Final

PHASE 2 – SNOHOMISH RIVER ESTUARY PILING REMOVAL PRIORITIZATION AND IMPLEMENTATION PLANNING

August 2021

Prepared for Snohomish County Marine Resources Committee

ESA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PUGETSOUND PARTNERSHIP

Northwest Straits INITIATIVE

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Prepared for

Snohomish County
Marine Resources
Committee

Snohomish County Marine Resources Committee
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August 2021

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D20181336.04

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Acronyms and Abbreviations

Corps	U.S. Army Corps of Engineers
DAHP	Washington Department of Archaeology and Historic Preservation
DNR	Washington Department of Natural Resources
ESA	Environmental Science Associates
ESRP	Estuary and Salmon Restoration Program
GIS	geographic information system
LIO	Local Integrating Organization
MRC	Marine Resources Committee
NEP	National Estuary Program
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
PAHs	polycyclic aromatic hydrocarbons
Port	Port of Everett
RCO	Recreation and Conservation Office
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SRFB	Salmon Recovery Funding Board
WDFW	Washington Department of Fish and Wildlife
WQBE	Water Quality Benefits Evaluation

EXECUTIVE SUMMARY

Snohomish Estuary Piling Removal

The Snohomish County Marine Resources Committee (MRC) is leading this project to promote the removal of independent pilings in the Snohomish River estuary.

Independent pilings are single or clustered pilings in the estuary that are not associated with a dock, marina, or bulkhead. The MRC is interested in facilitating piling removal to improve water quality and habitat conditions in the estuary. Removal of creosote-treated pilings is a primary interest of the MRC due to the contaminants released into water and sediments, which can negatively impact the marine food web.

In the first phase of the project, pilings in the estuary downstream (north) of Highway 2 were inventoried and prioritized.

15,564
Pilings were **identified and prioritized** for removal based on the amount of ecological benefit

2,456
Pilings were **creosote-treated**

6,982
Pilings were identified as **high priority** for removal

In this second phase, the MRC met with public agencies and tribal stakeholders who own pilings to discuss removal of unused pilings. Landowner participation in piling removal is entirely voluntary. The MRC aims to provide landowners with information that helps them create opportunities to remove pilings on their properties.

Explore the MRC pilings inventory web map

Creosote-treated Pilings

Creosote piles can leach throughout their lifetime and pose a threat to human and environmental health.

Creosote removal work can be funded by project sponsors, such as through a capital budget, and/or by grant funding. DNR has programmatic permits for creosote removal, and it is suggested to collaborate with DNR on projects that involved creosote.

Untreated Pilings

Non-creosote pilings can have negative impacts when they impact habitat function and landscape connectivity.

For reducing costs, options could be considered to cut the pilings and use wood nearby for additional habitat benefit. Non-creosote pilings do not require expensive disposal costs. It may be difficult to find grant funding for and may be best paired with additional restoration work.

IMPLEMENTATION APPROACHES FOR PILING REMOVAL

1

Stand-alone Restoration Project

Piling removal can be completed as the sole focus of a restoration project.

This work can be funded by project sponsors, such as through a capital budget, and/or by grant funding.

2

Part of Another Project

Piling removal can be included as part of other planned work in the estuary, such as restoration, site maintenance, or redevelopment.

If the larger project is grant funded, piling removal may be an allowable expense.

3

Compensatory Mitigation

Piling removal can be part of compensatory mitigation to offset impacts from other projects.

Creosote-treated pilings have much more mitigation value than untreated pilings due to the benefits of removing toxic creosote from the aquatic environment.

Snohomish County Marine Resources Committee
Northwest Straits Initiative
Puget Sound Partnership
United States Environmental Protection Agency

ADDITIONAL CONSIDERATIONS

Anticipated Permitting Requirements

Local, state, and federal permits will be required to remove pilings in the Snohomish estuary.

Tribal Notification and Consultation

Pilings in the Tulalip Reservation are under the Tulalip Tribes' regulatory authority regardless of parcel ownership.

Cultural Resources Considerations

Pilings that are more than 50 years old may be considered historic properties that could require documentation and evaluation prior to removal.

Piling Usage

Understanding of ongoing uses of pilings, including use by wildlife, was considered in the phase 1 prioritization and should be considered before removal.

Potential Funding Sources

The following programs may fund for piling removal projects that align with their funding missions:

- Washington Department of Natural Resources Creosote Piling Removal Program
- Aquatic Lands Enhancement Account
- U.S. Environmental Protection Agency's National Estuary Program: Puget Sound Program
- Estuary and Salmon Restoration Program
- Nearshore Mitigation Credits – Wildlands Inc. and NOAA Fisheries

Recommended Next Steps

Continued Coordination among Stakeholders

Check-in annually to share updates and gather new information

Leveraging Additional Resources

Work with Puget Sound Partnership to get Snohomish River estuary piling removal listed as a mitigation opportunity; continue dialog with DNR

Additional Information Gathering

Conduct historic context review; confirm creosote presence/absence; research potential funding sources and share updates

Facilitate Removal Efforts

Work with partners on future projects and promote opportunities to include piling removal; engage private landowners

For more information, please visit: www.snocomrc.org/projects/creosote-pilings

Snohomish County Marine Resources Committee

Northwest Straits Initiative

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INTRODUCTION

The Snohomish County Marine Resources Committee (MRC) is leading this project to promote the removal of independent pilings in the Snohomish River estuary. Independent pilings are single or clustered pilings in the estuary that are not associated with a dock, marina, or bulkhead. The MRC is interested in facilitating piling removal to improve water quality and habitat conditions in the estuary. Removal of creosote-treated pilings is a primary interest of the MRC due to the contaminants released into water and sediments, which can negatively impact the marine food web.

In the first phase of the project, completed in 2020, pilings in the estuary downstream (north) of Highway 2 were inventoried and prioritized (ESA 2020). The inventory identified 15,564 pilings in the project area, of which 2,456 were creosote-treated based on field observations (Figure 1). For reference, the Puget Sound Nearshore Habitat Conservation Calculator, developed by the National Oceanic and Atmospheric Administration (NOAA), assumes that a 70-foot long, 12-inch average diameter creosote-treated piling has about 1 ton of creosote-contaminated materials (creosote and wood) (NOAA Fisheries 2020). The inventory also included preparing a geographic information system (GIS) database of pilings, which included ownership information based on the Snohomish County parcel database. Pilings in the Tulalip Reservation are under the Tulalip Tribes' regulatory authority regardless of parcel ownership. The prioritization evaluated the ecological benefits of piling removal and a preliminary evaluation of removal feasibility. Nearly 7,000 pilings were identified as high priority for removal. A summary of piling ownership by priority tier is presented in Table 1.

In this second phase, the MRC began implementation planning with public agency and tribal piling owners to facilitate piling removal. Landowner participation in piling removal is entirely voluntary. The MRC aims to provide landowners with information that helps them advance piling removal actions on their properties. In this phase, five parts of the project area were identified as high priority areas for piling removal. Planning efforts in this phase focused on piling removal activities in those areas. The MRC also prepared fact sheets for each high priority area and conducted outreach to all of the public agency and tribal entities who own pilings in the priority areas. This report documents the phase 2 work, including considerations for future work to advance additional piling removal efforts in the Snohomish River estuary.

TABLE 1
SUMMARY OF PILING OWNERSHIP BY PRIORITY TIER

Ownership Type	High Priority	Medium Priority	Low Priority	TOTAL
State of Washington	4,107	714	1,447	**6,268**
Private	270	1,767	1,798	**3,835**
Port of Everett	1,537	1,235	936	**3,708**
Snohomish County	548	251	156	**955**
City of Everett	356	0	0	**356**
City of Marysville	93	166	8	**267**
Tulalip Tribes	71	65	39	**175**
TOTAL	**6,982**	**4,198**	**4,384**	**15,564**

Note: Ownership information based on Snohomish County parcel database and not independently confirmed. Pilings in the Tulalip Reservation are under the Tulalip Tribes' regulatory authority regardless of parcel ownership in the parcel database.

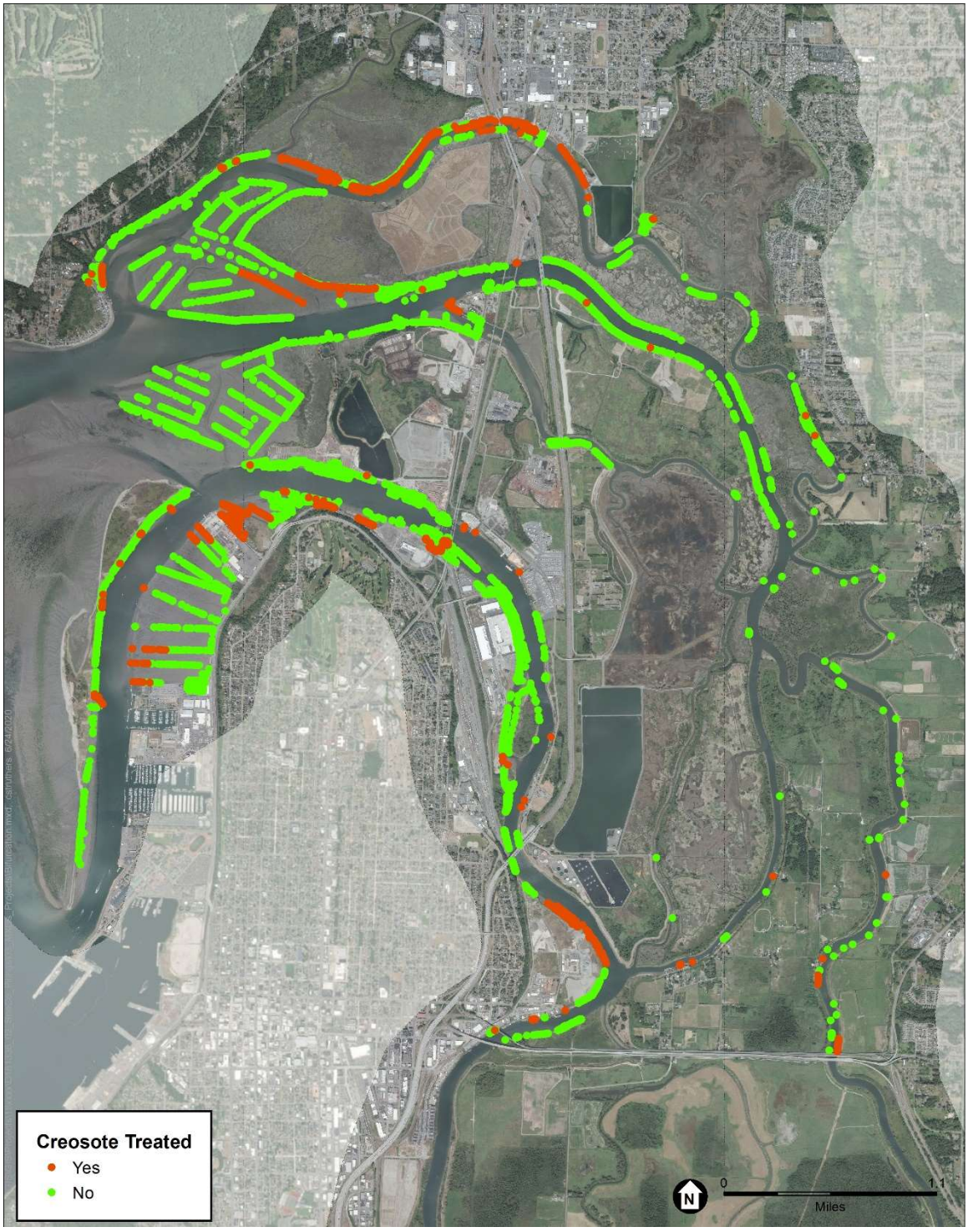

FIGURE 1. MAP OF PILINGS IN THE SNOHOMISH RIVER ESTUARY PROJECT AREA

HIGH PRIORITY AREAS

Based on the inventory and prioritization results of phase 1 (ESA 2020), the MRC selected five areas in the estuary to focus initial stakeholder discussions for removing pilings. The five high priority areas were selected based on multiple considerations, including a concentration of creosote-treated pilings, a concentration of high priority pilings, and piling ownership by one or more of the public agency and tribal landowners in the project area. While these areas were selected to focus efforts during this phase of work, the MRC is very much in support of piling removal opportunities outside of the areas identified below.

As displayed in Figure 2, the five high priority areas are named:

- Quilceda Estuary
- Marysville Waterfront
- Mouth of Steamboat Slough
- Jetty Island North
- Everett Public Works Yard

For each high priority area, a fact sheet was prepared (Appendix A). Each fact sheet summarizes the project background and effects of pilings in the estuary. The fact sheets also show a map of the priority area symbolized to show piling locations, owner type, and whether the piling is creosote-treated or not. Tables of summary statistics are provided, with information on piling counts regarding creosote-treatment, owner type, and priority level. The ownership information is based on the Snohomish County parcel database. Pilings in the Tulalip Reservation are under the Tulalip Tribes' regulatory authority. The Quilceda Estuary and Mouth of Steamboat Slough high priority areas are entirely within the Tulalip Reservation.

