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Residential Marine Shoreline Stabilization Proposed Rule

Cost Benefit Analysis

Final Report | September 16, 2022

prepared for:

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LIST OF ACRONYMS AND ABBREVIATIONS

APPS	Aquatic Protection Permitting System
CBA	Cost-Benefit Analysis
GIS	Geographic Information Systems
HPA	Hydraulic Project Approval
RCW	Revised Code of Washington
SMP	Shoreline Master Program
SSB	Substitute Senate Bill
WA L&I	Washington Labor & Industries
WAC	Washington Administrative Code
WADNR	Washington Department of Natural Resources
WDFW	Washington Department of Fish and Wildlife

EXECUTIVE SUMMARY

This report evaluates the potential costs and benefits of a Washington State Department of Fish and Wildlife (WDFW) proposed rule that updates Washington State's Hydraulic Code. The proposed rule clarifies how residential shoreline property owners should comply with recent legislation regarding residential marine shoreline stabilization. This Cost Benefit Analysis (CBA) was developed in accordance with Revised Code of Washington (RCW) 34.05.328 to determine whether the, "…probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and specific directives of the statute being implemented." A CBA is required for all rules identified as "legislatively significant", which includes rules adopted by WDFW to implement 77.55 RCW (i.e., the state's hydraulic code). The primary sources of information for this analysis include the following:

- Information gathered through outreach to county and municipal planners, businesses providing the services required by the proposed rule, and residential property owners who have experience with marine shoreline stabilization replacement;
- County and municipal Shoreline Master Program (SMP) documents;
- Tax parcel data identifying land use types along marine shorelines;
- Data identifying location of existing shoreline stabilization along the marine shoreline; and
- Historical Hydraulic Project Approval (HPA) permit data provided by WDFW.

BACKGROUND

Washington State's Hydraulic Code (WAC 220-660-370) outlines requirements for shoreline bank protection in saltwater (i.e., marine) waters of the state in order to protect fish life from the habitat alteration that can result from certain types of shoreline protection. The existing requirements specify new shoreline protection, or replacements for existing stabilizations *that extends waterward of the existing protection*, utilize the least impacting, technically feasible protection technique. Existing requirements additionally specify the need for a site assessment, alternatives analysis, and design rationale completed by a qualified professional as part of the permit application. In 2021, the State Legislature passed Substitute Senate Bill 5273, which amends RCW 77.55.231 to extend these requirements to the replacement of existing shoreline stabilization on residential properties. WDFW is now updating WAC 220-660-370 to be consistent with the 2021 updates to RCW 77.55.231, and to provide additional clarification with respect to the requirements.

SCOPE OF PROPOSED RULE

The proposed rule affects activities occurring on residential properties along Washington's marine shorelines, including the shorelines of Puget Sound, the Strait of Juan de Fuca, the outer coast, and along coastal estuaries. It does not change existing requirements with respect to commercial or other types of properties, nor does it affect activities occurring on residential properties along non-marine shorelines (e.g., rivers, ponds, or inland lakes). The proposed rule specifically addresses the requirements related to the *replacement or rehabilitation* of existing shoreline stabilization and does not change the requirements for installation of new structures, or replacement of existing structures where the replacement occurs waterward of the existing stabilization structure.

BASELINE FOR THE COST BENEFIT ANALYSIS

RCW 77.55.231 requires that residential property owners on all marine shorelines of Washington State that wish to replace existing shoreline stabilization use the least impacting technically feasible alternative and submit a site assessment and alternatives analysis as part of their permit application package.[1] In certain jurisdictions, existing county and municipal Shoreline Master Programs (SMPs) specify that a qualified professional must be used to develop those reports. Although the requirement to use a qualified professional is not specified for all jurisdictions, interviews with county and municipal planners conducted in July and August 2022 suggest that it would be impossible or very challenging for an individual without the relevant professional background to fulfill the necessary requirements.[2] WDFW has also confirmed that individual permit applicants are likely to use qualified professionals for report development even when not required to do so.[3] Therefore, residential applicants looking to replace their shoreline stabilization in the counties where SMPs do not describe that a qualified professional must be hired for the analyses are still likely to hire qualified professionals for this purpose.

PROPOSED RULE REQUIREMENTS

The proposed rule would update WAC 220-660-370 clarifying the approach to implementing the RCW 77.55.231 requirement for HPA permit applicants for residential marine shoreline stabilization or armoring replacement or rehabilitation projects. Specifically, the proposed rule includes the following:

- Revises existing language in WAC 220-660-370 to require HPA applicants to use the least impacting technically feasible bank protection alternatives for

[1] Ecological and other benefits stemming from the selection of the least impacting technically feasible alternative result from RCW 77.55.231 and are not incremental outcomes of the proposed rule. According to WDFW, the proposed rule would not change the selection of the stabilization technique to be employed for a given application (Personal and email communication with WDFW in July and August 2022).

[2] Personal and email communication with representatives of county and municipal planning departments conducted in July and August 2022.

[3] Email communication with WDFW staff on September 7, 2022.

replacement or rehabilitation of residential bank protection projects, and specifies preferences for available alternatives;[4]

- Specifies the reporting elements that must be included in an HPA application for residential replacement projects; and
- Requires that HPA permit applicants for replacement or rehabilitation of residential bank protection provide a site assessment, alternatives analysis and design rationale for the proposed method *that is prepared by a qualified professional*.[5]

As previously described, RCW 77.55.231 constitutes a pre-existing requirement regarding replacement of residential shoreline stabilizations; that is, the requirements of RCW 77.55.231 are part of the baseline of this analysis. Thus, costs resulting from the following requirements specified in RCW 77.55.231 are part of the baseline and are not incremental costs of the proposed rule:

- Use of the least impacting technically feasible bank protection alternative for the protection of fish life for replacement or rehabilitation of residential shoreline stabilizations.
- Need to conduct a site assessment to consider the least impactful alternatives and proposing a hard armor technique only after considering site characteristics in an analysis of alternatives.

The focus of this analysis is on the incremental costs of the proposed rule that are above and beyond the baseline costs. RCW 77.55.231 does not specify the need to rely on a qualified professional for the analysis and reporting. Thus, the new requirement specified in the proposed rule is that, when existing stabilization requires replacement or rehabilitation, the permit applicants must hire a qualified professional to complete the site assessment and alternatives analysis. This new requirement may generate incremental compliance costs.

IDENTIFICATION OF AFFECTED ENTITIES

Owners of marine shoreline property in Washington are only affected by the proposed rule where the property is identified as residential, the property already has existing shoreline stabilization in place, the replacement plan does not contemplate construction of a new structure stabilization structure waterward of the existing stabilization structure, and existing requirements with respect to the local jurisdictions' SMPs do not already

[4] WAC 220-660-370(3)(b) provides common alternatives for (1) new bank protection and (2) replacement or rehabilitation of bank protection that extends waterward of an existing bank protection structure projects. The proposed rule would modify WAC 220-660-370 to includes common alternatives for replacement or rehabilitation of residential bank protection projects, adapted from RCW Section 77.55.231.

[5] Per WAC 220-660-030, a "qualified professional" is a scientist, engineer, or technologist specializing in a relevant applied science or technology. This person may be certified with an appropriate professional organization, or could be someone who, through demonstrated education, experience, accreditation, and knowledge relevant to the particular matter, may be reasonably relied on to provide advice within that person's area of expertise.

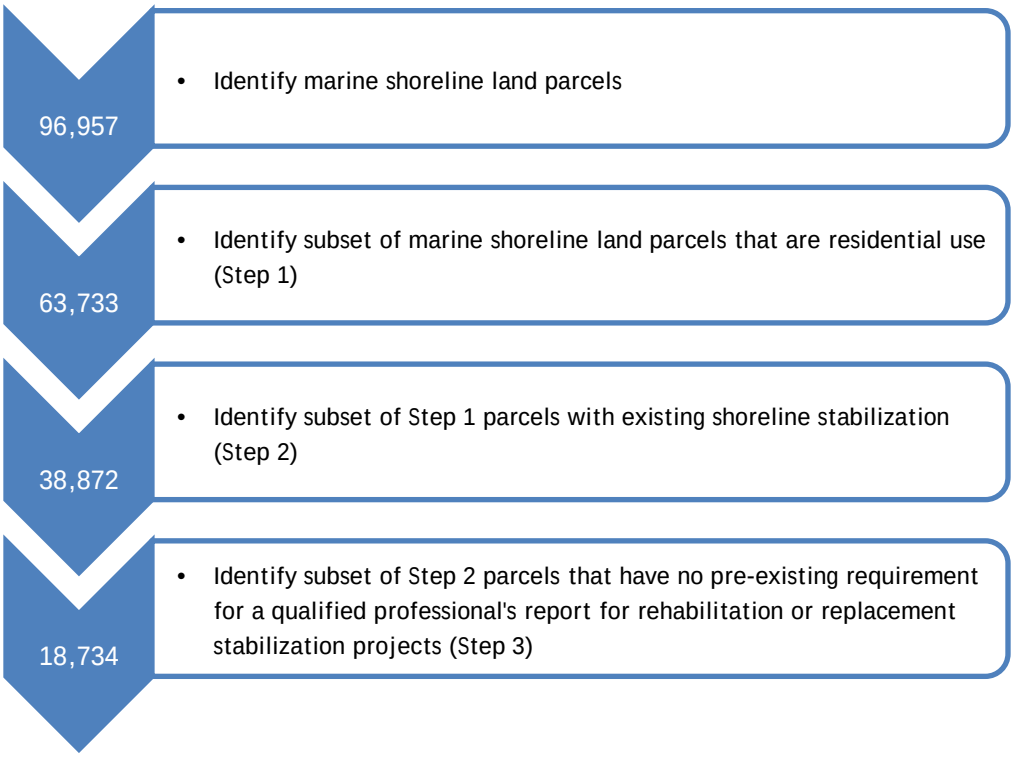
require the use of a qualified professional to develop the requisite site assessment and alternatives analysis.

This analysis first evaluates the universe of marine shoreline tax parcels most likely to be affected by the proposed rule based on the following approach:

1. Identify marine shoreline parcels with a designated residential use.
2. Identify residential marine shoreline parcels that contain existing shoreline modification.
3. Identify the subset of the parcels identified in Step 2 that are located in counties or municipalities that do not currently require use of a qualified professional to fulfill reporting requirements for replacement of existing shoreline stabilization.

Exhibit ES-1 summarizes the results of the analysis, which indicate 18,734 total residential parcels with no existing shoreline stabilization and no pre-existing requirement to employ a qualified professional to develop the requisite reports. This is approximately 29 percent of the total residential shoreline parcels for which the proposed rule may generate a new requirement.[6]

