



partners in marine conservation

Targeted Outreach to Prevent Negative Impacts from Shoreline Armoring Final Report to the Northwest Straits Commission October 2014

The Northwest Straits Foundation has adopted a strategic goal of reducing shoreline armoring in the Northwest Straits region of Puget Sound. While many organizational, citizen, and agency actions will be necessary to achieve this goal, the Northwest Straits Foundation has carved out its role as one of preventing armoring through shoreline property owner education and reducing armoring through removal and softening of hard shoreline armoring on public and private lands. The Northwest Straits Foundation has already removed over 750 feet of hard armoring from the shoreline of Deception Pass State Park, with projects in process to remove an additional 1,400 feet of shoreline armoring from private and public lands.

Shoreline bulkheads and other types of armor have been identified as significant stressors on the Puget Sound nearshore ecosystem. Under natural conditions, shorelines are dynamic: beaches and other nearshore habitats are the result of coastal processes and ecological exchange between terrestrial and aquatic systems.

Shoreline armor changes composition of beaches and coastal habitats, alters coastal ecology, and reduces the resilience of the coast to rising sea level (Shipman et al. 2010, Johannessen and MacLennan 2007). Approximately 27% of the Sound's shoreline is modified with some type of armor, or a combination of bulkhead, nearshore fill, or road, (Simenstad et al. 2011). Reducing shoreline armoring and its negative impacts to eelgrass, endangered Chinook salmon, and forage fish habitat has been identified by as an essential element of meeting Puget Sound Ecosystem Recovery Targets (Puget Sound Partnership 2012).

This project was designed to both prevent shoreline armoring by building on previously successful efforts to educate shoreline property owners about the processes that form and support nearshore habitats while also providing specific information about the impacts of shoreline armoring and alternative options to hard armoring. The Foundation worked with local partners, including county-based Marine Resources Committees, to identify focus areas of concern in selected counties where shoreline development and permit applications for armoring appeared to be on the rise. Focus areas also included currently unarmored shorelines where the possibility of prevention of future armoring was greatest.


The sponsorship from the Northwest Straits Commission was combined with other funding sources to support outreach efforts, workshops, and individualized site visits in Jefferson, Island, and Whatcom counties.

Outreach

Landowners were identified through parcel information provided by each of the county planning departments. Parcel lists were narrowed down to those with shoreline properties in the targeted areas previously identified, and then narrowed down again by geographic features and proximity to the shoreline. Postcards with workshop information were sent to property owners with registration information.

**Free Workshop
for Whidbey Island
Marine Shoreline Landowners**

10:00 am to 3:00 pm
Saturday, May 3, 2104
*Coupeville Rec Hall
901 NW Alexander St
Coupeville, WA*
Reserve your spot today!
Register online:
<https://www.surveymonkey.com/s/CX2DKJQ>
Register by phone: 360-733-1725
Register by email: kaufman@nwstraits.org



Living with the Coast:
Learn how you can protect and maintain your shoreline property.
Workshop topics include:

- Beach and bluff processes
- Stewardship practices
- Native vegetation for slope stability & habitat
- 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 obtaining a free site visit for your shoreline property by calling 360-733-1725 or completing a brief online survey at <https://www.surveymonkey.com/s/CX2DKJQ>. A limited number of site visits are available.

Additional outreach included press releases in area newspapers, articles in community association newsletters, and website postings. These outreach methods resulted in participation by a variety of shoreline landowner types, not just those with currently unarmored properties in the targeted shoreline reaches.

Coastal Processes and Alternatives to Armor Workshops

Three ‘Living with the Coast’ workshops were conducted by Jim Johannessen, Coastal Geologist, of Coastal Geologic Services (CGS). Mr. Johannessen has designed and run coastal processes and coastal management workshops and other educational and outreach programs since 1996.

Workshop information was targeted somewhat to the needs and desires of the participants based on pre-attendance surveys that were conducted as part of the registration process.

Survey information included:

- Whether owners were permanent or seasonal residents;
- Length of ownership;
- Property location by bay or shoreline reach;
- What owners enjoy most about their property;



- Primary concerns about the property;
- The type of property (high bluff, medium or low bank);
- Whether the property contains armoring and if so, what type?