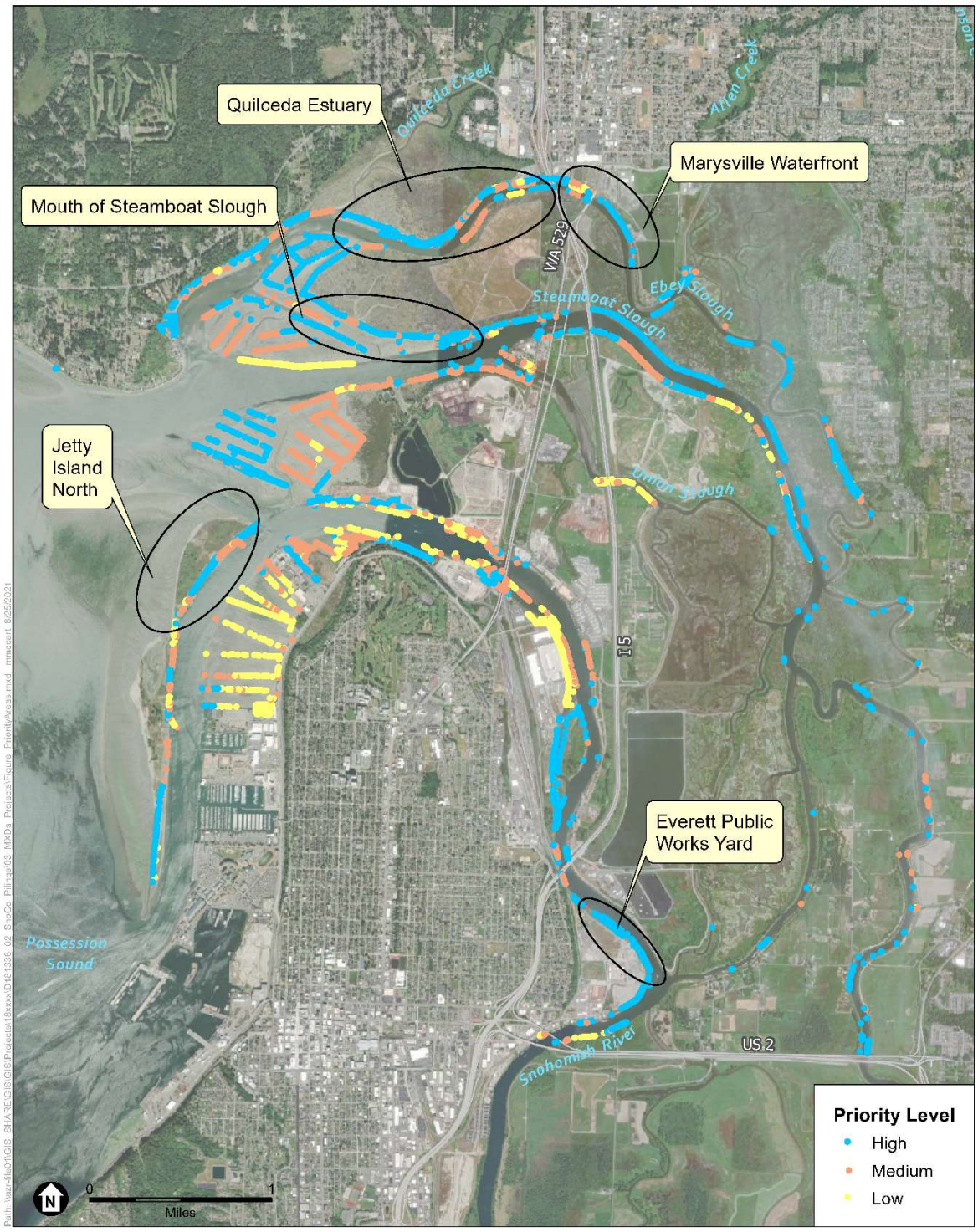

FIGURE 2. MAP OF FIVE HIGH PRIORITY AREAS

STAKEHOLDER ENGAGEMENT

The MRC convened meetings with public agency and tribal landowners in the project area. Discussions focused on the high priority areas, but also included consideration of pilings throughout the project area. The first stakeholder meeting was a group meeting to introduce the project, answer questions, and gage interest in piling removal projects. All public agency and tribal stakeholders with pilings in the project area were invited, and all stakeholders accepted the invitation. The public agency and tribal stakeholders who participated were:

- Washington Department of Natural Resources (DNR)
- Port of Everett (Port)
- U.S. Army Corps of Engineers (Corps)
- City of Everett
- City of Marysville
- Snohomish County
- Tulalip Tribes

Maps of the pilings owned by each public agency and the Tulalip Tribes are provided in Appendix B. The maps include all pilings owned by the agency or tribe, not just those in the high priority areas. The maps indicate which pilings are creosote-treated.

In addition to the group meeting, separate meetings were convened with each stakeholder, with the Port and Corps participating together in a single meeting. Notes from each meeting are provided in Appendix C. Following are some of the key takeaways from each stakeholder.

DNR

DNR stewards the state-owned aquatic lands of Washington. DNR has a Creosote Piling Removal Program and a Marine Debris Removal Program that have been leading efforts throughout Puget Sound to reduce sources of toxic chemicals by removing derelict creosote-treated pilings, overwater structures, and diffuse creosote-treated marine debris. In the project area, 6,268 pilings are on state-owned aquatic lands, of which 969 are creosote-treated. Four of the five high priority areas include pilings on state-owned aquatic lands.

Key takeaways:

- DNR is an ideal partner for creosote-piling removal, in part because they have skilled staff, programmatic permits, specialized equipment, and best management practices for safely removing and disposing of creosote-treated debris.

- DNR's Creosote Piling Removal Program has been fully focused on actions that produce a net ecological gain. If they got involved in pulling pilings for mitigation, then it would reduce the time and resources DNR has to focus on net ecological gain projects.

- Washington State legislation was passed that will bring targeted funding to Snohomish County as part of DNR's Salmon Enhancement Plan; however, this funding is not expected to be allocated for creosote-treated piling removal.

- Understanding the correct ownership in priority areas is important. Some pilings on state-owned aquatic lands may be associated with an Aquatic Land Lease. Therefore, some pilings on state-owned aquatic lands may be the responsibility of a lessee.

- There are three leased areas of state-owned aquatic lands in the project area: a portion of City of Marysville waterfront, a portion of City of Everett waterfront, and Buse Timber. Pilings in leased areas should be de-prioritized because they are covered under a Use Authorization from DNR. Any derelict pilings will be required to be removed from leased properties at the time of lease renewal. Appendix D contains maps of the identified leased areas of state-owned aquatic lands.

- The DNR Aquatic Land Manager for the area (Benjamin Cooksey (360) 854-2834, ben.cooksey@dnr.wa.gov) confirmed that all pilings identified as state-owned were correctly attributed using non geo-referenced maps for comparison. In the future, when Right of Entry is requested for piling removal projects, DNR will double-check land ownership.

Port and Corps

As managers of a working waterfront, the Port has pilings on many of their parcels. Some of these pilings may no longer serve a function and may be acceptable to remove. The Port owns the second highest number of independent pilings in the project area (3,708). The Port owns all of the pilings in the Jetty Island North high priority area, but no other pilings in other high priority areas. The Corps maintains the navigation channel in the estuary and the training dike on the mainstem mouth, but the Corps does not own any other pilings in the estuary.

Key takeaways:

- Pilings in the Jetty Island North priority area are not owned by the Corps. The Port will follow up to determine if they serve a function to protect Jetty Island.

- The Port is open to participating, but needs to keep pilings that have mitigation value until they can receive credit for them. The Port has some upcoming projects that will remove pilings as mitigation.

- Other upcoming projects involving dredging are unlikely to include piling removal because different equipment is needed. It may be possible to include piling removal while the dredging equipment is mobilized if all extra costs were paid for by the piling removal project.

- The Corps has a training dike on a Port-owned parcel (29050700100300) at 200 W. Marine View Drive. This still serves a function for the Corps. Otherwise, the Corps has no piling uses in the estuary that would prevent pilings from being removed. The Corps does not require notification or inclusion in subsequent piling removal project planning processes.

City of Everett

The City of Everett owns 356 pilings distributed in three areas. The largest number is at the City's Public Works Yard. The remainder are in two clusters at the north and south end of Langus Riverfront Park. The high priority area at the Public Works Yard includes only creosote-treated pilings. There are also untreated pilings at the Public Works Yard, but these are not included in the high priority area.

Key takeaways:

- The City of Everett plans to remove many pilings in the Public Works Yard high priority area as mitigation for an upcoming project.
- The City of Everett is primarily interested in piling removal as mitigation, because they do not have budget for restoration removals of piling.
- The City of Everett expressed willingness to allow others to remove untreated -treated pilings on their property if others had funding for the work.

City of Marysville

The City of Marysville owns 267 pilings. Most of the City of Marysville's pilings (218) are in the Quilceda high priority area. Seventeen of the remaining pilings are in the Marysville Waterfront high priority area. These priority areas include all of the creosote-treated pilings on parcels owned by the City of Marysville.

Key takeaways:

- The City of Marysville has upcoming projects along their waterfront where piling removals and/or replacements will likely occur.
- The Ebey Waterfront Park boat launch will be expanded, and any creosote pilings in the project footprint would be removed.
- Geddes Marina will be included in the park expansion, and pilings in that area would also be removed.
- All pilings in the stretch between Interstate-5 and State Route 529 will be removed at some point for mitigation credits.
- The City of Marysville did not discuss plans for piling removal in the Quilceda high priority area.

Snohomish County

Snohomish County owns 955 pilings in the estuary. None of those pilings are creosote-treated. No Snohomish County pilings were included in the high priority areas.

Key takeaways:

- The County can include piling removals in the 2023 Public Works work plan if the benefits rank high enough compared to other projects being considered. The County has limited staff resources, which need to be used for the highest priority projects. Planning for the 2023 work plan will begin in spring 2022.

- The Salmon Recovery Funding Board (SRFB) is unlikely to be a viable funding source for stand-alone piling removal projects. Piling removal as part of larger salmon restoration projects could be funded using salmon funding.

- There are potential opportunities to include piling removal in other projects being considered for North Spencer and Smith Island.

- County funding for piling removal could potentially become available if there is a surplus near the end of the year. If so, there could be funding to remove potentially 25 or so pilings.

Tulalip Tribes

The Tulalip Tribes own the fewest pilings among the non-private landowners in the estuary. The Tulalip Tribes have 175 pilings, of which 33 are creosote-treated. Most of the Tulalip Tribes' pilings are along the salt marsh in the Quilceda high priority area. Another seven tribe-owned pilings are in the Mouth of Steamboat Slough high priority area. These priority areas include all of the creosote-treated pilings on parcels owned by the Tulalip Tribes.

Key takeaways:

- All pilings within the Tulalip Reservation are under the Tulalip Tribes' regulatory authority, regardless of parcel ownership. The Tulalip Reservation includes part of Ebey and Steamboat Sloughs. Piling removal within this area will need to be discussed with the Tulalip Tribes.

- Before approving piling removal, the tribes will want to consider whether they will have future uses of the pilings.

- The Tulalip Tribes have been in discussions with DNR on diffuse creosote removal, especially in the Quilceda estuary. Those discussions have been about creosote-treated driftwood deposited in the area, not pilings.

- The Tulalip Tribes are interested in removing the high density of creosote-treated pilings near the Quilceda estuary.

- The Tulalip Tribes are interested in a partnership with DNR and Snohomish County for a large-scale piling removal project.

IMPLEMENTATION CONSIDERATIONS

Removal of Creosote Pilings versus Untreated Pilings

The removal of pilings that are creosote-treated entails a different set of considerations than removed untreated pilings. Creosote piles can leach throughout their lifetime and pose a threat to human and environmental health. Untreated pilings do not have the chemical effects, but can have negative impacts when they impact habitat function and landscape connectivity.

Creosote-treated Pilings

The removal of creosote-treated pilings requires special handling and disposal to minimize the release of chemical contaminants into surrounding environments. Creosote-treated pilings will need to be disposed of at a landfill which can be expensive. DNR and WDFW have best management practices to minimize the release of chemical contaminants during the removal of creosote-treated pilings. Creosote-treated pilings should be fully extracted from the substrate and removed from the aquatic environment.

Staff in DNR's Creosote Piling Removal Program are experts in creosote piling removal. DNR has programmatic permits for creosote removal. DNR partners with others to complete work to remove creosote from the environment. Local efforts to remove creosote-treated pilings should explore partnering with DNR for their expertise and efficiency.

Untreated Pilings

Since untreated pilings do not release chemical contaminants into the environment, there are fewer concerns during the removal process. Untreated pilings may not have the structural integrity to be fully extracted from the substrate. If the pilings snap or get cut at the mudline, it is not a concern because the remaining portion does not have chemical contaminants to release to the environment.

Untreated pilings do not need to be disposed of at landfills, thereby reducing costs compared to creosote-treated pilings. Untreated pilings can be re-purposed such as for habitat as part of a log jam. In this way, removal of untreated pilings may be readily incorporated into other habitat projects by providing materials for habitat structures. It may be more difficult to find grant funding for untreated piling removal since there is not a water quality benefit associated with their removal.

Implementation Approaches

There are multiple possible implementation approaches for removing pilings in the estuary. The piling removal project approaches include:

- Piling removal as a stand-alone restoration project

- Piling removal as part of another project
- Piling removal as compensatory mitigation

Below is information on each of these implementation approaches.

Piling Removal as a Stand-alone Restoration Project

Piling removal can be completed as the sole focus of a restoration project. This work can be funded by project sponsors, such as through a capital budget, and/or by grant funding. DNR may be able to be contracted with to conduct the piling removal given the net ecological gain of the work. DNR's main focus is on creosote-piling removal on state-owned aquatic lands, but on a case-by-case basis the agency may remove untreated pilings and/or those on others' properties. As stand-alone projects, all applicable local, state, and federal permits will need to be obtained.

Piling Removal as Part of Another Project

Piling removal can also be included as part of other planned work in the estuary, such as restoration, site maintenance, or redevelopment. If the larger project is grant funded, piling removal may be an allowable expense added to the budget. There may be cost savings for piling removal if barges and other equipment are already mobilized and on site.

All applicable local, state, and federal permits would need to be obtained. Depending on the work included in the rest of the project, including piling removals may add little if any effort to the permitting process.

Piling Removal as Compensatory Mitigation

Pilings in the aquatic environment can be removed as part of compensatory mitigation to offset impacts from other projects. Creosote-treated pilings have much more mitigation value than untreated pilings due to the benefits of removing toxic creosote from the aquatic environment.

Because of the mitigation credit value, derelict pilings are often considered by their owners to be assets that they will keep in place until they are needed as mitigation credit through their removal. For entities working in the Snohomish River estuary, the requirements to provide mitigation may come from multiple regulatory agencies, such as NOAA Fisheries, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife (WDFW), the Corps, and local agencies. One of these agencies, NOAA Fisheries, will allow advance removal of pilings as mitigation to offset future Endangered Species Action-required mitigation (Ehinger et al. 2020). Since other agencies may not accept these removed piling credits as adequately addressing their mitigation requirements, conducting advance piling removal for future mitigation credit is risky. A project sponsor cannot be certain that the advance piling removal will address the mitigation requirements of other agencies.

The Puget Sound Partnership is advancing creosote piling removal as mitigation through two pathways (Stroming, pers. comm.). One pathway is for the Puget Sound Partnership to collect mitigation funding from entities with a mitigation obligation and use the funding to support DNR

creosote piling removal efforts. Such activities would be almost entirely on state-owned aquatic lands. In a second pathway, the Puget Sound Partnership helps to link those projects needing mitigation credits with those projects that would generate credits. The Puget Sound Partnership plans to have an online map that users could click on their project location and mitigation project opportunities will appear.