EXHIBIT ES-1. STEP-WISE IDENTIFICATION OF POTENTIALLY AFFECTED MARINE SHORELINE LAND PARCELS

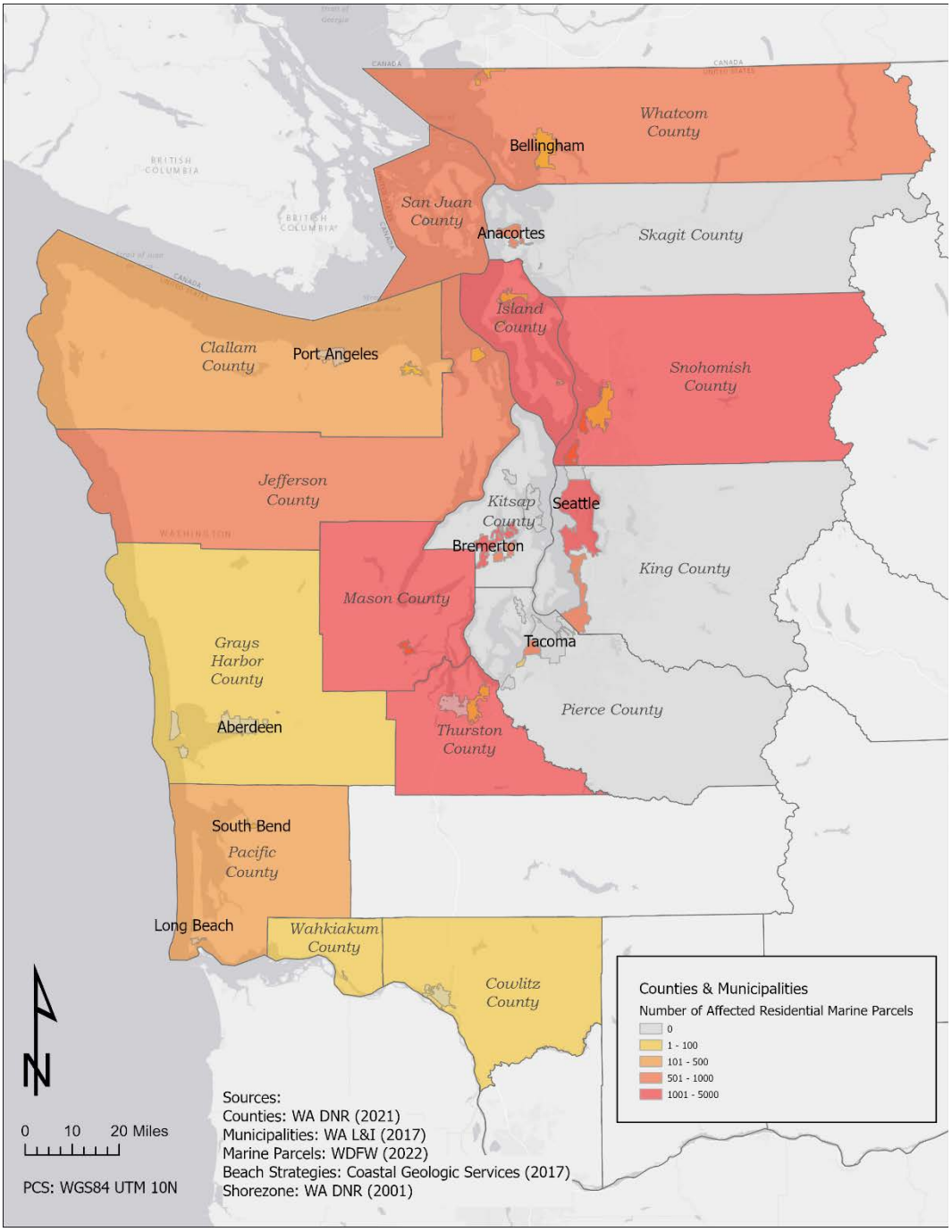


[6] Of these, some portion may elect to replace the existing shoreline stabilization with a new structure stabilization structure waterward of the existing stabilization structure. In these cases, a qualified professional's report is already required, and the property owner would not incur new costs as a result of the proposed rule.

Importantly, interviews with county and municipal planners and communications with WDFW identified that even if their SMPs did not explicitly clarify the need for a qualified professional to undertake the analyses, residential applicants looking to replace their shoreline stabilization are still likely to hire qualified professionals due to the need for their expertise. If, in fact, residential marine shoreline property owners would generally employ qualified professionals to meet the existing requirement for site assessment and alternatives analysis under RCW 77.55.231 even absent the rule, the rule would not affect the costs of residential shoreline stabilizations.

Exhibit ES-2 identifies the range in potentially affected residential marine shoreline properties within each municipality and unincorporated county area.

EXHIBIT ES-2. RELATIVE NUMBER OF AFFECTED RESIDENTIAL PARCELS WITHIN EACH SMP JURISDICTION



COST OF COMPLIANCE

Based on existing management plans and outreach undertaken for this analysis, it is likely that most residential property owners with existing shoreline stabilization are likely to use qualified professionals to develop site assessments and alternatives analyses regardless of this rule. However, in limited cases, property owners may attempt to apply for a rehabilitation or replacement stabilization permit without using a qualified professional to complete the required analyses. In such instances, the costs of hiring a qualified professional would be incremental costs triggered by the rule.

The cost of employing a qualified professional to complete the site assessment and alternatives analysis ranges from $3,000 to $10,000.[7] This range of costs reflects data collected from interviews and email communications with firms providing site assessment and alternatives analysis services. The range of costs is relevant to multiple project types (new armoring structure project, rehabilitation or replacement shoreline stabilization project), proposed armoring types (e.g., hard armoring, hybrid armoring, soft-shore armoring), number of alternatives, and shoreline length. Costs are likely in this range whether a residential applicant is applying for a general HPA permit or for an emergency or expedited permit.[8]

The number of permit applicants that may experience these added costs over time is uncertain. Data are not available to identify the timing with which specific residential shoreline stabilization structures may need rehabilitation or replacement and which applications in a given year would employ a qualified professional to develop the reports even absent the rulemaking. To identify the potential annualized costs of the rule, this analysis relies on historical permit application data by county from WDFW's Aquatic Protection Permitting System (APPS) to quantify an expected annual rate of permit applications.[9] This analysis identifies an average annual rate of applications of 132 HPA stabilization permits. This includes non-residential permits as well as permits for new stabilizations and is thus an overestimate of the number of permits relevant to this rule making.[10]

If all permit applicants in a given year were to experience an added cost of $3,000 to $10,000, the proposed rule would generate costs of $400,000 to $1.3 million in annual costs (2022$). However, as previously noted, the 132 annual stabilization permit applicants includes applicants to which the rule would not apply and applicants to which

[7] Before RCW 77.55.231 was codified, permit applicants for residential rehabilitation and replacement bank protection projects in select areas spent as low as $1,000 to provide proof of slope instability to necessitate the proposed work. However, since RCW 77.55.231 changed the reporting requirements for these applicants, we assume that the costs to prepare these deliverables are on average no lower than $3,000.

[8] Personal and email communication with representatives of firms providing shoreline stabilization-related services conducted in July 2022.

[9] The APPS database only allows users to identify county-specific permit submissions. Thus, any county-level permit data not only includes permits within that county, but also permits in municipalities within the county and any unincorporated county areas.

[10] A review of historical rates of applications over the last five years did not identify any meaningful trends within the data. As such, this analysis relies on an annual average application rate.

the rule would apply but would not generate additional costs. Again, it is likely that a substantial percentage of shoreline armoring permit applicants would use a qualified professional even absent the proposed rule given existing requirements and the historical behavior of permit applicants. Thus, the range of annualized costs, even at the low end, likely overstates the costs of the rule and is not considered a "probable" cost for the purposes of this analysis.

Overall, the probable costs of the rule are very limited and closer to $0 than to the annualized costs of $400,000 to $1.3 million.

BENEFITS OF THE PROPOSED RULE

The proposed rule is expected to yield benefits related to greater uniformity in application processes and expectations across the state, increased accuracy in applicants' geotechnical reports, and clearer language describing expedited and emergency permit processes. The rule incorporates residential replacement projects into rule language which already applies to other types of projects, allowing uniform handling across project types. As a result of the proposed rule, the Hydraulic Code will be made consistent with RCW 77.55, better allowing WDFW to carry out its authority under RCW 77.55. Consistency between the Hydraulic Code and RCW additionally clarifies the complete set of requirements for the regulated community in a single location, rather than having requirements distributed across both the Hydraulic Code and statute. Increased uniformity across the Hydraulic Code and RCW is likely to lead to greater efficiencies in application and review processes by saving time and administrative costs both for residential applicants and WDFW.

Additionally, the use of a qualified professional to develop the required reports reduces the risk of a non-compliant analysis and report being rejected by WDFW, which would require the applicant to revise and resubmit application materials. Thus, the rule likely generates some offsetting time and cost savings for the limited subset of the regulated population that would attempt to avoid the use of a qualified professional absent the rule making.

Overall, the probable benefits of the rule are consistency with existing statutory requirements and clarity regarding what constitutes a complete permit application. This leads to increased regulatory certainty and generates time and cost savings both for WDFW and the regulated community.

SUMMARY FINDINGS

This rule proposal applies specifically to residential shoreline property owners who need to rehabilitate or replace existing shoreline stabilization. The rule proposal requires this population to employ a qualified professional in developing site assessments and alternatives analyses.

Overall, this analysis finds that the probable benefits of the rule outweigh the probable costs for the following reasons:

- The requirement in this rule making above and beyond the existing requirements of RCW 77.55.231 is the need for a qualified professional to develop the required analyses and reports.
- Many existing SMPs for counties and municipalities require the use of a qualified professional to develop these reports. In these cases, the new rule making does not impose any new requirements and the probable cost of the rule for property owners in these counties and municipalities is $0.
- Other counties and municipalities do not specify the need for reliance on a qualified professional and, absent the rule, some property owners in these areas may attempt to accomplish the analysis and reporting requirements without the use of a qualified professional. However, outreach and interviews conducted in the context of this analysis identify that, most of the time, property owners recognize a need for the expertise of a qualified professional, even absent the requirement being written into regulation. For property owners that would rely on a qualified professional to develop the analyses and reports as the best way to comply even absent the rule, the probable cost of the rule is $0.
- The category of applicants most likely to be affected by the rule are those that would attempt to develop the required analyses and reports without the use of a qualified professional absent this rule making. For this limited subset of property owners, the need to hire a qualified profession to develop the reports may generate costs of up to $10,000. Even in these instances, however, the rule may result in some offsetting cost savings for these property owners. This is because not using a qualified professional may result in non-compliant reports and analyses that may be rejected by WDFW and require re-analysis and revision. Use of a qualified professional reduces the risk of submitting non-compliant reports the first time, saving costs and time in the HPA process. Thus, even for the applicants for which the rulemaking changes behavior, some level of offsetting cost savings is likely.
- The probable benefits of the rule are consistency with existing statute and clarity to property owners regarding what constitutes a compliant HPA application for residential shoreline stabilization rehabilitation or replacement. This regulatory certainty benefit generates time and cost savings both for DFW and for permit applicants.

CHAPTER 1 | INTRODUCTION

This report evaluates the potential costs and benefits of a Washington State Department of Fish and Wildlife (WDFW) proposed rule that updates Washington State's Hydraulic Code (77.55 Revised Code of Washington [RCW]). The proposed rule clarifies how residential shoreline property owners should comply with recent legislation regarding residential marine shoreline stabilization. This Cost Benefit Analysis (CBA) was developed in accordance with RCW 34.05.328 to determine whether the, "…probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and specific directives of the statute being implemented." The primary sources of information for this analysis include the following:

- Information gathered through outreach to county and municipal planners, businesses providing the services required by the proposed rule, and residential property owners who have experience with marine shoreline stabilization replacement;
- County and municipal Shoreline Master Program (SMP) documents;
- Tax parcel data identifying land use types along marine shorelines;
- Data identifying location of existing shoreline stabilization along the marine shoreline; and
- Historical Hydraulic Project Approval (HPA) permit data provided by WDFW.

1.1 REQUIREMENTS FOR COST-BENEFIT ANALYSIS

RCW 34.05.328 describes specific requirements that agencies must address before adopting rules that are considered "legislatively significant," including development of a cost-benefit analysis (CBA). Per RCW 34.05.328(5), rules adopted by WDFW implementing 77.55 RCW (i.e., the state's hydraulic code) are considered legislatively significant. In accordance with RCW 34.05.328, the objective of this CBA is to evaluate the proposed changes to WAC 220-660-370 to "determine that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and qualitative benefits and costs, and the specific directives of the statute being implemented." Consistent with the requirements of RCW 34.05.328, the primary goal of this CBA is to identify whether the probable benefits of the rule outweigh the probable costs. The weighing of benefits and costs takes into consideration both quantitative and qualitative information.

1.2 SUMMARY OF THE PROPOSED RULE

WDFW is proposing changes to WAC 220-660-370 regarding bank protection in saltwater areas. These changes address a 2021 requirement in RCW 77.55.231, which states that anyone desiring to replace residential marine shoreline stabilization must use the least impacting, technically feasible bank protection alternative for the protection of fish life, proven through the completion of a site assessment and alternatives analysis. The proposed rule will clarify the requirement that residential property owners applying for an HPA permit complete a site assessment and alternatives analysis and specify the need for a qualified professional to develop the analysis and reporting for residential shoreline stabilization rehabilitation or replacement projects.[11]

The proposed rule would update WAC 220-660-370 to be consistent with the existing RCW 77.55.231 requirement for HPA permit applicants for residential marine shoreline stabilization replacement or rehabilitation projects. Specifically, the proposed rule prescribes the following:

- Revises existing language in WAC 220-660-370 to require HPA applicants to use the least impacting technically feasible bank protection alternatives for *replacement or rehabilitation of residential* bank protection projects, and specifies preferences for available alternatives;[12]
- Specifies the specific reporting elements that must be included in an HPA application for residential replacement projects; and
- Requires that HPA permit applicants for replacement or rehabilitation of residential bank protection provide a site assessment, alternatives analysis and design rationale for the proposed method *that is prepared by a qualified professional*.

