

# **Perceptions and Values of Shellfish Stakeholders**

*Prepared for*

**Washington Sea Grant  
And  
Pacific Shellfish Institute**

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Prepared by



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# 1 Introduction

In April 2009, the Northern Economics team conducted four stakeholder focus groups in Oakland Bay, Liberty Bay, Drayton Harbor, and Totten Inlet. We held focus groups in neutral locations from 5:00 to 7:30 p.m. with refreshments provided. The purpose of these focus groups was to learn more about stakeholder objectives, perspectives, and values as related to shellfish production and restoration in Puget Sound. We selected and invited participants with assistance from Washington Sea Grant, Puget Sound Restoration Fund, Washington Department of Ecology, and Pacific Shellfish Institute staff. Participants covered a range of stakeholder groups including NGOs, the Tribes, shellfish growers and commercial harvesters, recreational shellfishers, shoreland property owners, non-shoreland residents, and state, local, and federal agency representatives. We attempted to get representation across all stakeholder groups in order to maintain objectivity and breadth of concerns and perspectives (please see Appendix A for a complete list of stakeholder names and affiliation).

We based each focus group on five questions to guide and structure the discussion:

1. What are your overall perceptions, objectives, and values regarding shellfish harvest and or restoration?
2. What do you view as the benefits of shellfish production and or restoration?
3. What do you view as the costs or consequences of shellfish production and or restoration?
4. What would you like the future of shellfish production and or restoration to be in your community?
5. What do you think are some of the tradeoffs that are necessary to meet all goals and objectives? Given a particular benefit would you be willing to pay for more of it? (e.g., would you be willing to pay an environmental quality tax?)

A professional facilitator posed the questions and carefully controlled the following discussion so as not to fall into active debate. In general, participants were very willing to engage and provided us with clear and concise responses. There was little interruption by the facilitator unless clarification of a comment was needed. Project team members present at the focus groups were asked to restrain from offering input. At the conclusion of the session, participants were thanked and asked if they would be willing to participate in a very short email survey and offered a copy of the synthesis of the focus groups upon its completion.

The following section outlines response to the questions asked and offers some comparison of concerns and values across the four focus groups. Section 3 offers a qualitative outline of all the costs and benefits as assessed through the other tasks which are part of our overall study scope.

## 2 Focus Group Responses

Tables 1 through 4 outline the responses to the questions listed above from each of the four focus groups (Oakland Bay, Liberty Bay, Drayton Harbor, and Totten Inlet).

### 2.1 Economic Benefits and Costs

In all focus groups, participants consistently mentioned positive economic impact as a significant benefit from shellfish production and restoration. Shellfish production and restoration both are seen to provide jobs in rural areas (including for Native Americans) where other natural resources jobs have disappeared, generate state revenue through shellfish harvest licenses and leases, and generally support the local economy and bring in outside dollars through tourism and export. Several participants in Oakland Bay indicated that the Oyster fest event in Mason County is an “incredible” fundraiser that supports many county programs. A participant in Totten Inlet also indicated that shellfish production provides a “green” industry to the region.

These same focus groups also noted, however, negative economic impacts of shellfish beaches related to increases in costs to commercial and residential property owners and home owners due to stringent water quality regulations and septic retrofit and maintenance, as well as perceived negative economic impacts on other industries such as fishing and tourism.

### 2.2 Social Benefits and Costs

All four focus groups noted the cultural benefits of oyster production and restoration. In some cases, “cultural” referred to the subsistence farming and ceremonial practices of the tribes, or even the “life and blood” of a tribe. In other cases “cultural” implied a more general sense of shellfish being a significant part of Pacific Northwest heritage. Participants felt that shellfish defines the community and is a source of pride. Others viewed shellfish as an icon, something that connects local people to the marine environment, and creates a positive national image of Washington State. In Drayton Harbor and Liberty Bay, shellfish restoration programs are thought to have led to numerous stewardship activities, community events and a chance to volunteer and contribute to the community. In all four focus groups participants suggested that shellfish production and restoration provides educational benefits, promoting awareness of the environment and an understanding of ecological linkages, and fosters stewardship and husbandry. Participants in Drayton Harbor and Liberty Bay stated that they feel that shellfish helps build connection between people, the shoreline and the uniqueness of the area, respectively. In Liberty Bay, property owners, in particular, indicated that shellfish restoration efforts give property owners a reason to care, a reason to search out less toxic alternatives, a reason to alter landscaping and home practices. In all four focus groups participants also viewed shellfish as providing recreational opportunities of significant value to individuals and families alike and a high quality and tasty source of food (locally and internationally). “We like eating shellfish.” Participants in Drayton Harbor feel a great sense of pride and that their oysters are considered to be the best in the world. Finally, participants in Oakland Harbor and Liberty Bay indicated that shellfish provide an excellent indicator of quality of life and human health.

