

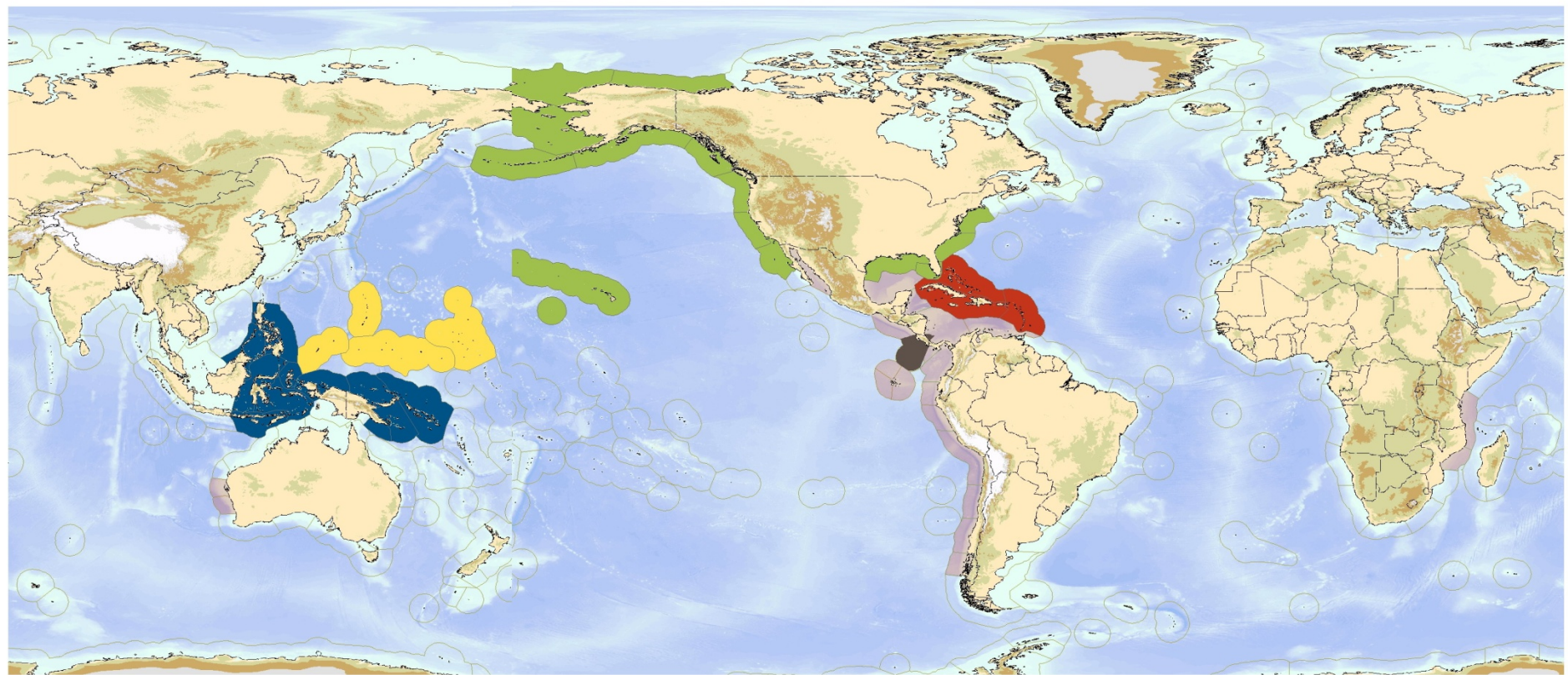
Coastal and Marine Restoration: Benefits for Humans and Habitats



Implementation of these Recovery Act-funded projects would not be possible without the dedicated effort of TNC's project staff and support staff, scientific research institutions agency collaborators and particularly private industry partners.




Current TNC Geographic Priorities for Marine Conservation



Current TNC Priority Marine Projects

-  U.S. Coasts and Oceans
-  Costa Rica
-  Caribbean
-  Pacific Islands
-  Coral Triangle

Additional TNC Marine Programs

-  Mexico Mosaics, Western Caribbean, Eastern Tropical Pacific, Humboldt Current, Mozambique, Western Australia

Global Marine Priorities

Sustainable Fisheries

Ecosystem-based Adaptation

Integrated Management



RESTORATION



Marine Debris Removal ***Oyster Reef Restoration***

Living Shoreline Restoration

Invasive Species Removal

Fish Passage

Global Habitat Loss is Significant

Coral Reefs – 90% threatened

(Burke et al. 2011)

Marshes and Mangroves – 50% loss

(Burke et al. 2001; Valiela and Bowen 2001; Zedler and Kercher 2005)

Oyster Reefs – 85% loss

(Beck et al. 2011)

Rivers - < 3% rivers free flowing

(Postel and Richter 2003)

