Targeted Outreach to Reduce Impacts from Shore Armor in the Port Susan Marine Stewardship Area

Program Assessment Summary Report

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Purpose

The purpose of this report is to summarize the quantitative and qualitative data that was gathered before, during, and after the implementation of specific outreach activities conducted by Northwest Straits Foundation over a t wo year period in the Port Susan MSA in order to engage two target audiences: marine shoreline planners and marine shore landowners. The assessment summary report has five sections, including references and appendices. The introduction provides an overview of project goals and activities. Subsequent sections describe outreach activities and detail results from assessment activities for the purpose of documenting short and medium term outcomes resulting from specific outreach elements and determine progress toward meeting long term landscape goals.

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Introduction

This report provides a comprehensive overview and synthesis of results from program assessment activities conducted for a 2-year, grant funded outreach program which took place in the Port Susan MSA with the stated goal of reducing negative ecosystem impacts resulting from hardening of the marine shoreline (shore armor) in the Port Susan MSA (NWSF grant proposal, 2012a). The Port Susan MSA is located in portions of Snohomish and Island Counties (Figure 1, p.32). Shore armor is also referred to as hard shore protection, bulkheads, and seawalls (for background see Johannessen and MacLennan 2007 and Schlenger et al. 2011).

Northwest Straits Foundation worked in collaboration with project partners, Snohomish and Island County staff and Marine Resources Committees (MRCs), and private consultants to implement grant program activities over a two year period. Program evaluation and assessment assistance was provided by EE Outcomes. Funding for the project was provided by the Washington State Department of Fish and Wildlife (WDFW) through its Marine and Nearshore Grant Program. The goal of grant round one, through which this project was funded, is to improve, strengthen, and streamline implementation and enforcement of laws, regulations, and permits that protect marine and nearshore ecosystems (WDFW and DNR FY2012 6-year work plan and implementation strategy). The project was designed to reach two target audiences: Island and Snohomish County marine shoreline planners, and private marine shore landowners in the MSA.

Project assessment activities included:

- a needs assessment survey of Island and Snohomish County shoreline planners
- a post workshop survey and evaluation of a professional development workshop conducted for Island and Snohomish County shoreline planners
- a needs assessment survey of residential marine shore landowners in the MSA
- post workshop evaluation of two workshops for landowners in the MSA
- synthesis and characterization of data from professional site visits to parcels in the MSA
- a post site visit survey of landowners who received free site visits

Project assessment activities were designed to characterize outcomes toward the project goal in order to gauge effectiveness, and describe project activities in order to be replicable in other areas of Puget Sound.

This assessment summary report is divided into 3 chapters, references, and appendices. Chapter 1, *Planner Outreach Assessment,* describes outreach and summarizes data gathered as a result of activities conducted to engage shoreline planners in Island and Snohomish Counties. The summary for this chapter provides a synthesis of key ideas based on data gathered from planner outreach and assessment activities.

Chapter 2, *Marine Shore Landowner Outreach Assessment*, describes project outreach approach and activities and summarizes the quantitative and qualitative data that was gathered before, during and after the landowner workshops and professional site visit portions of the project. These assessment activities were conducted in order to understand needs and concerns of landowners to inform workshop content, and to determine outcomes with regard to knowledge, attitudes, and management decisions (behaviors). Site visit outcomes include characterization of parcels visited and landowner concerns based on professional site visit reports; characterization of professional recommendations given; and results from a post site visit landowner survey regarding the value and impacts of the site visit. The summary portion of this section provides a synthesis of key ideas based on data gathered from landowner outreach assessment activities.

The Appendix includes supporting information such as the Foundation's summary reports from the landowner needs assessment survey, and workshop evaluation summary reports from two landowner workshops conducted in the MSA.

Section I. Planner Outreach Assessment

Purpose of Planner Outreach

Based on the project goal to reduce negative ecosystem impacts resulting from shore hardening, and the grant program goal to improve, strengthen, and streamline implementation and enforcement of laws, regulations, and permits, the focus of the planner outreach conducted for this project was to gauge the level of familiarity with regulations, impacts of hard shore armor, and alternatives to armor among Snohomish and Island County planners and use information gained to inform content development for a one-day professional training to advance project goals. A secondary goal of the planner workshop was to convene planners from the two counties which share jurisdiction over the marine shore of the Port Susan MSA in order to familiarize them with the characteristics and processes of the marine shore in the MSA and to share information between counties.

A key focus of the overall project was the implementation of Shoreline Master Program Guideline WAC-173-26-231 (3) *Provisions for specific shoreline modifications*. These guidelines require county planning staff to make determinations on shore armor permit applications based on a number of factors. These factors include a demonstrated need based on a geotechnical report and a determination that the proposed erosion control structure will not result in a net loss of shore ecological function. Best management practices for marine shores are informed by the larger geologic and coastal processes influencing a property in order to avoid inadvertently accelerating erosion and impacts to adjacent properties. Site characteristics and coastal processes analysis are steps used to identify appropriate alternatives based on site characteristics (WDFW 2014, Marine Shoreline Design Guidelines, in review). Understanding these processes allows planners and landowners to take an informed approach to assessing the need for installing engineered shore protection, and understand the characteristics of shore protection designs that do not result in a net loss of shore ecological function.

Planner Needs Assessment Survey

Northwest Straits Foundation project partners included Snohomish and Island Counties. Upon receipt of the grant award, an initial kick off meeting took place in each county with the Foundation project manager and lead planning staff (identified in the grant proposal development process) to discuss the grant project goals and activities, specifically those related to marine shoreline planners. In Snohomish County, the Marine Resources Steward (MRC staff) attended the kick off meeting and acted as a project liaison to the planning department throughout the project. Outcomes of the meeting included commitment to participate in a one-day professional development workshop and a plan for distribution of a pre-workshop needs assessment survey to all marine shoreline planning staff in each county. Additional outcomes included determining the best times for conducting a workshop in order to achieve full staff participation. Lead planning staff reported at the kick off meeting that project funds that were available to reimburse counties for planning staff time to attend the workshop were critical for them to support workshop participation at this level.

Draft needs assessment survey questions were developed and provided for review to lead planning staff at both counties. Upon approval, a final online survey was developed and a link sent to lead planning staff at both counties. Lead staff then distributed the survey to planning staff and asked them to complete it. Results were compiled and a summary of pre-workshop survey results follows.

Survey Response

Lead planning staff reported sending the survey to a combined total of 17 staff involved with marine shoreline planning. A total of 17 survey responses were received for a 100% response rate. The number of responses is summarized by county in Table 1.1.

Table 1.1. Planner survey response by county.

County	Surveys Sent	Surveys Received	% of Total Surveys Received
Island County	11	100%(11)	65%
Snohomish County	6	100% (6)	35%

Obtaining input regarding training needs was described as the purpose of the survey. This high response rate indicates a high level of interest in providing input to inform training. The survey being sent directly to staff by the lead planning staff was likely an influence in the high rate of survey responses received.

Audience Characterization

Planners were asked a series of survey questions regarding their level of experience working in the county, working as a planner, and working with marine shoreline planning. Audience characterization informs workshop content design by providing insight into the range of experience that exists within the target audience. Figures 1.1, 1.2, and 1.3 display the survey responses for questions regarding the length of time working in the current county, length of time working as a planner, and length of time working with marine shoreline planning.

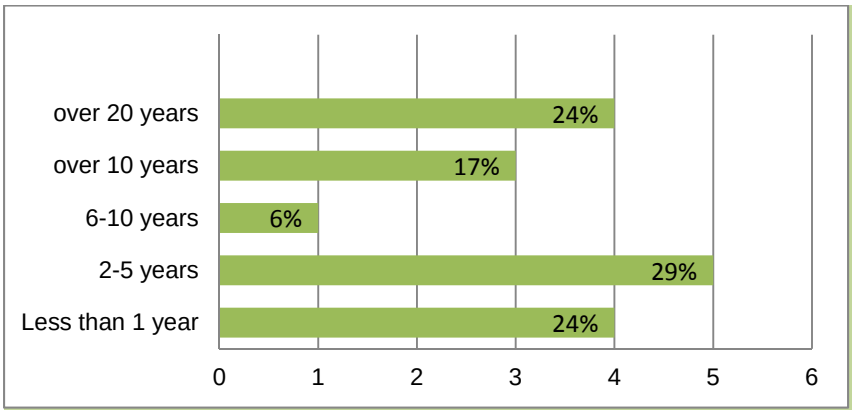


Figure 1.1. Length of Time Working in this County (14 responses)

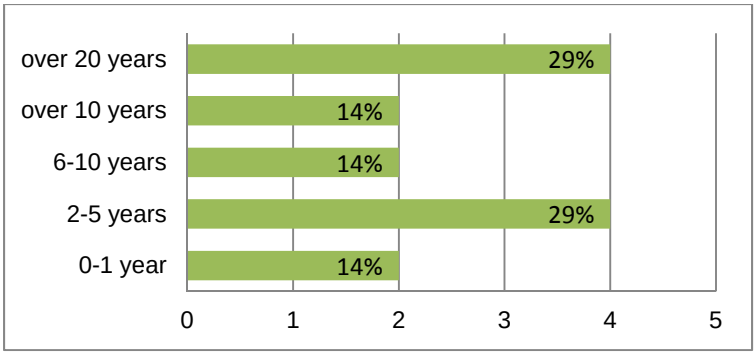


Figure 1.2. Length of time working as a planner (14 responses)

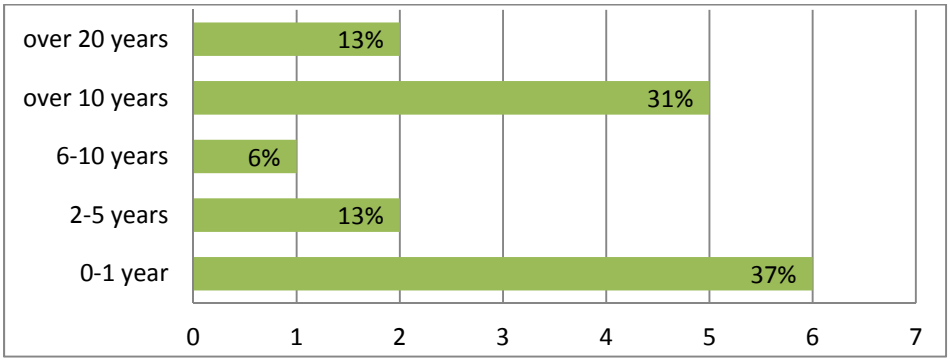


Figure 1.3. Length of time working with marine shoreline planning (16 responses)

Over half of the survey respondents (53%) reported that they had worked as an employee of the current county for less than 5 years. Of this group, 44% were new employees having been at the current county for less than one year, and 43% report having worked as a planner for less than 5 years. Marine shoreline planning had the lowest level of experience among planners surveyed with 50% reporting having less than 5 years' experience and 37% reporting less than one year experience in this area.

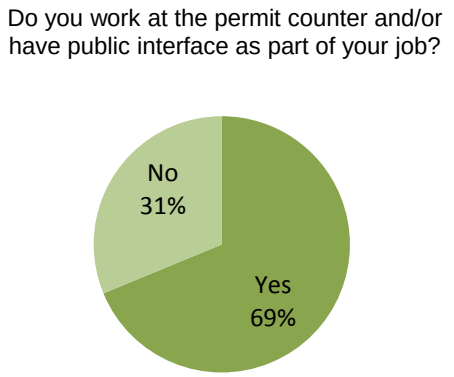
At the other end of the spectrum, one quarter (24%) of respondents could be considered very experienced as county employees reporting having worked for their current county for over 20 years. Similarly, 29% reported having worked as a planner for over 20 years, and 44% report having worked with marine shoreline planning for over 10 years. This spread represents a wide range of experience levels within the two planning departments.

Based on these demographics, development of training materials and content that meets a wide variety of experience levels is necessary when developing an effective workshop to serve the needs of this audience. Incorporating methods to involve more experienced staff, for example through facilitated discussions to share expertise and experience, could be an effective technique to consider in workshop design in order to engage this audience. This technique can also help newer and less experienced planners and/or county staff to interact with more experienced staff and see them as a valuable resource. In addition, follow up trainings that are designed for different experience levels would be an effective way to ensure that additional, specific needs of these different experience levels are met.

Public Interface

Planners were asked two questions about their level of interface with the public, specifically by working at the permit counter. The permit counter is an important source of information for the public and for landowners

regarding regulations and permitting requirements. Planners who staff the permit counter are the first point of contact at the county for questions from landowners. Additional questions regarding planners' perceptions of landowner needs and barriers based on this professional experience and interaction is presented the Landowner Needs and Barriers section. Responses related to the proportion of staff who currently work at the permit counter and their level of experience working in that capacity is presented below and in Figure 1.4.



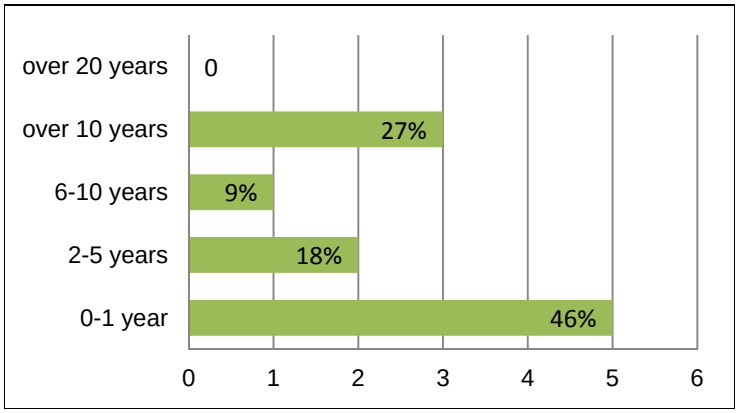


Figure 1.4. Length of experience working at the permit counter

None of the planners surveyed reported having worked at the permit counter for over 20 years, indicating that the more experienced staff does not have this task as part of their job. Nearly half (46%) of the respondents report that they have worked at the permit counter for less than one year, and a combined total of 64% report having worked at the counter for less than 5 years. In order to improve the ability of planning staff to provide accurate information and guidance to the public regarding marine shoreline regulations and permitting requirements this would be a high priority group for receiving ongoing training and mentoring in this area.

Knowledge of Relevant Topics

In order to inform workshop content, planners were asked several questions to determine their current knowledge regarding topics related to marine shore characterization, coastal processes, permitting, and regulations. Response rates regarding whether planners have received previous training on specific topics related to the permitting of shore armor are displayed in Figure 1.5.

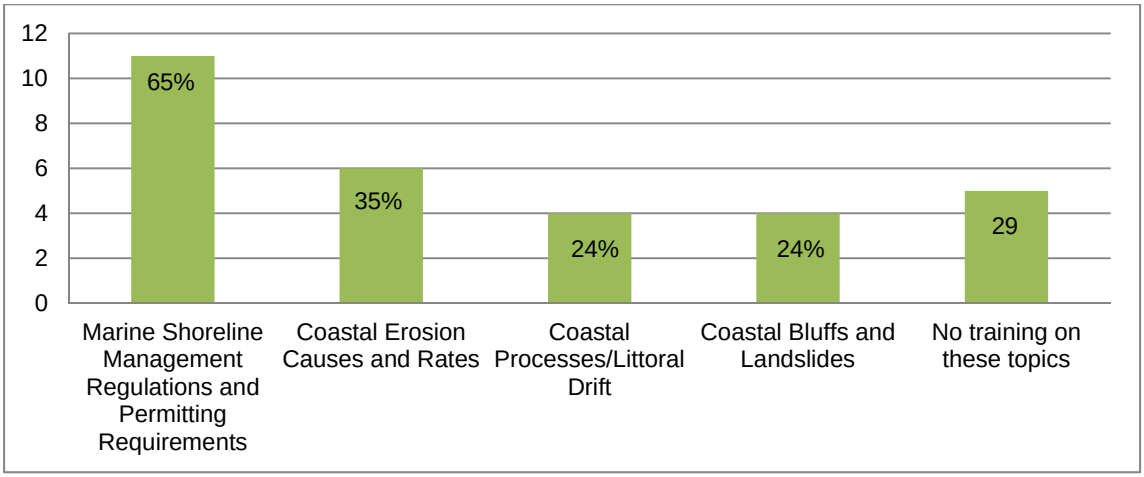
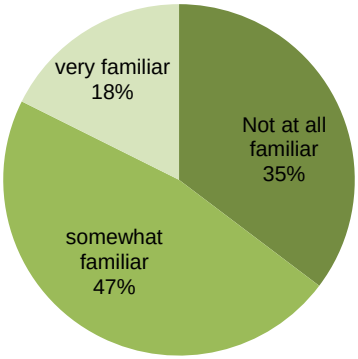


Figure 1.5. Number of Island and Snohomish County planners reporting having received training on topics related to the permitting of shore armor

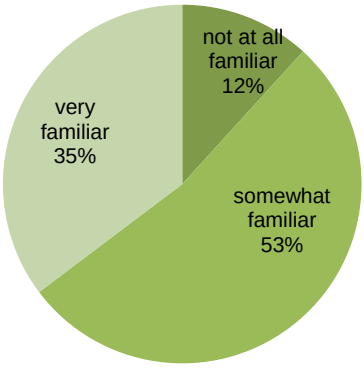
This category with the highest level of training received by the planners surveyed was in marine shoreline management regulations and permitting requirements with 65% having received training in this area. Significantly lower levels of training were reported in content areas related to determination of need for shore protection, such as coastal erosion causes and rates, coastal process, and coastal bluffs and landslides. Nearly one third (29%) reported having received no previous training in any of the topics listed.

As a follow up question, planners were asked to rate their level of familiarity with the shoreline characteristics of the Port Susan MSA, impacts of shore hardening, and alternatives to shore hardening. These responses are displayed below.

