Friends *of the* **San Juans**

360.378.2319 P.O. Box 1344
www.sanjuans.org Friday Harbor, WA 98250

To: San Juan County Council and Planning Commission
From: Stephanie Buffum, Executive Director, Friends of the San Juans
Date: August 13, 2018
Re: August 17, 2018 San Juan County Council Special Meeting and Joint Public Hearing with the Planning Commission to Hear Testimony on Proposed Amendments to San Juan County Code Chapter 18.50 Shoreline Regulations

Friends of the San Juans respectfully submits the following comments on San Juan County's response to the Western Washington Region Growth Management Hearings Boards' Final Decision and Order Case No. 17-2-0009 (GMHB FDO) regarding compliance of San Juan County's Shoreline Master Program (SMP) update. Since 2011, Friends of the San Juans has been providing review and comment on all phases of the SMP update. In 2017 we appealed several provisions of the adopted SMP for its failure to comply with the law and to ensure no net loss of ecological functions.

From the beginning, our comments have advocated for getting it right, not just getting it done. Stewardship of the County's marine shorelines is among the most important actions we can take as a community to support the recovery of Chinook salmon and the Southern Resident Killer Whales, as well as preserving the physical and aesthetic qualities of the natural San Juan shorelines that are so integral to our sense of place for residents and visitors alike (see RCW 90.58.020). Since the 1998 SMP update, both Puget Sound Chinook salmon and Southern Resident Killer Whales have been listed under the Endangered Species Act.

This joint public hearing is taking place while the world is witnessing the plight of the critically endangered Southern Resident Killer Whales. We have witnessed J35 mourning for and carrying her dead calf. We witness J50 who is sick and emaciated. We know that Southern Resident Killer Whales don't have enough Chinook salmon to eat and that their ability to communicate and hunt for scarce prey is impacted by vessel noise and disturbance. We are working to reduce vessel traffic noise and disturbance impacts on of the Vessels Working Group of the Governor's Southern Resident Killer Whale Recovery and Task Force as they are out of the scope of the SMP. We are also advocating directly with the Task Force to address prey availability. However, there is much that San Juan County can do to address prey availability for Southern Resident Killer Whales in this SMP compliance process.

With over 400 miles of marine shorelines, the Shoreline Master Program provides the most significant opportunity for San Juan County to support the recovery of Chinook salmon and Southern Resident Killer Whales. The revisions to the SMP regulations will guide how San Juan County protects habitat and processes critical to local and regional ecosystem recovery for decades to come.

We thank Councilmember Jamie Stephens for his service on the Governor's Southern Resident Killer Whale Recovery and Task Force. At the August 7th task force meeting he said, "Nothing will get better with the status quo," and, "I would ask that we all step back, step out of your positions, and decide if you were the master of the universe what would you do to fix this situation."

The San Juan County Council, with recommendations from the Planning Commission, is the master of the universe in this SMP compliance process, and you have the ability to do better than the status quo. Your decisions in this SMP compliance process affect the most significant stressor to the Southern Residents: getting enough to eat. We urge you to take this task of achieving compliance seriously and do the required work to thoroughly address the three issues identified in the GMHB DFO as noncompliant.

Because San Juan County's beaches and eelgrass meadows support the forage fish that feed the Chinook salmon that feed the Southern Residents, we have spent over seven years advocating for their protection. We also were co-petitioners on the SRKW Endangered Species Act petition in 2001. We have been active on salmon recovery efforts since 1998. Twenty of twenty-two stocks of Puget Sound Chinook salmon and numerous stocks of Chinook from the Fraser River and the Georgie Strait rivers use the marine shorelines of the San Juan Islands as essential rearing and feeding habitat. Protecting and enhancing San Juan County's forage fish spawning beaches and forage fish and Chinook rearing habitats are critical to sustaining and increasing the Southern Resident Killer Whales' food availability.

Public comments throughout the SMP process were heavily weighted towards those seeking improved protections. The international spotlight is on our community, watching to see if bold action will be taken. While the areas of change demanded by the growth board are few in number, they do have the potential to significantly impact the success of the SMP to achieve or even attempt to achieve no net loss of ecological functions and values and avoid the incremental losses foreseen by the state's public when it was adopted by the people in 1972; "There is, therefore, a clear and urgent demand for a planned, rational, and concerted effort,…to prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines." (RCW 90.58.020)

Friends of the San Juans is concerned that San Juan County doesn't fully appreciate or address the appropriate level of detail in the proposed ordinance revisions to comply with the primary requirement addressed in the GMHB FDO: ensure that there is no net loss (NNL) of ecological functions. For example, the July 2, 2018 staff briefing to the San Juan County Council and Planning Commission and the July 30, 2018 staff report includes no mention of no net loss. The GMHB FDO includes "no net loss" or the abbreviation "NNL" 31 times.

Friends of the San Juans recognizes that members of the Planning Commission and County Council cannot be expected to be immersed in the full details of the complex issues addressed in the GMHB FDO. You are faced with a voluminous record for this compliance process. We urge to first and foremost give your attention to the detail explanations of the relevant issues

provided in the GMHB FDO (Issue No. 2, pages 13 – 18; Issue No. 4, pages 22 – 27; Issue No. 7, pages 31 – 35).

