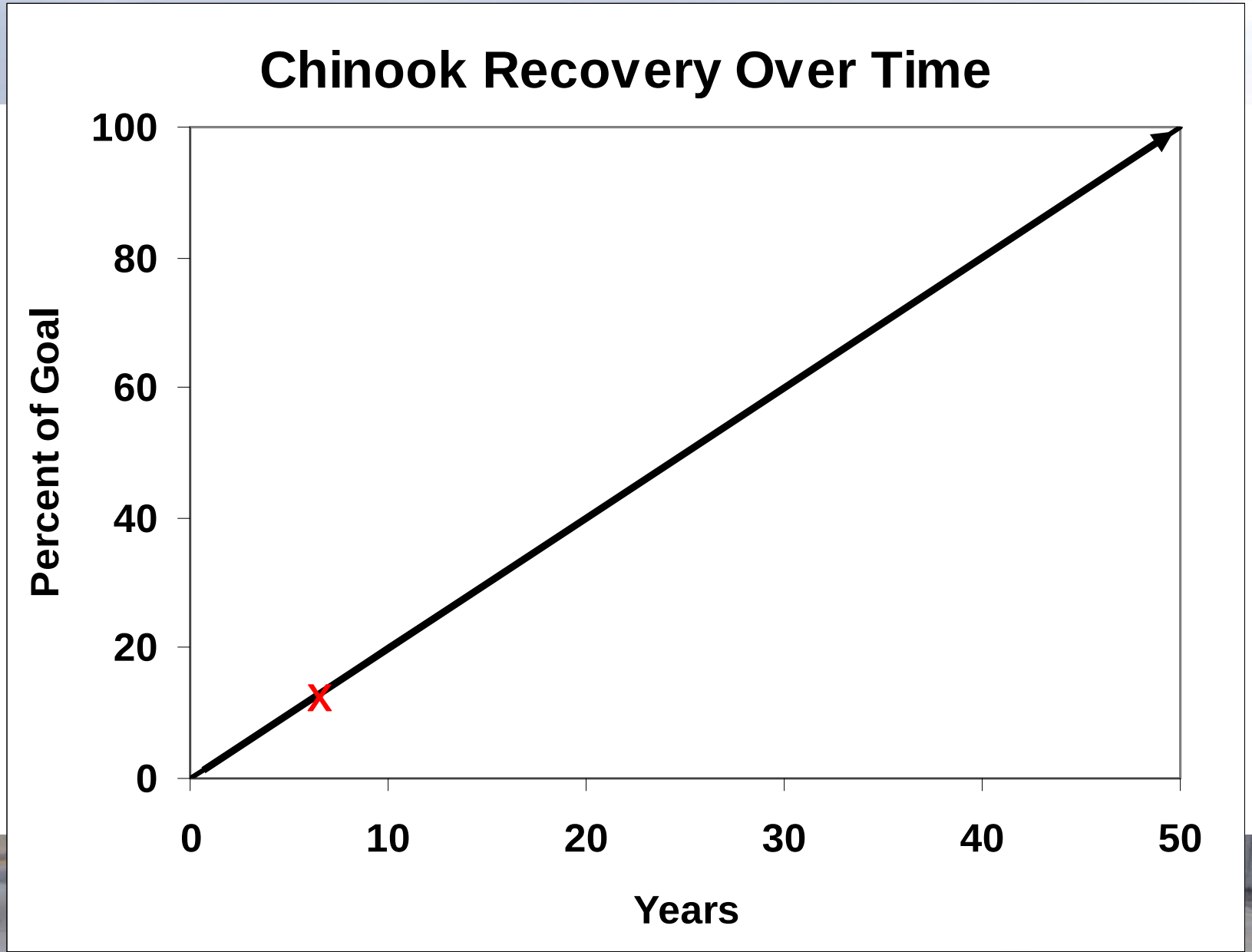


Is going the right direction enough?
Will we achieve recovery?

