WHOSE SHORE?

ASSESSING THE EFFECTS OF PUBLIC PARTICIPATION ON

SHORELINE MASTER PROGRAM UPDATES IN PUGET SOUND

by

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ABSTRACT

Whose Shore? Assessing the Effects of Public Participation on Shoreline Master Program Updates in Puget Sound

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Public participation is a mandated element of many environmental policy decisions, but questions remain about how such processes influence the incorporation of public values and science in decision making. Recent research has given credence to claims by proponents that, when done correctly, public participation "improves the quality and legitimacy of a decision, and builds the capacity of all involved to engage in the policy process" (Dietz and Stern 2008). However, critics argue that public participation can obstruct the incorporation of science into decisions, prolong the decision making process, and increase costs without commensurable benefit.

In Washington State, a total of 260 communities are required to update their shoreline land-use policies by 2014, in part to incorporate new ecological understanding about coastal areas. Local governments are required to develop and implement a public participation plan, but can choose a variety of methods. For the 46 cities and counties bordering Puget Sound, these updates are viewed as an important step in the recovery of the country's second-largest estuary. This study compares results from public participation processes and final shoreline master programs in Puget Sound communities. I assess relationships between the 1) intensity, 2) breadth, and 3) method of the participatory processes employed and the incorporation of public values and marine shoreline science into final plans. This research shows considerable variation among communities, both in the extent of their public participation efforts and in the regulatory policies adopted for the protection of marine shorelines.

TABLE OF CONTENTS

List of Figures

Acknowledgements

A. INTRODUCTION

Puget Sound, the second largest estuary in the United States, features nearly 2,500 miles of shoreline – every inch of it highly desirable real estate to the organisms, many of them human, who live along it. The shoreline supports a wide range of important ecological, recreational, and economic services; yet these competing uses place stress on the coastal ecosystem as a whole.

When Washington enacted the Shoreline Management Act of 1971 (SMA) (RCW 90.58), it became one of the first states in the nation to attempt a systematic approach to coastal development. The act explicitly prioritizes statewide interests over local interests, and seeks both to preserve traditional water-dependent uses and to secure protection of the natural character and ecology of the shoreline, as well as public access to it, in the face of increasing development pressures. Local governments must develop a Shoreline Master Program (SMP) that accounts for uses within the 200-foot management zone along coastal areas, lakes, rivers, and wetlands included under the measure.

More than 40 years after the SMA's initial passage, development along Puget Sound has continued to significantly degrade the shoreline environment. Overall, the shoreline has been straightened and simplified, with more than 700 miles armored with hard structures that disrupt ecological connections and exacerbate the loss of beach sediment. Urbanization of coastal areas has contributed to a precipitous loss of critical habitat, including 73 percent of historic salt marsh, 33 percent of eelgrass beds, and more than 90 percent of tidally-influenced wetlands (PSP 2012a, Simenstad 2011).

Recognizing that many jurisdictions had not updated their shoreline regulations since the 1970s, Washington State adopted new guidelines in 2003 that require a total of

260 towns, cities, and counties to update their SMPs by 2014. These guidelines better reflect new understanding of shoreline ecology and the potential negative impacts of development on coastal processes. For the 46 cities and counties that border Puget Sound, these updates are viewed as an important step in regional recovery efforts (PSP 2012b).

The update process has rekindled a long-simmering debate about who owns Washington's shoreline and who should have a say in how it is used, a debate that has not infrequently landed in the courts. These debates often are characterized as pitting private property interests against "big government" environmentalists, but such a polarized vision leaves little room to consider the subtleties of the relationship between communities and their shorelines.

The Shoreline Management Act notes that local governments "…shall not only invite but actively encourage participation by all persons and private groups and entities showing an interest in shoreline management programs" (RCW 90.58.130). Under the updated guidelines, jurisdictions are required at a minimum to develop a public participation plan[1] and hold one public hearing. However, public engagement efforts can, and often do, extend far beyond these minimum requirements, and local governments are incorporating a range of participation methods into their planning processes, including citizen advisory boards, public workshops, citizen committees, and various outreach platforms.

This variation makes the SMP update process a prime platform to consider questions about the role of public participation in environmental decision making. A 2008 report by the National Research Council concluded that, "research on the public

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[1] Only jurisdictions planning under the Growth Management Act (36.70A) are required to develop a public participation plan, but this filter includes all areas bordering Puget Sound considered in this research.

participation process has lagged far behind the need" and identified a particular desire for additional "quasi-experimental" studies that compare the effects of different public participation processes within the same organizational context (Dietz and Stern 2008). This thesis aims to address this need and considers the following research questions:

1. How much variation is there among SMP public participation plans, in terms of the objectives of public involvement, the number of techniques employed, and the number of participant groups targeted?

2. To what extent do updated SMPs contain policies that aim to preserve marine ecosystem functions, protect saltwater habitat, and limit shoreline modification?

3. How well do updated SMPs incorporate public values expressed through the public participation process?

4. Does public input influence the strength or weakness of plans for shoreline protection and restoration? Do some types of processes *work better*?

Thesis Organization

Section B provides background on three key context areas, and includes literature reviews of research related to public participation in environmental decision-making and the role of land use planning in environmental protection, as well as how these two fields come together in the context of the Shoreline Master Program updates. Section C describes the research methods, sample area, and variables used in this analysis. Section D includes the results of the analysis and interviews, while Sections E and F consider a broader discussion about the results in relation to the research questions and conclusions.

Interdisciplinary Statement

Calls for increasing public involvement in decision making on topics as varied, and as technical, as food security and climate change adaptation indicate that public participation will continue to play a central role in many types of environmental policy discussions, despite the impression held in some sectors that such processes are onerous or wasteful of limited resources. This thesis investigates central questions about how our society makes decisions that shape the future of coastal areas, and how we reconcile competing visions for economically and culturally valuable places. In doing so, this research draws from multiple disciplines of social and physical science, including marine and nearshore ecology, land-use policy, governance analysis, and democratic theory. Fundamentally, this thesis considers how science does (and should) guide policy decisions, and to what extent such science-based decisions can remain compatible with the principles of a democratic society.

B. BACKGROUND

B.1 Public Participation in Environmental Decision Making

Goals of Public Participation

One of the foundational principles in a democratic society is that people who are affected by the policies of a government have the right to have a say in its decision-making process. The traditional method of exercising this right is to vote directly on the issue (or to elect a representative who represents your vote), and people also may express their

opinions by forming interest groups, lobbying decision makers, holding demonstrations, and taking judicial action. Public participation[2], as used herein, is defined less broadly and includes any:

> organized processes adopted by elected officials, government agencies, or other public- or private-sector organizations to engage the public in environmental assessment, planning, decision making, management, monitoring, and evaluation. (Dietz and Stern 2008)

These processes are supplemental to voting, but take place in an institutional context and are administered by the agency or sponsor charged with developing the decision or policy. The mechanisms of participation include a variety of formats – such as hearings, workshops, surveys, comment periods, advisory groups – but all provide members of the public with some access to the decision making process.

In recent decades, theorists have put forward the claim that public participation serves more than just a normative function within a democratic society; public input, it is argued, brings essential information to the decision-making process, increases the legitimacy of decisions, and reduces conflict when policies are implemented (Fiorino 1990). Proponents of deliberative democracy contend that reasoned argument and public deliberation on contentious issues lead to better general understanding of complex issues, to the evolution of shared social values, and to policies that are more in line with the public interest (Baber and Bartlett 2005; Meadowcroft 2004; Parkins and Mitchell 2005; Pelletier et al. 1999).

Drawing on this considerable body of research, a National Research Council report on the role of public participation in environmental decision making concludes that

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[2] Although some researchers distinguish them, the terms "public involvement" and "public engagement" here are used synonymously with public participation.

"the goal of participation is to improve the quality, legitimacy, and capacity of environmental assessments and decisions" (Dietz and Stern 2008).

- *Quality*: Participation improves the quality of decisions by identifying and incorporating the interests and concerns of those affected by the policy, the range of possible decisions and actions that could be taken as well as the potential effects of those actions, and new information and methods relevant to the decision.

- *Legitimacy*: Participation improves the legitimacy of decisions by ensuring affected parties perceive the process as fair and competent.

- *Capacity*: Participation improves capacity by ensuring participants – including officials and technical experts – become better informed and more skilled at engaging in public discourse, come to appreciate the diversity of values and concerns that others bring to the issue, and develop a common understanding of the technical and organizational constraints and opportunities that frame the decision.

Benefits and Criticisms of Public Participation

When properly executed, supporters of public participation say it can lead to substantially better decisions as well as increased trust and understanding among parties, thereby increasing the likelihood of compliance and reducing the likelihood of protracted court battles. However, critics find that in too many cases, public participation amounts to little more than a formal requirement that takes considerable time and resources without providing real influence over a decision. In other cases, it may devolve into political manipulation by interest groups that dominate the discussion or seek to slow or weaken

decision making. Some methods of public participation have been criticized for not providing thoughtful opportunities for social learning and consensus-building, meaningful integration of public opinion into final policies, or for inadvertently restricting the participating "public" to the usual, well-informed stakeholder advocates (Meadowcroft 2004; Irvin and Stansbury 2004; Holden 2011; Innes 2010). Environmental decisions often are based on complex technical information with substantial uncertainty; if the public incorrectly or incompletely interprets this information, participation may lead to the development and adoption of substantially worse outcomes (Dietz and Stern 2008; Steel and Weber 2001; Webler and Tuler 2006). A summary of the potential benefits and drawbacks of public participation is shown in Table 1.

Table 1. Potential Benefits and Drawbacks of Public Participation[3]

Potential Benefits of Public Participation	Potential Drawbacks of Public Participation
Improved quality of environmental policy decisions, because better informed by public knowledge and concerns	Worse quality of environmental policy decision; process influenced by dominating interest groups or ill-informed participants
Improved legitimacy of policy decision; improved trust between public and government officials and easier implementation	Decreased trust and increased hostility between public and government; participation efforts are merely ornamental and do not influence decision
Increased capacity of participants to understand complex issues and engage in informed public discourse; decreased cost of implementing decision	Decreased interest (participation fatigue) in public decisions; process is time-consuming, costly, and dull for both participants and convener; costs not worth the limited benefits

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[3] Sources: Dietz and Stern 2008; Irvin and Stansbury 2004; Holden 2011; Innes 1995

Critical Questions in Public Participation on Environmental Issues

In assessing the role of public participation in local shoreline programs, it is worth

considering several critical questions (or dimensions) of public participation (Fung 2006;

Dietz and Stern 2008):

- Who participates?

In theory, participation enables the development of an informed citizenry and the

transmutation of the will of the people into public policy. Therefore, practitioners are

encouraged to maximize the breadth of participants involved in any process. In practice,

the "public" of public involvement rarely represents the entire populace. While managers

and planners can increase the number of people who take part through the design of a

participation process, members of the public have limited interest and resources

(including time) to devote to any public decision. Even a participation process that uses

best practices to maximize public involvement will never generate complete participation

from community members. As stated by practitioner James Creighton:

> The reality is that people participate when they perceive themselves to
> have a significant stake in the decision being made. That stake may be
> rooted in economics, use, or other direct impacts, or it may be rooted in
> values or philosophy. But people don't participate unless they perceive
> their interests or values to be affected. (Creighton 2005)

This means that the public that does show up can be considered the "interested public"

rather than the general public. Individual participants are more likely to act, and have

their contributions considered, as representatives of their respective interest groups (or to

use a common term, as stakeholders) than as a common citizen (Sabatier and Shaw

2009). A process is more participatory not only when it engages more people, in sum, but

when it engages more types of people, who represent a broader range of interests and perspectives in the community.

- <u>When do they participate?</u>

The public may be engaged to different degrees at different stages of the policy process. For example, an agency may conduct a survey to gauge public opinions prior to beginning development of a policy, may gather information and feedback to inform a technical analysis midway through the process, or may take comments on a developed policy at a public hearing. Early participation allows community input to be integrated into the planning process, influencing policies and decisions as they are drafted, but at this stage, that input tends to be abstract. Input given later in the process tends to be specific and reactionary, for instance feedback on a draft policy, and though it may lead to changes in the final decision, it is less likely to prompt a complete rethinking (Brody, Godschalk, and Burby 2003). In general, a process is considered more participatory as it engages the public earlier in the policy process and at more steps along the way to a decision (Dietz and Stern 2008).

- <u>What are the goals of participation?</u>

Sponsors of a participation process (such as a local government or state agency) may have various expectations about what they gain from involving the public in a policy decision, and there has been considerable debate about what the goals of public participation should be. Specific objectives may include complying with state or federal requirements, learning about citizen preferences, informing citizens about the decision, educating citizens about the subject under discussion, identifying public concerns, gathering local knowledge and experience, encouraging citizen influence in decision

making, and mobilizing a constituency that will support the proposed plan during implementation (Brody, Godschalk, and Burby 2003). Identifying the goals of participation helps determine the kind of process needed; higher-order goals tend to require more participatory processes.

- What is the format and intensity of participation?

Public participation includes a diverse range of activities that vary in the level of involvement they require from participants. Citizens may participate minimally by learning about a decision at an open house presentation, filling out a survey, or sending a written comment. At the other end of the spectrum, they may take part in highly interactive work groups that meet repeatedly or be tasked with evaluating the merits of different proposed scenarios – efforts that may require extensive participant and staff time. The participation process may be limited to a single meeting or may stretch over years (Dietz and Stern 2008). Members of the public also differ in the amount of effort they are willing and able to invest in a participatory process (Irvin and Stansbury 2004). While research has not found direct evidence that any single type of participation method will lead to the best result, in general, processes that incorporate more, complementary types of participation tend to draw more participation from more groups within a community (Brody, Godschalk, and Burby 2003; Fung 2006).

Rowe and Frewer (2005) distinguish public engagement methods based on the flow of information, where public communication involves the transfer of information from the process sponsor to the public, public consultation involves the transfer of information from the public to the sponsor, and true public participation involves a two-way exchange, or dialogue (Rowe and Frewer 2005).

- <u>How influential is participation?</u>

It is also essential that the convener of a public participation process understands, and

clearly communicates, the influence that public input will have on a final decision. This

dimension is tied closely to the goals of the process, and can range from low to negligible

influence, if the agency is only seeking to fulfill a statutory mandate, to situations in

which stakeholder or citizen recommendations have real authority that helps determine

the final decision (Fung 2006). The organization sponsoring a process should only invite

the level of input that it is prepared to use; when participants spend time and resources

developing feedback that agencies do not intend or do not have the authority to use, the

agency may undermine the decision itself and lose trust within the community on future

decisions (Creighton 2005; Fung 2006).

The International Association of Public Participation uses five categories to

delineate increasing levels of responsibility in public involvement and aligns these with

goals and methods: inform, consult, involve, collaborate, empower (IAP2 2007). Table 2

is adapted from that organization and from a similar schematic developed by the

Washington Department of Ecology for the SMP update process, but includes an

additional level for compliance (Washington State Department of Ecology 2011).

Table 2. Public Participation Spectrum

		Comply	Inform	Consult	Involve	Collaborate	Empower
Increasing Level of Public Influence[4]							
Public participation goal		To fulfill the requirements of a state or federal mandate.	To provide the public with balanced and objective information and assist them in understanding the problem, opportunities, and/or solutions.	To obtain public feedback on analysis, alternatives, and/or decisions.	To work directly with the public throughout the process, and to ensure that concerns and aspirations are understood and considered.	To partner with the public in every aspect of the decision, including development of the preferred alternative.	To provide information necessary for making the final decision.
Flow of information		-	sponsor → public	sponsor ← public	**sponsor ←→ public**	sponsor ←→ public	sponsor ←→ **public**
Example methods		Public hearing, public notice	Website, newsletter, open house, public meeting	Written or email comment, survey, public hearing	Workshop, community or stakeholder meeting	Stakeholder advisory group, technical advisory group	Citizen juries
Examples of stakeholders in SMP process		Washington Department of Ecology	General public	All interested parties	Important interest groups, affected parties	Planning commission, key community representatives	Elected officials (city or county council members), Washington Department of Ecology

- <u>How should public participation be integrated with scientific information?</u>

A final consideration is that the role of public participation can be especially

tricky in environmental decisions, which often are based on complex technical

information (and statutorily so, when the use of best available science is required

by mandate). Members of the general public rarely arrive to a new subject with

the expertise to thoroughly understand the specifics and uncertainties of the

science, or with the time and energy to invest in coming to that understanding.

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[4] Source: adapted from Washington State Department of Ecology 2011

The public does have the ability to understand the effects of different scenarios on the issues they value, and may bring important first-hand knowledge about the location or activities affected by the decision. According to Dietz and Stern (2008), scientific expertise and public participation should be reinforcing, rather than adversarial:

> Scientists are usually in the best position to identify and systematically consider the effects of environmental processes and actions. However, good scientific analysis often requires information about local context that is most likely to come from people with close experience with local conditions…. The public cannot make good value judgments without good science, and scientists cannot do good decision-oriented analysis without public input. (Dietz and Stern 2008)

Challenges to integrating science into public participation include ensuring the information is available at the time of the process and adequate to understand the issue, ensuring it is accessible to participants, and communicating the science in a way that is perceived as trustworthy and that neither overestimates nor underestimates the uncertainty of the data available.

