

Science, Service, Stewardship



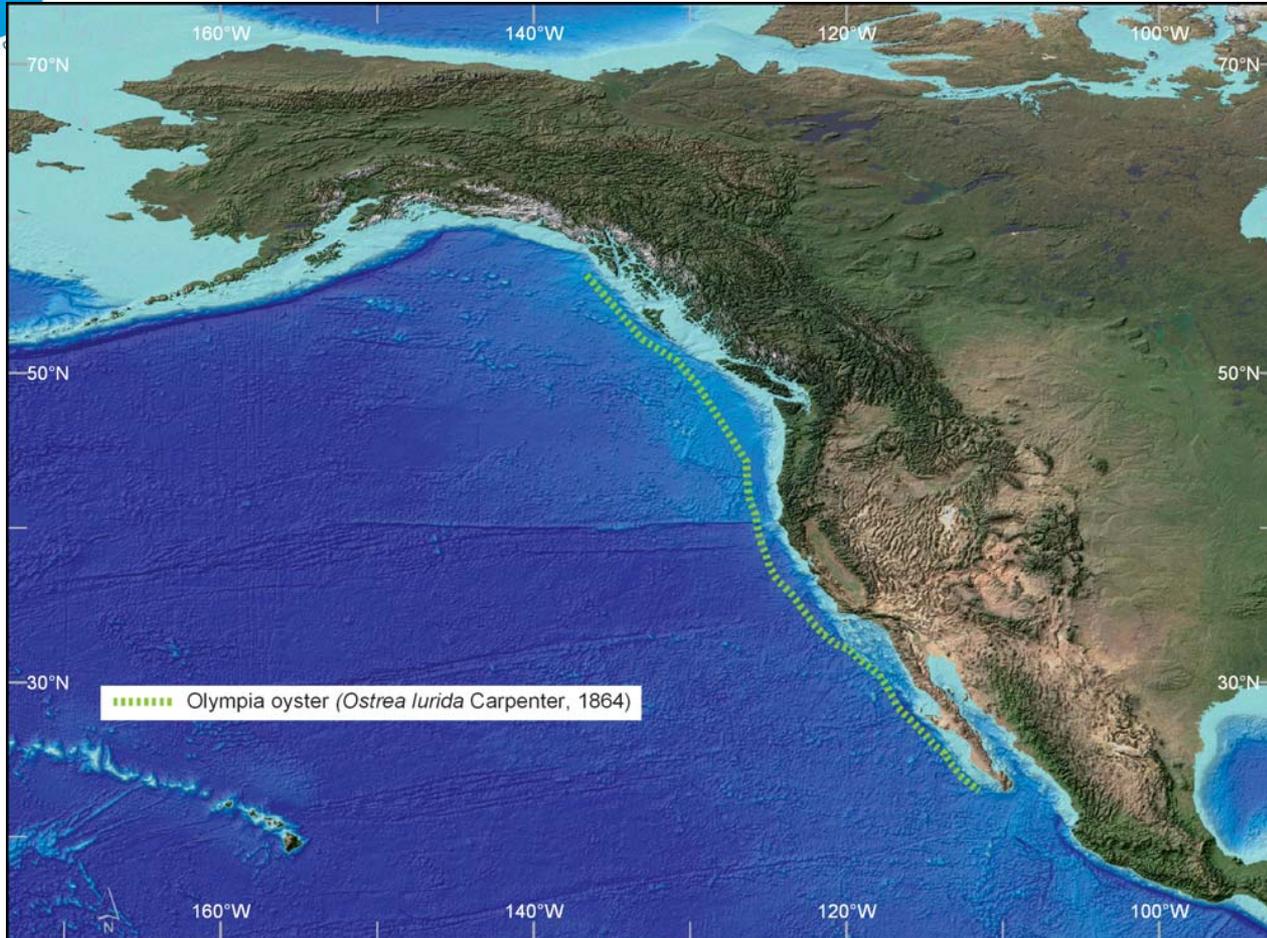
Olympia Oyster (*Ostrea lurida*) Restoration in Washington State: a Partnership with Puget Sound Restoration Fund

