An Assessment of Ecosystem Protection
What's Working, What's Not

A Preliminary Report
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San Juan Initiative Policy Group

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Partners

San Juan County, Puget Sound Partnership, The National Fish and Wildlife Foundation, Tulalip Tribes, Department of Ecology, Department of Natural Resources, Department of Fish and Wildlife, National Park Service, NOAA Fisheries, US Fish and Wildlife, US Army Corps of Engineers, The Surfrider Foundation, The Nature Conservancy, and the Trust for Public Lands.

"It's the responsibility of government and our representatives to agree on "WHAT" we need for a healthy society, for the good of all. But "HOW" we get there can best be determined by the people most affected, working through an inclusive, consensus-based process. This is real democracy in the Jeffersonian sense. It's our version of a barn building exercise in the 21st century."

Bill Ruckelshaus, Chair of the Puget Sound Partnership

The San Juan Initiative: People & Place

Over the past year and a half the San Juan Initiative, governed by a Policy Group of local citizens and governmental officials, has been investigating the health of the marine shoreline in the San Juan Islands. We have studied past efforts, conducted research in four case study areas and talked with scientists, land owners as well as governmental officials, building trade professionals and environmental advocates.

Our goal is to determine "what's working and what's not" in terms of our many efforts to protect the marine ecosystem. This report shares what we've discovered.

Now we're moving into the final phase of our project. During the next six months we'll work with the community to come up with specific proposals to strengthen the things that are working well and fix the things that aren't. We're looking for solid, long-term solutions that work for both the environment and for landowners and citizens in the islands.

This report includes the following:

1. A summary of findings, a detailed assessment of what is working and what's not to protect the marine shoreline, and a discussion of opportunities to improve environmental protection and support property owners
2. Appendices:

    Nearshore Study Area Characterization
    Education Assessment
    Voluntary Protection Programs
    Shoreline Owner, Community and Trade Group Research
    Permit Review
    Review of Regulatory Protection Programs

The report is intended to serve three primary functions:

1. Provide a basis for the San Juan Initiative Policy Group's decision on where to focus its efforts in the next phase of the Initiative
2. Encourage landowners and citizens in the San Juans to engage with us in the next stage
3. Serve as a guide for others working on similar issues across Puget Sound

The Importance of the San Juan Island's Ecosystem

> *"What drew me to the San Juan Initiative is the chance to look at the health of the ecosystem as a whole, rather than independent parts. That means we're paying close attention to how the whole system is interconnected, including private and community rights and values. We're interested in the underlying systems that create and support vitality."* Jonathan White, Orcas Island Builder

The San Juan Islands have the most intact marine ecosystem in all of Puget Sound.

Protecting the San Juans is important not only to the residents of the islands, but also to the entire Puget Sound region. For example, all twenty-two populations of Puget Sound Chinook Salmon (now listed as Endangered Species) use the San Juans to grow bigger and stronger before their journey to the open ocean and again on their return. And the

marine environment in the San Juans is a center of biodiversity, home to creatures ranging from orcas to sea cucumbers.

At the same time, we're not immune to the larger problems in the area. As we know from the Puget Sound Salmon Recovery Plan and other environmental studies, a combination of factors affects the capacity of the region to support wildlife. Our salmon runs, migrating marine birds, and orcas are all vulnerable to circumstances outside of our local control: commercial harvest of sea life, pollution from urban development in central Puget Sound, untreated sewage from Victoria BC, global climate change, damaged rivers and lost estuaries.

These factors need attention if we are to bring the entire Puget Sound ecosystem back to health. It would be a mistake to underestimate the importance of protecting what's left of our intact habitat. Study after study has identified that protecting this resource is one of the most important factors for ensuring the recovery of the larger Puget Sound ecosystem.

