“Comparisons of Possible Sites for a new Aquaculture Farm in the San Juan Islands Area”
Meadowdale Middle School
Spring, 2016

Presenters: Audrey Davies, Ben Hawkins, Ceclie Kinman, Hannah Singer
Our Mission:

Taylor’s Seafood Company has hired us to find the best site to place an aquaculture farm in the San Juan Islands area.
Overview of Two Species for Aquaculture...

**Pacific Oyster**
- Native to Japan
- 1-3 years to develop to market size
- 1.5-3 inches long
- $10/pound value
- 98% of world’s oyster production!
- Generally do not produce pearls.

**Geoduck**
- Native to our region
- Name means “dig deep” (Nisqually tribe)
- Siphon can be 3-6 ft, up to 15 pounds!
- Among oldest living animals (168 years old!)
- $10/pound in US, $40/pound in China
Cool Science Materials We Used:

- Plankton Nets
- Niskin Bottle
- Sediment Sifter
- Secchi Disk
- Probes (Temperature, Dissolved Oxygen, pH)
- Refractometer
Methods/Procedure

- Sailing team navigates to deployment site
- Deploy plankton nets at 10 meters for a 3-minute tow. Settle plankton to measure biomass.
- Collect water sample using niskin bottle at 10-meter depth.
- Deploy secchi disk to measure water clarity.
- Use probe to measure water temperature, pH, and dissolved oxygen of sample water.
- Use refractometer to measure salinity of water sample
- Collect and sift a sample of the sediments.
- Record all data for analysis.
RECOMMENDATIONS:
- Prevost Harbor is best for Geoduck.
- Speiden Island is best for Pacific Oyster
Salinity Data (p.p.t.)

Recommendations:
- The best place for Geoducks would be Speiden Island.
- The best place for Pacific Oyster would be Deer Harbor or Prevost Harbor.
Acidity of Water

Recommendations: Speiden Island and Prevost Harbor sites are best for both species (Pacific Oyster and Geoduck).
Recommendations:
Prevost Harbor is best for both Geoduck and Pacific Oyster, though most sites were close in dissolved oxygen.
Plankton Tow at 10 Meters

Recommendations:
Since the more food the better, Sucia Island is by far the best site for both species.
## Sediments/Substrates

<table>
<thead>
<tr>
<th>Location</th>
<th>Sediment</th>
<th>Ideal Geoduck</th>
<th>Ideal Pacific Oyster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sucia Island</td>
<td>Sand and small rocky gravel</td>
<td>Sand, Mud</td>
<td>Rock</td>
</tr>
<tr>
<td>Prevost Harbor</td>
<td>Rocks</td>
<td>Sand, Mud</td>
<td>Rock</td>
</tr>
<tr>
<td>Sinclair Island</td>
<td>Fine Sand</td>
<td>Sand, Mud</td>
<td>Rock</td>
</tr>
<tr>
<td>Deer Harbor</td>
<td>Fine Sand/Silt</td>
<td>Sand, Mud</td>
<td>Rock</td>
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<tr>
<td>Speiden Island</td>
<td>Mud and Rocks</td>
<td>Sand, Mud</td>
<td>Rock</td>
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</tbody>
</table>

**Recommendations:** Deer Harbor and Sinclair best for Geoducks. Prevost Harbor is best for Pacific Oysters.
## Overall Best Location for Pacific Oyster Farm

<table>
<thead>
<tr>
<th>Location</th>
<th>Temp</th>
<th>Salinity</th>
<th>Amount of Plankton</th>
<th>Dissolved Oxygen</th>
<th>Water Acidity (pH)</th>
<th>Sediment/Substrate</th>
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<tbody>
<tr>
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## Overall Best Location for Geoduck Farm:

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Overall Best Site

Prevost Harbor for Geoducks

Prevost Harbor for P. Oyster
ANY QUESTIONS?