Specific comments on the three substantive areas requiring revision are provided below, including the GMHB FDO findings of fact and suggested revisions to the draft ordinance to ensure compliance with the GMHB FDO, including:

A. GMHB FDO Issue No. 2 Environmental Impact Mitigation: requirement for alternative compensatory mitigation to occur within the same watershed as the impact (WAC 173-26-201(2)(e)(ii)(B)) as addressed in Section 3 of the draft ordinance;

B. GMHB FDO Issue No. 4 Shoreline Stabilization: requirement for tightening of both the allowance criteria for new or expanded soft armoring and the definition of soft shore armoring (RCW 90.58.020, WAC 173-26-231(3)(a)(iii)(B) and WAC 173-26-231(3)(a)(ii)) as addressed in Sections 1, 4, 5, and 6 of the draft ordinance; and

C. GMHB FDO Issue No. 7 Evaluation of the Cumulative Impacts of Authorized Development: requirement to develop and implement a mechanism for documenting all project review actions in shoreline areas and process for periodically evaluating the cumulative effects of authorized development on shoreline conditions (WAC 173-26-191(2)(a)) as addressed in Section 2 of the draft ordinance.

We look forward to San Juan County's timely and thorough completion of the required updates to the SMP.

Friends of the San Juans Comments on San Juan County's response to the Western Washington Region Growth Management Hearings Boards' Final Decision and Order Case No. 17-2-0009

A. ***GMHB FDO Issue No. 2 Environmental Impact Mitigation: requirement for alternative compensatory mitigation to occur within the same watershed as the impact (WAC 173-26-201(2)(e)(ii)(B))***. A***ddressed in Section 3 of the draft ordinance.***

The Growth Board order states that mitigation on the same island is not sufficient to meet the requirements of the WAC for mitigation sequencing:

> While the County's regulations do give "preferential consideration" to mitigation in the direct or immediate vicinity, the WAC does not authorize mitigation "on the same island" (unless that island was within a single watershed) or potentially at an in-lieu mitigation site not within the same watershed. As the Petitioner points out, the San Juan islands include numerous watersheds. DOE's statement that the Guidelines do not require mitigation within the same watershed is inaccurate. WAC 173-26-201(2)(e)(ii)(B) clearly provides that location within the same watershed is a fallback from siting mitigation directly or in the immediate vicinity.
> (GMHB FDO page 17 line 4)
>
> San Juan County's decision to adopt, and the Department of Ecology's decision to approve, San Juan County's Shoreline Master Program Update, specifically those regulations relating to mitigation for adverse impacts to shoreline ecological functions beyond the watershed of the anticipated impacts, failed to comply with the policies of the Shoreline Management Act and Shoreline Master Program Guidelines.
> (GMHB FDO page 17 line 15)

The board goes on to include the specific language that is not satisfied:

> WAC 173-26-201(2)(E)(ii)(B) provides:
>
> > When compensatory measures are appropriate pursuant to the mitigation priority sequence above, <u>preferential consideration shall be given to measures that replace the impacts functions directly and in the immediate vicinity of the impact. However, alternative compensatory mitigation within the watershed</u> that addresses limiting factors or identified critical needs for shoreline resource conservation based on watershed or comprehensive plans applicable to the area of impact <u>may be authorized</u>. … (emphasis added)
> > (GMHB FDO page 16 line 15)

The County's proposed solution, inclusion of a reference to a single, incomplete stormwater basin map is insufficient. The proposed map lacks basin delineations for major portions of the county, including all of the outer islands and Shaw Island, and revised language fails to reference any watershed or resource plans that will be used to ensure adequate mitigation is

selected within the watershed as required. As a result, additional changes to the ordinance beyond those currently recommended by the staff are needed to achieve compliance.

The County must provide an updated map, with similarly scaled basins delineated on all County islands where development can occur. Currently, only Lopez, Orcas, and San Juan are mapped. In addition, the WAC clearly states that these actions must address a critical need identified in a watershed or resource management plan. The county fails to address this component of the WAC and provides no evidence of such watershed plans. Plans must be specifically referenced in the ordinance along with a complete map. The County's watersheds for Lopez, Orcas, and San Juan Islands are identified in the San Juan County Stormwater Basin Planning report dated June 26, 2014.

The compliance process outlined in the July 2, 2018 staff briefing and the July 30, 2018 staff report identifies no additional work that has been completed or is in progress on the necessary watershed mapping in order to comply with Issue No. 2 of the GMHB FDO. This failure to fully address even this most straightforward and simple element of the GMHB FDO is further evidence of the County's lack of seriousness and sincere intent to achieve compliance and meet the required standards of no net loss in this compliance process.

Friends of the San Juans proposes changes to the draft ordinance, including the language from WAC 173-26-201 (2)(E)(ii)(B) which more accurately achieves compliance:

> Preferential consideration shall be given to measures that replace the impacts to functions directly and in the immediate vicinity of the impact. However, alternative compensatory mitigation within the watershed that addresses limiting factors or identified critical needs for shoreline resource conservation based on watershed or comprehensive plans applicable to the area of impact may be authorized.