The San Juan Ethic, Legacy, and a Look Forward

> *"There is an incredible ethic of stewardship among us living in the San Juans. Whether you are builder, real estate agent, farmer, boat builder, conservative or liberal, we all want the islands to be healthy and act to make them so"* The Honorable Kevin Ranker, San Juan County Councilmember

The people of the San Juans have a rich history of caring for the environment and enjoying its bounty. Activities like lime mining and commercial shipping are faded memories while salmon fishing and crabbing continue, but at much reduced levels. Largely acting on their own sense of what is right, landowners, farmers, builders, resort managers and marina operators have dramatically changed their practices over the years, resulting in improvements to the health of the local ecosystem. Except for rare cases, we no longer discharge raw sewage from homes and vacation resorts, the bays next to marinas no longer "turn red or blue when boat owners paint their hulls" (Ian

Wareham, West Sound Marina), and we don't have to deal with mining sites eroding the land into the sea.

Because the natural beauty of the islands is so important to those of us who live and play here, we have acted to protect this place we call home. Our efforts – along with our small population and lack of heavy industry -- have kept our marine environment the most pristine in Puget Sound.

Disturbing Trends, Pollution, and Growth Pressure

> *"I've seen a lot of changes in my thirty years of living here. The research of the Initiative has given us real data about what has happened and the pressures we are likely to face as a community. It has confirmed some of what I thought and it has surprised me".* Tom Cowan, Longtime Lopez Resident and Former Director of the Northwest Straits Commission

Despite the good work of the people of the San Juans, the future of our area is in question. Another million and a half people are expected to live in the Puget Sound region by 2025, adding to our current population of 3.8 million. Some of these people will live in the San Juans and many more will come to visit and recreate. Globally, pollution is increasing and affecting species like our orcas. Locally, new home development and the creation of necessary infrastructure are changing the landscape and the community.

Although everything appears intact on the surface, scientists are uncovering troubling trends affecting the basic building blocks of the ecosystem. Marine birds are vanishing; rockfish populations have crashed; eelgrass and forage fish spawning beaches are disappearing; and salmon runs are from 1 to 10 percent of their historic abundance.

Our ecosystem is vulnerable, and we need to find effective ways to protect it before it declines to the level of other areas in the Sound.

Good Intentions Facing Challenging Complexity

> *"The erosion on my beach increased when my neighbor built a bulkhead and now I have to build one."* Mitchell Bay Shoreline Owner

Over the past decades we've learned a great deal about the complex interrelationships between species we all love and ones most people don't even know about. For example, healthy salmon populations require not only their natal rivers for spawning, but after leaving the rivers they need an abundant food supply of "forage fish." In turn, forage fish such as sand lance and surf smelt require healthy beaches with the right amount of overhanging vegetation, gravel, sand and clean water to produce their young.

Preserving a vibrant ecosystem is a complicated task --probably more complicated than we understand right now --and although many of us are working hard, not all of our efforts are effective. People have good intentions but are sometimes misguided in their efforts to protect the environment and enjoy their property. Regulatory and incentive-based programs are often successful in assisting property owners on stewardship issues, but some of these programs result in undue hardship and lack commensurate benefit to the environment. Complex, redundant and conflicting regulations have frustrated many people who are trying to do the right thing. In some cases increased regulation over the past several decades may have been counterproductive. We heard this criticism frequently from landowners and building trade professionals.

We Can Find Solutions

> *"The needs of people must be given serious consideration and balanced when writing rules to control environmental impacts"* John Evans, San Juans Builders Association

Our research and communication with landowners, scientists and others in the first phases of the San Juan Initiative have identified a number of opportunities for improvement. Bolstering the health of our local ecosystem doesn't mean we must

sacrifice everything we love about living here in order to preserve it; it means we must design and implement our conservation programs wisely to ensure their efficiency and efficacy while supporting human rights and values. From builders to government officials to landowners, one of the San Juan's greatest assets is how much people care for their place and their community.

> *"I went to the Initiative meeting in Eastsound. Knowing that people care about what we will be giving our children was so encouraging",* Anna Roseberry, 27, mother

A More Detailed View of the San Juan Island Ecosystem: *What is Working*, What's not?