**Table 1. Summary of Stakeholder Focus Group, Oakland Bay, April 22nd, 2009**

Overall perceptions	Benefits of shellfish	Consequences of shellfish	Future visions	Trade offs	Additional Comments	Key Points from focus group
<p>Tribal perception of aquaculture vs. natural shellfish harvest.</p> <p>Accessibility is important.</p> <p>Cultural importance.</p> <p>Economic importance regardless of native/non-native.</p> <p>Quality of life indicator</p> <p>Ecological services (WQ, CO2 and nutrient uptake, habitat, benthic-pelagic coupling).</p> <p>Political support – legislature</p> <p>Local jobs</p> <p>Environmental concerns</p> <p>Food production (esp. overseas)</p> <p>Perceptions; farming vs. extraction</p> <p>Sustaining resource – part of a larger ecosystem</p> <p>Import. For tourism: especially on public beaches.</p>	<p>Subsistence farming and ceremonial use</p> <p>Environmental/social justice issues</p> <p>Pleasure from shellfish consumption</p> <p>Oysterfest is a big event in Mason County: consumption, tourism, fundraiser for county, education.</p> <p>Shellfish is an icon and namesake</p> <p>Industry owners contribute to clean up (water quality and other pollution).</p> <p>Local economy is supported</p> <p>Mostly outside \$ coming into the community from extraction and tourism.</p> <p>State revenue from licenses.</p> <p>Fosters good stewardship.</p> <p>Upstream/downstream economic support</p> <p>Landowners lease the tidelands allowing them to remain on their property</p> <p>Sustaining a local food source</p> <p>Provide habitat /structure</p> <p>Nutrient uptake</p> <p>Investment in WQ</p> <p>Food web function</p> <p>Clean water provides other services</p>	<p>More stringent regulations</p> <p>Another land use conflict</p> <p>Have's vs. have not's – class wars</p> <p>Access denied in some areas</p> <p>Aesthetics/perceptions expectations vary.</p> <p>Natural disasters can impact tourism, harvest, all things connected to shellfish.</p> <p>Shell litter</p> <p>Requires working on/in the water</p>	<p>Closer working relationships (tribes, industry, etc.)</p> <p>Existing areas preserved and/or restored</p> <p>Future WQ levels support healthy shellfish consumption and communities.</p> <p>Shellfish industry embraced by policy makers.</p> <p>Pollution trading credits.</p> <p>Future is bleak: according to one participant. He "doesn't care".</p>	<p>Benefits: willingness to pay.</p> <p><u>Jobs</u>: Most feel that they are already paying in terms of jobs, time, and protection of resources.</p> <p><u>Revenue to community</u>: Would be willing to pay more to see no further closures.</p> <p>User should pay vs. consumer should pay: in reality, we all pay.</p> <p>Tribes do invest, but treaty rights relevant to property rights make this a complicated issue.</p> <p><u>Tradition</u>: people perceive that the beach is a public resource.</p> <p>Consequences: willingness to pay.</p> <p><u>Cost of enforcement</u>: We are already paying for some of this as well.</p>	<p>Concern: Toxics in the environment: what's being done about it?</p> <p>WA state tidelands are owned to the low tide mark, unlike most states. Makes public access challenging.</p>	<p>Group heavily dominated by shellfish growers. A few local governments and one resident.</p> <p>Shellfish harvest is a way of life for the community. Multi-generations.</p> <p>Economic backbone of community</p> <p>Not much concern about environmental consequences.</p> <p>Access and land ownership a source of conflict</p> <p>Would like more political support in the future</p>