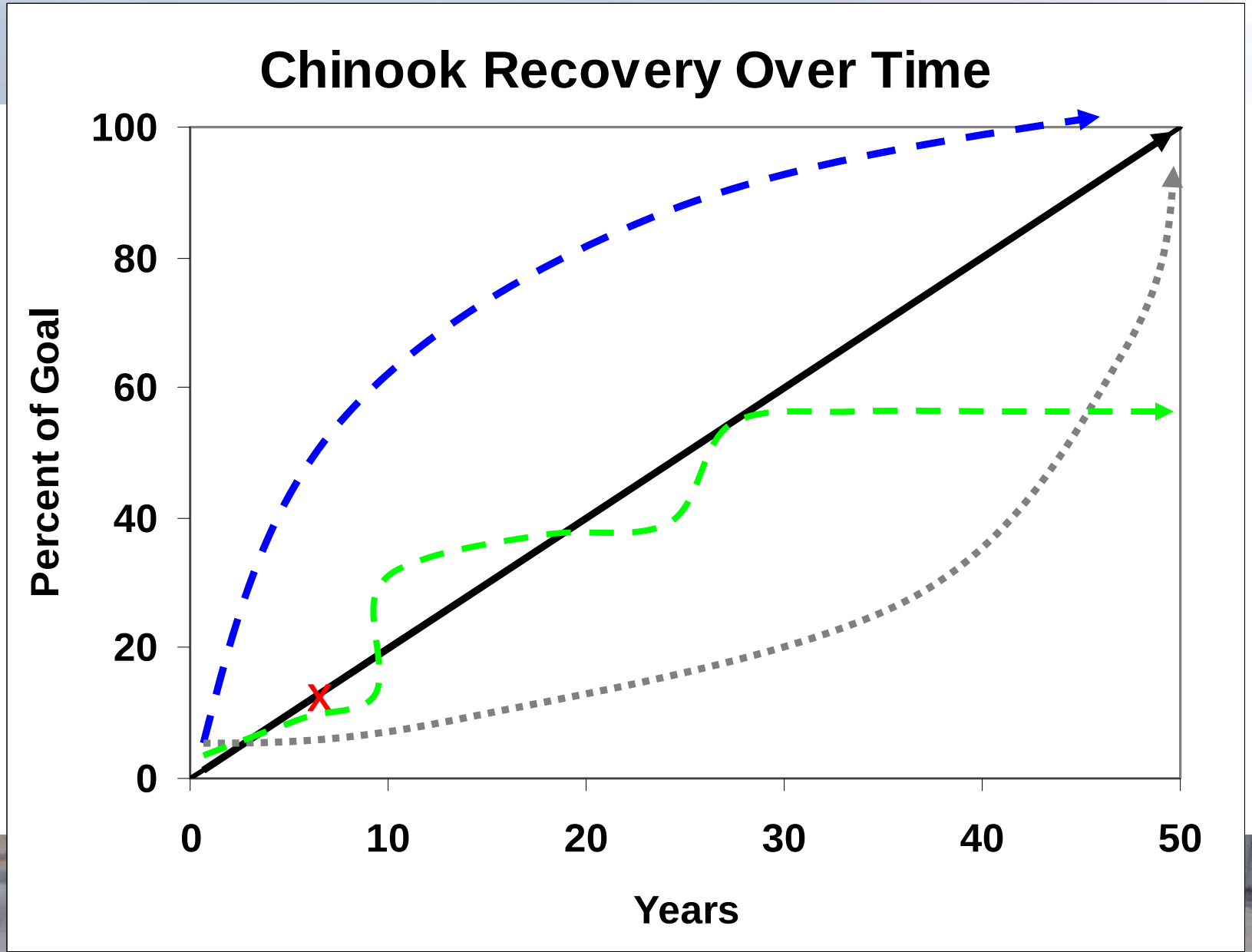
Is going the right direction enough? Will we achieve recovery?

- ***Consistency question*: Are the suites of actions and top priorities identified in the watershed's three year work plan/program consistent with the hypotheses and strategies identified in the Recovery Plan (Volume I and II of the Recovery Plan, NOAA supplement)?**
- ***Pace/Status question*: Is implementation of the salmon recovery plan on-track for achieving the 10-year goal(s)?**

Is going the right direction enough?
Will we achieve recovery?



Is going the right direction enough?
Will we achieve recovery?



- Strong at describing ***what*** needs to be done and ***why***
- Not strong at describing ***how*** and ***when*** to do it.
- To date, implementation has been controlled by:
  - Opportunity
  - Funding
  - Capacity

SKAGIT CHINOOK RECOVERY PLAN

2005

- ***Need to work on the How and When (implementation)***
  - ***Decide when (proactive v reactive)***
  - ***How to shape opportunities, build funding and capacity?***

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11426 Moorage Way, LaConner, WA 98257

Washington Department of FISH and WILDLIFE

Lessons

- When doing restoration – expect surprises both good and bad
  - Need for monitoring (not just ecology)
  - Adaptive management may be required
- All organization/ownerships have constraints (influence opportunity and ending results)
  - Public
  - Tribal
  - Private

Implementation and Adaptive Management

- Reporting of recovery progress (developing tools/products)
  - pie chart of SRP
  - pie chart of delta restoration
  - Implementation trajectory figure
- Use tools/products for future implementation
  - Are there enough projects to achieve objectives?
  - Are we doing them well?
  - Etc.
- Are we satisfied with this level of progress? If not, what changes would we make?
  - Need monitoring ($ and ability) to measure progress
  - What is good enough progress? Who decides?
  - What are the factors that shape our history of progress? ($/capacity, opportunity – are they running out/changing?).