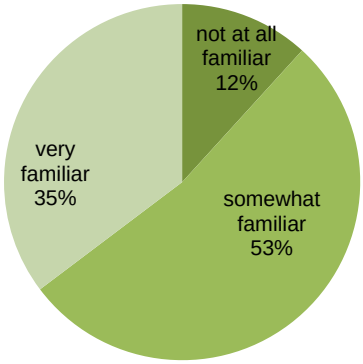
How familiar are you with the characteristics of the Port Susan MSA shore relevent to permitting ?



How familiar are you with impacts of hard shore armor?



How familiar are you with alternatives to hard shore armor?



Roughly half of all planners surveyed rated their level of familiarity as 'somewhat familiar' for all of the topics. The lowest ratings of familiarity were for shore characteristics of the Port Susan MSA with 35% being 'not at all familiar' and 47% being 'somewhat familiar.' A small but significant number (12%) of planners rated themselves as 'not at all familiar' with both impacts of shore hardening and alternatives to hardening, while 35% rate their knowledge level as 'very familiar' with both of these topics. These responses again reflect the varying professional experience levels within planning staff. Based on these results, all of these areas were determined to be appropriate for content development for a workshop for this audience; however going beyond an introductory level would be most appropriate. However, including some initial introductory content is appropriate in order to serve the needs of planning staff not at all familiar with these topics.

In addition to the audience characterization questions, the survey included an open ended question to provide the opportunity for respondents to communicate what they hope to gain by attending a workshop. Responses are listed below.

Q: What do you hope to gain by attending a workshop?

- Deeper understanding of coastal processes, impacts of shoreline hardening, alternatives to shoreline armoring, strategies to reduce armoring
- Better understanding of alternatives to traditional bulkheading
- Additional information on regulations and any recent new science on shoreline processes and coastal bluff erosion
- A basic understanding of the shoreline process and permitting
- Learn more about newest design aspects of soft-shore armoring
- Further understanding of SMA permitting framework, new developments and technologies, and details on the Port Susan Marine Stewardship Area
- Developing a program that can be implemented and enforced across the board--not subject to waiver because of affluence or political connections
- Sufficient information to be able to profile choices re: hardening and the merits of considering a softer approach. Also guidance re: management of the conversation with various potential inquiries and patterns of response
- Additional knowledge
- Training in coastal processes, littoral drift, erosion causes and rates, landslides and causes, bulkheading alternatives

The range of comments demonstrates interest in the project topics, with both increased knowledge and application of knowledge described as desirable outcomes. Again, comments reflect the broad range of professional experience within the audience, with responses ranging from wanting introductory and basic understanding of concepts and regulations to wanting new science and improved regulatory frameworks, to methods that can be employed for considering the merits of hard vs. soft shore protection.

Planner Perceptions of Landowner Needs and Barriers

The planner survey contained a set of questions to obtain information from planners regarding their perceptions of barriers that exist for landowners, specifically regarding the permitting process, ability to implement best management practices, and removal of hard armor. This information from planners, along with the results from the marine shore landowner needs assessment survey, informed content development for the landowner workshops. Where responses reflect different ideas they are grouped based on similarity of content and language used. Specific questions and responses are listed below.

Q: What questions do landowners typically ask you regarding shoreline permitting?

Setbacks and Shore Hardening

- Can I harden the shoreline to protect my beach; house; bluff; yard; gazebo; drainfield; stairway; etc.
- Required setbacks and how to get around them
- Setback and buffer requirements

- How close can I build? How long does this process take? How come my neighbor was able to build where they are but I can't?
- How much concrete can they dump, how close to the water can they dump it, and when can they start dumping it? Also, who are you to make me ask before I start dumping concrete?

General Information Regarding Permits and Regulations

- Which development proposals require permits, types of development allowable without a permit, which permits are needed for which projects, and whether a project is approvable
- What are shoreline permit requirements
- Permit requirements
- Allowed/prohibited uses

Management Issues

- Slope stability, drainage, view enhancement
- I do not want to risk damage to my own property in light of choices by my neighbors
- I'm the flood hazard specialist so it usually is questions that tie into that subject

Q: What are the most common complaints you get about the permitting process?

- Processing time, regulations, cost, inconsistent application of regulations
- Too complicated, restrictive
- Processing time
- Ambiguousness of Island County code
- Cost of permit and required studies
- They say it's like a game – 'I propose something and the Planning Department tells me what will not work. I would love to have assistance with being successful rather than playing "yes-but"'
- That permits are required at all

Planners were provided with a list of potential barriers for implementing best management practices and for removing existing structures and asked to indicate which they considered to be real and existing barriers to landowners. Responses are listed in descending order by the frequency with which they were chosen.

Q: What existing barriers do you see that limit a landowner's ability to employ best management practices for erosion control?

Lack of knowledge of alternatives to shore hardening	85.7%	(12)
Lack of understanding of current regulations	71.4%	(10)
Lack of knowledge of impacts from shore hardening	71.4%	(10)
Concern about property loss from erosion	71.4%	(10)
Concern about esthetics/property value	64.3%	(9)
Lack of professional resources	64.3%	(9)
Permitting process/cost	57.1%	(8)
Monetary concerns	57.1%	(8)

Q: What barriers do you see that limit a landowner's ability to remove existing structures?

Permitting process/cost	92.3%	(12)
Monetary concerns	92.3%	(12)
Lack of professional resources	30.8%	(4)

Other (please specify)

- Our permitting structure makes this nearly as difficult/expensive as repairing/replacing the structure(s)
- Don't want to lose any vested structures that may affect future permitting options
- Do not understand the self-perpetuating problem created by hard armoring and that removal may improve the situation

Planner Needs and Barriers

Planners were asked to select from a list or add their own input regarding barriers that exist to enforcing regulations. Frequency of responses is listed below in descending order.

Q: What existing barriers do you see in your work that limits your ability to enforce existing regulations regarding shoreline permitting?

Lack of understanding of current regulations among landowners	100.0%	(13)
Cost or time for permits discourages obtaining one	76.9%	(10)
Lack of enforcement of penalties for non-permitted activities	76.9%	(10)
Lack of understanding of current regulations among planners	46.2%	(6)
Penalties not substantial enough to deter non-permitted activities	30.8%	(4)

Other (please specify)

- Island County lacks resources to effectively enforce shoreline regulations. We have only one code enforcement officer for the entire County
- Lack of support and backup from administration
- Lack of specific regulations
- Existing resources are inadequate to deal with the number and scope of violations.
- Politics
- lack of understanding about shoreline processes and resources by the public and by planners

Planners were asked two open ended questions regarding resources, training, and content areas that would improve their ability to effectively work with the public on marine shoreline management, permitting, and soft shore protection. Questions and responses are listed below.

Q: What would be most helpful to you in your work with the public regarding shoreline permitting?

Regulatory Guidance, Policy Application, Permitting Procedures

- Definitive regulatory guidance and consistent policy application from management would allow applicants to understand regulatory requirements and empower planners to consistently apply them

- Restructured shoreline regulations and permit processing procedures that provide clear incentives for pursuing less environmentally damaging projects/actions
- An ordinance or law that is simple and clear that prevents any adverse development within specific shoreline areas that if built in, the only option for resolution is to remove it
- A better understanding of shoreline permitting

Landowner Education and Information

- Greater awareness by the shoreline property owners of slope stability factors and the role of vegetation and drainage
- A better understanding of shoreline permitting from landowners
- Public information effort directed at waterfront property owners to dispel misconceptions about erosion and promote less damaging erosion control measures. Many property owners are not aware of just how slowly erosion is actually occurring, and are equally unaware that hard armoring often degrades the quality and accessibility of their beach
- Assistance on resolving their issues that would prepare them for the permitting process

Resources/References

- Additional resources. This means more hours devoted to the task
- Looking at actual sites
- Having some sort of resource to turn people to for information and planning. I don't currently have enough time to spend with each applicant to thoroughly educate them about their options

Q: What does 'soft shore protection' mean to you in regard to your work as a planner?

Natural Materials

- "Soft-Shore Protection" systems often consist of anchored drift logs or root balls, beach feeding and other methods which emulate natural functions
- Utilizes material other than sharp rocks, concrete, etc.
- It means using natural materials to armor the shoreline to prevent erosion
- Use of materials such as logs and vegetation strategically placed along shorelines to reduce erosion with diffusion of energy in lieu of hard armoring techniques (concrete or log bulkheading) that create unnatural wave refraction and degrade shoreline environment

Anchored wood

- Large wood anchored into beach
- Often drift-log anchoring, with buried anchoring systems

Fish Habitat

- Protection that is "fish-friendly"
- Fish safe

Coastal Processes

- Generally, the installation of erosion-controlling measures on the shoreline that allow for the continuation of some natural shoreline processes. On a spectrum, driftlog anchoring (higher impact) to revegetation (lower impact). Driftlog anchoring is considered armoring in our jurisdiction and is

generally evaluated as such. In terms of SMP application, these proposals fall into a grey area that adds complexity and sometimes conflict in their review

- "Soft-Shore Protection" can be a less environmentally damaging method of reducing shoreline erosion. Although Soft-Shore protection systems are generally considered to be less damaging and intrusive than conventional hard armoring methods (bulkheads, rip-rap etc.) these system are not entirely benign from an environmental perspective, and need to be properly evaluated like all other shoreline modifications

Strategy

- It means a strategy to accommodate environmental and personal property objectives at the same time

Q: What specific training content areas would be valuable to you related to marine shoreline management and permitting?

Evaluating Impacts

- Case studies on impacts of shoreline modifications, overview of court decisions/ shoreline hearings board cases.
- I would like to see someone breakdown the differences in impacts from concrete, log piling, vinyl sheet piling, rip rap, and soft shore armoring.
- Shore geological processes and shoreline biotic resources.....and the potential impacts of shoreline development on both.
- Design and prediction of impacts to adjacent parcels by alteration of hydrology

Permitting and Regulations

- Shoreline Permitting 101
- Good working knowledge of shoreline code, implementation and enforcement!

Coastal Processes

- Shoreline processes
- Learning how to identify high energy beaches

Q: What other types of support that would be valuable to you related to shoreline management and permitting?

Resources

- Knowledgeable staff that I can go to with questions
- Funding for Department of Ecology so they can update shoreline oblique aerial photos. Since our jurisdiction does not have access to a boat, up to date shoreline photos are essential for verifying existing uses and identifying violations
- Historical photos are great--easily accessible historical photos are even better
- Technical assistance from recognized experts

Knowledge and Training

- Training workshops for staff and the public
- Learning more about green shores along marine waters
- Knowledge on shoreline processes

Policy Guidance

- Definitive policies in SMP application
- Background knowledge of the intent of the shoreline codes, what are the best methods for regulating, permitting and enforcement of the law.

Planner Workshop Summary

Workshop Content, Design, and Instruction

Results from the needs assessment survey of Snohomish and Island County planners were used to determine the appropriate content areas and level of instructional expertise needed for the planner workshop. Northwest Straits Foundation circulated a Request for Qualifications for shoreline planner workshop content development, design, and instruction. As outlined in the original grant proposal (NWSF 2012a), the Foundation contracted the Washington Department of Ecology's Coastal Training Program to oversee workshop logistics and provide professional development credits to planners who attended the workshop. Jim Johannessen, MS, of Coastal Geologic Services (CGS), a coastal geologist and licensed engineering geologist with science, management, and soft shore design expertise, as well as extensive workshop design and instruction experience, was selected by the oversight committee as the workshop instructor.

In addition to the workshop for shoreline planners in the counties which share jurisdiction over the Port Susan MSA marine shore, two landowner workshops and 36 free professional site visits also took place in the MSA during the project period with the goal to provide a common foundation of knowledge. These workshops were also conducted by Mr. Johannessen of CGS and are described in the Landowner Workshop Summary Report (Appendix B). Professional site visits were conducted by CGS and Shelterbelt, Inc. (a vegetation management and landscape design firm) and outcomes are described in the Landowner Outreach Assessment chapter of this report.

Workshop design included both classroom and field components. Workshop content and materials specific to the coastal and geologic processes of the Port Susan MSA marine shoreline were added to existing CGS workshop content. This content was developed and refined over 20 year time frame in collaboration with a variety of public and private entities. Existing workshop content and materials include an overview of federal, state and county regulations, Puget Sound coastal processes, causes of erosion, impacts of hard armor, best management practices, and specific examples of small scale, soft shore protection projects that have been implemented at residential and public sites in Puget Sound. As an element of this project, CGS developed and provided content for a reference notebook for planners titled '*Coastal Processes, Impacts, and Alternatives to Shore Hardening in the Port Susan Marine Stewardship Area'* (CGS 2012). The notebook was compiled and printed by Coastal Training Program and distributed at the workshop. Electronic copies of the notebook contents were provided to project partners and WDFW, the project sponsor.

In addition to the workshop content developed by CGS, Snohomish County was contracted to develop a set of maps of the Port Susan MSA to be used for educational purposes. Snohomish County GIS staff consulted with CGS staff to identify and obtain the best available science for appropriate data layers to compile the maps. These maps were printed by Snohomish County and brought to the workshop.

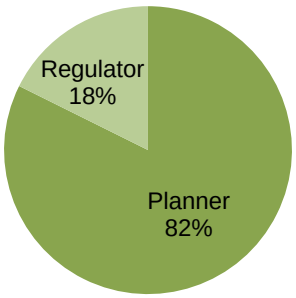
The workshop for Island and Snohomish County planning staff took place on Camano Island in fall 2012 and was attended by 17 planners, the same number of planners who responded to the needs assessment survey and presumably the same individuals.

Post Planner Workshop Survey and Evaluation

Additional survey questions were developed and added to the post workshop evaluation questionnaire used by CTP to evaluate their professional development program offerings, and was sent by CTP as a link via email to all attendees approximately 4 days after the workshop. Results of the post workshop survey are detailed in the following section of this report.

Participants

In order to determine whether the workshop was successful in serving the target audience, initial questions identified participant's professional occupation and employment. Results are below.



Professional Occupation of Workshop Attendees

All workshop participants (100%) indicated that they are county employees. Additionally, all attendees described themselves as being either planners or regulators with responsibility for marine shoreline permitting and regulation.

Workshop Logistics

Coastal Training Program workshop evaluations contain questions to solicit input from participants regarding workshop logistics such as pre-class announcements and reminders, directions, room, coffee, and lunch. All of these aspects of logistics were rated as satisfactory, good, or very good. This workshop did not take place at the Padilla Bay NERR location as most CTP workshops do, and open-ended responses provide some insight into the Port Susan MSA location which allowed for the localized field trip component of the workshop. These responses are listed below:

- The Camano location was a little out of the way for some participants
- Given that the audience was coming from either Coupeville or Everett, I doubt the location could have been better
- The location was in close proximity to the field site, so little time was spent in moving to the beach

These responses reflect the challenge of traveling to receive training and the value of minimizing travel in order to ensure participation. The majority of the Port Susan MSA shore is distant from both Island and Snohomish

County planning offices. However, the close proximity of the classroom and field trip sites was appreciated as an element of good planning and logistics.

Usefulness of Workshop Topics and Exercises

Workshop participants were asked to rate the usefulness of the main topics covered during the one day workshop. Responses are presented in Figure 1.6.

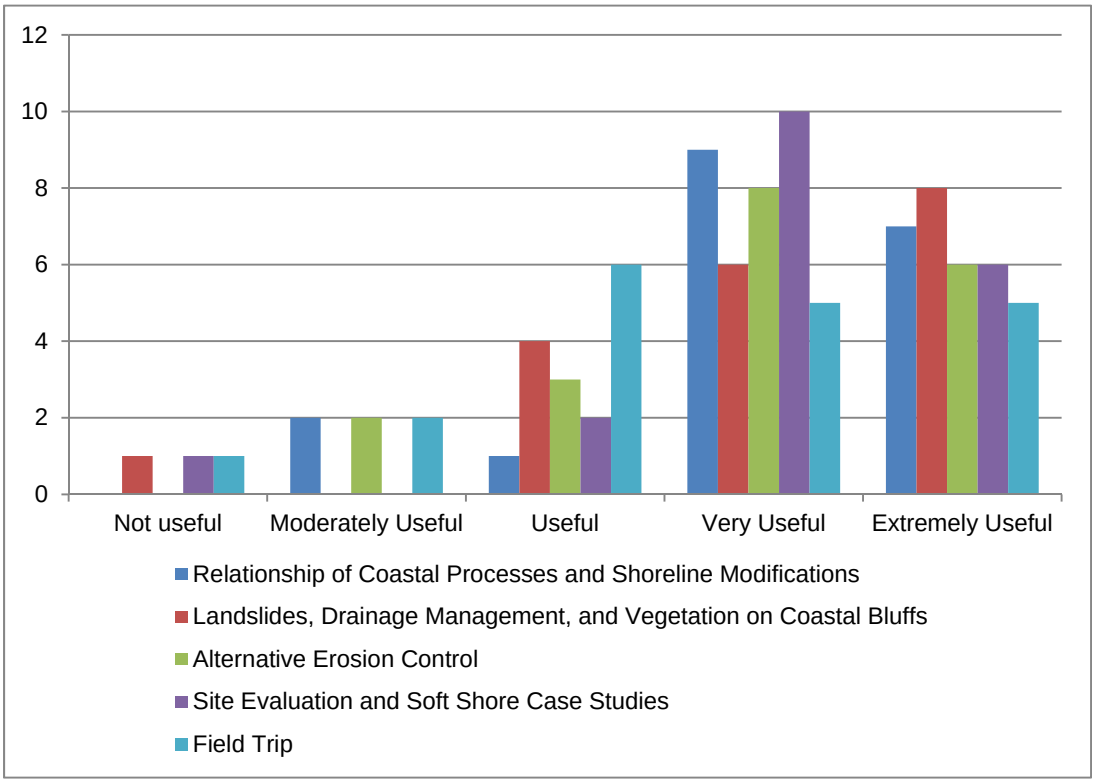
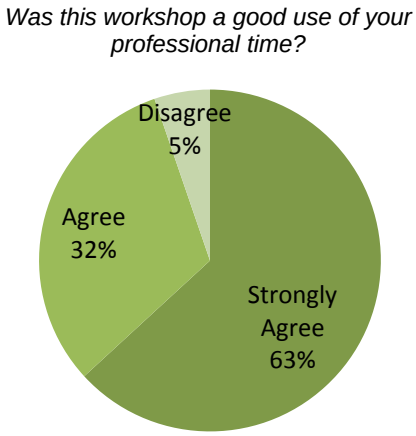


Figure 1.6. Participant Rating of Usefulness of Workshop Topics and Exercises

Over 90% of workshop participants reported the workshop topics covered to be useful, very useful, or extremely useful to their work. The highest rated topic by 53% of participants in the 'very useful' category is site evaluation and case studies, followed by coastal processes and shoreline modifications at 47%, and alternative erosion control at 42%. The highest rated topics in the 'extremely useful' category are landslides, drainage and vegetation management on coastal bluffs at 42%, followed closely by coastal processes with 37%, alternative erosion control and site evaluation and case studies both with 32%. One workshop participant reported not finding three of the five topics covered to be professionally useful.