**Table 2. Summary of Stakeholder Focus Group, Liberty Bay, April 23rd, 2009**

Overall perceptions	Benefits of shellfish	Consequences of shellfish	Future visions	Trade offs	Additional Comments	Key Points from focus group
<p>Sense of place and livelihood</p> <p>Aesthetic value</p> <p>Recreation opportunity</p> <p>Environmental and ecosystem diversity.</p> <p>Iconic: fundamental part of WA.</p> <p>Source of anxiety and contention – recreational harvest and private/tribal ownership of tidelands.</p> <p>Fosters stewardship and good husbandry</p> <p>Indicator of nearshore ecosystem health</p> <p>Cultural value</p> <p>Indicator of human health and of planning.</p> <p>Connection to shoreline/uniqueness of area.</p> <p>'What I don't know might harm me'</p>	<p>Stewardship/husbandry* is key to shellfish growth and recovery</p> <p>Monitoring is an essential</p> <p>Overall ecosystem benefit – protecting shellfish protects ecosystem</p> <p>Shellfish harvest drives cleanup efforts</p> <p>National image of shellfish from WA</p> <p>Coordination of planning in watersheds</p> <p>Could use benefits</p> <p>Connects people to the environment*</p> <p>Cultural/tradition*</p>	<p>Land use conflicts and tideland ownership* – working shellfish in tidelands can disturb land owners.</p> <p>Urbanization</p> <p>Aesthetics (negatives of shellfish growing)</p> <p>Restricted access</p> <p>Restoration costs* – individuals responsible for septic upgrades</p> <p>Waste material associated with aquaculture</p> <p>Property rights/equity issues.</p>	<p>Increase in recreational harvest.</p> <p>No expansion of the marina (local WQ issue)</p> <p>Diverse array of harvestable species</p> <p>No landowner conflicts</p> <p>Access to all</p> <p>Hard to imagine Liberty Bay w/out boats</p> <p>Practical suggestions (education/outreach) to schools, and homeowners.</p> <p>Zero discharge from all rec. boaters (legislation for this).</p> <p>Enforcement of regulations.</p> <p>Coordination of resources.</p> <p>All stormwater treated before discharge</p> <p>Broaden public perception</p> <p>Enhanced partnerships.</p> <p>Faulty septic &amp; sewer systems fixed.</p>	<p>Growth in Liberty Bay must address issues related to urbanization</p> <p>Culture of 'no new taxes' a challenge.</p> <p>WA has an environmental backbone – ethic</p> <p>Taxes (specific to shellfish) are not too popular if folks can't access the shoreline.</p>	<p>Comment: Could use the benefits of shellfish to encourage safe landscape management.</p>	<p>Mix of perspectives (Navy, growers, landowners, local governments)</p> <p>Shellfish growing good for the community and the environment</p> <p>Growth in Liberty Bay the biggest threat.</p> <p>Restoration costs are an issue – who should pay?</p> <p>Stormwater and boat discharge are challenging to tackle in Liberty Bay.</p> <p>Shellfish is a recreational and cultural tradition that should be available to all citizens.</p> <p>Homeowners need assistance in maintaining their tide lands and residential lands near the shoreline.</p>

**Table 3. Summary of Stakeholder Focus Group, Totten Inlet, April 30th, 2009**

Overall perceptions	Benefits of shellfish	Consequences of shellfish	Future visions	Trade offs	Additional Comments	Key Points from focus group
<p>Life and blood of Squaxin Island tribe.</p> <p>Green industry</p> <p>Sustainable: needs to be supported by science</p> <p>Source of jobs and income</p> <p>Indicator of watershed health</p> <p>High quality food source</p> <p>Heritage</p> <p>Trade and economy for nation and local communities.</p> <p>Source of pride</p>	<p>Habitat-forming</p> <p>Nitrogen removal</p> <p>Lease/rental income for landowners</p> <p>Livelihood for Squaxin Island Tribe</p> <p>Recreational opportunities</p> <p>Educational opportunities</p> <p>Jobs in rural areas where other natural resource jobs have disappeared.</p>	<p>Little data exists on the effects of shellfish on WQ and habitat</p> <p>Additional requirements on home owners of shellfish beaches</p> <p>Land use conflicts* - growth driven.</p> <p>Phytoplankton over consumption by commercial shellfish.</p> <p>Changes habitat quality and character for other species.</p> <p>Negative economic impacts to other industries (fishing, tourism)</p>	<p>Totten viewed as a reserve area for future harvest</p> <p>Shellfish harvest expands – economic and environmental. benefit to community</p> <p>Limited aquaculture until additional scientific information is available.</p> <p>More widespread community support (lessening of landuse conflicts; more community farms).</p> <p>Preserve natural shoreline</p> <p>Enhancement of native oysters</p> <p>Technology to allow for lower impacts to the environment</p> <p>Everyone involved in the debate has broader perspectives.</p> <p>Reinforce the view that there are numerous stressors on Puget Sound.</p> <p>Tighter regulations</p> <p>Co-existence</p>	<p>Who pays for science?</p> <p>Squaxin Island Tribe would hope everyone would say yes to paying more.</p> <p>Industry is paying now through voluntary shellfish closures and grants to home owners</p> <p>There needs to be a fee that benefits all species and harvest activities, not just shellfish.</p> <p>Removal of waste into PS is the responsibility of those who create the waste.</p> <p>Agriculture also an impact/ Need to address all impacts and inputs.</p> <p>Some will be willing to do the right things, others will need incentives.</p> <p>WQ not the only driver</p> <p>Need Ed/outreach on the wide range of sources of pollutants</p> <p>Conflicts over Puget Sound are over FUTURE expansion, not current harvest activities.</p> <p>Expanding the markets for shellfish does not necessarily mean expanding production.</p> <p>Geoduck market is inflated due to overseas market.</p> <p>Some shellfish products are perhaps “non-essential” food sources”</p> <p>In a global market, shellfish are a product that is essential – need to respond to the market.</p> <p>Squaxin Island Tribe used to “own” all the tidelands. They’d like to expand their harvest capability.</p> <p>Bush/Callow Act: require cultivation of shellfish on private land. Potentially the land could revert back to the state if not cultivated.</p>	<p>More science needed to understand the ecological impacts of shellfish on habitat and other species.</p> <p>When is enough science enough? How will we know everything about the ecosystem? Do we need to wait?</p> <p>Precautionary principal.</p> <p>Some data indicates that N removal benefits may not be supported in full by recent science.</p> <p>Comments from Pete: Puget Sound and British Columbia are the two places in the world where the views on shellfish harvest are considered negative.</p> <p>Pew and Packard (NGOs) have been spreading negative press about aquaculture.</p>	<p>Mix of commercial and tribal growers, and local go, NGOs.</p> <p>Lack of science a strong theme during discussion. How much is enough?</p> <p>Strong feelings on both sides: shellfish are good for the ecosystem, and shellfish harm the ecosystem.</p> <p>Important cultural and community resource.</p> <p>Expansion is a thorny issue, particularly for NGOs, who feel there is not enough science to support the carrying capacity of Puget Sound to support more commercial growing.</p>