For the second pathway, piling removals in the Snohomish River estuary can be a viable mitigation-generating project type. The likelihood of piling removal projects in the estuary being funded through mitigation is reduced because the Blue Heron Slough Conservation and Mitigation Bank credits are less expensive than piling removal credits (Stroming, pers. comm.). However, the Blue Heron Slough service area and the Puget Sound Partnership Whidbey Basin service area do not entirely match up. As a result, projects generating impacts in the Puget Sound Partnership Whidbey Basin service area that are outside of the Blue Heron Slough service area may remove pilings for mitigation credit. As shown in Figure 3, projects in the northernmost portion of Port Susan, Saratoga Passage, and Skagit Bay are outside of the Blue Heron Slough service area and therefore may use Snohomish River estuary piling removal as mitigation.

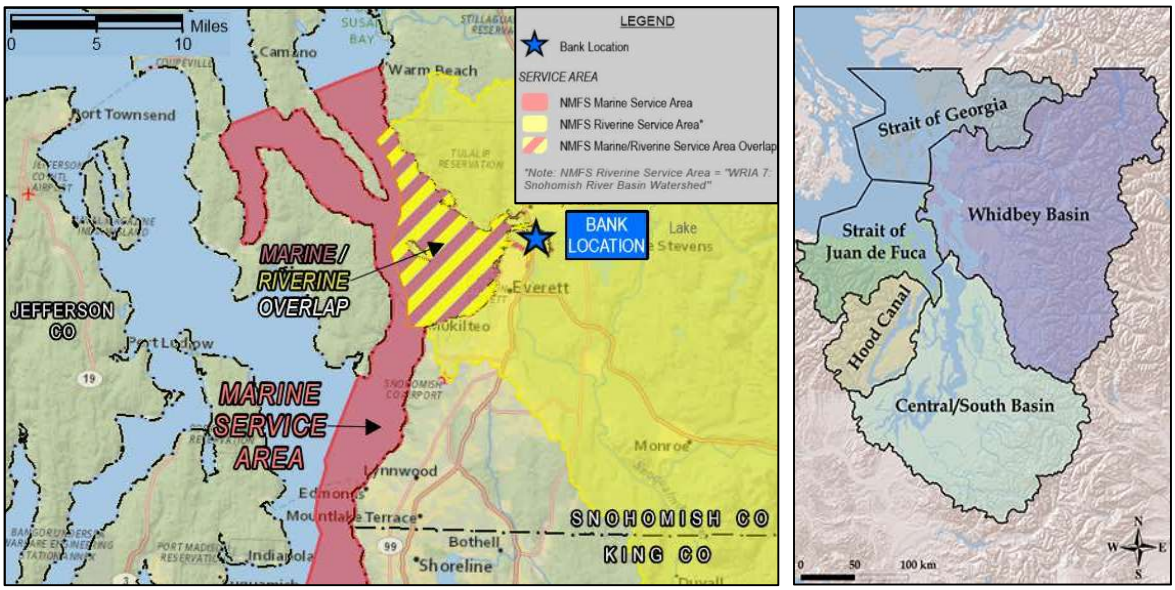

FIGURE 3. BLUE HERON SLOUGH MITIGATION BANK SERVICE AREA (LEFT) AND PUGET SOUND PARTNERSHIP CONSERVATION SERVICE AREA (RIGHT)

Additional Implementation Considerations

Tribal Notification and Consultation

Existing pilings in the Snohomish River estuary and the removal of pilings may be of interest to the Tulalip Tribes. Therefore, it is recommended to notify and consult with the Tulalip Tribes for all piling projects early in the planning process to help ensure project success. Additional Tribal notification and consultation requirements will depend on the specific regulatory nexus (NHPA Section 106, EO 21-02, SEPA).

Anticipated Permitting Requirements

Local, state, and federal permits will be required to remove pilings in the Snohomish estuary. The location of the project will affect which local permits will be needed. For piling removal projects conducted as part of other restoration projects or as mitigation, the piling removal portion of the work will need to be included in the full project's permit applications. Permit approvals can be expected to include best management practices to be implemented during piling removal to reduce the potential for impacts during the work (e.g., excessive turbidity).

Project applicants should expect the permitting process to take several months; therefore, advanced planning is advised to get permit applications submitted. Some permits have fees associated with them.

Cultural Resources Considerations

As part of federal and state permitting required for piling removal, the removal activities must be protective of historic and archaeological resources. Piling removal projects requiring a federal permit – from the Corps for projects below the high tide line, for example – or using federal funds would be considered a federal undertaking and subject to compliance with the National Historic Preservation Act (NHPA, Section 106). The NHPA requires that the lead federal agency consider effects on historic properties (artifacts, archaeological sites, structures, buildings, objects that are 50 years or older). Projects not otherwise subject to compliance with NHPA Section 106 would be subject to compliance with Governor's Executive Order 21-02 if Washington State capital funds are used, and chapters of the Revised Code of Washington (RCW) and the State Environmental Policy Act (SEPA), regardless of funding source. The state laws would require similar documentation and evaluation of piles prior to removal, or impacts on archaeological sites, as NHPA Section 106.

Compliance with federal and state cultural resources laws starts with a cultural resources review for pilings that are potentially more than 50 years old. The historic context review will gather available information on the timing (age) of when the pilings were installed and, if appropriate, the structure (e.g., dock) for which that the pilings were originally installed. This review will inform whether additional cultural resources documentation is needed for the pilings.

The historic resources review of pilings could be completed on a project-by-project basis. Alternatively, a programmatic approach to cultural resources compliance for piling removals in the estuary could be conducted for efficiency. A programmatic approach means completing one overarching effort to document and evaluate pilings greater than 50 years old to allow their subsequent removal. Dr. Rob Whitlam, State Archaeologist at Washington Department of Archaeology and Historic Preservation (DAHP) suggested that a historic context evaluation of pilings throughout the project area could provide the documentation needed for all pilings, thus providing a strategy to minimize redundant cultural compliance efforts (Whitlam pers. comm.). For such a comprehensive historic context evaluation, Dr. Whitlam recommended that such efforts prioritize documenting larger clusters of historically-related piles over isolated or smaller groups of piles.

In addition to the pilings, the shorelines of the Snohomish River estuary contain documented and undocumented archaeological sites, which could be impacted by pile removal regardless of the age of the piles. Assessment of archaeological resources and associated consultation will be required.

Piling Usage

An important consideration in the removal feasibility assessment portion of the phase 1 prioritization was whether pilings were still in use. Piling use was evaluated based on observations made during the field inventory coupled with an evaluation of Google Earth aerial imagery between 2000 and 2020. Through discussions completed in phase 2, additional information was gathered on piling usage. Based on the new information, there appears to be less piling usage than was estimated in the phase 1 prioritization. According to Buse Timber, they only use the pilings in Union Slough between their property and the Smith Island restoration site upstream (Clapham, pers. comm.). The City of Everett has a few pilings in the immediate vicinity of a derelict dock at their Public Works Yard that need to remain; otherwise, there are no identified uses of the independent pilings in the project area. Leases with DNR should be checked prior to specific project planning.

POTENTIAL FUNDING SOURCES

This section identifies current funding opportunities and potential future funding sources for piling removal projects conducted as stand-alone restoration or as part of another project.

Current Funding Opportunities

Funding programs that are currently in place are identified and described below. These are programs for which piling removal projects would be eligible and/or programs that are already funding piling removals in the Snohomish River estuary and nearshore.

Department of Natural Resources (State Operating and Capital Budget)

Description: The DNR Creosote Piling Removal Program "*works to reduce sources of PAHs [polycyclic aromatic hydrocarbons] in Puget Sound by removing structures and debris that are treated with creosote; reducing human exposure to creosote on beaches; and improving the quality of the nearshore habitat for forage fish and other key species. DNR also promotes the use of non-creosote-treated materials in the building of new structures and replacement structures*." This program is funded directly through biennial special-requested appropriations

Considerations: The DNR program is focused on creosote-treated pilings. The Snohomish Basin is a focal watershed for salmon recovery by the agency, which increases the opportunities for removal. DNR may consider prioritizing the Snohomish piling projects for their own funding and/or develop joint grant proposals to expedite removals. The MRC could work with DNR, the Tulalip Tribes, and other interested stakeholders in the estuary to put together a special request for the next biennial budget.

Aquatic Lands Enhancement Account (Washington Recreation and Conservation Office [RCO])

Description: This funding source is generated from aquatic leases managed by DNR. A portion of the funds are distributed through a competitive funding source administered by RCO. The program is $1M maximum per project with a 50% match requirement. Grants may be used for the acquisition, improvement, or protection of aquatic lands for public purposes, including improved access to the waterfront. Aquatic lands are considered all shore lands, harbor areas, and the beds of navigable waters.

Considerations: Work with DNR and RCO to determine what counts as matching funds. Applications tend to be more successful when they also include a recreational component, and/or create opportunity to remove pilings as part of other waterfront improvement activities.

National Estuary Program: Puget Sound Program (U.S. Environmental Protection Agency)

Description: This annual funding source has several opportunities for accessing funds for piling removal. To date, Local Integrating Organizations (LIOs) have been provided approximately $100,000 to fund priority projects that are also listed as "Near Term Actions" in the Puget Sound Action Agenda (Puget Sound Partnership 2018). In addition, the Habitat Strategic Initiative Leads have run a regional grant round to fund projects.

Considerations: The 2022–2026 Puget Sound Action Agenda will likely have a different approach for distributing funds that may look more like a request for proposal than a single call for Near Term Actions. Track these changes and identify the best routes for receiving National Estuary Program (NEP) grant funds through the program. Work with WDFW and DNR grant leads to determine how to position Snohomish River estuary piling removal for inclusion in the upcoming Action Agenda. The Stillaguamish-Snohomish LIO has rated past MRC Near Term Actions that included creosote highly; if the MRC can find ways to include this type of project in future plans, it could be promising.

Estuary and Salmon Restoration Program (WDFW)

Description: The Estuary and Salmon Restoration Program (ESRP) manages multiple funding programs to "*organizations working to restore shoreline and nearshore habitats critical to salmon and other species in Puget Sound*."

Considerations: The focus of its largest funding program is on process-based restoration and protection, but ESRP's Small Grants and Shore Friendly Grant Programs are a potential fit for funding. The Small Grants Program has similar goals as the restoration and protection program, with a focus on local engagement and restoring and protecting beach systems. The Shore Friendly Grant Program focuses on armor removal to restore marine shorelines. This funding source presumably could be more of a fit for private landowners in the project area.

Nearshore Mitigation Credits

Work with Wildlands Inc., the managers of the Blue Heron Slough Conservation and Mitigation Bank, and NOAA Fisheries to identify the opportunities for Wildlands to provide nearshore credits through their bank, which currently includes habitat credits. Using NOAA Fisheries' Puget Sound Nearshore Habitat Conservation Calculator, the mitigation credit value of piling removals can be easily determined and sold to private buyers. The MRC can also identify if any projects needing mitigation are outside of the Wildlands service area but within the Whidbey Basin service area for nearshore credits, and provide piling removal as a project to generate credits through the Puget Sound Partnership credit marketplace.

Potential Funding Opportunities and Other Considerations

The descriptions that follow are opportunities that are in development, may become available as funding mechanisms in the future, and/or the MRC may consider for additional policy work and positioning to gain access to these sources.

Federal Appropriations

Description: DNR has shown a willingness to seek federal funding as part of an infrastructure bill or earmark in the annual appropriations process via U.S. Representative Rick Larsen's office. Seek alignment with regional salmon recovery entities (Puget Sound Partnership, Lead Entity) and tribes to support requests.

Considerations: Identify multi-benefit projects for Representative Larsen's office to consider: water quality, food web benefits, marsh vegetation, community amenities, etc.

King County Clean Water Healthy Habitat

Description: Track the efforts of King County's Water Quality Benefits Evaluation (WQBE) causal model to determine the latest science on polycyclic aromatic hydrocarbons (PAH) loading and impacts of creosote pilings.

Considerations: Consider projects to propose for King County funding if they seek water quality improvements north of the King County border (i.e., in Snohomish County) in the future as part of a program to improve areas with impacts from their wastewater facilities.

Settlement Funds

Work with the Rose Foundation, BNSF, and others to identify pathways for Clean Water Act violation fines to be routed to fund piling removal projects.

Consider working with Washington Department of Ecology staff to determine the eligibility of creosote removal projects through the Coastal Protection Fund -Terry Husseman Account and to get as much advance notice as possible. These grants often fund riparian projects, but creosote may be eligible under the "fish and wildlife habitat enhancement" or "aquatic land GIS" project types. There are no match requirements, but funding is limited to $50,000 per project. Funding availability is variable because it is based on revenue from water quality penalties and available regional sub-account levels.

Funding for Other Project Benefits

Consider whether any projects or specific pilings represent a navigational hazard or other hazard that could open up other funding opportunities beyond nearshore/estuarine habitat improvements. For example, with sea level rise, will any pilings that are currently visible at various tides be a commonly submerged obstruction in future higher tides?

RECOMMENDED NEXT STEPS

This phase of work has met the objectives of raising stakeholder awareness of pilings on parcels they own and stakeholder interest in removing pilings. Through discussions with stakeholders and additional research, some next steps were identified to promote the future removal of pilings in the estuary.

Continued Coordination among Stakeholders

- Make an online map available to stakeholders.
- MRC to send out email yearly asking stakeholders for any updates on projects, and to check online map for any changes needed. Assess the need for stakeholder calls and if additional information is needed to continue to facilitate removal efforts.
- Update the phase 1 prioritization based on new information on piling usage and any new information on which pilings are creosote-treated.

Additional Information Gathering

- Conduct evaluation of whether pilings in the estuary are considered historic properties that require documentation and evaluation before being removed. This evaluation will be required by DAHP. This can be conducted in a programmatic approach (all at once) or on a project by project basis.
- Consider additional investigation of whether the phase 1 findings on which pilings are creosote-treated is accurate. Some stakeholders believe there are more creosote-treated pilings than found in the phase 1 field inventory. A limited effort to collect samples and conduct laboratory testing could inform the prevalence of creosote-treated pilings in the estuary. Such a limited effort could also inform whether a larger scale evaluation is warranted. If there are more creosote-treated pilings, the benefits of removing them are greater and more urgent for stakeholders.
- Promote or conduct research to: (1) build a stronger scientific basis for the long-term effects of creosote-treated pilings on biological resources; (2) improve techniques to evaluate if pilings are creosote-treated; and (3) evaluate creosote leaching rates and concentrations in surrounding sediments, especially among older pilings.
- Research the fit of the potential funding sources identified in the phase 2 report. Communicate possible funding sources (e.g., grant funding announcements) to stakeholders who own pilings.