Evaluating Participation: Examples

Researchers have conducted numerous evaluations of public participation in specific environmental contexts, including case studies and comparative research, and experienced practitioners have written guidance on how to evaluate public participation. Beierle and Cayford (2002) conducted the most extensive meta-analysis to date, synthesizing data from 239 published case studies of public participation in environmental decisions and evaluating the extent to which each effort achieved five social goals. They found that public participation "made or

substantially changed decisions" (in 58 percent of cases), increased the substantive quality of decisions (in 68 percent of cases), resolved conflict (in 61 percent of cases), "built trust in the process" (in 45 percent of cases) and "educated and informed the public" (in 78 percent of cases). They also found there often were tradeoffs and interaction among goals, and questioned whether certain process attributes might be more likely to lead to successful outcomes (Beierle and Cayford 2002).

In 2008, the National Research Council released a report that assesses whether and under what conditions public participation can achieve the goals detailed above (quality, legitimacy, and capacity) (Dietz and Stern 2008). The report includes many recommendations for managing a public process and ways to diagnose likely difficulties that arise from the context of the decision.

There are fewer examples of evaluation of public participation specific to coastal, marine, or estuarine issues. Ernoul (2010) found that although active public participation is cited as an important aspect of Integrated Coastal Zone Management (ICZM), other contextual factors were more significant in ensuring the long-term sustainability of programs.

In evaluating public involvement in the planning of marine protected areas in California, Dalton identifies the following process elements as contributing to a successful participatory process: Active participant involvement, decisions based on complete information, positive participant interactions, fair decision-making, efficient administration (Dalton 2005).

B.2 Land-Use Planning, Environmental Protection, and Public Participation

Role of Planning in Environmental Protection

The patterns of human development – including the placement and density of homes, industrial development, services, and roads – have a profound impact on both the social and ecological resources of a place. Land-use decisions, planned or otherwise, affect the character of communities and planning directs the way those communities grow, change, and interact over long time spans. As such, these decisions involve numerous, sometimes contentious interests with conflicting values and visions for the space they share. Within this context, the multi-faceted role of a master plan, such as those developed though the shoreline master programs, is described well by Berke, Godschalk, and Kaiser:

> The core purposes of a plan are to offer a consensus-based community vision for future development; provide facts, goals, and policies for translating this vision into a land use pattern; inject long-range considerations into short-range actions that promote a future land use pattern that is socially just, economically viable, and environmentally compatible; and represent a "big picture" of the community that is related to broader regional (and potentially global) trends. (Berke, Godschalk, and Kaiser 2006)

In considering the question, what makes a good master plan?, William Baer identifies eight concepts of the role of the plan in public discourse (Baer 1997). These include several iterations that apply to the shoreline master planning process in Washington state, including:

- plan as vision of a preferred future

- plan as blueprint

- plan as land use guide

- plan as remedy for past destructive or inequitable use

- plan as an expression of community discourse, for which the process of planning is just as important as the plan itself

- plan as a response to state and federal mandate

These concepts can sometimes clash: A plan that is viewed as an aspirational vision by one party may be seen as impractical by the party charged with implementing the plan as a land-use guide or noncompliant by the party evaluating it against a mandate. Contradicting visions for the role of the SMP have played out frequently in update processes to date and can lead to significant delays and controversy (Carson 2007; Batcheldor 2012; Dunagan 2012; Hiegler 2012). Some researchers have argued that because a plan includes both a vision and the strategies for achieving that vision, it should be considered as a "communicative policy act" (Norton 2008; Innes 1995). This means that the articulation of that shared community vision can be distinguished, and judged separately, from the strategies and actions included in the plan. A plan can be judged on its ability to convey that information (based on factors such as its comprehensibility, accuracy, legitimacy, and sincerity), just as it can be judged on the quality of the strategies it contains.

Land-use planning at the local level has been cited as critical to preserving biodiversity and protecting environmental resources (Beatley 2000). According to Samuel Brody, this is because:

The factors causing ecosystem decline, such as rapid urban development and habitat fragmentation, occur at the local level and are generated by local land use decisions…. As a result, some of the most powerful tools that threaten or protect natural habitats are in the hands of county commissioners, city councils, town boards, local planning staffs, and the participating public. (Brody 2003)

Technical information – including species and habitat maps, monitoring data, demographics, and complex model results – provides a strong foundation in the development of a master plan. Increasingly, planners are expected or required by law to use "best-available science" in their decision making. However, other contextual factors ensure that science and other information is applied unevenly, even across communities planning under the same guidelines. In a review of the incorporation of best available science in Critical Area Ordinance updates in Washington state, researchers determined that the role of science and political influence differs by jurisdiction size (Francis et al. 2005). Small communities (1-30,000) relied heavily on scientific information provided by state agencies and non-peer reviewed information; medium-sized communities (30,001-100,000) relied on locally produced information and were more swayed by political influence; while large cities (>100,000) often generated their own peer-reviewed scientific information.

As shown in Figure 1, the master plan must contend with tensions between three objectives: economic growth, equitable sharing of opportunities, and ecological sustainability (Berke, Godschalk, and Kaiser 2006; Campbell 1996).
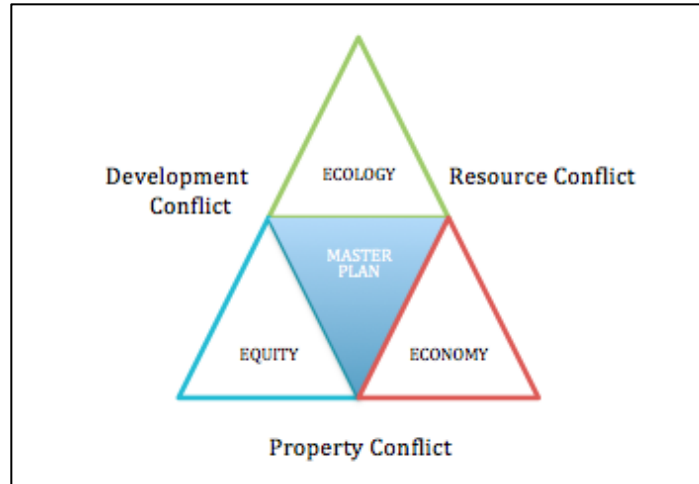
Figure 1. Primary Contradictions Among Common Planning Goals. *Adapted from: Berke, Godschalk, and Kaiser 2006; Campbell 1996*

The "development conflict" arises from competing needs to protect the environment and improve quality of life for poor and otherwise disadvantaged populations within the community. The "resource conflict" arises from competing claims on natural resources, particularly from growth. The "property conflict" arises from competing claims on land to be used for either private or public benefit. Planners must consider and contend with the relative claims raised by all these conflicts as they develop a master plan.

Public Participation and Land-use Planning

As indicated above, public participation is a mandated step in many environmental decisions, and this holds especially true in land-use planning, including the development of master plans. Burby (2003) suggests that plans developed with broad stakeholder involvement are stronger in content and easier to implement because they incorporate greater local understanding and create ownership of the plan among the general public. Despite these suggested benefits,

many planning efforts are generated by technical experts, or are dominated by an "iron triangle" of local government officials, local business and development interests, and neighborhood associations, with little meaningful input from other citizen voices (Burby 2003).

In one of the grandest attempts to evaluate public participation in land-use planning processes, a team of researchers compiled a dataset that compares growth management plans in 10 states (including Washington) (Brody, Godschalk, and Burby 2003). They found that the strong public participation requirements included as part of Washington's Growth Management Act – including the requirement that citizen involvement be "early, often, and continuous" – leads to participation that targets more stakeholder groups and employs more techniques when compared with efforts in other states. The researchers also found that across all programs, processes that emphasized a greater number of objectives (particularly a learning objective), incorporated more types of meetings, employed processes that empowered participants in a decision-making capacity, or used a visioning exercise had a greater level of citizen involvement. Communities were less successful at engaging the public when they relied on a single process:

> While a formal public hearing was the most popular participation
> technique among the local governments in our sample,
> jurisdictions that made this a central feature of their public
> involvement efforts obtained less participation than those that
> focused on other participation techniques. (Brody, Godschalk, and
> Burby 2003)

Brody (2003) built on this research further to test the hypothesis that broad representation of stakeholders in the planning process would lead to higher quality plans that better incorporate an ecosystem-based management framework. He evaluated 30 city and county comprehensive plans in Florida, and found that "despite a strong theoretical justification for broad stakeholder participation… simply having a wide range of participants present in the planning process does not guarantee higher quality plans." Brody speculates that as additional groups are included in the planning process, the need to address competing interests may ultimately compromise the quality of the final plan itself. By contrast, he found that the presence of specific stakeholder groups can have a marked effect on the quality of the plan – notably, that participation by environmental NGOs and resource-based industry groups were associated with a statistically significant improvement on the quality of the final plans.

B.3 Shoreline Master Program Updates

History of the SMA and SMPs

The Shoreline Management Act of 1971 (RCW 90.58) was passed by the Washington state legislature in that year and approved by voter referendum in 1972. The measure was intended to respond to concerns that Washington's shoreline was being developed too quickly and in a piecemeal and potentially destructive fashion, as well as to fears that public access to shorelines would be blocked by private property owners. In the act, the Legislature recognizes the need to balance various uses of the shoreline, stating that: "coordinated planning is necessary in order to protect the public interest associated with the shorelines of

the state while, at the same time, recognizing and protecting private property
rights consistent with the public interest." State guidelines developed for
implementing the SMA (WAC 173-26) outline three overarching policy goals:

- Allow economically productive uses that depend on shoreline location
  (water-dependent uses)

- Preserve and enhance public access and recreation use

- Protect and restore the ecological functions of natural shorelines

Under the guidance of the Department of Ecology (Ecology), local
governments must develop a Shoreline Master Program (SMP) that accounts for
all uses that occur within the 200 feet inland of the Ordinary High Water Mark
(OHWM) as well as in marine aquatic areas out to the jurisdictional border (See
Figure 2).
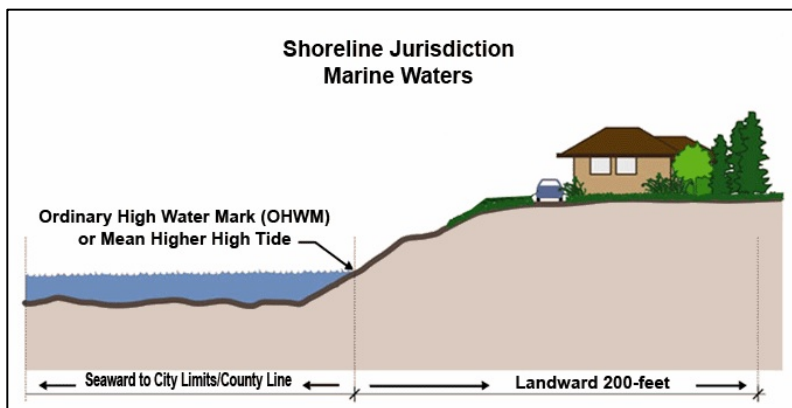
Figure 2. Shoreline Jurisdiction in Marine Waters

These programs must be approved both locally, by the city or county
government, and at the state level, by Ecology. This two-tier approach makes the
SMP process markedly different from Washington's other major land-use
planning law, the Growth Management Act (GMA). A comprehensive plan

developed under GMA, although mandated in many communities, requires only local approval.

Shoreline Planning and Coastal Zone Management

The Shoreline Management Act serves as the foundation of Washington's Coastal Zone Management Program (CZM) in its 15 coastal counties (including the 12 counties that border Puget Sound). The CZM is a voluntary state-federal partnership administered by the National Oceanic and Atmospheric Administration (NOAA). According to the 1992 Coastal Status Report, of Washington's more than 3,000 miles of tidally influenced shoreline, just 31 percent is in public ownership, compared with an average of 50 percent across 29 coastal states.

> Because such a large percentage of the nation's coastline is privately owned, protecting private property rights in the regulation of coastal land and water uses is of paramount importance in the development and implementation of coastal management tools. (Bernd-Cohen and Gordon 1999)

As part of an evaluation of the effectiveness of CZM programs conducted in the 1990s, Bernd-Cohen and Gordon (1999) identified 25 tools and processes that states employ to protect shoreline functions, including the use of coastal development setbacks and construction control areas, shoreline stabilization regulations, access restrictions, critical habitat protections, permit tracking, and land acquisition programs. Washington's program was found to employ 15 of those tools and is one of few states that mandate planning at the local, rather than state level and to combine this planning with local permitting.

Although the Shoreline Management Act had some moderating effect on shoreline development, by the 1990s, the cumulative impacts of several decades of growth were apparent in the continued degradation of water quality and loss of natural beach habitat and public access to the shoreline. Despite significant advances in scientific understanding of shoreline ecology and the passage of the Growth Management Act (GMA), most jurisdictions had not updated their SMPs since the 1970s. The State legislature in 1995 asked Ecology to update its guidelines and integrate shoreline policies under the GMA, and after several rounds of negotiation with stakeholder groups, new requirements were released in 2003 that require all communities to update their local SMPs by 2014.

The update process requires a number of products in addition to the final planning document and takes several years to complete (see Table 3). Ecology provides both technical assistance and grant assistance to local governments during the update process; grant recipients have additional update requirements that are not required under the SMP guidelines.

Table 3. SMP Update Phases

Phase 1	Identify preliminary shoreline jurisdiction and create public participation plan
Phase 2	Conduct shoreline inventory and analysis and shoreline characterization and use analyses
Phase 3	Develop environment designations, policies and regulations, cumulative impacts analysis
Phase 4	Develop restoration plan, revisit Phase 3 products
Phase 5	Local approval
Phase 6	State approval

Public Participation Guidelines

The SMP guidelines require local governments planning under GMA to prepare a

public participation plan that identifies how the county or city will ensure:

> …early and continuous public participation through broad
> dissemination of informative materials, proposals and alternatives,
> opportunity for written comment, public meetings after effective
> notice, provision for open discussion, and consideration of any
> response to public comments. (WAC 173-26 2011)

Ecology recommends that public participation efforts identify key stakeholders

and opportunities for the public to learn about the SMP and provide input, and

articulate the various roles of the public, elected officials, and any advisory

groups that are a part of the process. In its handbook, Ecology identifies 45

potential stakeholder groups, including shoreline property owners, shoreline

recreational user groups, local and regional organizations, tribes, and state

agencies (Washington State Department of Ecology 2011).

Local governments must solicit comments from the public on a draft SMP

prior to local approval, at a minimum by holding one public hearing. They must

engage any local, state, or regional agencies, tribes, or other persons with an

interest in shorelines and maintain a list of "interested parties" as well as a record

of any comments submitted during the SMP update. Once the SMP has been

locally adopted and turned over to Ecology for evaluation, Ecology holds its own

comment period and may hold an additional public hearing if state managers

determine that the public process was insufficient, that there may be remaining

controversy, or that some interested parties were not heard during the local

process (Bouta, personal communication, March 23, 2012).

Although the public participation plan is a required element of the SMP update, Ecology does not conduct an extensive review of this plan as part of their evaluation. Rather, local governments meet the requirement as long as they have a plan and it seems to include a reasonable proposal for outreach with the public. The agency can and does provide recommendations to local planners on ways to improve their public outreach strategies, but cannot require any additional measures other than the minimal elements included in the guidelines.

Several aspects inherent in the SMP update process increase the difficulty local governments face in hosting the public participation process (Dietz and Stern 2008). First, because the final decision-making authority is shared between the local governments and the state, there may be a lack of clarity on the purpose of the process and the timeline required to come to a decision. Second, the strict directives provided in the SMP guidelines significantly reduce the openness of the decision process – without clear guidance on these limits, participants may come to a consensus that cannot be allowed into the final plan. Third, the geography of some areas (such as San Juan County, which consists of multiple islands served by limited ferry service) may limit the inclusiveness of the process as distance and travel routes make it difficult for members of the public to attend events. Fourth, in communities where stakeholders are unorganized or hard to reach by the usual communication tools (public notice, public meetings, etc), the discussion may not be truly representative of the range of public values that exist in the community. All of these challenges can be overcome to some extent in the design of the public process, through the selection of participation methods, and through

communication about the process, but whether they are addressed in practice often depends on the experience of the planners involved and the resources and staff available.

No Net Loss and Policies Protecting Marine Shorelines

The 2003 SMP guidelines were the first state rule to incorporate the standard of "no net loss" as a measure for environmental protection. Any shoreline development – be it a new housing complex, a shipping terminal, or a waterside trail – can be expected to have some impact to ecological function. No net loss, as a concept, allows planners to balance the three competing goals outlined in Figure 1 above (page 19) – by holding that although development patterns may change, and new development occur, the overall condition of shoreline functions must remain the same as the SMP is implemented. Impacts from new development should be minimized through site design, and those impacts that cannot be avoided should be mitigated or restored, either on the same site or nearby (Washington State Department of Ecology 2011).

Ecology has developed several potential indictors for measuring no net loss in marine ecosystems included in the SMPs. These include the linear length of hard shoreline structures, such as bulkheads, seawalls, revetments, and groins[5]; linear length of marine riparian vegetation buffer; acres of permanently protected areas; the number of new piers, docks, and floats; the number of shellfish acres closed by water quality issues; the area of impervious surface within the 200-foot

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[5] Bulkheads and seawalls are vertical walls, with bulkheads generally distinguished because they are designed to retain soil or fill; revetments are hard protection placed on the surface of a slope; groins are structures built perpendicular to a shoreline to disrupt the alongshore drift of sediment.

shoreline zone; the percent cover of invasive species in riparian zones; and the area of seagrasses and kelp.

