

PROJECT CROOS

Collaborative Research on Oregon Ocean Salmon

Using “Real Time” Genetic Information to Address the Klamath Weak Stock Crisis for Oregon’s Ocean Salmon Fishery

Presentation to Oregon Watershed Enhancement Board

May 15, 2007

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PROJECT **CROOS**

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Final Report

Project Funded by the Oregon Watershed Enhancement Board
To the Oregon Salmon Commission



March 2007

Background

- Summer 2005: OSU and salmon industry meetings
- Winter 2005: Formation of *CROOS Group*
- Spring 2006 : Salmon Disaster Declaration
- June 2006: Funding from Oregon Watershed Enhancement Board for \$586K

Project Goals

Use Genetic Stock Identification (GSI) to:

- Improve science, management, marketing
- Identify and minimize harvest of weak stocks
- Enhance value of the ocean salmon fishery



Project Objectives

- Provide Financial Assistance to the Fleet
- Develop Sampling Protocols
- Conduct “Real Time” Genetic Analysis
- Develop Digital Technologies
- Design a Web Site
- Collect Oceanographic Information
- Consider Management Implications



Project Results and Recommendations

Financial Assistance to the Fleet

- 70 contracts signed (20% of active fleet)
 - 707 sampling days
 - 4,270 fish sampled
 - \$332,100 distributed to operators/crew
 - \$4,700 average payout per participating vessel
-
- Post season survey indicated strong support and satisfaction with renumeration

Sampling Protocols and Fleet Coordination

- Designed vessel sampling kits
- Published protocol manual
- Conducted numerous trainings
- Hired fleet coordinators and manager
- Recommendations:
 - Importance of fleet coordination cannot be underestimated
 - Improve and adjust protocols based on survey results and new data collection requirements