Several questions were open-ended, allowing for a range of responses which provided discussion points during the workshops.

The first half of each workshop discussed coastal processes and bluff processes to educate participants about the nearshore ecosystem, how it is formed, and what types of habitats and species it supports. Also included were details on appropriate vegetation to plant, vegetation management, as well as drainage management. While there was considerable interest in learning about coastal processes, participants were most interested in the vegetation and drainage information as it provided them with tangible actions they could take at their homes.



Part two of each workshop covered the variety of shoreline armoring types and the pros and cons of each. This segued into a presentation of alternative coastal erosion control options specific to Puget Sound and the benefits of each type of control. Case studies of projects that had been monitored over time to gauge their success were also presented.

Each workshop ended with a field trip to a beach site that demonstrated bluff and coastal processes as well as either provided an example of alternative armoring option or demonstrated how alternative armoring could be used at the site.

Total attendance at the workshops was 98 participants representing 81 households. Those interested in site visits were required to complete post-workshop evaluations, however, return rates were low when we initially had participants complete an on-line survey days after the event. We modified our process after the first workshop to have participants complete evaluations at the workshop. This greatly increased our response rate from less than 25% response to nearly 100%.

The evaluation responses were overwhelmingly positive. Participants felt the workshops were well-organized and presented and provided valuable information that they could use. Generally, those with high bluff properties were most concerned with erosion and drainage issues and tended to be most interested in the site visits. Many participants were also interested in the information about using native plants to help stabilize their bluff properties.

Individual Site Visits

The purpose of the site visits was to provide individualized recommendations for property owners to either help prevent or reduce their need for armoring. Site visits were conducted by Mr. Johannessen and participants were reassured that the visits were non-regulatory and for their use only.

Participants applied for site visits through the workshop evaluation process. An additional suite of questions provided information for those interested in the site visits. Priority was given to those properties currently without hard armoring. The focus at these sites was to provide site-specific information that would maintain the site without armoring. CGS provided a brief report that included the landowners' concerns and observations of the property as well as a summary of findings and suggestions for each property owner that would help landowners make decisions on actions that could be taken. Suggestions and options included: no action needed; recommendations for drainage improvement; vegetation management; other management practices that could help reduce erosion rates; or whether alternative armoring options were applicable to the site.

Sites with armor were given priority when the landowner expressed an interest in modifying or removing the armor. While the focus of the program was to prevent new armoring, we did not want to miss an opportunity to encourage removal or replacement with an alternative to hard armoring if it was feasible. Three such sites were prioritized on Whidbey Island.

A total of 19 site visits provided property owners with professional advice about how to address erosion concerns. Of those, the 10 visits in Jefferson County and four in Whatcom County were all high bluff properties where the primary concerns were bluff erosion and drainage management. Only two of the five Whidbey Island sites were low bank. These also represent two of the three noted above with existing hard armoring.

Next Steps

This project and the preceding work in Snohomish County and other areas of Island County has garnered a lot of attention and accolades from the Washington Department of Fish and Wildlife/Washington Department of Natural Resources Marine and Nearshore Grant Program. This project was featured at the 2014 Salish Sea Ecosystem Research Conference, held in Seattle in May, 2014.

This project and the original Port Susan Targeted Outreach Project was featured in a comprehensive report: A Social Marketing Strategy to Reduce Armoring Behavior on Puget Sound. This report was developed by the Washington Department of Fish and Wildlife/Washington Department of Natural Resources Marine and Nearshore Grant Program to guide regional work of practitioners intent on preventing and removing shoreline armoring in Puget Sound.

As a result of the positive outcomes achieved through the combination of landowner workshops and site visits, the Washington Department of Fish and Wildlife/Washington Department of Natural Resources Marine and Nearshore Grant Program recently awarded the Northwest Straits Foundation funding to expand the project throughout the Northwest Straits counties.

This new Shoreline Armoring Reduction Project will be a two year long multi-faceted program that continues outreach through workshops and site visits, but also includes opportunities for specific landowners to receive initial design work towards the removal of existing armoring. Those owners as well as others with existing designs may also qualify for assistance to help them through the permit process.

