Public Perception of Shellfish Farming in the Pacific Northwest: A Regional Perspective

Bobbi Hudson (PSI), Danna Moore (WSU), and Thom Allen (WSU)
Shellfish & Environment Research Symposium, Lacy, WA
December 8, 2014
Take home facts

1. Citizen knowledge about shellfish farming is limited
2. Opinion is generally favorable
3. Local food and local jobs are key
Research Purpose

1. Support marine spatial planning

2. Help decision-makers understand the social dimensions of shellfish aquaculture
   – Increase understanding and support for shellfish aquaculture
   – Enhance sustainable development of shellfish aquaculture

3. Support NOAA’s National Shellfish Initiative, and state level Shellfish Initiatives
Survey Method

• Random selection of 400 residential addresses from each of 10 counties in 3 states

• Goal of collecting 100-200 surveys from each county

• Analyze results at
  – county level
  – state study area
  – overall study area

• Post-stratification weights based on # of households in the state-area and overall study area results
### Shellfish Farming & Your Community Survey

<table>
<thead>
<tr>
<th>Study Area</th>
<th>Sample size</th>
<th>Completed Surveys</th>
<th>Response Rate</th>
<th>Sample Error*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Study Area</td>
<td>4,000</td>
<td>1,250</td>
<td>34%</td>
<td>±3%</td>
</tr>
<tr>
<td>Washington Area</td>
<td>2,400</td>
<td>770</td>
<td>35%</td>
<td>±4%</td>
</tr>
<tr>
<td>Skagit</td>
<td>400</td>
<td>129</td>
<td>34%</td>
<td>±9%</td>
</tr>
<tr>
<td>Kitsap</td>
<td>400</td>
<td>131</td>
<td>36%</td>
<td>±9%</td>
</tr>
<tr>
<td>Pacific</td>
<td>400</td>
<td>150</td>
<td>42%</td>
<td>±9%</td>
</tr>
<tr>
<td>Thurston</td>
<td>400</td>
<td>125</td>
<td>33%</td>
<td>±9%</td>
</tr>
<tr>
<td>Pierce</td>
<td>400</td>
<td>109</td>
<td>29%</td>
<td>±9%</td>
</tr>
<tr>
<td>Mason</td>
<td>400</td>
<td>126</td>
<td>35%</td>
<td>±9%</td>
</tr>
<tr>
<td>Oregon Area</td>
<td>800</td>
<td>282</td>
<td>38%</td>
<td>±6%</td>
</tr>
<tr>
<td>Tillamook</td>
<td>400</td>
<td>145</td>
<td>39%</td>
<td>±9%</td>
</tr>
<tr>
<td>Coos</td>
<td>400</td>
<td>137</td>
<td>37%</td>
<td>±9%</td>
</tr>
<tr>
<td>California Area</td>
<td>800</td>
<td>198</td>
<td>26%</td>
<td>±7%</td>
</tr>
<tr>
<td>Humboldt</td>
<td>400</td>
<td>103</td>
<td>27%</td>
<td>±9%</td>
</tr>
<tr>
<td>Marin</td>
<td>400</td>
<td>95</td>
<td>24%</td>
<td>±9%</td>
</tr>
</tbody>
</table>

*Sampling error* occurs when the statistical characteristics of a population are estimated from a subset of that population.
Thank you so much for responding to this important survey.

As our state economies continue to grow, the protection and wise management of our natural resources, like our saltwater tidal areas and beaches, becomes increasingly more important. The Pacific Shellfish Institute, a private, non-profit organization in Olympia, Washington, has made it their mission to do just that. Since 1995 PSI has been providing research and information to local, statewide and national policy makers in order to encourage the growth of sustainable shellfish resources within a healthy marine environment.

PSI has teamed up with researchers at Washington State University in order to better understand the values of West Coast residents regarding shellfish farming and aquaculture. Your address was one of just a few in California, Oregon and Washington coastal counties randomly selected to participate in this study. Because your responses to this short survey represent so many others in your community, it is very important that you complete it. Your household cannot be replaced in the study.