Perceived Value and Knowledge Increase



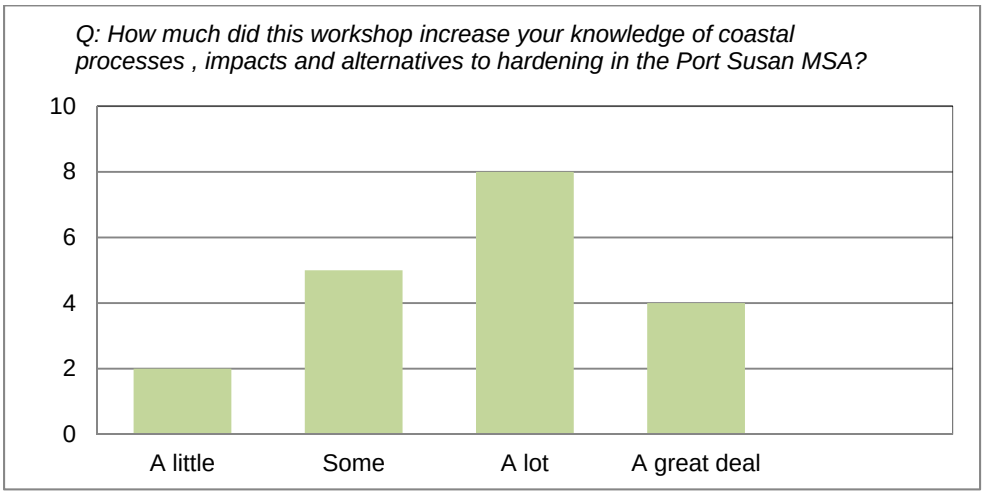


Figure 1.7. Participant rating of increase in knowledge as a result of workshop participation

Q: In what specific areas did the workshop increase your knowledge?

Coastal Processes

- Understanding the process that go on which shape and alter our coastlines, both naturally and how man-made structures can adversely affect them.
- While I have had experience with preparing and reviewing shoreline permits, I have never had someone outline and explain what coastal processes are and how man-made structures can influence these processes. The talk was very well structured and informative.
- I learned a lot about how to look at the beach information to help understand the connection between feeder slopes and silt formations. I also learned that not every site is a candidate for restoration/restoring!
- I have not had formal training on coastal process, so the information on the drift cells, feeder bluffs and sediment input was excellent. This course also provided great information on how the rising sea level and climate change will impact our shorelines.

Evaluating soft shore and alternatives to armor

- This workshop was a great refresher and increased understanding of bulkheads, processes affecting them, and alternative/soft armoring
- The workshop increased my knowledge of soft shore protection and the many factors to look at when assessing whether a project will be successful or not
- This was my first exposure to technical design elements
- When hard shore or soft shore armoring may not be the best solution based on site specific conditions
- I chose "3" because it reinforced a lot of what I already know and did increase my knowledge somewhat; I felt that we had a substantial discussion about the anchored driftlog technique, but could have discussed in more depth potential negative impacts of driftlog anchoring. I would find it useful to spend more time discussing the pros and cons of the different design techniques and the definition of what is (and is not) soft shore.
- Geology, soft shore techniques, project specific applications

Geographic area focus

- I already had some knowledge with respect to coastal processes and erosion control, and I had completed past DOE trainings, but I found this course's area specific examples and information very useful and informative

Q: How will you use the knowledge you gained in your work as a planner?

Working with landowners

- I have a much better idea of when alternatives to conventional shoreline armoring are appropriate and I feel better equipped to pass this information along to the public
- Providing recommendations to landowners, and helping them to better understand how the beach/bluff changes
- Definitely will look at long range items such as where a property is in regards to drift cells, specific area geology etc. Better ability to encourage property owners of this potential for having a natural looking beach that doesn't necessarily need a bulkhead to "keep" their property.
- Being able to send property owners to additional resources and technical experts in considering alternatives to bulkheading
- I will be able to provide information on an alternative to bulkheads to customers and applicants and direct them to agencies that can assist them

Evaluating projects

- I will use this knowledge when reviewing permit applications
- I have a better understanding of where driftlog anchoring and beach nourishment may be appropriate. I'm also more aware of the Port Susan system, the current level of modification in the area and importance of habitat preservation to a variety of species, and general shoreline policy trajectory in that area.
- Improved technical background for reviewing shoreline hardening proposals
- Encouraging soft shore protection projects to be more "natural" - what I've been seeing submitted is mostly chained logs, which don't seem to have the same benefits as the case studies we saw in this class. I'd like to encourage applicants to explore more options in soft shore
- Consider alternatives to directing stormwater to the beach

Incentives and regulations

- Creating incentives for shoreline disarmoring
- Drafting more effective regulations

Q: What was your favorite aspect of the workshop?

Instruction, Overall Content, and Materials

- The instructor's knowledge and experience
- The instructor was excellent
- Handouts and take home materials were great
- Knowledgeable speaker who did a good job getting participants engaged and answering questions
- Taught by expert who is very knowledgeable on the subject with background and experience in coastal processes and methods of shoreline protection
- The speaker was very knowledgeable and was great at fielding questions from participants. The class stayed on track with the scheduled topics and finished in a timely manner
- Instructor
- The presenter was good and the materials where visually interesting and relevant
- Obtaining new knowledge regarding shoreline protection alternatives to hard armoring that I can apply to my work, having field experts present that I could ask questions of, the direct applicability of information to my current work
- The most valuable aspect of the class was the morning lecture. This lecture was a basic introduction of coastal processes and the influence man-made structures can have. While I have learned much of this information through hands on experience, having it presented in a comprehensive lecture form was very informative and helped solidify my understanding. The case study samples were particularly helpful.

Case Studies

- Case studies were really helpful to see pros and cons of various practices over time.
- The case studies Jim presented were great, it was really encouraging to see the before and after pictures and realize that soft shore can be very successful and even attractive to landowners.
- Seeing the actual projects that have been restored to beach and how they have performed over time

Field Trip

- Field trip to beach
- Field trip
- The split between in class and outdoor training
- The field trip to Cavalero Park was an excellent site location because it clearly illustrated the effects of the bulkheads and drainage impacts on the beach. It also provided a good example of forage fish habitat.

Collaboration

- It was great to have staff from two counties together for the training

Q: What could be done to improve the workshop?

More information and resources regarding soft shore

- Planners are not taught geology. Most planners are likely not even interested in geology. We have to be generalists who know a little bit about everything, so we can evaluate sites and plans for wide-range of concerns. We need to know enough to know what questions to ask to determine when to bring in a specialist in a particular field. We do not need to be (nor are we really even supposed to become) specialists in a particular field. I need functional, field-applicable, quick-and-dirty rules and guidelines I can apply easily in a variety of situations without needing to hold a BS in the particular field of science from which the rule springs.
- More detailed information on what planners should look for when reviewing soft shore project proposals would have been helpful. I am not an engineer or coastal geologist so I do not truly understand the impacts of these projects. A checklist of best management practices for shoreline projects would be very helpful.
- The field trip was geology-heavy. I would have preferred to go to a soft shore site.
- It would be nice to visit a site where soft shore protection has been installed.
- I wish that the class could have centered more on helping planners talk to landowners and have the tools to encourage them to do a soft shore approach. It would also be helpful to have some way of putting applicants in touch with contractors who do soft shore protection projects, because often they talk to someone who only does concrete, or only does log piling, and that's what gets presented to us as the "only" option. But we are not allowed to recommend any professionals, so they often don't get connected with the right people and we don't end up with the best project for that particular site. I also wish the site visit had been to visit a soft shore project, or a site that was suitable for soft shore.

More time/length

- More time in class and field
- If a two day format were possible it would be useful to offer a more advanced version with a one day class session and a separate full day field session
- Additional field time to demonstrate various issues discussed in the class

Networking and Collaboration

- More time for facilitated networking between the 2 counties, or more discussion of issues that came up. We all benefited from each other's experiences
- We should have invited staff from the Tulalip Tribes

Q: What additional workshop topics would be useful to you?

Legal and Regulatory Topics

- Legal requirements and shoreline permit processing
- How to develop regulations that are enforceable- and practical!
- How to shift from providing incentives to developing and implementing policies that achieve the same outcome

- NPDES, SEPA, Forest Practice Permits, timber harvest regulations

Shore and bluff processes and management methods

- More shoreline processes and protection classes. The one-day class was great, but I would love to go into more depth. This is a very relevant topic these days, with SMP updates, climate change, the build-out of shoreline lots, etc.
- Shoreline and bluff vegetation management
- Perhaps a class focused more on the drawbacks of solutions that involve armoring
- More detailed discussion on types of plantings for erosion control on steep slopes and shoreline areas (rivers and salt water)

Skills

- How to give better presentations, education/outreach techniques
- Any water quality monitoring, storm-water/waste-water management
- Marine ordinary high water mark training
- Project management

Planner Outreach Assessment Summary

Audience needs assessment informs content and instruction

Based on the highly positive workshop evaluation results, the information gathered through the audience needs assessment conducted prior to the workshop was beneficial to ensure workshop content was designed to meet the needs of the target audience. Additionally, the needs assessment survey was successful in engaging the audience by inviting input for training program content, which may create a sense of investment and receptivity to information presented and increase motivation to provide additional post workshop feedback. The needs assessment identified specific content areas in which training was needed or desired, and also gave the instructor the ability to tailor content and instruction to the level of experience and prior training of the workshop audience. Without this knowledge of audience composition, workshop content can be simultaneously perceived as either repetitive or confusing, depending on where an individual lies in the spectrum of awareness, knowledge, and experience. Skilled educators employ techniques to structure the delivery of information in ways that invite participation and discussion, continually adapting content delivery based on audience interaction. Despite the wide range of experience and knowledge identified within the planner workshop audience, a high level of workshop satisfaction, knowledge gain, and perceived value with regard to specific areas of application was reported.

Post workshop survey results indicate that participants viewed workshop content as both appropriate and useful, particularly the case studies. The quality of the instruction and materials was the most commonly mentioned component of workshop value. Specific mention was made regarding the level of expertise and experience of the instructor, as well as ability to interact with the audience. This author observed that the presentation of real project examples led to a lively discussion regarding pros and cons and sharing experiences regarding the difficulties presented by the lack of a working definition of 'soft shore' and the difficulty this creates for planners in evaluating project impacts. Several participants communicated that the term 'soft shore' has become common on a wide range of project proposals but the lack of design guidance makes evaluation difficult even for experienced staff. These discussions were effective for stimulating ideas regarding specific

needs for additional training, resources, and support. Many of these identified needs were then reported by participants in post workshop survey responses, allowing the workshop to serve as a broader learning tool by identifying additional needs and potential next steps.

Professional collaboration as a potential long term outcome

Several workshop attendees commented both formally and informally on the value of attending training as a staff, and the value of attending training with the entire staff of another county. This allowed for both facilitated and informal discussion between co-workers, as well as across jurisdictions. Building professional relationships based on shared experiences can be a positive outcome of professional development workshops, especially when a high level of shared learning and interaction takes place. Follow up surveys or interviews could be conducted to determine the longer term outcomes that may be attributed to these relationships in terms of increased collaboration and communication. It is important to note that the ability to provide funds to reimburse counties for planning staff time was reported by both counties as a critical factor that allowed for all planning staff to attend the workshop at the same time. Collaboration with counties regarding the best time of year to offer the workshop was also an important step that made the high level of participation feasible.

Workshop elements: place-based, classroom, and field

A goal of this workshop was to increase familiarity with the marine shore geography of a specific place, the Port Susan MSA. Many participants commented on the unique experience of traveling to this area to receive training and were enthusiastic about getting out of the office and into 'the field.' Participants also expressed a high level of value for both the classroom and field trip portions, and expressed a desire for more training with field aspects, particularly trainings that would provide experience with evaluating real projects and sites. Based on post workshop survey results, these combined characteristics of the workshop, together with the quality of content and instruction, directly resulted in high levels of satisfaction, increased knowledge, and applicability of new knowledge to professional ability and effectiveness.

Planner Perspectives on Landowner Needs

The biggest need identified by planners regarding landowners was in the area of education regarding permitting and regulations, coastal processes, and management alternatives. This reinforces a key rationale of program design (described in the grant proposal) which proposed the use of targeted landowner education and outreach as a tool to meet the grant program goal to 'improve, strengthen, and streamline implementation and enforcement of laws, regulations, and permits that protect marine and nearshore ecosystems.' The strategy was to reduce demands on limited county permitting staff resources by reaching landowners before they arrive at the permit counter with plans for engineered shore protection that may not meet permit requirements. This need was identified by planners both before the workshop in the needs assessment survey and after the workshop in post workshop surveys.

The landowner needs assessment conducted for this project (Appendix A) reports that erosion was the most commonly stated concern by a large margin of marine shore landowner survey respondents in the MSA. The high level of participation and results of post workshop evaluations from the landowner workshops conducted as activities of this larger project indicate that opportunities to learn from and interact with professional experts about coastal processes, regulations, management options, and alternatives to armor are content areas that meet an existing need from landowners as well as planners.

Planner Workshop Products

Coastal Geologic Services. 2012. *Coastal Processes, Impacts, and Alternatives to Shore Hardening in the Port Susan Marine Stewardship Area.* Reference Notebook and PowerPoint presentation for Island and Snohomish County Shoreline Planners. Compiled for Northwest Straits Foundation. Printed by Coastal Training Program.

Snohomish County. 2012. Port Susan Marine Stewardship Area Marine Shore Features Maps: 4 maps. Produced by Snohomish County GIS with technical assistance from Coastal Geologic Services.

Section II. Marine Shore Landowner Outreach Assessment

Purpose of Marine Shore Landowner Outreach

The outreach project was designed to support Puget Sound Action Agenda priorities related to effective environmental regulation by improving the enforcement of existing regulations and improving compliance with rules and regulations to increase the likelihood of achieving ecosystem outcomes. Since hard shore armor disrupts natural sediment transport processes and degrades habitat, ongoing education efforts aimed at helping marine shore property owners understand and value the coastal sediment transport processes of the larger geographic area are critical to ensuring that hard armor is limited to areas where significant impacts are present and coastal erosion has been determined by a professional to be placing a home at risk. In areas where shore protection is determined to be necessary, outreach efforts that help landowners consider the cost and effectiveness of various alternatives informs landowner choices and can help to reduce the proliferation of hard shore armor.

The strategy for the targeted outreach activities to residential marine shore property owners that was employed in this project was aimed at reducing demand for shore armor project permits by expediting communication with potential applicants prior to submission of plans. The strategy was informed by the long standing challenge of limited capacity at the local level to evaluate development proposals and ensure rules, standards, and permit conditions are met. The landowner outreach strategy was also informed by recently conducted surveys of marine shore landowners by outreach/education providers in Puget Sound and the results of a needs assessment survey of landowners in the MSA conducted for this project and included in Appendix A. Surveys consistently identified 'erosion' as the most frequently stated concern of marine shore property owners. While education about shore processes has been identified and proven to be relevant and of interest to this audience, determining the need for shore protection, the impacts and costs of armor, and the identification and analysis of alternative measures for individual properties is highly site specific. In addition to educational workshops, this project included an incentive program which offered free site visits by qualified professionals to marine shore landowners in the MSA. The focus of the site visits was to understand landowner concerns and objectives and provide specific management recommendations that are cost effective and may not require permits.

Coastal Processes and Alternatives to Armor Workshops

Two landowner workshops took place in the MSA during the project period. The goals of the landowner workshops were:

- gauge the level of interest in the topic among landowners in the MSA
- increase awareness and knowledge of coastal processes, permitting requirements and alternatives to armor in an interactive community setting

The workshops were offered by the Northwest Straits Foundation and promoted with support from the Snohomish and Island Counties. Workshop content and instruction was provided by Jim Johannessen of Coastal Geologic Services and was based on the ongoing '*Living with the Coast: Coastal Processes and Alternatives to Armor'* workshops provided by CGS. These workshops has been offered, updated, and refined based on landowner feedback over a 20 year period by CGS. Content developed for these workshops has been tailored to different audience needs (planners, realtors, educators, volunteers, landowners) and/or geographic areas with

funding provided from a variety of private and public sources. Workshop content combines physical science with applied management. Over the years, these workshops have generated interest in numerous site visits which have prevented armor, and led to many residential scale soft shore protection designs and installations (J. Johannessen, pers. communication).

For the workshops developed for this project, information was tailored to be localized to coastal processes and characteristics of the Port Susan shore. Additionally, soft shore case studies and performance (monitoring) data were presented from sites around Puget Sound. The inclusion of case studies was based on landowner needs assessment survey data regarding landowner concerns. Workshop evaluations and additional landowner feedback is included as Appendix B.

Professional Site Visits

Based on the project goal to reduce negative ecosystem impacts resulting from shore hardening, and the grant program goal to streamline enforcement of existing regulations, the focus of the site visits was to provide site-specific management recommendations from experienced professionals based on best management practices, current regulations, and permitting requirements. Site visits were described and promoted as non-regulatory and conducted by experienced private consultants (see Appendix C: *Selection of Qualified Professionals*).