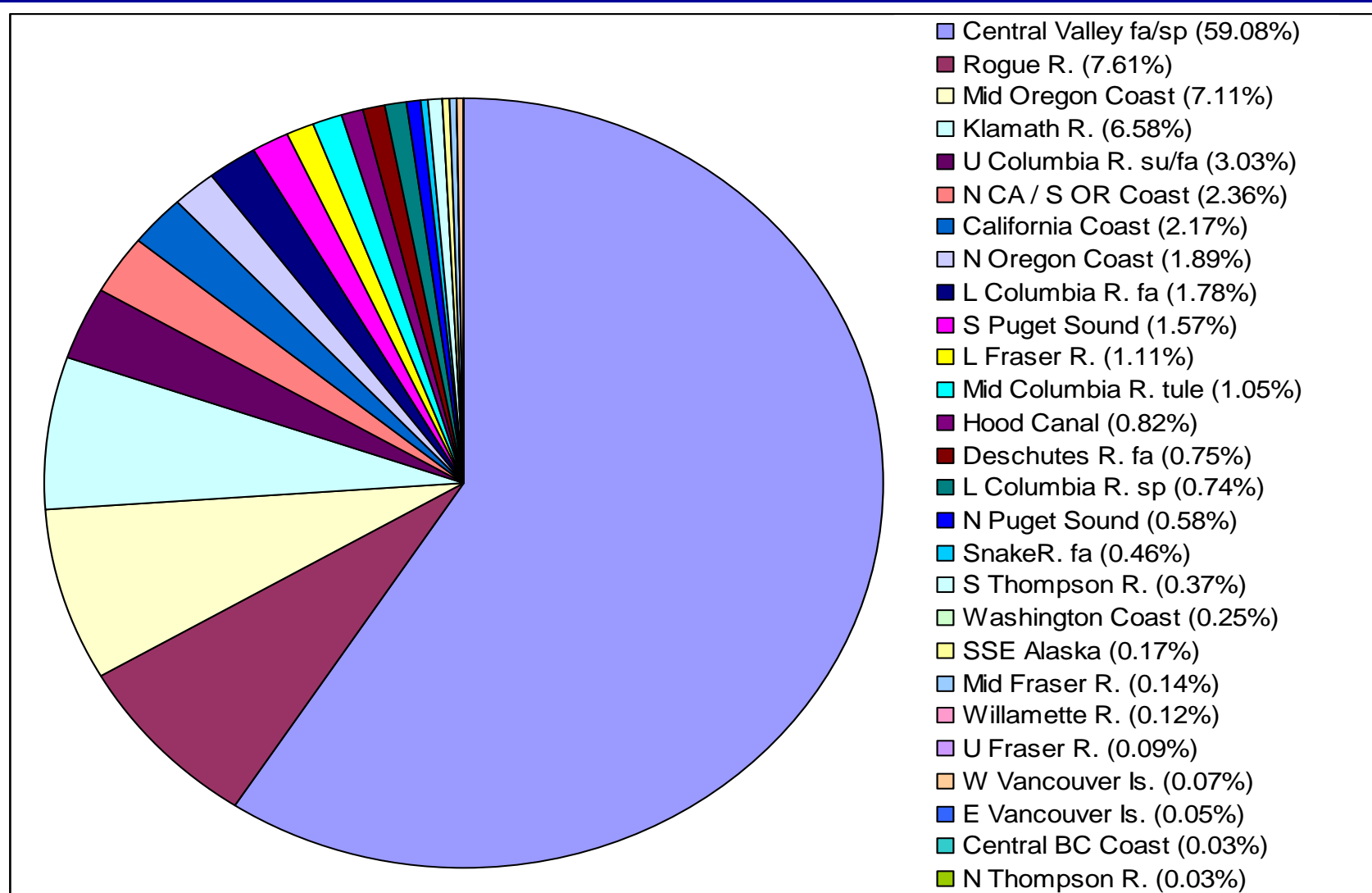


Genetic Stock Identification

- Sampling from May-October 2006
- Over 4,200 tissue samples collected (and fish barcoded)
- 3,100 samples processed
- 2,567 samples provided stock identification information
- 2,097 fish assigned > 90% to hatchery/region
- 100% correct assignment 31 coded wire tagged fish



CROOS Project GSI Salmon Stock Distribution



Dataloggers

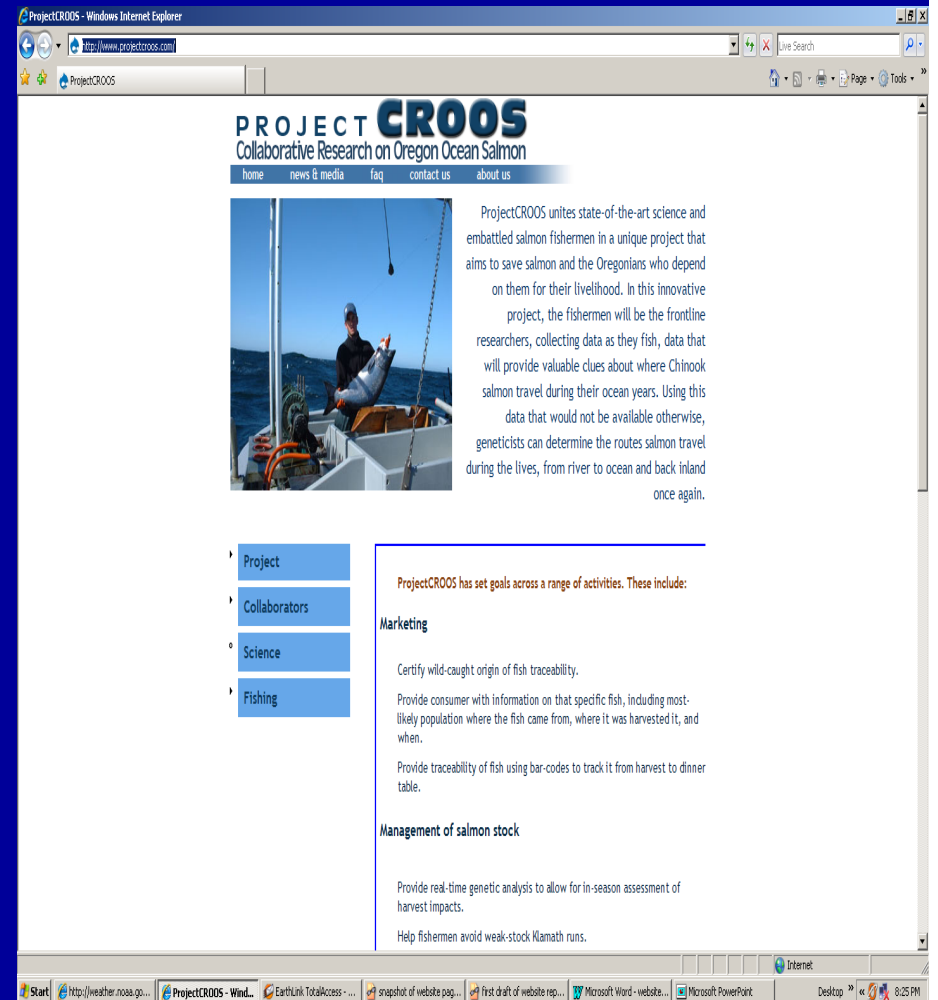
- Tested and refined six dataloggers
- Demonstrated significant promise but overly complex
- Recommendation: conduct digital datalogger conference