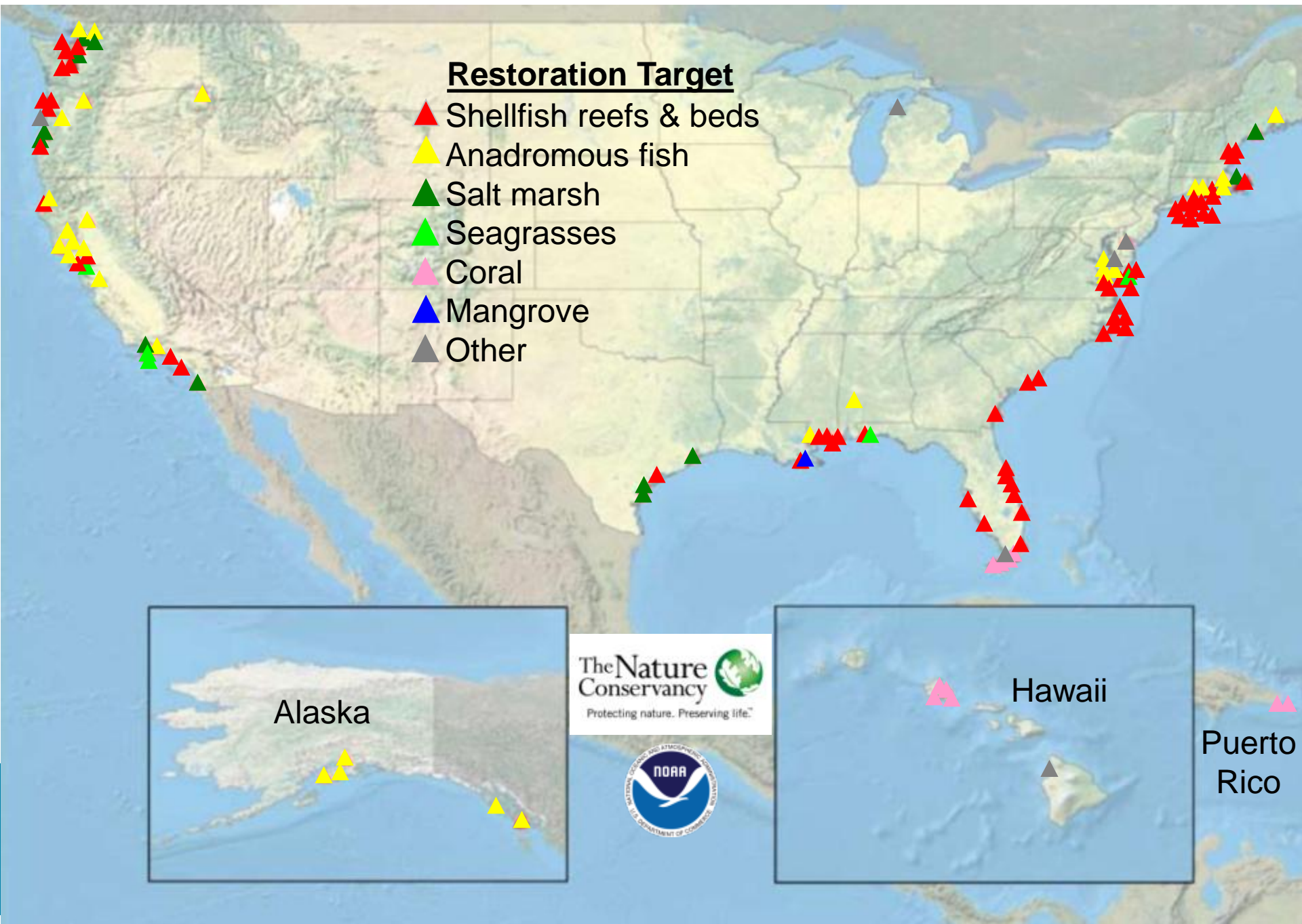


Restoration works for a diversity of habitats



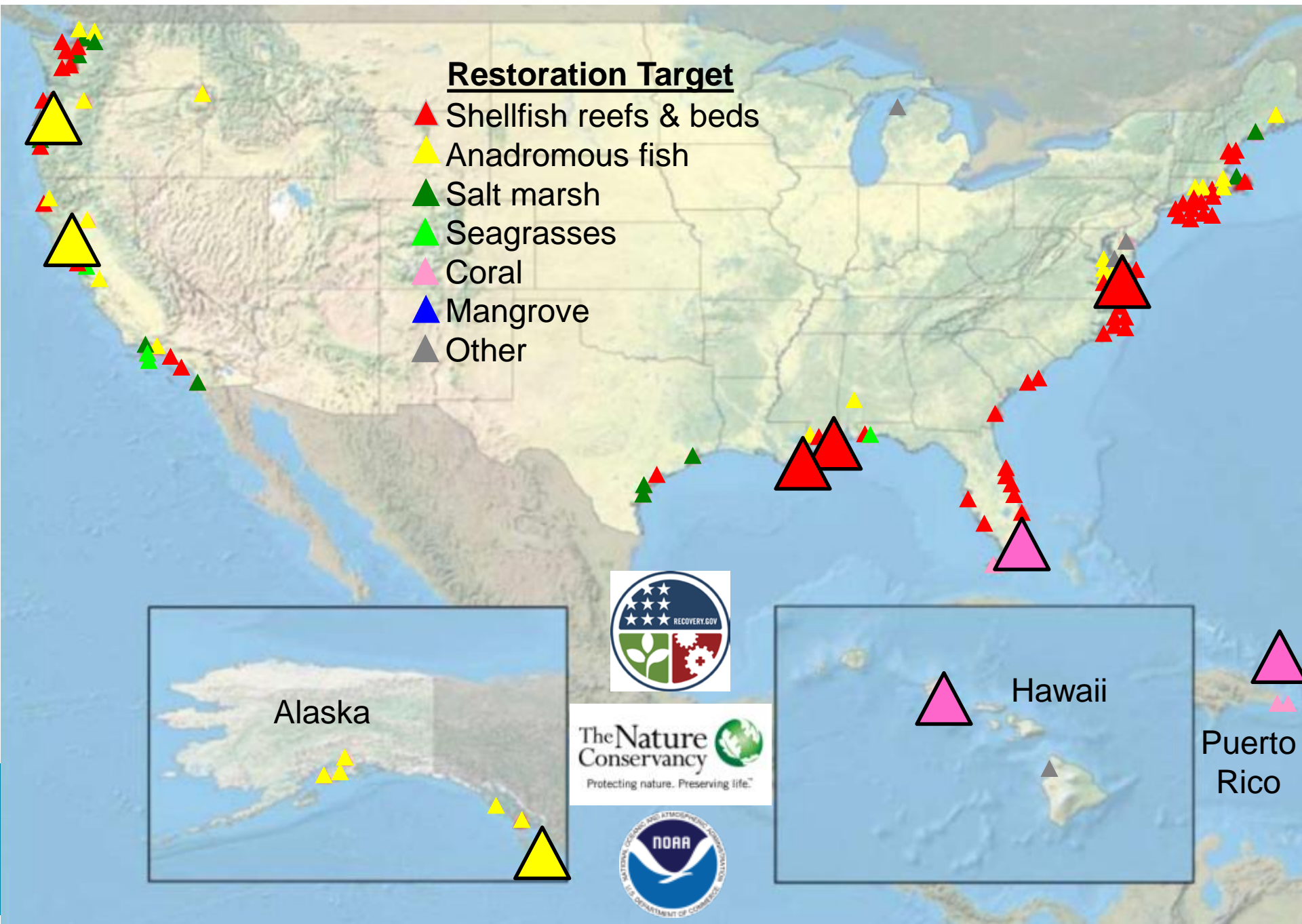


TNC-NOAA Partnership 2001 – 2011: 124 projects





2009 American Recovery and Reinvestment Act



SE Alaska – Salmon Habitat Restoration



Goals: Improve salmon habitat to restore fisheries to historic levels to meet the needs of local residents and others.

460 acres of seagrass estuary and 65 miles of stream habitat

Jobs: 20 jobs and an estimated 10,800 hours





The Problem: Reduced Connectivity



The Solution: Hydrologic Reconnection