As an outcome assessment tool, the site visits provide an instrument to determine the impact resulting from attendance of this type of workshop on landowners by demonstrating willingness to receive site specific management recommendations from a professional. Information gained from the site visits provides additional value to project outcomes by allowing characterization of types of sites visited, characterization of landowner concerns and professional recommendations given, and impacts of the workshop and site visits related to changes in landowner attitudes and behaviors. The site visits also provide a basis for measuring longer term landscape outcomes such as vegetation preserved or armor prevented or removed based on the number and type of permit applications received over time for the specific properties visited. This report details short and medium term project outcomes only.

Application and Scheduling for Site Visits

An invitation to attend the workshop and to sign up to receive information about how to apply to receive a free site visit was sent via a direct mail flyer sent to all marine shore landowners in the MSA. The flyer asked recipients to complete a brief online survey. Landowners were also given the option to complete the survey via an enclosed return postcard. Initial response demonstrated more interest in workshop attendance than for the free site visits. Results of the survey are described in the *Landowner Needs Assessment Summary Report* (Appendix A). Significant interest in receiving a site visit was a direct outcome of workshop attendance. This and other workshop outcomes are described in the *Summary of Landowner Workshop and Evaluation* (Appendix B).

All landowners who expressed interest in receiving information about the free site visit program were sent an online application form via email. This included a small number of landowners who expressed interest in receiving a site visit but indicated that they were not able to attend the workshop. Upon receiving applications, follow up calls and interviews with landowners were conducted. A spreadsheet was developed and used for tracking applications received and categorizing applicants based on property characteristics, landowner concerns, and type of professional visit requested. This spreadsheet was used as a source of data for this assessment.

Prioritization of Parcels for Site Visits

Project activities did not include conducting landscape or parcel scale geographic analysis for prioritization of site visits beyond the parcels being located within the boundaries of the MSA. Project coordinators, in consultation with staff from CGS, developed simple screening criteria to use for prioritizing site visit applications based on the overarching project goal of minimizing negative ecosystem impacts from hard shore armor, and the grant program goal to streamline implementation and enforcement of existing regulations. This screen was used to develop questions for a site visit application form, and to communicate the eligibility and prioritization criteria to interested landowners. Applications were accepted on an ongoing basis throughout the program period.

Once an application was received it was placed into one of three categories: high priority, lower priority, and not qualified. High priority applications were scheduled immediately. Lower priority applications were put on hold to be scheduled at a later date, once site visits were scheduled for all high priority applications received. Several applications were received from marine shore landowners who reported that their major concern was the stability of the bluff *behind* their house. These sites were determined by project coordinators to not fit the goals of this project and therefore not qualified to be served by the free site visit program.

Prioritization of applications was conducted using the following steps:

1. Parcel Location

The grant application and promotional materials stated that only properties within the boundaries of the Port Susan MSA would be eligible to receive a free professional site visit as part of this project. Addresses and locations of properties were verified. Early interest in both the workshop and the site visits was substantially higher on the Island County side of the MSA and many applications were initially received from Camano Island landowners. Based on the response rate, Snohomish County project staff requested that parcels in Snohomish County automatically be given high priority in order to ensure that site visits were equally distributed between the two counties. No further screens were applied to prioritize Snohomish County parcels and all Snohomish County applications were scheduled for site visits. In order to generate more interest on the Snohomish County side of the MSA, a second workshop was added and took place in Snohomish County. Response remained higher from Camano Island landowners for both the workshop and the site visits. The number of site visit applications received and conducted by county is displayed in Table 1. Toward the end of the project period, a request was made by Snohomish County project staff to include site visits for 3 parcels outside the MSA boundaries located on the Tulalip Indian Reservation (see Figure 1 for site visit locations).

2. Prioritization of Parcels in Island County

Throughout the project period interest in the site visits was greater from landowners on east Camano Island in Island County. The final tally of site visit applications vs. site visits conducted by county is presented in Table 2.1 below.

Table 2.1. Number of Site Visits Requested and Conducted by County

County	Site visit requests	Site visits conducted
Island County	38	15
Snohomish County	15	15

In order to prioritize the Island County sites the following additional screening criteria were applied to Island County applications:

Sites currently without hard armor: Based on the grant and outreach program goals a determination was made that all sites that currently have no hard shore armor would be identified as high priority. Working with landowners at unarmored sites would streamline decision making by providing alternative management techniques that would potentially be less costly and not require permitting. This would be especially important in situations where proposed armor would not meet permit requirements. The focus for outreach at unarmored sites was to determine risk from coastal erosion, and to understand and address landowner concerns. Ideally, a professional site visit helps landowners consider a range of appropriate, site specific alternatives. These alternatives may include: no action; moving uses/structures/infrastructure landward; employing best management practices to reduce erosion potential; or pursuing a feasibility assessment for engineered soft shore alternatives, including site appropriate goals and design.

Sites with hard armor: It was understood at the outset of the program that a significant amount of both permitted and unpermitted hard armor already exists on the marine shore in this area, and that the majority of parcels would likely fall into this category. While it was recognized that removing existing armor is a highly visible way to reduce negative ecosystem impacts of hard armor, project activities were not designed specifically to identify armor removal sites. Armor removal is not feasible in many cases due to a variety of factors including:

- location of the house
- exposure to wind generated waves (fetch)
- sediment transport impediments
- bank/bluff geology
- influence of neighboring structures
- landowner willingness

For the purposes of site visit prioritization for this project, landowners who reported that they were considering a project to repair, replace, or remove a damaged or failing bulkhead would receive high priority for site visits as they would be actively making decisions regarding shore armor.

It was also recognized in the creation of secondary prioritization screens for armored sites that there are actions that landowners can take to reduce ecosystem impacts of hard armor, even where complete removal is not determined to be feasible or a landowner is not ready to pursue immediate armor removal. These actions may include:

- rebuilding armor further landward in order to uncover a portion of the upper beach
- partially removing armor
- stabilizing slopes and backshores with native trees and vegetation to reduce erosion rates
- moving structures/uses/infrastructure landward

All of these actions may result in making removal of armor feasible or desirable over time as conditions change. Proper vegetation and drainage management reduces non-point pollution and improves water quality, as does removal of creosoted wood from the intertidal zone. Retention of large, untreated wood creates microclimates for plants and insects. While these actions may not restore important physical processes such as sediment input and transport, they were considered to be desired outcomes toward meeting the broader goal of reducing negative ecosystem impacts from hard armor.

The Professional Site Visit Report

Professional consultants were contracted to meet with individual landowners at their property, discuss their concerns, and provide a brief professional assessment including management recommendations based on both the landowners stated concerns and what was observed at the site. Professionals generated a 1-2 page summary report based on field notes, discussions, and observations, and this report was sent to the landowner. A copy of the site visit report was provided to the Foundation to be used for grant reporting and project assessment activities. Promotional materials assured landowners that reports would not be used for regulatory purposes. Site visit reports focused on documenting landowner concerns and current property characteristics, identifying and assessing potential sources of erosion, and providing property specific management recommendations based on best management practices, current regulations, and permitting requirements.

Site Visit Outcomes

Landowner Interest and Participation

The grant budget for the project included dedicated funds to pay for 30 professional site visits during the one year site visit program period. Thirty site visits were conducted and were evenly split between the Snohomish County and the east Camano Island portions of the MSA (Table 1 and Figure 1). An additional six site visits were added toward the end of the project term, as there were unspent grant monies that were re-allocated to this budget category. These visits were outside of the scope of the original grant agreement and of the original assessment and evaluation design and are not included in the Site Visit Outcomes report. Copies of these site visit reports were sent to WDFW.

Response to the site visit program demonstrated significantly more interest from landowners on Camano Island (Island County). One reason for this may be that there are significantly more parcels, and hence more landowners, on the Island County side of the MSA. Island County has roughly 66% of developed shoreline within the MSA whereas Snohomish has roughly 34% of developed shoreline within the MSA (CGS GIS analysis). Moreover, Camano Island has experienced some significant landsliding recently, which may have heightened awareness of coastal management issues amongst worried property owners in that community. The Snohomish County shore includes the Stillaguamish River Delta and Kayak Point County Park.

In the summer of 2013, a second '*Living with the Coast'* workshop for landowners was added and conducted in the Snohomish County portion of the MSA with a goal to generate more interest in site visits in the Stanwood area of the Snohomish County portion of the MSA. The second workshop took place on June 1, 2013 at the Stillaguamish Grange Hall and was again well attended by 51 landowners but, like the first workshop, there were significantly more Island County landowners in attendance.

Locations and Types of Parcels Visited

Information from the professional site visit reports was used to:

- confirm site visit locations
- characterize the shoretype of parcels visited as either bluff backed beaches or no bank properties
- confirm armor status

Geographic locations of site visits and the armor status and professional service provided are displayed in map form in Figure 2.1, page 31 and as Table 2.2 on page 32.

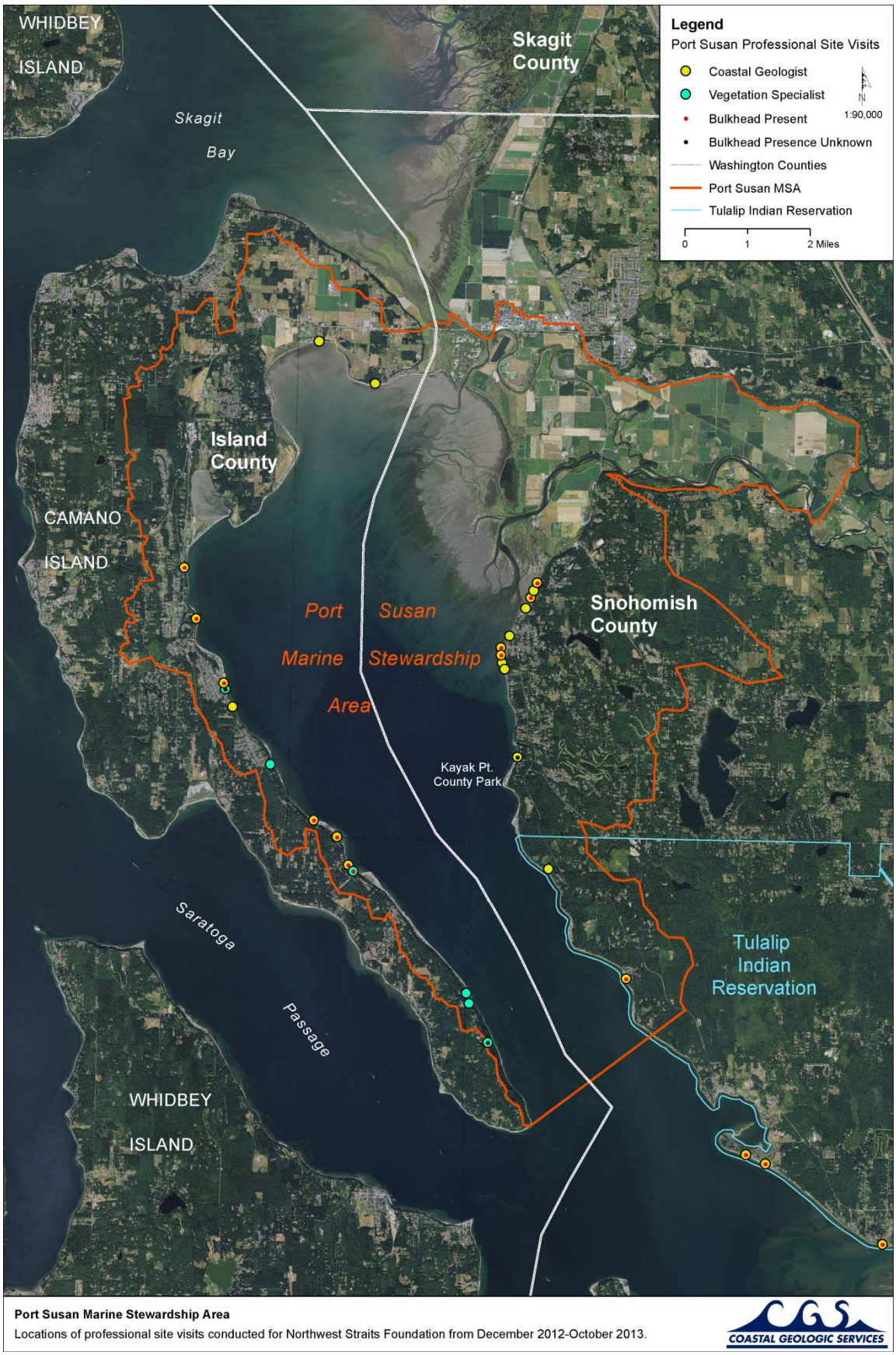


Figure 2.1. Map of Port Susan Marine Stewardship Area and site visit locations (courtesy of Coastal Geologic Services)

Table 2.2. Characterization of parcels visited by county, armor status, and type of professional service requested and provided

County	Shore type	Armor	No armor	Armor status unknown	Total	Vegetation Specialist	Coastal geologist
CAMANO ISLAND PARCELS	Bluff backed beaches	46% (6)	38% (5)	15% (2)	(13)	46% (6)	54% (7)
	No bank	50% (1)	50% (1)	(0)	(2)	(0)	100% (2)
SNOHOMISH COUNTY PARCELS	Bluff backed beaches	62% (8)	31% (4)	8% (1)	(13)	(0)	100% (13)
	No bank	50% (1)	50% (1)	0	(2)	(0)	100% (2)
TOTAL	All	53% (16)	37% (11)	10% (3)	(30)	20% (6)	80% (24)

The highest interest in site visits in both counties was from property owners of bluff backed beaches. These bluff backed beach parcels display a wide range of bluff heights. Of the bluff backed beach parcels visited, 46% of the Camano Island parcels are armored, while 62% of the Snohomish parcels are armored (Table 2). Armor status for 3 properties is unknown due to being a high bluff with no easy beach access and the professional conducting the site visit was not asked by the landowner to provide bulkhead assessment and did not visit the beach. Of all 30 site visits conducted, 53% of parcels are currently armored and 37% of parcels are not armored. Each county includes two no bank parcels, one armored and one not. Coastal geology was the focus of the professional site visits for 80% of the parcels, and vegetation was the focus of 20%. Coastal geology was the focus for 100% of the no bank parcels.

Setback Distance of Houses

In determining risk from coastal erosion, the presence of a primary structure (house) and the current setback of the house and infrastructure is a major determining factor. Site visit reports generated for this project include the setback distance of the house from the bluff crest for bluff backed beach parcels or from the ordinary high water mark (OHW) for no bank parcels. House setback distances for the sites visited are presented for Island County parcels in Figure 2.2 and for Snohomish County parcels in Figure 2.3 on page 33.

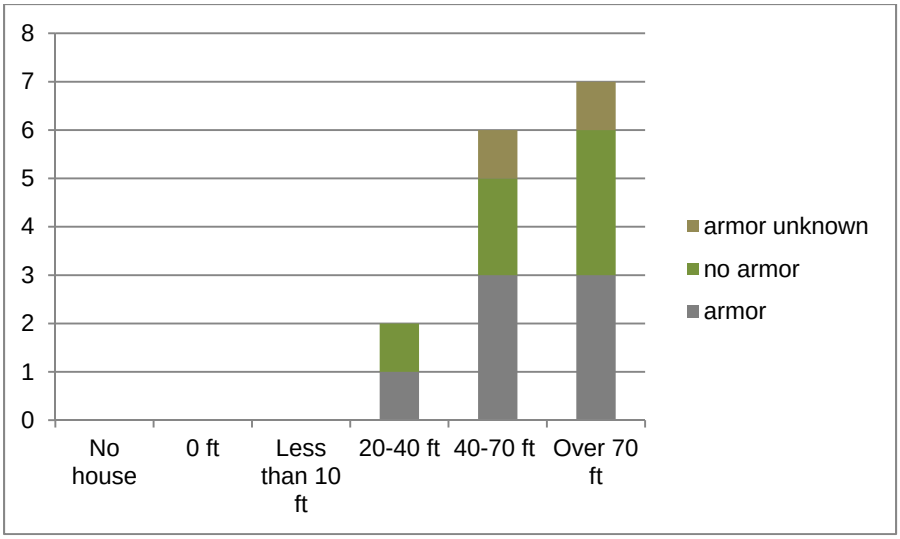


Figure 2.2. House setbacks and armor status for Island County parcels visited

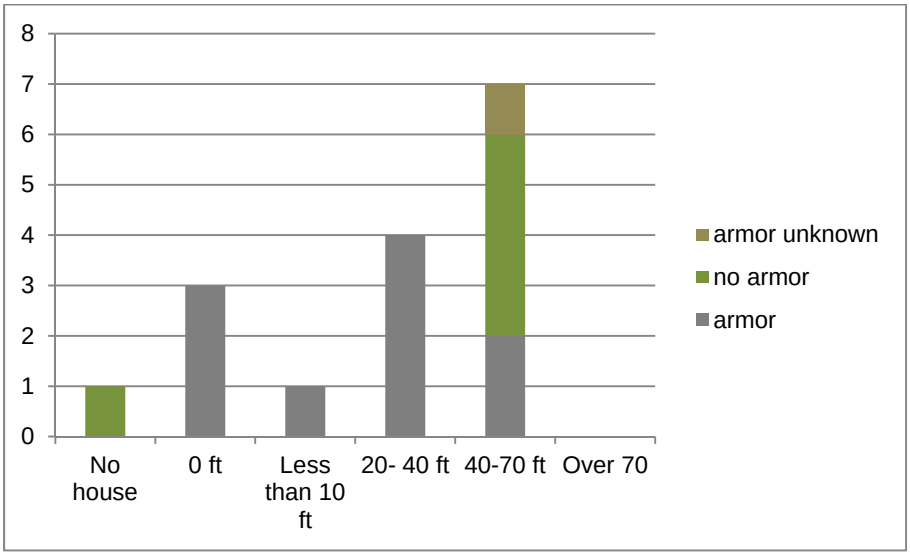


Figure 2.3. House setbacks and armor status for Snohomish County parcels visited

Island County parcels visited displayed greater setback distances overall, with 13% having 20-40 ft. setbacks, 40% with 40-70 ft. setbacks, and 47% with setback distances of over 70 ft. (Figure 2). All of the groups contain both armored and unarmored parcels.