Please have the adult, age 18 or older, living at this residence with the most recent birthday complete the survey. Any information you provide will remain confidential. Your answers will be combined with those of other survey participants so that individual answers cannot be identified in the results. Also, maintaining confidentiality is extremely important to the success of our research center, because we conduct many surveys. Thus, we are very careful to adhere to these policies and protect your privacy.

Bobbi Hudson
Executive Director
Pacific Shellfish Institute

Please enter the Access Code that was on the message we sent to you.
Survey Deployment & Response Rate

- 652 web completes
- 598 paper completes (29 refusals)
- 267 addresses were non-residents (removed from the sample)
- Resulting in 34% response rate
How familiar are you with the practice of shellfish aquaculture?
Have you ever seen a shellfish aquaculture farm?

- No
- Yes
- Don't know
Is there commercial shellfish harvest within view of your home?

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA Counties †</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR Counties †</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WA Counties †</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
How much do shellfish aquaculture farms enhance or detract from the scenery of coastal areas?

- Greatly detracts
- Somewhat detracts
- Neither detracts nor enhances
- Somewhat enhances
- Greatly enhances
If you were looking to purchase waterfront property, what effect would having commercial shellfish harvest within view of your home have on your decision?

[Bar chart showing responses for CA, OR, and WA counties]

- Very negative
- Somewhat negative
- No effect
- Somewhat positive
- Very positive
- Don't know

CA Counties:

OR Counties:

WA Counties:
Thinking about the saltwater areas near this residence, how would you rate each of the following?

- Environmental health of ocean or coastal water
- Salmon populations
- Shellfish populations
- Access to the water and water-related activities

[Bar charts showing ratings for each category with color-coded sections for poor, fair, good, excellent, and don't know]
What type of impact do you think shellfish aquaculture farms have on the environment?

- Very negative
- Somewhat negative
- Neither positive nor negative
- Somewhat positive
- Very positive
- Don't know

Nutrient Removal by Shellfish:
- Filter feeding
- Phytoplankton and other organic matter
- Excretion
- Removal through harvest
How much of your info on health of local marine waters comes from these sources?

- None    A Little    Some    Most    All

Other
Non-profits
Government agencies
Your work
Friends and family
Other news media (blogs)
Television news
Newspaper
How much of a benefit do you believe shellfish aquaculture brings to each of the following?

- Drawing visitors to coastal areas
- Providing tourism opportunities
- Creating habitat for other marine life
- Improving water quality
- Relieving pressure on wild fisheries
- Providing locally produced seafood
- Creation of jobs
- Improving the local and state economy

- No Benefit
- Slight Benefit
- Moderate Benefit
- Great Benefit
- Not sure
Thinking about those industries in your state, how favorable or unfavorable are you toward each?

- Not at all favorable
- Very favorable
- Slightly favorable
- Extremely favorable
- Moderately favorable

- Oil and gas
- Commercial fishing (wild)
- Fish farming
- Shellfish farming
- Dairy
- Soil farming (fruits, vegetables, grains)
Is the information you receive about shellfish aquaculture mostly negative, neutral, or mostly positive?

- Mostly negative
- Neutral
- Mostly positive
- An equal mix of positive and negative
- Have never received information about shellfish aquaculture
Which method would you prefer if you were to receive more information concerning local shellfish aquaculture?

- Local Meetings/Workshops
- Presentations or Booths
- Newspaper
- Television
- Websites
- Mailings/Newsletters
- Email/Listservs
How much of the oysters, clams, and mussels sold commercially in your state do you think comes from aquaculture as opposed to what is harvested in the wild?

- None of it
- About 25%
- About 50%
- About 75%
- All of it
Do you or any member of your household eat shellfish such as oysters, clams, or mussels?
How often do members of your household eat oysters, clams or mussels, either at your home or in restaurants?

- Less than two times a year
- Every few months
- Once a month
- Several times a month
- Several times a week
Why don’t you or your household eat shellfish?

<table>
<thead>
<tr>
<th></th>
<th>Taste</th>
<th>Allergies</th>
<th>Expense</th>
<th>Knowledge About Cooking Them</th>
<th>Other Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA Counties †</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR Counties †</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WA Counties †</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
How interested are you in buying oysters, clams or mussels directly from shellfish growers in your area?
thank you!

