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**Five-Year Plan  
for  
Olympia Oyster Restoration in Clallam County  
2019-2023**

September, 2018  
Revision 2



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## 1.0 Introduction

The Olympia oyster (*Ostrea lurida*) is the only native oyster of the North American Pacific Coast and once thrived in coves, inlets and other protected tidelands in Puget Sound. Olympia oysters have been listed as a candidate species by the Washington Department of Fish and Wildlife (WDFW) since 1997<sup>1</sup>. Although Olympia oysters occur throughout their historic range their relative abundance has been drastically reduced to an estimated 4% of historic core populations due to a combination of over harvesting, pollution and non-native oyster cultivation.

The Clallam County Marine Resources Committee (Clallam MRC), Jamestown S’Klallam Tribe (JST) and Puget Sound Restoration Fund (PSRF) are working together to restore Olympia oysters in Clallam County with a focus on Sequim Bay. The effort is part of a larger goal underway to restore 100 acres of Olympia oyster habitat in the Puget Sound area by 2020.

In 2012 one acre of JST tidelands in Sequim Bay near Blyn was dedicated to Olympia oysters. Grow-out bags with approximately 6,200 Olympia oyster seed were planted on the tidelands and the following year seeded cultch bags with approximately 500,000 oysters were spread onto the tidelands. In 2014 seeded cultch bags with approximately 250,000 seed were spread on to an additional half acre of tidelands making the total restoration site 1.5 acres.

The successful restoration effort on Jamestown’s tidelands prompted Clallam MRC and their partners to search for other potential restoration sites in Sequim Bay. Several potential sites in Sequim and Dungeness Bay were investigated. Site assessments were conducted at Dungeness Farm and Washington Harbor and test plots were established at Pitship Point and Cline Spit. The test plots at both locations revealed that these sites were not suitable for Olympia oyster restoration because of exposure to wave and wind action. In addition, the Dungeness Farm site was deemed too exposed and sites in Washington Harbor were either too close to eelgrass beds or the landowners were not interested in allowing Clallam MRC access to their tidelands. The newly restored Dawley Road property was another potential site and in September 2017 Clallam MRC submitted a Special Use Permit to the US Fish and Wildlife Service asking for permission to establish two test plots at their Dawley Road property in Sequim Bay. In September 2018 Clallam MRC received the Special Use Permit. Installation of test plots at the Dawley Road site is planned to take place October 5, 2018.

In May 2018 the JST proposed using a parcel of tidelands that they lease from WA Department of Natural Resources (DNR) at the head of Sequim Bay. The site is approximately 700 ft. east of

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<sup>1</sup> Blake, B., & Bradbury, A. Washington Department of Fish and Wildlife Plan for Rebuilding Olympia Oyster (*Ostrea lurida*) Populations in Puget Sound with a Historical and Contemporary Overview. Washington Department of Fish and Wildlife.

the current restoration site and covers an area of  $\frac{1}{2}$ - $\frac{3}{4}$  acre or acres. At the May 2018 meeting the Clallam MRC agreed to pursue this site as the new restoration site.