Leveraging Additional Resources

- Work with the Puget Sound Partnership to get Snohomish River estuary piling removal listed as a mitigation opportunity in their online map linking projects needing mitigation with those providing mitigation.
- Continue conversations with DNR about opportunities for mitigation banking for creosote piles.

Facilitate Removal Efforts

- Work with partners to get Snohomish River estuary piling removal included on work plans and lists that identify future restoration actions to invest in.
  - Local agency work plans
  - Snohomish Basin Plan
  - 10-year Snohomish-Skagit-Island joint project
  - 2022–2026 Puget Sound Action Agenda.
- Engage private owners of pilings in the project area. Approximately 24% of the pilings in the estuary and 12% of the creosote-treated pilings are owned by private landowners.
- Promote opportunities to include piling removal in other restoration or waterfront actions being planned.
- Explore opportunities for stakeholders to cost-effectively remove additional pilings when piling removal equipment has been mobilized for other projects.

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Whitlam, R. Personal communication. Telephone conversation on August 23, 2021 between Dr. Rob Whitlam (Washington Department of Archaeology and Historic Preservation), Chris Lockwood (ESA), Paul Schlenger (ESA), and Elisa Dawson (Snohomish County Marine Resources Committee) discussing cultural resources issues related to piling removal.

Appendix A
High Priority Area Fact Sheets

HIGH PRIORITY AREA

Quilceda Estuary

The **Quilceda Estuary** is one of five priority areas in the Snohomish River estuary where the Snohomish County Marine Resources Committee (Snohomish MRC) is looking for willing landowners interested in removing pilings on their property. Please see priority map on next page.

The project aims to improve habitat conditions in the estuary by informing landowners of the ecological benefits of removing toxics associated with the creosote-treatment of many of the pilings, as well as in-water impacts of the piling being in place. The project is to inform landowners and encourage piling removal where feasible.

Project Background

The Snohomish MRC inventoried pilings in the estuary and conducted a prioritization to identify which pilings would provide the greatest ecological benefits if removed. The prioritization also includes consideration of the apparent feasibility of removal. The effort only focuses on those pilings that do not have an apparent structural purpose, such as part of a bulkhead or a marina. The Snohomish River estuary downstream of Highway 2 has 15,564 non-structural pilings (see page 2 inset map of locations) of which 2,456 are treated with creosote. Prioritization report available at: https://www.snocomrc.org/projects/creosote-pilings/

Creosote Piling Effects

Creosote is a coal-tar sourced preservative that was historically used to treat wood pilings. In the aquatic environment, creosote leaches from the pilings over time and concentrates in the surrounding water and sediments with damaging ecological effects. Research has shown that creosote and its associated toxins have negative health effects on humans—including being a probable carcinogen—and animals including fish eggs and the small invertebrates that juvenile salmon feed on.

Additional Piling Effects

Pilings, whether creosote-treated or not, can affect estuary habitats. Just by occupying space, pilings reduce the availability of natural sandy habitats. Each individual piling can also affect a larger surrounding area through the scour effects of tidal water moving past the structure. When a piling is in salt marsh or other aquatic vegetation, this "halo effect" around the piling can result in decreased vegetation cover. Despite these negative impacts, pilings can provide habitat for birds and other aquatic invertebrate species, such as barnacles, which require hard substrate to grow on.

Voluntary Project

This is a voluntary effort seeking willing landowners. If you would like to learn more about the project, please visit www.snocomrc.org/projects/creosote-pilings or call Elisa Dawson, Snohomish MRC Staff at (425) 388-6466.

Snohomish County Marine Resources Committee

Northwest Straits Initiative

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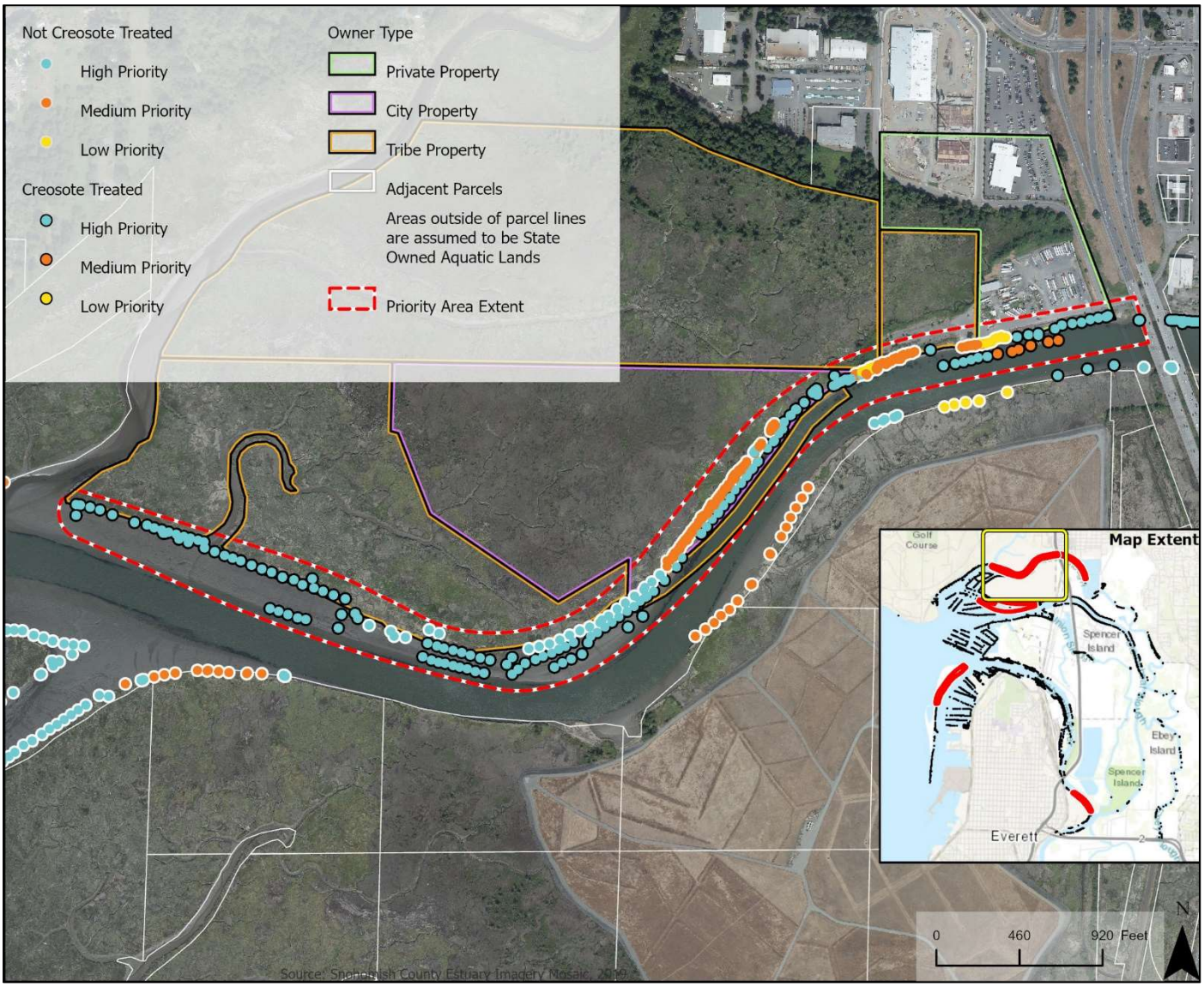
United States Environmental Protection Agency

Quilceda Estuary



Statistics Summary

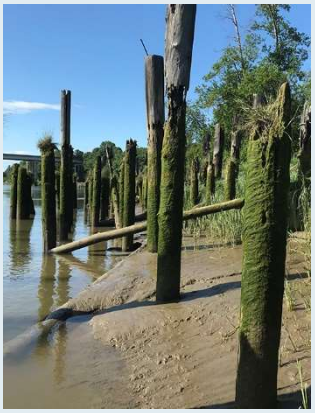
491	179	312
Number of Pilings	**Creosote Treated**	**Not Creosote Treated**

Property Ownership

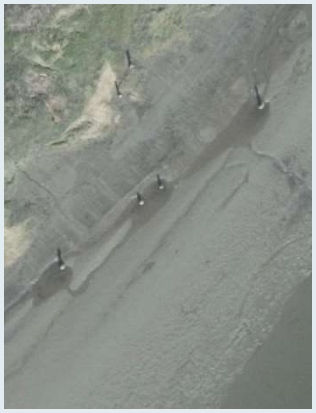
Tulalip Tribes: 125 **City of Marysville: 218** **State Owned: 148**

This High Priority Area is located in the Tulalip Reservation and is under the Tulalip Tribes' regulatory authority regardless of parcel ownership.

High Priority	Medium Priority	Low Priority
213	236	42



Pilings in and near salt marsh vegetation



Scour hole depressions visible around pilings

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HIGH PRIORITY AREA

Marysville Waterfront

The **Marysville Waterfront** is one of five priority areas in the Snohomish River estuary where the Snohomish County Marine Resources Committee (Snohomish MRC) is looking for willing landowners interested in removing pilings on their property. Please see priority map on next page.

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Project Background

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Additional Piling Effects

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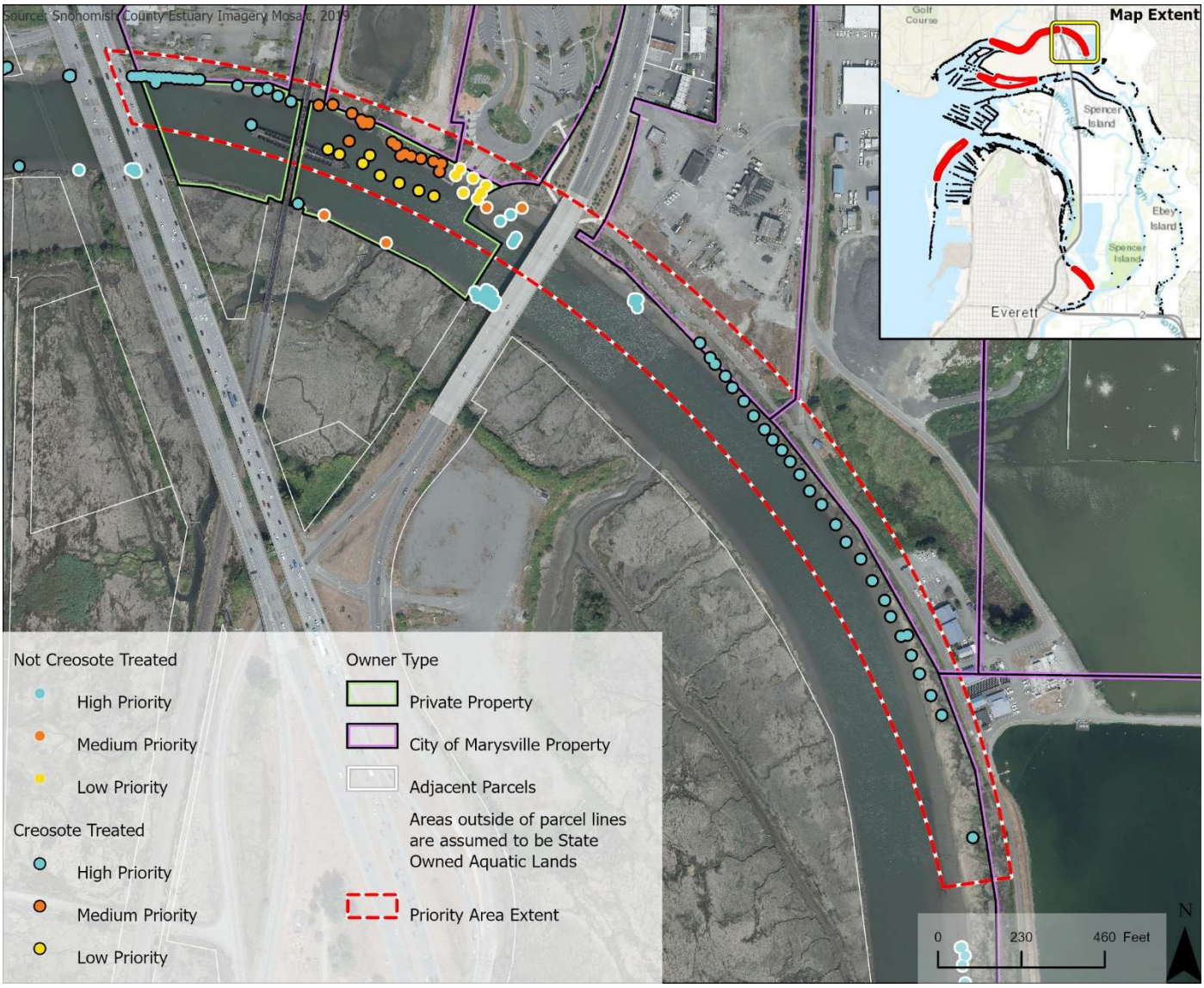
Snohomish County Marine Resources Committee

Northwest Straits Initiative

PUGETSOUND PARTNERSHIP

United States Environmental Protection Agency

Marysville Waterfront



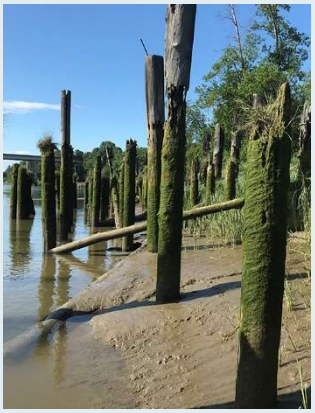
Statistics Summary

95	81	14
Number of Pilings	Creosote Treated	Not Creosote Treated

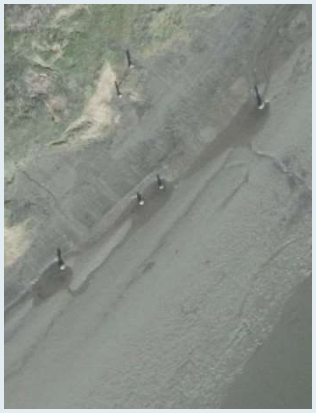
Property Ownership

State Owned: 40	City of Marysville: 17	Private: 38

High Priority	Medium Priority	Low Priority
60	20	15



Pilings in and near salt marsh vegetation



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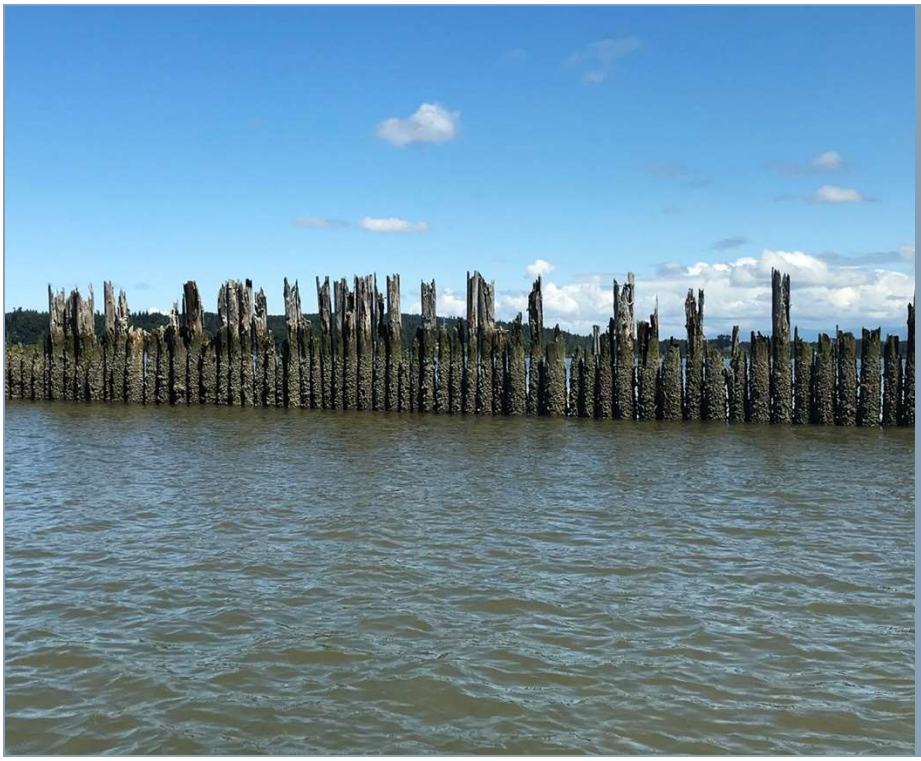
HIGH PRIORITY AREA

Mouth of Steamboat Slough



The **Mouth of Steamboat Slough** is one of five priority areas in the Snohomish River estuary where the Snohomish County Marine Resources Committee (Snohomish MRC) is looking for willing landowners interested in removing pilings on their property. Please see priority map on next page.