**Table 4. Summary of Stakeholder Focus Group, Drayton Harbor, April 28th, 2009**

Overall perceptions	Benefits of shellfish	Consequences of shellfish	Future visions	Trade offs	Additional Comments	Summary:
<p>Really enjoy eating shellfish</p> <p>Believe they help with water quality</p> <p>Feel that shellfish is healthy/good for you</p> <p>Gives a chance to volunteer/ contribute to community</p> <p>Brings people together (oyster run etc)</p> <p>Feels that DH oysters are best in the world</p> <p>Concerned/uncertain about who is ultimately responsible: feds/state, etc?</p> <p>Sense a lack of help/assistance from government</p> <p>Concerned that native populations have been decimated by overharvesting and pollution</p> <p>Feels that we've gotten to a sad place (closures etc)</p> <p>Feel that shellfish define who we are and what we are: it's a precious resource</p> <p>Shellfish help people better understand ecologic linkages</p>	<p>Shellfish help us understand if we're living sustainably upland "canary in coal mine"</p> <p>Builds community and raises awareness</p> <p>Economic benefit of having the industry in Blaine</p> <p>Recovery of shellfish also economically beneficial—people employed in recovery efforts</p> <p>Helps build a connection with kids and parents</p>	<p>Cost to individual landowners can be high (individuals with failing septics; farmers, etc) There are inconsistencies with assigning blame</p> <p>Municipalities bear costs that aren't being addressed</p> <p>Aquaculture can create problems on a large scale: water quality (BOD); metals/plastics; structures built to maintain them</p> <p>Cost to community for influx of visitors</p>	<p>Local political will needed for state to continue investing resources</p> <p>Would like to see a Drayton Harbor for future generations</p> <p>Would like plentiful, diverse, clean shellfish for recreational and commercial harvest</p> <p>Would like viable income coming from harvest; fees in community to support it</p> <p>Can't have cumbersome rules and regulations</p> <p>50 years hence, statue of an oyster commemorating them, identifying what we almost lost</p>	<p>Willing to address water quality issues from individual property (infiltrate on-site etc)</p> <p>Willing to pay higher taxes to prevent subdivision of farmland (in form of an income tax); some willing to pay specifically if it goes to address water quality issues in DH.</p> <p>Willing to try to educate elected officials (their actions, as well as who gets elected)</p> <p>Some not willing to pay additional taxes—thinks no net new taxes is important.</p> <p>Sense from many that a lot of volunteer time has already been committed to this effort.</p>	<p>Very important that blame is not unfairly assigned; that we better link water quality problems to known land use issues</p> <p>Many felt there is an underlying lack of understanding of how the "system" works, who is in charge, who makes decisions, etc</p> <p>Need to develop a better understanding of the true costs to the community of all the outside visitors to Blaine for shellfish festivals/harvesting etc.</p>	<p>DH shellfish considered among the best, not just in the region but in the world. This is not being captured/recognized.</p> <p>The community farm has been a huge centering point for the community, has served to draw many diverse people together and give them a sense of "place" and belonging. Many felt very strongly that their volunteer efforts here were one of the most rewarding things they did in their lives.</p> <p>Shellfish are a precious resource—what has happened (water quality problems; closures of beds etc) is deeply upsetting to many people.</p> <p>Strong sense that too many people are the biggest part of the problem.</p> <p>State would like to continue to invest resources here but needs local political will and support to build the case.</p> <p>A viable industry very important; support for fees in community to support it.</p>