## **2.0 Project Goals and Objectives**

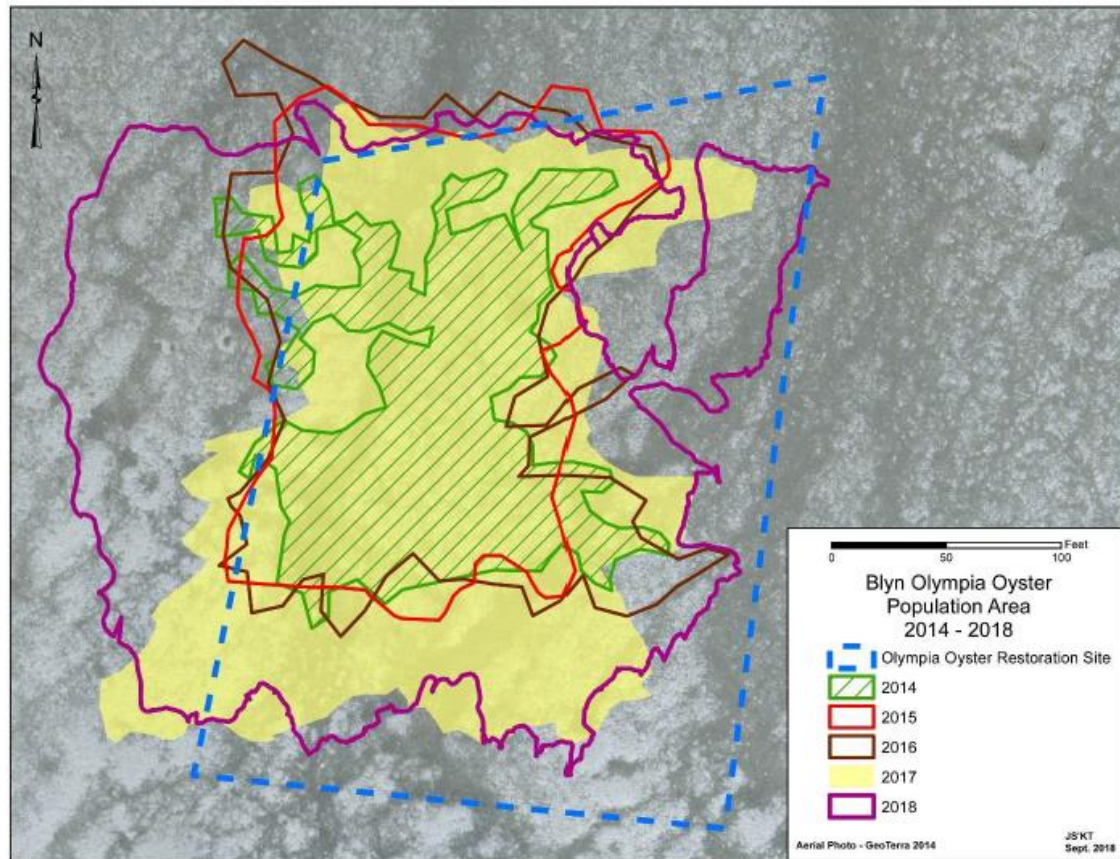
The overall goal is to expand Olympia oyster populations in habitats where Olympia oysters historically thrived in Clallam County. This restoration plan identifies the following objectives to be accomplished within the next five year:

- Continue documenting the population growth at the 1.5 acres site on JST tidelands.
- Add seeded cultch and clean shells as needed to the 1.5 acre site with the goal of having the Olympia oyster bed covering the 1.5 acres by year 2022.
- Initiate population surveys at the  $\frac{1}{2}$  -  $\frac{3}{4}$  acre site on the leased DNR tidelands and continue the surveys during the next five years.
- Add seeded cultch and clean shells as needed to the  $\frac{1}{2}$  -  $\frac{3}{4}$  acre site with the goal of having the Olympia oyster bed covering the site by year 2023.
- Establish two test plots at the Dawley Road site in the fall of 2018 and assess the suitability of the site the following spring.
- Continue the search for other suitable Olympia oyster restoration sites in Clallam County.

## **3.0 Approach for Restoration at JST Tidelands**

The restoration effort at the JST tidelands in Blyn was initiated in 2012 and the effort is on track to reach the goal of having restored Olympia oysters in the dedicated 1.5 acres site. In 2018, the area of the Olympia oyster bed was observed to cover an area of 1.5 acres. Compared to previous years, the oyster bed appeared to expand west of the restoration site boundary. For consistency with previous population surveys the 2018 survey was only conducted within the bounds of the 1.5-acre restoration site, and therefore, a sizeable proportion (~0.5 acres) of the Olympia oyster bed was not sampled because it fell outside of the restoration site boundary (Figure 1). The 2018 Olympia oyster population estimate within the Jamestown restoration site is 19,429 individuals. A mean density of 3.7 oysters per  $m^2$  was calculated for the entire 1.5-acre restoration site and a mean density of 4.7 oysters per  $m^2$  was calculated within the sampled oyster bed area (~1.05 acres). Olympia oysters exhibit a high-level patchiness, even within the identified oyster bed area, resulting in the low mean density due to the large number “zero” observations. Overall, the 2018 survey results indicate that restoration efforts have generally been successful at the Jamestown site as Olympia oysters appear to be surviving, growing, reproducing and expanding the population (Figure 1).