Bobbi Hudson
(360) 754-2741
bobbi@pacshell.org

Survey Development Team

- Danna Moore, WSU Social & Economic Research Center
- Thom Allen, WSU Social & Economic Research Center
- Teri King, WA Sea Grant/University of Washington
- David Landkamer, OR Sea Grant/Oregon State University
- Paul Olin, CA Sea Grant/Scripps Institution of Oceanography
- David Fyfe, Northwest Indian Fisheries Commission (NWIFC)
- Bill Dewey, Taylor Shellfish

Funding: WA Sea Grant, via NOAA award #NA14OAR4170078
A residential and stakeholder survey regarding oyster, clam and mussel farming in Washington, Oregon and California.

Background
This is a mixed-mode, web-mail survey project conducted in specific coastal counties of Washington, Oregon and California. The social science study will involve two separate surveys, one to residents and another to stakeholders in the shellfish industry. The surveys will attempt to measure levels of support for continued or expanded shellfish aquaculture and what the implications may be for aquaculture planning and development.

The surveys are funded under two separate grants retained by the Pacific Shellfish Institute from the NOAA. The grants are:

1. Planning for sustainable shellfish aquaculture in complex multiple use environments (click here)
2. Planning for Sustainable Shellfish Aquaculture: Identifying Current Activities, Public Perceptions, Conflicts, and Compatibilities (click here)

The survey work represents just a portion of the total investigatory activities funded under these grants.

Study Population and Sample
How long have you owned your waterfront property?

- Less than a year
- At least 1 year but < 5 years
- At least 5 years but < 10 years
- At least 10 years but < 20 years
- More than 20 years
How important is each of the following in your decision to live or stay at this residence?

- The recreational opportunities here
- Proximity to family
- Your historic or cultural ties to the area
- Natural beauty of the environment
- Your job

Options from most important to least important: Not at all important, Slightly important, Moderately important, Very important, Extremely important.
## Quantitative Design

<table>
<thead>
<tr>
<th>Study Area</th>
<th>Population</th>
<th>Adults</th>
<th>Households</th>
<th>Sample size</th>
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</thead>
<tbody>
<tr>
<td><strong>Total Study Area</strong></td>
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<td>1,519,653</td>
<td>862,187</td>
<td>4,000</td>
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<tr>
<td><strong>Washington Area</strong></td>
<td>1,498,350</td>
<td>1,140,538</td>
<td>640,462</td>
<td>2400</td>
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<td>Skagit</td>
<td>118,109</td>
<td>89,164</td>
<td>51,473</td>
<td>400</td>
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<tr>
<td>Kitsap</td>
<td>251,133</td>
<td>194,637</td>
<td>107,367</td>
<td>400</td>
</tr>
<tr>
<td>Pacific</td>
<td>20,920</td>
<td>17,172</td>
<td>15,547</td>
<td>400</td>
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<tr>
<td>Thurston</td>
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<td>194,142</td>
<td>108,182</td>
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<td>Pierce</td>
<td>795,225</td>
<td>597,098</td>
<td>325,375</td>
<td>400</td>
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<tr>
<td>Mason</td>
<td>60,699</td>
<td>48,325</td>
<td>32,518</td>
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<tr>
<td><strong>Oregon Area</strong></td>
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<td>71,358</td>
<td>48,952</td>
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<tr>
<td>Tillamook</td>
<td>25,250</td>
<td>20,245</td>
<td>18,359</td>
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<tr>
<td>Coos</td>
<td>63,043</td>
<td>51,113</td>
<td>30,593</td>
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<td><strong>California Area</strong></td>
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<td>307,757</td>
<td>172,773</td>
<td>800</td>
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<tr>
<td>Humboldt</td>
<td>134,623</td>
<td>107,562</td>
<td>61,559</td>
<td>400</td>
</tr>
<tr>
<td>Marin</td>
<td>252,409</td>
<td>200,195</td>
<td>111,214</td>
<td>400</td>
</tr>
</tbody>
</table>
Which of the following best describes your political beliefs or values?

- Very conservative
- Conservative
- Moderate
- Liberal
- Very liberal
- Other

WA Counties
OR Counties
CA Counties