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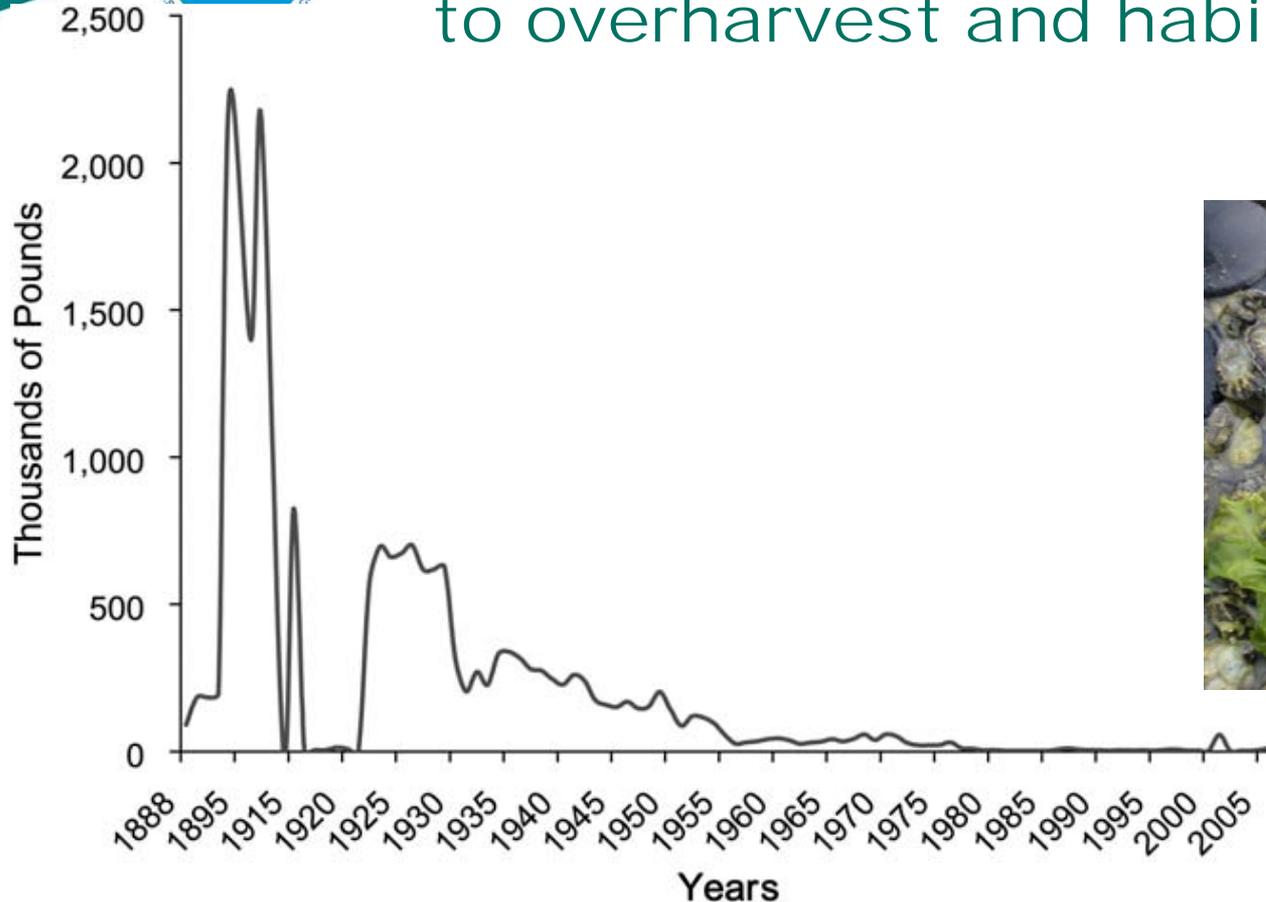
Olympia oyster was once the only oyster species on West Coast of U.S.



Olympia oyster ranged from Southeast Alaska to Baja California.



Olympia oyster abundance declined due to overharvest and habitat degradation.



Olympia oyster West Coast U.S. landings from 1888 to 2006.



Olympia oyster restoration

Efforts are underway to restore Olympia oyster throughout its historic range.