As described in Section 2.1, revisions made to RCW 77.55.231 as a result of SSB 5273 have already put into place the requirement to employ they least impacting technically feasible stabilization technique, and requirements for a site assessment and alternatives analysis with respect to replacement of residential shoreline stabilization. Costs incurred due to these requirements are thus not considered to be incremental costs of the proposed rule. Thus, the key rule change implemented by the proposed rule is that permit applicants of replacement or rehabilitation of residential bank protection projects must hire a qualified professional to complete the requisite reports. Applicants for these project types were not previously required existing state law to submit a qualified professionals report. However, as described in Chapter 2, many permit applicants are subject to this

[11] Ecological and other benefits stemming from the selection of the least impacting technically feasible alternative result from RCW 77.55.231 and are not incremental outcomes of the proposed rule. According to WDFW, the proposed rule would not change the selection of the stabilization technique to be employed for a given application (Personal and email communication with WDFW in July and August 2022).

[12] WAC 220-660-370 provides common alternatives for (1) new bank protection and (2) replacement or rehabilitation of bank protection that extends waterward of an existing bank protection structure projects. The proposed rule would modify WAC 220-660-370 to provide common alternatives for replacement or rehabilitation of residential bank protection projects, adapted from RCW Section 77.55.231.

requirement under county or municipal shoreline management plans or generally employ qualified professionals to complete the applications due to the need for their expertise.

The proposed rule also outlines exemptions to the above requirements. WDFW may grant an exemption to the above-described requirements under the following conditions:

- The department may grant an exemption depending on the scale and nature of the project; or
- Projects for the removal of an existing bank protection structure and restoration of the beach are exempted. These projects may include other passive techniques such as controlling upland drainage or planting native vegetation.

Finally, the proposed rule also clarifies the requirements for permit applicants seeking expedited or emergency permits, whether for new or replacement of existing shoreline stabilization), under RCW 77.55.021(12), RCW 77.55.021(14), or RCW 77.55.021(16). These applications should include all deliverables outlined in RCW 77.55.021(2), but a site assessment and alternatives analysis report are not required at the time of application. The proposed rule states that any HPA permit applicant who submits an emergency or expedited application must submit within 90 days from the permit issuance a site assessment and alternatives analysis report, unless WDFW issues an exemption. After review of these deliverables, the HPA permit applicant may be required to modify the project to achieve the least impacting technically feasible alternative.

WAC 220-660-370 currently requires the submission of a site assessment and alternatives analysis report for all new shoreline modification, regardless of the type of application (standard, expedited, or emergency) unless the department provides an exemption depending on the scale and nature of the project. RCW 77.55.231 requires the same for replacement of existing shoreline stabilization. The proposed rule thus does not effectively change the existing requirement for *new* or *replacement* shoreline stabilization expedited or emergency applicants, other than specifying the timeframe within which the requisite report must be submitted.

1.3 REPORT ORGANIZATION

The remainder of the report is organized as follows:

- Chapter 2 describes the baseline for the analysis, characterizing existing requirements and behaviors of permit applicants absent the proposed rule.
- Chapter 3 identifies the regulated population, including the number of marine residential shoreline properties that may experience new regulatory requirements as a result of the rule.
- Chapter 4 quantifies the total costs that may be incurred as a result of the proposed rule.
- Chapter 5 provides a qualitative description of the benefits of the proposed rule.
- Chapter 6 weighs the probable benefits of the rule against the probable costs.

CHAPTER 2 | BASELINE FOR THE PROPOSED RULE

This section describes the existing state and local regulations and policies that guide the placement and modification of shoreline stabilization on Washington's marine shorelines, which forms the baseline for this analysis. The baseline for this analysis includes existing Hydraulic Code requirements, SMP requirements, and the historical behavior of permit applicants regarding the use qualified professionals to develop site assessments and alternatives analyses regardless of this rule. Overall, the analysis finds that the population regulated by the proposed rule most likely implements the proposed rule requirements even absent the rule making.

2.1 HYDRAULIC CODE RULES

The current language of the WAC for bank protection in saltwater areas requires HPA permit applicants for either a *new* residential bank protection or the *replacement or rehabilitation of residential bank protection that extends waterward of an existing bank protection structure* ("waterward replacement") to use the least impacting technically feasible bank protection alternative.[13] These requirements do not currently apply to replacement or rehabilitation of residential bank protection that *does not* extend waterward of an existing structure. The section stipulates that HPA applicants should propose a hard armoring technique only after considering relevant site characteristics and other factors in an alternatives analysis.

In addition, HPA applicants for *new* or *waterward replacement* of existing bank protection structures are required to submit a site assessment and design rationale for the proposed stabilization method. These deliverables, in conjunction with the alternatives analysis, must be prepared by a qualified professional.[14] This "qualified professionals report" must be provided as part of the complete HPA application, which should include the following:

- An assessment of the level of risk to existing buildings, roads, or services being threatened by the erosion;
- Evidence of erosion and/or slope instability to warrant the stabilization work;

[13] The WAC defines "feasible" as available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

[14] Per WAC 220-660-030, a "qualified professional" is a scientist, engineer, or technologist specializing in a relevant applied science or technology. This person may be certified with an appropriate professional organization, or could be someone who, through demonstrated education, experience, accreditation, and knowledge relevant to the particular matter, may be reasonably relied on to provide advice within that person's area of expertise.

- Alternatives considered and the technical rationale specific to the bank protection technique proposed;
- An analysis of the benefits and impacts associated with the chosen protection method; and
- An explanation of the method chosen, design parameters, types of materials, quantities, staging, and site rehabilitation.

These requirements apply across all land use zones for the applicable project types (i.e., new shoreline bank protection or waterward replacements of existing protection). However, these WAC requirements *do not* apply to HPA permit applicants that wish to *replace* existing marine residential shoreline stabilization.

Property owners also have the option of applying for an emergency or expedited permit per requirements stipulated in RCW 77.55.021(12), RCW 77.55.021(14), and RCW 77.55.021(16). Per RCW 77.55.021(14), if WDFW determines that an imminent danger exists, they can issue an expedited written permit for work to remove any obstructions, repair existing structures, restore banks, or protect property. Per RCW 77.55.021(16), WDFW may also issue an expedited written permit in those instances where normal permit processing would result in significant hardship for the applicant or unacceptable damage to the environment. Expedited permit requests, like standard permits, require a complete written application as required in RCW 77.55.021(2), which should include the following:

- General plans for the overall project;
- Complete plans and specifications of the proposed construction or work within the mean higher high water line in salt water or within the ordinary high water line in fresh water;
- Complete plans and specifications for the proper protection of fish life;
- Notice of compliance with any applicable requirements of the state environmental policy act, unless otherwise provided for in this chapter; and
- In the event that any person or government agency desires to undertake mineral prospecting or mining using motorized or gravity siphon equipment or desires to discharge effluent from such an activity to waters of the state, the person or government agency must also provide proof of compliance with the requirements of the federal clean water act issued by the department of ecology.

WAC 220-660-030 requires a qualified professional's report for all new bank protection projects, whether the new shoreline stabilization project applicants are applying for a general HPA, expedited, or emergency permit, unless WDFW grants an exemption depending on the scale and nature of the project.

In 2021, Washington Legislature (via Substitute Senate Bill [SSB] 5273) passed a requirement (codified in RCW 77.55.231) that anyone desiring to *replace* residential marine shoreline stabilization must use the least impacting technically feasible bank protection alternative for the protection of fish life. Further, unless WDFW provides an

exemption based on the scale and nature of the project, a property owner that desires to replace residential marine shoreline stabilization must complete a site assessment and alternatives assessment to consider the least impacting alternatives before proposing a hard armoring technique. The RCW does not specify that these analyses and report be completed by a "qualified professional."

2.2 SHORELINE MANAGEMENT ACT/SHORELINE MASTER PROGRAM REQUIREMENTS

The Shoreline Management Act (SMA) (Chapter 90.58 RCW) establishes partnerships between state and local governments for "managing, accessing, and protecting Washington's shorelines."[15] The SMA requires local governments within shoreline areas in the state of Washington to develop SMPs within their jurisdictions. The statewide rules that translate the broad policies of the SMA into guidance for the development of local SMPs are found in the state's Shoreline Master Program Guidelines (Chapter 173-26 WAC). To ensure that county and municipal governments are complying with changing state standards for SMPs during review periods, the Act requires that local governments amend their SMPs at least once every eight years. Local SMPs must at minimum address specific topics of statewide significance and may elect to go above and beyond statewide requirements to regulate the shoreline within their local jurisdiction.

With respect to shoreline modifications, including shoreline stabilization, for new structures, the SMP Guidelines require geotechnical reports that address the need for the modification, risk, and rate of erosion, and justification for hard armoring where it is being proposed. The SMP Guidelines do not specify that geotechnical reports must be developed by a qualified professional. The SMP Guidelines do not specify the need for a geotechnical report with respect to replacement stabilization. Of note, regardless of whether a local jurisdiction's SMP explicitly states the need for site assessment and alternatives analysis, permittees in those jurisdictions are still subject to those requirements based on RCW 77.55.231.

2.3 USE OF QUALIFIED PROFESSIONAL TO DEVELOP SITE ASSESSMENT AND ALTERNATIVES ANALYSIS

As outlined above, WAC 220-660-370 requires that for *new* shoreline stabilization, a qualified professional must address a suite of requirements including a risk assessment, evidence of erosion, alternatives for bank protection techniques, and the benefits and impacts of the selected technique. The WAC does not currently include the same requirements for residential property owners who wish to *replace or rehabilitate* existing shoreline stabilization. However, these requirements are already in place for residential

[15] Washington Department of Ecology. 2022. Shoreline Management Act (SMA). Viewed at https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Shoreline-laws-rules-and-cases#:~:text=The%20state%20Shoreline%20Management%20Act,shoreline%20use%20in%20their%20jurisdictions, July 29, 2022.

shoreline stabilization replacements in some counties and municipalities through their local SMPs.

Exhibit 2-1 below describes each county's reporting requirements for replacing residential shoreline stabilization according to their respective SMPs. For each county, Exhibit 2-1 highlights whether requisite analyses are to be undertaken by a qualified professional according to the text of the local SMP.[16] While SMPs are separate from HPA requirements, some SMPs specify overlapping requirements regarding replacement of shoreline stabilizations, and therefore provide insight regarding the expected behaviors of permittees absent this rule making.

EXHIBIT 2-1. COUNTY SMP REQUIREMENTS FOR RESIDENTIAL REPLACEMENT SHORELINE STABILIZATION

COUNTY NAME	ANALYSES TO BE COMPLETED BY QUALIFIED PROFESSIONAL?[1]	SOURCE
Clallam	Need for a qualified professional not specified	Clallam County Shoreline Master Program
Cowlitz	No requirement for site assessment and alternatives analysis specified	Cowlitz County Shoreline Master Program
Grays Harbor	No requirement for site assessment and alternatives analysis specified	Interview with county shoreline planner; Grays Harbor County Shoreline Master Program
Island	Need for a qualified professional not specified	Interview with county shoreline planner; Island County Shoreline Master Program
Jefferson	No requirement for site assessment and alternatives analysis specified	Interview with county shoreline planner; Jefferson County Shoreline Master Program
King	Yes	Interview with county shoreline planner; King County Shoreline Master Program
Kitsap	Yes	Interview with county shoreline planner; Kitsap County Shoreline Master Program
Mason	No requirement for site assessment and alternatives analysis specified	Interview with county shoreline planner; Mason County Shoreline Master Program
Pacific	No requirement for site assessment and alternatives analysis specified	Pacific County Shoreline Master Program
Pierce	Yes	Interview with county shoreline planner; Pierce County Shoreline Master Program

[16] Again, even where an SMP suggests that a site assessment and alternatives analysis is not required, individuals in those jurisdictions are in fact subject to those requirements based on RCW 77.55.231.