Local governments use information gleaned from an extensive inventory and characterization of their shorelines to classify different areas in environment designations based on their current use patterns and physical character. The SMP guidelines recommend a system of six classifications, with the following descriptions:

1. *High-intensity*. To provide for high-intensity water-oriented commercial, transportation, and industrial uses while protecting existing ecological functions and restoring ecological functions in areas that have been previously degraded.

2. *Shoreline residential*. To accommodate residential development and appurtenant structures and to provide appropriate public access and recreational use.

3. *Urban conservancy*. To protect and restore ecological functions of open space, floodplain, and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses.

4. *Rural conservancy*. To conserve existing natural resources and valuable historic and cultural areas in order to provide for sustained resource use, achieve natural floodplain processes, and provide recreational opportunities.

5. *Natural*. To protect those shorelines that are relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant of human use.

6. *Aquatic*. To protect, restore, and manage the unique characteristics and resources of the ordinary high water mark.

Although the SMP guidelines encourage the use of these six standardized designations, communities also have the option to create additional or alternative designations if they feel these six do not adequately capture local conditions. Cities and counties have exercised this option to slightly modify the standard designations (for example, renaming High-Intensity as Urban, or combining the Urban and Rural Conservancy designations). Some jurisdictions have created entirely unique, special designations for historic waterfront areas, or sections of shoreline that are dominated by a particular use, such as a mining operation or a large park (see Figure 3. and Figure 4. for examples from Anacortes and Mukilteo).

The creation of special designations can help to customize an SMP, so that it is more specific to the community and its particular vision for its shoreline, but, as discussed below in the results section, it is harder to compare these areas among different communities and makes it more difficult for state regulators and outsiders to determine what regulations are appropriate within that specially designated area.
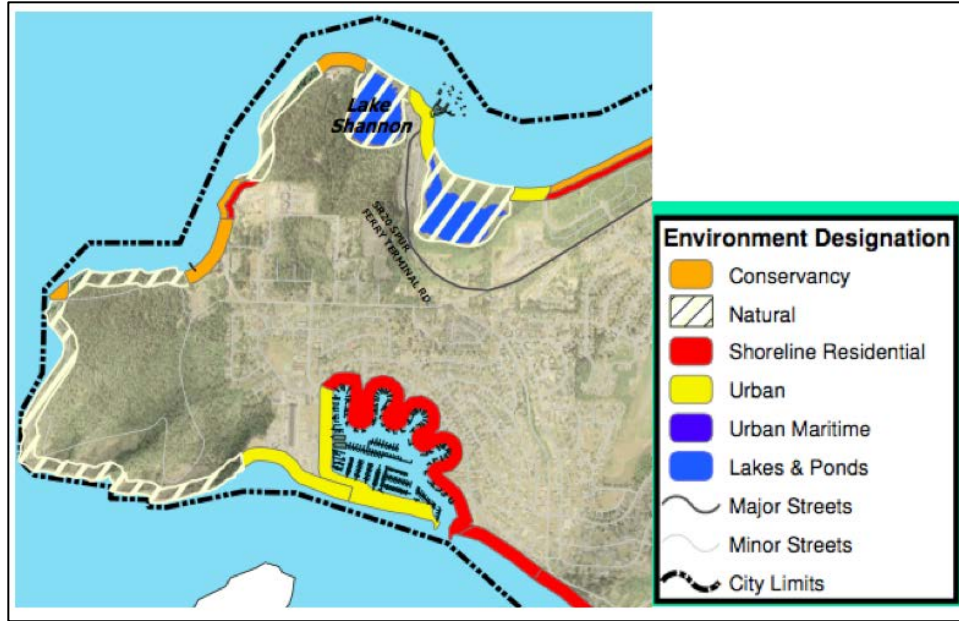
Figure 3. Shoreline Environment Designations for City of Anacortes. This map detail from Anacortes' SMP shows the use of standard designations, including Shoreline Residential and Natural, as well as the use of several slightly modified designations, including Conservancy, and Urban.
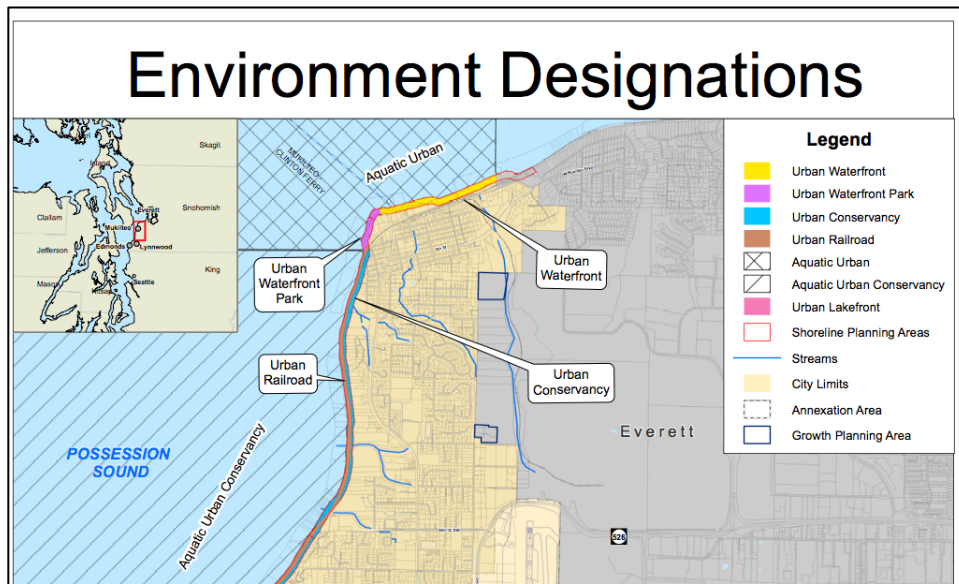
Figure 4. Shoreline Environment Designations for City of Mukilteo. This map detail from Mukilteo's SMP shows the use of several unique Environment Designations, including Urban Waterfront, Urban Waterfront Park, and Urban Railroad.

Once the segments of its shoreline are categorized, the jurisdiction then sets management policies that regulate shoreline uses within each environment designation. The goal is to allow only those uses that are compatible with and appropriate to the existing condition of that shoreline area, and to identify where certain uses may require special permitting and review or be prohibited outright. The list of uses covered in SMPs includes everything from agriculture and commercial development to parking and utility placement, as well as rules for how development that is allowed must be designed. Below, I highlight a few policies that pertain to the protection of marine shoreline functions:

- *Marine riparian vegetation buffers*. The loss of native vegetation along the shoreline can lead to increased temperature and erosion and reduce the amount of organic matter that falls into the beach intertidal area – effects that can harm nearshore-dependent creatures like forage fish and salmon. Jurisdictions can set minimum buffer widths along shorelines, within which vegetation must be maintained – many cities and counties incorporate the buffers set in their Critical Area Ordinances into their SMPs.

- *Development setbacks*. Setbacks are recognized as a key regulatory tool because they "provide a clear signal to landowners that the area seaward of the setback is off-limits to certain development and, therefore, a resource protection area" (Bernd-Cohen and Gordon 1999). Minimum setback standards require that structures, including homes, not be built right up to the shoreline, where they may eventually require protection in

the form of shoreline armoring. In the SMPs, water-dependent uses are generally and water-oriented uses are sometimes exempt from setbacks.

- *Shoreline armoring or shoreline stabilization*. Shoreline armoring helps protect property and infrastructure by replacing a dynamic, shifting beach environment with a stable structure – such as a concrete wall. Hard armoring can alter beach sediment and wave dynamics and exacerbate erosion as it cuts off a natural source of sediment. Local governments can prohibit or limit the construction of new armoring in their SMPs or require that property owners consider soft stabilization measures. The SMP guidelines exclude single-family homes from these regulations, and armoring may be allowed when the owner can prove the property is at risk by providing a geotechnical report.

- *Over-water structures*. The proliferation of over-water structures, including docks and piers, can alter beach sediment patterns and shut out light needed by benthic organisms and aquatic plants like eelgrass. Local governments can prohibit or limit the number of new over-water structures, for example, by allowing only community docks rather than docks for single-family use.

A hypothetical example may help to illustrate the relationship between shoreline environment designations and shoreline use policies. A property owner whose land is located in a length of shoreline designated as High-Intensity or Urban may be allowed to develop closer to the shoreline, with only a 25- or 50-

foot building setback, may be allowed to protect that development with hard armoring, and may have few requirements on the amount of vegetation that needs to be maintained in that setback area – all because the surrounding area is already heavily developed. He may be prohibited from building a new dock that might impede boat traffic. If instead the same size property is located in an area designated Conservancy, he may be prohibited from building closer to the shoreline than 150 feet, and may be required to leave the native vegetation in that shoreline buffer in place. He may be encouraged to work with other neighbors to build a community dock, rather than his own, and may not be allowed to build a new bulkhead without proof that his structure is at imminent risk from erosion.

Once a locally approved SMP comes to Ecology for review, the department goes through a checklist to ensure all the required elements are present, and evaluates whether the plan meets the no net loss standard. The process for determining whether a plan will achieve no net loss is subjective. According to Cedar Bouta, an Environmental Planner with Ecology, "There is an assumption that if they've done the work, and if all the pieces are there, then it should add up to no net loss. But we won't know, so they also have to have a way to go back over time" (Bouta, personal communication). The strength of the plan, in the protection that it provides to marine shoreline functions, resides in the attention that is given to how shorelines are designated, and what uses are allowed or prohibited within those designations. [6]

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[6] This glosses over the issues of implementation and enforcement of the plan, once it is approved, which arguably have a greater impact on the long-term protection of shorelines. Those aspects of shoreline master planning, though very important, are beyond the scope of this research effort.

C. METHODS

C.1 Research Questions & Hypotheses

As outlined in the previous two sections, public participation plays an important role in environmental decision making and in the development of land use plans, and has the potential to improve both their substance and legitimacy, if the participation process is designed and managed in a way that enables public feedback to truly inform management decisions. However, the role of public participation can be complicated when the subject under consideration is a complex technical issue, and when the science contradicts the values held by those who participate.

The update of shoreline master plans in Washington State provides a unique opportunity to investigate this dynamic: local jurisdictions are required both to solicit public input and to meet technical state standards for no net loss in the shoreline environment. Further, though cities and counties that undertake the update are obliged to engage a broad range of community members in the SMP update process, how they go about doing so is not dictated beyond the requirement to hold a single public hearing. Each community can design its public participation effort as it sees fit.

In this sense, the update process can be considered an ideal setting for the sort of "quasi-experimental" study called for by the National Research Council in their 2006 panel report (Dietz and Stern 2006). Such was the inspiration for this research effort: because all SMPs must meet the same state guidelines, this presented an opportunity to explore the different approaches to public

participation taken by communities, and then to investigate whether these approaches led to any discernable variation in the substance of the final SMPs. Would jurisdictions only meet the minimum standards for public engagement (a single public hearing), or would they do more to bring broad community input into the process? Would that participation effort be treated mostly as a formality, and the policies of the SMP a foregone conclusion, or would public values expressed through that process substantially change the SMPs that emerge? Most importantly, would the updated plans truly provide greater ecological protection of shorelines and support ecosystem recovery efforts, as promised? How would those greater protections mesh or conflict with the public's vision for shoreline use?

The data and information collected as described below were analyzed to address the following research questions:

1. How much variation is there among SMP public participation plans, in terms of the objectives of public involvement, the number of techniques employed, and the number of participant groups targeted?

2. To what extent do updated SMPs contain policies that aim to preserve marine ecosystem functions, protect saltwater habitat, and limit shoreline modification?

3. How well do updated SMPs incorporate public values expressed through the public participation process?

4. Does public input influence the strength or weakness of plans for shoreline protection and restoration? Do some types of processes *work better*?

The latter two of these questions address the goal, identified above, that public participation should improve the *quality* of environmental decisions (Dietz and Stern 2008). In the context of the SMP updates, the quality of the final plan can be judged from two aspects[7]: first, as the extent to which the SMP includes and reflects information, decisions, and solutions that are relevant and workable in the community where it will be implemented; and second, the extent to which the policies included in the SMP actually support the ecological protection of shorelines. In the first instance, a "good" or high-quality plan is one that delivers a "consensus-based community vision" as described earlier by Berke, Godschalk, and Kaiser (2006), while in the second, a "good" plan is one that delivers the greatest environmental protection according to science, whether or not that is in the interest of the community itself.

These two definitions of plan quality may be complimentary, if the community has a vision of environmental protection, but they are not necessarily so – a planning process that successfully engages a broad range of competing interests can result in a plan whose environmental strength is diluted through compromise. Brody (2009) found that "despite the strong theoretical justification for broad stakeholder participation… simply having a wide range of participants present in the planning process does not guarantee higher quality plans [that meet the standards of ecosystem-based management]." This outcome led him to suggest:

> It may be that planners could have to make a choice between
> generating high-quality environmental plans or generating plans
> that will be supported and implemented in the future.

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[7] At least.

In the case of the shoreline master program updates, planners may have to make a choice between fully integrating the public values gathered through the requirements for "early and continuous" public participation[8], and generating plans that meet the no net loss environmental standard set by state guidelines. The motivation for this study was to investigate whether such a conflict exists.

To determine whether public participation affects the quality of shoreline master programs, particularly the strength or weakness of those plans regarding marine shorelines, I proposed to test the following two hypotheses:

Hypothesis 1: A more participatory public process will result in a plan that better incorporates public values.

Hypothesis 2: A more participatory public process will result in a plan that is less protective of marine shorelines and saltwater habitats.

In this analysis, a more participatory public process is defined as one that requires more intense participation, involves broader representation from the community, and incorporates a greater number of participation formats or methods. As discussed above, a process with these facets may be more time- and resource-intensive, but could yield a decision that is more reflective of the public's concerns and interests, and thus will be easier to implement (Dietz and Stern 2008; Beierle and Cayford 2002). However, a more participatory process may introduce concerns from stakeholders impacted by environmental regulations that,

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[8] As discussed earlier, in theory, a plan that fully integrates public input would have greater legitimacy with the public, and therefore would have greater support in the community.

when considered in the public process, may lead to compromises or exceptions to strict guidelines that weaken the overall environmental protectiveness of the policies (Dietz and Stern 2008; Irvin and Stansbury 2004).

C.2 Study Sample Selection

This study considered the 46 local jurisdictions (12 counties, 34 cities and towns) in Washington State that have marine shoreline bordering Puget Sound and that are required to update their shoreline master program by 2014.[9] The author visited the website and/or directly contacted the planning or other relevant department of each jurisdiction to assess the current status of the SMP update and gather relevant documents.

Based on this information, the jurisdictions could be placed in three tiers, depending on how far along in the process they were (see Figure 5):

1. Puget Sound-bordering jurisdictions with a completed public participation plan (Total: 46).

2. Of those 46, jurisdictions with a locally approved draft plan, as of December 1, 2012 (Total: 23).

3. Of those 23, jurisdictions with a state-approved final plan, as of December 1, 2012 (Total: 10).

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[9] The city of Everett borders Puget Sound, but under an agreement with the state, is not required to update its SMP by 2014, and so is not counted here.
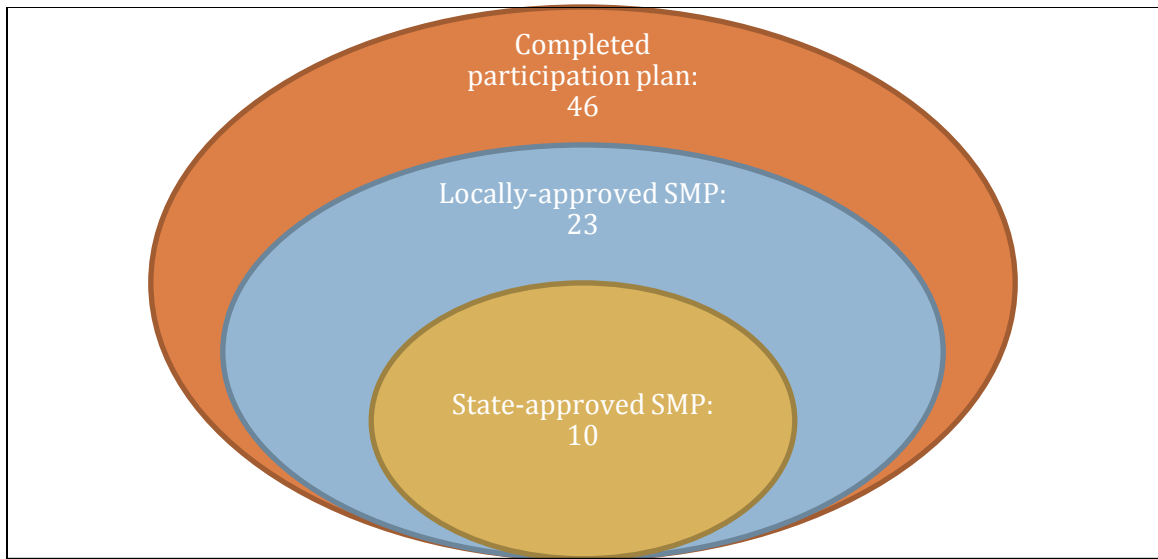
Figure 5. Number of Jurisdictions in Study, Based on Stage in SMP Process.

Although many facets of the SMP update processes could be studied by a review of documents from the jurisdictions included in the study (as further detailed in the following section, C.2), the author determined that a more nuanced view of the particular challenges of the SMP update process could by gained by focusing on a few example communities. This study focused in greater depth on the SMP update process for three communities: Anacortes, Mukilteo, and Tacoma. These three communities were selected to represent a geographic and demographic range, and based on the availability of key documents and interview subjects.[10] Two focus communities had completed their SMP process and received state approval (Anacortes and Mukilteo) and one had a locally approved plan but was awaiting state approval, as of December 1, 2012 (Tacoma). Collectively, the three communities represent a diversity of shoreline issues, approaches to the SMP update, and approaches to public participation.