Of the Snohomish County parcels visited, 27% have houses with a less than 10 ft. setback (Figure 3). All of these parcels are currently armored and this group includes one no bank parcel. One parcel does not have a house or armor and is used as a family camping site. Another 27% have a setback range of 20-40 ft. and all of these parcels are armored. The remaining 47% have house setbacks of 40-70 ft., and of these parcels 57% are not armored.

Landowner Concerns

Concerns of landowners are described in the site visit applications and by the professionals in the site visit reports. From these sources landowner concerns are characterized and quantified in the tables below (Tables 2.3 and 2.4, p. 33). Numbers represent the frequency with which each concern was expressed by landowners

prior to or during the site visits. Concerns are divided by armor status and shoretype (no bank or bluff backed beach).

Table 2.3. Landowner concerns for armored parcels by shoretype

Currently armored parcels (16)	Condition/ function of bulkhead	Slope stability/slides	Seepage/ drainage	Bluff management	Impacts of neighbors management practices
Bluff backed beach (14)	7	11	4	3	0
No Bank (2)	2	0	0	0	2

Table 2.4. Landowner concerns for unarmored parcels by shoretype

Currently unarmored parcels (11)	Need for bulkhead installation	Slope stability/ slides	Seepage/ drainage	Bank toe erosion	Erosion from neighbors bulkheads	Erosion of backshore or fill	Future stewardship of property
Bluff backed beach (9)	0	7	4	4	1	0	2
No Bank (2)	1	0	0	0	1	1	0

Landowner concerns expressed differences based on the type of property (bluff or low bank) and the current armor status of the property:

Bluff backed beach concerns: The most frequent concern expressed by landowners of bluff backed beach parcels with or without bulkheads is slope stability and landslides. Both armored and unarmored bluff property owners also expressed concerns regarding water seepage from their bluff.

No bank parcel concerns: Concerns that are common between armored and unarmored no bank parcel owners are impacts from neighbor's bulkheads and/or neighbors management practices.

Armored parcel concerns: The most common concern for both bluff backed beach parcels and no bank parcels is the condition of the bulkhead. Several owners express concern that their bulkheads were damaged in storms and high tides during the winter of 2012.

Unarmored parcel concerns: Unique concerns expressed by owners of no bank unarmored parcels are: whether they should install a bulkhead, erosion caused from neighbor's bulkheads, and erosion of the backshore (which in some cases is fill). A unique concern of unarmored bluff backed beach parcel owners is bank toe erosion. Two owners of unarmored bluff backed beach parcels expressed the unique concern of future stewardship of their bluff property. Both landowners expressing this concern are in the long term owner category, having owned their property for over 35 years. The concern expressed by these landowners was whether their legacy of bluff stewardship practices will continue into the future after they no longer owned the property. One of these owners was also concerned about impacts from a neighboring property where the bluff and land had been improperly cleared during site development.

Management Recommendations

Professional recommendations are also drawn from the professional site visit reports. Recommendations are characterized and quantified by the frequency with which they were recommended in site visit reports. Recommendations are summarized by shoretype in Table 2.5 and by armor status in Table 2.6.

Table 2.5. Frequency of professional recommendations by shoretype

Shoretype	Improve veg mgt and/or planting	Improve drainage mgt	Monitor erosion	Consider large wood placement	Move structures/ uses landward	Actions to reduce pollution	Pursue conservation easement
No Bank (4 parcels)	4	NA	1	1	2	2	0
Bluff backed beach (26 parcels)	24	19	6	3	3	9	2

Table 2.6. Frequency of professional recommendations by armoring status

Armor status	Improve veg mgt and/or planting	Improve drainage mgt	Monitor erosion	Consider future bulkhead removal	Consider large wood placement	Move structures/ uses landward	Pursue conservation easement
Armored (16 parcels)	9	11	1	4	1	4	0
Unarmored (11 parcels)	4	8	7	NA	3	NA	2
Unknown (3 parcels)	3	3	2	0	0	0	0

Some management recommendations were common to all property types and some were unique based on the shoretype and the current armoring status.

Most frequent recommendations given for all types of properties: Specific recommendations to improve vegetation management and/or planting and maintaining native plants and trees was the most common recommendation given for all types of properties. Recommendations include a spectrum of site specific advice ranging from pruning or removing/not removing specific trees for view considerations and slope stability implications, and advice for specific types of plants to encourage or discourage for bank/slope stability. In four cases, the vegetation consultant recommends consulting with a geologist prior to conducting large bluff planting project in order to determine the potential for deep seated slides within the bluff. Also common are recommendations to reduce various sources of non-point pollution entering Port Susan Bay from the property. Common sources noted and mentioned were chemical fertilizers and pesticides, creosoted wood, lawn clippings and yard waste thrown over the bluff or onto the beach.

Recommendations unique to bluff sites: Many landowners of bluff sites express concerns about trees being a potential source of landslides or slope failure on bluffs. In addition to vegetation management for slope stability, improvements for drainage management were the most common recommendation for bluff sites. These

improvements were site specific and directly related to the concerns of the landowner and characteristics of the parcel, including the location of structures and infrastructure on the property.

Monitor erosion: Where armor removal was not deemed currently feasible, and at unarmored sites where landowners expressed concern regarding coastal erosion but conditions were considered by the professional to not place the house in imminent danger, the recommendation to monitor conditions over time was made. In all of these cases, specific recommendations for improvements to vegetation management, planting, and drainage was also recommended.

Large wood placement: Placement of large wood as soft shore protection alternative to hard armor was recommended for 3 unarmored properties. Large wood placement is recommended for one armored parcel. Specific recommendations for placement of wood were given and landowners were informed regarding permitting requirements for anchoring wood on marine shores.

Bulkhead removal: The most common type of armor encountered during the professional site visits in the Port Susan MSA were soldier pile walls constructed of log boom sticks ranging in age and state of repair. Many have been patched or repaired within the last decade. The configuration of subject parcels within larger reaches of armor made the feasibility for bulkhead removal for a single parcel unlikely. Collaboration among neighbors could increase removal feasibility in some areas. Of the 16 armored sites, 4 (25%) were encouraged to consider removal or partial removal in the future.

Moving armor and uses landward: This set of recommendations includes setting a bulkhead further landward when reconstruction is necessary in order to uncover more of the upper beach; moving parking, lawn, or accessory structures such as stair landings or boat storage landward; or for the single parcel with no home (an unarmored, no bank site) to construct any future buildings or infrastructure either at or further landward than what is required for permits in order to maintain the safety of the home and the unarmored shore condition.

Pursue conservation easement: Recommendations to pursue a conservation easement were given to two landowners of unarmored bluff parcels. Landowners of these parcels were noted in site visit reports as having excellent vegetation management, and as having owned their shoreline properties for over 35 years. These landowners expressed a unique concern regarding future stewardship of their bluff property.

Post Site Visit Survey Results

A post site visit survey was developed and mailed to all landowners who received a site visit. The purpose of the survey was to determine medium term project outcomes. These specific outcomes were developed to measure program success toward the goals of the Puget Sound Action Agenda (Puget Sound Partnership), Marine and Nearshore grant program, and the cooperating state and federal agencies. The following medium and long term goals were outlined in the original logic model that was created to support project activities (NWSF 2012a):

Medium term:

- Management actions taken
- Native vegetation is preserved or enhanced to protect plants and animals

Long term:

- Degradation of habitats is minimized
- Increased resilience of nearshore ecosystems to sea level rise and climate change

In addition to obtaining information from landowners regarding the medium and long term project objectives, survey questions were designed to add supporting information to learn more about landowner concerns, attitudes, and the perceived value of workshops and site visits as an incentive to learn about and consider alternatives.

Post site visit survey questions focus on the following:

- Duration of property ownership
- Motivators for requesting a site visit
- Perceived value of the professional site visit to the landowner
- Changes in landowner attitudes toward property specific concerns
- Changes in awareness regarding issues and alternatives for coastal erosion management
- Landowner attitudes toward recommendations received
- Landowner input regarding additional incentives

A letter and accompanying survey was mailed by the Foundation to all landowners who received professional site visits. The first round of surveys and letters were sent in early September 2013 to landowners who received site visits since the start of the program in November 2012. Recipients of site visits that were conducted during the month of September 2013 received surveys within a shorter post visit time frame in mid-October. The objective was to give as much time as possible for landowners to consider and reflect on new information received and to capture any specific actions already being implemented or planned based on recommendations received. It was also desirable to receive as many surveys responses as possible prior to the project end date.

Survey Response

As of October 28, 2013, survey responses had been received from 47% of the landowners who received a professional site visit. Survey responses are quantified by county (Table 2.7) and by length of property ownership (Table 2.8).

Table 2.7. Survey response by county

County	Site visits	Surveys Returned
Island County	15	10 (71%)
Snohomish County	15	4 (29%)
TOTAL	30	14 (47%)

Table 2.8. Length of ownership reported by survey respondents

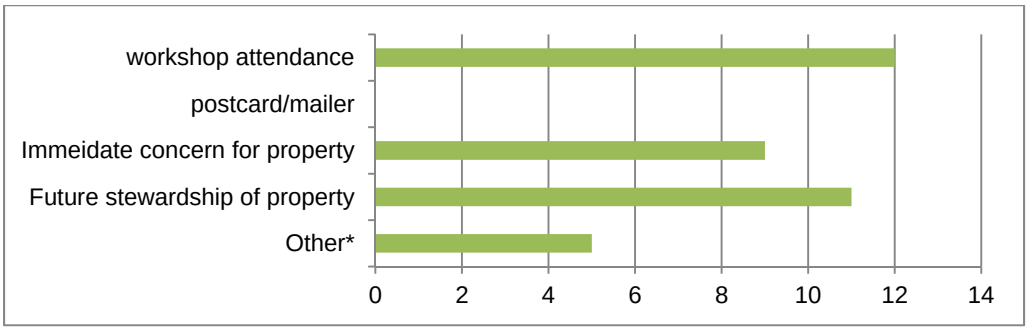
County	0-5 years	6-10 years	Over 35 years
Island County	6	3	1
Snohomish County	1	1	1
TOTAL	7 (50%)	4 (29%)	3 (21%)

Half of the landowner survey respondents have owned their property for 5 years or less. Landowner survey respondents who report owning their property for between 6 and 10 years represent 29%, and 21% report that

their property has been in their ownership for over 35 years. One respondent reports that the property was in their family prior to their current ownership. Over half of the respondents report that their property is within a formal homeowners association. These associations provide a potential mechanism for community based outreach efforts and collaborative stewardship.

Motivators for Obtaining a Professional Site Visit

Respondents were asked: '*What motivated you to pursue this opportunity for a free site visit to your property?*' The survey allowed landowners to list multiple sources of motivation. Frequency of responses is displayed below.



**includes rebuild options for damaged bulkhead (2), implications of neighbors bulkhead (2), and share information with neighbors (2).*

Workshop attendance was the most frequently cited motivator for obtaining a site visit (86% of the survey respondents). Additional motivators were a desire to learn more about best management practices in order to inform future stewardship (79%) and an immediate concern for their property (64%). None of the survey respondents indicated that receiving the postcard mailer was a motivator for obtaining a site visit.

Value of the Site Visit

Landowners who received site visits were asked to rank the value of the site visit as not valuable, valuable, very valuable and extremely valuable in three categories. Responses are listed in Table 2.9.

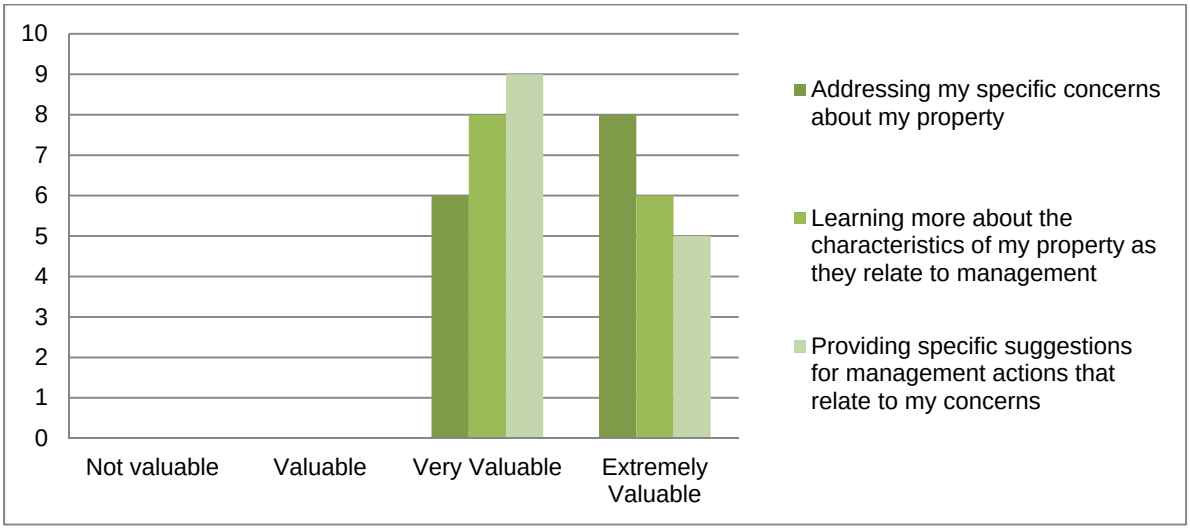
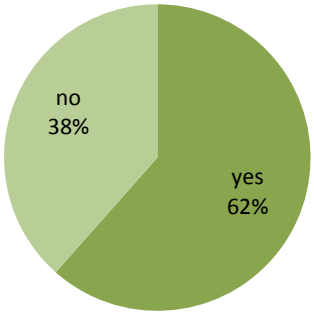


Figure 2.9. Landowner rating of value of site visit

All post site visit survey respondents indicated that the site visit was very valuable or extremely valuable in addressing their specific concerns, learning more about the characteristics of their property as they relate to management and providing specific suggestions for management actions related to their concerns. Landowners were also asked whether the site visit changed the way they view their concerns. Responses are below.

Did the site visit change the way you view your concerns about your property?



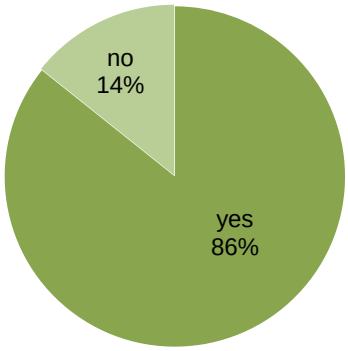
Landowner comments:

- *I now understand what I need to do to maintain long term stability on our bluff*
- *I knew nothing about bluff management*
- *We are relieved because we thought we needed a bulkhead*

Impacts of the Site Visit on Awareness of Alternatives

A primary purpose of both the workshop and the site visits was to increase awareness of the range of alternatives available to manage coastal erosion and to apply this knowledge to the conditions present at specific sites. Responses are below.

Did the site visit increase your awareness of alternatives for management?



Landowner comments:

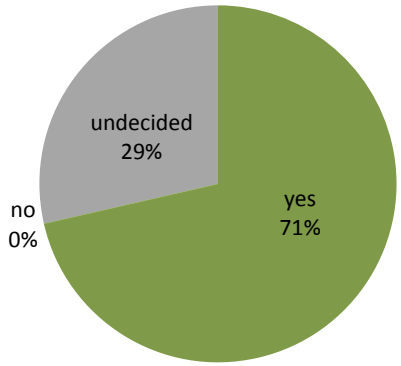
- *There are few alternatives for my property because my bank is so steep*
- *Additional plants to use*
- *Planting the bluff crest*
- *Removing some of the lawn and planting the backshore*
- *We had already submitted a permit application to rebuild our bulkhead but may consider rebuilding it further back or in a different configuration*
- *We had not previously considered moving our parking area*

The majority of survey respondents (86%) indicated that the site visit increased their awareness of the range of alternatives that could be used to manage coastal erosion on their property.

Implementing Recommendations

Landowners were asked whether they plan to implement any of the recommendations they received and to specify. Responses are below.

Do you plan to implement any of the recommendations you received from the professional site visit?



Landowner comments:

- *Plant natives and remove invasive species*
- *Native trees will be preserved and native plants will be less trimmed*
- *We have contacted a landscape expert and though it is very expensive we plan to attack the issues*
- *Creating a native plant border between the house and the beach, removing lawn*
- *Planting the backshore to absorb wave energy*
- *Repair our bulkhead*
- *Depends on what Snohomish County will require/allow*
- *We shared copies of our site visit report with neighbors*

The majority of survey respondents (86%) indicate that they plan to implement some or all of the recommendations they received from the professional visit to their property. The most common specific actions noted are related to removing invasive species (such as English ivy and Himalayan blackberry) and planting natives, preserving trees, or pulling back lawn. None of the respondents answered no to this question, however 29% reported they are undecided. Landowners who reported that they are undecided were referring to recommendations such as armor removal which require greater investment in time, planning, and money.

Landowner Comments and Incentive Ideas

Landowners were asked to reply to an open ended question regarding the value of the services they received (workshop and site visits) and indicate additional ideas for incentives for landowners. Responses are grouped into categories based on similarities and listed below.

Q: In addition to the workshop and free site visits offered through this project, what other offerings, programs or incentives might motivate you and/or other marine shoreline property owners to take management actions that would reduce negative impacts of shore hardening?