COUNTY NAME	ANALYSES TO BE COMPLETED BY QUALIFIED PROFESSIONAL?[1]	SOURCE
San Juan	Need for a qualified professional not specified	San Juan County Shoreline Master Program
Skagit	Yes	Skagit County Shoreline Master Program
Snohomish	Yes	Interview with county shoreline planner; Snohomish County Shoreline Master Program
Thurston	No requirement for site assessment and alternatives analysis specified	Interview with county shoreline planner; Thurston County Shoreline Master Program
Wahkiakum	No requirement for site assessment and alternatives analysis specified	Wahkiakum County Shoreline Master Program
Whatcom	Need for a qualified professional not specified	Whatcom County Shoreline Master Program

Notes:
1. Where SMPs do not explicitly specify use of a certified professional, per IEc's interviews with selected counties it is unlikely that a residential property owner would be able to complete a compliant geotechnical report without the support of the appropriate qualified professional. Therefore, the instances where it is "not specified" whether a professional is required, applicants are likely to hire a qualified professional to fulfill the geotechnical analysis requirement.

Sources: Shoreline Master Programs for each county. Interviews with Grays Harbor, Island, Jefferson, King, Kitsap, Mason, Pierce, Snohomish, and Thurston Counties conducted from July through August 2022.

Interviews with shoreline planners from selected counties and municipality and the SMPs of each county and municipality informed this analysis. Several county and municipal shoreline planners stated in interviews that even if their SMPs did not explicitly state the need for a qualified professional to undertake the analyses, it would be impossible or very challenging for an individual without the relevant professional background to fulfill the necessary requirements. Therefore, residential applicants looking to replace their shoreline stabilization in the counties where SMPs do not describe that a qualified professional must be hired for the analyses are still likely to hire qualified professionals for this purpose.

Of the 16 counties with marine shorelines, five explicitly state the requirement for use of a qualified professional in developing site assessment and alternatives analysis reports. Four do not specify the need for a qualified professional to develop the requisite analyses, and although seven do not currently describe a requirement for geotechnical reports of any kind for applicants replacing residential shoreline stabilization, those residents are required to develop these reports by RCW 77.55.231 when applying for an HPA permit. In both cases, as described previously, it is likely that qualified professionals are being used to fulfill those requirements.

Exhibit 2-2 displays the same information as Exhibit 2-1 at the municipal level. This analysis includes all municipalities that contain marine tax parcels within its municipal

boundaries.[17] Of the 43 municipalities that meet these criteria, 13 specifically state a requirement that a qualified professional develop the requisite reports for replacement residential shoreline stabilization structures. Two municipalities—Anacortes and Seattle—do not specify that a qualified professional must provide the reports, but as described above, it is likely residents are nonetheless hiring qualified professionals to fulfill these requirements. For the remainder, although the SMP does not specify the need for an alternatives analysis and site assessment, individuals in those jurisdictions must do so because of the requirements of RCW 77.55.231, and for the same reason previously described, are most likely to be using qualified professionals to fulfill those requirements.

EXHIBIT 2-2. MUNICIPAL REQUIREMENTS FOR RESIDENTIAL REPLACEMENT SHORELINE STABILIZATION

MUNICIPALITY NAME[1]	ANALYSES TO BE COMPLETED BY QUALIFIED PROFESSIONAL?[2]	SOURCE
Aberdeen	Yes	Aberdeen Shoreline Master Program
Anacortes	Need for qualified professional not specified	Interview with municipal planner; Anacortes Shoreline Master Program
Bainbridge Island	Yes	Interview with municipal planner; Bainbridge Island Shoreline Master Program
Bellingham	No requirement for site assessment and alternatives analysis specified	Bellingham Shoreline Master Program
Blaine	No requirement for site assessment and alternatives analysis specified	Blaine Shoreline Master Program
Bremerton	No requirement for site assessment and alternatives analysis specified	Bremerton Shoreline Master Program
Burien	No requirement for site assessment and alternatives analysis specified	Burien Shoreline Master Program
Cathlamet	No requirement for site assessment and alternatives analysis specified	Cathlamet Shoreline Master Program
Coupeville	No requirement for site assessment and alternatives analysis specified	Coupeville Shoreline Master Program
Des Moines	No requirement for site assessment and alternatives analysis specified	Des Moines Shoreline Master Program
DuPont	No requirement for site assessment and alternatives analysis specified	DuPont Shoreline Master Program

[17] Marine tax parcels identified using private geospatial data identifying existing marine shoreline parcels provided via secure server to IEc by WDFW on May 23, 2022. Municipalities were specified by identifying marine tax parcels falling within municipal boundaries from publicly available geospatial data from WA DNR (2021).

MUNICIPALITY NAME[1]	ANALYSES TO BE COMPLETED BY QUALIFIED PROFESSIONAL?[2]	SOURCE
Edmonds	No requirement for site assessment and alternatives analysis specified	Edmonds Shoreline Master Program
Everett	No requirement for site assessment and alternatives analysis specified	Everett Shoreline Master Program
Federal Way	No requirement for site assessment and alternatives analysis specified	Federal Way Shoreline Master Program
Friday Harbor	Yes	Friday Harbor Shoreline Master Program
Gig Harbor[3]	Yes	Interview with municipal planner; Gig Harbor Shoreline Master Program
Hoquiam	Yes	Hoquiam Shoreline Master Program
Ilwaco	No requirement for site assessment and alternatives analysis specified	Ilwaco Shoreline Master Program
La Conner	No requirement for site assessment and alternatives analysis specified	La Conner Shoreline Master Program
Lacey	No requirement for site assessment and alternatives analysis specified	Lacey Shoreline Master Program
Langley	No requirement for site assessment and alternatives analysis specified	Langley Shoreline Master Program
Longview	No requirement for site assessment and alternatives analysis specified	Longview Shoreline Master Program
Long Beach	No requirement for site assessment and alternatives analysis specified	Long Beach Shoreline Master Program
Mukilteo	No requirement for site assessment and alternatives analysis specified	Mukilteo Shoreline Master Program
Normandy Park	No requirement for site assessment and alternatives analysis specified	Normandy Park Shoreline Master Program
Oak Harbor	No requirement for site assessment and alternatives analysis specified	Oak Harbor Shoreline Master Program
Ocean Shores	Yes	Ocean Shores Shoreline Master Program
Olympia[4]	Yes	Interview with municipal planner; Olympia Shoreline Master Program
Port Angeles	Yes	Port Angeles Shoreline Master Program
Port Orchard	No requirement for site assessment and alternatives analysis specified	Port Orchard Shoreline Master Program

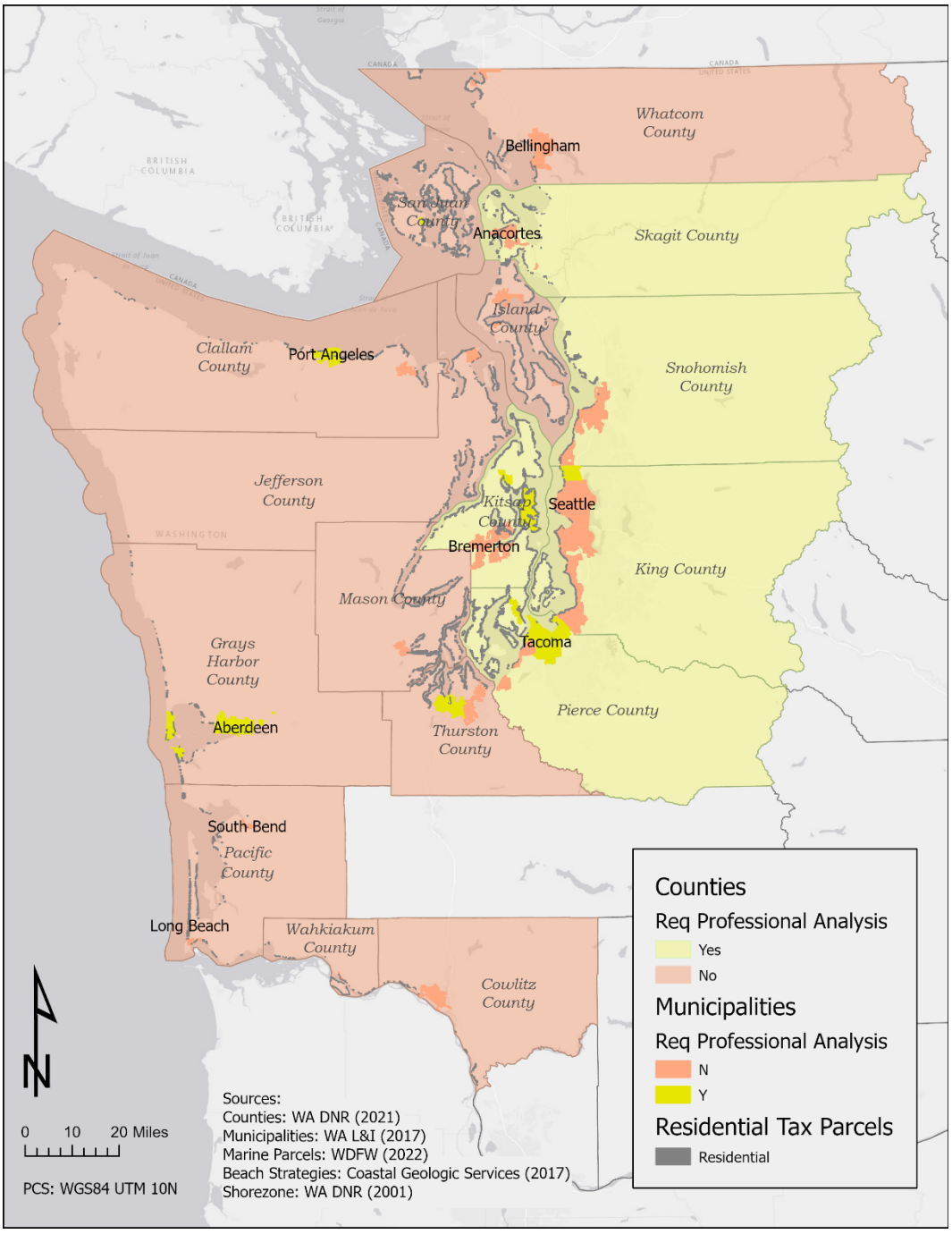
MUNICIPALITY NAME[1]	ANALYSES TO BE COMPLETED BY QUALIFIED PROFESSIONAL?[2]	SOURCE
Port Townsend	No requirement for site assessment and alternatives analysis specified	Port Townsend Shoreline Master Program
Poulsbo	Yes	Poulsbo Shoreline Master Program
Ruston	Yes	Ruston Shoreline Master Program
Seattle	Need for qualified professional not specified	Seattle Shoreline Master Program
Sequim	No requirement for site assessment and alternatives analysis specified	Sequim Shoreline Master Program
Shelton	No requirement for site assessment and alternatives analysis specified	Shelton Shoreline Master Program
Shoreline	Yes	Shoreline Shoreline Master Program
South Bend	No requirement for site assessment and alternatives analysis specified	South Bend Shoreline Master Program
Steilacoom	No requirement for site assessment and alternatives analysis specified	Steilacoom Shoreline Master Program
Tacoma	Yes	Tacoma Shoreline Master Program
University Place	No requirement for site assessment and alternatives analysis specified	University Place Shoreline Master Program
Westport	Yes	Westport Shoreline Master Program
Woodway	No requirement for site assessment and alternatives analysis specified	Woodway Shoreline Master Program

Notes:
1. Municipalities with marine tax parcels within municipal boundaries. Marine tax parcels identified using private geospatial data identifying existing marine shoreline parcels provided via secure server to IEc by WDFW on May 23, 2022. Municipalities were specified by identifying marine tax parcels falling within municipal boundaries from publicly available geospatial data from the Washington Department of Natural Resources (WA DNR) (2021).
2. Some SMPs do specify that a qualified professional is required for shoreline stabilization analyses and report but that these reporting requirements are not relevant for replacement structures. Of note, where SMPs do not explicitly specify use of a certified professional, per IEc's interviews with selected counties it is unlikely that a residential property owner would be able to complete a compliant geotechnical report without the support of the appropriate qualified professional. Therefore, the instances where it is "not specified" whether a professional is required, applicants are likely to hire a qualified professional to fulfill the geotechnical analysis requirement.
3. Interviewee described that although the requirements are not specified in the SMP is detail, they are being implemented in practice.
4. Municipal SMP requires that a qualified professional conduct most, but not all of those analyses.