> "*Yes, we are aware that there are things that are adversely impacting our marine environment , but we believe that the significant problem areas will not be found in West Sound because they have to do with bigger things - fisheries regulation, protected species, shipping regulation and, as you mentioned, international agreements on salmon catch with Canada."* John Gorton, West Sound Resident

Understanding the current health of an ecosystem like the San Juans is a complex task, especially since we don't have enough information to get a complete picture. We don't know what was here historically, nor do we fully know what is here now. Without this information, we cannot accurately analyze the trends of important ecosystem functions or the organisms that rely on them. Key features like feeder bluffs, shoreline vegetation and water quality have not been measured, and we lack long-term studies for most of our shoreline resources. However, a number of residents have lived along the shore and observed it for decades. Many of the property owners who attended our meetings have lived on their property for 30 years and several for as long as 60 years. Their knowledge, based on years of observation, adds greatly to our understanding of the ecosystem.

In addition, work of the UW Marine Labs, Friends of the San Juans, the SeaDoc Society, the San Juan Marine Resource Committee and many others have provided a good foundation to assess current protection efforts. The Marine Resources Committee's Marine Stewardship Area Plan, which was adopted by the San Juan County Council, identifies key indicators of health and current trends. It also identifies the greatest threats to the ecosystem.

In terms of local threats, the Marine Stewardship Area Plan highlights the importance of changes to the physical shoreline caused by the placement of docks in eelgrass beds and salmon migration zones, armoring/bulkheading of banks and the removal of trees adjacent to the seashore. Building on the findings of the Marine Stewardship Area Plan, the San Juan Initiative conducted an assessment of current regulatory, education and property-owner incentive programs to determine whether these programs encouraged or discouraged beneficial actions for the environment.

The Initiative's assessment is grounded in science and based on new findings from research. As part of the research design, we looked in depth at four representative case study areas of the San Juans: a 9 mile stretch of shoreline on San Juan, Orcas, Stuart and Lopez Islands. In each of these case study areas, we documented shoreline changes and identified correlations between human actions and ecosystem response. By combining this research with a countywide assessment of programs, we identified what is working and what is not in terms of protecting key ecosystem features and processes.

In the next few sections we'll discuss these results in detail. Things that are working are italicized and printed in *green*. Things that aren't working are not italicized and printed in brown.

Protection of Key Ecosystem Features and Functions

What is Working, What's not

> *"Even though most of the shoreline is in good shape, we found from the research that some of the most sensitive areas like feeder bluffs have been altered. But, half the shorelines are yet to be developed which presents us with an opportunity to do a better job."* Joe Gaydos, SeaDoc Society Regional Director and Orcas Resident

1. *Overall, there is a high retention of **shoreline vegetation** that benefits the marine ecosystem by providing shade to spawning forage fish, dispersal of rainfall, a supply of terrestrial insects that feed organisms in the sea, and resting places for birds. The overall retention of trees is high (88% of the forest cover has been retained over the 30 years of Shoreline Management), with the average loss on properties developed since 1977 at 20 percent.* We found a high degree of variability parcel to parcel -- from 95% to almost zero -- in how much forest cover has been retained on lots developed since 1977.

2. ***Eelgrass** in the San Juans makes up approximately 7 percent of the total for Puget Sound. This percentage is significant because it serves as a feeding and rearing place for many of the populations of migrating salmon in Puget Sound and other species like crab, rock fish and herring.* Eelgrass is believed to be declining in the San Juans, and there are five places of dramatic decline: Nelson, Westcott, Mitchell, Blind and Fossil Bays. This dramatic decline is being studied to assess what combination of factors -- including disease, changes to water quality and temperature, and physical disruption from docks, armoring, and boat anchoring – are causing it. In our four case study areas we found 26% of the docks and 30% of mooring buoys were placed in areas of eelgrass. Shoreline residents also believe commercial crab harvesting and derelict crabbing gear may contribute to eelgrass declines.

3. ***Forage fish** spawning beaches are critical because, like eelgrass beds, they provide important habitat for a key part of the life cycle of sand lance and surf smelt, which are a basic food source for the whole ecosystem. In the case study area we found almost 4 miles of documented forage fish spawning beach and 10 miles of potential spawning beach.* Armoring has a direct impact on the forage fish spawning beaches through burial of habitat or by changing the type of beach sediment present. Of the 71 parcels within our case study areas with documented forage fish habitat, half had

armoring. In addition, half of all parcels with armoring were on beaches with potential forage fish spawning habitat.