Workshops:

- *We are very grateful for both the workshop and site visit and found both very valuable.*
- *More workshops like this one.*
- *I thought this was an excellent workshop and would like to see more programs like this offered.*
- *It was helpful to learn about the various fish habitat in the nearshore environment that the frustrating permit process is designed to protect.*

- *I appreciated the opportunity to learn about shore processes and see specific project examples where alternatives have been used and how they have performed.*
- *As property changes hands, information and an effort to procure homeowner commitment to make proper, environmentally sound, and more educated choices is essential. We honor the commitment we made when we purchased our property. The county needs to provide, monitor and support shoreline management efforts as well.*

Site visits and demonstration sites:

- *The site visit prompted me to learn more about my property and the management of it.*
- *I knew nothing about bluff management. Most of what I have been told in the past was wrong (e.g. I have been told that trees on the bluff are a bad thing and that ivy is good). We had some plants on our bluff that I thought were bad and found out they are good.*
- *We shared our site visit report and now feel everyone has received information and we can monitor and report any activities that represent dangerous or damaging activities.*
- *My husband has owned the land for approximately 38 years. We built in 2001 and have lived here since. Over this time we have worked hard to maintain the bluff vegetation, keep it stable and provide habitat for wildlife. Our site visit affirmed what we have tried to do which was very encouraging. Thirteen years ago it would have been immeasurably helpful to have received this advice. It would have saved us a great deal of research, hard work and time, but we have learned a great deal! Thank you.*
- *More programs to encourage shoreline property owners to plant natives along the water for improved wildlife habitat, water quality, microclimate and soil stability. Offer a native plant sale on Camano Islands similar to the Snohomish County plant sale in Monroe with native plants recommended for a marine shoreline. Create a destination site on Camano Island using soft shore measures for Island County residents to visit. Create a website with recommended plant lists, examples of marine plants etc. as a resource for shoreline property owners.*

Costs/expense:

- *Since traditional insurance does not cover the loss I incurred (bulkhead damage) economic incentives should be explored—does the state provide some grants/loans to help motivated landowners? Also, I can take care of my property but what if my neighbors don't comply?*
- *Anything that pertains to problems or potential negative impacts on our shoreline and all incentives available as grants to improve our shoreline.*
- *Money talks. Tax incentives would be a huge help. Information to reassure owners that with the proper management, shore plantings etc. removal of the bulkhead is not going to incur future damage to their property.*

Permitting/Regulations:

- *It is difficult to understand county regulations for the management of shoreline property.*
- *Streamline process for bulkhead construction, replacement, repair, removal, etc. Investigate alternative methods of introducing sand into the nearshore environment rather than forcing homeowners to allow their properties to erode.*

Landowner Outreach Assessment Summary

Moving from Awareness and Knowledge to Action

Survey results demonstrate that the landowner workshops were an effective mechanism to motivate participating Port Susan landowners toward direct action for implementing best practices for stewardship on their shoreline property. The majority of landowners who participated in the workshops were not well informed of Puget Sound coastal processes, impacts of armor, or alternatives to armor. Based on landowner feedback from post workshop surveys, workshops were effective at moving landowners into awareness and knowledge. In addition, the workshops were an effective motivator for the landowners who attended to obtain a professional site visit, and the site visits helped these landowners move from knowledge to action by providing recommendations from qualified, independent experts regarding exactly what actions could be taken on their property to improve conditions while lessening harmful impacts to the environment.

Concerns expressed regarding neighboring property owner actions and changing ownership, along with the high interest in workshops and site visits from newer owners (5 years or less), suggests that ongoing workshops and site visits are necessary in order to continually reach new shoreline landowners with awareness and knowledge to inform management decisions. The results of these efforts appear to be amplified when they are conducted in a focused geographic area, allowing community engagement and sharing. This builds on the already present element of certain long-time residents as 'trusted messengers' by augmenting their experience and first-hand knowledge of the shore with science and management information. When workshop content and delivery are designed to meet the needs of the landowner audience knowledge can be increased and can result in receptivity and interest regarding professional site visits and consideration of a range of site appropriate management alternatives.

Range of Landowner Concerns

Residential private property owners in Port Susan expressed concerns that vary according to property type and armor status. Although the specific concerns are related to property characteristics, the broader category of the concerns expressed by this group of landowners is erosion. This result mirrors the results of the needs assessment (NWSF 2012b) as well as other recently conducted marine shore landowner surveys in other areas of Puget Sound (such as the Whatcom County Coastal Property Owner Outreach Project, CGS 2011), with erosion being the most commonly expressed concern by a large margin. In some cases it may be fill or lawn that is eroding; in other cases it is real or potential bluff erosion that is the concern.

For armored sites the condition of the armor was the most common concern. Landowner perceptions of the effectiveness and necessity of bulkheads for shore protection, and the difference between perceived and real need for shore protection are driving factors that influence how landowners perceive alternatives to hard armor. Qualified professionals listening to and addressing specific landowner concerns was identified as a highly valued element of the site visits, alongside obtaining specific management recommendations and options to address these concerns.

Past Practices and Influence of Neighboring Properties Limits Options

The unprioritized site visits conducted on the Snohomish County side of the MSA provide an example of the wide range of situations that exist on the marine shore and the tendency for landowners in the most challenging situations to have the most interest in obtaining professional advice. Sites visited in Snohomish County had

lower setback distances for houses, and more armored parcels than the sites visited in Island County. This may be due in part to the screening process that was applied for the Island County parcels which was intended to select parcels with the greatest likelihood for implementing the desired actions.

Sites in both counties demonstrate the challenging situations that many landowners currently find themselves in. Failing structures built without permits, houses built on fill over the backshore, or houses close to the crest of an unstable bluff represent sites with options limited to retaining and rebuilding an existing bulkhead or moving houses. Similarly, impacts of neighboring properties, such as bulkhead induced erosion or structures that interrupt sediment transport, often limit alternatives such as bulkhead removal or sustainable soft shore protection for many parcels. Parcel size is another factor that restricts feasibility for bulkhead removal and/or soft shore protection, underscoring the need for shared shoreline stewardship as a goal in order to make these options more broadly feasible.

The Importance of Prevention

Shoreline Master Programs in both counties require landowners to demonstrate the need for new shore protection structures based on a geotechnical report and a determination that the proposed erosion control structure will not result in a net loss of marine shore ecological function. This determination is based on both the perception of risk on the part of both the landowner and the professional that they hire. Many geotechnical professionals and engineers do not have expertise in coastal processes, and some earn their living building erosion control structures, so there is clear potential for bias in these determinations. The large majority of armor at sites visited on the Port Susan MSA shore was reported to have been constructed by a single contractor (as relayed by the coastal geologist).

Poor development practices, both past and present, can accelerate erosion and result in both real and perceived need for erosion control structures. In addition, permit staff and landowners report that permitting is perceived as so expensive and time consuming that many landowners choose to forgo the process, install unpermitted armor, and risk penalties (Snohomish County planner, pers. communication). Unpermitted construction of shore protection has occurred in Puget Sound before and after Shoreline Master Programs came into effect in the late 1970s, resulting in the high percentage of armored shores and filled backshores that exist on the marine shore today. A sense of lax enforcement and a lack of significant penalties, combined with the awareness that in many cases county and WDFW permits are granted 'after the fact' (J. Johannessen, pers. communication) creates a situation where reverse motivators to obtain permits are in place. As a result, measures that only look at rates of permitted armor installed are likely to under-represent the reality. This supports the conclusion that education is an effective tool that, implemented correctly, can support regulatory and enforcement efforts.

New armor installation was not determined by professionals to be necessary for any of the sites visited. This raises an interesting question for evaluating outreach outcomes in this area: how can taking no action to control erosion be measured as a positive outcome? This challenge may lead to a bias toward soft shore protection installation as a goal because it can be easily measured. However, soft shore protection (also referred to as soft shore armor, soft shore stabilization, etc.) also relies on site specific feasibility and design informed by coastal processes in order to achieve the goals of long term success and low maintenance costs for landowners. In addition, it was reported by planners that 'soft' is not well defined for marine shores for regulatory purposes and hence difficult for planning staff to evaluate both the need for installation and the degree of 'softness' of the designs. Planners reported that it has become more and more common to see designs titled 'soft shore' when submitted, even when they are for traditional bulkheads made of wood or chained or buried logs or rock.

Large wood placement for erosion control was recommended by the coastal geologist for 3 sites (27% of unarmored sites), however in all of these cases this was recommended as something to consider in the future if necessary. For the remainder of sites, actions which do not require permitting such as planting, managing drainage, and continued monitoring was determined by professionals as an appropriate action for the current conditions. This is likely a contributing factor to the high level of landowners reporting their intent to implement recommendations received. It is important to note that 100% of landowners of non-armored parcels who responded to the post site visit survey indicated that they intend to follow through on the recommendations they received. These parcels have a high likelihood of maintaining their unarmored status, at least into the near future.

Getting to Bulkhead Removal

Armored sites represented 53% of the sites visited, but armor removal was recommended for consideration for only 25% of these sites. Of these sites, 2 landowners reported that they have already submitted permit applications to repair or rebuild their damaged bulkhead. In a visit to one of these sites which this author observed, the landowner reported that they had been informed by a Snohomish County Public Works employee working in their neighborhood after a winter storm that they need to rebuild their damaged bulkhead. This determination was given without viewing the shore of the property or the bulkhead. Based on that advice they contacted the original contractor who built the bulkhead by phone. The contractor immediately secured a large non-refundable deposit for reconstruction. After consulting with the coastal geologist, these owners expressed willingness to consider reconstructing the bulkhead further landward or of shorter length, but they were uncertain regarding forgoing reconstruction due to the significant deposit paid.

A separate 25% of armored sites were recommended to consider relocating their bulkhead landward when rebuilding becomes necessary in order to uncover more of the upper beach. In these cases bulkhead removal was not recommended due to neighboring bulkheads and/or the site orientation and exposure to waves combined with inadequate house setback distance.

Removal of a bulkhead is a big decision for a landowner and involves consideration of a variety of factors including perceptions of risk, cost, and the permitting process generally perceived as hard to understand, costly, and time consuming, particularly in Snohomish County (J. Johannessen pers communication). While a professional may determine that it is feasible to remove a bulkhead, actual removal takes many steps and a significant amount of time for either the landowner or the design engineer to steward through the permit process. Landowners who report in their post site visit survey response as being undecided regarding their intent to implement the professional recommendations they received were all referring to bulkhead removal.

A New Paradigm for Shared Stewardship

The relationship between armor prevention, armor removal, and minimizing ecosystem impacts from hard armor was demonstrated by the variety of shoretypes and conditions encountered and the nature of the specific recommendations given by professionals during the site visits. An additional factor appears to be momentum behind building and repairing bulkheads brought on by neighbor actions and contractors. This momentum, along with the continued prevalence of unpermitted shore protection activities, creates an ongoing need for outreach activities aimed at prevention. Both bulkhead prevention and removal are desirable from a resource management perspective, and creating broader awareness of ecological impacts may be a good place to start, but the results of the site visit program demonstrate that a wide range of specific landowner concerns must be

addressed. In addition, site specific feasibility and design based on coastal processes, along with application of best management practices, are essential elements to ensure that sites where hard armor is removed remain unarmored in the future.

In situations where armor removal is either not currently deemed as feasible without endangering a house, or where current landowners are not interested in removing armor, actions can still be taken to increase awareness about properties, increase shoreline vegetation, and reduce non-point pollution. In some cases, landowners are receptive to moving armor further landward, or reducing the amount or type of armor. In some cases where the existing armor is not needed but is also not causing an immediate problem, landowners may decide to simply allow the armor to fall apart over time, or removing it piece by piece to avoid the expense and hassle of a larger process. These actions represent steps along the desired stewardship trajectory. Figure 5 displays this relationship as a progressive spectrum with ongoing prevention as the end state goal.

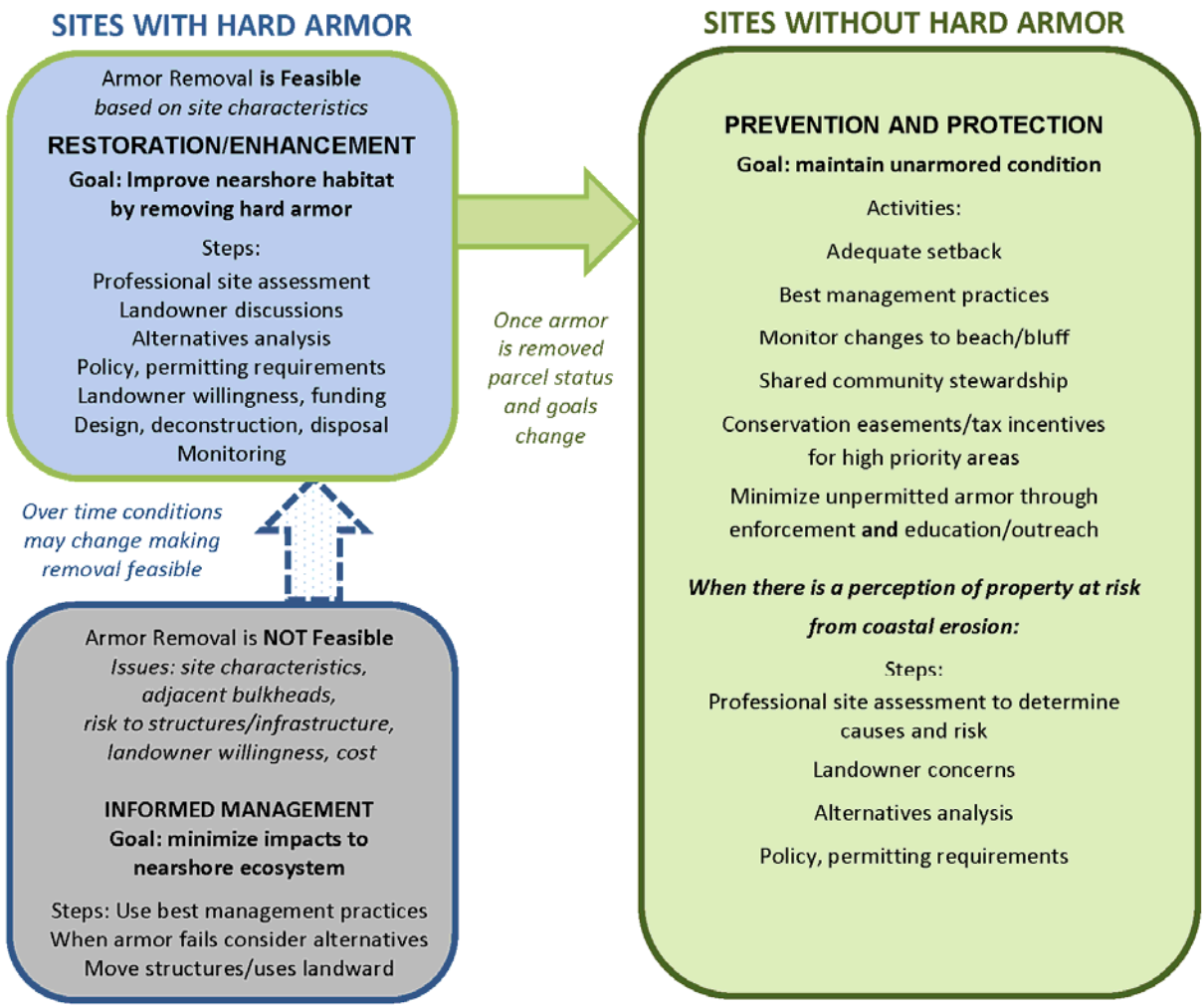


Figure 2.5. Moving toward marine nearshore resiliency and stewardship in Puget Sound model (EE Outcomes, 2013)

Changing environmental conditions, such as large storms and sea level rise, will influence the range of options available to landowners. Direct landowner outreach activities aimed at understanding coastal processes, impacts of armor, best management practices, permitting requirements, and alternatives to armor are a productive

mechanism to support ongoing Shoreline Master Program implementation. Targeted outreach efforts and incentives focused on high priority areas and/or on places where shared management of the shore is already in place (such as homeowners associations) are two potential ways to achieve measurable outcomes within a concentrated time frame. However, feasibility and landowner willingness will remain critical limiting factors.

While workshops and other outreach activities are some of the general tools that are currently being used to bring about resource protection and restoration, the direct and focused landowner engagement described in this report appears to fill a unique role in measurably forwarding the long term goals of the WDFW and DNR Marine and Nearshore Program.

References

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Schlenger, P., A. MacLennan, E. Iverson, K. Fresh, C. Tanner, B. Lyons, S. Todd, R. Carman, D. Myers, S. Campbell, and A. Wick. 2011. *Strategic Needs Assessment: Analysis of Nearshore Ecosystem Process Degradation in Puget Sound.* Prepared for the Puget Sound Nearshore Ecosystem Restoration Project. Technical Report 2011-02.

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Appendices

Appendix A. Landowner Needs Assessment Summary

Summary of Needs Assessment for Targeted Outreach to Shoreline Landowners in the Port Susan Marine Stewardship Area

Northwest Straits Foundation staff worked with project partners to conduct pre-workshop needs assessments of target audiences for two workshops (planners and shoreline landowners). This information was used to inform workshop content, materials development and delivery methods and to provide the basis for recommendations for future outreach activities necessary to achieving the long term goal of reducing shoreline hardening the Port Susan Marine Stewardship Area.

Landowner Needs Assessment Survey
Overview
The target audience for the landowner needs assessment survey was marine shoreline landowners in the Port Susan Marine Stewardship Area, which encompasses the shoreline of Snohomish County around Port Susan Bay extending south to the Tulalip Indian Reservation, and the east shore of Camano Island in Island County (see appendix A). The workshop was part of a larger grant funded project that includes a needs assessment survey and workshop for county planning staff, and the implementation of an incentives program to provide free site visits from qualified professionals to landowners in order to receive management recommendations specific to their property. The goal of the project is to reduce shoreline armoring in the Port Susan Marine Stewardship Area. The project was designed based on a similar outreach project in Whatcom County (Coastal Geologic Services, 2011) that also used needs assessment survey data to inform content for landowner workshops in Whatcom County. The addition of the site visit incentives program was derived in part from post workshop survey responses from Whatcom County shoreline landowners in which participants indicated a high interest in receiving property specific management recommendations while reported concern about cost as the main limiting factor in obtaining a site visit.

