

From: [Ralph Riccio](#)
To: [BrownScott, Jennifer](#)
Subject: Project Proposal
Date: Wednesday, June 1, 2016 11:41:33 AM
Attachments: [Compatibility Determination Proposal.docx.pdf](#)
[JamestownDungShellfishFarmMap.pdf](#)
Importance: High

Hello Jennifer,

Here is the project details form you asked for in April. Please let me know if you have any questions. I look forward to getting your feedback and finding a path that works well for both parties.

Thank you.

Ralph

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Jamestown S’Klallam Tribe Dungeness Shellfish Farm

Project Proposal for Dungeness Wildlife Refuge

Oyster Cultivation

On-Bottom Beach Oysters are oysters which are raised on tidal beaches with muddy, sandy or rocky bottoms. Seed oysters (<1”) are distributed over the substrate and involves staking down a mesh predator net over the oysters to prevent the seed from being washed away. The net is removed when the oysters reach a larger size, within 90-120 days. Weather and UV exposure cause nets to degrade quicker, nets will not remain on the beach longer than necessary. Most of the on-bottom beach oysters will be growing freely on the substrate with no need for equipment. Oysters grow out for approximately 14 months, then are harvested by hand and placed into oyster baskets. Oyster baskets are wire containers that can be lifted onto a vessel like a crab pot. Surplus harvest will be brought to the **Product Storage** area at the deepest part of the parcel where it can be retrieved by vessel at high tide. This will reduce the number of low tides workers will be present on the beach between harvests.

- *Up to 25 acres*
- Species: *Crassostrea gigas*
- Location within lease area: *See map*
- Size of net and mesh: *15’ x 50’ with .5 inch mesh*
- Density of nets, lines, cages, bags: *135 nets/acre*
- Is access by land required for setup, maintenance, or harvest? *No*
- Where are totes being stored? *Off the project site.*
- How are the oysters and nets secured/staked – density, height of stakes, nets and lines above ground. At what tidal elevations are they out of the water?: *The oyster seed will be secured with predator exclusion netting. The netting will be secured with 12-20 rebar staples. The nets and staples will be situated at substrate level (+3 to -2.5 foot tide elevation) and will not be exposed more than the original substrate elevation.*
- A better description of all of the equipment necessary for each method (i.e., describe what I am seeing in the pictures): *See above*

Predator Exclusion Netting



Oyster Basket



May 31, 2016

On-bottom Beach Oysters with no equipment



May 31, 2016

On-Bottom Flip Bags are used to grow oysters in mesh bags which are attached to a line and anchored to the substrate. Oysters will also grow out for either 14 months in the bags or be spread onto the beach after reaching a larger size.

- Up to 25 acres
- Species: *Crassostrea gigas*
- Location within lease area: *See map*
- Size of net and mesh: *None*
- Density of nets, lines, cages, bags, etc.: *6,000 bags/acre*
- Is access by land required for setup, maintenance, or harvest? *No*
- Where are totes being stored? *Off the project site.*
- How are the oysters and nets secured/staked – density, height of stakes, nets and lines above ground. At what tidal elevations are they out of the water. *Screw anchors are used to secure a rope to the bottom. Plastic mesh oyster bags are attached to the rope on one side. The opposite side of the bag is raised above the substrate about 20 inches and will be exposed at approximately a 2 foot tide elevation.*
- A better description of all of the equipment necessary for each method (i.e., describe what I am seeing in the pictures): *Mesh bags filled with oyster seed are secured to the bottom using a line strung through a ½ inch PVC pipe with a slit in it the long way to hold the bag closed. Metal screw anchors are used to hold the line of bags in place. The bags must be flipped by hand at least twice a month to stop the oysters from attaching to each other and the bag.*



	Dates (approx. range mo/yr)	Duration of site visit (#hrs/day/# days)	# People on site/day	Tidal Range for site visit	Chemical treatments of shellfish or habitat? Substance, dose, frequency, etc.)
Set up	Year Round	4-6 hours/4-20 days	20	+1 to -2.5	None
Maintenance	Year Round	4-6 hours/4-20 days	8	+1 to -2.5	None
Harvest	Year Round	4-6 hours/4-20 days	20	+1 to -2.5	None