Unexpected Results: Fish Passage Already?



Lasting Solutions: Locals are Pushing for More Habitat Restoration



Alabama Breakwater and Estuary Restoration

Goals: Restore and enhance shoreline habitat with a long-term goal of boosting the economy of coastal Alabama

1.5 miles submerged breakwater, 3 acres oyster reef, and 30 acres seagrass beds over 10,000 feet of shoreline.

Jobs: 35 to 40 new jobs





The Problems: Alabama



Solutions: Oyster Reefs Act as Natural Wave Breaks

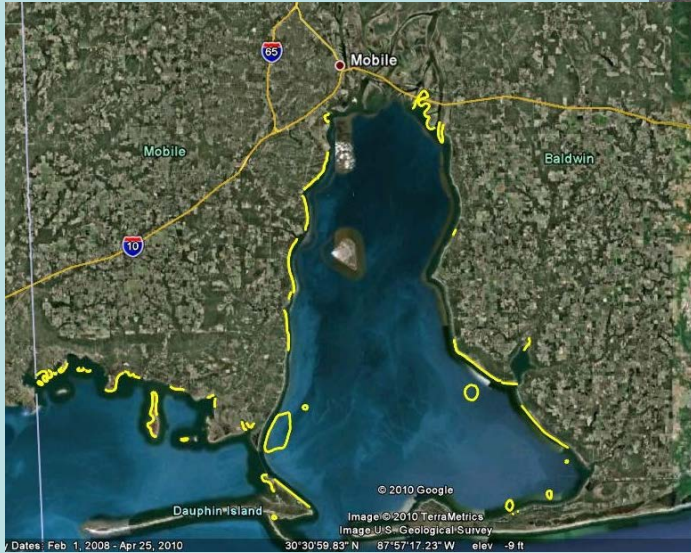
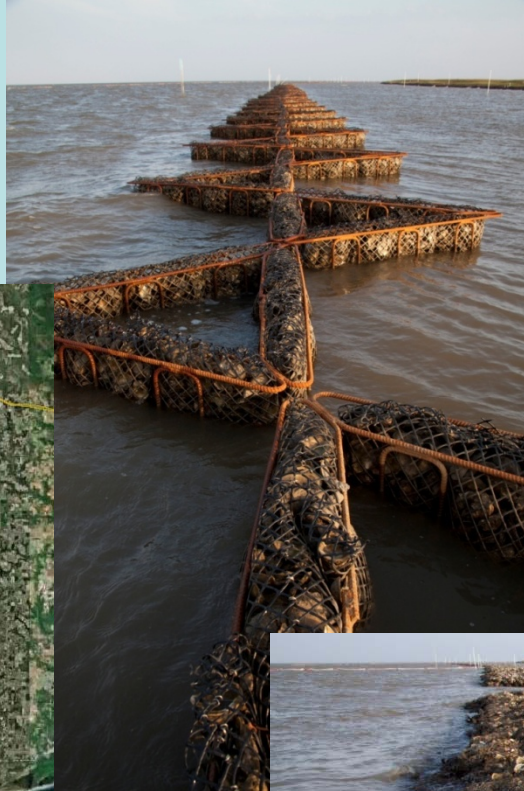
- Habitat
- Wave Energy
- Water Quality
- Resiliency