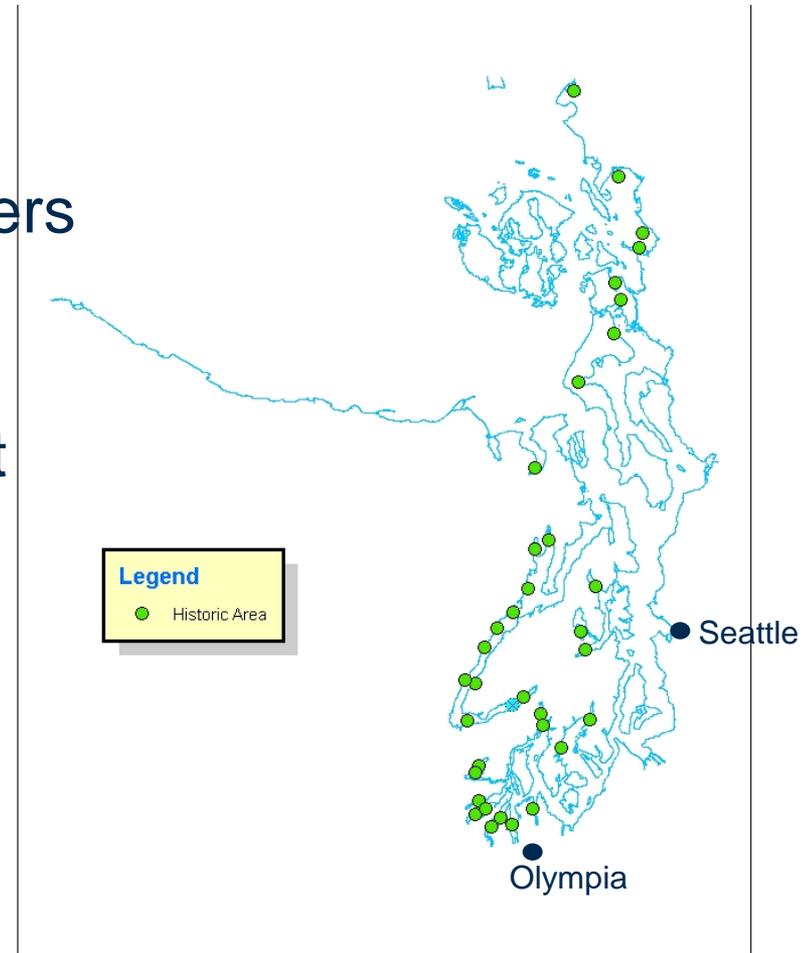
NOAA and Puget Sound Restoration Fund focus on Puget Sound is expanding in recent years.





Historic oyster distribution in Puget Sound

- Dense core populations of oysters are now in less than 4% of their historic area.
- Small numbers exist throughout historic range.
- Goal for Puget Sound: Recover 100 acres (40.5 hectares) by 2020.
- Establish self-sustaining populations.





Benefits of Olympia oyster restoration

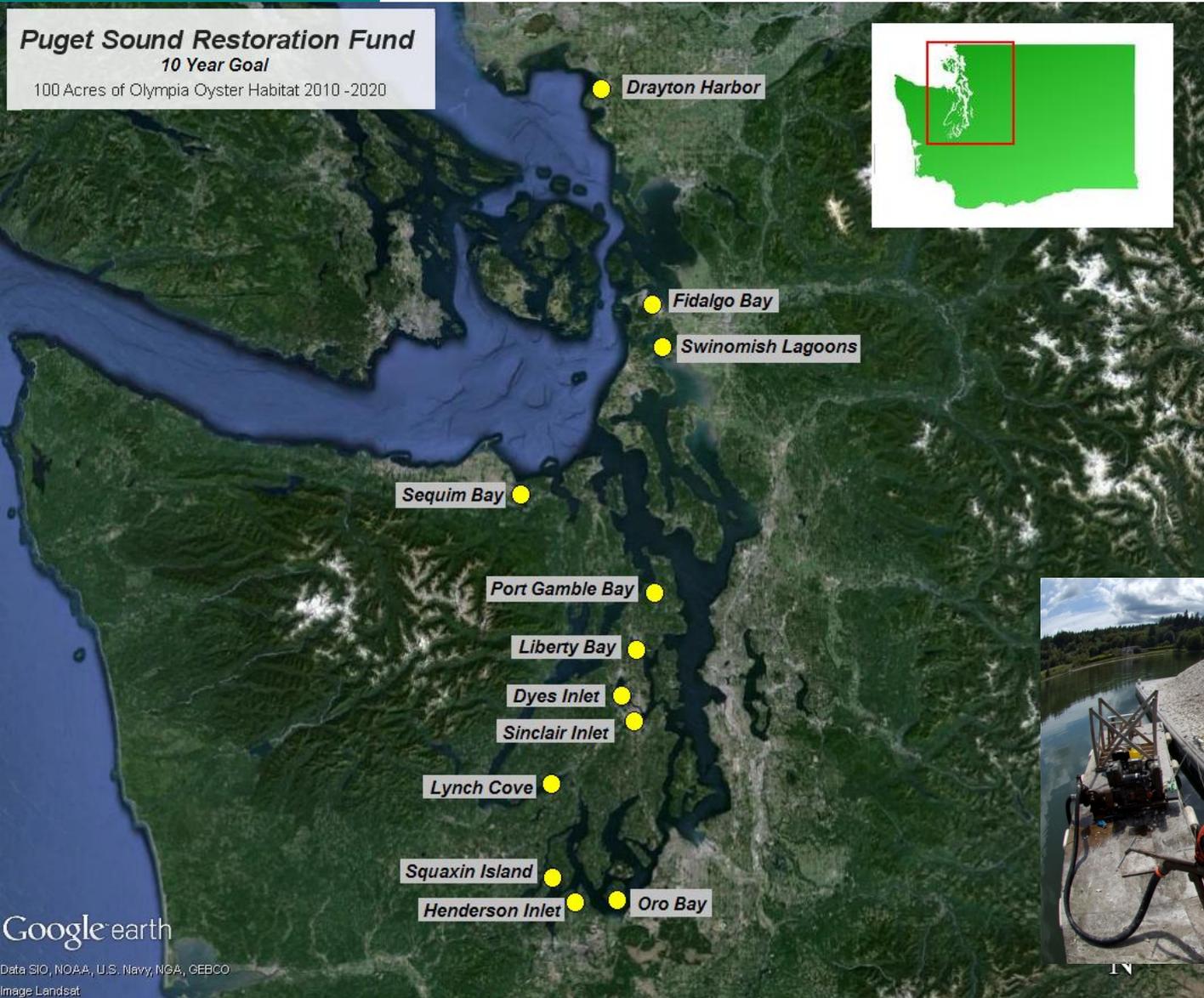
- Recover native species.
- Rebuild marine habitat.
- Restore ecosystem function and species diversity.
- Mitigate nutrient pollution.
- Improve marine water quality.
- Monitor ocean acidification.
- Provide incentives for pollution control.
- Re-connect people to marine resources.