May 31, 2016

Geoduck Cultivation

Continue with geoduck test farming in $\frac{1}{4}$ acre of the project site in the **Geoduck area**. PVC tubes six inch in diameter, and up to 12" in length will be placed into the mud at a density of 1 per square foot (approximately 10,000 tubes). Three to four geoduck seed will be planted in each tube. 15 x 50 foot predator exclusion nets will be used to cover the tubes and will be held in place by rebar stakes. Tubes will be removed approximately 2 years after planting an area and geoduck will be sampled periodically for growth rate and quality.

- Location within the lease area: *The Geoduck area is the lowest tidal elevation and most Southern $\frac{1}{4}$ acre of the project site.*
- Results of previous testing: *NA*
- Acreage and location of previous testing: *NA*
- How are the nets secured: *Rebar stakes*
- What is the mesh size of the nets: *Thirty five 15x50 foot $\frac{1}{2}$ inch mesh*
- What is the process for net removal: *Pull out rebar, bundle the nets and load them onto barge.*
- How are the geoduck harvested?: *Geoduck are harvested by divers at high tide.*
- It is stated that there is periodic sampling. When, how? *Every two years geoduck will be sampled for quality and growth rate.*



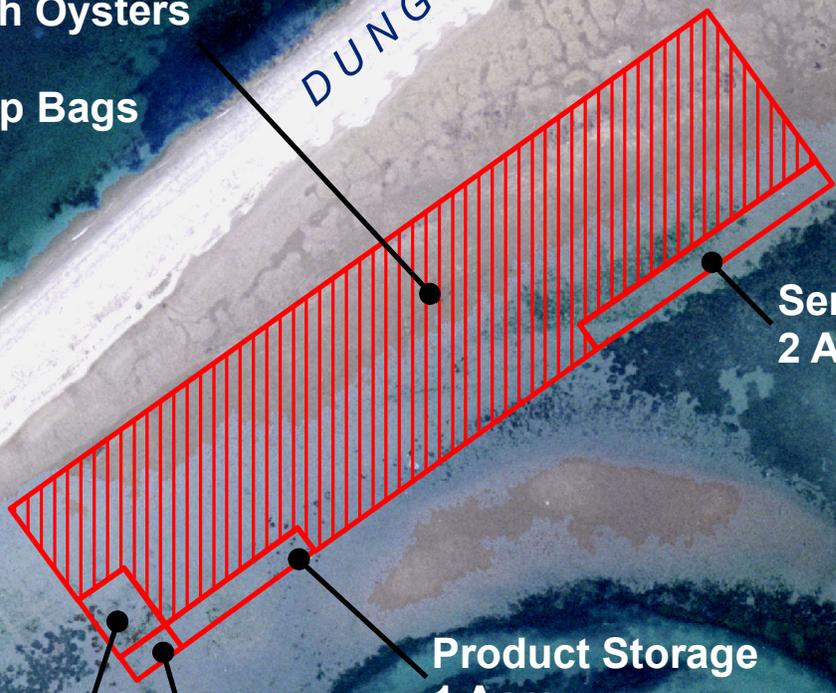
General

- What is the definition of sensitive area as labeled on the site map? *The sensitive areas on the map depict possible eelgrass habitat. Once vegetation is mapped and presence of eelgrass is determined, it will be verified if the areas need to be avoided.*
- How will marine debris be monitored and removed?: *All unused gear will be removed from the project site. Patrols of the surrounding shoreline will take place weekly.*



DUNGENESS SPIT

Combination:
On-bottom Beach Oysters
and
On-bottom Flip Bags



Sensitive Area
2 Acres

Product Storage
1 Acre

Sensitive Area
1 Acre

Geoduck Area
1/4 Acre

*Dungeness
Bay*

Jamestown S'Klallam Tribe
Dungeness Shellfish Farm