Unexpected Results: Community Ownership



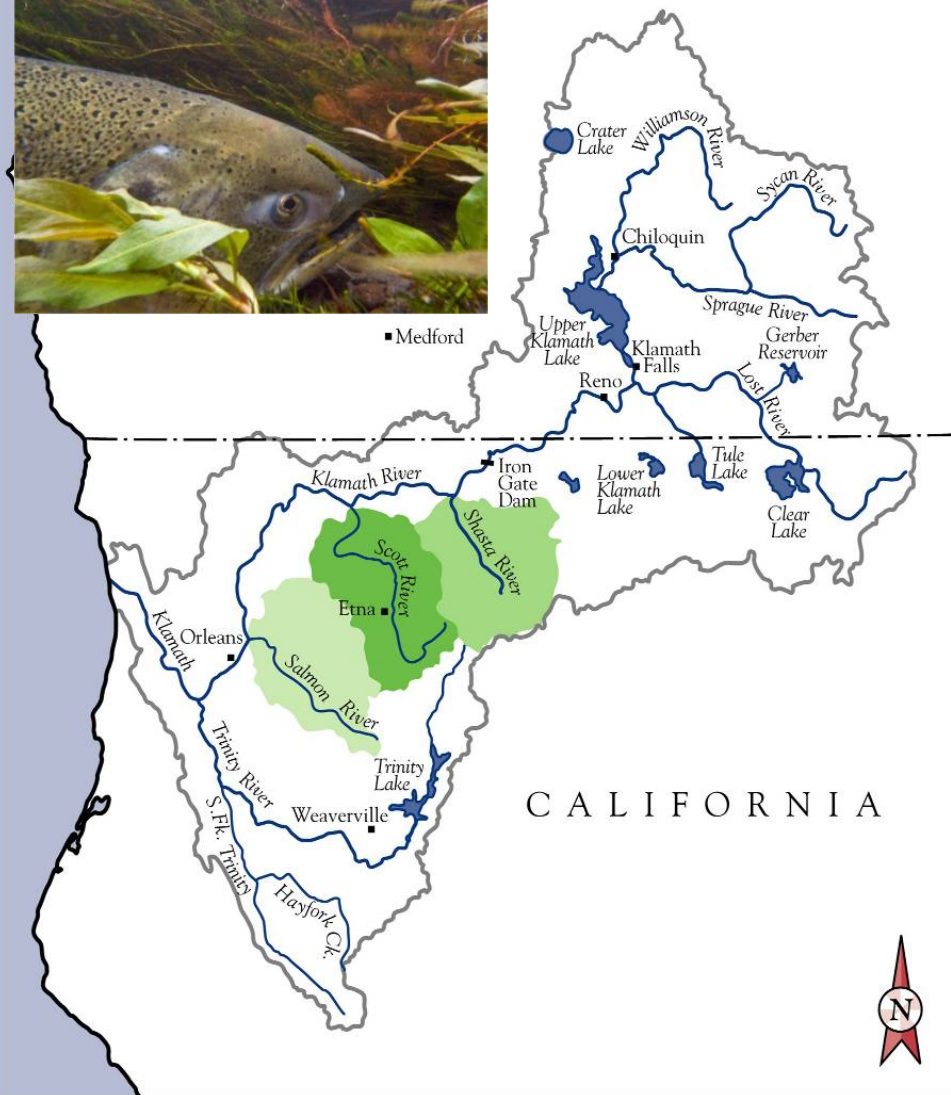
Lasting Solutions: Restoration at Scale



CA – Big Springs Creek Shasta River habitat restoration

Goals: Restore degraded salmon habitat and demonstrating agricultural practices that benefit both people and fish.