Sources: Shoreline Master Programs for each municipality. Interviews with representatives from Olympia, Gig Harbor, Bainbridge Island, and Anacortes conducted from in July 2022.

Exhibit 2-3 identifies the tax parcels along the marine shoreline identified as residential, and visually depicts the findings from Exhibits 2-1 and 2-2 with respect to SMP requirements for use of a qualified professional to develop site assessment and alternatives analyses.

EXHIBIT 2-3. RESIDENTIAL MARINE SHORELINE TAX PARCELS AND EXISTING REQUIREMENTS FOR USE OF QUALIFIED PROFESSIONAL FOR SITE ASSESSMENT AND ALTERNATIVES ANALYSIS BASED ON COUNTY AND MUNICIPAL SMPS



CHAPTER 3 | REGULATED POPULATION

The proposed rule affects activities occurring on residential properties along Washington's marine shorelines, including the shorelines of Puget Sound, the Strait of Juan de Fuca, the outer coast, and along coastal estuaries. It does not change existing requirements with respect to commercial or other types of properties, nor does it affect activities occurring on residential properties along non-marine shorelines (e.g., rivers, ponds, or inland lakes). The proposed rule specifically addresses the requirements related to the *replacement or rehabilitation* of existing shoreline stabilization and does not change the requirements for installation of new structures, or replacement of existing structures where the replacement occurs waterward of the existing structure. Accordingly, the regulated population is the subset of residential property owners with existing shoreline stabilization.

As specified in Exhibits 2-1 and 2-2, several SMPs require a qualified professional to complete the required site assessment and alternatives analysis. Although the proposed rule still applies to these property owners, it does not generate additional requirements for their HPA applications. Furthermore, as described in this chapter, it is likely that the majority of HPA applicants would rely upon the expertise of qualified professionals for reporting and analysis requirements regardless of whether this is codified as a requirement.

This chapter identifies the universe of property owners to which the proposed rule applies and describes the rationale for the subpopulation that may experience additional costs. This information provides context and perspective for the weighing of probable costs and benefits in this analysis.

3.1 DATA SOURCES

This analysis relies on five input databases to identify potentially affected residential property owners, described in Exhibit 3-1. The Marine Parcels tax parcel database ("Marine Parcels") provided by WDFW identifies all land parcels located on marine shorelines, and provides the starting point for this analysis. Using the process described in the sections that follow, these parcels are pared down by the rulemaking criteria and baseline behavior of the regulated population to identify the potentially affected parcels. Assuming each parcel would require a separate HPA permit application, with accompanying site assessment and alternatives analysis, the number of parcels reflect the number of analyses and reports that would need to be developed by a qualified professional under the proposed rule.

The proposed rule will only affect residential property owners whose property contains existing shoreline stabilization. The analysis relies on the results of two past armoring

survey efforts along Washington's marine shorelines. The Beach Strategies armoring database ("Beach Strategies") contains armoring identification data resulting from 2016 and 2017 survey efforts specifically along Puget Sound shorelines facilitated by Coastal Geologic Services. The Shorezone armoring database ("Shorezone") contains shoreline modification identification information pertaining to armoring survey efforts conducted between 1994 and 2000 led by the Washington Department of Natural Resources' (WA DNR) Nearshore Habitat Program. The Beach Strategies database reports more recent identification of shoreline modification; however, the geographic scope of the underlying survey is limited to Puget Sound shorelines. The Shorezone armoring survey includes Puget Sound, as well as the outer coast and key coastal estuaries. This analysis thus identifies shoreline modification in Puget Sound with the Beach Strategies data, and modification in all other marine areas with the Shorezone data.[18]

The County and Municipality boundary data are used to identify the applicable SMP that outlines local policies and requirements with respect to replacement of existing residential shoreline modifications.

EXHIBIT 3-1. DATASETS

DATASET NAME	DATASET DESCRIPTION	PURPOSE	SOURCE
Marine Parcels	Tax parcel polygon data with county, city (if available), land use (if available) and owner data as specified by the county assessor, limited to parcels WDFW has identified as being located on marine shorelines.	Identify residential parcels on marine shorelines.	Private WDFW database provided via secure online information sharing portal
Counties	Polygon data with all Washington counties	Identify applicable SMA jurisdiction of individual residential marine parcels.	WA DNR (2021)
Municipalities	Polygon data with all Washington incorporated municipalities	Identify applicable SMA jurisdiction of individual residential marine parcels.	Washington Department of Labor & Industries (WA L&I) (2017)
Beach Strategies	Polyline data from 2016 & 2017 armoring survey efforts that report the presence of shoreline armoring across Puget Sound	Identify presence of existing marine shoreline stabilization along Puget Sound shoreline.	Coastal Geologic Services (2017)
Shorezone	Polyline data from 1997 through 2000 armoring survey efforts that report the percentage of shoreline modification (0-100) across Puget Sound and select areas along the outer coast	Identify presence of existing marine shoreline stabilization along outer coast shoreline.	WA DNR (2001)

[18] An initial check to compare the number of residential parcels with existing shoreline modification across both databases in only Puget Sound areas identified that the total number of parcels only differ by approximately 1.5 percent, which could potentially be attributed to external factors outside the scope of this analysis (e.g., differences in survey extents, land use zoning changes between 2000 and 2016, etc.)

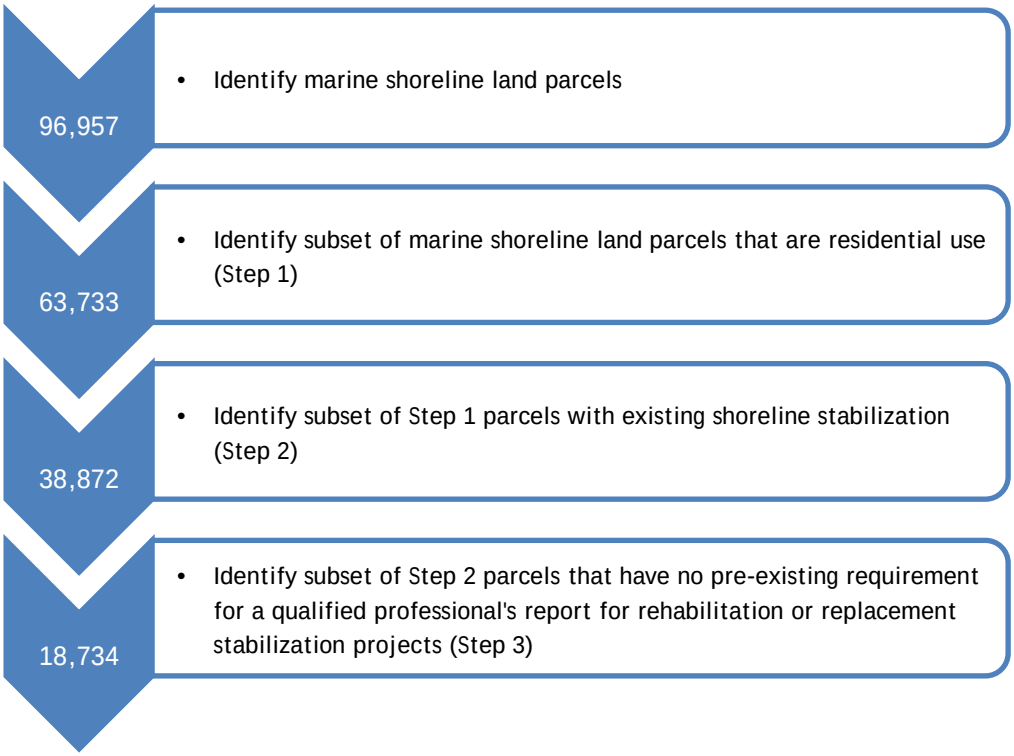
3.2 IDENTIFICATION OF POTENTIALLY AFFECTED ENTITIES

Using the previously described datasets, the analysis filters the Marine Parcels data to identify the potentially affected parcels/entities using a three-step analysis:

1. Identify the subset of marine shoreline parcels with a designated residential use.
2. Identify the subset of residential marine shoreline parcels that contain existing shoreline modification.
3. Identify the subset of residential marine shoreline parcels with existing shoreline modifications that are located in counties or municipalities that do not currently require use of a qualified professional to fulfill reporting requirements for replacement of existing shoreline stabilization.

Exhibit 3-2 summarizes the results of this analysis, specifying the number of parcels relevant at each step. This analysis finds 18,734 total residential parcels with no pre-existing requirement to employ a qualified professional to develop the requisite reports.[19] This is approximately 29 percent of the total residential shoreline parcels for which the proposed rule may generate a new requirement.

EXHIBIT 3-2. STEP-WISE IDENTIFICATION OF POTENTIALLY AFFECTED MARINE SHORELINE LAND PARCELS



[19] Of these, some portion may elect to replace the existing shoreline stabilization with a new structure stabilization structure waterward of the existing stabilization structure. In these cases, a qualified professional's report is already required, and the property owner would not incur new costs as a result of the proposed rule.

Importantly, as described in Section Chapter 2, interviews with county and municipal planners identified that even if their SMPs did not explicitly clarify the need for a qualified professional to undertake the analyses, residential applicants looking to replace their shoreline stabilization are still likely to hire qualified professionals due to the need for their expertise. It is also WDFW's experience that permit applicants typically use a qualified professional even when not required to do so.[20] If, in fact, residential marine shoreline property owners would generally employ qualified professionals to meet the existing requirement for site assessment and alternatives analysis under RCW 77.55.231 even absent the rule, the rule would not affect the costs of residential shoreline stabilization replacements.

STEP 1. IDENTIFY RESIDENTIAL MARINE PARCELS

The proposed rule will only affect activities occurring on residential parcels along marine shorelines. The Marine Parcel data include only those tax parcels WDFW considers to be located on marine shorelines. Using land use codes contained within the Marine Parcels data, the analysis selects only those parcels identified as residential use.[21] Exhibit 3-3 specifies all land use codes which are defined as residential for this analysis.[22]

EXHIBIT 3-3. RESIDENTIAL LAND USE CODES

LAND USE CODE	LAND USE CODE DESCRIPTION
11	Household, single-family units
12	Household, 2-4 units
13	Household, multiunit (5 or more)
14	Residential condominiums
15	Mobile home parks or courts
17	Institutional lodging
18	All other residential not elsewhere coded
19	Vacation and cabin
111	Residential household (Island County coding system)
112	Residential household (Island County coding system)
113	Residential household (Island County coding system)
Source: WAC 458-53-030	

[20] Email communication with WDFW on September 7, 2022.

[21] For this analysis, residential parcels are identified by land use zoning code. However, WDFW does not administer the Hydraulic Code based on these designations. Rather, permitting decisions are made based on actual land use, which may not always align with the parcel's assigned land use zoning code.

[22] WAC 458-53-030(5) defines "Hotels/motels" as residential under land use code 16. However, WDFW has specified that they will not consider hotel and motel properties to be residential properties with respect to the rule, but other short and long-term residential property rentals will be considered residential and must comply with the rule (Personal communication with WDFW staff on July 27, 2022).

Approximately five percent of all marine parcels do not have assigned land use codes. This analysis conservatively assumes all parcels with undesignated land use codes are residential, potentially overstating the number of potentially affected entities as a result. This step filtered 33,224 parcels from the original Marine Parcels dataset, identifying 63,733 marine parcels in residential use.

STEP 2. IDENTIFY RESIDENTIAL PARCELS THAT HAVE EXISTING SHORELINE MODIFICATION

Marine residential properties are only affected by the proposed rule if there is existing shoreline stabilization on the property. To identify these properties, the analysis overlays the marine residential tax parcels identified in Step 1 with each respective armoring survey's polyline data. Parcels containing a mapped armoring segment are identified as having existing shoreline modification. For Beach Strategies, the key identifier was whether the "Contains Armoring" field returned "Yes." For Shorezone, the key identifier was whether the "Percent Shoreline Modification" field returned a reading of ten percent or higher.[23]

Based upon that analysis, all residential parcels from Step 2 are assigned one of the following three identifiers:

- "Yes" – residential parcel was identified by the armoring survey as containing existing shoreline modification
- "No" - residential parcel was identified by the armoring survey as *not* containing existing shoreline modification
- "No Armoring Survey" – residential parcel was not mapped by the armoring survey, and thus the presence of shoreline modification is unknown.