4. ***Shoreline armoring*** *includes the placement of bulkheads, rocks or other structures to prevent land erosion. Thirty percent of the shoreline in Puget Sound is armored. Only twelve percent of the shoreline in the four San Juan case study areas is armored.* However, the most sensitive areas are being armored. Feeder bluffs supply sediment to the beach to create forage fish spawning habitat and supply the substrate for eelgrass. Our case study shows that feeder bluffs and pocket beaches are disproportionately being armored. Of the 4.5 miles of feeder bluffs in our study area, 30 percent have been armored. This eliminates the source of sand and gravel for beaches, which then leads to private property erosion and loss of forage fish spawning areas. We also found 80 percent of the 4 miles of armoring in the case study areas was low enough on the beach to cover places where forage fish could spawn.

5. ***Shoreline vegetation*** *on most developed parcels is being maintained.* But we found that armored shores had a greater loss of shoreline forest and overhanging vegetation. Parcels that had been armored lost twice as much forest as unarmored shores. We also found that armored shores had about 20% less overhanging vegetation.

6. *In Puget Sound harvest of* ***crabs*** *has doubled in the last ten years.* We did not collect scientific information on crab and salmon populations but long time residents reported a significant decline in their ability to catch crabs and salmon.

7. *The Department of Ecology requires San Juan County to implement new* ***stormwater regulations****.* Property owners raised numerous concerns about increased stormwater runoff from uphill properties and localized impacts to water quality and sedimentation of lagoons. Building trade professionals question the current regulations and believe they are creating worse impacts then previous practices.

8. *There is a good start on developing a* ***comprehensive database*** *for the marine ecosystem of the San Juans. The Marine Resources Committee is in the process of developing a monitoring program for the County which will be completed by the end of the year.* But there are no funds committed to implement it. The lack of an accessible, comprehensive, science-based understanding of the ecosystem undermines the motivation of landowners and others who want to do the right thing. It also limits our ability to determine the success of management changes.

Property Owner Interests:

What's working, What's not

> *"I believe in regulations but they've gotten out of the realm of common sense. You start getting people going around the regulations, or spending thousands of dollars to employ consultants."* Walt Corbin, Orcas Resident

1. Many shoreline property owners would like to have a private dock and/or mooring buoy for convenient access to boats. *Community docks and docks located away from eelgrass are preferred under County regulations. There are also new techniques for anchoring mooring buoys that have minimal if any impact on eelgrass and other organisms living on the bottom.* County and state regulations are very complex and the process for getting approval of new docks is time consuming, expensive and uncertain. New techniques for anchoring mooring buoys are much more expensive ($2,000-3,000) than the older high-impact concrete block designs. There is limited space availability in marinas in close proximity to property owners who desire mooring facilities.

2. Healthy shorelines and abundant sea life: *Crab harvest in Puget Sound has increased from 4 million pounds per year in 1995 to 8 million pounds in 2007. Managers believe that the crab harvest is sustainable.* But, property owners see that they are getting less crab than they did ten years ago because the harvest of crabs and salmon is significantly limited by current distribution and timing of commercial (tribal and non tribal) harvest. Voluntary rockfish closures have not resulted in rebounding rockfish numbers, and fishing for rockfish is quite limited. Salmon harvest by recreational fishermen has also declined in recent years.

3. Protection of land from erosion – *If a home or other upland use is threatened by shoreline erosion the county grants approval for armoring. Where previous armor has been placed, the County supports repair and replacement.* Some bulkheads and armoring increase erosion adversely affecting nearby property owners.

4. Views from the water and from homes – *The County requires visual screening of homes from the water but allows for clearing to create and maintain a view.*

Homeowners have experienced changing interpretations, reflected in the wide variance of trees retained on newly developed lots and affecting views.

5. Rules that are fair, equitable and enforced – Shoreline property owners and professionals in the building trades feel that rules are often not applied equitably, and that decisions by managers seem arbitrary. Property owners provided anecdotal information about the lack of enforcement within their communities and the impact of that on their property and to the shoreline. This anecdotal information was supported through conversations with contractors, builders and others who work on shoreline properties.