Rebuilding areas

Puget Sound Restoration Fund
10 Year Goal

100 Acres of Olympia Oyster Habitat 2010 -2020

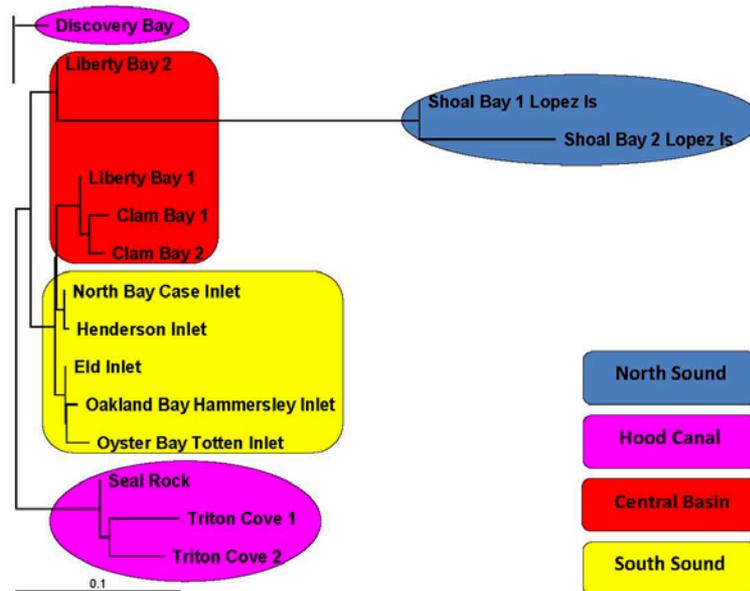




Newly constructed hatchery for producing genetically defined Olympia oyster seed for outplanting



Olympia oyster genetics



Question: Are genetic differences due to reproductive isolation or local adaptation?

Figure 3.11 Neighbor-joining tree based on Nei's (1978) genetic distance and arbitrarily rooted at Discovery Bay WA for 15 Puget Sound Olympia oyster populations. Populations clustered into four groups, largely in accordance with major geographic sub-regions of the sound (North Puget Sound, Hood Canal, Central Basin and South Puget Sound). Approximately 75% of the total genetic variation was distributed among the four defined geographical sub-regions. However, there was no evidence of significant genetic differentiation between any South Puget Sound population and Central Basin population with the exception of the Liberty Bay 2 site.

Measuring success

OYSTER HABITAT RESTORATION *Monitoring and Assessment Handbook*



Core population defined as equal to or greater than 75 oysters/m²

Recent Liberty Bay restoration:
Dogfish Bay = 297 oysters/m²
Scandia = 74 oysters/m²

Baggett, L.P., S.P. Powers, R. Brumbaugh, L.D. Coen, B. DeAngelis, J. Greene, B. Hancock, and S. Morlock, 2014. Oyster habitat restoration monitoring and assessment handbook. The Nature Conservancy, Arlington, VA, USA., 96pp.





Thank you

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