Three properties, in particular, that will likely move into these new programs were identified during the workshop held on Whidbey Island:

A shoreline property owner on Whidbey Island attended one of the workshops and approached us about a site visit at his community association property. We scheduled a site visit and Jim Johannessen of Coastal Geologic Services visited the site in summer 2014. The property is at the base of a feeder bluff and is armored with a bulkhead and old barge structure, impeding sediment supply to downdrift beaches. Mr. Johannessen determined that it may be feasible to remove the armoring or modify it to restore some sediment supply processes. The community association has voted to support moving forward with feasibility and design for eventual removal or modification of the armoring. That feasibility and design is currently underway with funding from the Washington State Estuary and Salmon Restoration Program.

At Cornet Bay on Whidbey Island, a Northwest Straits Foundation board member spoke with a neighbor who had expressed an interest in removing a bulkhead on his property. The neighbor had approached Island County previously about removing it but was told he could replace it. The board member, Jay Lind, recommended that his neighbor attend one of our workshops, which he did. Afterwards, the neighbor requested a site visit. At the site visit, conducted by Mr. Johannessen, the neighbor brought his next door neighbor, with whom he shares a bulkhead. Mr. Johannessen told the two property owners that removing or modifying the bulkhead is feasible, with attention to the current placement of the onsite sewage system. The Northwest Straits Foundation is currently finalizing a grant for this kind of design work with the Washington Department of Fish and Wildlife/Washington Department of Natural Resources Marine and Nearshore Grant Program and feasibility and design work will commence in winter 2015.

Additional workshops will be held for shoreline landowners in six of the Northwest Straits counties with a goal of reaching 300 additional properties. Workshops in Island and Jefferson counties will specifically target properties with armoring that are located on feeder bluffs. These geologic features supply the sediment necessary to build the beaches that support forage fish habitat. Armoring at the base of feeder bluffs blocks the process of sediment supply, thereby starving the down drift habitats of sediment.

Site visits will continue to be provided to workshop participants to prevent new armoring, but a greater focus will be placed on identifying parcels and landowners where armor removal may be feasible. Landowners who are willing to consider full removal or replacement with an alternative to hard armoring will be provided with preliminary designs that can be used to secure permits for removal actions. Finally, those with permit-ready designs may also apply for assistance with their permit process.

It has become evident that cost and hesitancy about the regulatory process are major obstacles for shoreline property owners who wish to make changes to improve the habitat associated with their parcels. By providing design services and permitting assistance as incentives, we hope to begin to turn the tide on the rate of shoreline armoring in northern Puget Sound.

References:

Johannessen, J. and A. MacLennan. 2007. Beaches and Bluffs of Puget Sound. Puget Sound Nearshore Partnership Report No. 2007-04. Published by Seattle District, U.S. Army Corps of Engineers, Seattle, Washington.

Puget Sound Partnership. 2012. 2012/2013 Action Agenda for Puget Sound.

Shipman, H., Dethier, M.N., Gelfenbaum, G., Fresh, K.L., and Dinicola, R.S., eds., 2010, Puget Sound Shorelines and the Impacts of Armoring—Proceedings of a State of the Science Workshop, May 2009: U.S. Geological Survey Scientific Investigations Report 2010–5254, 262 p.
<http://pubs.usgs.gov/sir/2010/5254/>.

Simenstad, C.A., M. Ramirez, J. Burke, M. Logsdon, H. Shipman, C. Tanner, J. Toft, B. Craig, C. Davis, J. Fung, P. Bloch, K. Fresh, S. Campbell, D. Myers, E. Iverson, A. Bailey, P. Schlenger, C. Kiblinger, P. Myre, W. Gerstel, and A. MacLennan. 2011. Historical Change of Puget Sound Shorelines: Puget Sound Nearshore Ecosystem Project Change Analysis. Puget Sound Nearshore Report No. 2011-01. Published by Washington Department of Fish and Wildlife, Olympia, Washington, and U.S. Army Corps of Engineers, Seattle, Washington.