On the other hand, participants from all four focus groups alluded to the notion of land use conflicts. One Liberty Bay participant felt that the existence of shellfish beds leads to land use conflicts between shoreline property owners and harvesters—suggesting that shellfish harvest in the tidelands can disturb land owners—and this land use conflict is a result of development according to one participant in Totten Inlet. Aesthetics of shellfish production were raised in Liberty Bay and Oakland Bay, in one case a direct statement of the negative impacts on aesthetics from harvest and then another alluding to the notion of perspective as to whether harvest negatively or positively impacts view sheds. Participants in Oakland Bay and Liberty Bay felt that shellfish raised conflict between the “have and have nots” with regards to the opportunity to harvest shellfish recreationally and the concern for beach access denial by tideland property—generally alluding to property rights and equity issues.

### **2.3 Environmental Benefits and Costs**

In all four focus groups participants felt that shellfish provide many valuable ecological services. It is felt that shellfish build habitat for other marine benthic species, remove nitrogen from the ecosystem when harvested, add to biodiversity, support benthic-pelagic coupling, and in general drive efforts to enhance water quality (especially on the part of shellfish industry owners and the tribes).

On the other hand, some participants, especially in Totten Inlet, feel that there are inadequate data to suggest that shellfish actually provide habitat and enhance water quality. In this focus group there was also some feeling that shellfish production actually negatively affects habitat quality and character, thus impacting other species. In Drayton Harbor and Oakland Bay participants suggested that large scale shellfish production can create water quality problems related to dissolved oxygen and introduction of metals and plastics into the environment, and other waste materials and shell litter respectively.

### **2.4 Future Visions**

In all four focus groups participants voiced the hope for reductions in land use conflicts related to shellfish production with more widespread community support, enhanced partnerships, broadened perspectives, and closer working relationships between the tribes, local communities, and industry. Generally, the four groups called for plentiful, diverse, clean shellfish for recreational and commercial harvest with a focus on recreational harvest and a diverse array of harvestable species in Liberty Bay and enhancement of native oysters in Totten Inlet. One Totten Inlet participant called for Totten to be viewed as a reserve area for future harvest). Again, in all four focus groups, participants hoped for greater political support from policy makers either for the shellfish industry or in terms of funding for restoration and water quality enhancement programs and generally increased regulatory efficiency and enhanced enforcement of those regulations. Numerous participants voiced the hope for greatly enhanced water quality through zero discharge requirements of boaters, replacement and better maintenance of faulty septic and sewer systems, and limited marina expansion. A participant in Oakland Bay would like to see a pollution trade program established. And finally, one participant in Totten Inlet called for technological enhancements to allow for reduced negative impacts on the environment.

Only participants in Totten Inlet spoke out directly about the need to limit shellfish production growth until there is additional scientific information about the effects of shellfish harvest on the environment (the concern is over future expansion of the shellfish aquaculture, not what exists today) and the need to preserve natural shoreline for the future.

### 3 Tradeoffs

The discussion regarding necessary tradeoffs was limited due to time constraints. However, the discussion in all focus groups tended to focus on the willingness to pay for enhancements to water quality. Participants in some cases said that they would be willing to pay additional fees or taxes to ensure a sustainable commercial and recreational shellfish harvest and no further closures due to water quality restrictions, while others felt it important to think in terms of no new net taxes, especially if shoreline access remains limited. Still others felt that if there were a fee or tax established, it should benefit all species and harvest activities, not just shellfish. Regardless, there was generally a concern as to who should really be responsible for paying for water quality enhancements. There was a sense in several focus groups that much has already been invested through volunteer time, resources, and actions on the part of the tribes and industry (through voluntary closures, grants to homeowners to retrofit septic systems, and scientific research). There is a feeling that the costs of pollution control are the responsibility of the polluter (including homeowners, agriculture, and other upland industries). There is a general sense that while some people may be willing to pay to enhance water quality, others will need incentives. Participants in Drayton Harbor, Totten Inlet, and Liberty Bay all stated that the solution to the problem was not in fees or taxes but in education of the public regarding sources of pollutants and elected officials as to how their actions affect water quality enhancement.