For most counties and municipalities that were generally included in an armoring survey, there are some marine residential parcels that were not included in the survey. For each area, we calculate the ratio of mapped residential parcels with identified armoring to total mapped residential parcels and apply it to the total number of residential parcels with a "No Armoring Survey" designation. For counties that were not subject to any armoring survey (i.e., Cowlitz and Wahkiakum Counties), we identify the nearest county that was subject to an armoring survey (e.g., Pacific County for Cowlitz County) and apply that area's ratio of "yes" (i.e., contains shoreline modification) to "no" (i.e., does not contain shoreline modification) to the total number of residential parcels in the specified area. This step provides an estimate of the total residential marine tax parcels not included in a shoreline modification survey that do have existing shoreline modification.

[23] The polyline data from both datasets does not perfectly algin with the parcel boundaries from the Marine Parcels database. For instance, there could be a residential parcel that contains two separate mapped armoring segments, one with identification of armoring, and one that does not. Thus, each merged dataset returned many duplicates, which required post-processing in Excel to avoid double counting in Step 3.

This estimate is combined with the total count of mapped residential parcels with existing shoreline modification to arrive at a final estimated count of residential marine parcels with existing shoreline modification. This step identified 24,861 marine residential parcels with no existing shoreline modification, resulting in 38,872 marine residential parcels with existing shoreline stabilization.

STEP 3. IDENTIFY RESIDENTIAL PARCELS WITH EXISTING SHORELINE MODIFICATION IN JURISDICTIONS THAT DO NOT REQUIRE A QUALIFIED PROFESSIONAL TO COMPLETE A SITE ASSESSMENT AND ALTERNATIVES ANALYSIS

As described in Chapter 2, certain jurisdictions already require the use of a qualified professional to develop a site assessment and alternatives analysis for replacement of existing shoreline modifications. The proposed rule will not introduce any new requirements or costs to residential property owners in these jurisdictions. This step of the analysis removes any residential marine parcels within jurisdictions in which the use of a qualified professional is already explicitly required.

First, we identify the SMP relevant to each parcel, dependent on whether each parcel is located in an incorporated municipality or within the unincorporated county. To assign the SMP jurisdiction, the analysis overlays the Marine Parcels data with the County and Municipal geospatial files to properly assign a local area jurisdiction to each marine shoreline parcel.[24] For parcels within a municipal boundary, the municipal jurisdiction is assigned. Otherwise, the parcel is assigned to the corresponding unincorporated county.

Next, the analysis considers whether the applicable SMP specifies that a qualified professional must complete a required geotechnical assessment (i.e., site assessment and alternatives analysis) for residential rehabilitation or replacement shoreline stabilization projects. Exhibits 2-1 and 2-2 identify whether a qualified professional is required within a given jurisdiction. Parcels within jurisdictions that definitively require a qualified professional's report are removed from the analysis, as they would not experience new requirements as a result of the rule.

Exhibit 3-4 presents all affected residential parcels subject to the proposed rule, summarized by general location. Puget Sound comprises of 97 percent of all affected residential parcels, whereas the outer coast comprises 3 percent.

[24] The raw Marine Parcels database contains parcels that overlap with each other. Merging this dataset with the county and municipal geospatial files led to the formation of multiple duplicate parcels as a result. Before proceeding, all duplicate parcels were removed to ensure the same parcel would not be double counted throughout the remaining steps of the analysis.

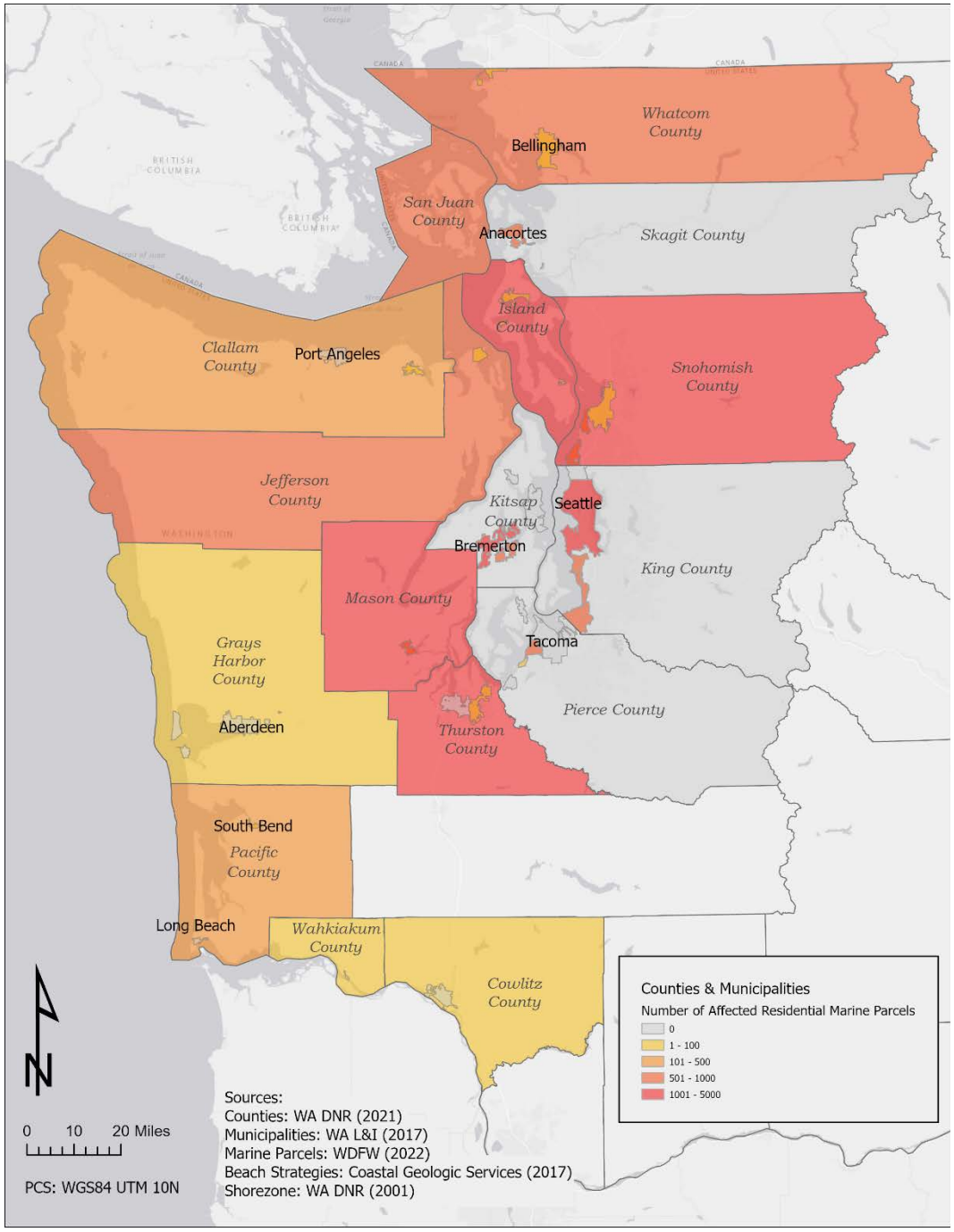
EXHIBIT 3-4. NUMBER OF RESIDENTIAL PARCELS AFFECTED BY THE PROPOSED RULE (SUMMARY BY LOCATION)

LOCATION	TOTAL ESTIMATED COUNT OF AFFECTED RESIDENTIAL PARCELS	PERCENT OF TOTAL
Puget Sound	18,150	97%
Outer Coast	584	3%
Total	**18,734**	**100%**

Sources: WDFW Marine Parcels database, Beach Strategies geodatabase, Shorezone geodatabase, WA DNR County boundaries geospatial data, WA L&I municipal boundaries geospatial data

Exhibit 3-5 depicts graphically the relative extent of affected residential marine shoreline parcels by relevant SMP jurisdiction. Residential property owners in jurisdictions identified in gray are not expected to incur costs as a result of the rule because qualified professionals are already required to develop requisite site assessment and alternatives analysis reports in those jurisdictions. Within unincorporated county areas, Mason, Island, Snohomish, and Thurston Counties comprise the majority of potentially affected residential marine parcels. The municipalities of Bremerton and Seattle also contain a large number affected residential parcels.

EXHIBIT 3-5. RELATIVE NUMBER OF AFFECTED RESIDENTIAL PARCELS WITHIN EACH SMP JURISDICTION



Step 3 of the analysis identifies 18,734 residential parcels with existing shoreline stabilization that do not currently have a requirement to employ a qualified professional to develop the requisite analyses and reports. This means that approximately 29 percent of residential shoreline property owners may be subject to new requirements when

existing shoreline stabilizations require rehabilitation or replacement.[25] It is important to note that these parcels would not all be subject to the new requirements at the time the rule is finalized. In fact, a small subset of these property owners may apply for a HPA permit for rehabilitation or replacement of their stabilization in a given year. For property owners with recently developed stabilizations, the rulemaking may not generate additional requirements for 30 years or more, depending on the design life of the existing stabilization.[26]

Furthermore, as described in Chapter 2, interviews with county and municipal planners identified that even where relevant SMPs do not explicitly require the use of a qualified professional to undertake the analyses and reporting requirements, residential applicants generally recognize the need for their expertise. It is also WDFW's experience that permit applicants are likely to hire a qualified professional to develop necessary reports, even where it is not explicitly required.[27] Thus, though the specific number is uncertain, it is most likely that few of the permit applicants will change their behavior as a result of the rulemaking. That is, the population affected by the proposed rule is most likely very limited.

[25] Individual property owners may own two or more parcels that together comprise a single property for stabilization/permitting purposes.

[26] Lifespan of shoreline stabilization based on personal and email communication with geotechnical/engineering firms conducted in July 2022.

[27] Email communication from WDFW on September 7, 2022.

CHAPTER 4 | PROBABLE COSTS OF PROPOSED RULE

The proposed rule has the potential to result in new costs to the residential property owners. To evaluate the probable costs of the proposed rule, this analysis relies upon historical permit data and data collected from outreach to industry stakeholders. This chapter additionally describes the uncertainties that preclude a quantitative assessment of total rule costs and identifies other potential costs not quantified in the analysis.

4.1 COSTS OF COMPLIANCE

The compliance costs of the proposed rule stem from the need for HPA permit applicants for marine shoreline residential replacement or rehabilitation stabilization projects to employ a qualified professional to prepare the required site assessment and alternatives analysis report. As detailed in Chapter 2, many Washington state counties and municipalities already require the use of a qualified professional to complete the report, while in other counties and municipalities residential property owners regularly elect to employ a qualified professional for this purpose even though it is not explicitly required. In those cases, the proposed rule would not trigger additional costs. The rule would only generate additional costs to residential shoreline property owners if, absent the rule, they would comply with existing requirements without the use of a qualified professional (e.g., by having their construction contractor, rather than a geotechnical expert, document slope instability). Because most property owners are already employing qualified professionals to complete reporting requirements, the proposed rule is largely unlikely to result in additional costs. To the extent that a residential shoreline property owner's use of a qualified professional results specifically from the proposed rule, this section identifies the costs associated with having a qualified professional complete this report and describes the factors that could influence the magnitude of these costs.

The cost estimates developed for this analysis are based primarily on interviews with professional firms providing site assessment and alternatives analysis services. Firms interviewed for this process included firms identifying as permitting facilitators, geotechnical engineers, coastal engineers, and shoreline stabilization design and construction firms. The interview process included nine individual firms whose work collectively represents the majority of the study area, though representation of firms who have completed relevant residential property analysis on the outer coast was limited. Each interviewee was asked to provide the average range of costs for the services required by the proposed rule, and a description of factors that dictate the specific cost for a given project.

