

EXECUTIVE SUMMARY

The Watershed Resource Inventory Area 9 (WRIA 9) includes portions of unincorporated King County (Vashon and Maury Islands), and the cities of Seattle, Burien, Normandy Park, Des Moines, and Federal Way. Like other WRIsAs in Western Washington, jurisdictions within WRIA 9 have been implementing plans to recover salmon for many years. Among the primary goals of the WRIA 9 salmon habitat plan are reducing the amount of existing shoreline armoring (bulkheads, revetments, etc.) and limiting the amount of new shoreline armoring in these jurisdictions, given concerns that these modifications can negatively affect salmon habitat.

In 2012, the WRIA 9 Implementation Technical Committee completed a five year “Status and Trends Report” that included multiple analyses describing the changes in condition of various fresh water and saltwater habitats since the plan was adopted (changes occurring between 2005 and 2010). Given the difficulty in tracking the status of some salt water shoreline habitats via aerial photograph analysis, the 2012 Status and Trends Report recommended conducting annual boat-based monitoring surveys to evaluate if the WRIA 9 goals for reducing marine shoreline armoring are being met and specifically, if shoreline land use regulations are being followed.

Following these recommendations, WRIA 9 staff applied for and received funding from the Puget Sound Marine and Nearshore Protection and Restoration Grant Program to undertake boat-based marine shoreline monitoring surveys of WRIA 9. The intent of the grant was twofold. The first goal was to update the 2004 baseline data on shoreline conditions for the 92 miles of marine shoreline in WRIA 9 with field collected data. The second goal was to assess how well shoreline regulations were being followed to assist the WRIA meet its programmatic salmon recovery goal to, “Improve enforcement of existing land use and other regulations.” To accomplish this, the grant project called for evaluating if permits were obtained for the observed changes in shoreline conditions and tracking enforcement responses to any unpermitted changes in condition.

The project work included undertaking boat-based surveys as close to shore as practical along the entire 92 miles of marine shoreline of WRIA 9 in 2012 and again in 2013. Two surveys were done to attempt to understand the rate of changes occurring. Jurisdictions with WRIA 9 shoreline include unincorporated King County, primarily Vashon and Maury Islands (56% of the shoreline), the cities of Seattle (24%), Burien (5%), Normandy Park (4%), Des Moines (6%), and Federal Way (5%). The rural unincorporated area makes up about 56% of the WRIA 9 shoreline. The surveys collected shoreline condition data to update and compare to baseline monitoring data sets (2004 and 2009) as well as document other changes in shoreline condition that were not original baseline data sets. These included buildings (mostly houses), retaining walls, and stairs along the shoreline that were in construction or obviously recently constructed at the time of the surveys. Based on information provided by the relevant jurisdictions, each identified change in shoreline

condition was then evaluated to determine whether or not it had received a permit for the change.

The 2012 survey found 85 distinct changes in WRIA 9 shoreline condition that had occurred between 2004 and 2012. The 2013 survey found 60 additional distinct changes in shoreline condition, most of which occurred between 2012 and 2013. Of the total 145 changes found by both surveys, changes associated with shoreline armoring accounted for 50% of the changes noted, with most changes consisting of repairs to existing shoreline armoring infrastructure. Changes associated with clearing of vegetation, docks and other overwater structures, and stairs each accounted for approximately 10% of the total, and changes associated with houses accounted for 7% of the changes. The rest of the changes were composed of a variety of alterations such as aquaculture facilities, decks, retaining walls and boat ramps.

As part of this project, each WRIA 9 jurisdiction with marine shoreline was contacted with a list of the changes that occurred in their jurisdiction and asked to verify if the changes identified in the surveys were permitted or not. Whether a change in condition was permitted or not was used to define the “non-field verified compliance rate.” While it is known if a permit was given for the changes identified, in order to calculate a fully verified compliance rate, each jurisdiction needs to decide if the changes identified truly need a permit. It is important to note that actual compliance has not yet been field verified by each jurisdiction. It is possible that once staff from a jurisdiction visit the site they will decide the change may have not needed a permit, and thus actually be in compliance.

For the 85 changes identified in the 2012 survey, 19 (22%) were permitted prior to the work being done. The non-field verified compliance rate within each jurisdiction varied from 0 to 100%, with an average rate across all jurisdictions of 34%. There were no patterns seen when jurisdictions with smaller amounts of shoreline were compared to jurisdictions with larger amounts of shoreline. The non-field verified compliance rate was much higher in the urban area (50%) than the rural area (14%) for 2012. Compliance data for 2013 has not yet been provided by all jurisdictions. Based on 2013 data, 25(43%) of the changes observed were permitted prior to the work being done. The non-field verified compliance rate within each jurisdiction varied from 0 to 73%, with an average rate across all jurisdictions of 43%.

