

Update Report

Time of Submission: 2014-03-31 15:55:01

Period: 2/1/2013 - 1/31/2014

Project: R/LME/N-3 - *Alleviating Regulatory Impediments To
Native Shellfish Aquaculture***:: STUDENTS SUPPORTED**

Heare, Jake, jakeheare@gmail.com, University of Washington, SAFS, status:new, *no field of study*, advisor:Roberts, degree type:MS, *no degree date*, degree completed this period:No

Student Project Title: *none*Involvement with Sea Grant This Period:
research assistantPost-Graduation Plans: *none*

Jackson, Katie, k.e.jackson.1992@gmail.com, University of Washington, SAFS, status:cont, *no field of study*, *no advisor*, degree type:BS, *no degree date*, degree completed this period:No

Student Project Title:
Genetic sample management and optimizing oyster relaxationInvolvement with Sea Grant This Period:
internPost-Graduation Plans: *none*

Wear, Hannah, hannah.wear@hotmail.com, University of Washington, SAFS, status:new, *no field of study*, *no advisor*, degree type:BS, degree date:2014-06-01, degree completed this period:No

Student Project Title: *none*Involvement with Sea Grant This Period:
internPost-Graduation Plans: *none***:: CONFERENCES / PRESENTATIONS**

Jackson, K., Vadopalas B., and S.R. Roberts. 2013. Putting an aphrodisiac to sleep. 67th Joint Annual Meeting of the National Shellfisheries Association, Pacific Coast Section, and the Pacific Coast Shellfish Growers Association. Sunriver, OR. September 30-October 3., public/profession presentation, 150 attendees, 2013-09-30

Vadopalas, B., Davis, J., Blake B., and S.R. Roberts. 2013. Local adaptation in Olympia oysters. 67th Joint Annual Meeting of the National Shellfisheries Association, Pacific Coast Section, and the Pacific Coast Shellfish Growers Association. Sunriver, OR. September 30-October 3., public/profession presentation, 150 attendees, 2013-09-30

:: ADDITIONAL METRICS**P-12 Students Reached:****P-12 Educators Trained:****Participants in Informal Education Programs:****Volunteer Hours:**

Acres of coastal habitat protected, enhanced or restored:

Resource Managers who use Ecosystem-Based Approaches to Management:

Annual Clean Marina Program - certifications:

HACCP - Number of people with new certifications:

:: ECONOMIC IMPACTS*No Economic Impacts Reported This Period***:: SEA GRANT PRODUCTS**

Description	Developed?	Used?	ELWD?	Number of Managers	Names of Managers
Olympia oyster parentage assignment microsatellite panel	Yes	No		0	
Olympia oyster anesthesia method	Yes	No		0	

:: HAZARD RESILIENCE IN COASTAL COMMUNITIES

Name of coastal community	County	Number of resiliency trainings / technical assistance services <i>provided</i>	Was community hazard resiliency improved (e.g., via changes in zoning ordinances) ?
none		0	Yes

:: ADDITIONAL MEASURES

Number of stakeholders modifying practices:	Sustainable Coastal Development # of coastal communities:
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:: PARTNERS

Partner Name: Clam Fresh, LLC
Partner Name: Fagergren Oyster Co., type: Industry and Business, scale: Local
Partner Name: Fidalgo Marina, type: Industry and Business, scale: Local
Partner Name: NOAA Manchester lab
Partner Name: Puget Sound Restoration Fund
Partner Name: Rock Point Oyster Company
Partner Name: Swinomish Tribe
Partner Name: Washington Department of Fish and Wildlife

:: IMPACTS AND ACCOMPLISHMENTS

Title: Washington Sea Grant investigates local adaptation, genetic diversity, and knock-out drops for Olympia oyster restoration

Type: accomplishment

Description:

Relevance: Restoring native Olympia oysters is a key goal of the Puget Sound recovery plan. But introducing cultured native shellfish can have both positive and adverse effects on the genetic makeup of nearby wild populations. Hatchery stock may threaten wild populations through inbreeding, weakening their ability to adapt to changing environmental conditions.

Response: With funding from a national strategic initiative, Washington Sea Grant-sponsored researchers are examining local adaptation in native Olympia oysters to help predict the impacts of culturing native shellfish species for restoration and commercial production. In collaboration with federal, state, tribal, and private partners, researchers have cultured tested, genotyped and intermixed wild and cultured Olympia oysters from around Puget Sound to measure their breeding fitness. In that process, the team has also developed an effective anesthetic that induces the oysters to open their shells and allows nonlethal sampling.