Jobs: 54 jobs and 18,741 labor hours of employment





Problem: Loss of CA Salmon Habitat

Irrigation return



Cattle in streams and creeks



Large irrigation diversions





Solution: Restoration and Changes in Ranch Management

Fencing



Irrigation Management



Demonstration



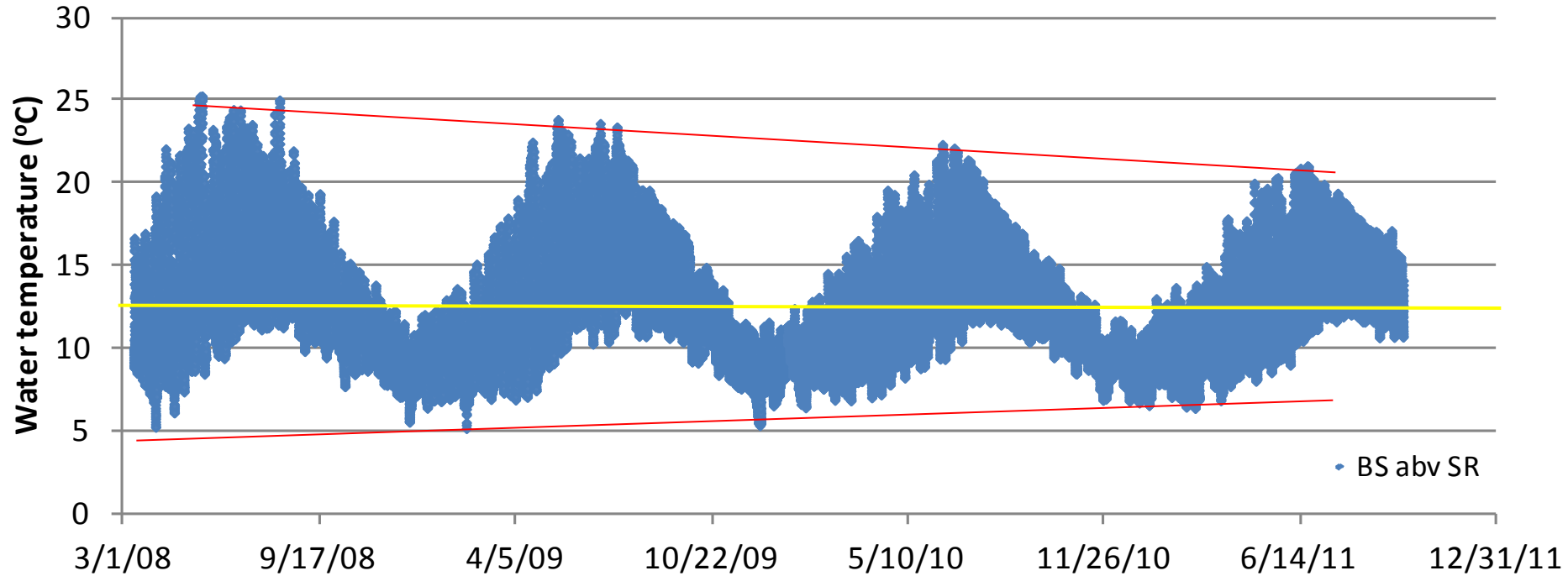
Plantings



Infrastructure Upgrades



Unexpected Results: Quick Recovery



Lasting Solutions: Demonstrating Compatibility Between Humans and Nature



photo by Carson Jeffres



photo by Erika Nortemann



....salmon populations in the Shasta River on an upward trend

....ecological needs for water balanced with agricultural needs for water

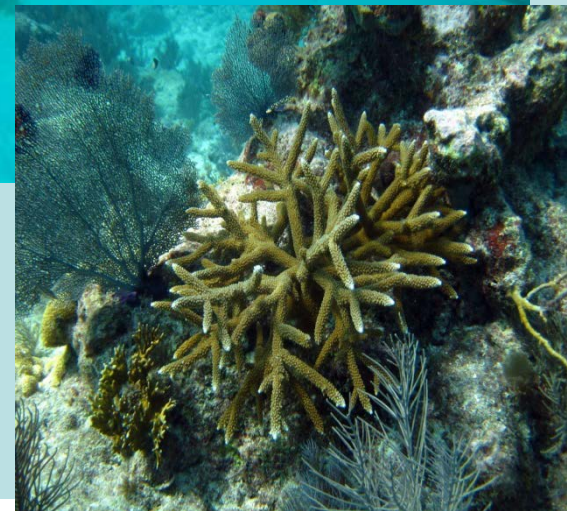
.....land and water management that benefit both nature and humans and provide lasting protection for this remarkable place

FI/USVI Coral Recovery and Restoration

Goals: Out plant 30,000 individual healthy corals to help recover endangered species

Jobs: 60 jobs totaling 118,759 labor hours

Habitat Restoration:
Produce threatened staghorn and elkhorn coral nurseries and transplanting the new colonies to an estimated **35 reef sites** in Florida and the U.S. Virgin Islands.



Local Problem: Decline in Corals



Ocean acidification

Destructive fishing

Pollution

Coastal development

Rising sea
temperatures



Nurseries as a Tool for Restoration

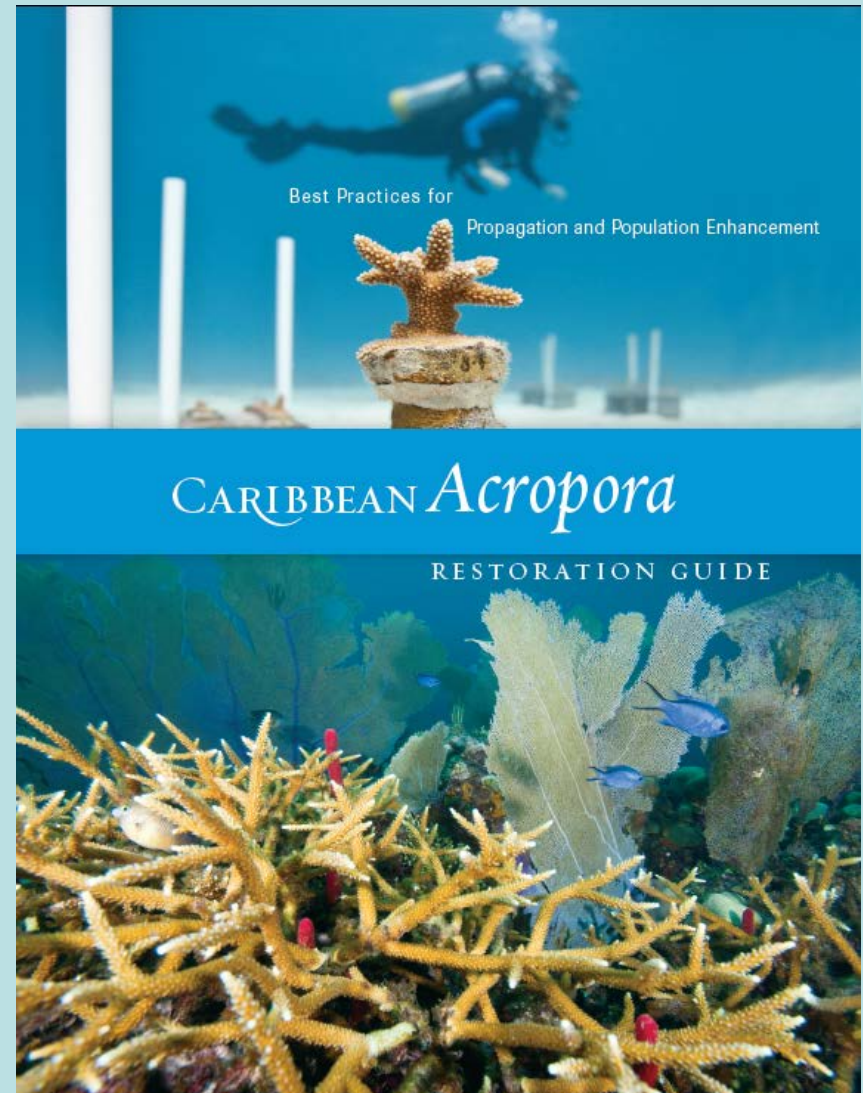
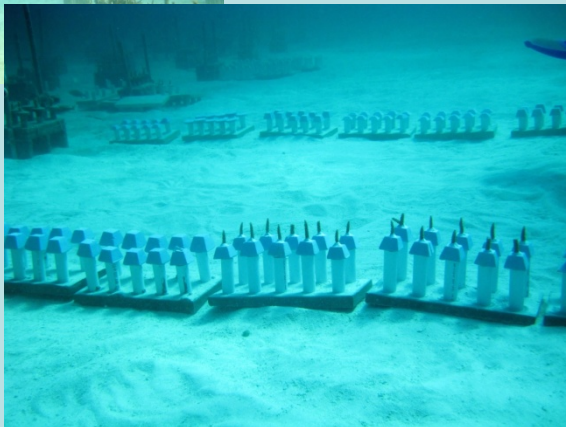