Management Programs: Overarching Findings

What's working, What's not

> *"Though regulatory protection of nearshore marine environments has improved as our understanding of these environments has improved, there are still critical areas that need to be addressed. As our understanding of the nearshore marine environments evolves, new tools and strategies can be identified that will help to address both the needs of property owners and the environment."* Brian Williams, Department of Fish and Wildlife Biologist.

Regulatory Programs:

1. *The rules and laws governing modifications of the marine shoreline for bulkheads and docks have become more stringent over the last ten to twenty years as the science has improved our understanding of how the marine environment functions. It is now more difficult to get a dock or bulkhead approved if it has the potential to significantly impact the marine environment. The multiple permit requirements at the County, State and often Federal level of government serve as checks and balances to ensure that new activities mitigate their impacts to the shoreline.* This duplication of effort also leads to confusion, conflict and frustration on the part of landowners and professionals in the real estate and building trades. In general, administrative practices require more specific conditions than the adopted codes. The lack of consistency between the more general codes and the specific science-based site-by-site review creates confusion among applicants. In addition, most of the governmental resources are deployed in the review and approval of permits, leaving few resources to provide

technical assistance to property owners, inspections or enforcement after the permits have been issued. The confusion and uncertainty have an unintended consequence of encouraging people to act without getting a permit. Another unintended consequence is that property owners spend lots of money on proposals with a high uncertainty of approval. Many shoreline property owners and building trade professionals feel overburdened and discouraged by regulatory processes, and not confident that compliance will lead to meaningful results, either for them or for the environment.

2. *Regulatory programs at the state and local level have improved in their application of science to how permits are conditioned, resulting in less impact from current structures.* There are many older bulkheads, docks, and mooring buoys that appear to have greater (adverse) impacts than recent structures, and there are limited tools being used to reduce the impact from these older structures.

3. Accountability and access to information – *There have been improvements to the specificity in permits on the part of the County and Department of Fish and Wildlife. This makes it easier to assess compliance and reduce the impact to the ecosystem. There is also a great deal more information available on the location of habitats and ecosystem processes and functions.*

   However, there are essentially four problems with current accountability:

   a. The information available is not easily searchable and there is no system that integrates the various permit processes between local and state governments. For example, DFW keeps track of their permits by landowner name and the County by tax parcel number. It is nearly impossible to correlate the two systems and assess what has been allowed by permit.
   b. The permit record does not accurately capture changes to the physical shoreline or the location of shoreline structures in the County. We found over 200 parcels in the case study areas with shoreline armoring but found only 9 permits in the County files and 11 permits in DFW files. The permits we found were not all the same between the two agencies. Although many of these shoreline changes may have appeared more than 20 years ago before permits were required, this does not explain why there are so few permits.
   c. The lack of specificity within County permits limits our ability to check on compliance or to condition a permit to have less impact. For instance,

there is limited detail on exemption permits which cover both new and repaired bulkheads and repair of docks. We heard from many builders, contractors and property owners that in the process of repairing docks and bulkheads past impacts have actually expanded. There is no system to inform shoreline property owners of the environmental conditions or management activities adjacent to their property. This leads to widely different views and perceptions about the health of their immediate environment as well as what is allowed and prohibited.

d. There is little inspection of structures after they have been built. We found less than 50 percent compliance with the requirements in county dock permits.

> *"Most contractors and builders want to do the right thing, but with no enforcement, the few that don't comply create problems for the rest of us."* Peter Kilpatrick, builder.

4. *The most recent dock permits approved by the county required placing the docks to reduce impact to eelgrass. WDFW has only approved two docks over eelgrass since 2000 and both had requirements for mitigation.* Although there is a focus on protecting eelgrass from docks, there is not a parallel emphasis on the other impacts to eelgrass: anchoring, crabbing and sediment inputs which together may create more damage than the current number of docks.