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[10] Several additional communities were initially considered to be included as case studies, but the planners involved in the update either had left their job or did not respond to requests for an interview.

Appendix 1 includes a table of the SMP status and demographic information for all communities within the study population.

C.2 Data and Methods

The SMP update process spans several years, and the associated public participation processes take place over that entire period, thus it was not feasible within the time constraints of this thesis to follow each SMP process in real time. Much of that effort is documented and, thanks to Washington state's robust public records rules, available for review. Local jurisdictions must retain records, not only of the plans they develop, but of all the public comment on those plans. Public meetings in which officials discuss the SMP update and take public comment are often recorded (audio and/or video), and meeting minutes or summaries often are available. Some jurisdictions go further, organizing feedback on a plan into a spreadsheet form called a comment matrix that also tracks the jurisdiction's response to the feedback, including whether or not a change was made to the plan. In addition, the state SMP guidelines require that local jurisdictions compile a list of "interested parties" that includes all those people who are interested in receiving information about the SMP update.

Because of these practices, there is a wealth of information available to researchers interested in public decision-making, much of it available from the jurisdiction's website or by request to the planning department. For this study, the author downloaded or requested copies of the SMP public participation plan for all 46 Puget Sound-bordering communities undergoing the SMP update, and received 38. From communities that had a locally or state-approved SMP, the

author additionally requested copies of draft and final SMPs, as well as the list of interested parties and any comment matrixes, public meeting summaries, or other public comment documents related to the SMP update. The quantity and quality of public comment information varied considerably among communities.

Although these documents provide an empirical view of public participation in various SMP update processes, this picture is limited to what was physically recorded. Although all communities retain some record of public comment, there is a great deal of variation in whether (and how well) they document how public input was considered or incorporated in the development and revisions of the SMP. This is particularly true for early stages of SMP development, when public input is more likely to concern high-level values that form the philosophical backbone of the SMP, rather than specific text revisions that arise as later drafts of the SMP are released.

In addition, publicly-available documents alone could not adequately capture the local context in which these SMP updates occur. Planning processes never play out in isolation, and factors such as the general level of engagement in the community on public matters, the history of trust among different stakeholder groups and the local government, experience of planning staff, or whether it is an election year for local officials can influence both how planners design a public process and how that input is integrated into any final decisions. Because of these considerations, the author determined that interviews with key players in the SMP updates could provide additional detail and context about both the SMP update process in general and within the specific focus communities.

Data for this study were obtained through content analysis of key

documents and of transcripts from targeted interviews with participants in an

SMP public process. This method is described below. By taking a two-pronged

approach that combined the analysis of objective and subjective data, the author

attempted to investigate both the substance of how public input influenced SMP

development, as well as how participants and planners viewed that process and

their own role within it.

Content Analysis

Since the 1950s, content analysis has been favored as a research technique for

drawing conclusions from texts or recorded messages, such as books, speeches,

historical documents, newspaper articles, interviews, advertising, or any other

type of media. Content analysis is defined as:

> A set of methods for analyzing the symbolic content of any
> communication. The basic idea is to reduce the total content of a
> communication…to a set of categories that represent some
> characteristic of research interest. (Singleton and Straits 1999)

To conduct a content analysis, a researcher develops a set of codes or categories

to describe the content of the text, and uses those codes to make inferences about

the message in the text itself, its creator or intended audience, and/or the culture

from which it emerged. Because of its flexibility, content analysis has been

applied in a wide range of fields, including to detect bias or propaganda in the

media, to study shifts in public opinion, or to track the evolution of an idea. Of

relevance to this study, content analysis is a technique used both by public

participation practitioners (i.e., to detect and track the frequency of themes in

public comment on a controversial decision, see Creighton 2005) and by researchers interested in evaluating land use master plans (Brody 2003; Berke, Godschalk, and Kaiser 2006).

Content analysis, as characterized by Berg (2001) blends elements of quantitative and qualitative data analysis. For both types of content analysis, the unit of analysis depends on the subject matter – a word, phrase, theme, or concept. In its quantitative form, sometimes referred to as conceptual or thematic analysis, a unit is identified and its existence or frequency in the text is counted or ranked. Those counts then can be analyzed using simple descriptive statistics (mean, median, spread) or more complicated multivariate or clustering statistics, depending on the data available and the research question. Although quantitative content analysis provides useful, comparative information, it can be reductive – by reducing a complex human expression to frequency counts, the researcher may overlook its broader meaning. Content analysis also is used to investigate more widely the relationships among concepts in a text – this qualitative form is sometimes called relational analysis (Busch et al. 1994).

The heart of a content analysis hangs on the development of codes to categorize the data. These codes can be identified *a priori*, based on an understanding of the subject matter being studied, or they can emerge through examination of the data – often, researchers use a combination of preexisting and emergent themes. Categories must be independent, mutually exclusive, and exhaustive – that is, they must cover all relevant aspects of the data without overlapping.

Advantages of using content analysis as an investigative method include that it is (mostly) unobtrusive and makes use of easily accessible data (such as public records), and that it enables efficient and systematic study of processes that occur over long periods of time and involve large volumes of data (Berg 2001). These factors made this method well suited for the study of public participation processes in Washington's SMP updates.

The disadvantages of content analysis include that it can be very time consuming to appropriately categorize and code large amounts of material, and that the researcher is limited to using available, recorded messages or documents. Quantitative conceptual analysis in particular is criticized for reducing the substance of a text to word counts, and for disregarding the context in which a document was produced and the effect it may have on its audience (Busch et al. 1994, Berg 2001). Further, while content analysis can track the proportion and frequency of a concept or term, it is not effective at determining causal relationships, and the researcher must be careful not to infer causation when there is only correlation.

The process of defining categories and codes is subjective, and raises issues of reproducibility in studies that rely on content analysis. Assessment reliability is another common issue in content analysis and concerns the consistent interpretation and use of terms and concepts throughout a study, particularly when the analysis is completed by different people who may make different judgments on the application of codes and themes. This issue was addressed in part for this

study because all analysis was conducted by a single coder, the author (Norton 2008).

SMP Documents

Key documents gathered for the content analysis included public participation plans, draft and final shoreline master program plans, and lists of "interested parties" for each jurisdiction. For the focus communities, additional documents included public comments, public meeting summaries, and public comment response matrixes that demonstrate how the local government responded to each comment. These documents were analyzed, or coded, according to an evaluation protocol to identify the variables described below in section C.3.

Availability and interpretation of documents turned out to be a greater challenge than anticipated at the start of this study. Public participation plans were acquired from 38 of the total 46 SMP communities that ought to have completed them. Comment matrixes were only available from a few communities, and without this kind of documentation, it was difficult to track how individual public comments (many of which were recorded and available) may have been integrated into SMP plans. This lack of quantifiable information made it difficult to calculate how public values were incorporated into the final SMPs.

Interviews

Between June and December of 2012, the author conducted 15 semi-structured interviews with individuals who had participated in one or more SMP update processes. Interview subjects included local planning officials involved in the SMP update in one of the three case study communities, participants in those

processes who represented different potential public values (environmental, business, property rights, recreation), as well as representatives from regional stakeholder groups that provided input to multiple program updates. In addition, the author conducted one background interview with a representative from the Department of Ecology.

Interviews were conducted in-person and by phone. They lasted between 12 to 90 minutes and were recorded with the permission of interviewees, and later transcribed by the author. Interviewees were asked a mixture of open-ended, yes/no, and scale questions (rank 1-5), including:

- what led them to participate in the SMP update process,
- what they thought were the most important shoreline issues in their community,
- whether they had learned anything new about shoreline science or views in their community by participating,
- how well they thought the approved SMP reflected the public values raised during the process,
- how well they thought the approved SMP protected marine shorelines and saltwater habitats, and
- what they thought could have been improved about the process.

Local planners were asked additional questions about:

- the city or town's goals for public participation,
- whether specific interest groups were targeted for participation,
- whether the participation strategy changed during the planning process,
- how public input was incorporated into the SMP, and
- what existing shoreline issues preceded the SMP update.

The complete list of interview questions is available in Appendix 2.

To analyze the interview data, each interview was transcribed from the audio recording and notes. A thematic code was developed for specific concepts and keywords that came up either in response to each question, or in the general conversation. These codes were used to assess the frequency of different themes and keywords that arose during the interviews.

For example, in reviewing responses to the question, What do you think are the most important issues related to shoreline use in your community?, several common themes came up repeatedly, including:

- working waterfronts
- public access
- restoration
- recreation and tourism opportunities
- economic development
- property rights
- permitting concerns

Quotations from interview subjects that mentioned these concepts were collected under each theme to be used in the analysis discussed in Section D.3. For responses to yes/no or scale questions, such as, How well does the final SMP reflect public values raised during the update process, on a scale of 1-5?, it was possible to compare and analyze both the numeric responses, and any themes that came up as the subject elaborated on their answer.

C.3 Criteria for Analysis

Several dependent, independent, and context variables were defined and measured to conduct the analysis. A summary is given in Table 4, with each variable described in detail below.

Table 4. Variables Measured for Analysis of Shoreline Master Program Updates

Variable Name	Type	Measurement	Source
Public Participation			
Intensity	Independent	**# of objectives*[11]**, # of meetings	Participation plan, public records
Breadth	Independent	**# of groups targeted***, # of contacts	Participation plan, public records
Process type	Independent	**Stage (1-3) of initial participation***, **# of methods used***, types of methods used	Participation plan, public records
Participatory Score	Independent	**Average of the Intensity, Breadth, and Process type scores***	
Plan Quality: Public Values	Dependent	% comments incorporated, interview scale ranking (1-5), # of unique environmental designations	Public comments, final plans, interviews
Plan Quality: Environmental Protection	Dependent	Interview scale ranking (1-5)	interviews
Setbacks	Dependent	**Setback (ft) ***	Final SMPs
Armoring	Dependent	**Whether permitted***	Final SMPs
Overwater structures	Dependent	**Whether permitted***	Final SMPs
Ecological Score	Dependent	**Average of the Setback, Armoring, and Overwater structures score***	
Context Variables			
Community resources	Independent	Population	US Census
Density	Independent	Population density	US Census
Development demand	Independent	Population growth, 1990-2010	US Census
Wealth	Independent	Median home value	US Census
Wealth	Independent	Median income	US Census
Shoreline concern	Independent	Miles of shoreline	n/a
Port concerns	Independent	Port district	WPPA

[11] Measurements that are marked as **bold*** indicate those that were used in the calculation of the Participatory and Ecological Scores and statistical analysis.

Public Participation Process

I measured attributes of the public participation process mainly through a review of the public participation plans, and, where available, from information on the actual processes employed. Although I recorded each attribute for each jurisdiction whenever available, not all variables were used in the final analysis. My goal was to develop measurements that represented the intensity, breadth, and methods employed in each jurisdictions participatory process.

Indictors of intensity included the total number of objectives identified in the participation plan (up to a maximum of seven: comply, inform, consult, educate, involve, collaborate, empower [for descriptions of each objective, see Table 2]) and the total number of meetings planned and actually held. To create a single Intensity score, I divided the number of objectives identified in the participation plan by the maximum number noted for any single plan (6).

Indicators of breadth included the total number of groups identified in the participation plan, the number of contacts on the final "interested parties" list, and the total number of comments submitted. To create a Breadth score, I divided the number of groups identified in the participation plan by the maximum number noted for any single plan (129).

Indicators of the process type included the stage at which citizens were first involved in the process (3=preplanning, 2=planning, 1=postplanning), the total number of participation methods used, the kinds of methods used (inform, consult, educate, involve, collaborate, empower), and whether a Citizens

Advisory Committee[12] (CAC) or Technical Advisory Committee (TAC) was formed for the planning process. I calculated a Stage score, using the stage ranking divided by three, as well as a Process score, which noted the number of participation formats identified in a public participation plan divided by the maximum listed in any plan (22).

To develop a Total Participatory Score, I took an average of the Intensity, Breadth, Stage, and Process scores for each jurisdiction. An example of this calculation for the city of Anacortes is included below, in Table 5.

Table 5. Example Calculation of Participatory Score

ANACORTES			
	# of objectives	Max # of objectives	Intensity Score
Intensity	4	/6	0.67
	# of groups	Max # of groups	Breadth score
Breadth	26	/129	0.20
Process	Stage	Max stage	Stage Score
	3	/3	1
	# of formats	Max # of formats	Process Score
	10	/22	0.45
Sum of Scores			2.32
			/4
Participatory Score			0.58

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[12] This refers to a citizen or stakeholder committee that is distinct from the planning commission.

Plan Quality: Public Values

As a part of this study, I intended to assess how well a jurisdiction incorporated public values into its SMP by reviewing public comments submitted on the draft plans and whether these comments led to changes in the plans. In communities that provided a clear responsiveness matrix that summarized comments and how they were addressed, I could assess whether each comment was incorporated in full, incorporated as a compromise, or rejected.

Unfortunately, detailed responsiveness matrixes were not available for many communities, and even where they did exist, could not be considered as inclusive of all public input made throughout the update process. For example, public input gathered at earlier stages of the update process, including during visioning sessions, typically is abstract, and its influence on the developed document is harder to track than a specific change that may be requested in a draft document. These early comments, however, may do more to influence the overall tone and shape of the document, and the values it represents, than a more specific comment, which results in a smaller, cosmetic adjustment. I considered two alternative factors for this category, including whether a local government developed one or more distinct environment designations. As discussed above, a jurisdiction may develop a unique environment designation to account for some valued characteristic of its shoreline that is not well described by the standard six classes. A community that values its marine industry may create a "Maritime" designation, while one with a historic downtown may create a "Historic Waterfront" category, and thus incorporate that community priority into the plan.

This variable was one I could track for all SMPs, but was rather limited as a proxy for the incorporation of public values into SMPs.

In addition, I looked to information gathered from interviews, particularly whether planners and participants felt the final plans incorporated public values (and how they ranked them on a scale of 1 to 5), and whether planners could articulate examples of how public input had changed the SMP. This information was both subjective (in that it relied on how well subjects thought public values were reflected in the final plans) and very limited (because it was only available for the three focus communities in which I conducted interviews).

Ultimately, I was not able to quantitatively assess how well public values were incorporated into SMP updates, or whether different participatory processes had any effect on that transfer. This means I was not able to test Hypothesis 1: "A more participatory public process will result in a plan that better incorporates public values." However, the interviews and documents reviewed provided some context for this question, as discussed more fully in the Discussion section.

Plan Quality: Environmental Protection

I evaluated the quality of the SMP in protecting marine shoreline functions and saltwater habitat by considering the regulations described in the final plan for four critical policies: marine vegetated buffers, development setbacks[13], shoreline armoring and hard stabilization[14], and overwater structures, specifically docks and piers. To make these policies comparable across different SMPs, it was important

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[13] Where different setbacks were set for different uses, I used the setback for single-family residential development.
[14] Where different regulations were set for different types of shoreline armoring, I used the regulation on bulkheads.

to break them out by environment designation (for example, comparing setback requirements in an Urban area to other Urban areas, rather than to Natural or Conservancy areas). For each draft or final SMP, I recorded the following:

- whether vegetated buffer requirements were included (Y/N);

- the length of the buffer and/or setback[15] for each environment designation;

- whether shoreline armoring was considered a permitted, conditional, or prohibited use, within each environment designation; and

- whether docks and piers were considered a permitted, conditional, or prohibited use, within each environment designation.

Where the program indicated a variety of lengths or use regulations within a designation, I used the least protective one for comparative purposes. I also noted the exceptions to these regulations included in the plan. As described above, the use of non-standard environmental designations was noted, and I recorded the regulations for each policy within these special designations, but they were not strictly comparable to one another.

To develop a summary score for the environmental protectiveness of the final plan that would be comparable to the Participatory scores, I combined information about the different policies in each SMP. To create a Setback score, I scored each environment designation (1-9), based on how protective the setback was, as detailed in Table 6.

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[15] Some jurisdictions apply a setback from a buffer; in these situations I calculated the total setback as including both regulations, such that an area with a 150-foot buffer and a 10-foot setback was noted as a 160-foot total setback. In jurisdictions that do not treat setbacks in addition to buffers, the total setback is equal to the standard setback, even if a buffer is incorporated within that area.

Table 6. Key for Setback Scores

Setback Width (ft)	Score
200+	9
175-199	8
150-174	7
125-149	6
100-124	5
75-99	4
50-74	3
25-49	2
1-24	1

Since each jurisdiction could have a different number of environment designations, I took the sum of these setback scores, then averaged that number by the number of environment designations used by the jurisdiction. I divided this average by the maximum possible setback score (9) to calculate the final Setback score. This process is demonstrated with an example for one city in Table 7.

Table 7. Example Calculation of a Setback Score

ANACORTES		
Environment Designations (ED)	Setback (ft)	Score
High-Intensity/Urban	25	2
Shoreline Residential	60	3
Urban Conservancy	n/a	n/a
Rural Conservancy	100	5
Natural	200	9
SUM		19
/# of Standard EDs		/4
Setback Average		4.75
/Max Score		/9
Setback Score		**0.53**

In a similar vein, I calculated an Armoring Score by looking at whether

hard armoring (particularly bulkheads) were permitted, conditionally permitted, or

prohibited within each environment designation, and assigning a score as outlined

in Table 8.

