



Framework for Implementing Sustainable Shorelines

Summary of Social Science Investigations: Property Owner Decision Making

Project Activity: Shoreline Property Owners Surveys – Stafford and Guthrie

Objective: Identify factors that influence property owners when making shoreline management decisions.

Methods: Because a property owner's choice of shoreline modification can have important implications for shoreline erosions and coastal ecosystem, it is important to understand how and why property owners make decisions about managing their shoreline property. To improve our understanding, in the Fall of 2018, we sent out a mail survey to a random sample of just over 3,000 shoreline property owners in three Coastal Virginia localities: the city of Norfolk which is a highly developed urban area, the county of Gloucester which is a mixed suburban/rural county and the county of Lancaster which is primarily rural.

We are currently conducting a mail survey of all Virginia shoreline property owners that applied for an erosion control permit in 2019. The survey is not restricted by county and was sent to 500 property owners. The 2020 survey includes questions about a property owner's perception or awareness of ecosystem services associated with different shoreline modification types.

Progress to date: The initial survey included 3,051 questionnaires sent out to property owners, 726 of which were completed in whole or in part by the property owner and returned to us. Thus the survey achieved a 24 percent response rate overall, considering only those surveys that were answered by the recipient. We have analyzed the data from the survey and have prepared a report detailing that analysis, "2018 Shoreline Property Owner Survey: Preliminary results. Summary Report." which is available at https://www.vims.edu/ccrm/_docs/nsf_project/nsf_propertyowner_report.pdf. We have also developed a manuscript providing additional analysis of this, "What Drives Property Owners to Modify their Shorelines? A Case Study of Gloucester County, Virginia," which has been published in *Wetlands*.¹ The 2020 survey has concluded and is currently being analyzed.

Preliminary findings: The initial survey has yielded a number of interesting findings. Overall, of the 726 respondents, 31 percent stated that the shoreline on their property had not been modified. Approximately eight percent of respondents have living shorelines and no other type of modification, while eleven percent stated that they have living shorelines in addition to some other offensive or defensive modification. The most popular standalone modification is a revetment, with 22 percent of the respondents stating that this is the only type of modification that they have. Standalone bulkheads are less popular, with only 13 percent of respondents having them. It is also quite common to have a combination of offensive and defensive structures, with 11 percent of respondents reporting some combination of bulkheads,

¹ Stafford, S. and Guthrie, A.G., 2020. What Drives Property Owners to Modify Their Shorelines? A Case Study of Gloucester County, Virginia. *Wetlands* **40**, 1739–1750
<https://link.springer.com/article/10.1007/s13157-020-01358-6>

revetments, groins, and breakwaters. Overall, almost 40 percent of respondents have a revetment on their property either alone or in conjunction with some other type of modification while just over 25 percent have a bulkhead of some type. About 5 percent have a groin and less than 5 percent have a breakwater.

The use of various modification also varies depending on the type of property. Primary residences are slightly more likely to have some sort of shoreline modification than second homes, while other types of properties such as rental properties and undeveloped land are significantly less likely to have some sort of modification. Primary residences are more likely to have both living shorelines and bulkheads, while secondary residences are more likely to have breakwaters, groins, and revetments. Of the 498 respondents who reported having shoreline modifications, almost one-third bought their property with the modifications already in place and have not added additional modifications. Just over 20 percent bought their property with some modifications in place, but have made repairs to those modifications or have added additional modifications. About 43 percent of the respondents were responsible for adding all of the shoreline modifications on their property.

Of the 228 respondents with unmodified shorelines, the most popular explanation for not making modifications was that erosion was not a problem on the property and thus modification was not necessary. The next most popular reason was that it was too expensive to make the necessary modifications.

For the 320 owners who had made shoreline modifications themselves, across the board the most commonly cited explanation for choosing a particular modification was its effectiveness. The most popular reason for putting in a living shoreline was to restore the shoreline with just over 75 percent of owners citing that factor. Restoring the shoreline was also popular for owners with groins and breakwaters, but was less popular with owners of revetments and bulkheads. Owners with groins stand out for caring the most about the similarity of their shorelines to their neighbors and with maintaining access to the water. Increasing property value is not often cited as a reason for picking a particular modification, but it is cited more often by owners with bulkheads and revetments relative to owners with other types of modifications. Aesthetics are more important for owners with living shorelines than owners with other types of modifications. Finally, for most types of modifications, between 20 and 40 percent of owners cited cost as an important factor with relatively small differences across owners with living shorelines, groins, and bulkheads.

When interpreting these results, it is important to note that compared to the survey sample, the completed surveys are from parcels with both a higher land value and a higher value of improvements. Thus the results from our survey may be biased towards higher value properties. However, as a group the completed surveys are statistically similar to the overall sample with respect to parcel size, length of ownership, and the percent of the shoreline with a low bank.

Visuals:

2018 survey information: Respondent self-reported shoreline modification types