5. *County and state requirements reduce the impact of new bulkheads and prohibit the armoring of feeder bluffs. There has been significant advancement in the science of how to reduce property erosion and improve protection of the environment.* However, the current approach of parcel-by-parcel erosion control may not always be the best solution. The cause and effect of the erosion often stretches across more than one parcel. Solutions like soft shore beach armoring can address erosion on multiple parcels and at the same time improve the quality of the beach for forage fish. Armoring of feeder bluffs is prohibited in the county, feeder bluffs aren't mapped. Additionally, armoring requirements do not take into account the unique characteristics of the shoreline, allowing impacts to adjacent and down-current landowners as well as loss of ecosystem function. The

installation of single family bulkheads or the repair of existing bulkheads is currently exempted from the County permit process. This limits protection of the shoreline and in some cases increases impacts.

6. *The County requires retention of trees to screen new construction from the water and allows clearing to provide a view from a home. Most of the landowners we interviewed, especially the long-term residents, prefer to keep trees for buffer and privacy.* There are no requirements to maintain vegetation for ecological purposes. This results in incidents where a lot is cleared before applying for a building permit, and there have been varying interpretations of what screening and clearing for a view mean. This is borne out by the results measured in the case study areas where retention of trees varied from 95 percent to zero.

> *"One of my clients was required by an agency to maintain a 50 foot buffer between his house and the shoreline, and then another agency required him to cut down half the trees in that buffer to install stormwater protection".* Terri Williams, Owner of Permit Resources, Orcas Resident

7. *New science is being used by local and regional planners to require permit applicants to design their structures to have less impact.* Although individual requirements are becoming more specific and rigorous, there continues to be little assessment or accounting for cumulative impacts. The county and the state both lack tools or programs to assess cumulative impacts.

8. *Regulations covering shoreline setbacks, tree buffers, armoring of banks, stormwater control and docks are increasingly more stringent and assumed to individually increase protection of the environment.* However, there are numerous examples of how the regulations conflict and in combination don't make sense for the landowner or the environment. House setback requirements are one of the most common management tools for reducing impacts and it is not clear from our research whether this tool is working.

9. *Our understanding of climate change is increasing and there are predictions of the impacts in Puget Sound that could be used in the design of shoreline*

changes. There are no regulatory programs that are currently considering the likely impacts of climate change. There has been increased information about the impact of climate change and there is discussion at the policy level but it has not yet filtered down to the everyday decision making of permit planners, nor is there guidance provided to planners.

10. *Mitigation is required by the county and the state to ensure no net loss of critical fish habitat.* There are no regional mitigation strategies or sites to address bulkhead impacts. There is also little guidance for local planners for how to mitigate impacts from docks.

Incentives

1. *There are at least three incentive programs that reward property owners for good stewardship.* But current programs are used mostly on large lots. In our case study area, conservation easements were on lots with an average of 1300 feet of shoreline while most parcels within our case study area had less than 200 feet of shoreline. The County's Open Space Taxation program rewards property owners for good stewardship but few land owners know about it and it is not currently designed to reward owners of small lots. Nor does it target some important shoreline ecological features. In addition, there is no monitoring that ensures the retention of features for which the property owner is receiving the tax break.

2. *Conservation easements have improved in explicitly protecting shoreline resources in recent years. The San Juan Preservation Trust and the Land Bank have increased their attention and focus on protection of shoreline resources. This is evident in the number of conservation easements with explicit protection for eelgrass, kelp and forage fish habitat increasing from 45% over the last 25 years to 60% in the last eight years.*

Education

1. *We found landowners are highly knowledgeable and interested in understanding how to best manage their land. There has been a significant effort by governmental and non-profit organizations to provide basic information to*

property owners. The best and most consistent program is provided by Friends of the San Juans. The information provided by other groups is generally so basic that it does not address the issues faced by the landowners.

2. *Landowners want to steward their property and care deeply about their shoreline.* Landowners lack specific technical information that would allow them to make better decisions prior to modifying their parcels. In addition, there is little technical support for builders, contractors or realtors on the importance of shoreline resources and how to advise their clients. For instance, most property owners are not aware of whether or not they are on a feeder bluff or adjacent to forage fish areas.

3. *There is a system for coordination of existing resources among education providers. There is also a concerted effort by the Marine Resources Committee to continue improving the coordination of education and outreach within the county.* However, property owners need more specific information to assist in there stewardship.