When evaluating compliance, it is important to note that properties that did not have any modifications during the study period were also in compliance with the existing rules and regulations. This is reflected in the rate of development activity that occurred between 2004 and 2013, as identified in the two surveys. By jurisdiction, the range of properties that had no development activity was 95 to 99 % of all shoreline properties in WRIA 9.

It is noteworthy that two similar studies have recently been done in other parts of Puget Sound that had compliance rates ranging from 50% to 80%. Along the 53 miles of the City of Bainbridge Island, Washington Department of Fish and Wildlife evaluated recent shoreline changes against their permit database of state Hydraulic Project Approvals (HPAs) in 2012. While that study did not evaluate if projects had local city permits, it found

that 80% of the changes had received an HPA for the work done. The San Juan Initiative undertook surveys of 34 miles of different sections of several islands within the San Juan archipelago. They evaluated a smaller subset of shoreline changes (shoreline armoring and docks) and found that 50% of the changes did not have a state or county permit. It is unclear why the other study areas had higher non-field verified compliance rates. One possibility is that the WRIA 9 study was more comprehensive and evaluated all changes in shoreline condition, while the other two studies focused on a subset of shoreline changes.

In addition to examining changes in shoreline condition, this project included a coarse evaluation of the ecological and physical effects of the changes identified in both surveys. In the 2012 survey, 34 (40%) of the changes encountered did not appear to have any obvious physical or ecological effects, and the changes to shoreline condition with no obvious effects were spread throughout the study area. In general, these were modifications of structures already in existence in the baseline year of 2004. In the 2013 survey, 23 (38%) of the changes encountered did not appear to have any physical or ecological effect. Of the remaining identified changes, approximately 60% were likely to have some observed or expected ecological or physical effect, though many of these changes were relatively small.

In aggregate, a comparison of 2004 baseline shoreline armoring conditions to existing conditions (ca. 2013), indicates that there has been relatively little change in the overall amount of shoreline armoring within WRIA 9. In part, this is because the vast majority of changes noted to shoreline armoring were repairs or rebuilds to existing structures rather than new structures. The other reason there has been little change to the overall amount of shoreline armoring is because the increase in new shoreline armoring was offset by shoreline restoration projects. The amount of new shoreline armoring found through the course of this study offset all of the gains from shoreline restoration projects over the past 8 years. Between 2004 and June of 2013, approximately 1,500 feet of shoreline armoring had been removed, but there has been a net increase in the amount of shoreline armoring in WRIA 9 by approximately 70 feet.

The WRIA 9 Status and Trends Report also indicated that there had been an overall loss of both densely treed shoreline as well as patchily treed shorelines throughout the WRIA from 2004 to 2009. As with the WRIA 9 Status and Trends Report, the majority of the clearing of treed shorelines noted over both years of this project was in unincorporated King County; most instances of clearing were unpermitted. The 2012 survey found that roughly 3 acres of vegetation along the WRIA 9 shoreline had been cleared (between 2009 and 2012), while the 2013 survey found an additional 2.5 acres had been cleared between 2012 and 2013. Most instances of clearing were near houses, suggesting that they may have been associated with efforts to create unobstructed views of the water, or as part of remodeling an existing house. As noted in the WRIA 9 Status and Trends Report, there have been very few marine riparian restoration projects undertaken by the WRIA or its partners that would offset these losses. The findings in this report indicate that there has been a continuing loss of treed shorelines on Vashon and Maury Islands between 2009 and June of 2013.

In sum, the study indicates that there have been modifications made to shorelines that have not been permitted. As indicated above, it is not clear that in all cases the changes would have needed a permit, and much of the work does not appear likely to have had a large ecological effect. However, to the extent that a permit was in fact needed, these instances represent missed opportunities to work with landowners as part of the permit process to ensure projects are undertaken in a manner most protective of shoreline resources. This includes a potential missed educational opportunity that can help lessen the impacts from construction techniques, as well a potential missed opportunity to work with the landowner to improve the existing baseline conditions and design or placement of the activity.

The findings in this report were provided to permitting jurisdictions, but the timeframe for the project did not allow for a thorough review of any follow-up and enforcement activity. A future study would be necessary to evaluate the jurisdictional responses to the unpermitted changes noted in this report.

Finally, it is important to note that this study did not identify why people are not getting permits or why there might be differences in compliance rates among different jurisdictions within the study area. It is suggested that a separate study be undertaken in the future to understand these questions. Understanding why permits were frequently not obtained would be very useful to help craft specific and culturally relevant approaches to improving compliance rates. This in turn would like help improve shoreline conditions in WRIA 9.