The Solution



Lasting Solutions: New Techniques Spread Globally



Hawaii Maunalua Bay Reef Restoration

Goals: removing approximately 22 acres of invasive algae while building community capacity for coral reef protection.

Jobs: 75 jobs, 100,000 labor hours plus 7,000 hours of community service.





The Nature
Conservancy



Protecting nature. Preserving life.™

The Problem: Extensive invasive algae covers shallow reef





The Nature
Conservancy



Protecting nature. Preserving life.™

Solution: Removed 3 million pounds and cleared 27 acres of invasive alien algae



Unexpected Results: Learned that Visible Success Makes a Difference



Malama Maunaloa, the TNC community partner:

Established multiple new community sites

Engaged 12 schools and 3,000 volunteers for 10,000 hours

Received 501(c)(3) status

Created fisheries working group

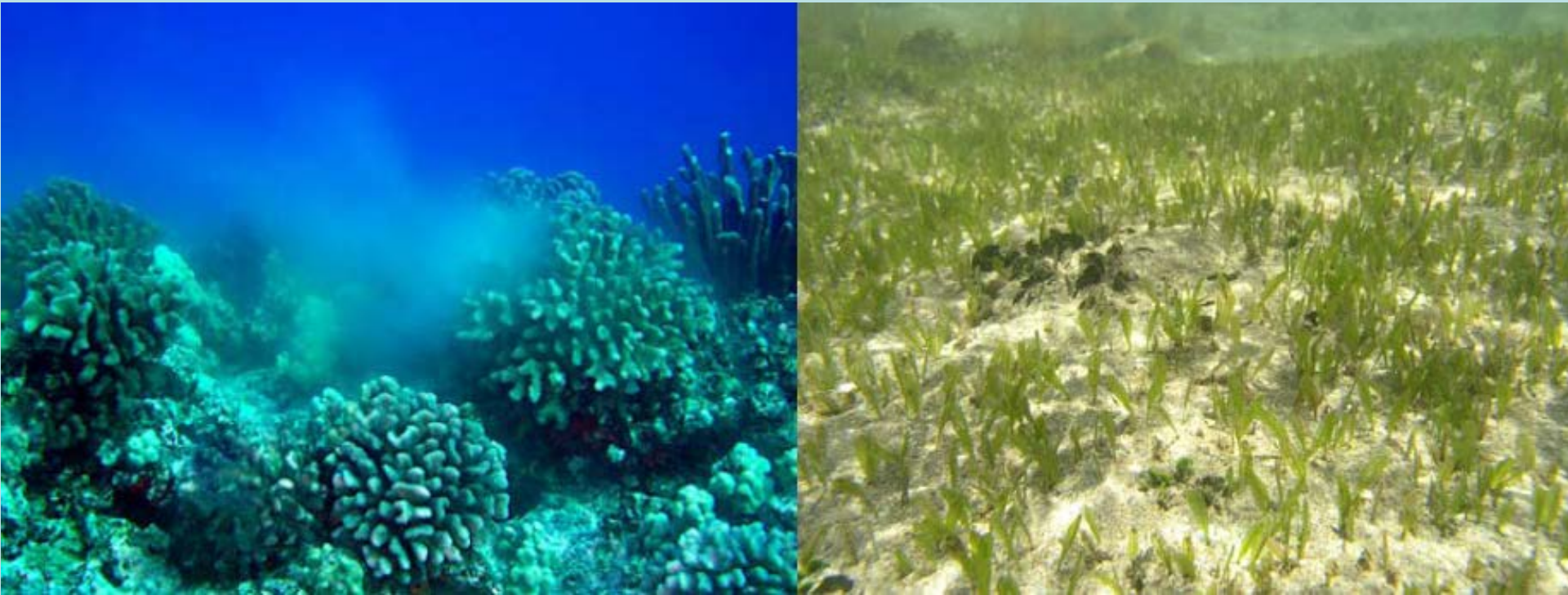
Working with UH, NOAA, USACE on watershed inputs



May 2011

Aerial imagery collection and processing by Resource Mapping Hawaii

Lasting Results: Recovery of Native Species



“We are not just restoring an ecosystem, but a community. The project has become a symbol of hope for Maunalua.”