4. *In the Puget Sound region the boating industry is making a concerted effort to inform boat owners of their impact.* Although boating has impacts on enclosed embayments, there has not been a local effort to educate the boating community outside of the Whale Museum's work to reduce impacts from boats on whales.

Opportunities for Improvement

The results of the assessment of "what's working and what's not" helps to identify opportunities to increase the certainty that protection efforts will result in a healthy functioning ecosystem now and into the future. With the conclusion of the assessment, the San Juan Initiative now shifts its focus to the development of solutions. These solutions, if implemented by the various involved governments and organizations, will address the core issues raised in the assessment.

The Policy Group will hold two meetings, June 20 and 27, to determine where to focus the next phase of the Initiative. Their decision will be based on several factors:

~What can be successfully accomplished in the remaining months from July to December of this year?

~What resources are available from both the Initiative and participating organizations?
~What is most important for the future of the ecosystem and the interests of property owners?

Below is a list and brief description of the potential areas for focus. These opportunities were developed by the staff and discussed with property owners, real estate and construction trade professionals, and officials from several government agencies.

The list and descriptions are intended as a decision-making tool for the Policy Group members, who after discussion may choose to modify the list. The staff will continue to analyze feasibility – costs, tradeoffs, likelihood of success, and so forth, for each of the areas of focus for the Policy Group deliberations. Regardless of which areas of focus are selected, the following process for design of solutions and recommendations for change needs to involve landowners, trade professionals, and governmental officials, and be based on sound science.

There are more opportunities for improvement than can be advanced by the current staffing and resources of the San Juan Initiative. We hope that the list and additional ideas for improvement will inspire others to get involved and advance ecosystem protection in the San Juans.

> *"As we design solutions, we need to focus on the good that is happening not just the bad. So often when we try to fix things, the unintended consequences cause more harm than the original problem."* Patty Miller, Orcas Resident

1. Improve Support to Property Owners

a. **Provide convenient technical assistance:** This would involve more research on what issues are most pressing to land owners, what technical resources are needed and the magnitude of resources necessary to meet the interest. The staff, working with agencies, could design a system for providing this service, addressing issues such as where the resource would be housed,

who would be responsible for the different components, what it would cost, and how it could be funded. The final result could be an agreement by the responsible organizations to implement the system when funding is secured.

b. **Develop a system that provides relevant science information on the current status of the ecosystem.** It is not easy for shoreline property owners to get access to information about their local environment, status of its health, what is changing, and whether activities that they see (like harvesting) are consistent with the regulations. Similar to the results possible in item "a" above, the staff could more specifically determine from property owners and trade professionals what information would be most useful, how it could be provided, who could best provide it, and what it would cost. The ability to provide information through a web-based tool could be explored.

c. **Provide incentives that work for smaller properties**: This would involve working within our case study areas to determine what incentives are most attractive to property owners and working with the conservation groups (Land Bank, SJ Preservation Trust, Trust for Public Lands, The Nature Conservancy and the County Assessor) to identify how their programs could be adapted to work with smaller properties. In addition, a landscape approach would be explored that would target multiple smaller properties in areas with high habitat values.

d. **Provide incentives to reduce impacts of current docks, mooring buoys and bulkheads:** Examine the existing tools and potential new ones to voluntarily reduce the impact of current structures. Work with property owners within case study areas to find incentives that would be attractive and workable. Look for models from other communities.

e. **Modify past conservation easements to better protect shoreline resources:** Improve the explicit protection of habitats from modification through revision of past conservation easements or with properties already enrolled in the tax incentive programs by working with the SJ Preservation Trust, the Auditor's office and the SJ County Land Bank.

2. **Address landowners' interest in boat access while protecting key ecosystem processes and functions.** Work with local marina operators, landowners and government agencies to assess the demand for boat access and

current availability. Develop options for increasing boat access through marinas, single use and shared docks in areas that would have minimal impact on marine resources.

3. **Encourage the retention of shoreline vegetation**: This may involve a two-tier approach. First: review current codes and encourage the County staff and Critical Areas Ordinance (CAO) Committee to more clearly address the desire of property owners to maintain a view, provide visual screening and protect shoreline functions and processes. Second: identify education and incentive partners to create a more effective set of tools for shoreline landowners.