The cost of employing a qualified professional to complete the site assessment and alternatives analysis ranges from $3,000 to $10,000.[28] This range of costs represents estimates from industry representative interviews and email communications. This range of costs is relevant to multiple project types (new armoring structure project, rehabilitation or replacement shoreline stabilization project), proposed armoring types (e.g., hard armoring, hybrid armoring, soft-shore armoring), number of considered alternatives, and residential property shoreline length. Costs are similar whether a residential applicant is applying for a general HPA permit or an emergency or expedited permit.[29]

If a qualified professional can complete the site assessment and alternatives analysis in short order and WDFW does not have questions or requests regarding the analysis and reporting, total costs tend toward the low end of the specified cost range. However, the magnitude of incurred costs for any given project is dependent upon the following factors:

- **Upcharges and project delays instigated by demand backlog for a qualified professional**: Only a select number of firms employ qualified professionals who have the expertise to complete the site assessment and alternatives analysis report for residential property owners. This is due to larger engineering firms allocating most (if not all) of their efforts toward non-residential projects with local governments or other clients. Since RCW 77.55.231 was codified in 2021, smaller firms have experienced larger volumes of residential property owners requesting a qualified professional's support for their rehabilitation or replacement bank protection project, leading to a backlog of potential permit applicants. This has led firms to charge more for the same services, and potentially increased costs to the residential property owner due to the delay in successfully acquiring the services of a qualified professional.
- **Need to bring in additional support to complete assessment and report**: If a project has site-specific characteristics that are require extensive critical thinking, a qualified professional may need to bring in additional support to address them (e.g., unclear sources of instability, assess what alternatives are appropriate, whether they can prove need for replacement).
- **Location of residential property**: Site-specific factors contribute to the level of effort required to conduct the needed site assessment, including but not limited to the types of existing shoreline stabilizations at the site and at surrounding sites.
- **Additional time to communication/educate residential property owners**: If the permit applicant is not knowledgeable about either the reporting requirements or

[28] Before RCW 77.55.231 was codified, permit applicants for residential rehabilitation and replacement bank protection projects in select areas spent as low as $1,000 to provide proof of slope instability to necessitate the proposed work. However, since RCW 77.55.231 changed the reporting requirements for these applicants, we assume that the costs to prepare these deliverables are on average no lower than $3,000.

[29] Personal and email communication with representatives of firms providing shoreline stabilization-related services conducted in July 2022.

the makeup of their existing stabilization structure, the qualified professional may need to spend additional labor to educate them on the general process of their analysis and selection of the least impacting technically feasible alternative.

- **Additional time to respond to state and/or local government comments**: If the qualified professional needs to respond to state and/or local government comments to their initial submission, the residential property owner will incur additional costs to have the qualified professional address feedback.

In rare instances, costs can reach $20,000, which could be attributable to several of the above factors, most notably higher than anticipated consultant time spent to respond to WDFW-provided comments. However, based on interviewee feedback, the probable range in costs for use of qualified professionals to develop the required analyses and reports is between $3,000 and $10,000.[30]

4.2 RATE OF PERMIT APPLICATIONS

As described in Chapter 2, it is likely that a narrow subset of the residential shoreline property owners will experience incremental costs as a result of the rule. This analysis finds that approximately 29 percent of residential shoreline property owners may be subject to new requirements when existing shoreline stabilizations require rehabilitation or replacement and the majority of that population would likely employ qualified professionals even absent the rule. Additionally, a small subset of these property owners may apply for a HPA permit for rehabilitation or replacement of their stabilization in a given year.

For perspective on the annual rate of permit applications, this analysis uses permit application data acquired through WDFW's Aquatic Protection Permitting System (APPS) to calculate the annual rate of permit submissions by county over the past five years (2017-2021), specified in Exhibit 4-1.[31,32] The exported APPS permit data includes all standard, expedited, and emergency permits that were applied for and issued for a "Shoreline Armoring – Marine" project type. The data on permit applications include applications for both new and replacement structures and for all land use types (i.e., not solely residential properties that are subject to the proposed rule). Interviews with county and municipal planners and communication with WDFW during July and August 2022 confirmed that the majority of permit applications are for stabilization replacements.

[30] Personal and email communication with representatives of firms providing shoreline stabilization-related services conducted in July 2022.

[31] The APPS database only allows users to identify county-specific permit submissions. Thus, any county-level permit data not only includes permits within that county, but also permits in municipalities within the county and any unincorporated county areas.

[32] A review of historical rates of applications over the last five years did not identify any meaningful trends within the data. As such, this analysis relies on an annual average application rate.

EXHIBIT 4-1. ANNUAL AVERAGE HISTORICAL SHORELINE STABILIZATION PERMIT APPLICATION RATES (2017-2021)

COUNTY NAME	ANNUAL AVERAGE PERMIT RATE
Clallam	5
Cowlitz	<1
Grays Harbor	1
Island	22
Jefferson	5
King	18
Kitsap	17
Mason	16
Pacific	3
Pierce	23
San Juan	2
Skagit	4
Snohomish	7
Thurston	4
Wahkiakum	<1
Whatcom	3
Total	132

Source:
WDFW APPS Database, Accessed August 10, 2022.
Note: This table includes permit applications for all types of applicants (residential property owners, commercial, industrial, and other) and is inclusive of both new stabilization requests and rehabilitation or replacement permits. Thus, only a subset of these applications would be subject to the proposed rule.

Overall, this analysis finds an average annual rate of 132 HPA permit applications for shoreline armoring. If all permit applications in a given year experienced an incremental cost for relying on a qualified professional for analysis and reporting requirements due to the rule, the cost would range between $400,000 and $1.3 million. However, this estimate overstates the probable costs of the rule in a given year for the following key reasons:

- The permit data overstate the number of HPA applications as they include other land use/landowner categories other than residential properties and because they include applications for new stabilizations and replacements that include construction of a new stabilization waterward of an existing stabilization, and not just rehabilitation or replacement.
- Of the subset of the 132 average annual applications that are residential property owners seeking rehabilitation or replacement permits, a majority are likely to employ a qualified professional for analysis and reporting requirements regardless of the proposed rule.

4.4 SUMMARY OF PROBABLE COSTS

The probable costs of the rule range from *$3,000 to $10,000 per permit* for residential shoreline property owners that would employ a qualified professional to address the associated analysis and reporting requirements of rehabilitation or replacement stabilization permits. The number of permit applicants for which the proposed rule would trigger these costs is uncertain. This is because only a subset of the 132 HPA average annual shoreline stabilization permit applicants are residential shoreline property owners for rehabilitation replacement projects. Moreover, a narrow subset of those applicants would not rely upon a qualified professional absent the rule making (and thus experience additional costs due to the rule). However, based on review of existing SMPs and interviews with stakeholders, the probable costs of rule are limited and closer to $0 than to the annualized reporting costs (across all shoreline stabilization HPA applications) of $400,000 to $1.3 million.

The proposed rule may also result in other costs that are not quantified in the analysis and are too uncertain to be characterized as "probable." Specifically, increased demand for a qualified professional in a limited pool of experts may lead to an increased wait time to retain the services of a qualified professional, resulting in project delays. However, these costs may be offset by time savings that are gained due to efficiencies in WDFW review, and increased likelihood that the application package will be accepted without further revisions needed. Both of these potential rule benefits are described in greater detail in Chapter 5.

CHAPTER 5 | PROBABLE BENEFITS OF PROPOSED RULE

The proposed rule is expected to yield benefits related to greater uniformity in application processes and expectations across the state, increased accuracy in applicants' geotechnical reports, and clearer language describing expedited and emergency permit processes. The rule incorporates residential replacement projects into rule language which already applies to other types of projects, allowing uniform handling across project types. As a result of the proposed rule, the Hydraulic Code will be made consistent with RCW 77.55, better-allowing WDFW to carry out its authority under RCW 77.55. Consistency between the Hydraulic Code and RCW additionally clarifies the complete set of requirements for the regulated community in a single location, rather than having requirements distributed across both the Hydraulic Code and statute. Increased uniformity across the Hydraulic Code and RCW is likely to lead to greater efficiencies in application and review processes by saving time and administrative costs for residential applicants and WDFW. Applicants will also benefit from the clarification in requirements from the proposed rule and will have a greater understanding of what constitutes a complete geotechnical report.

The requirement to submit a report prepared by a qualified professional will lead to additional benefits related to efficiency. As a result of the proposed rule, geotechnical reports submitted by applicants are more likely to contain the required elements and address all requirements accurately. This results in benefits to applicants and those reviewing the applications. Specifically, the use of a qualified professional to develop the required reports reduces the risk of an incomplete or low-quality analysis and report being rejected by WDFW, which would require the applicant to revise and resubmit application materials. Thus, the rule likely generates some offsetting time and cost savings for the limited subset of the regulated population that would attempt to avoid the use of a qualified professional absent the rule making.

The proposed rule clarifies the requirements for expedited or emergency permits for new and replacement shoreline stabilization, providing greater regulatory certainty for applicants for these types of projects as well as those at WDFW evaluating expedited and emergency permit applications. Greater regulatory certainty is likely to lead to benefits in efficiency, as outlined above. The requirement to submit a site assessment and alternatives analysis within 90 days from the permit issuance allows WDFW to determine whether the least impacting technically feasible alternative is being used within each project. This requirement opens a regulatory pathway for applicants to meet the required standard, which benefits fish and aquatic resources and ensures greater uniformity across requirements for different project types.

As discussed previously, the requirement to use the least impacting technically feasible type of shoreline stabilization is not introduced by this proposed rule, and thus the ecological benefits of that requirement are not directly attributable to this rule. Nonetheless, the proposed rule's requirement for use of a qualified professional does contribute to the achievement of the ecological benefits that are the goal of the state's shoreline stabilization rules more broadly.

Overall, the probable benefits of the rule are consistency with existing statutory requirements and clarity regarding what constitutes a compliant permit application. This leads to increased regulatory certainty and generates time and cost savings both for WDFW and the regulated community.

CHAPTER 6 | COMPARISON OF THE PROBABLE COSTS AND BENEFITS OF THE PROPOSED RULE

In accordance with RCW 34.05.328, the objective of this CBA is to evaluate the proposed changes to WAC 220-660-370 to "determine that the probable benefits of the rule are greater than its probable costs, taking into account both the quantitative and qualitative benefits and costs, and the specific directives of the statute being implemented." As described in Chapters 4 and 5, this analysis provides primarily qualitative information on probable costs and benefits, with some quantitative cost information to provide perspective and context to the assessment. Exhibit 6-1 summarizes the analysis of costs and benefits.

EXHIBIT 6-1. SUMMARY OF KEY FINDINGS OF ANALYSIS OF COSTS AND BENEFITS

COSTS	BENEFITS
• Incremental cost of *$3,000 to $10,000 per residential permit applicant* for a narrow subset of permit applicants that would not rely upon a qualified professional absent the rulemaking o No incremental costs for residential parcels with no existing shoreline stabilization o No incremental costs in areas where local requirements currently require a qualified professional o No incremental costs for permit applicants that would rely on a qualified profession for analysis and reporting requirements regardless of the rule • Some potential for time delay costs due to increase in demand for limited supply of qualified professionals	• Consistency across Hydraulic Code and RCW in permit application processes and expectations. • Regulatory certainty generated by increased clarity regarding analysis and reporting requirements. • Time and cost savings in permitting process for some rehabilitation or replacement of residential shoreline stabilizations. o Time and cost savings for WDFW review and comment of applications due to improved quality of analysis and reports. o Time and cost savings for permit applicants that, absent the rule, may submit reports that require additional analysis and revision due to insufficient expertise.

This rule making applies specifically to residential shoreline property owners who need to rehabilitate or replace existing shoreline stabilization. The rule making requires this population to employ a qualified professional in developing site assessments and alternatives analyses.