Table 8. Key for Armoring and Overwater Structure Scores

Use Permission	Score
Permitted	1
Conditionally permitted	2
Prohibited	3

Similar to the Setback score described above, I took the sum of these

scores, divided it by the number of standard environment designations used by the

jurisdiction to get an average score, then normalized this number by dividing it by

the maximum possible amount (3). An identical calculation was performed to

calculate a score for Overwater structures (docks and piers). An example of these

calculations is provided in Table 9**.**

Table 9. Example Calculation of Armoring and Overwater Scores

ANACORTES				
Environment Designations (ED)	Armoring	Score	Overwater structures (docks/piers)	Score
High-Intensity/Urban	Permitted	1	Permitted	1
Shoreline Residential	Conditionally permitted	2	Permitted	1
Urban Conservancy	n/a	n/a	n/a	n/a
Rural Conservancy	Conditionally permitted	2	Prohibited	3
Natural	Prohibited	3	Prohibited	3
Aquatic	Permitted	1	Permitted	1
SUM		9		9
/# of Standard EDs		/5		/5
Average		1.8		1.8
/Max Score		/3		/3
Score	**Armoring Score**	**0.60**	**Overwater Score**	**0.60**

Finally, I calculated an Ecological score by taking the average of the three scores (Setback score + Armoring Score + Overwater score/3). An example calculation is provided in Table 10.

Table 10. Example Calculation of Ecological Score

ANACORTES	
Setback Score	0.53
Armoring Score	0.60
Overwater Score	0.60
Ecological Score	**0.58**

For this category, I gathered additional context from the interviews, particularly from planner and participant perspectives on how well they thought the adopted SMP protects marine shorelines and saltwater habitat.

Context Variables

I considered several demographic and geographic variables that could reasonably be expected to have an impact on plan quality as great or greater than public participation (Berke, Godschalk, and Kaiser 2006; Brody 2003). Values for population, population density, population growth between 1990 and 2010, median income, and median home value (a proxy for wealth) were gathered from 2010 US Census estimates.[16] Finally, I recorded whether or not the jurisdiction was a port district, using the directory of the Washington Public Ports Association (WPPA 2012). Ports are often major landowners and economic drivers along a shoreline, and may be involved in both industrial use of marine areas and restoration projects. Information on these variables is included in Appendix 1. Ultimately, I did not use these in my analysis, but they could be useful for future research that considers what other factors may contribute to the success of a participatory process.

Comparison of Participatory and Ecological Scores

The Participatory and Ecological scores described above were calculated in order to test Hypothesis 2: "A more participatory public process will result in a plan that is less protective of marine shorelines and saltwater habitats." It turned out that

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[16] I thought that total miles of marine shoreline might be an important context variable, but was unable to isolate this information in time for the analysis.

only a small data set could be assembled for this test. Several communities did not include information in their SMPs that was needed to calculate the Ecological score[17]. For others, participation plans were not available, which meant that no Participatory score could be calculated. In the end there were only 17 matched pairs of Participatory and Ecological scores.

To examine whether there was any association between a local jurisdiction's participatory process and how well (or poorly) its SMP protects ecological functions, I analyzed the correlation between the two scores using a Spearman's ranked correlation. This test was selected to account for the small sample size and skewed distribution of the Participatory scores, as will be shown in Section D.2. The Spearman's rank-order correlation is a nonparametric test that measures the strength of association between two variables. Statistical analyses and the corresponding graphics included below were developed using the R statistical language and environment (R Core Team 2014).

D. ANALYSIS & RESULTS

D.1 Analysis of Participation Plans

According to the measures outlined in their public participation plans, local governments are using a variety of approaches to gather public input; all plans reviewed go beyond the minimum requirement of a single public hearing. Out of the total possible 46 communities, I was able to obtain 38 public participation

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[17] A few jurisdictions, including Mukilteo and King County did not assign policies such as setback lengths by environment designation – this made it impossible to compare them with the other SMP communities.

plans (83% of study area), which ranged in length between 1 and 40 pages (median length = 7 pages). Not all plans addressed all indicators. A summary of this analysis is included in Table 11.

Intensity. Out of a total of seven objectives for public participation (comply, inform, consult, educate, involve, collaborate, empower), local governments note an average of four. While a high percentage of jurisdictions aim to involve (92%), inform (89%), and consult (89%) the public, fewer emphasize educating (42%) or collaborating (18%) with the public as a key goal. Less than half of the plans included an estimated total number of meetings (n=19), and the average number of meetings projected (14) is likely an underestimate of the number of meetings that were actually held based on interviews with planners. Among those plans that included timelines for completing the SMP (n=19), the estimated length of the update was just over two years (27 months – again, a likely underestimate given how long many SMP updates have extended beyond their original deadlines).

Breadth. Local jurisdictions identified an average of 31 groups for participation, but this figure varied widely, from a low of 12 groups (Blaine) to a high of 129 (San Juan County). This average is slightly less than the number of suggested groups identified by Ecology (45), and the median number of groups identified is somewhat lower (24). Key stakeholders were identified in many plans: 90 percent listed a government agency (federal, state, or local), while property owners (87%) and tribes (84%) were also well represented, as were business interests (71%). Fewer plans identified environmental groups (66%) and,

surprisingly, only 34 percent of plans targeted recreational users. Most plans (63%) listed additional groups for participation, including educational or military institutions, public utility districts, or regional transportation organizations like the BNSF Railway Company.

Table 11. Public Participation Plan Analysis

	Average	Min	Max
INTENSITY			
Number of participation objectives, out of possible 7 (n=38)	4.08	1	6
Number of meetings planned (n=19)	13.79	2	48
BREADTH			
Number of groups identified for participation (n=38)	31	12	129
Government (federal, state, local)	90%		
Property owners	87%		
Tribes	84%		
Business	71%		
Environmental interests	66%		
Recreational users	34%		
PROCESS			
Stage public involved (1=early, 2=mid, 3=end) (n=37)	1.54	2	1
Number of participation formats (n=38)	14	3	22
Inform (ex. website, newsletters, public notice, email listserv)	8	1	14
Consult (ex. written or online comments)	4	1	7
Involve (ex. stakeholder meetings, forums, field tours)	2	1	5
Collaborate (ex. CAC, TAC, workshops)	1	0	3
Empower (ex. binding vote)	0	0	0

Process type. The public were first invited to participate relatively early in the update process (average stage of 1.5, where 3=early, 2=midway; 1=end), and were granted a wide range of opportunities to both learn about the process and provide input. In their participation plans, local governments proposed using an

average of 14 different participation formats, ranging from a minimum of three methods to a maximum of 37. They used the greatest number of formats to inform the public about the SMP update (average of 8), and consecutively fewer formats to consult (4), involve (2), or collaborate (1).

As noted above, jurisdictions list multiple approaches for communicating with the public in their participation plans. Out of the 38 participation plans reviewed, the most commonly referenced methods to inform the public about the SMP update were through: [18]

- a website (89% of jurisdictions)

- legal notice (74%)

- mailings (74%)

- public meetings, including planning commission and city or county council meetings (68%)

- open houses (66%)

- press releases (61%)

- newspaper, advertisement or article (55%)

- newsletter, print or electronic (42%)

Less commonly mentioned methods for informing the public included developing specialized publications like fact sheets, posting flyers on community boards, including an insert with utility bills, hosting an information booth at community events, or employing media outlets other than the newspaper,

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[18] These methods are not mutually exclusive. For example, 89 percent of the 38 jurisdictions with public participation plans noted they would use a website to communicate information about the SMP to the public, and they may also have included a combination of mailings, public meetings, newsletters or other methods.

including television, radio, blogs, and social media. Only one community explicitly noted its intention to develop materials in a language other than English.

For consulting or gathering feedback from the public, the method most frequently noted was hosting a public hearing (84% of jurisdictions) – a result that is not surprising since this is the only method required under the state guidelines. Nearly half of jurisdictions planned to employ a citizen's advisory committee (47%) that was separate from their planning commission, while 42 percent indicated they would engage a technical advisory committee.

This analysis must be accompanied with a caveat: Although public participation plans are considered here as a proxy for the public participation process, they represent only a local government's intentions rather than what was actually implemented. Further review of public documents and interview responses indicate that while local planners tended to follow their participation plan overall, they often had to decrease the number of formats used, due to a shortage of funding, and increase the total number of meetings needed, due to the complexity of the SMP discussions and changes in personnel over the course of the update.

Participatory Scores

As described above in the Methods section, I calculated a Participatory Score for each jurisdiction, as a composite of scores that represent the intensity, breadth, and methods of the participatory process. The Participatory scores ranged from a high of 0.99 to a low of 0.37, with a mean of 0.59, a median of 0.56, and a

standard deviation of 0.13. The data are not normally distributed, as can be seen in Figure 6.

Figure 6. Frequency Distribution of Participatory Scores
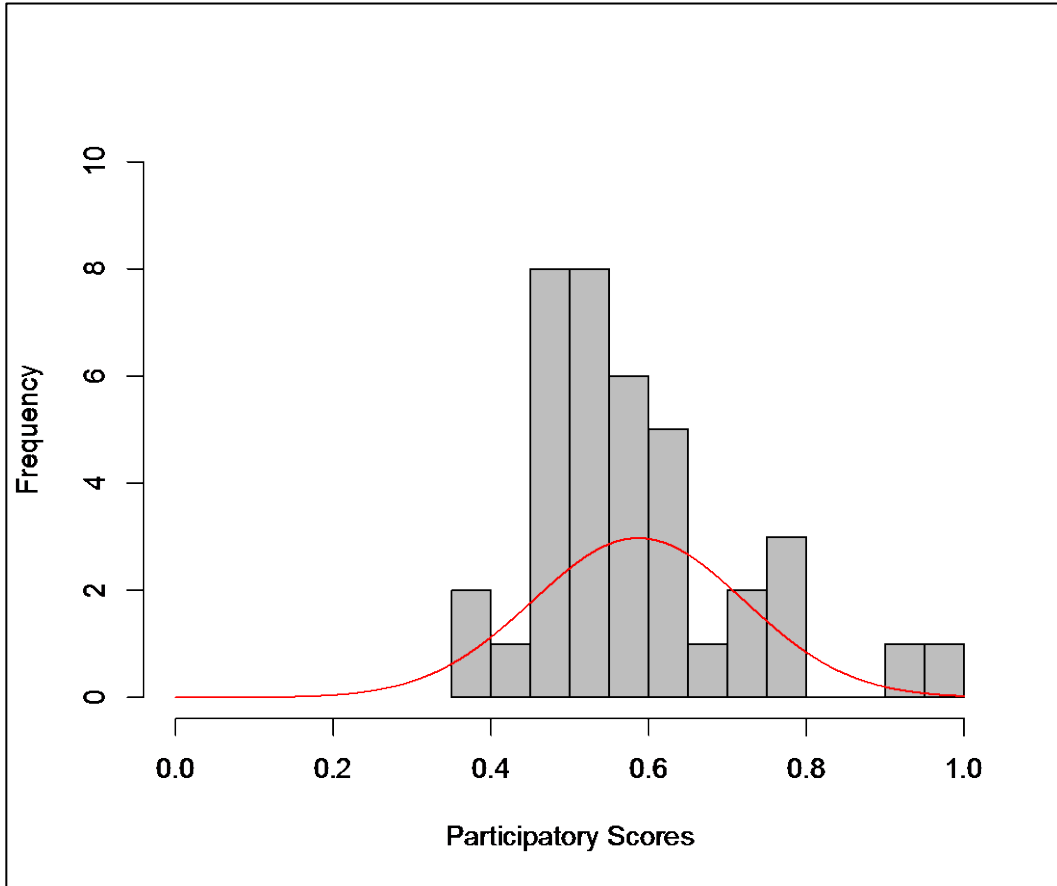
D.2 Assessment of Updated Shoreline Master Programs

Overall, updated shoreline master programs include substantial regulatory protections for marine shorelines and saltwater habitat, but the specifics of those policies vary considerably among individual jurisdictions. Of the 23 plans completed or locally adopted as of December 1, 2012, around half (48%) include explicit vegetated buffer requirements, while the majority include policies that

establish building setbacks (86%) and regulate the construction of new shoreline

armoring (86%) and overwater structures like docks and piers (89%).

Environment Designations

Local jurisdictions used an average of six environment designations in their

SMPs, but these vary greatly according to the length and complexity of the

shoreline areas included in the programs: tiny Ruston (2010 population: 749)

included just two environment designations, while Whatcom County (2010

population: 201,140) lists 10 designations. In general, jurisdictions use some or all

of the six standard environment designations outlined in the SMP guidelines and

described above on page 28 – high-intensity, shoreline residential, urban

conservancy, rural conservancy, natural, and aquatic (WAC 173-26-211).

However, these standard designations often are modified to suit local conditions.

For example, many cities use "Urban" or "Urban Intensity" rather than "High

Intensity" in their SMPs, and they may alter the wording of the goals and policies

associated with each category.

**Table 12. Number of Puget Sound Communities that Use Each Standard
Environment Designation in their SMP (out of a total of 23 with locally approved
SMPs)**

Environment Designation	Count	Percent of Total Communities
High-Intensity/Urban	18	78%
Shoreline Residential	18	78%
Urban Conservancy	16	70%
Rural Conservancy	8	35%
Natural	13	57%
Aquatic	21	91%

Most jurisdictions also created new, non-standard environment designations that apply to specific areas and local shoreline conditions. Of the 23 plans analyzed, 65 percent include at least one special designation category, and a total of 32 non-standard designations were identified (see Table 13). These unique designations may pertain to historic areas, places used traditionally by maritime industries, areas dominated by a current industrial use, sections of shoreline in park districts or in need of special environmental consideration, or specialized aquatic areas.

Table 13. Non-standard Environment Designations Identified in SMPs for 23 Puget Sound-bordering Jurisdictions

Special Environmental Designations	
Aquatic Harbor	Research District
Aquatic Urban Conservancy	Residential Bluff Conservancy
Boat Haven Marine Trades	Resource (2)
Cherry Point Management Area	Rural
Downtown Waterfront	Rural Resource
Forestry	Tatsolo Point Special Management Unit
High-Intensity Marine	Urban Aquatic
High-Intensity Mixed Use	Urban Conservancy Recreation
High-Intensity Urban Uplands	Urban Lakefront
Historic Waterfront	Urban Maritime (2)
Maritime	Urban Public Conservancy
Medium Intensity	Urban Railroad
Municipal Watershed Utility	Urban Resort
Point Hudson Marina	Urban Waterfront Park
Priority Aquatic	Waterfront District

Although these special designations indicate the influence of local public values in the SMPs, they also render comparison of regulations across jurisdictions more challenging. Because each of these special designations is

unique to the community it is created for, there is no way to evaluate the regulations set within those areas against similar shoreline reaches in other communities. It is more difficult to judge, for example, whether a setback or armoring regulation within a Historic Waterfront area is appropriate and provides sufficient protection for that shoreline's ecological functions, because it cannot be compared across communities, the way regulations within a standard designation, such as Natural or Shoreline Residential, can be compared. Further, when the SMP comes to Ecology for approval, those special designations cannot be held to the same statewide guidelines as the standard designations. As discussed below in the Conclusions section, this is one way that the integration of public values into SMPs, by creating a designation that reflects a community's vision, could lead to an SMP that is less protective of the shoreline environment.

Buffers and Setbacks

Shoreline buffers and building setback requirements differ considerably among the updated SMPs. Nearly half (48%) of the 23 jurisdictions include explicit vegetated buffer requirements – additional communities may have marine shoreline buffer regulations under their Critical Areas Ordinance that were not directly referenced in the SMP.

I compared the total setback regulations for five different standard environment designations[19] (see Table 14). While many SMPs utilize both tools, some jurisdictions include buffer requirements within the setback areas, while others add a setback on to a buffer. In the latter case, I considered the sum of the

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[19] The Aquatic designation does not include setback requirements.

buffer plus the setback to equal the total setback. Total setback width, and thus the protective capacity of the setback, generally increases you move from the more developed areas, such as those designated high-intensity, to more natural areas.

Table 14. Total Setback Width Regulations by Environment Designation

	Average (ft)	Min (ft)	Max (ft)
High-Intensity/Urban (n=18)	65	0	165
Shoreline Residential (n=18)	85	20	200
Urban Conservancy (n=16)	103	50	200
Rural Conservancy (n=8)	153	100	200
Natural (n=13)	157	110	215[20]
All Designations (n=23)	115	0	215

However, the averages mask the wide range of setback requirements put forward by different jurisdictions; a property in Burien's shoreline residential area need only be set back past a 20-foot marine riparian buffer under its draft SMP, while a similar property in nearby Des Moines would be required to be set back 125 feet (10 feet from a 115-foot buffer). Many plans exempt water-dependent uses from setback requirements, and may modify the setback when surrounding development is developed closer to the shoreline than the setback would allow.

Shoreline Modifications

Regulations for shoreline modifications – such as stabilizing a shoreline with hard armoring like a bulkhead, or building a new dock – also differ considerably among the SMPs analyzed (see Table 15). Similar to the setback requirements outlined above, these regulations generally become increasingly restrictive for more natural designations. However, the results of this analysis show that despite

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[20] In some cases, SMPs list a buffer that encompasses the entire width of the shoreline jurisdiction, 200 feet from the ordinary high water mark, plus an additional 10- or 15-foot building setback.

an overall inclusion of management policies that emphasize the protection of marine shoreline functions, few Puget Sound communities have established the most environmentally protective policies in their SMPs.