-Maunalua Community Member

Louisiana Oyster Reef Breakwater and Marsh Restoration – Living Shoreline

Goals: To construct **3.4 miles** of oyster reefs as living shoreline shoreline to protect **350 acres** of existing marsh.

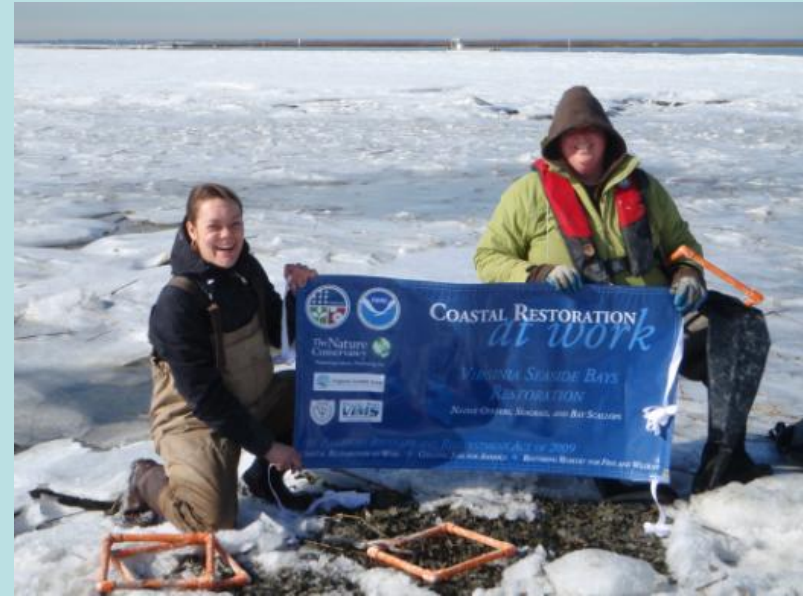
Jobs: 57 jobs and 61,982 hours of employment.



VA Seaside Bays Restoration

Goals: **Twenty-four acres** oyster reefs at 12 sites and **262 acres of seagrass** planted. Test the re-introduction of Bay Scallops

Jobs: 57 jobs with 59,927 labor hours



Regional Problems and Solutions

Loss of Eelgrass and Scallop Fishery
Collect / broadcast eelgrass seeds
Deploy caged scallops



Commercial extinction of oysters
Create new reefs via shell plants

Results and Lessons Learned

Created 2 more acres of reef than goal



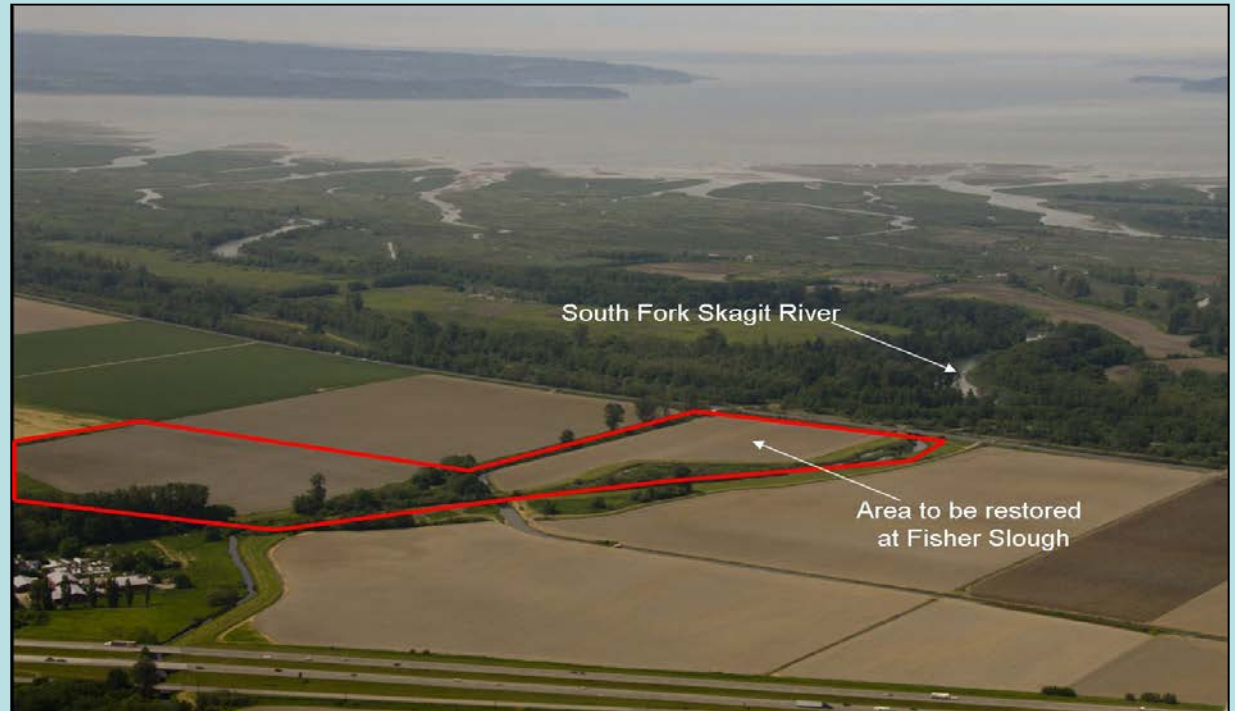
Scallops already reproducing
and settling in restored meadows



The Problem: Conflict Over Land Use



- Declining salmon need estuary habitat to recover.
- Local conflicts between farms and fish kept estuary habitat restoration from occurring.