For the next five years the JST shellfish biologists will continue to lead the restoration effort. Population surveys will be conducted every summer following the approach established by the JST shellfish biologists. Seeded cultch and clean shells will be added as needed with the goal of having the Olympia oyster bed covering the 1.5 acres restoration site by year 2022.



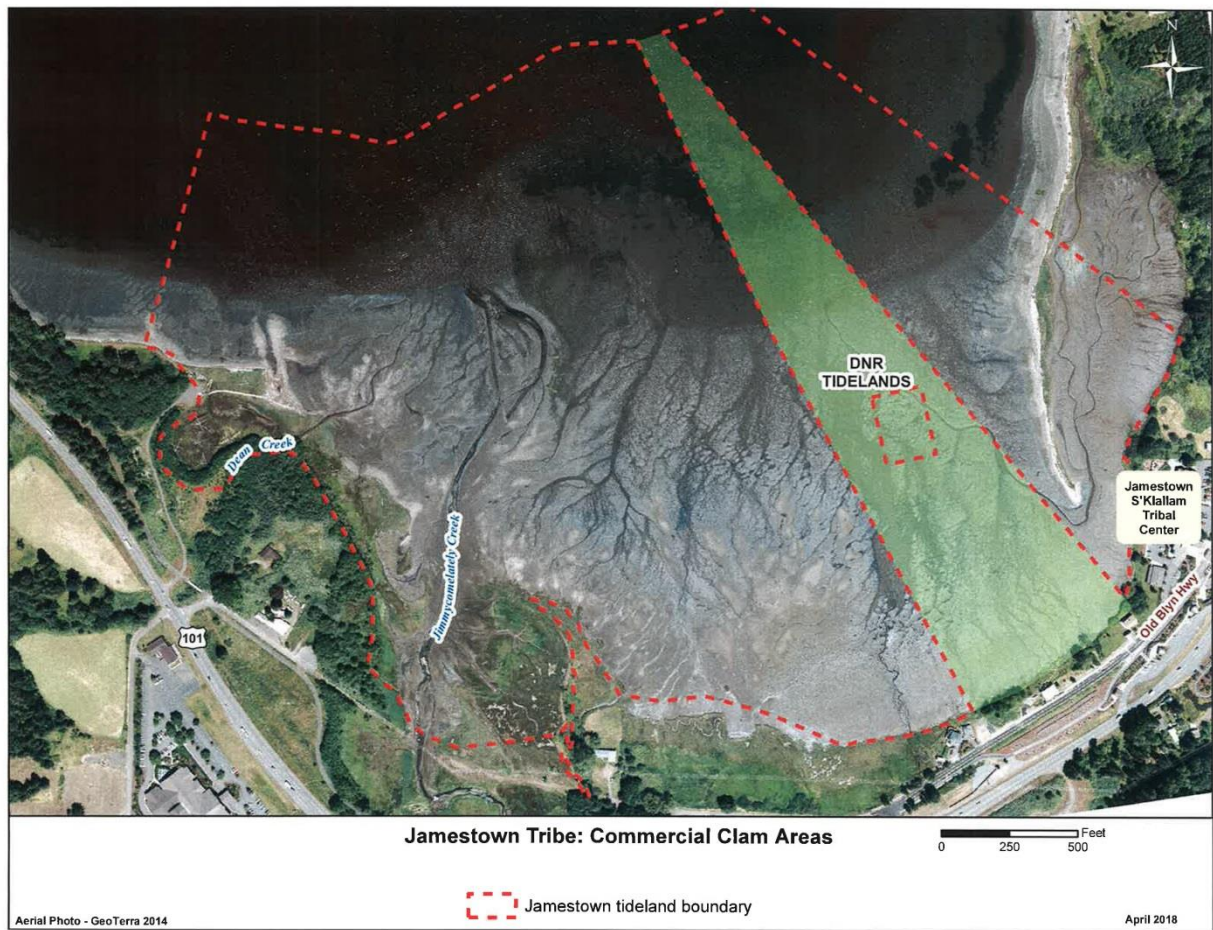
**Figure 1:** Estimated size of the Jamestown Olympia oyster bed in 2014, 2015, 2016, 2017 and 2018.