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Snohomish County Marine Resources Committee

Northwest Straits Initiative

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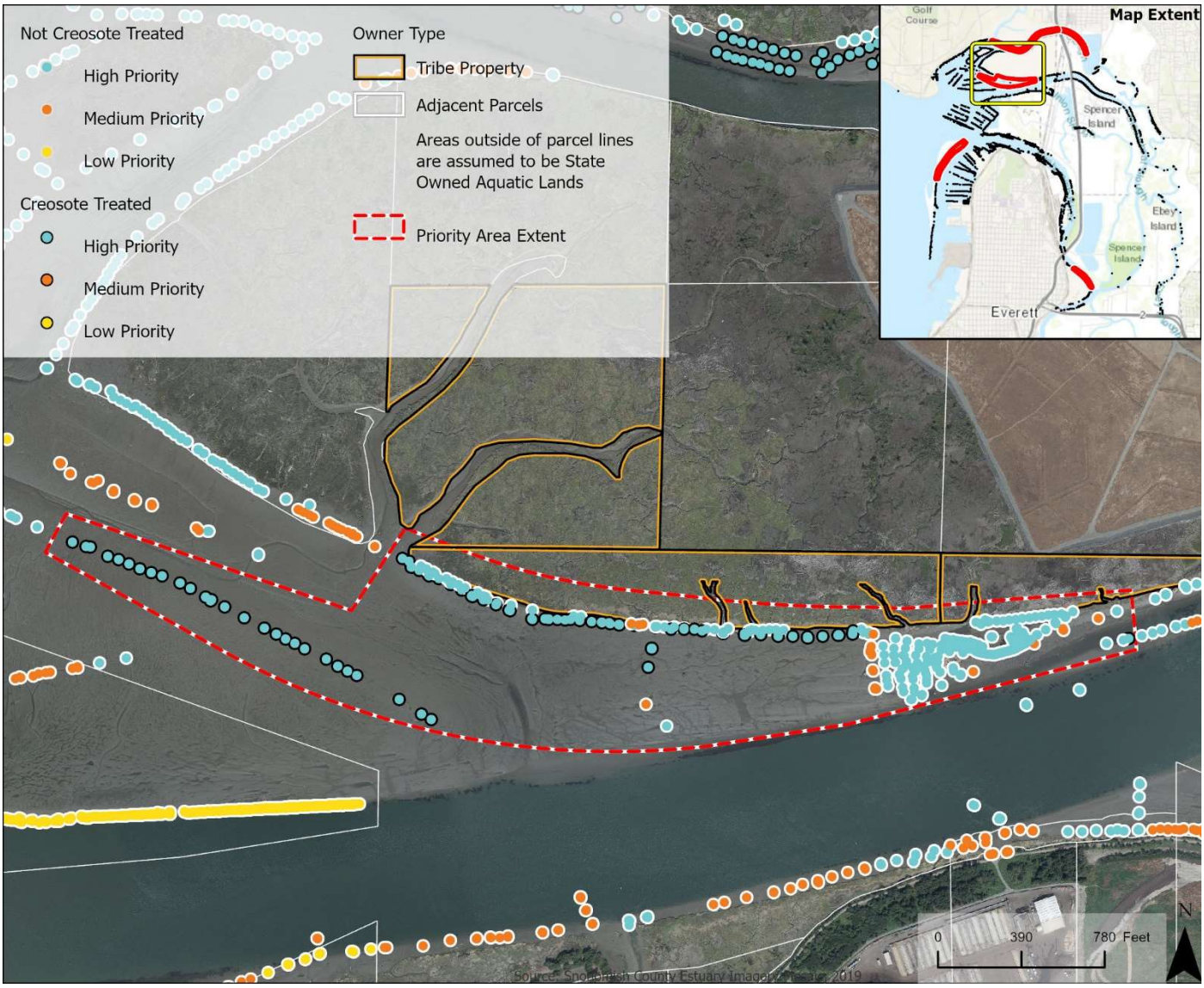
Mouth of Steamboat Slough



Statistics Summary

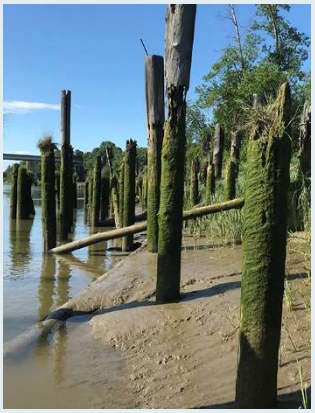
671	103	568
Number of Pilings	**Creosote Treated**	**Not Creosote Treated**

Property Ownership

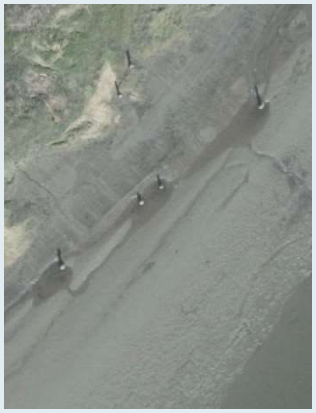
State Owned: 664 **Tulalip Tribes: 7**

This High Priority Area is located in the Tulalip Reservation and is under the Tulalip Tribes' regulatory authority regardless of parcel ownership.

High Priority	Medium Priority	Low Priority
647	24	0



Pilings in and near salt marsh vegetation



Scour hole depressions visible around pilings

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HIGH PRIORITY AREA

Jetty Island North

The **Jetty Island North** is one of five priority areas in the Snohomish River estuary where the Snohomish County Marine Resources Committee (Snohomish MRC) is looking for willing landowners interested in removing pilings on their property. Please see priority map on next page.

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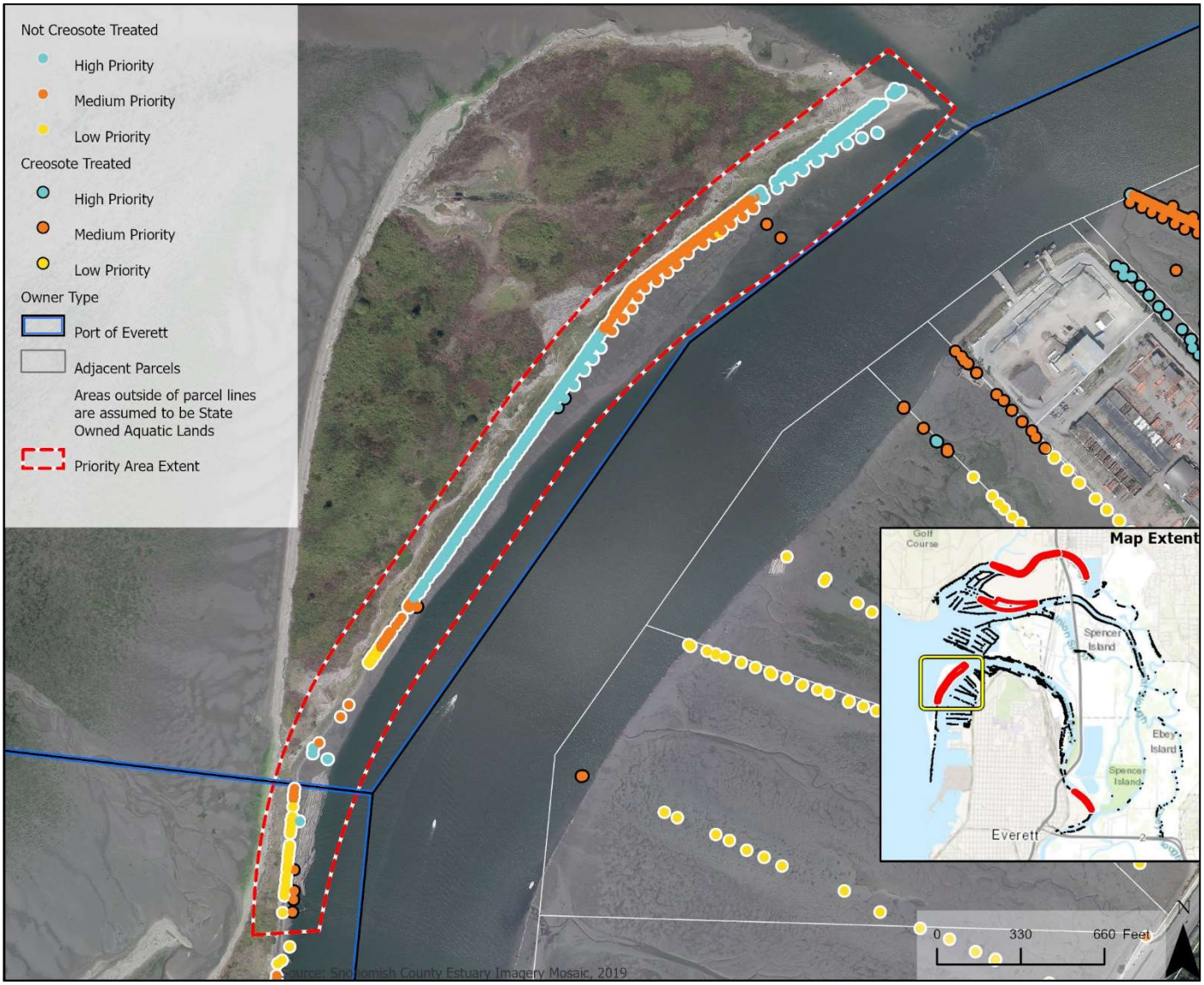
Snohomish County Marine Resources Committee

Northwest Straits Initiative

PUGETSOUND PARTNERSHIP

United States Environmental Protection Agency

Jetty Island North



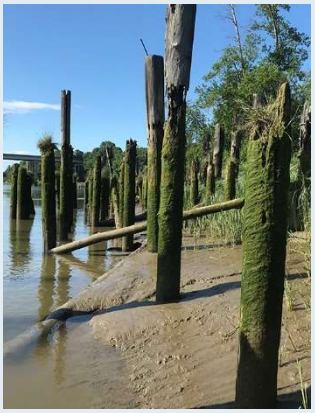
Statistics Summary

710	22	688
Number of Pilings	Creosote Treated	Not Creosote Treated

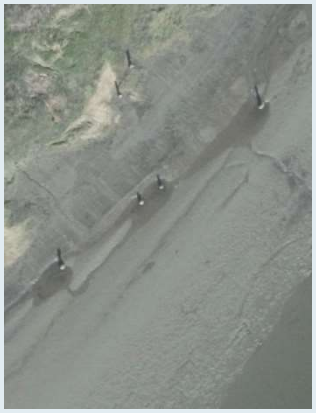
Property Ownership

Port of Everett: 710

High Priority	Medium Priority	Low Priority
420	241	49



Pilings in and near salt marsh vegetation



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HIGH PRIORITY AREA

Everett Public Works Yard

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The Snohomish MRC inventoried pilings in the estuary and conducted a prioritization to identify which pilings would provide the greatest ecological benefits if removed. The prioritization also includes consideration of the apparent feasibility of removal. The effort only focuses on those pilings that do not have an apparent structural purpose, such as part of a bulkhead or a marina. The Snohomish River estuary downstream of Highway 2 has 15,564 non-structural pilings (see page 2 inset map of locations) of which 2,456 are treated with creosote. Prioritization report available at: https://www.snocomrc.org/projects/creosote-pilings/

Creosote Piling Effects

Creosote is a coal-tar sourced preservative that was historically used to treat wood pilings. In the aquatic environment, creosote leaches from the pilings over time and concentrates in the surrounding water and sediments with damaging ecological effects. Research has shown that creosote and its associated toxins have negative health effects on humans—including being a probable carcinogen—and animals including fish eggs and the small invertebrates that juvenile salmon feed on.

Additional Piling Effects

Pilings, whether creosote-treated or not, can affect estuary habitats. Just by occupying space, pilings reduce the availability of natural sandy habitats. Each individual piling can also affect a larger surrounding area through the scour effects of tidal water moving past the structure. When a piling is in salt marsh or other aquatic vegetation, this "halo effect" around the piling can result in decreased vegetation cover. Despite these negative impacts, pilings can provide habitat for birds and other aquatic invertebrate species, such as barnacles, which require hard substrate to grow on.

Voluntary Project

This is a voluntary effort seeking willing landowners. If you would like to learn more about the project, please visit www.snocomrc.org/projects/creosote-pilings or call Elisa Dawson, Snohomish MRC Staff at (425) 388-6466.