Results: While culture activities and sampling were successful, analysis is still ongoing. Genetic testing suggests that the current breeding protocol for Olympia oysters used for restoration assures sufficient diversity.

Recap:

Washington Sea Grant-sponsored research establishes grow-out sites for testing local adaptation and the interbreeding of wild and cultured Olympia oysters, confirming that current breeding protocols protect genetic diversity. The research also develops a safe, effective oyster anesthetic.

Comments:

Primary Focus Area: LME (SSSS)

Secondary Focus Area: LME (HCE)

State Goal: Support conservation and sustainable use of living marine resources through effective and responsible approaches, tools, models and information for harvesting wild and cultured stocks and preserving protected species (SSSS Supply; HCE Science).

Related Partners: Clam Fresh, LLC, Fagergren Oyster Co., Fidalgo Marina, NOAA Manchester lab, Puget Sound Restoration Fund, Rock Point Oyster Company, Swinomish Tribe, Washington Department of Fish and Wildlife

:: PUBLICATIONS

Title: Oyster genes: Olympia oysters

Type: Internet Resources, Topical Websites Publication Year: 2013

Uploaded File: *none*

URL: <http://oystergen.es/olympia>

Abstract:

Our approach is to simultaneously address local adaptation in three genetically differentiated populations of Olympia oysters by evaluating genotype-by-environment interactions. We will reciprocally transplant seed produced from wild parents collected from contrasting environments into all environments. This very large reciprocal transplant experiment can test for a home field advantage in survival, maturation and growth in Olympia oysters. The overall goals of this project are to increase our knowledge of local adaptation in Olympia oysters to address concerns that interbreeding between potentially maladapted cultured and wild stocks could negatively impact wild populations. Accordingly, in order to attain these goals, the specific objectives of this proposal are to 1) Evaluate fitness components and performance of seed from different origins in a reciprocal transplant experiment and 2) Characterize genetic and epigenetic markers associated with oysters from different origins in a reciprocal transplant experiment.

Citation:

<http://oyster.gen.es/olympia>

Copyright Restrictions + Other Notes:

Journal Title: *none*

Title: **Genomic resource development for shellfish of conservation concern.**

Type: Reprints from Peer-Reviewed Journals, Books, Proceedings and Other Documents Publication Year: 2013

Uploaded File: *none*

URL: <http://onlinelibrary.wiley.com/doi/10.1111/1755-0998.12052/abstract>

Abstract:

Effective conservation of threatened species depends on the ability to assess organism physiology and population demography. To develop genomic resources to better understand the dynamics of two ecologically vulnerable species in the Pacific Northwest of the United States, larval transcriptomes were sequenced for the pinto abalone, *Haliotis kamtschatkana kamtschatkana*, and the Olympia oyster, *Ostrea lurida*. Based on comparative species analysis the *Ostrea lurida* transcriptome (41 136 contigs) is relatively complete. These transcriptomes represent the first significant contribution to genomic resources for both species. Genes are described based on biological function with particular attention to those associated with temperature change, oxidative stress and immune function. In addition, transcriptome-derived genetic markers are provided. Together, these resources provide valuable tools for future studies aimed at conservation of *Haliotis kamtschatkana kamtschatkana*, *Ostrea lurida* and related species.

Citation:

Timmins-Schiffman EB* Friedman CS, Metzger DC, White SJ and Roberts SB. (2013) Genomic resource development for shellfish of conservation concern. *Molecular Ecology Resources* 13(2):295-305. doi:10.1111/1755-0998.12052

Copyright Restrictions + Other Notes:

Journal Title: *Molecular Ecology Resources*

:: OTHER DOCUMENTS

No Documents Reported This Period

:: LEVERAGED FUNDS

Type: influenced Period: 2013-09-30::2013-10-02 Amount: \$150

Purpose:

Travel award to Katie Jackson to attend the 67th Joint Annual Meeting of the National Shellfisheries Association, Pacific Coast Section, and the Pacific Coast Shellfish Growers Association. \$150. Sept 30-Oct 2, 2013

Source: National Shellfisheries Association, West Coast Section

:: UPDATE NARRATIVE

Uploaded File: [Roberts_6976_update_na....2.pdf](#)