JST, Clallam MRC and PSRF will continue to collaborate with WDFW and other organizations and agencies focused on restoring Olympia oysters in Puget Sound to ensure that our survey methods and restoration approach, in general, comply with the methods and approach used at other restoration sites in Puget Sound.

#### **4.0 Approach for Restoration at the New DNR Leased Site**

In May 2018 the JST proposed using a parcel of tidelands that they lease from WA Department of Natural Resources (DNR) at the head of Sequim Bay (Figure 2). The site is approximately 700 ft. east of the current restoration site. At the May 2018 meeting the Clallam MRC agreed to pursue this site as the new restoration site.





**Figure 2.** Map of the new restoration site at the head of Sequim Bay. The dotted red square in the green area identified as DNR tidelands outlines the potential Olympia oyster restoration area.

On July 19, 2018 approximately 120 bags of seeded clutch were moved for the overwintering site to the new restoration site and on August 13<sup>th</sup> the bags were opened and the seeded shells spread at the site.

Population surveys at the new site will be initiated in the summer of 2019 and conducted annually following the approach established by the JST shellfish biologists. Seeded cultch and clean shells will be added as needed with the goal of having the Olympia oyster bed covering the  $\frac{1}{2}$  -  $\frac{3}{4}$  acres by year 2023.

## 5.0 Approach for Identifying Additional Restoration Sites

As outlined in the previous 5-year plan it has been difficult to identify potential restoration sites in Sequim and Dungeness Bay. During two years of searching Clallam MRC and its partners were not able to find a suitable site with landowners willing to permit access to their tidelands until

JST offered the leased DNR site. However, the newly restored Dawley Road property may prove to be another potential site. In September 2017 Clallam MRC submitted a Special Use Permit to the US Fish and Wildlife Service asking for permission to establish two test plots at their Dawley Road property in Sequim Bay. In September 2018 Clallam MRC received the Special Use Permit and In the fall of 2018 Clallam MRC will establish the two test plots and assess the suitability of the site the following spring based on survival and growth.

One issue that emerged when visiting the Dawley Road site was identifying the size of the potential restoration site given habitat limitations present at the site such as suitable substrate and seeps and the distribution of eelgrass beds. In working with Jefferson MRC the WDFW has stated that a restoration site, when initiated, has to be at least 25 ft. from an eelgrass bed. That requirement would limit the size of the restoration site to a narrow band along the shore at a site like the Dawley Road property with a contiguous eelgrass bed near the 0 tidal elevation.

Based on this limitation Clallam MRC and JST shellfish biologists agreed to consider and/or explore a different approach at such sites starting with the Dawley Road property. The approach would entail establishing smaller areas of Olympia oysters along the shore to function as a supply of seed and then let the oysters populate the surrounding areas instead of establishing a given size of the restoration site.

Other site may be identified during the five years using the following steps:

- 1) Identify a potential restoration site based on knowledge of the historical distribution of Olympia oysters and reviewing maps
- 2) Contact the appropriate landowner to gain permission to access the tidelands
- 3) Perform a site visit to access the suitability of the habitat
- 4) If deemed suitable acquire permission by the landowner to establish two test plots
- 5) Monitor the test plots, usually over the winter, for survival and growth
- 6) Determine the suitability based on survival and growth
- 7) If site is deemed suitable identify the size of the restoration site in collaborating with the landowner
- 8) Initiate the restoration effort by placing seeded cultch and clean shells.



## 6.0 References

1. Blake, B., & Bradbury, A. Washington Department of Fish and Wildlife Plan for Rebuilding Olympia Oyster (*Ostrea lurida*) Populations in Puget Sound with a Historical and Contemporary Overview. Washington Department of Fish and Wildlife, 25 pp.

## 7.0 Appendices

### Appendix A. Glossary and Acronyms

Clean shell	shells, most often Pacific oysters, without any live organisms attached
m <sup>2</sup>	Square meter
JST	Jamestown S’Klallam Tribe
MRC	Marine Resources Committee
PSRF	Puget Sound Restoration Fund
Seeded cultch	Shells, most of Pacific oyster shells, with newly settled oysters
WDFW	Washington Department of Fish and Wildlife
USFWS	US Fish and Wildlife Service