A follow up survey was sent to all focus group participants through email to attempt to further understand the level of expressed recognition of necessary tradeoffs and willingness to pay for enhancements to water quality (Please see Appendix B for a copy of this survey). Given limited resources and time, these questions are not intended to replicate a contingent valuation survey expected to achieve statistically significant and or robust results. Rather, their intent was to better understand participants' recognition of the needs to make tradeoffs in the context of public versus private resources and use of the near shore and provide good feedback for development of a sound contingent valuation study. Of the 50 participants across the four focus groups, 15 responded to the follow up survey. Despite the significant limitations of this response, it is interesting to note that all but one respondent said that they thought it is important to improve water quality for recreational, tribal, and commercial shellfish harvest and that shellfish aquaculture provides value to the ecosystem. All but five respondents said that they would be willing to pay for services that shellfish provide and all but four would be willing to pay for a program to improve water quality for recreational, tribal, and commercial shellfish harvest. Six respondents said they would be willing to pay \$.25 in a per gallon surcharge on gasoline knowing that the money would be used to enhance water quality through reduced nutrient loadings in Puget Sound. Six respondents who would not pay \$.25 said they would be willing to pay for the program if the cost was lowered to \$.10 per gallon. Four respondents were not willing to pay anything while two others stated that the gas tax was not the right program to enhance water quality and thus were not willing to pay.<sup>1</sup> One respondent stated explicitly that they feel that it is important to improve water quality for ecological reasons in Puget Sound but not for recreational, tribal and commercial shellfish harvest and that natural shellfish provide value to the ecosystem while unregulated aquaculture is a threat.

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<sup>1</sup> Note that the reason for use of a gas tax was to try to avoid the conflict of "who should pay"—the near shore property owners and upland industries or the shellfish producers.

## 4 Tribal Survey

An additional survey was conducted on March 15, 2009 at the Suquamish Tribal Center. One-hundred thirty-five of the approximately 1,000 Suquamish Tribal members described their perceptions of native oyster recovery efforts in Liberty Bay. (Please see Appendix C for a copy of the survey.) The bay is part of the Tribe's Usual and Accustomed Fishing Ground. Older tribal members have memories of harvesting native oysters in these waters, and the tribe has been an active and willing partner in native oyster rebuilding since 1999. A survey of tribal members was intended to reach beyond tribal staff and tribal council members to ascertain the importance of native oyster recovery to other tribal members and to engage them in restoring a resource of cultural and historic significance. The event on March 15<sup>th</sup>, at which tribal members elected the new tribal council members, provided an opportunity to solicit broader input and at the same time impart information to tribal members about the multiple dimensions of native oyster recovery—encompassing ecological, economic, social, and cultural benefits. To conduct the survey, three tribal high school students were paid to distribute a questionnaire, which included 10 questions asking tribal members to rate the importance of rebuilding the native oyster population, ascertain their interest in restoring recreational, tribal, and commercial harvest, and characterize their willingness to pay for water quality improvements. The questionnaire also included one question to capture demographic information about gender and age.

One hundred and thirty five individuals responded to the survey. In response to the first question, 83 percent of the 135 respondents stated that it was very important to have native oysters in Liberty Bay while 85 percent said that it was very important to them to re-build the native oyster populations in Liberty Bay in order to restore harvest activities. When asked why they thought it is important to restore native oysters, respondents' input ranged from "we need them for our culture; we need Indian food; they belong here" to "keeps our water quality high; protects ecosystems and restores diversity of species." Of those surveyed, 75 percent said that they felt it was important to increase native oyster populations for recreational, tribal and commercial shellfish harvest, while 84 percent said the predominant need was to improve water quality.

Of the 135 tribal members surveyed, 65 percent felt that native oyster filtration was a valuable service they provide the ecosystem; 48 percent stated nitrogen removal; 59 percent said habitat; 38 percent said other or did not know. When asked if native oysters provide services that they would be willing to pay for, 75 percent of respondents circled cultural services, 47 percent recreational, 50 percent ecological, 42 percent economic, 39 percent social, 13 percent other. However, when asked if they would be willing to pay for a septic operation and maintenance program to improve water quality for recreational, tribal and commercial shellfish harvest, only 51 percent said yes.

There are some significant limitations to this survey, including low sample size relative to the population (approximately 10 percent) with the likelihood that the responses are skewed towards the tails of the population distribution (the people that feel strongly one way or another are more likely to respond to the survey). As a result, the results outlined above are not statistically significant. However, the survey results do provide a greater understanding of how the Suquamish tribe feels about oyster restoration.