Purpose
The purpose of the pre-workshop survey was to:

1. Conduct targeted outreach to property owners in the Port Susan Marine Stewardship Area in order to gather data regarding landowner characteristics, values and concerns with regard to shoreline property ownership
2. Gage interest and identify barriers to participation in a workshop for private shoreline property owners
3. Obtain feedback from potential participants to inform design of workshop content

4. Gage interest in obtaining a free site visit from a qualified professional to obtain property specific management recommendations

Methods

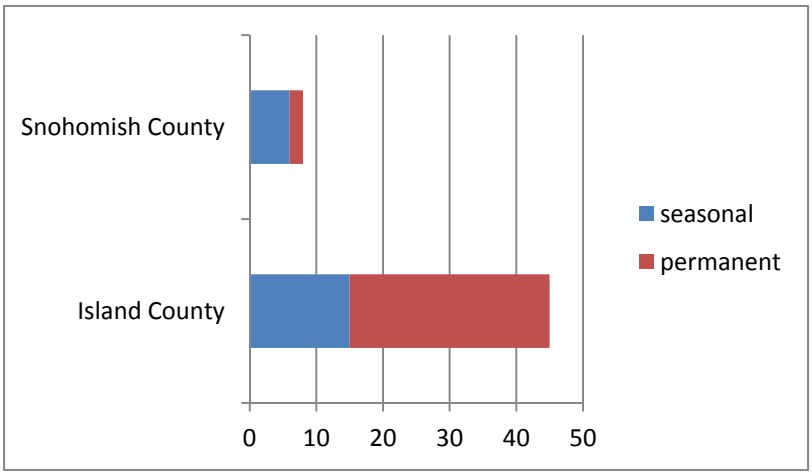
A parcel owner database was provided by Snohomish County which included mailing addresses for marine shoreline property owners on both the Snohomish and Island County sides of the Port Susan Marine Stewardship Area. The database had 1,077 landowners for Island County and 466 Snohomish County owners. A flyer was created to promote the workshop and site visit opportunity (see appendix B). The flyer included an invitation to complete an online survey (see appendix C). A postcard mailer was included in the direct mailing to allow people to respond to the survey via mail. The survey link and postcard were also used as the tool to pre-register for the workshop and/or to receive more information regarding the site visit opportunity.

Responses were collated into an excel spreadsheet that could be sorted by category. Responses were sorted by demographics (county of residence, length of residence). Information regarding audience profile, interests and concerns were shared with workshop instructors to inform content development prior to the workshop.

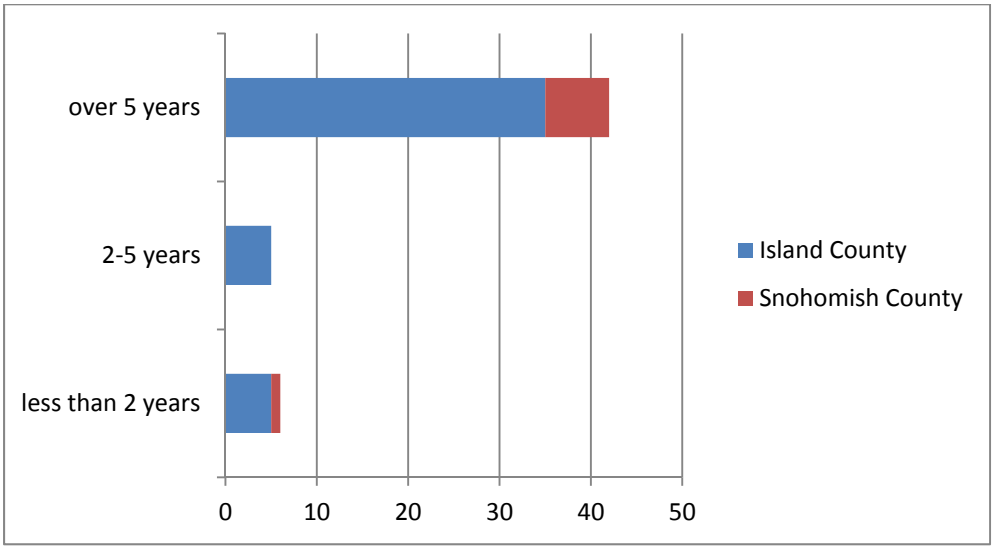
Survey Results

Island/Snohomish Response

Prior to the workshop a total of 53 survey responses were received. The majority of responses (64%) were received via the online survey. Of the online survey responses 29 were from Island County and five from Snohomish. Postcard responses were 16 from Island County and three from Snohomish. Overall responses were 45 (85%) from Island County and 8 (15%) from Snohomish County. Bear in mind that Island County respondents were from the east side of Camano Island only since the mailing was limited to shoreline landowners in the Port Susan Marine Stewardship Area. The majority of responses (68%) were received from landowners who identified themselves as permanent residents at their shoreline property. 32% of respondents identified themselves as seasonal residents.



Length of Residence/Ownership
The combined total for the responses was 42 (80%) 5+ year residents, 5 (9%) 2-5 year residents and 6 (11%) less than 2 year residents.



New Residents Values and Concerns
Of the 6 respondents that indicted they have owned their property for less than two years, one indicated they are a seasonal resident and five were permanent residents. Five of the responses were from Island County and one from Snohomish County, which was the single identified seasonal resident in this group. 100% of respondents in this group indicated they would attend the workshop and 100% indicated interest in site visits.

What do you value most about your coastal property?

New Resident Values	View	Marine wildlife
Snohomish County	1	1
Island County	5	

What concerns you most about your coastal property?

New Resident Concerns	Bank/Bluff stability, erosion	Landscaping
Snohomish County	1	1
Island County	5	-

Are you interested in attending the workshop? Are you interested in information about a free site visit to your coastal property?

	Attend workshop?	Site visit interest?
Snohomish County	1 (1)	1 (1)
Island County	5 (5)	5 (5)

Medium Residents Values and Concerns
5 respondents characterized themselves as two-five year residents. Of these medium term residents, 100% indicated they are permanent residents and all reside in Island County. Three respondents indicated that they intended to attend workshop and all five indicated interest in receiving a site visit.

The two respondents that indicated they were interested in the site visit information but could not attend the workshop reported not being available that day as the reason for not attending the workshop. Both of these respondents requested information from the workshop be sent to them and expressed regret at not being able to attend.

What do you value most about your coastal property?

Medium Resident Values	**View**
Island County	5

What concerns you most about your coastal property?

Medium Resident Concerns	**Bluff/bank erosion**	**Managing vegetation**	**Polluted runoff**
Island County	5	1	3

Are you interested in attending the workshop? Are you interested in information about a free site visit to your coastal property?

	Attend workshop?	**Site visit interest?**
Island County	3 (5)	5 (5)

Long Term Residents Values and Concerns

The largest group of respondents (80%) reported having owned and occupied their property for over five years. In this group seven were from Snohomish County and 35 were from Island County. 26 respondents were permanent residents and 16 were seasonal. All but one of the Snohomish County respondents indicated they are permanent residents. 20 of the Island County respondents were permanent residents and 15 were seasonal.

What do you value most about your coastal property?

Long Term Resident Values	**View**	**Wildlife**	**Recreation**	**Quiet/tranquility**	**Social gathering**
Island County	14	10	8	2	1
Snohomish County	1	3	4	1	1

What concerns you most about your coastal property?

Medium Resident Concerns	**Bluff/ bank/beach erosion**	**Pollution/water quality**	**Overcrowding/too much development on the shoreline**	**Global warming/ sea level rise**	**Protecting shoreline and natural processes**	**Increased regulation and taxes**
Island County	26	8	3	2	3	4
Snohomish County	3	2	-	-	1	-

Are you interested in attending the workshop? Are you interested in information about a free site visit to your coastal property?

	Attend workshop?	**Site visit interest?**
Island County	25 (35)	26 (35)
Snohomish County	6 (7)	7 (7)

Summary
Overall the largest survey response group was long term, permanent residents from Island County, followed by long term, permanent residents from Snohomish County. This group had the most diversity of responses in all areas.

Effectiveness of Direct mail in promoting the workshop and site visits
All pre-registered survey respondents attended the workshop. Workshop evaluations asked attendees to indicate how they heard about the workshop. Although 37 pre-registrations were received via the online survey and postcard mailer only nine people cited the mailing as how they heard about the workshop. Other responses included the newspaper, email, Beachwatchers, and a friend or neighbor. This indicates that a broad range of promotional activities, including but not limited to direct mail, is most effective. Most people listed more than one way they heard about the workshop. Common marketing wisdom is that people are more likely to become interested in a product or opportunity if they hear about it in multiple ways over time.

Using the survey as a means of pre-registering for the workshops and/or signing up to receive information about the site vistis was an incentive to completing the survey and 71% of respondents used the survey to sign up for the workshop while 81% requested to receive information on the site visits . Other promotional activities included placing information about the workshop in local newspapers. While pre-registration was encouraged for the workshop it was not required. An option to register by phone was included both on the direct mail flyers and in the press releases. Five people called by phone to register for the workshop. Roughly 10 people attended the workshop who did not pre-register.

Online survey vs. postcard
While the majority of survey responses were received via the online survey (64%) postcards provided an opportunity for people to respond without use of a computer or internet access. It is interesting to note that all postcard responses were from long term residents. This may be a correlation with an older demographic among long term residents. Several postcard respondents wrote in numbers next to the 5+ year check box, conveying they have lived on their property for over 20, 30 and in one case 40 years. The online option was used by many long term residents as well, and only two post card respondents did not enter an email address for contact information. This indicates that access to a computer or email may not be a limiting factor for this audience. It may simply be that the postcard was viewed as easier and less time consuming that logging into a web link to complete the survey. In either case, the postcard option was worthwhile in reaching a portion of the target audience.

Interest in Workshop and Site Visits
Overall, interest in the workshop and the site visits was very high among respondents with 71% of respondents using the survey (online or postcard) to register for the workshop. 100% of those respondents that signed up for the workshop also entered their contact information to receive additional information on the site visit opportunity. Of the 13 respondents who completed the survey but indicated they would not attend the workshop, nine expressed interest in receiving information on the site visits.

All respondents who indicated they would not attend the workshop <u>and</u> were not interested in information about a free site visit were in the long term resident group. As a percentage of total respondents, the largest group that indicated no interest in either the workshop or the site visits was the long term seasonal residents. This may be due to availability as they live elsewhere.

Interest in workshops and site visits was highest among the online survey respondents, with 33 out of 35 indicating they would attend the workshop and 34 requesting to receive more information about receiving a site visit. Of the postcard respondents, 6 out of 20 indicated they would attend the workshop while 14 indicated they would not. Interest in site visits was split with 10 indicating interest and 10 not.

Reasons cited for not attending the workshop were all in the category of unavailable, for example out of town, other commitments, or working. Four respondents did not give a reason for not being able to attend the workshop. Reasons cited for attending the workshop were education, learning more about what can be done and protecting this place.

Values

In answer to the open ended question 'what do you value most about your shoreline property?' the short and medium term landowners unanimously reported 'the view.' Only one person from this group added 'wildlife' to their response. A larger variety of values were listed from long term landowners, although 'the view' was still the most common response among this group as well. Nearly all long term resident respondents listed more than one thing that they valued about their shoreline property. 'Wildlife' (this includes responses such as bird watching, eagles, marine wildlife and other references to wildlife) was the second highest response to the question for this group. When wildlife was listed, it was always described as 'watching' or 'viewing' wildlife. Recreation was also high in the responses for this group. Specific activities listed were boating, swimming, walking the beach, and crabbing.

Other social values that were mentioned by a few respondents included tranquility, quiet, family time, and 'a good place to raise kids.'

The high value that respondents across all categories place on views indicates that information about managing viewscapes and vegetation management practices would be of high interest to all groups of respondents. Additionally, information on wildlife behavior and habitat would be a recommended topic for outreach activities to landowners in this area. Linking information about wildlife habitats to management practices would align well with values reported by shoreline landowners.

Concerns

In answer to the open ended question 'what concerns you most about your shoreline property?' the most common response among all groups was 'erosion' with 70% of respondents listing this as their biggest concern. Some responses directly mentioned bluff erosion, beach erosion, bank erosion, or 'storm erosion' while some simply provided the general response 'erosion.' Also included in this group of responses were 'erosion prevention,' and 'protecting the bluff' indicating interest in applied management strategies. As with the values responses, short and medium term respondents uniformly gave the same response with only one additional concern being listed by a medium term respondent which was 'landscaping.'

A broader list of concerns came from the long term landowners. While erosion was still by far the most common response, eight respondents listed pollution/water quality. Overcrowding/development and protecting the natural shoreline each received 3 responses. Two respondents from this group listed global warming and sea level rise as their major concern regarding their shoreline property.

The only difference in concerns listed by different categories of respondents was from the group that expressed no interested in either the workshop or the site visits. Five respondents from this group listed concerns that were not expressed by other groups. These were 'taxes,'' increased regulation,' and

‘people telling me how to manage my property’ and ‘garbage washing in.’ One respondent from this group listed ‘too many bulkheads preventing natural beach processes.’

Conclusions

Survey results demonstrate there is an interest among marine shoreline landowners in the Port Susan Marine Stewardship Area in participating in educational activities that build on their values and concerns. These property owner values and concerns can be used to design effective outreach programs and opportunities for this audience. While property owner’s values are related to social experiences in terms of the surroundings and lifestyle that living on the shoreline provides, concerns tend to be property specific and are related to perceived risks to properties, such as erosion. This would indicate that outreach should be balanced between honoring the values of appreciation for living on the shoreline, its beauty, tranquility and lifestyle attributes, with science and management alternatives that deal directly with landowner concerns, in this case erosion being the most often cited.

Additionally, the development of incentives for landowners based on their concerns and values is consistently identified as a desirable element of an outreach program by this audience. Based on the fact that the majority of respondents signed up to receive information on the free site visit program indicates that it was a motivator for the landowners that completed and returned the survey. The site visit program will also provide an opportunity to gather additional information for measurable outcomes resulting from this outreach program.

Although a small number of people listed concerns other than erosion these concerns are still be noteworthy and inform outreach coordinators of other concerns that exist within the shoreline landowner audience. The concern about impacts of sea level rise is certainly related to the more frequently noted concern of beach/bluff erosion and should be addressed in educational materials and workshops. Water quality is also a concern of note and outreach that addresses this topic is currently underway in the Marine Stewardship Area. Information on how shoreline conservation easements can work to reduce property taxes could be a powerful motivator for learning about best management practices or considering alternatives to shore hardening for those that site taxes as their biggest concern. Concerns regarding increased regulation should be noted as well. A related result from the Whatcom County shoreline landowner survey indicated that landowners were more likely to attend a workshop that was not instructed by a representative of a government agency. Survey results indicated a broader interest in attending a workshop taught by an expert practitioner with experience working with private landowners. This is also a factor to consider with regard to the site visit incentive program. Site visits for this project are described as non-regulatory and conducted by a private consultant. This may alleviate the concerns of some landowners regarding site visits as a vehicle for enforcement, which they are not.

The responses to this survey in the areas of shoreline landowner values and concerns are similar to the results of the 2011 survey of coastal landowners in Whatcom County conducted by Coastal Geologic Services under contract to the Whatcom MRC. This suggests that these values and concerns are widely shared among Puget Sound shoreline property owners. Similar outreach programs designed to directly address landowner concerns through high quality educational programs and expert instruction coupled with incentives for implementing best management practices on private properties could be successfully implemented in other areas of Puget Sound.

References

Outreach to Coastal Property Owners in Whatcom County Washington: A Targeted Approach. Prepared for the Whatcom Marine Resources Committee by Coastal Geologic Services with assistance from Environmental Education Consulting, 2011.

Summary of Shoreline Landowner Workshop and Evaluation

"This workshop opened my eyes to environmental issues that I never realized. I have always felt and noticed, after being around Port Susan for the last 40 years, that bulkheads made real changes to the beach. It never occurred to me that alternatives existed that could protect ones property."
- Workshop participant

Overview
A workshop for coastal landowners in the Port Susan Marine Stewardship Area took place on October 13, 2012. The workshop took place at the Island County Community Center on Camano Island within the Port Susan Marine Stewardship Area. The workshop was sponsored by the Northwest Straits Foundation and offered in partnership with the Snohomish and Island County Marine Resources Committees. Funding for the workshop was provided by the Washington Department of Fish and Wildlife's Marine and Nearshore Grant Program.

The workshop was part of a larger project designed to apply best strategies for targeted outreach including; a clear, measurable goal; a defined target geographic area and audience; use of GIS technology to integrate best available science and identify audience; incorporation of audience needs assessments to ensure relevance; and inclusion of incentives for action that provide a mechanism to determine medium and long term measurable outcomes. The project is designed as a model for targeted outreach to shoreline landowners that could take place in other areas of Puget Sound. A final project report, including outreach materials, needs assessment survey data and a summary of measurable project outcomes will be made available to project partners and funders, other MRCs in the Northwest Straits, and other interested groups throughout Puget Sound.

Project Goal: Prevent increased ecosystem impacts resulting from hardening of the marine shoreline in the Port Susan Marine Stewardship Area (PSMSA).

Project Objectives:

- Coordinate work through PSMSA Advisory Team to ensure local citizen support and adaptive project management.
- Use GIS to create updated shoreline maps and a current landowner database for the MSA.
- Conduct needs assessment surveys of county planning staff and coastal landowners.
- Train county planning staff on shoreline processes and the characteristics of soft shore armoring.
- Conduct a workshop for coastal landowners in the MSA focused on shoreline processes, shore types and best management practices specific to the geographic area.
- Provide professional site visits for coastal landowners in priority areas to receive shoreline management recommendations.
- Evaluate project outcomes and make recommendations for future targeted outreach activities.

Landowner Workshop Goal:

- Marine shoreline landowners will gain greater familiarity with coastal processes and critical habitats in the Port Susan Marine Stewardship Area and will have a better understanding of the spectrum of shoreline land management practices, their impacts, effectiveness, longevity and cost over time.