4. **Address the impacts of transient boat anchoring and boating on embayments:** Multiple government agencies and citizens would be involved in creating a solution. Focus on Garrison Bay and create a partnership with the National Park Service, the County, Departments of Natural Resources and Fish and Wildlife to identify a transient mooring system that results in eelgrass protection and view shed protection, and is easy to enforce. Look for other models – like Jefferson County's voluntary no anchor zones.

5. **Explore ways to clearly identify if there are environmental impacts from crab harvest and the potential to reward landowners with better access to crab harvest for good stewardship of habitat on private property.** Work with the tribes, Department of Fish and Wildlife and NOAA Fisheries to determine if there are impacts to eelgrass in the San Juans from crab harvest. Identify opportunities and constraints for increasing crab harvest by shoreline property owners.

6. **Reduce multi-agency duplication in permit process and free up resources for advance technical assistance to property owners.** Form a task force of the regulatory agencies to identify ways to streamline the process while improving overall protection. Research programs in other areas and work directly with the Governor's Office for Regulatory Assistance to identify potential pilot program opportunities. Develop a proposal for review and refinement by the agency directors. Ensure that there is technical expertise in the local regulatory and incentive programs.

7. **Address the lack of specificity within county codes and update WDFW's administrative code with the science already in use:** Work through the Critical

Areas Ordinance update to increase specificity for protection of shoreline resources. Work with WDFW staff to document where specificity would be most useful and identify barriers to updating the State codes.

8. **Develop shoreline reach approaches to protection of resources and control of erosion that bring together incentives and regulatory tools:** Identify already existing models that could inform this work. Identify already existing reaches within case study areas that may benefit from a landscape approach to erosion. Work with coastal engineers, property owners and County staff to design a model that identifies areas where soft shore protection could work in the county and work to implement a model project that could be applied in other areas. Create a standardized methodology for evaluating suitability of shoreline reaches for soft shore protection alternatives.

9. **Improve regulatory programs for stormwater to make more sense to landowners, trade professionals and improve environmental protection.** Work with local building trade professionals and the County to identify conflicts in the current requirements. Present the findings to the Department of Ecology and seek administrative support to develop alternative approaches that fit the conditions in the San Juans.

10. **Provide education for trade professionals and create incentives for increased expertise:** Identify models from other communities that have found ways to provide ongoing education and incentives to improve local capacity for lower impact shoreline structures. Explore a community-based trade association that provides technical expertise to property owners and county on a case-by-case basis. Identify stable funding sources for education.

11. **Design compliance system with penalties:** Work with the County and with contractors, home-owners, and other interested parties to design a system that works for the community and provides greater certainty of protection. Identify stable funding for inspections of shoreline projects.

12. **Address the need to consider cumulative impacts at the local and regional scale:** Work with WDFW and coastal ecologists to develop a model or tool that quantitatively assesses cumulative impacts at a landscape level and that can be applied to individual project decisions. The tool would be specific for the various types of impacts: docks, armoring, etc.

13. **Work with local and regional agencies to incorporate predictions of climate change:** Identify the barriers to incorporating predictions of climate change. Research the response from other island communities world-wide to understand barriers to management. Identify which management programs will most need to adapt and suggest strategies for addressing change.

Making a Contribution: From the Home Shore to Regional Ecosystem

Through the process of field work, analysis, comparing notes, and conversations of all kinds, we found many opportunities to make a difference if we work together. The effectiveness of our science is increased by first-hand observations of long-time island residents. Our well-intended layers of governance and policy have evolved and can improve from the pragmatism of "what's working, what's not." We've found, again and again, that the landowner's best interest is often also good for the environment. "Doing the right thing" is mutually beneficial.

Just as the beauty of the San Juans can be expressed in something small, like a tide pool, and also in something large, like the breathtaking expanse of a ridge-top vista, meaningful contribution begins with simple measures practiced at home and scales up to more complex, ecosystem-wide issues. By collaborating and partnering with state and federal entities, we can develop a critical mass to get things done. Thoughtful engagement is synergistic. In the same way that our appreciation and love of place deepens over time, so does our instinct to care and protect our land and waters.

San Juan Initiative, June 16, 2008