## 5 Preliminary Conclusions

Results from the four focus groups and surveys indicate some degree of consistency across geographic locations in terms of perspectives of benefits and costs of shellfish production and restoration. Generally, participants expressed the view that there are significant economic, social, and environmental costs and benefits, though social benefits stood out as a dominant factor across the four focus groups. The desire to resolve multiuse conflict was explicitly stated as a future goal along with a healthy shellfish industry that does not adversely impact the carrying capacity of the ecosystem.

***Benefits consistently raised across all four groups include:***

- Traditional and cultural value
- Source of tribal subsistence and commercial food source
- Iconic association to the Pacific Northwest and generation of sense of place
- Fostering of environmental stewardship
- Educational opportunities
- Provision of habitat and structure for other species
- Provision of ecosystem services such as nutrient uptake and nitrogen removal (enhances water quality)
- Indicator of health of ecosystem
- Positive economic impacts to local communities<sup>2</sup>

***Costs consistently raised across all four groups include:***

- Greater impacts to landowners from water quality regulations and waste treatment requirement
- Land use conflicts
- Negative impacts to other industries such as tourism
- Litter and waste material from commercial aquaculture
- Property rights and equality concerns

There are recognized limitations to the work conducted in this task. First, limited resources allowed us to conduct only four focus groups (two case study areas where commercial production dominates and two where restoration of native and Pacific oyster beds is the focus). We were, therefore, not able to interact with stakeholders from the coast of Washington State, nor get the depth we would have liked in the selected Puget Sound regions in order to capture a broader array of opinions. Second, while focus group participants were invited from a wide set of stakeholders, those that chose to attend a focus group tended for the most part to be proponents of shellfish production and restoration. As a result, output from the focus groups is most likely biased. And finally, sample sizes of the surveys were too small and limited in scope to interpret statistically significant results.

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<sup>2</sup> All focus groups raised positive economic impact to the local community except for Liberty Bay, which is to be expected as there is no commercial harvest in that area.

Regardless of limitations, we feel that the work completed in this task lends some valuable insights into stakeholder perceptions and opinions about the full range of costs and benefits related to shellfish production and restoration.

**Appendix A: Focus Group Participants and Affiliations**

**SIGN IN** Liberty 

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NAME	AFFILIATION	EMAIL or other contact
JEFF BOWEL <small>FRAN BOWEL</small>	HOME OWNER	JEBPPH@HOTMAIL.COM
DAVID FYE	NWIFC	DFYFB@NWIFC.ORG
Betsy Peabody	PSRF	betsy@restorationfund.org
Peter Downey	Discovery Bay Shellfish INC	peterdowney@cablespeed.com
Clark Pitchford	Navy Region NW	clark.pitchford@navy.mil
Kathy Peters	West Sound Salmon Recover & Kitsap county	kpeters@co.kitsap.wa.us
Dave GITCH	RESIDENT Scandinavia PT. LIBERTY BAY	gitch@silverlink.net
Renee Wallis (and Danya (agea))	Resident - Dogfish Bay	beingrenee@yahoo.com
Jim Zimny	Kitsap County Hall	ZimnyJ@healthu.co.kitsap.wa.us

SIGN IN <span style="float: right;">Oakland</span>		
NAME	EMAIL	AFFILIATION
Jason Ragan	Jason.R@Taylorshellfish.com	Taylor shellfish
Marco Pinchot	MarcoP@taylorshellfish	Taylor shellfish
John Lentz	geaduckjohn@comcast.net	Taylor
Bill Dewey	billd@taylorshellfish.com	Chelsea Farms
Jim Gibbons	jlgibbons@seattleshellfish.com	Taylor shellfish
Bill Kid	W/A	Seattle Private Shellfish
Perry Lund	PLUND481@ecy.wa.gov	Ecology
Kris Phelps	kphelps@nwifc.org	Nisqually Tribe
Steve Bloomfield	clampirate49@yahoo.com	PCSGA
Teri King	guatemala@u.washington.edu	Washington Sea Grant
Lydia Wagner	LBLA461@ecy.wa.gov	Univ. of WA Dept. of Ecology
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Emily Sanford	elpiper@wsu.edu	WSU Extension
John Botender	jbotender@masomcd.org	Masom CO
Andy Subrbier	asubrbier@pacshell.org	PSI
Dan Cheney		