Website Development

www.ProjectCROOS.com

- “Real time” Website
- Developed for multiple audiences
- Data and maps
- Track individual fish by scientists, industry, markets



GIS/GSI Mapping

ArcIMS Viewer - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://tsunami.coas.oregonstate.edu/Website/croos_science/viewer.htm

Getting Started Latest Headlines

PROJECT CROOS

Collaborative Research on Oregon Ocean Salmon

Map created by Project CROOS, Copyright(C) 2006

Zoom In

Transferring data from tsunami.coas.oregonstate.edu...

start Project CROOS Web ... Adobe Photoshop Mozilla Firefox Start ... Project CROOS Web ... ArcIMS Viewer - Mozal... My Computer My Computer AdBlock 9:39 AM

PROJECT CROOS DATA LAYERS

- All Layers
 - 2006 Catch
 - Klamath Catch
 - K23
 - K24
 - K26
 - K28
 - K29
 - K30
 - K31
 - K38
 - K39
 - K42
 - klamathCatchAllWeeks
 - All Catch
 - CatchWeek39
 - CatchWeek38
 - CatchWeek37
 - CatchWeek36
 - CatchWeek35
 - CatchWeek31
 - CatchWeek29
 - CatchWeek28
 - CatchWeek27
 - CatchWeek26
 - CatchWeek25
 - CatchWeek24
 - CatchWeek23
 - CatchAll2006
 - Oceanography
 - MeanJulyTempSat
 - Base Layer Data

Refresh Map

Auto Refresh

Help:

- A closed group, click to open.
- An open group, click to close.
- A map layer.
- A hidden group/layer, click to make visible.
- A visible group/layer, click to hide.
- A visible layer, but not at this scale.
- A partially visible group, click to make visible.
- An inactive layer, click to make active.
- The active layer.

GIS/GSI Maps for Markets

Mozilla Firefox

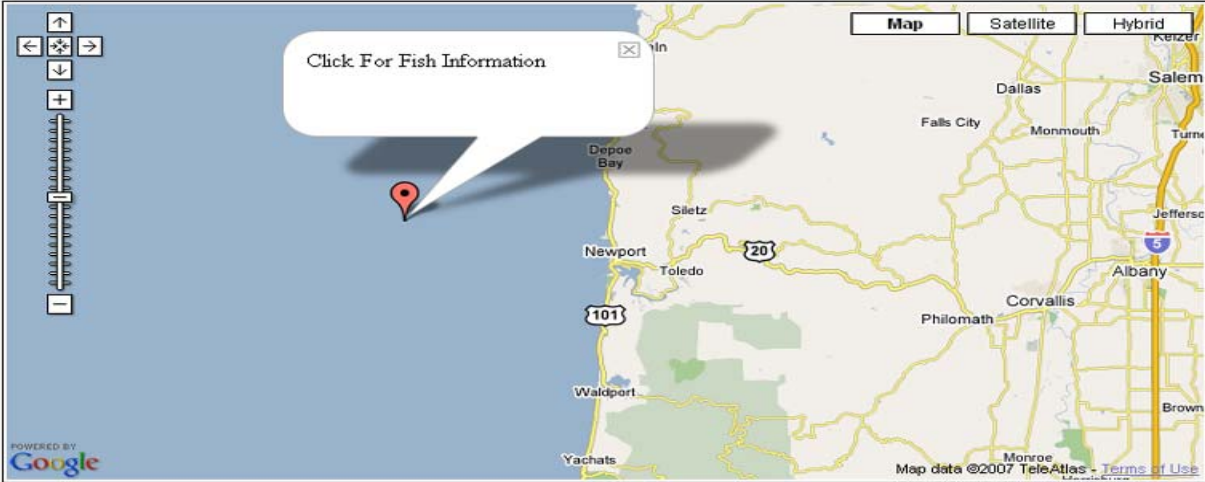
File Edit View Go Bookmarks Tools Help

http://tsunami.coas.oregonstate.edu/croos/fish/search.aspx

Getting Started Latest Headlines Telemarktips.com--Th... goldenalpineholidays... Sorcerer Lodge - Bac... Mistaya Backcountry ... Gnatman FishData Engaging Communitie... Schweitzer Mountain,...