Overall, this analysis finds that the probable benefits of the rule outweigh the probable costs for the following reasons:

- The requirement in this rule making above and beyond the existing requirements of RCW 77.55.231 is the need for a qualified professional to develop the required analyses and reports.
- Many existing SMPs for counties and municipalities require the use of a qualified professional to develop these reports. In these cases, the new rule making does not impose any new requirements and the probable cost of the rule for property owners in these counties and municipalities is $0.
- Other counties and municipalities do not specify the need for reliance on a qualified professional and, absent the rule, some property owners in these areas may attempt to accomplish the analysis and reporting requirements without the use of a qualified professional. However, outreach and interviews conducted in the context of this analysis identify that, most of the time, property owners recognize a need for the expertise of a qualified professional, even absent the requirement being written into regulation. For property owners that would rely on a qualified professional to develop the analyses and reports as the best way to comply even absent the rule, the probable cost of the rule is $0.
- The category of applicants most likely to be affected by the rule are those that would attempt to develop the required analyses and reports without the use of a qualified professional absent this rule making. For this limited subset of property owners, the need to hire a qualified professional to develop the reports may generate costs of up to $10,000. Even in these instances, however, the rule may result in some offsetting cost savings for these property owners. This is because not using a qualified professional may result in non-compliant reports and analyses that may be rejected by WDFW and require re-analysis and revision. Use of a qualified professional reduces the risk of submitting non-compliant reports the first time, saving costs and time in the HPA process. Thus, even for the applicants for which the rulemaking changes behavior, some level of offsetting cost savings is likely.
- The probable benefits of the rule are consistency with existing statute and clarity to property owners regarding what constitutes a compliant HPA application for residential shoreline stabilization rehabilitation or replacement. This regulatory certainty benefit generates time and cost savings both for WDFW and for permit applicants.

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LEGAL AND POLICY DOCUMENTS

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RCW 77.55.021

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WAC (Washington Administrative Code) WAC 220-660-370

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ATTACHMENT A | OUTREACH SUMMARY AND LIST OF INDIVIDUALS INTERVIEWED IN JULY/AUGUST 2022

To support development of this analysis and the accompanying Small Business Economic Impact Statement (SBEIS), we relied on outreach and participation of local government officials, firms that provide permitting support, site assessment and alternatives analysis, or engineering and construction services, and residential marine shoreline property owners. IEc relied upon several sources to identify and obtain contact information for these entities, including county and municipal Shoreline Master Programs and WDFW-provided permit information extracted from their Aquatic Protection Permitting System (APPS) database.

IEc conducted interviews with representatives chosen per a variety of selection criteria. County and municipal interviewees were chosen based on whether their area's Shoreline Master Program contains current requirements for residential rehabilitation and replacement bank protection projects that either closely match that of the proposed rule or are widely different. This was done to capture the full extent of potential involvement across local areas. Area representatives were also identified by whether they contained a large concentration of marine residential properties and businesses that contain existing shoreline modification. Firms were chosen based on whether they are highly represented in WDFW's provided APPS database, which IEc took as evidence that they would have much experience developing the required site assessment and alternatives analysis report.[33] Some industry interviewees were also chosen per WDFW and Washington Department of Ecology recommendation. Residential property owners were chosen based on if they had successfully applied for and received a permit for their residential bank protection project within the last four years.

Between July 6, 2022, and August 2, 2022, IEc reached out by email to invite representatives to participate in an interview. Potential interviewees who IEc did not initially hear from received at least one additional outreach email, and interviewees who did respond were generally available to meet via video call during Pacific Daylight Time business hours. For potential contacts who did not respond to either the initial or follow-up email, IEc assumed those contacts had elected not to participate in the process, and no further effort was made to contact them. Altogether, IEc attempted to connect with 22 local government officials, 15 engineering consulting firms, and 25 marine shoreline

[33] In some instances, IEc found that the listed contacts in WDFW's APPS database were representatives that managed the overall permit application process and outsourced the site assessment and alternatives analysis services to a separate firm. During these meetings, IEc requested for and received contact information for several geotechnical engineering firms that perform the site assessment and alternatives analysis in house and met with several of them after contacting them through email.

residential property owners. Of the 62 total individuals IEc contacted, 37 either declined to participate or did not respond to IEc's outreach emails. Ultimately, IEc conducted interviews with 13 local government officials, nine firms, and three marine shoreline residential property owners (see Exhibit A-1). Interviews generally followed the list of questions presented in Attachment B, though interviewees were invited to provide additional thoughts as they deemed relevant.

EXHIBIT A-1. LIST OF INTERVIEWEES

DESCRIPTION OF INTERVIEWEES[1]
Shoreline planner at King County
Shoreline planner at Kitsap County
Shoreline planner at Pierce County
Shoreline planner at Snohomish County
Shoreline planner at Mason County
Shoreline planner at Jefferson County
Shoreline planner at Island County
Shoreline planner at Grays Harbor County
Shoreline planner at Thurston County
Shoreline planner in Olympia
Shoreline planner in Anacortes
Shoreline planner in Bainbridge Island
Shoreline planner in Gig Harbor
Consulting/engineering professional at Soundview Consultants, LLC
Consulting/engineering professional at Leon Environmental, LLC
Consulting/engineering professional at Sea-level Bulkhead Builders, Inc.
Consulting/engineering professional at Saratoga Environmental, LLC
Consulting/engineering professional at Coastal Solutions, LLC
Consulting/engineering professional at Aspect Consulting, LLC
Consulting/engineering professional at Blue Coast Engineering
Consulting/engineering professional at Qwg Applied Geology
Consulting/engineering professional at GeoResources, LLC
Residential marine shoreline property owner in Mason County
Residential marine shoreline property owner in Pierce County
Residential marine shoreline property owner in Island County
Notes: 1. Individuals are not identified by name to protect the privacy of interview participants.

ATTACHMENT B | INTERVIEW GUIDE

INTERVIEW QUESTIONS

INTRODUCTION

- IEc is an environmental and economic consulting firm with expertise in developing regulatory analyses for state and federal agencies.
- IEc has been retained by the Washington Department of Fish and Wildlife to develop a Cost Benefit Analysis and a Small Business Economic Impact Statement for a forthcoming proposed rule that would modify the state's hydraulic code.
- The Cost Benefit Analysis compares the costs and benefits that would result from the rule, while the SBEIS considers whether the rule will disproportionately affect small businesses or impose more than minor costs on them (defined as businesses employing <50 people).
- The existing regulations were recently updated to require that residential shoreline property owners wishing to replace existing shoreline protection structures must use the least impactful technically feasible alternative and must include in their permit application a site assessment and alternatives analysis.
- The proposed rule would clarify the existing process for complying with those requirements, including confirming that the site assessment and alternatives analysis be conducted by a certified professional.
- Our analysis is focused on the costs and benefits associated with the requirement to use a certified professional to develop the site assessment and alternatives analysis. It does not consider costs associated with the requirement to use the "least impactful technically feasible alternative", as that requirement is already in statute, and is not part of the proposed rule. (Noting that the cost of evaluating those options within a report would be considered a cost of the rule).
- We are conducting a series of interviews with county and municipal planners, firms that provide site assessment services, and residential shoreline property owners to better understand the requirements as they stand today, the costs of complying with those requirements, and how or if the rule might result in additional costs to residential property owners.

QUESTIONS FOR FIRMS PROVIDING SITE ASSESSMENT AND ALTERNATIVES ANALYSIS SERVICES

- What geographic areas (counties and municipalities) does your firm service?
- Please describe the types of analyses/reports you provide for property owners with respect to shoreline stabilization and/or armoring. Site assessments? Alternatives analysis? Design Rationale?
- Are there standard analyses and information that is included in all reports you produce or are there different types of analyses that might be done depending on the regulatory need (e.g., alternatives analysis)?
- Are there differences in the types/costs of services you have typically provided for new residential shoreline protection structures vs. those that are being rehabilitated or replaced?
- How much do you charge for your services, broken out by individual item/analysis type, if applicable? What variables drive the cost of the report? For example,
  - New structure vs. replacement?
  - Existing armoring type?
  - How many/which types of alternatives need to be considered (e.g., including consideration of soft/nature-based protection)?
  - Project location?
  - Property type?
  - Shoreline length/slope?
  - Other?
- Would a new requirement that residential replacement structures use the least impactful technically feasible alternative, and that they demonstrate that they are doing so through an alternatives analysis, change the cost of your services for the permit applicant?
- Within the areas where you provide services, do you have a sense of which county/municipal codes currently require a geotechnical analysis/qualified professional's report for repair/replacement of structures on residential property?
- What is the life expectancy for shoreline protection structures of different types? How long do structures of each type typically last before they need to be rehabilitated or replaced?
- For residential property owners that you have provided services for, do you have a sense of any that might be considered businesses?

QUESTIONS FOR COUNTIES AND MUNICIPALITIES

- What are the primary objectives and targeted benefits of current shoreline armoring requirements within your county/municipality?
- The hydraulic code (WAC) currently requires that a property owner that wants to construct *new* shoreline protection or *replace existing protection waterward of the existing protection* use the least impactful, technically feasible option, and submit a qualified professionals report that includes a site assessment, alternatives analysis, and design rationale (*details below, which we can read to them*). How do these requirements compare to what is required by your Shoreline Management Program (SMP)?
- What baseline shoreline stabilization and/or armoring construction/replacement reporting or analysis requirements (if any) are currently in place with respect to alternatives analysis, site assessment, and report development within your jurisdiction's SMP? Are they the same as what is required by the existing WAC? More stringent?
    - Do they apply only to new structures?
    - What requirements are in place for replacement structures?
    - Do you require use of a certified professional to complete any required assessments?
- Could someone meet these requirements without the use of a certified professional?
- The proposed rule would extend the existing requirement for new residential structures to have a qualified professional conduct a site assessment and alternatives analysis, to replacement structures. Are these things your SMP already requires for residential replacement structures, or would they go above and beyond your requirements?
- For residential property permit requests for shoreline armoring, can you estimate the proportion each year that are for new structures vs. replacement or rehabilitation?
- For the SBEIS, we are particularly interested in understanding the locations and numbers of shoreline residential properties that may be businesses.
    - Do you have a sense of the types of businesses that might be relevant here?
    - Are there particular locations in which these types of businesses are concentrated?
- Are these businesses considered to be commercial or residential properties with respect to compliance with the existing WAC?

QUESTIONS FOR RESIDENTIAL PROPERTY OWNERS

- What is your relationship to/interest in the property? Are you a homeowner that resides on the property? Is it a rental property? Do you own and manage the property as a business that provides housing?
- Was your project for constructing a new shoreline protection structure, or replacing or rehabilitating an existing structure? If it was a replacement or rehabilitation project:
  - What type of structure were you replacing?
  - Do you know the age of the structure and/or when it was last rehabilitated?
- What information, reports, and analyses were you required to submit with your permit application? For example:
  - Assessment of risk?
  - Proof of erosion?
  - Assessment of alternatives for protection (e.g. soft, natural protection vs hard structures)?
  - Design rationale?
- Did you use a certified professional to fulfill these requirements?
  - If yes, how much did you pay for those services? Do you have information about the respective costs of different elements of the work or analyses that were done for you?
  - In no, how did you meet those requirements and what costs did you incur to do so?
- Were there other costs that you incurred associated with these reporting requirements aside from paying for the report?

ATTACHMENT C | DATA DICTIONARY

DATA ITEM	SOURCE
Costs of employing a qualified professional to complete marine shoreline residential bank protection geotechnical analysis	Personal and email communication with representatives of firms providing shoreline stabilization-related services conducted in July 2022. Personal and email communication with marine shoreline residential property owners conducted in July 2022.
Identification of counties and municipalities with existing requirements for qualified professional's report	Personal and email communication with representatives of county and municipal planning departments conducted in July and August 2022. Review of SMPs for all marine shoreline jurisdictions.
Total tax parcels, residential tax parcels, single family residential tax parcels, and multi-unit residential tax parcels	Private geospatial data identifying existing marine shoreline parcels provided via secure server to IEc by WDFW on May 23, 2022.
Marine shoreline with anthropogenic modification	Publicly accessible geospatial from the Washington State Shorezone Inventory, Available at: https://www.dnr.wa.gov/programs-and-services/aquatics/aquatic-science/nearshore-habitat-inventory Beach Strategies Geodatabase (2017), Coastal Geologic Services, Available at: https://fortress.wa.gov/dfw/public/PublicDownload/Habitat/BeachStrategies/
Permit database including project description and project applicant and permitting agent contact information	Personal and email communication with WDFW representatives conducted in May 2022 and June 2022. Aquatic Protection Permitting System accessed online in July 2022, Available at https://www.govonlinesaas.com/WA/WDFW/Public/Client/WA_WDFW/Shared/Pages/Main/Login.aspx