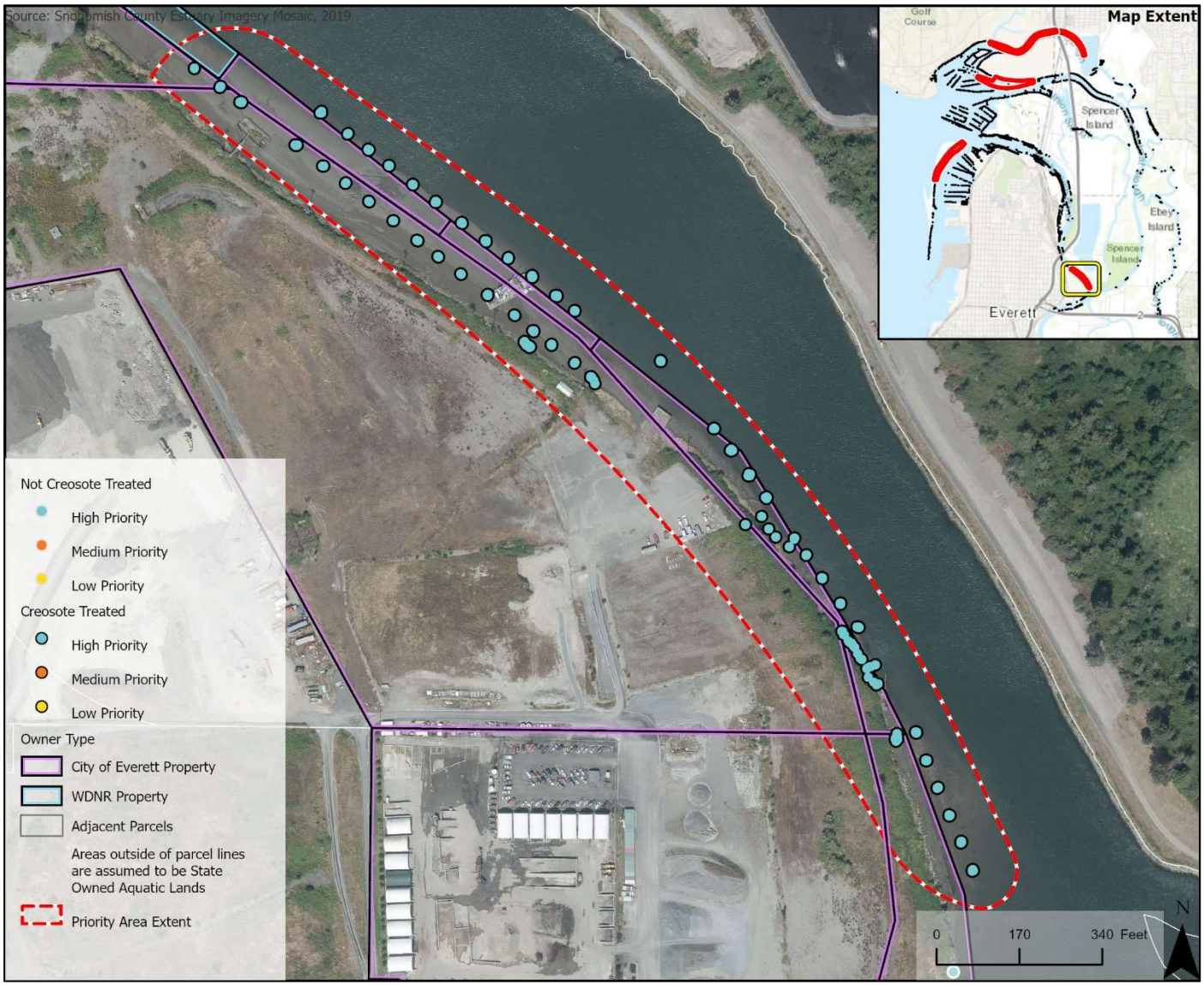
Snohomish County Marine Resources Committee

Northwest Straits Initiative

PUGETSOUND PARTNERSHIP

United States Environmental Protection Agency

Everett Public Works Yard



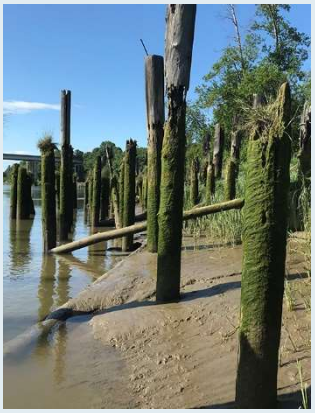
Statistics Summary

213	213	0
Number of Pilings	Creosote Treated	Not Creosote Treated

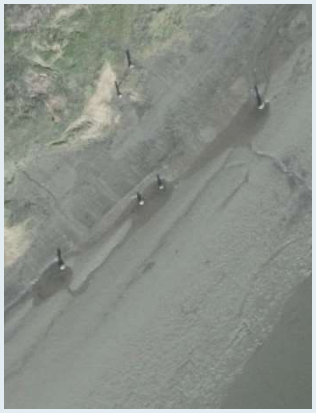
Property Ownership

City of Everett: 110 State Owned: 103

High Priority	Medium Priority	Low Priority
213	0	0



Pilings in and near salt marsh vegetation

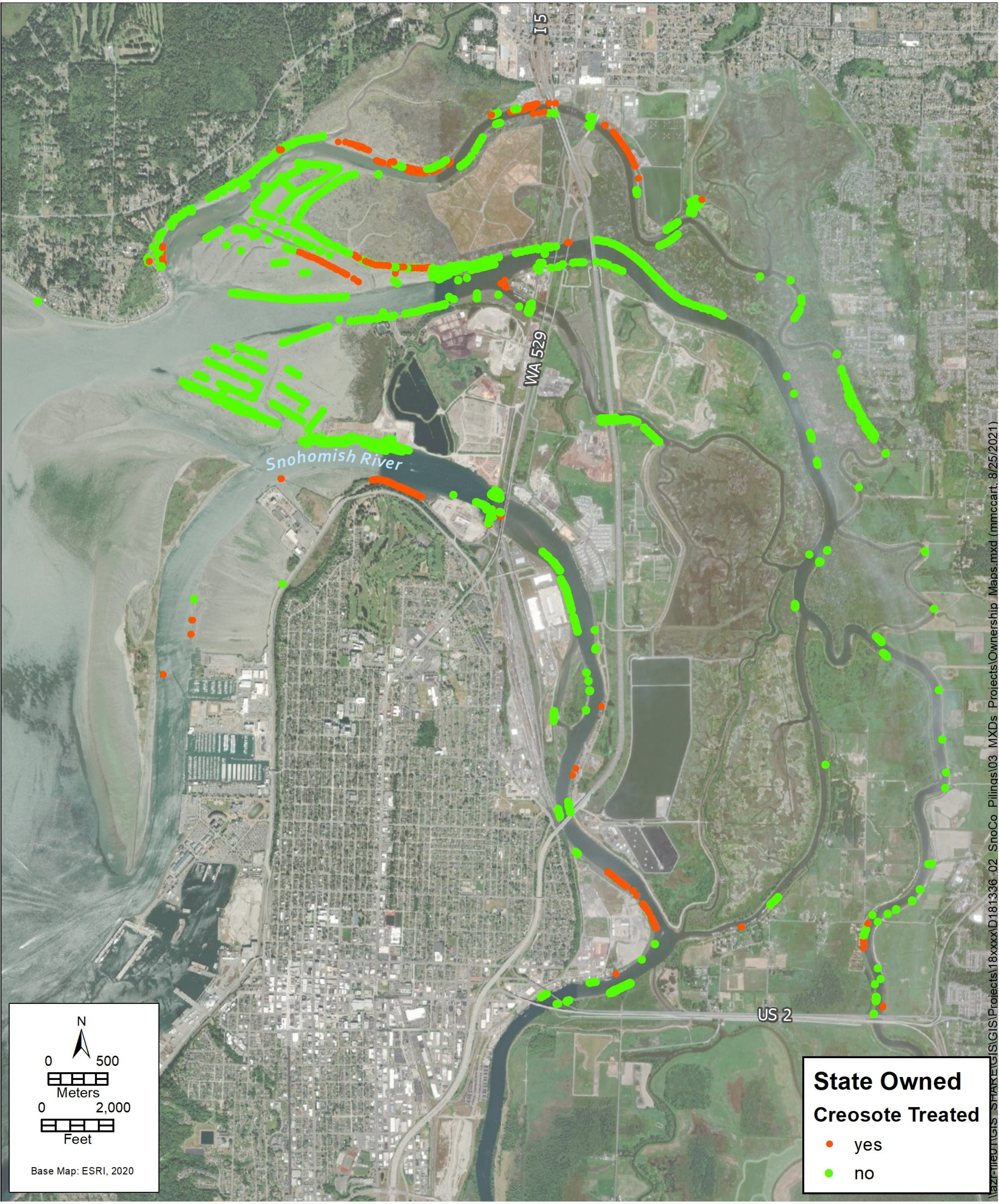


Scour hole depressions visible around pilings

This project has been funded wholly or in part by the United States Environmental Protection Agency. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency under Assistance Agreement [CE-01J65401]. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Appendix B

Ownership Maps for Each Public Agency and the Tulalip Tribes


I 5
WA 529
Snohomish River
US 2
N
0 500
Meters
0 2,000
Feet
Base Map: ESRI, 2020
State Owned
Creosote Treated
yes
no
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Snohomish River
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Feet
Base Map: ESRI, 2020
City of Everett
Creosote Treated
yes
no
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I 5
WA 529
Snohomish River
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Meters
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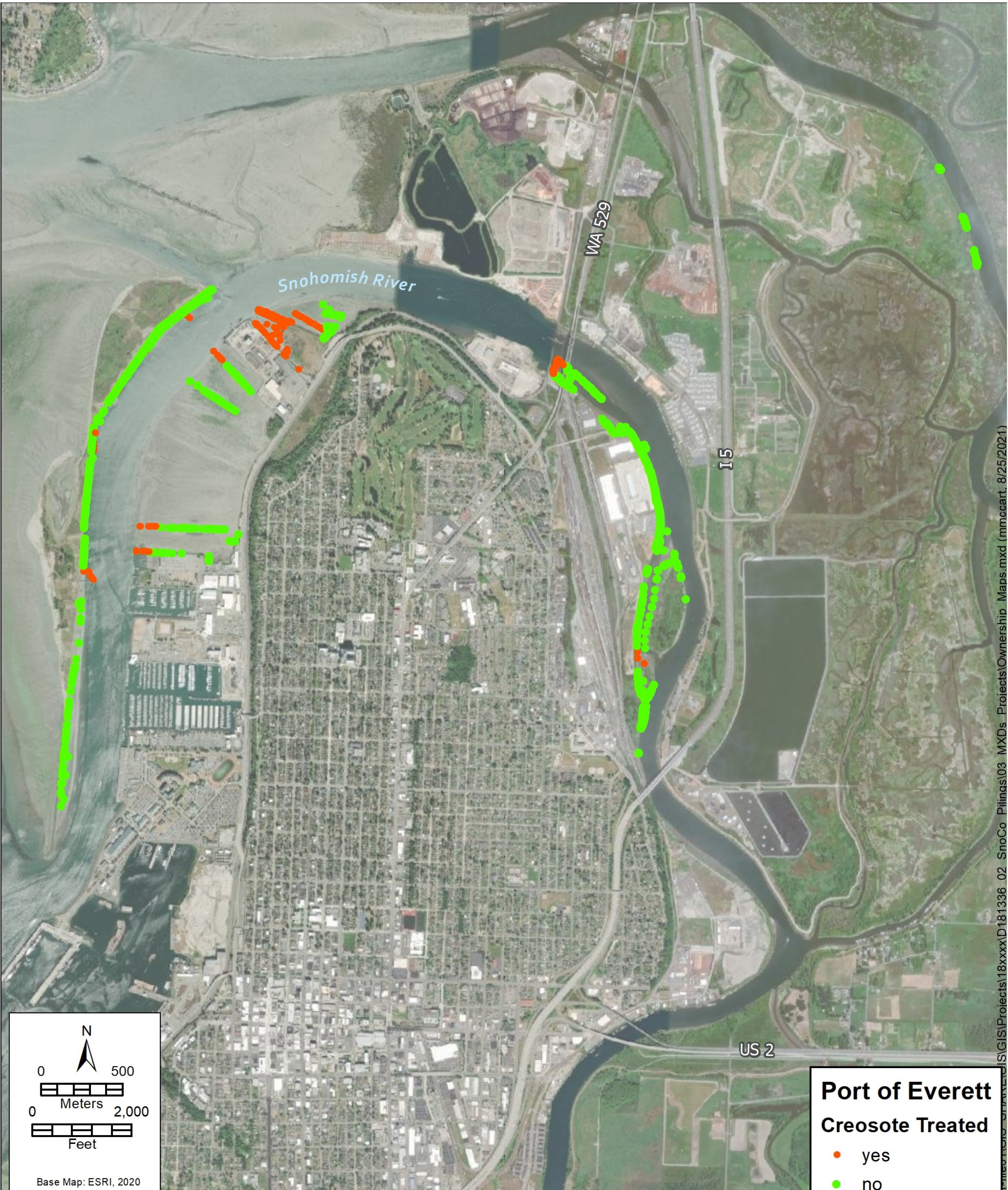
Feet
Base Map: ESRI, 2020
City of Marysville
Creosote Treated
yes
no
\\Z-Files\GIS-SHARED\GIS\Projects\18xxxx\D181336_02_SnoCo_Pilings\03_MXDs_Projects\Ownership_Maps.mxd (mmccart, 8/25/2021)



Snohomish River
WA 529
I 5
US 2
N
0 500
Meters
0 2,000
Feet
Base Map: ESRI, 2020
Port of Everett
Creosote Treated
yes
no
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WA 529
Snohomish River
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Base Map: ESRI, 2020
Snohomish County
Creosote Treated
no
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I 5
WA 529
Snohomish River
US 2
N
0 500
Meters
0 2,000
Feet
Base Map: ESRI, 2020
Tulalip Tribe
Creosote Treated
yes
no

Appendix C
Stakeholder Meeting Notes

Snohomish Estuary Piling Prioritization Project: Stakeholder Meeting

Meeting Summary and Notes

May 26th, 2021

Meeting Participants

Jessica Balbiani, City of Marysville
Scott Brown, U.S. Army Corps of Engineers
Laura Gurley, Port of Everett, Snohomish County Marine Resources Committee (MRC)
Dean Shaughnessy, City of Everett Parks and Recreation
Heather Griffin, City of Everett Public Works
Bob Hillman, City of Everett Parks and Recreation, Snohomish County MRC
Pat Mitchell, City of Everett Public Works
Paul Crane, City of Everett Public Works
Chris Robertson, Washington Department of Natural Resources
Natasha Coumou, Tulalip Tribes
Brett Shattuck, Tulalip Tribes
Gretchen Glaub, Snohomish Basin Lead Entity Coordinator
Brett Gaddis, Snohomish County Surface Water Management
Tholen Blasko, Snohomish County Surface Water Management
Alex Pittman, Snohomish County Surface Water Management, MRC
Elisa Dawson, Snohomish County Surface Water Management, MRC
Paul Schlenger, ESA
Jimmy Kralj, ESA

Meeting Purpose

The purpose of the meeting was to gather stakeholders and partners from the Snohomish River Estuary to review the inventory of pilings and prioritization process, as well as to discuss opportunities for piling removal.