Landowner Workshop Objectives:

- Coordinate work through PSMSA Advisory Team to ensure local citizen support and adaptive project management.
- Conduct a workshop for coastal landowners in the MSA focused on shoreline processes, shore types and best management practices specific to the geographic area.
- Provide an opportunity for landowners to sign up to receive professional site visits for coastal landowners in priority areas to receive shoreline management recommendations.
- Measure effectiveness through workshop attendance, evaluations and sign-ups for site visit information.

Long term outcomes from project activities:

- Fewer permits requested for hard shore armoring in the Marine Stewardship Area; sediment transport and habitats are maintained.
- Native vegetation is preserved or enhanced to protect plants and animals.
- Degradation of habitats is minimized.
- Increased resilience of near shore ecosystems to sea level rise and climate change.

Based on shoreline property owner needs assessment data from a similar project in Whatcom County, project goals and objectives, and input from the Port Susan Marine Stewardship Advisory group, the Foundation determined a scope of work and qualifications for identifying and contracting a qualified professional to design landowner workshop content and materials specific to the Port Susan Marine Stewardship Area, and to provide content specific workshop instruction. A competitive request for proposals was created and Jim Johannessen of Coastal Geologic Services was chosen by the selection committee as the workshop instructor. Jim was then contracted by the Foundation to develop content and deliver instruction for the workshop. Feedback from the needs assessment was provided to the instructor to inform the workshop design. The instructor also drew on evaluative feedback, materials for coastal landowners and past workshop agendas from 20 years of experience providing *Living with the Coast* workshops throughout Puget Sound. He also tailored his presentation to include specific examples of coastal processes from the Marine Stewardship Area. He also provided examples of case studies of armoring removals and site specific alternative shore protection designs that have been applied and monitored on private properties in Puget Sound. The purpose of this report is to summarize evaluations from landowner workshop participants at the October 13, 2012 workshop on Camano Island.

The workshop was promoted through a variety of media including direct mail to property owners, email distribution lists from other Marine Stewardship Area activities, website postings, and press releases sent to local newspapers. **Sixty-one people attended the workshop.**

Methods

Paper workshop evaluations were distributed and collected at the end of the classroom portion of the workshop and prior to departure for the beach walk portion. This method was chosen in order to ensure the largest number of evaluation responses possible, since completing workshops in the field is difficult in wet and windy conditions and follow up evaluations sent after a workshop do not generate as large a response. The beach walk was described as optional and some participants elected not to come on the field based portion due to weather, other commitments, or concerns regarding the ability to walk on the uneven beach. Twenty-one participants went on the beach walk.

Evaluations were designed to be simple to complete in order to get them from participants before departing the workshop venue. Evaluation questions included quantitative and qualitative (open ended) responses. Evaluation responses were designed to measure workshop effectiveness in achieving workshop goals. This included audience

profile (whether they were shoreline landowners), concerns, what was most useful about the workshop, obtaining recommendations for additional topics of interest to shoreline landowners and most valuable overall take away messages from the workshop content and experience. Responses were collected into an Excel spreadsheet for sorting.

Results

Thirty one evaluations were received. Although there were 61 people in attendance many of them were couples which likely resulted in one member of the family completing the evaluation.

1. How did you hear about the workshop?

Newspaper	11
Beachwatchers email/web	10
Flyer/mailer	10

2. Are you a marine shoreline landowner?

Yes	30
No	1

3. What is the geographic setting of your property?

High bluff	20
Low bank/beach	10

4. Do you currently have concerns regarding the management of your shoreline property?

Yes	30
No	1

5. What is the nature of your concerns? (check all that apply)

Rate of erosion of bluff	19
Rate of erosion of beach	10
Health of Beach	18
Integrity of protective structures	10
Drainage Issues	11
Interest in better stewardship practices	20
Other (please specify):	
plants and vegetation	1
Bulkhead management w/existing bulkhead	1
Trail construction	1
Preserving the natural bluff	1
Walking access to the beach	1

6. What was the most valuable aspect of the workshop to you as a marine shoreline landowner?

Shoreline Processes (7 responses)

- Getting the big picture on shoreline erosion
- New perspective on shoreline erosion

- New perspective on beach erosion
- Understanding shoreline process
- Understanding how erosion occurs
- Movement of beaches
- High bluff geology

Shoreline Management (17 responses)

Bluff management:

- Information about bluff erosion
- Very informative about issues effecting high bluff management
- Plants for bluffs
- Information about vegetation for retaining bluffs
- Impacts of tree removal on bluffs

Shore hardening impacts:

- Discussion/information on bulkhead impacts (2 responses)
- Realizing there are alternatives to bulkheading
- Cost benefit of bulkheads
- Ecological impacts of bulkheads
- Discussion of bulkhead impacts and alternatives
- I didn't know the impact of bulkheads and the benefit of gravel and logs

Drainage:

- Controlling water/drainage

Alternatives to bulkheads:

- Overview of current practices
- Understanding complexity of designs and problems with poor designs
- Understanding that shoreline processes relate to protection methods/designs
- Learning about soft shore protection through specific project examples

General/Other (13 responses)

- Everything (2 responses)
- Site visits (3 responses)
- Clear practical information
- Focus on our local area
- Resources
- General knowledge and comfort that we are better off than we thought but our beach has many people that are concerned
- Specific examples
- Terrific photos of before and after soft shore installation
- Getting informative information about our area from an expert

7. What could be added to this workshop to enhance the value of the workshop to property owners?

- More publicity about workshops like this one
- Trail construction
- Information regarding permitting from agency/county rep
- Planting appropriate vegetation on bluffs
- Names of MRC reps with oversight of our area
- More emphasis on native plant implementation
- More emphasis on containment, absorption and filtration of water on properties

- Would like a workshop specific to Warm Beach properties
- Pollution due to septic on no bank beach
- More information on north Port Susan Bay and the delta
- More emphasis on containment, absorption and filtration of water on properties

8. Are you likely to apply any of the information or resources from this workshop in the management of your own property?

Yes	31
No	0

9. Overall, what is the most valuable thing you will take away from this workshop?
   - suggestions for water management and vegetation
   - ground water management
   - most bulkheads are not necessary and are harmful to beaches
   - understanding more about alternatives to bulkheads
   - excellent workshop (2)
   - very informative, excellent presentation
   - bluff management ideas/information (3)
   - tree management on bluffs
   - information on vegetation
   - big picture info
   - overall effects of shoreline management on native species
   - Soft shore armoring of the beach
   - cheaper alternatives to traditional bulkheads
   - ideas and considerations for removing our bulkhead while needing to protect our property and our neighbors
   - want to get a site visit
   - new awareness of importance of my property to wildlife and natural processes
   - current knowledge of modern shore restoration practices
   - better understanding of what it means to live 'with' the coast
   - great information overall, thank you
   - knowledge about the impacts of bulkheads
   - local pictures and examples made concepts easy to understand
   - very comprehensive
   - everything
   - appreciate the local focus
   - contacts for obtaining more information
   - we might be able to schedule a community meeting at Warm Beach
   - thank you for doing this!

Workshop participants were invited to provide their contact information if they were interested in receiving information about applying for a free site visit to their property to obtain management recommendations. Forty-one people signed up to receive the information.

Summary

The workshop was successful reaching the target audience of marine shoreline landowners. The majority of participants were from Island County, although Snohomish County landowners attended as well. This may be an effect of the workshop location. Participant data from past landowner workshop evaluations has demonstrated that the majority of participants for a free Saturday workshop targeted to shoreline landowners will come from within

10 miles of the workshop venue. Although specific address data was not sorted to determine how far participants traveled to attend this workshop, this is likely a key factor contributing to the high number of Camano Island participants. All attendees except one indicated that they are shoreline landowners. The number of participants in attendance indicates a high level of interest among the target audience in the workshop content as described in promotional materials: beach processes and management, bluffs and management, native vegetation for slope stability and shoreline permitting and regulations.

When asked how they heard about the workshop, all promotional activities were cited in the evaluation responses with equal frequency. This information combined with the high attendance indicates that the use of a variety of promotional activities was useful in generating interest and turn out for the workshop.

All respondents indicated they have current concerns regarding the management of their shoreline property. The highest number identified their property as 'high bluff' and the highest number also identified 'rate of bluff erosion' as a major concern. Ten respondents indicated that they live on a low bank beach and 10 also indicated their concerns included 'rate of beach erosion.' This is reflective of the needs assessment survey data which indicated that erosion was the number one concern of survey respondents. There was a also a high interest indicted for implementing better stewardship practices. This indicates that this audience would be receptive to ideas that balance environmental stewardship with protection of their property. This interest in better stewardship practices may be an outcome of the workshop or may have existed prior to the workshop. Since pre-workshop surveys were not conducted this cannot be determined. Other concerns with high response rates were 'health of beach,' 'integrity of protective structures,' and drainage issues.' This indicates that the landowners concerns were well matched to the content of the workshops.

The majority of evaluation responses indicated the most useful aspect of the workshop was in the area of shoreline management. A smaller though still significant number indicated they found the information on shore processes and the 'big picture' most useful. Additional responses were more general in nature describing the overall quality of the workshop. All responses were positive and 100% of respondents indicated they would use the information from the workshop to inform management of their property.

Suggestions were received and are listed in this summary for additional information that would be seen as useful to the target audience.

Overall, evaluations were very positive and indicate that the workshop was well received and considered valuable to the shoreline landowners that attended. Responses indicate the workshop achieved the goals for which it was designed, including generating a high level of interest in obtaining a site visit to receive specific management recommendations. Additional information regarding the outcomes of the workshop will be derived from site visit reports and will include the nature of recommendations that property owners received, their perceived value to the landowners, and their likelihood of implementation of management recommendations.

Workshop photos:

61 participants attended the classroom portion

21 landowners attended the beach walk portion

Landowner Workshop #2 Summary

Due to high interest in this program and budget remaining in tasks that had been completed, we were able to add a second landowner workshop to the project. This workshop was conducted on June 1, 2013 at the Stillaguamish Grange Hall, just outside of Stanwood, WA. There were 51 workshop participants, most of which participated in an afternoon field trip to Kayak Point County Park to view bluff erosion first hand.

Workshop Evaluation Results

Due to an oversight, evaluation forms were not brought to the workshop. Participants were asked to evaluate the workshop on-line, using a web-based survey tool. This most likely resulted in the low number of evaluations received. Sixteen evaluations were received.

1. How did you hear about the workshop?

Newspaper	1
Beachwatchers email/web	4
Flyer/mailer	5
Word of mouth	6

2. Are you a marine shoreline landowner?

Yes	12
No	4

3. What is the geographic setting of your property?

High bluff	8
Low bank/beach	4
Skipped question	4

4. Do you currently have concerns regarding the management of your shoreline property?

Yes	11
No	3
Skipped question	2

5. What is the nature of your concerns? (check all that apply)

Rate of erosion of bluff	8
Rate of erosion of beach	3
Health of Beach	2
Integrity of protective structures	3
Drainage Issues	5
Interest in better stewardship practices	5
Other (please specify):	
Protect property during storms	1

6. What was the most valuable aspect of the workshop to you as a marine shoreline landowner?

Shoreline Processes

- Clear message and explanation of how the shoreline works
- Learned about the forces that affect the shore and bluffs and what can, or can't be done about them
- Learning how to be environmentally sensitive in protecting the shoreline.

Shoreline Management

Bluff and bank management:

- Bluff maintenance for type of plants to help hold bluff.
- Getting an idea on what I could do with plantings etc to help prolong bank erosion

Alternatives to bulkheads:

- Confirmation that my use of driftwood for protection is a good one
- How to protect our bank from erosion

General/Other

- The very nice review of our Puget Sound shoreline conditions: geology, environment, and the various causes of the changes we see.
- Don't get too worried about erosion
- Making contact w/experts and with other shoreline landowners.

7. What could be added to this workshop to enhance the value of the workshop to property owners?

- Include some suggestions for recommended erosion remediation on high bluff shoreline as well as lower shoreline types.
- Many of our neighbors don't see their shoreline - they have no easy access or ability to go down and look. There is also the opinion that there is nothing much that one can do to prevent slides, erosion etc. or that solutions must cost a lot of money. I would like to see if there is some way to show folks where to start and how to reduce damage or the rate of change.
- Message was reached mostly by older/retired property owners. Somehow the younger folks need to be more aware in order to effect behavior change.

8. Are you likely to apply any of the information or resources from this workshop in the management of your own property?

Yes	13
No	0
Maybe	1
Skipped question	2

9. If so, how will the workshop influence your management choices?

- I hope to get several of the other property owners near me on the west side of Camano Island to get together and have Jim and a vegetation specialist make recommendations for our bluff properties. Most of the remedial steps discussed at the workshop seemed more applicable to low bluff or gently sloping properties than to high bluffs.

- Resist temptation to put in concrete barriers.

- I may try to reduce growth of ivy and blackberries on slope, can help advise neighbors on their management of the bluff.

- I do not have a bulkhead, and my bias is not to meddle with the bank. I will stay on that path.

10. Overall, what is the most valuable thing you will take away from this workshop?

- Who to contact for assistance
- The realization that one recent slide in our first year does not mean that erosion will necessarily continue at that pace on a regular basis.
- There may be options to protect one's property from storm damage
- more information on how to best care for the slope and land at top of bluff
- How to protect the bluff and type of information we can use in helping out drainage.

Appendix C. Selection of Qualified Professionals for Conducting Site Visits

The Northwest Straits Foundation convened a project oversight committee composed of members of:

- Kathleen Herrmann, Snohomish County Marine Resources Steward/MRC staff
- Tom Hoban, Snohomish County MRC member
- Karen Stewart, Island County Planning Department
- Joan Drinkwin, Interim Director of the Northwest Straits Foundation

This committee provided oversight for all aspects of the project, including identifying the criteria that was used to select qualified professionals to conduct the workshops and site visits.

The committee recognized that nature of recommendations provided during a professional site visit will vary depending on the specific expertise and experience of the professional conducting the site visit. Engineers, contractors, engineering geologists, coastal geologists, and vegetation specialists provide direct consultation services for residential marine shoreline landowners. Based on the project goals, the oversight committee chose the areas of coastal geology, soft shore protection design, and vegetation management for erosion control. The Foundation solicited qualifications from interested consultants experienced with providing these services directly to residential marine shore landowners. Selection criteria required these professionals be licensed and insured.

Two private consultants were selected by the oversight committee to provide site visits for the program. These consultants were then contracted by the Foundation to provide site visits on an ongoing basis for a flat per site visit fee as they were scheduled. Jim Johannessen, a coastal geologist and licensed engineering geologist from Coastal Geologic Services Inc. (CGS), was selected to provide professional consultation regarding concerns about coastal erosion, shore protection structures and alternatives, and beach and bluff geology. Mr. Johannessen was also selected by the oversight committee and contracted by the Foundation to develop content and provide instruction for the coastal processes workshops that preceded the site visits. Noah Booker of Shelterbelt, Inc., a native plant specialist and certified arborist, was selected to provide professional consultation regarding management of vegetation for slope stability on coastal bluff properties.

Free Workshop

Saturday, October 13, 2012
Camano Center
606 Arrowhead Road
Camano Island

9:00 a.m.-12:30 p.m.

Join presenter Jim Johannessen, coastal processes expert to:

- Learn about specific issues relevant to your shore
- Interact with your neighbors
- See beach habitats and geologic processes during a beach walk

Workshop topics:

- Beach processes and management
- Bluffs and management
- Native vegetation for slope stability & habitat
- Shoreline permitting & regulations
- Beach walk

Reserve your spot today!
online registration at:
www.surveymonkey.com/s/portsusan
OR
phone: 360-756-5024
email: foundation@nwstraits.org

Living with the Coast

A Workshop for Marine Shoreline Landowners in the Port Susan Marine Stewardship Area

In an effort to better understand the needs of coastal property owners and provide the right tools, resources and information to help protect and maintain healthy shoreline properties, the following opportunities are being offered for shoreline property owners in the Port Susan MSA, which encompasses the shoreline of Port Susan in Snohomish County and the east side of Camano Island:

- **A free workshop** for marine shoreline landowners (see details in sidebar)

- **Free site visits** from qualified professionals to learn management recommendations specific to your property (non-regulatory; conducted by private consultants)

Help us learn more about the interests and concerns of coastal property owners and sign up to receive information about obtaining a free site visit to your shoreline property by completing a brief online survey at www.surveymonkey.com/s/portsusan
Thank you for your feedback!

Workshop and site visits are sponsored by the Northwest Straits Foundation through a grant from the Washington State Department of Fish and Wildlife and are offered in partnership with Snohomish and Island County Marine Resources Committees.
For more information visit www.nwstraits.org

NORTHWEST STRAITS
marine conservation foundation

SNOHOMISH COUNTY MARINE RESOURCES COMMITTEE

ISLAND COUNTY MARINE RESOURCES COMMITTEE

Free Workshop

Marine Shoreline Landowners on the shores of Port Susan are invited to attend.

Saturday, June 1, 2013
Stillaguamish Grange Hall

NW Straits Foundation
1155 North State St, Suite 402
Bellingham, WA 98225

Made possible with funding support from the U.S. EPA and Washington Department of Fish and Wildlife

Free Workshop
for Port Susan marine shoreline landowners

1:00 p.m. – 5:00 p.m.
Saturday, June 1, 2013

Stillaguamish Grange Hall
6521 Pioneer Hwy
Stanwood, WA 98292

Reserve your spot today!

Register online:
www.surveymonkey.com/s/portsusanworkshop
Register by phone: 360-756-5024
Register by email: foundation@nwstraits.org

Living with the coast: Is your land slip sliding away?

Learn how you can protect and maintain your shoreline property. Workshop topics include:

- Improved slope stability and habitat
- How and why beaches and bluffs change over time
- Shoreline permitting and regulations
- Educational beach walk

Learn more details: www.nwstraits.org

Free site visits also available Qualified shoreline management professionals have been hired to help you learn specific actions you can take to protect your property (non-regulatory; conducted by private consultants). Sign up to receive information about how to obtain a free site visit for your shoreline property by calling 360-756-5024 or completing a brief online survey at www.surveymonkey.com/s/portsusanworkshop.