SIGN IN
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<u>Name</u>	<u>Affiliation</u>	<u>Email and/or Phon</u>
Dian Cooper	Taylor Shellfish	360 426 6178
John Kovach	Squawam	360 432-3804
WARREN DAVES	CITIZEN	360 427 7047
Russ Walker	Taylor shellfish	russw@Taylorshellfish.co
Peter Becke	Little Skeduck Shells	360 426-6178
Bill Burrows	Sierra Club	360.790-5770
Steve Wilson	ArCADIA PT Seafood	360.432-8222
Vicki Wilson	WILSON99APS@AZ.COM	
Stue Harbell	WISA Eganini / WA Seabent	(360) 875-9331
Charlie Stephen	Kamileha Sea Farms	sharbell@u.washington.edu
Don Acheson	Kamilchest@earthlink.net	360 427 5774
Cynthia Wilson	APHET / Totten Shore Comm	360-427-1090
Laura Hendricks	721 SE Somers Dr. Shelton, WA 98584	360-786-5475
	Thurston County	wilsonc@co.thurston.wa.us
	Coalition to Protect Coast and Habitat	Laura.L.Hendricks@gmail.com

Perceptions and Values of Shellfish Stakeholders

SIGN-IN  
DRAYTON HARBOR FOCUS GROUP  
4-29-09

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4	TRUPP	KEN	N/A	(360) 332-9561	blaineguy1@comcast.net
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SIGN-IN  
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## Appendix B: Follow up Tradeoff Survey Sent to Focus Group Participants

May 20, 2009

Memorandum to: NAME

From: Katharine F. Wellman, Northern Economics Inc. [kfwellman@comcast.net](mailto:kfwellman@comcast.net)

Subject: Shellfish Focus Groups

Thank you very much for participating in our NOAA/Sea Grant shellfish focus group. We greatly appreciate your willingness to share your time and insights. We feel that your input lends to the credibility and robustness of our work.

As indicated at the focus group, we will share with you the final results from the focus groups when the project is completed this summer. Meanwhile, I am wondering if you would be willing to spend a few minutes answering the questions below. We are trying to get a better sense of people's willingness to pay for continued access to commercial and recreational shellfish opportunities without conducting an in-depth and expensive survey.

If you are so inclined please answer the following questions and return your response to me at [kfwellman@comcast.net](mailto:kfwellman@comcast.net).

Thank you again for your assistance.

1. Do you think that it is important to improve water quality for recreational, tribal, and commercial shellfish harvest? Yes \_\_\_; No\_\_\_  
Comment \_\_\_\_\_
2. Do you believe that shellfish aquaculture provides value to the ecosystem? Yes \_\_\_; No\_\_\_  
What type of value? \_\_\_\_\_
3. Do shellfish provide services that you would be willing to pay for? Yes\_\_\_; No\_\_\_  
What service(s)? \_\_\_\_\_
4. Would you be willing to pay for a program to improve water quality for recreational, tribal and commercial shellfish harvest? Yes \_\_\_; No\_\_\_
5. Would you be willing to pay a \$.25 per gallon sur charge on gasoline knowing that the money would be used to reduce nutrient loadings in Puget Sound? Yes\_\_\_; No\_\_\_
6. If no, would you be willing to pay \$.10 per gallon? Yes\_\_\_; No\_\_\_
7. If no, would you be willing to pay any amount to reduce nutrient loadings in Puget Sound? Yes\_\_\_; No\_\_\_
8. Additional Comments:

## Appendix C: Liberty Bay Native Oyster Survey, Suquamish Tribal Members, 3-15-09

### Goal:

Determine if restoring native oyster in Liberty Bay has cultural and social value for Suquamish Tribal members

### Please Answer the Following Questions:

1. Is it important to you to have native oysters in Liberty Bay?  
Very Important      Important      Not Important
2. Is it important to you to re-build the native oyster population in Liberty Bay to restore harvest?  
Very Important      Important      Not Important
3. Why do or don't you think it's important to restore native oysters?
4. The current population of native oysters is too small for harvest. If the population increases, is it important to you to harvest oysters for recreational, tribal and/or commercial purposes?  
Very Important      Important      Not Important
5. Most of Liberty Bay is either closed to shellfish harvest or water quality is unknown. Is it important to improve water quality for recreational, tribal and commercial shellfish harvest?  
Very Important      Important      Not Important
6. Do native oysters provide value to the ecosystem? Circle all that apply  
Filtration      Nitrogen Removal      Habitat      Other      Don't Know
7. Do native oysters provide services that you would be willing to pay for? Circle all that apply  
Cultural      Recreational      Ecological      Economic      Social      Other
8. Would you be willing to pay for a septic operation & maintenance program to improve water quality for recreational, tribal and commercial shellfish harvest?  
Yes      Maybe      No      Never
9. Have you ever personally harvested native oysters?  
Yes      No
10. Please describe yourself: (Circle all that apply)

**Perceptions and Values of Shellfish Stakeholders**

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Male Female Age: 10-15 16-25 26-39 40-59 60-79 80 and above  
11. Income range: up to \$15,000 up to \$25,000 up to \$50,000 up to \$100,000 over  
\$100,000