The Solution: Levee Setback and Tide Gate Alterations

- Proof-of-concept project created estuary habitat for salmon and flood storage and improved infrastructure for farms.
- “Multiple benefits” built relationships.



The Solution: Included Jobs



- 39,000 labor hours logged
- 225 jobs touched at 16 organizations
- 60 ancillary companies benefitted

Lasting Outcomes: Multiple Benefit Projects

Exporting multiple
benefits approach
throughout Puget
Sound and
beyond.



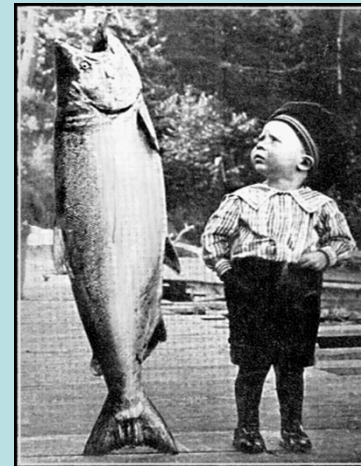
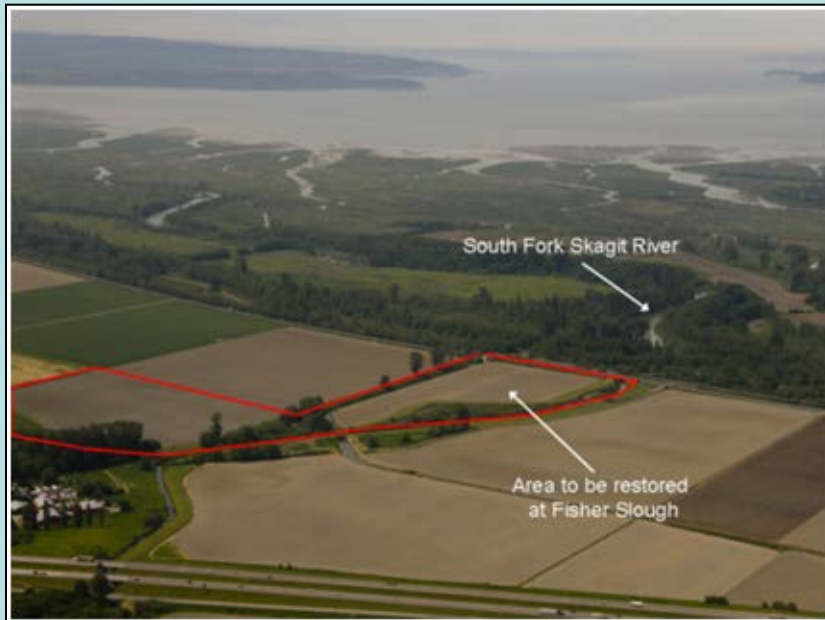
Regional Problems and Solutions



Declining salmon need estuary habitat to recover.

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Unexpected Outcomes: Created Win-Win Situation to Success

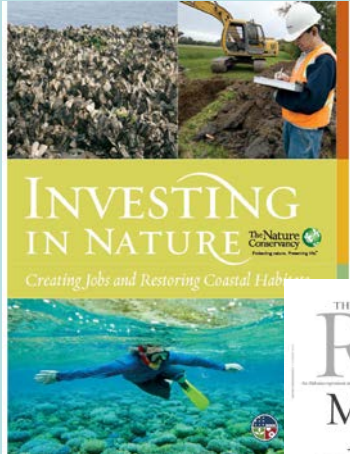


New initiative between fish and farms groups is scoping large-scale estuary restoration projects with benefits for farms.

Inclusive process and co-equal goals improved relationships between previous adversaries.



Getting Restoration to Scale: What is TNC's role?



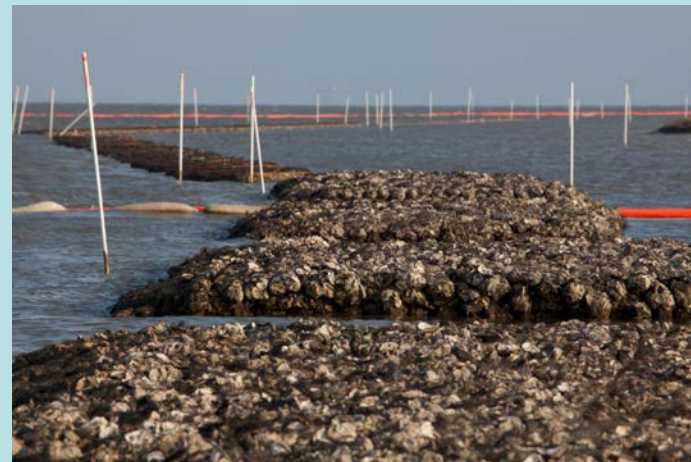
Communication



Innovation



Partnership



Leverage

Questions?



Contact:

Or

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rbrumbaugh@tnc.org