Table 15. Regulations for Shoreline Armoring in 23 Puget Sound SMPs

	Permitted	Conditional	Not Permitted
Shoreline Armoring/bulkheads[21]			
High-Intensity/Urban (n=18)	75%	25%	0%
Shoreline Residential (n=18)	47%	47%	6%
Urban Conservancy (n=16)	47%	47%	7%
Rural Conservancy (n=8)	14%	86%	0%
Natural (n=13)	17%	17%	67%
Aquatic (n=21)[22]	42%	26%	32%
Overall Average	40%	41%	19%

The continued increase in shoreline armoring is identified as a major threat to the Puget Sound ecosystem (PSP 2012a), yet it is treated as a permitted activity – requiring no additional level of review at the local level – in more than a third of the standard shoreline environments included in SMPs reviewed for this study. This permission may be logical for an urbanized and extensively modified shoreline area; no communities prohibit armoring in Urban or High Intensity areas, and only a quarter require a conditional use permit. However, armoring is also allowed outright in many less developed areas: Shoreline armoring is listed as a permitted activity in nearly half (47%) of those areas designed as "Urban Conservancy" or "Shoreline Residential." Armoring is even permitted in 17

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[21] Percentages do not add up to 100 percent. Some SMPs list modifications as permitted in some locations within an environmental designation, and conditional in other locations – in such instances, both regulations were recorded.

[22] In many SMPs, regulations for the Aquatic designation are noted as being the same as the upland designation – thus, a new dock on an Aquatic property would be permitted if it is permitted in the adjoining shoreline property (for example, a shoreline residential area).

percent of areas designated "Natural" – those areas that are most in need of
protection – and allowed with a conditional use permit in an additional 17 percent.

Overall, in the updated SMPs, shoreline armoring is far more likely to be
permitted outright, or permitted with conditions, than prohibited. This is a
somewhat surprising finding, considering the region's target for reducing the total
miles of new shoreline armoring in Puget Sound by 2020, but the results –
particularly the high proportion of conditional use regulations – may reflect the
difficulty of balancing ecological goals with the rights of shoreline property
owners. Landowners have the right to protect their property from shoreline
erosion, and the Shoreline Management Act and SMP guidelines include
provisions that oblige local government to "provide for methods which achieve
effective and timely protection against loss or damage to single-family residences
and appurtenant structures due to shoreline erosion" (RCW 90.58.100)**.** Many
communities deal with this conflict between ecological protection and private
property rights by requiring that landowners who apply for a bulkhead permit
provide a geotechnical report proving that erosion threatens structures on the
property as part of the conditional use process. The jurisdiction also may require a
shoreline substantial development permit, which adds an additional level of state
review to a project. Even with these conditions, however, such a policy shifts the
decision on whether to allow a bulkhead from the SMP to the discretion of the
local permitting staff who implement the regulations, and who may differ in their
interpretation of when armoring should be permitted.

Regulations concerning new docks and piers are more variable, as shown

in Table 16. Despite research that has shown their negative impacts to eelgrass

and other important marine species, these overwater structures remain permitted

in nearly half the standard environment designations listed in the updated SMPs.

The proliferation of new docks is prohibited in two-thirds of designated "Natural"

areas (67%), but docks are listed as a permitted use in another third (33%). While

such structures are more likely to be allowed in high-intensity, urban areas, a

quarter (25%) of SMPs ban new docks even in urban areas – in many cases to

minimize new obstructions to marine traffic and to reduce potential conflicts

between commercial and recreational users.

Table 16. Regulations for Overwater Structures in 23 Puget Sound SMPs

	Permitted	Conditional	Not Permitted
Docks & Piers[10]			
High-Intensity/Urban (n=18)	69%	6%	25%
Shoreline Residential (n=18)	56%	11%	33%
Urban Conservancy (n=16)	33%	33%	33%
Rural Conservancy (n=8)	25%	38%	38%
Natural (n=13)	31%	15%	54%
Aquatic (n=21)[11]	65%	30%	5%
Overall Average	47%	22%	31%

Again, it is surprising that overwater structures remain permitted in such a

high proportion of Puget Sound communities, given their known impacts to the

shoreline ecosystem. This observation is especially unexpected as docks and piers

usually are considered an amenity, rather than a necessity for the protection of

property, as is the case with some shoreline armoring. The continued permitting

of docks highlights the conflict between environmental protection and public

values for private recreational use of the shoreline. In their SMPs, many

communities have provided more direction on the design of these structures to

minimize their environmental impact, but again, placing restrictions in the

conditions of the permit means the final decision is at the discretion of the

permitting staff. This allows for more variation in implementing the regulations

than would a strict policy in the SMP.

Ecological Scores

As described above in the Methods section, I calculated an Ecological Score

(between 0-1) for each jurisdiction, as a composite of scores that represent the

protectiveness of that SMP's policies for setbacks, shoreline armoring, and

overwater structures. The Participatory scores ranged from a high of 0.78 to a low

of 0.33, with a mean and median of 0.57, and a standard deviation of 0.12. The

data are normally distributed, as can be seen in Figure 7.

Figure 7. Frequency Distribution of Ecological Scores
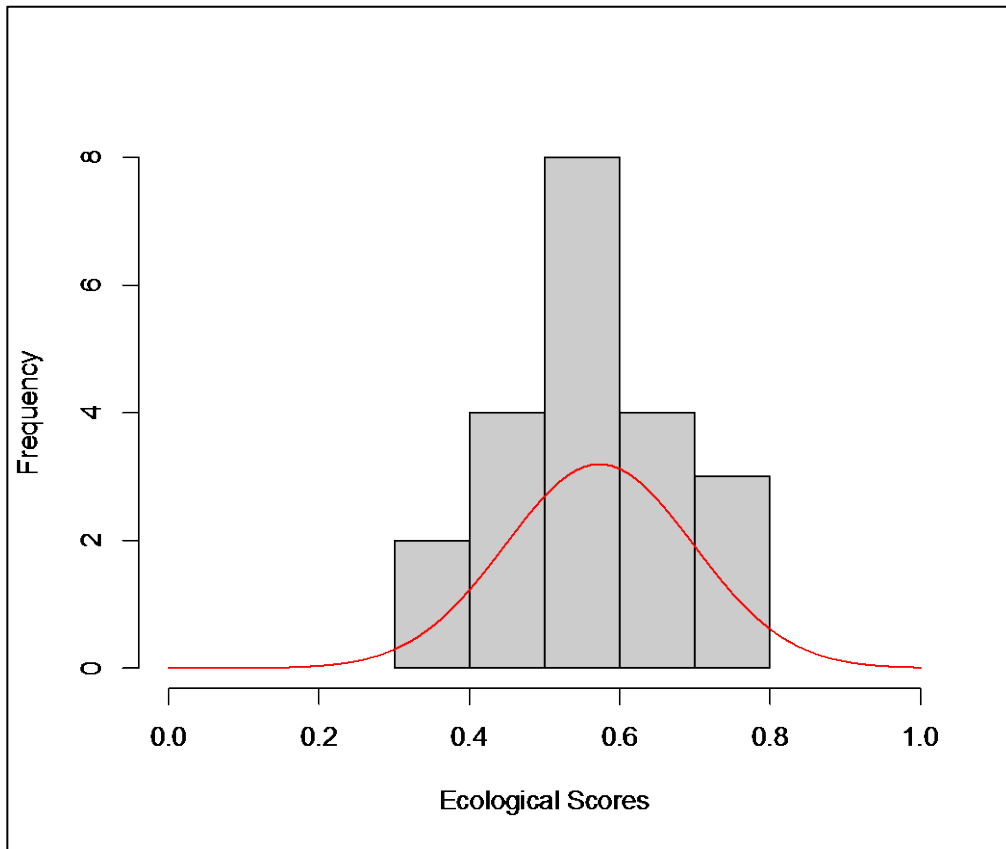
D.3 Comparison of Participatory and Ecological Scores

At the start of this study, I hypothesized that a more participatory public process would have a negative effect on the strength of the SMP in protecting marine shorelines and saltwater habitat. Instead, the results of the statistical analysis indicate there is little to no association between how participatory a public process is (as measured by the Participatory Scores) and the strength of the SMP for protecting the shoreline environment (as measured by the Ecological Scores). The scatter plot in Figure 8 shows the wide distribution of the scores.

Figure 8. Comparison of Participatory and Ecological Scores
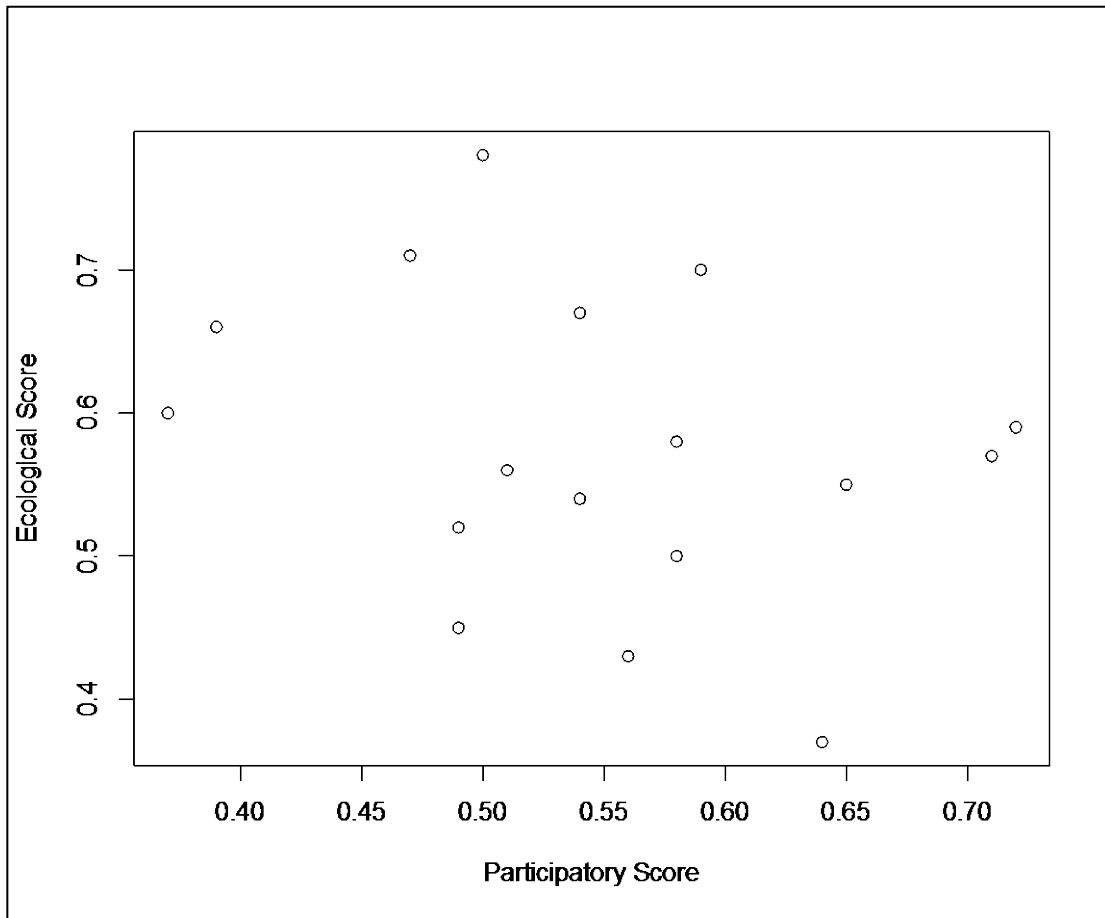
The Spearman's rank correlation analysis shows a slightly negative relationship (rho = –0.248), indicating that Ecological Scores do decrease with increasing Participatory Scores, but the result is not significant (p-value=0.337). This analysis could be improved by increasing the sample size as more communities complete their SMP updates; with only 17 matched pairs of scores this result can only be considered preliminary. It does, however, provide a model for how additional analysis could be conducted in the future.

D.4 Analysis of Interviews

The interviews conducted with 15 planners and participants in the three case-study communities (Anacortes, Mukilteo, and Tacoma) provided more detail and context for understanding the role of public participation in the SMP update process, particularly how public input influenced the plans as they were developed. As described above in the Methods section, several people in each community, representing a range of perspectives, were asked a similar list of questions about their participation in an SMP update. The interviewer asked each person:

- What shoreline issues were important in their community,

- What led them to participate in the SMP update,

- Whether by participating they had learned anything about shoreline science or other views in the community,

- How well they thought the final SMP incorporated public values

- How well they thought the final SMP protected marine shorelines and saltwater habitat,

- What they thought worked well about the process, and what didn't.

Although these interviews provide just a small sampling of how different communities are handling public participation in their SMP updates, the results show some common themes across different communities and stakeholders, as well as areas of disagreement. A complete list of the interview questions is included in Appendix 2.

Important Shoreline Issues

Interview subjects identified a variety of shoreline use issues that they thought were important in their communities (Figure 9). Public access was cited most frequently as a concern (23%), and was noted across the different interest groups: by planners and representatives from environmental, business, and recreation groups alike. The need to balance and reconcile competing visions for the shoreline was another cross-over issue (15%), as was the obligation to protect property rights (12%).

Figure 9. Important Shoreline Issues for Planners and Participants in Three Focus Communities. [23]
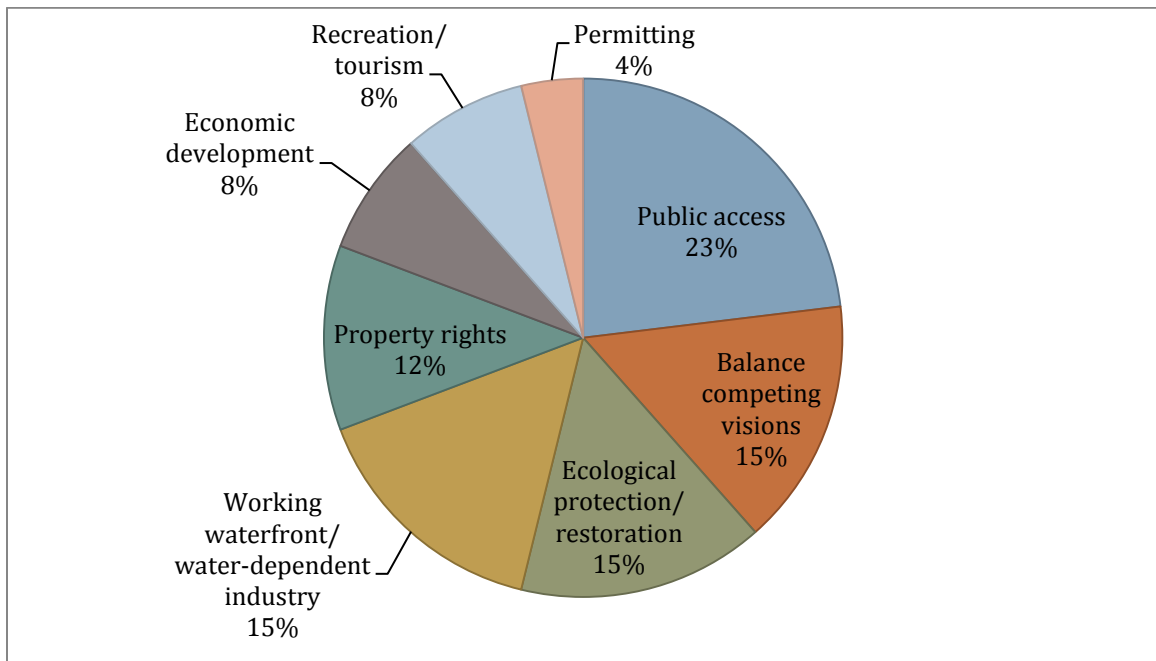
Other frequently mentioned themes, such as supporting water-dependent industries and protecting or restoring ecological functions (such as through vegetated shoreline buffers), were cited most often by their respective interest

[23] Source: Frequency of coding themes in 15 interviews.

representative. Less-frequently mentioned themes included encouraging economic development (8%), providing more recreation and tourism opportunities along the shoreline (8%), and the need for clear permitting requirements (4%).

Opportunities for Participation & Learning

The three cities profiled offered a variety of participation opportunities throughout their SMP updates, and the participants interviewed used different methods to learn about the SMP process and voice their opinions, including writing formal comment letters, checking the city's website, attending public meetings and workshops, serving on advisory committees, meeting one-on-one with planning staff or city officials, and organizing outreach events independent of the city's participation efforts.

Planners also made a point of reaching out to specific groups to get their input. The groups that were targeted differed among the respective communities profiled, but included: ports, shoreline property owners, historic waterfront community, neighborhood groups, ferry operators, and neighboring jurisdictions. Planners noted that it was important to engage other internal city departments throughout the SMP process – including those departments that oversee public works, parks, environmental health, and construction permitting.

Overall, the planners and participants interviewed thought their local governments did a middling job of capturing the range of public opinion in their communities around marine shoreline issues: ranking an average of 3.7 out of 5. Planners judged their efforts as slightly worse than the overall average (3.5 out of 5). A theme that came up repeatedly in responses to this question was that

although there were many "opportunities" or outlets offered for participation, many segments of the community were not represented, either because they were unaware or uninterested in the SMP update process, or because the participation methods and times offered favored those who are used to participating in similar public processes or who participate as part of their job (for example, as a paid policy expert for an interest group).