Project Introduction

- Elisa provided participants with an overview of the piling inventory completed for the estuary including the locations of pilings and ownership map. She explained that the project area is the Snohomish estuary downstream (north) of Highway 2. This work has been funded by the MRC's Northwest Straits Initiative grant.

Washington Department of Natural Resources Work

- Chris discussed work completed by the Washington Department of Natural Resources (WDNR) to remove pilings in the Estuary.
- Creosote wood removal is a priority for WDNR. The end of the current biennium is approaching but WDNR expects to focus future creosote-treated debris (i.e., drift logs) removal efforts in Ebey Slough and the Quilceda Estuary near Priest Point.
- WDNR's program focuses primarily on creosote removal, however there is possibilities DNR could be involved in removal of pilings that are habitat barriers.
- WDNR has a Washington Conservation Corps crew that works on riparian restoration projects in the watershed.
- WDNR time could be available to support piling removals done through existing projects in the estuary.

Piling Prioritization

- Paul provided an overview of the prioritization process used to sort pilings in the estuary for removal.
- Paul summarized the results of the prioritization framework used to assess the ecological benefits of removal and removal feasibility as well as the locations of creosote treated pilings.
- Additionally, Paul summarized techniques used to remove pilings.

Roundtable Discussion #1

- Chris asked how many of the creosote treated pilings are located on state aquatic lands.
    - 969 creosote treated pilings on located on state aquatic lands in the study area.
- Heather asked for a cost estimate for removing pilings:
    - Chris replied with the following information.
    - Prices vary depending on the number of pilings that need to be removed, how closely they are to one another, and the presence of sensitive habitats like eelgrass.
    - Generally, the removal cost falls between $500 and $1,000 per piling.
    - The structural integrity of the pilings determines the available removal techniques.
- Paul C. discussed removal techniques including "stumping" the piling by cutting the piling off at the mudline.
    - Chris clarified this is a potential removal technique but only for non-creosote treated pilings as this would release creosote when done on creosote treated pilings.
- Bob asked about possible mitigation credit
    - Paul S. reviewed the NOAA Conservation Calculator and the potential for pilings removals to count towards mitigation credits.
    - Pilings have value as a mitigation credit, and creosote treated piles are rated more highly.
- Laura shared that piling removals can be paired with other projects to maximize the use of resources. For example, if a barge with a crane will be working in the area for an ongoing project, that can be a great opportunity to reduce costs by removing pilings during the same mobilization (at the same time).
- Chris mentioned that WDNR can work on areas other than state-owned aquatic lands (SOAL) if the project benefits SOAL. Given the location of pilings along the river channels, it would be relatively simple to demonstrate benefits to SOAL for most, if not all, of the pilings inventoried.
- Chris indicated that WDNR will not complete removals conducted as mitigation because it takes them away from their program's core mission – ecological lift. Mitigation is not enough of a net lift.

High Priority Areas for Piling Removal

- Alex reviewed the process behind identifying focus areas for piling removal. These areas are those with a high concentration of creosote-treated pilings, those with a concentration of high priority pilings, and areas with a variety of public owners to work with.
- The five priority areas included:
    - Quilceda Estuary
    - City of Marysville Waterfront
    - Mouth of Steamboat Slough
    - Jetty Island North
    - City of Everett Public Works Yard
- For each priority area, Alex reviewed the number of pilings, ownership, and priority classifications.

Roundtable Discussion #2

- After the presentation, participants engaged in a roundtable discussion about pilings in the estuary and potential removal opportunities.
- Pilings and Existing Uses
    - Scott (USACE) shared that some of the pilings along the City of Everett Public Works Yard are used by the USACE to moor barges for dredging.
    - The pilings in the Jetty Island North priority area are not owned by the USACE.
    - The spur dike pile structure due east of the north end of Jetty Island is in use by the USACE and would need to be replaced with another structure if it were to be removed.
    - The piling identification process included steps to assess current uses. However, not every piling will need to be removed. Those that are ranked as "high priority" do not have conflicting uses and are able to be removed.
    - Chris would like to engage with those groups using pilings for log rafting to learn more about which pilings are in use for that.
- Removal Process
    - Chris said that WDNR has programmatic permits for piling removals so the permitting process is fairly straightforward if WDNR is completing the work.
    - Cutting or snapping non-creosote pilings at the mudline can be cost effective, particularly if pilings are not stable and able to be removed easily.
    - There are a large number of non-creosote treated pilings, when investments are made into creosote-treated pilings, it can often be politically challenging because so many other pilings still remain visible in an area.
    - Brett G. shared that the County completed a piling removal project using vibratory equipment. Project went well and he has the bid specifications, if anyone is interested.
    - Paul C. noted that bubble curtains are a common best management practice during piling removal/installation to avoid impacts to fish.
    - Chris noted that in 2016 WDNR did a study to evaluate sediment disturbance associated with different removal techniques. They found that vibratory extraction caused extremely low sediment disturbance.
- Piling Ownership
    - Laura shared that from the perspective of the Port of Everett, it was very helpful to see the ownership map of pilings. There may be opportunities for removal with other partners if there are not enough Port of Everett pilings to remove.
    - The Tulalip Tribes are very willing to continue discussions about piling removal and to advance projects on their land. Brett will have conversations with leadership to determine next steps.
    - The City of Marysville knew of their pilings in the central area. The pilings upstream near the wastewater plant are not the City's but are waterward on SOAL.
    - Paul C. indicated that upstream of the project area there was site assessment and a creosote piling inventory as part of the Everett Riverfront, 3-acre park development. He said Environmental Science Associates completed that assessment. Paul S. will follow up to find any report related to a piling survey in that area.
    - Scott indicated that the sunken ship breakwater structure on mudflat north of Jetty Island is considered an abandoned structure by the USACE.
        - The USACE would support removal of this structure.
        - There is currently little information on this structure but it is potentially creosote treated.

        - This has the potential to be a large project opportunity.
        - To the east of the ship hulls, there is a cluster of pilings that heads up to Steamboat Slough.

- Existing Removal Plans
    - In 2018, Snohomish County Surface Water Management pursued the removal of some pilings. Brett offered to share information about that effort including bid pricing with participants.
    - The City of Marysville has upcoming projects along their waterfront where piling removals and/or replacements may occur.
        - Ebey waterfront park boat launch will be expanded and any creosote pilings in the project footprint would be removed.
        - Geddes Marina will be included in the park expansion and pilings in that area would also be removed.
        - All pilings in the stretch along Marysville will be removed at some point for mitigation credits.
        - Marysville will work with WDNR to review removal procedures.
    - Chris mentioned that WSDOT is looking for mitigation opportunities in the area and piling removals may be a source. Mitigation will be for 0.75 acres of benthic habitat.
    - Laura asked about what happens for pilings removals that WDNR may be unable to support and if there are grant programs to support this work.
        - WDNR is in the process of identifying this information.
        - There are no grants strictly for piling removal but programs like ESRP, NOAA Marine Debris Grants, PSNERP, and SRF Board grants may be used.
    - The two piling rafts just north of the USACE rock spur may be an opportunity for piling removal.
        - These are likely creosote treated.
        - WDNR will review these for removal consideration.

- Mitigation Uses
    - The NOAA Conservation Calculator has quantified the value of piling removal.
    - When coupling piling removals with other projects, creosote pilings offer a high mitigation credit.
    - It can be helpful to have a consultant familiar with the calculator support mitigation work to navigate use of the calculator.
    - There is no way to remove pilings and capture the credit to save it for future mitigation use.

Washington Department of Natural Resources Meeting Summary
Snohomish Estuary Piling Prioritization Project
March 18, 2021

Meeting Participants

Chris Robertson, Washington Department of Natural Resources (DNR) Aquatic Restoration Manager – Orca Straits District, Creosote Piling Removal Program
Elisa Dawson, Snohomish County Surface Water Management, MRC
Alex Pittman, Snohomish County Surface Water Management, MRC
Paul Schlenger, ESA

Meeting Purpose

The purpose of the meeting was to discuss DNR's plans for creosote-treated piling removal in the Snohomish River estuary.

Meeting Summary

- Chris advised that understanding the correct ownership in priority areas is important. Some pilings on State-Owned Aquatic Lands (SOAL) may be associated with an Aquatic Land Lease. Therefore, some pilings on SOAL may be the responsibility of a lessee.
- Chris recommended checking with Ben Cooksey at DNR about lease holdings in the project area.
- Chris has been talking to the Tulalip Tribes about removal of creosote-treated large wood that has drifted onto tribal properties in the Quilceda estuary.
- Chris mentioned that WSDOT has an upcoming project which may require mitigation for which piling removal may be a fit. Elisa has been in contact with WSDOT about that opportunity. It is 1 to 2 years out and entails mitigation for up to 1 acre of benthic disturbance.
- Chris said that it is a site-by-site decision whether DNR will remove untreated pilings that may be distributed among creosote-treated pilings. It depends on multiple factors including proximity to treated pilings and number of untreated pilings.
- Chris mentioned proposed state legislation which may bring targeted funding to Snohomish County as part of DNR's Salmon Enhancement Plan. If passed, DNR will be able to do a lot more. There will be more staff and a Washington Conservation Corps crew to do restoration in the watershed.
- DNR is an ideal partner for creosote-piling removal, in part because they have all the permits and extensive experience.
- The Puget Sound Nearshore Conservation Calculator presents an emerging situation for DNR. DNR is in discussions with NOAA and the Puget Sound Partnership (PSP) regarding plans for piling removal as mitigation for miscellaneous projects. DNR will identify sites to the Puget Sound Partnership that DNR cannot work on (e.g., Haines wharf). DNR anticipates some issues on staff availability.
- Chris said that to-date the program has been fully focused on actions that produce a net gain. If they got involved in pulling pilings for mitigation, then it would reduce the time and resources they have available to focus on net gain projects.

City of Everett Meeting Summary
Snohomish Estuary Piling Prioritization Project
June 22, 2021

Meeting Participants
Dean Shaughnessy, City of Everett Parks and Recreation
Heather Griffin, City of Everett Public Works
Pat Mitchell, City of Everett Public Works
Paul Crane, City of Everett Public Works
Tom Hood, City of Everett Public Works
Elisa Dawson, Snohomish County Surface Water Management, MRC
Alex Pittman, Snohomish County Surface Water Management, MRC
Paul Schlenger, ESA

Meeting Purpose

The purpose of the meeting was to follow up with the City of Everett on city-owned pilings and opportunities for piling removal. Several City staff participated in an earlier group stakeholder meeting which included more introductory information about the piling prioritization.

Public Works Yard Priority Area

- Dean and Heather indicated the City plans to remove many pilings in the priority area as mitigation for an upcoming project.
- Pat indicated that the City owned the pilings at Parcel O. These pilings are occasionally used, but do not have any uses that prevent their removal.
- Paul C. indicated that the small derelict dock near northwest margin of priority area should remain because it allows City to retain a water access point for future use.

Everett Riverfront EIS

- Following last conversation, Paul tried to find the piling inventory for the Everett Riverfront site that Paul Crane mentioned. He was unable to locate the files. This is upstream of the piling prioritization project area, but still of interest as it is City-owned pilings.
- Tom also recalled that all pilings at the site were inventoried. All were creosote, some were removed.
- Paul will look again (again no luck).

Port of Everett Pilings

- Dean commented that when he was at the Port, Pentec conducted a properties inventory which included a pilings inventory.
- Based on his recollection of that work, he expects there is more creosote than what the recent inventory documented.

Miscellaneous

- Tom indicated that piling pulling is happening as part of projects
- Heather commented that it would be helpful to receive the prioritization GIS files. The City received them previously, but receiving again would help. Paul will provide the updated GIS to the City's GIS contact which Heather provided.
- Paul C. thinking the Diking Improvement District 5 will be a good stakeholder to speak with. He will send Vic's contact information.

- Elisa mentioned that she recently spoke with someone who indicated that with infrared photography creosote-treated wood is distinguishable from untreated wood. Thus, infrared technology may be helpful in identifying creosote-treated wood.

Port of Everett and U.S. Army Corps of Engineers Meeting Summary
Snohomish Estuary Piling Prioritization Project
June 23, 2021

Meeting Participants

Laura Gurley, Port of Everett, Snohomish County Marine Resources Committee (MRC)
Scott Brown, U.S. Army Corps of Engineers
Elisa Dawson, Snohomish County Surface Water Management, MRC
Alex Pittman, Snohomish County Surface Water Management, MRC
Paul Schlenger, ESA

Meeting Purpose

The purpose of the meeting was to follow up with the Port of Everett and the Corps of Engineers on port-owned of Corps-used pilings and opportunities for piling removal. Several City staff participated in an earlier group stakeholder meeting which included more introductory information about the piling prioritization.