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Collaborative Research on Oregon Ocean Salmon



Map Satellite Hybrid

Click For Fish Information

POWERED BY Google

Map data ©2007 TeleAtlas - Terms of Use

Please enter the barcode (or ID#) of a Salmon that you'd like to get details for and click the Search button to see the results.

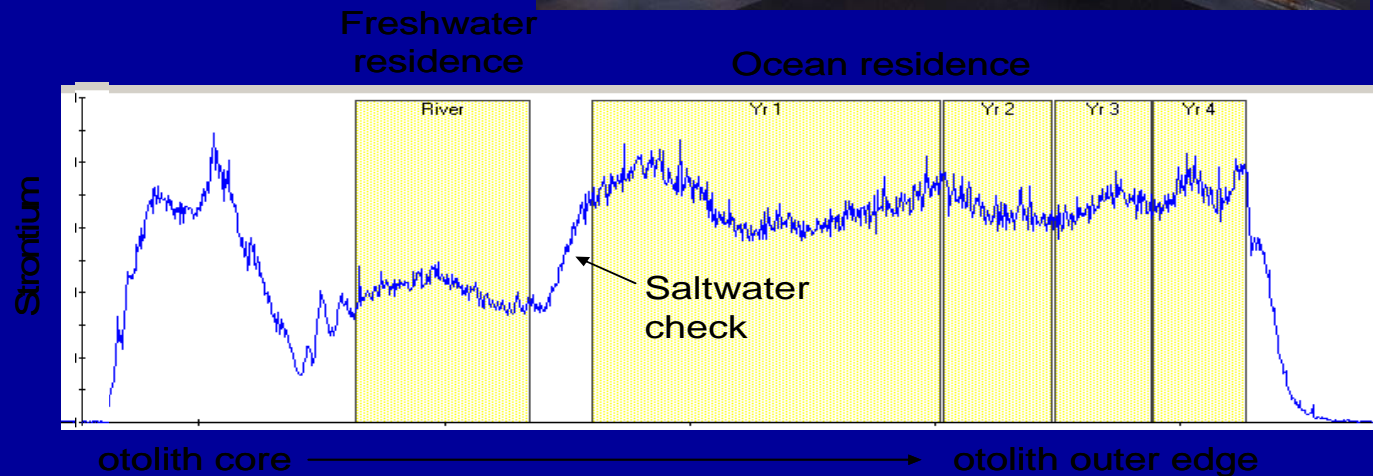
Barcode: Search Catch Coordinates:

Barcode/ID#	279
Fish's Reporting Region	Rogue
Reporting Region Assignment Probability	0.52854531
River of Origin	Applegate_Cr
River of Origin Assignment Probability	0.5025
Week Caught	2006_24
Date Caught	6/12/2006 12:00:00 AM
Time Caught	8:20
Depth Caught (FATHOMS)	42

Done

Other CROOS Activities

- Oceanographic Research
- Scale Analysis
- Otolith Analysis



OWEB Project for 2007

Objectives

- Expand/continue participation of fishermen
- Adjust and improve project protocols
- Expand GSI data collection (10-18,000) samples
 - Oregon coast wide, 16 weeks, four regions
- Conduct GSI-based salmon management simulation exercise

OWEB Project for 2007

Objectives *(continued)*

- Test two hypothesis:
 - Are Klamath stocks aggregated in specific areas at specific times?
 - Is there a difference in catch composition between Inside Waters (inside 6 miles) vs. Outside Waters?
- Design a multiuse “real time” website
- Conduct salmon marketing pilot test using barcoding, traceability and website
- Collect and integrate oceanographic information

Additional Collaborators in 2007

- NMFS will contribute \$400,000 to the project
 - 60% will support California sampling
 - Northwest and Southwest Science Center laboratories will participate
- Significant collaboration and coordination with Oregon Salmon Council

Project in 2008 and Beyond

- Three year comprehensive Coast Wide Project
 - builds off of CROOS Experience
- Potential Coordination with Canada and Alaska
- West Coast Fall Meeting to Plan 2008
- Federal Funding as yet Uncertain

Acknowledgements

- OWEB
- Governor's Office
- Coastal Caucus
- Oregon's
Congressional
Delegation
- Oregon Salmon
Industry