This dilemma is exemplified in the following quotes from planners and participants:

- "I think there was plenty of opportunity for the public to participate, if they chose to." (Planner)

- "The answer is that you can never do enough, you can always do more." (Planner)

- "Those in the know knew about it, but it was very underpublicized in a way that could have gotten more people involved." (Environment Interest)

- "They have developed email lists. If you've attended a meeting, and put your name on a list, you'll get the email, but if you get the email, they'll send it the day before – not a lot of head's up time." (Recreation Interest)

- "The SMP was a political process, and we took advantage of that [by attending city council meetings, writing letters, calling people]." (Business Interest)

Although all three cities offered multiple participation opportunities, not all focused on educating the public or specific stakeholder groups about marine shoreline science, as it related to the SMP update. This observation is in line with the finding above that educating the public was less frequently cited as a public participation objective across all SMP study communities. Some planners

indicated that they were reluctant to take on this role, because they might appear to be advocating for one side of an issue (the environmental interests). In some communities, local or regional environmental groups took up the role of educating the public. In one case, a planner noted that efforts made to educate the public about issues like overwater structures and forage fish habitat were met with very little interest from the public. Among participants, only 11 percent felt they had learned something about shoreline science by participating in the SMP update.

In contrast, the opportunities offered did allow participants to gain a greater understanding about the perspectives of other parties: 56 percent of participants interviewed felt that they had learned about other views in the community on how the shoreline should be used. As one participant noted, "By the end of the process, which was several years, any one of us could have stood up in the place of any one other person and made their comments for them…. I didn't agree with everything they all said, but that wasn't the point" (Environmental Interest).

Public Values & Shoreline Protection in Final SMP

Despite the limitations of participation, the public input gathered during the update process did influence the policies and regulations included in the final SMPs. All three planners interviewed referred to specific instances in which the draft SMP was altered because of public input. When asked how well the final SMP reflects public values raised during the update process, interviewees ranked the final result as an average of 4.1 out of 5. On this question, planners rated their efforts more highly than the overall average (4.8 out of 5). Participants expressed mixed impressions: while some observed that the jurisdiction made changes,

others felt that that their comments had been ignored or had trouble tracing changes though the multiple iterations of the SMP. Some felt changes were being made behind closed doors.

- "It took a long time to get it done because we spent so much time on these multiple, multiple, multiple iterations of the draft to get to a place where we could say, it's in there." (Planner)

- "The report that was published, I never saw it – It was like, what came out of the process? Three or four people get to see it." (Recreation Interest)

- "They did make all the changes we requested, so I think that was really positive." (Environmental Interest)

- "I think they made some efforts to take comments into the document, but I think there was a lot of compromise and maybe not to the benefit of the city. But some is better than none." (Recreation Interest)

- "It was mixed. We had some wins." (Business Interest)

Others noted that only input given at certain times in the process made an impact on the final product:

- "For the most part, we engaged before they got to the draft, but there were some cases where we didn't engage until they got to the draft. [It is important to start early] because, by the time you get to the draft, it's cooked" (Environmental Interest).

On the question of how well the final SMP protects marine shorelines, the impressions of interview subjects were positive, an average of 4.3 out of 5. However, several interview subjects declined to answer this question, citing a lack of expertise.

Lessons Learned

Those interviewed identified what they thought had worked well (and what had not) in the public engagement efforts they took part in during the SMP update. Although this question was not one of the central inquiries identified for this study, the responses provided insightful information that could be of interest and use to the planning community, and so it is summarized here.

Aspects that improved the process included:

- *Offering multiple methods for participation.*

Participants and planners noted the importance of having different ways to access planning staff and provide comment during the SMP updates. According to one planner interviewed, "Some people like to do public speaking, some people don't. Some people like writing me emails. I had one person who just came in and talked to me…. So that person felt comfortable doing it that way."

- *Proactive outreach with (or by) key groups.*

Some planners identified and contacted key interest groups early in their update process, to get feedback on the group's likely concerns and thoughts about the SMP update. This proactive approach brought these groups into the process before the draft SMP was written, and minimized conflicts that otherwise could have arisen later, after work had been invested to produce a draft SMP. Groups that were contacted in this way felt more included in the update process, rather than reactive to it. Some groups also took the initiative to develop and host their own participation efforts, whether this was convening a group of different business development interests that met regularly during the update or holding

environmental education events that tied into the themes of the SMP update.

These efforts increased participation in the processes they addressed by bringing

additional resources and attention to the SMP update beyond those limited

opportunities offered directly by the local jurisdiction. It also allowed groups with

similar interests to coordinate their efforts, enabling them to participate while

conserving limited time and funds.

- *Having a single point of contact (staff person), and/or a core group of participants that sticks with the process from start to end.*

Turnover, both of planning staff and of participants, has been a significant factor

delaying many SMP updates. Participants appreciated having a point of contact

for SMP concerns clearly identified on the jurisdiction's website and on outreach

materials. Both planners and participants noted that because the update process

was so long, sometimes new concerns would arise mid-way through the process

and draw in new groups of participants – at these times it was important to have

people around who had been with the process and knew why certain decisions had

been made in the past.

- *Hosting topical meetings, rather than general ones.*

Participants appreciated it when meetings were organized around a single topic,

and when the subject matter was made clear prior to the event. This allowed

participants to attend only those events that were relevant to their concerns, and

helped ensure that the comment they provided was pertinent to the sections of the

SMP under consideration. When meetings were more general, participants

became frustrated that their concerns were not being addressed and sometime left the process.

- *Providing accessible, searchable documents.*

Participants liked having access to draft documents online via the jurisdiction's website, and they appreciated seeing where changes had been made by comparing them with previous, redlined versions of the document. Organizing and presenting this information could be a considerable undertaking for the planning staff, but the work paid off when they could point clearly to places in the documents where people's concerns and comments had been incorporated or to explanations of why they had not been included.

- *Sharing resources with other community groups.*

Regional environmental organizations found they had more credibility in a local update, and could spread their limited resources farther, when they partnered with a local environmental organization and coordinated their feedback on the SMP.

Interview subjects also were asked what they thought could have been improved about the SMP process in which they took part. Identified shortcomings include:

- *Overestimating the public (and elected officials') knowledge of current land-use practices.*

The SMP updates are complicated regulatory programs with many technical details, but in some cases participants were not knowledgeable enough about current regulations to understand the impact of proposed changes. Planners noted they were less successful when they expected a level of familiarity with current

code regulations and jumped in to the details of policy changes without first spending sufficient time and effort preparing that foundation and educating the public, and elected officials, about shoreline planning issues more generally.

- *Timing and site selection of meetings.*

In the cities profiled, participants often noted that there were many meetings held on the SMP, but some expressed frustration that meetings were scheduled in a way that made it difficult for people to participate, unless they were employed to do so. Meetings held during the day or in some city buildings were convenient for city staff and for representatives from interest groups who could attend as part of their jobs, but were inconvenient for someone working a day job who would have to make special arrangements. Even when meetings were held in the evenings or on weekends, some participants felt they did not receive notice of the event early enough to arrange for child care or make other adjustments to their schedules. A recurring comment was that the structure of participation opportunities favored participation among those familiar with such processes.

- *Limited use of mass and social media.*

As the results in the previous section indicate, planners still rely on newspapers to inform the public about the SMP update, but mostly fail to incorporate other media outlets that could reach a wider audience. Some planners indicated that although they had originally intended to use community television or social media to get their message out, these plans were dropped during the process due to a lack of resources.

- *Spending too long on early "visioning" participation.*

Although gathering public input early in the process was an important component of many updates, some planners found that they spent too much time and effort trying to elicit participation before they had produced a draft plan. According to one planner, "We were trying to do all this outreach before we had a draft, and as long as people didn't have something to react to, the conversation remained at such a high level."

- *Isolating the SMP update from other processes.*

In all the communities profiled, the SMP update was only one of many planning processes that had historically dealt with the community's vision for its waterfront. Participants who had engaged in or embraced previous community visioning plans were discouraged when the SMP effort seemed to start from scratch or change course. City staff did not always make clear how the SMP fit in with other ongoing or earlier planning efforts, and this could lead to confusion among potential participants about how their input would be used. This point highlights the struggle within an SMP between functioning as a vision or a blueprint – a community might have put forward a vision of turning an industrial area into a pedestrian-friendly park or residential neighborhood, but the SMP might identify an environment designation that reflects the area's current industrial use.

E. DISCUSSION

As stated above in Section B, the goals of public participation are to "improve the quality, legitimacy, and capacity of environmental assessments and decisions" (Dietz and Stern 2008). This study focused on whether public input improved the *quality* of shoreline master programs, but considers the "quality" of a final plan as both (1) the extent to which it incorporates public values, and (2) the extent to which it contains policies that protect marine shoreline ecology. My analysis of participation materials and interviews with SMP participants reveals qualitative, and some quantitative, answers to the four research questions posed at the beginning of this research effort.

How much variation is there among SMP public participation efforts? There is considerable variation in how local jurisdictions are approaching public engagement as part of their SMP updates, at least according to the efforts noted in their public participation plans. All the cities and counties analyzed intend to go beyond the minimum statutory requirement to hold a single public hearing. However, some communities have hosted limited additional participation opportunities, while others have launched extensive outreach to various interests and groups within their communities, and/or have experimented with numerous participation methods for involving the public.

Despite these observed differences among programs, overall, jurisdictions are relying heavily on a few standard methods to inform and involve the public. The majority of cities and counties are relying on a small number of the same tools for communication (website, public notices, mailing lists, and newspapers)

and for taking comment. Local governments are relying heavily on the public meeting structure that already exists within their administrations – using existing planning commission and city or county council meetings to publically vet and discuss the SMP update.

The variation observed in this level of effort could be explained by a number of interrelated variables, only some of which factor into the current analysis. One issue is geography: communities with only small sections of shoreline that are not ecologically complex may have less need for an extensive public participation process, because there are fewer decisions being made about the use of that shoreline.

A second issue concerns the level of engagement in the community: planners who work in an area where residents are less interested in shoreline issues or less actively involved in civic issues in general may not have a need for extensive participation opportunities that are necessary in a community that typically has a very engaged and opinionated populace. It may be the case that different outreach techniques are better suited to different communities, but certainly an equal outreach effort may not be required for a small bedroom community like Mukilteo as for a large city like Tacoma.

Access to resources is a third differentiating issue: access both to the funding and staff time needed to organize and run public participation activities. Some planners cited a lack of resources as the reason why they fell back on using the standard notice and public meeting methods that were already built into their annual budget, and did not pursue additional participatory opportunities. Other

communities requested and were awarded grant funds that supported their engagement efforts, or had more funds to apply to that work. A related issue is the widespread use of consultants in the SMP updates; some jurisdictions with available funding hired consultants to develop (and in some cases implement) a public participation plan. This could bring more expertise to the participation process, but the plans that resulted from the work of consultants were sometimes more generic and less suited to local conditions.

To an extent, these issues undermine one of the assumptions central to this study – that the participatory processes of different jurisdictions bordering Puget Sound can be compared to one another, despite the vast differences in population and shoreline resources among these 46 communities. A public participation plan that is perfectly suited to the context of one area may be inadequate for another down the shore, and it may be unfair and misleading to compare one to the other. Despite this qualification, there are some lessons that can be drawn from looking across the experience of updating SMPs in different communities, with the understanding that these recommendations may not apply universally.

Jurisdictions could improve their participation efforts by making a concerted effort to reach out to recreational interests in their area – because of the SMP's focus on public access to the shoreline, these groups have a direct interest in the discussion, but they often are less organized and less used to participating in civic processes than other groups.

The reliance on traditional public participation methods – such as comment periods, planning commissions, and public hearings – favors

participation by interest groups and individuals that are organized and familiar with this manner of working through policy matters. Making the effort to use different tools, for example by tabling at community events and employing social media and online platforms, can bring in the perspective of people who would never be interested in attending a public meeting or hearing. Local jurisdictions can also make their processes more accessible by scheduling meetings at times and places that are convenient for more members of the public, and by ensuring public comment is traceable through the update process.

How well do updated SMPs incorporate policies that protect marine shorelines?

As stated above, updated SMPs include substantial, protective policies for marine shorelines, but few offer the greatest level of protection. This improvement is largely owing to the state guidelines; on topics for which the guidelines are less explicit or allow room for interpretation, such as the minimum setback requirements of different environment designations, SMP policies vary considerably. The result is that the protectiveness of updated SMPs for marine shorelines is inconsistent among Puget Sound communities.

Although there is considerable scientific consensus that modifications such as shoreline armoring and overwater structures have a negative impact on the nearshore environment, these activities are more likely to be permitted than prohibited in the new SMPs. These newer regulations are likely more protective than the many SMPs that were developed in the 1970s, but whether they will be effective at ensuring no further loss of ecological function is more uncertain.

The state guidelines and approval process have proven an important backstop that helps ensure all updated programs hold to a (mostly) standard minimal level of shoreline protection. According to one of the environmental representatives interviewed: "In theory, [jurisdictions] would implement the 2003 guidelines and they would go beyond them, but given the reality of what we've seen on the ground, most have not gone beyond, except in a few specific areas…. Everything comes back to that guidance. That 2003 document is incredibly important to the SMPs."

The idea that few communities are putting forward SMPs that are more environmentally protective than required highlights an observation made by Brody (2003) that the participation of environmental non-governmental organizations (ENGOs) in a planning process has an important impact on the ecological strength of a planning document:

> While the broad representation of stakeholders in the planning process does not necessarily lead to stronger plans, despite the endorsement of many scholars, the presence of specific stakeholders does in fact significantly increase ecosystem plan quality. (Brody 2003)

Local and regional ENGOs may play a similar role in the update of Puget Sound SMPs. More particularly, their absence may explain in part why communities are unlikely to go above and beyond the minimum environmental requirements in the SMP update guidelines. Not all communities have local environmental organizations that would be prepared to advocate for environmental protections over the course of a long, drawn-out update, and the SMP update process for Puget Sound communities was timed with the demise of

one of the largest and most active regional ENGOs, People for Puget Sound, which shut down unexpectedly in 2012 (Mapes 2012). Even before the loss of this group, regional ENGOs interested in the SMP updates (others include Futurewise and the League of Conservation Voters) had to spread their limited staff and resources among the many communities undergoing updates. Some groups found it difficult to generate interest among their membership for the long and technical update processes. Planners must balance among many different interest groups present during a process, and responses gathered during the interviews indicated that some felt the voice of the environmental community – which had actively participated in the negotiations that developed the SMP guidelines – was often absent from the local update processes that implemented those guidelines. This was not the case in communities with smaller environmental groups that had a local interest in the update process. The role of ENGOs in the update process would be an interesting topic for further study.

Some of the same qualifications about comparability stated above apply here as well. The vastly different geographies and demographics of Puget Sound communities determine policy needs that vary among communities. It is difficult to compare the environmental protectiveness of DuPont – which received the highest Ecological Score, but is a small, residential community with only two standard environment designations – with Snohomish County – which received a middling score but has a much longer, and more diverse shoreline. Or to compare the highly urbanized Tacoma with Mukilteo, which has a shoreline that is largely cut off from development by high bluffs and a railroad line. The use of six

standard environment designations (high-intensity, residential shoreline, urban conservancy, rural conservancy, natural, and aquatic) helps make the policies for different shoreline areas appear more comparable, but because communities can tune these standard designations to their own particular needs, add new special designations, and qualify any regulations with exceptions, true apple-to-apple comparison (such as that attempted for this study) is very difficult in practice.

How well do updated SMPs incorporate public values?

This question proved more difficult to determine quantitatively from the limited analysis possible within the scope of this thesis. It is clear both from reviewing comment response materials and from interviews with planners and participants that public input gathered during the SMP updates is incorporated into the plan and does change the final program. Not all comments and suggestions are accepted, and in many cases those changes that are made are cosmetic – these include grammatical edits or correcting place names and other factual information according to local knowledge that comes to light. In fewer cases, the changes can be substantial, such as altering regulations to allow for local preferential uses, changing the environment designation of a stretch of shoreline, or creating an entirely new designation that caters to local conditions.

In general, interview subjects indicated that local governments do a mediocre job of offering opportunities that capture the full range of public opinion. It was disappointing to see how heavily local jurisdictions planned to rely on their existing public meeting structure to meet the participation requirements of SMP updates. This outcome may be the expected result of limited

resources, but the majority of citizens in a community will never attend a planning commission or city council meeting or hearing. SMP communities that take such a tack would seem to be aiming for compliance with state guidelines, rather than truly trying to engage the public in the update process. It is also true that hosting a more participatory process requires a significant effort from the jurisdiction, and they may host it only to learn that few in their community are interested in understanding and participating in such a technical update process. Those interviewed gave their cities better marks for integrating the values expressed during the process into the final document. This indicates that participation serves more than a perfunctory role in the planning process – public input can change the final plans.

The influence of public input on the final SMPs is limited fundamentally, however, because of the nature of an SMP update process that requires each program to meet state guidelines and receive both local and state approval. Local governments are not free to incorporate their citizens' vision for shoreline use into an SMP if that vision conflicts with the state guidelines, which assert the precedence of statewide interest over local. However, the finding noted above that 65 percent of the SMPs reviewed contain at least one non-standard designation points to the fact that local governments do have considerable flexibility in designing SMPs that reflect their community's values.

Does public input influence the strength or weakness of plans for

shoreline protection and restoration?

This was the question that most interested me in undertaking this study, but it

cannot be answered conclusively with the limited data gathered in the time for

this study. Although the statistical analysis indicates a slight, though non-

significant, correlation between the breadth, intensity, and methods of a

participation process, and the ecological strength of the SMP that emerges from

that process, the sample of data is too small, and laced with too many caveats to

be very meaningful. Increasing the sample size of Ecological Scores, by

reviewing the policies of more communities as they complete their SMP updates,

would help give a more complete picture of this question.