North Jetty Island Priority Area

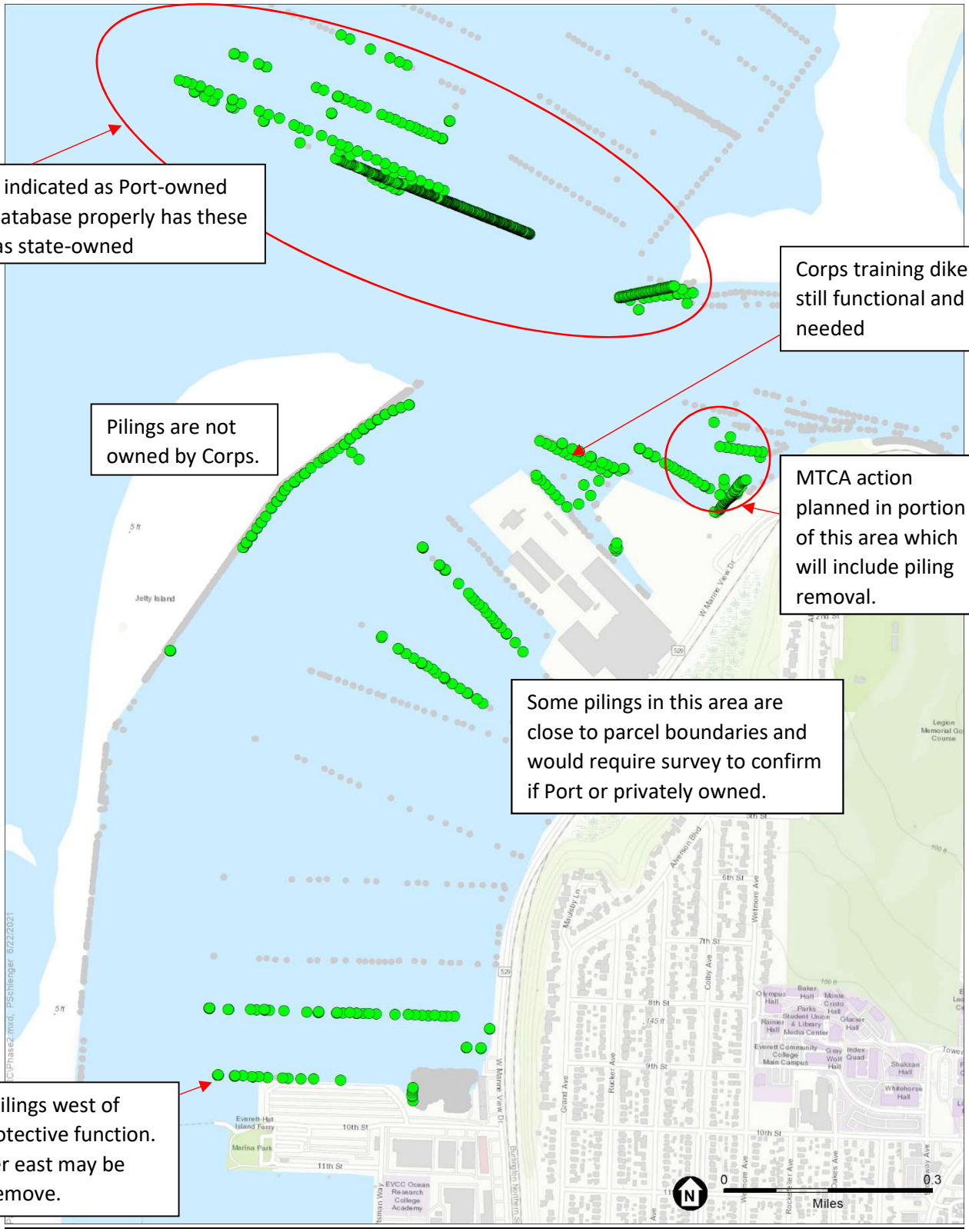
- Scott confirmed the takeaways from the group stakeholder meeting that the pilings at the north end of Jetty Island are not owned by the Corps. Scott confirmed this with his Real Estate group.
- The property is owned by the Port of Everett.
- This is different than Laura's past understanding. She will do research on her end to learn more about their ownership, if not the Port.
- Laura asked if they serve a function to protect jetty island. Scott indicated that he will need to look into that.
- Scott noted that there is an updated version of the Salish Sea model which will be useful informing whether pilings are needed for navigation or if they can be removed. The model outputs will be publically accessible through the University of Washington. Expected out within one year.

Port-owned Pilings

- Laura provided information on Port-owned pilings along jetty island channel. See annotated map on next page.
- Laura asked WSDOT about their use of pilings near Highway 529. WSDOT does not rely on any of those pilings.
- Port is open to participating, but needs to keep pilings that have mitigation value for them until they can receive credit for them.
- Laura said the Port has some projects upcoming which will remove pilings as mitigation.
- Upcoming projects involving dredging are unlikely to be able to readily include piling removal because different equipment is needed. Laura will follow up with Port to confirm.

Corps' Use of Pilings

- Scott confirmed the takeaway from the group stakeholder meeting that a dredging contractor for the Corps uses a small number of pilings along the City of Everett's Public Works Yard (a priority area for the piling removal project). However, their use of pilings is not critical and any pilings can be removed. The Corps has no pilings uses in the estuary other than the training dike near the north end of Jetty Island (see map below) that prevent any pilings from being removed.



Map of Port of Everett Pilings near the north end of Jetty Island

Snohomish County Meeting Summary
Snohomish Estuary Piling Prioritization Project
July 1, 2021

Meeting Participants

Dave Lucas, Snohomish County Public Works Supervisor
Brett Gaddis, Snohomish County Senior Habitat Specialist
Gretchen Glaub, Snohomish County, Snohomish Basin Salmon Recovery Lead Entity Coordinator
Elisa Dawson, Snohomish County Surface Water Management, MRC
Alex Pittman, Snohomish County Surface Water Management, MRC
Paul Schlenger, ESA

Meeting Purpose

The purpose of the meeting was to follow up with Snohomish County on county-owned pilings and opportunities for piling removal. Brett Gaddis and Gretchen Glaub participated in an earlier group stakeholder meeting which included more introductory information about the piling prioritization.

Piling Ownership Update

- In preparation for the meeting, piling ownership in the project database was corrected for parcels along Steamboat Slough that the County purchased from Dunlap Towing in recent years.
- Brett confirmed that the County was aware of the presence of pilings on those parcels at the time of the purchase.

Creosote Treatment of Pilings

- Elisa described the field observations used to determine whether pilings have been creosote treated. These field observations are the best data we have. No lab testing was conducted.
- Elisa explained that in the estuary, sometimes the creosote was painted on after piling installation. Paint is not expected to stay on as long as creosote-infused treatments which penetrate into the pilings. Thus, some creosote-painted pilings may no longer appear to be treated.
- Brett noted that for the piling removal completed at Spencer Island the pilings were not tested for creosote. The person contracted to remove them was the same person who put them in years ago. The pilings were not creosote-treated by his recollection. Nevertheless, the removal and disposal methods assumed the pilings were creosote-treated in order to be protective of the environment. When they were pulled out, there was no sheen or signs of creosote.

Removal of County-owned Pilings

- Elisa asked whether the County would take on piling removal and include it in a work plan. If so, how could the MRC support such efforts?
- Dave said that to get on a work plan, he would need to know how piling removal ranks compared to other projects being considered. The County has limited staff resources and they need to be used for the highest priority projects.
- Dave said that some Surface Water Management funds can be available if piling removal is a high enough priority. If there was a grant available, they could hire a consultant to handle the bulk of the work.
- Dave said that at earliest piling removal could be put in work plan for 2023. Planning for that begins in fall/winter of 2021-2022.
- Gretchen noted that SRFB is unlikely to be a viable funding source for stand-alone piling removal projects. Piling removal as part of larger salmon restoration projects could be funded using salmon funding.

- Gretchen said that multiple watersheds are discussing a 10-year project list which pilings could be added to. The list is combined among Snohomish, Skagit, and Island counties.
- Gretchen mentioned that it may be beneficial to get a detailed map to Stephanie Celt, DNR. Stephanie plans to pull together a project list for the estuary and shop it to private investors.
- Brett mentioned that future work at North Spencer is for minimal riparian restoration. Piling removal could potentially be included in that work as edge enhancements.
- Brett said that piling removal could potentially also be included in future work at Smith Island. People have identified some ideas for small adaptive changes at the site. Those ideas could be combined with piling removal to make a big enough project to move ahead with.
- Brett offered that piling removal is also something to keep in mind towards the end of the year when extra funding sometimes becomes available in the county. Perhaps there's an opportunity to use such funding to pull 25 or so pilings. This may require setting up the permit and bid process in a programmatic method.
- Paul mentioned that untreated pilings could potentially be re-used in log jams in the estuary. Brett mentioned that the Spencer Island restoration included vertical arrays of logs, similar to pilings, to collect wood entering the marshes.

<u>Removal of Pilings at Blue Heron Slough</u>

- Brett indicated that he has previously tried to get Blue Heron Slough mitigation bank developers to consider piling removal. They have not been responsive.
    - Action: Paul will work with his co-worker, Sky Miller, who was previously involved at Blue Heron Slough to see if piling removal can be included in their project.

Tulalip Tribes Meeting Summary
Snohomish Estuary Piling Prioritization Project
July 2, 2021

Meeting Participants

Brett Shattuck, Tulalip Tribes Restoration Ecologist
Kurt Nelson, Tulalip Tribes Environmental Department Manager
Jason Gobin, Tulalip Tribes Fish and Wildlife Director
Natasha Coumou, Tulalip Tribes Assistant Restoration Ecologist, Snohomish County Marine Resources Committee (MRC)
Elisa Dawson, Snohomish County Surface Water Management, MRC
Alex Pittman, Snohomish County Surface Water Management, MRC
Paul Schlenger, ESA

Meeting Purpose

The purpose of the meeting was to follow up with Tulalip Tribes on tribe-owned pilings and opportunities for piling removal. Some tribal staff participated in an earlier group stakeholder meeting which included more introductory information about the piling prioritization.

Meeting Summary

- Elisa provided an overview of the project, including that the first piling database used at the outset of the project was provided by the tribe.
- Brett mentioned that the tribe has been in discussions with DNR on creosote-removal, especially in the Quilceda estuary. Those discussions have been about creosote-treated drift wood deposited in the area, not pilings. This piling removal project is separate from the DNR work.
- Jason said that all pilings within the Tulalip Reservation are under the Tulalip Tribes' regulatory authority regardless of parcel ownership in the parcel database.
- Brett noted that removal of the high density of creosote-treated pilings near the Quilceda estuary is of interest for the tribes.
- Jason indicated that before approving piling removal, the tribes will want to consider whether they will have future uses of the pilings. He shared that they did some piling removal some years ago, then subsequently planned to build a marina in the same location and they had to re-install pilings.
- When asked about current piling use, Jason responded that no specific pilings are used by tribal fishermen or for gravel barge operations.
- Jason asked what the benefits of removal are if the pilings are not creosote-treated. Paul replied that any pilings can have detrimental impacts on sediment transport – especially if clustered in high densities or rows – and also impact marsh vegetation due to scour around pilings.
- Kurt noted that untreated pilings can snag other wood and provide habitat benefits. Elisa agreed and noted that untreated pilings that are removed could be beneficially re-used to form habitat structure.
- Kurt indicated that the tribe owns the parcel west of the truck yard near I-5. Quilceda is one of the top wetland areas in the Snohomish.
- Kurt said that if any piling removal were to occur near the Superfund site between Ebey Slough and Steamboat Slough, then the USEPA should be contacted. Contact: Anthony Reese, Big Flats Manager, 360-716-5056.
- Elisa mentioned that at Mission Beach, the map only shows independent pilings, but there is a wall of other pilings in the area.
- Brett mentioned that DNR approached the tribe to discuss the Mission Beach area. They were interested in doing an alternatives analysis to remove creosote and restore the area.

- Brett recommended reaching out to the tribe's GIS manager for a map of the reservation area. Christopher Wright, christopherwright@tulaliptribes-nsn.gov, cell 350-913-3694, office 360-716-5164.

Appendix D

Three Leased Areas of State-Owned Aquatic Lands in Project Area

Aquatic Lands Lease Area Evaluation by Ben Cooksey, Washington Department of Natural Resources

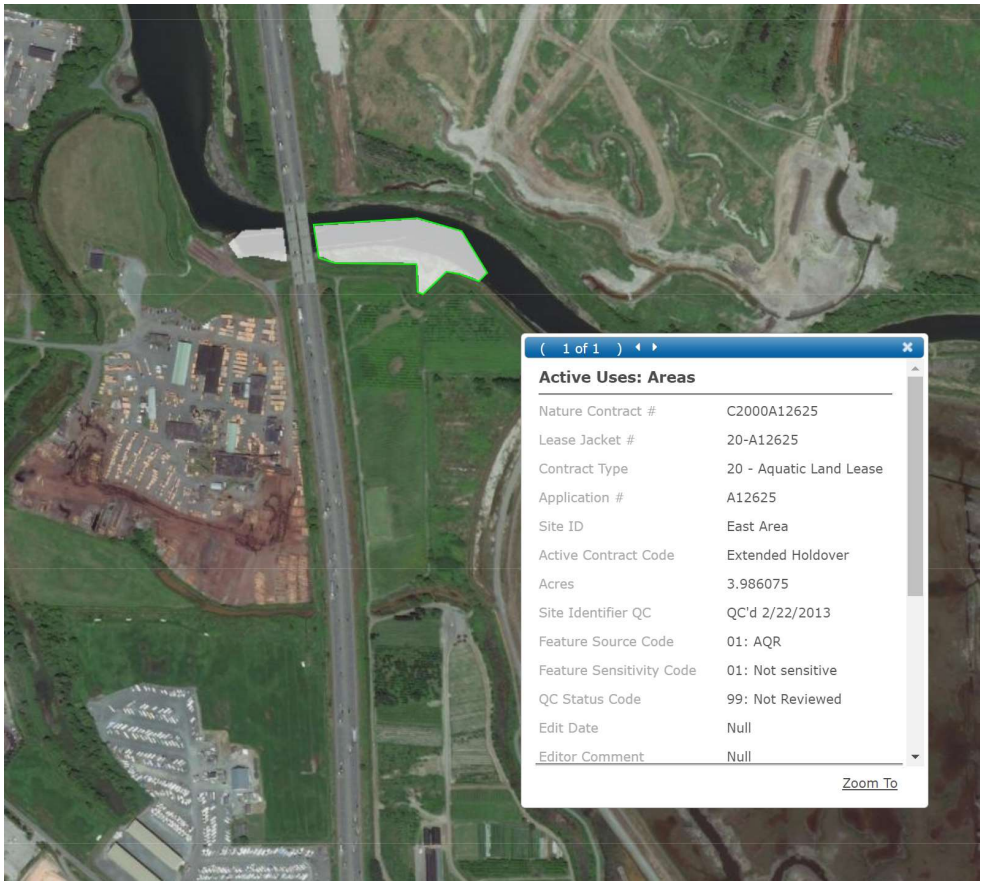
Yellow boundaries on the maps below identify piling ownership to the listed business partner/agency.

Purple dash is inner harbor line, red/yellow line is outer harbor line, all mapping is approximate. Starting from I-5 bridge in Steamboat Slough and working 'clockwise':

City of Marysville Leases: 22-081496 (east) and 22-076960 (west)

Piles with ESA ID #'s 9773 to 9862 are in the Leasehold boundaries

BUSE Timber Lease: 20-A12625



Piles with ESA ID #'s 11410 to 11432 are in the Leasehold boundaries and privately owned

Snohomish River Leases 20-A12647, 20-012270, 20-078590, 20-077513, 20-072559

(Railroad Ave / City of Everett)