What is clear in reviewing the SMP update processes for multiple Puget

Sound jurisdictions is that there is inherent tension between the desire to create a

plan that reflects a community's input and vision for use of its shoreline, and the

desire for a plan that provides robust protection of the shoreline environment as

indicated by science. An SMP guided entirely by science would propose 200-foot

buffers and setbacks everywhere; but the SMPs being developed under the

updated guidance must weigh environmental benefits with other social

considerations, particularly those brought up through the public participation

process. In a democratic society, people have a right to ignore the available

science in favor of other considerations, though doing so often introduces conflict

into the update process.

These sources of conflict fall often along lines similar to those discussed by Berke, Godschalk, and Kaiser 2006, and shown earlier in Figure 1. That figure can be modified to reflect the conflicts between the three major goals of the Shoreline Management Act (Figure 10).

Figure 10. Contradictions in Shoreline Master Programs
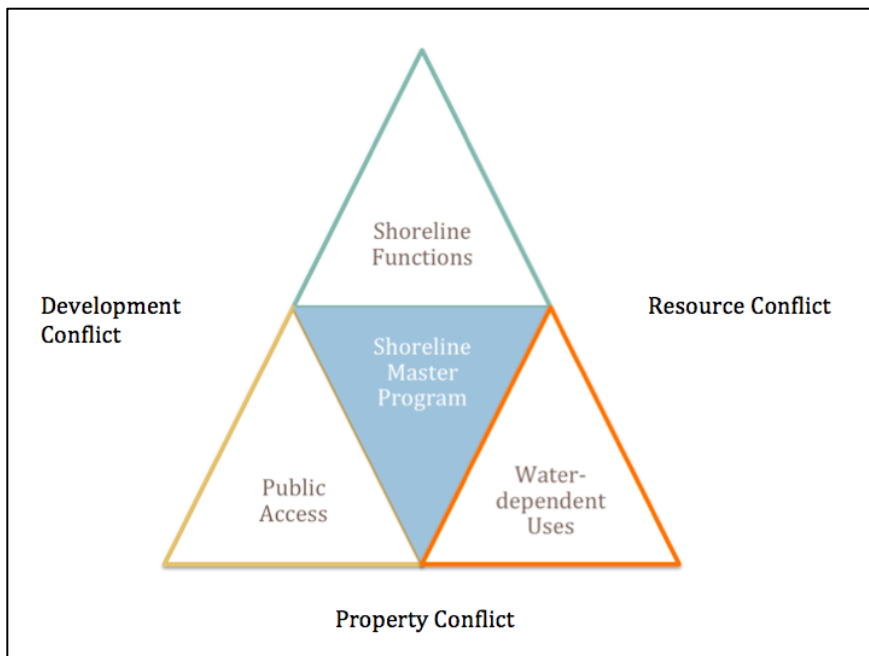
Although the Shoreline Management Act is held up as one of Washington State's signature environmental policies, protecting ecological functions of the shoreline is just one of three overarching policy goals identified in the state guidelines for implementing it – allowing water-dependent uses and encouraging public access are equally, if not more, important. The SMPs must balance (or wrangle) these three aspirations, and the most heated public conversations often begin when these goals conflict. A version of the "development conflict" arises when a plan to create a paved waterfront trail that provides water views and

access to all residents confronts the desire to maintain 200 feet of vegetated buffer along a natural shoreline. The "resource conflict" occurs when businesses argue that proposed setbacks and buffers will inhibit property rights or the economic growth of waterfront industry, or when residents oppose an environmentally threatening, but legitimate water-dependent trade. The "property conflict" surfaces when new or expanded public access demands in gentrifying areas are seen as threatening to existing industrial uses. When each of these conflicts arise, planners must find a common solution, usually a compromise for both sides, that also meets state regulations; this need to compromise among competing goals may help explain why so few communities are establishing the most environmentally protective policies in their SMP updates.

According to interviews, participants were much more likely to have learned about competing views that exist in their communities about how shorelines should be used, than to have learned anything about shoreline science. This observation points to a potential shortcoming of many SMP participatory processes – few focus on educating the public about the ecosystem that the regulations are put in place to protect. Perhaps because of this, the community discussions around SMP updates often seem to focus on very particular changes, and who benefits or suffers from that change, rather than on the plans as a whole.

It became apparent over the course of this study that the level of public conversation generated by the update process varies greatly among communities. Some SMP updates have been extremely controversial with heated debates that polarized their communities and changed the course of elections (Olympia,

Jefferson County, Burien, Bainbridge Island, Kitsap County), while others have been completed and approved to little attention or fanfare (Lacey, Steilacoom, Marysville). Many of the most controversial communities could not be included in the analysis of ecological scores for this study, because they have gone on so long that they were not completed, or even locally approved, in time. These public debates certainly have an impact on the environmental strength of shoreline policies, especially as jurisdictions learn from one another.

Do some types of participatory processes work better?

It is clear from the interview data on lessons learned that there are some aspects of the participatory processes that work better for participants. Providing multiple methods for participation, hosting events at a range of times and locations, and clearly tracking and documenting how input from the public has been integrated into the plan are all facets of the process that can improve the experience of participation for participants, and help to build trust in the regulations they inform.

Whether these more inclusive processes lead to substantially better regulations in the resulting SMPs is unclear. In some cases, these processes have brought more people to the table, and have helped to educate the public about the shoreline science that underlies many of these regulations. In others, the public process has served as a platform for polarized factions, and posturing among well-organized interest groups generates a debate that is more political than science-based, drowning out much of the real discussion about shoreline use. In many communities, both situations may occur over the course of the update process.

The best processes are those that reach beyond the usual methods and players to engage the fuller range of shoreline users.

F. CONCLUSION

*But look! Here come more crowds, pacing straight for the water,
and seemingly bound for a dive. Strange! Nothing will content
them but the extremest limit of the land…. They must get just as
nigh to the water as they possibly can without falling in.*
- Herman Melville, Moby Dick

Marine shorelines comprise among the most productive and critical habitats on our planet, yet these coastal areas remain under increasing pressure from human use. People are drawn to the shoreline to live, work, and play - with the result that development, industry, and recreational opportunities crowd into the thin corridor of land that borders the water. In Puget Sound, as in many large estuaries around the world, these uses often come into conflict with one another, and their cumulative impacts can undermine the ecological functions that support these uses. The result is that today we have a shoreline that is dramatically modified from its natural condition – straightened, shortened, and cleared of vegetation. The impact of those modifications shows in the degradation of water quality and the continued decline of many marine-dependent species, including forage fish and salmon.

Better land-use planning for the shoreline is proposed as one tool that can help to limit the negative impacts of shoreline use on that critical habitat; however, such planning always involves a balance of competing goals and

priorities, rather than a direct application of science. Public input can help inform such processes, so that the regulations for shoreline use reflect the priorities and values of the community, but being responsive to a diverse audience of users will mean that some compromises are made when it comes to environmental protection.

This study considered the role of public participation in the updates of Shoreline Master Programs for Puget Sound-bordering communities, and found a great deal of variation, both in how local governments are organizing their processes and in the regulations that result from those efforts. There is some evidence to indicate that because many jurisdictions are relying on traditional public meeting methods, they are failing to engage and integrate the full range of public perspectives through the update process. Shoreline users who are not organized into some kind of interest group that can take their case to the county or city are less likely to have their voices heard and integrated into plans.

This research found that despite extensive state guidelines developed for the update process, the actual policies that protect shoreline use vary considerably among different jurisdictions. This variation may have as much to do with the diverse geography of the region as with the public input gathered during the update process, and my analysis did not show a significant association between the level of public participation and the strength of a plan's policies. Nevertheless, state guidelines and the requirement for state approval do form an important backstop in setting the minimum requirements for some policies.

The new shoreline plans certainly are an improvement over the outdated ones from the 1970s, and bring regulations more in line with recent scientific understanding about the vulnerability of shoreline ecosystems. At the same time, they contain many compromises that allow them to serve the multiple goals of the Shoreline Management Act, as well as the interests of many different shoreline users. The extensive use of special environment designations and exceptions in the SMPs show that they can be customized to deal with local concerns and conditions, but this also makes it difficult to determine whether the programs will be effective at protecting the shoreline ecosystem. Such a judgment may need to wait until the policies being put in place today are implemented in the years to come, and until we see the shape and condition of our future shoreline.

Opportunities for Future Research

This study raised many questions about the role of public participation in shoreline master planning that could be further investigated through additional research. The analysis of public processes conducted for this study was limited to a review of public participation plans, which describe the intended process rather than what was done. An instructive topic for future research would involve comparing those plans with what participation methods were actually used as communities completed their SMP updates, and seeing how great the disparity.

This study included SMPs that were either finalized by the state or locally approved, and could be expanded as more jurisdictions complete the update process. It would also be interesting to see how plans change between the draft and final versions, from comments gathered during Ecology's public process.

Future research could also compare how much the shoreline policies change between the local draft and final versions, as well as whether jurisdictions that updated early in the process are substantially different from those coming later.

With a larger data set, it would be possible to investigate whether certain methods, such as a citizen or technical advisory committee, are associated with stronger plans. Future research also could focus on what geographic and social factors contribute to the environmental strength of SMPs, and could compare the strength of Puget Sound SMPs with those in other regions of Washington. Another avenue of study could delve more deeply into the role of environmental nongovernmental organizations (ENGOs) in the SMP update process.

The interview structure developed for this study could be replicated for additional communities. One potential approach could focus on comparing communities where the SMP update was particularly contentious with those that were less so.

Finally, it would be fascinating to take a geographic look at the policies of SMPs. Such a study could piece together the environment designations using a GIS analysis to investigate a number of questions – how many miles of shoreline are included within each environment designation, how much undeveloped shoreline is protected by the strongest regulations, and how much is left vulnerable. Such a study could consider the question of whether the updated SMPs are providing adequate protection for Puget Sound.

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APPENDICES

Appendix 1. SMP Jurisdiction Table

The table below lists all 46 jurisdictions considered as part of this study. Green rows indicate communities that have completed their SMP update, while orange rows indicate those that have a locally adopted draft SMP. Bolded jurisdictions represent case-study communities. Population, population density, population growth from 1990 to 2010, median home value, and median income information was gathered from the US Census – cells with n/a indicate jurisdictions for which detailed Census information was not available.

County, City/Town	Plan Stage	Population	Pop Density	Pop Growth	Median Home Value	Median Income
Whatcom	Complete	201,140	95.5	20.6%	$293,500	$49,031
Bellingham	Locally Approved	80,885	2,987.0	20.4%	$305,500	$38,136
Blaine	Under Way	4,684	680.4	n/a	$260,300	$54,201
San Juan	Under Way	15,769	90.7	12.0%	$495,600	$50,726
Friday Harbor	Under Way	2,162	n/a	n/a	n/a	n/a
Island	Under Way	78,506	376.6	9.7%	$307,100	$57,190
Coupeville	Complete	1,831	n/a	n/a	n/a	n/a
Langley	Under Way	1,035	n/a	n/a	n/a	n/a
Oak Harbor	Locally Approved	22,075	2,342.9	11.5%	$238,800	$48,656
Skagit	Under Way	116,901	67.5	13.5%	$278,300	$54,811
Anacortes	**Complete**	**15,778**	**1,343.0**	**8.4%**	**$351,600**	**$31,003**
La Conner	Under Way	891	n/a	n/a	n/a	n/a
Snohomish	Complete	713,335	341.8	17.7%	$338,600	$30,635
Edmonds	Under Way	39,709	4,459.2	0.5%	$419,600	$69,125
Marysville	Complete	60,020	2,902.5	137.1%	$274,200	$64,399
Mukilteo	**Complete**	**20,254**	**3,163.7**	**12.4%**	**$475,500**	**$91,683**
Stanwood	Under Way	6,231	2,212.7	58.8%	$274,500	$60,596
King	Locally Approved	1,931,249	912.9	11.2%	$407,700	$68,065
Burien	Locally Approved	33,313	4,489.6	4.5%	$333,700	$51,995
Des Moines	Complete	29,673	4,564.4	1.4%	$297,200	$59,577
Federal Way	Complete	89,306	4,011.9	7.3%	$289,000	$56,509
Normandy Park	Under Way	6,335	2,513.9	-0.9%	$531,000	$73,333
Seattle	Under Way	608,660	7,250.9	8.0%	$456,200	$60,665
Shoreline	Under Way	53,007	4,540.6	4.9%	$370,400	$67,076
Pierce	Under Way	795,225	476.3	13.5%	$269,300	$57,869

	DuPont	Locally Approved	8,199	1,399.6	234.4%	$312,000	$82,317
	Gig Harbor	Under Way	7,126	1,198.3	10.2%	$447,800	$60,837
	Ruston	Locally Approved	749	n/a	n/a	n/a	n/a
	Steilacoom	Locally Approved	5,985	2,933.8	-1.1%	$320,800	$63,690
	Tacoma	**Locally Approved**	**198,397**	**3,990.2**	**2.5%**	**$241,300**	**$47,862**
	University Place	Under Way	31,144	3,697.9	4.0%	$325,800	$56,792
Thurston		Under Way	252,264	349.4	21.7%	$257,800	$60,930
	Lacey	Complete	42,393	2,639.8	35.8%	$238,400	$57,304
	Olympia	Under Way	46,478	2,608.0	9.3%	$262,000	$49,461
Mason		Under Way	60,699	63.3	22.9%	$216,000	$48,104
	Shelton	Under Way	9,834	1,708.8	16.5%	$163,900	$32,927
Kitsap		Under Way	251,133	635.9	8.3%	$284,700	$59,549
	Bainbridge Island	Under Way	23,025	833.9	13.4%	$609,700	$93,556
	Bremerton	Under Way	37,729	1,328.2	1.3%	$219,300	$38,531
	Port Orchard	Locally Approved	11,144	1,539.4	44.9%	$275,200	$50,275
	Poulsbo	**Locally Approved**	**9,200**	**1,970.0**	**35.0%**	**$305,400**	**$594,464**
Jefferson		Locally Approved	29,872	16.6	15.1%	$308,500	$46,048
	Port Townsend	Complete	9,113	1,305.8	9.3%	$305,600	$43,597
Clallam		Under Way	71,404	41.1	10.7%	$241,500	$44,398
	Port Angeles	Locally Approved	19,038	1,779.8	3.5%	$217,200	$38,938
	Sequim	Locally Approved	6,606	1,046.2	52.4%	$214,900	$34,750

Appendix 2. Interview Questions

The interview portion of this study underwent a Human Subjects Review through The Evergreen State College and was approved on April 30, 2012.

Questions for Planners

1. What were the major shoreline land-use or environmental issues facing the [city/county] prior to the SMP update?

2. What were the [city/county]'s goals for public participation as part of the SMP update process?

3. How engaged was the community prior to the start of the SMP update process? (1-5 scale, where 1 = not engaged and 5 = very engaged)

4. What was important to the [city/county] in designing a public participation strategy?
   - Was it important to engage a high proportion of residents?
   - Was it important to engage specific groups (if so, which groups)?
   - Was it important to provide learning opportunities for participants?
   - Was it important to engage the public at a particular stage of the process (earlier vs later)?

5. Were any specific interest groups targeted for participation? If so, which groups were targeted and why? In what way did you approach them?

6. What methods did the [city/county] employ as part of its public participation process (examples: workshops, open houses, surveys, etc)? Why were these methods chosen?

7. Did you change or adapt your strategy over the course of the update process? In what way (methods added or dropped, additional time, etc)?

8. Did the [city/county] offer opportunities for the public or stakeholder groups to learn about marine shoreline science related to the SMP update? If so, how many opportunities and what kinds were organized?

9. How well do you think the opportunities offered for participation captured the range of public opinion in the community around marine shoreline issues? (1-5 scale, where 1= did not capture public opinion and 5= captured full range of public opinion)

10. Did public input change the plan during the update process? If so, can you give an example of how public input was integrated into the final plan or how a policy in the plan was altered because of public input?

11. In your opinion, how well does the final SMP reflect the public values raised during the update process? (1-5 scale, where 1=does not reflect public values, and 5= reflects very well)

12. In your opinion, how well does the final plan protect marine shorelines and saltwater habitat? (1-5 scale, where 1= does not offer much protection to marine shorelines and 5= offers high level of protection beyond state requirements)

13. What about the public participation worked well, in your opinion? What challenges arose during the process, related to public participation?

Questions for Participants
1. What led you to participate in the SMP update process in your community?

2. What do you think are the most important issues related to shoreline use in your community?

3. How well do you think the opportunities offered for participation captured the range of public opinion in the community around marine shoreline issues? (1-5 scale, where 1= did not capture public opinion and 5= captured full range of public opinion)

4. Did you learn anything new about shoreline science by participating in the SMP process?

5. Did you learn about other views in the community on how the shoreline should be used by participating in the SMP process?

6. Have you reviewed the final plan?

7. In your opinion, how well does the final SMP reflect public values raised during the update process? (1-5 scale, where 1=does not reflect public values, and 5= reflects very well)

8. In your opinion, how well does the final SMP protect marine shorelines and saltwater habitat? (1-5 scale, where 1= does not offer much protection to marine shorelines and 5= offers high level of protection beyond state requirements)

9. What about the [city/county]'s public participation process worked well, in your opinion? What about the public participation process could have been improved?