Recommended changes to Section 3 of the draft ordinance (in red):

Section 3. Amends SJCC 18.50.140 (C) Mitigation of adverse impacts to shoreline ecological functions:

C. Preferential consideration shall be given to measures that replace the impacts to functions directly and in the immediate vicinity of the impact. However, alternative compensatory mitigation within the watershed that addresses limiting factors or identified critical needs for shoreline resource conservation based on watershed or comprehensive plans applicable to the area of impact may be authorized. ~~When feasible, adverse impacts are to be mitigated on site. If off-site mitigation is proposed, the mitigation site must be located on the same island, as close as feasible to within the stormwater watershed of the development site.~~ A map of the County's stormwater watersheds for all County islands where development could occur and watershed reports from the San Juan County Stormwater Basin Planning report dated ~~June 26, 2014~~ is available on the County's web portal for GIS data and maps.

B. Issue Four Shoreline Stabilization: requirement for tightening of both the allowance criteria for new or expanded soft shoreline stabilizations and the definition of soft shoreline stabilization (RCW 90.58.020, WAC 173-26-

231(3)(a)(iii)(B) and WAC 173-26-231(3)(a)(ii)). Addressed in Sections 1, 4, 5, and 6 of the draft ordinance.

> The Growth Management Hearings Board finds and concludes that San Juan County's decision to adopt, and the Department of Ecology's decision to approve, San Juan County's Shoreline Master Program Update, specifically regulations relating to the standards applicable to the allowance of hard and soft shoreline structural modifications and the inclusion of hard materials in soft shoreline stabilization design, fails to comply with the policies of RCW 90.58.020 and the requirements of WAC 173-26-231(3)(a)(iii)(B) and WAC 173-26-231(3)(a)(ii).
> (GMHB FDO page 26 line 17)

<u>GMHB FDO Issue No. 4 Shoreline Stabilization part 1: Allowance of hard and soft shoreline structural modifications</u>:

> The Board observes that the SMP's standards for allowance of new or enlarged[106] stabilization differ significantly from that of WAC 173-26-231(3)(a)(iii)(B). The Guideline states that new or enlarged stabilization measures to protect existing primary structures, whether soft or hard, "should not be allowed unless there is [documented] conclusive evidence that the structure is in danger from shoreline erosion . . .". The SMP, in contrast, allows new, replaced or enlarged hard and soft stabilization when there is a "significant possibility that the development will be damaged".[107] A "significant possibility" standard falls far short of "conclusive evidence" as required by the rule. The Petitioner has met its burden of proof to establish that the Update's shoreline stabilization provisions as specifically addressed above violate WAC 173-26-231(3)(a)(iii)(B).
> (GMHB FDO page 24, line 8)

The relevant WAC does not treat hard shoreline stabilization and soft shoreline stabilization differently with regard to the allowance criteria. San Juan County has not provided any rationale for doing so. The proposed solution of a geotechnical report required for soft shoreline stabilization needs to include a timeframe for the expected damage to occur, as is required for hard shoreline armoring. We also request that the county's ordinance update include all the text in the relevant section on allowance criteria, the proposed changes leave off the third criterion (Section 4.C.3. included below). It should also be noted that previous to this recently adopted SMP, the county's shoreline stabilization allowance criteria treated soft and hard shoreline stabilization the same and returning to this standard will achieve compliance without tightening restrictions as the recent update loosened the regulations regarding the allowance of soft shore projects.

Friends of the San Juans recommends text changes that include language taken directly from WAC 173-26-231(3)(a)(iii)(B) (addition of existing primary structure in 4C in the ordinance) as well as language to tighten the allowance criteria as ordered by the GMHB (Section 6. Amends SJCC 18.50.420(3) and (4)).

Recommended changes to Section 4 of the draft ordinance (in red):

Section 4. Amends SJCC 18.50.350 Hard and soft structural shoreline stabilization measures – General regulations:

C. New, replaced, or enlarged soft structural shoreline stabilization measures for an existing primary structure ~~may~~ are not ~~be~~ allowed unless there is conclusive evidence documented by a geotechnical analysis~~,~~ that the structure is in danger within three years as a result of ~~from~~ shoreline ~~when there is a significant possibility that development will be damaged as a result of~~ erosion caused by tidal action, waves ~~and~~ or currents.

1. Normal sloughing, erosion of steep bluffs, or shoreline erosion itself, without a scientific or geotechnical analysis, is not demonstration of need.

2. The geotechnical analysis should evaluate on-site drainage issues and address drainage problems away from the shoreline edge before considering structural shoreline stabilization.

3. The erosion control structure will not result in a net loss of shoreline ecological functions.

As the relevant WAC provides no distinction between soft and hard armoring, Friends of the San Juans recommends that San Juan County's SMP also maintain that consistency for all shoreline stabilization projects by adding language to the soft shoreline stabilization Section 6.4. Alternatively, Section 6.3. and Section 6.4 could be reduced to one section, for all structural shoreline stabilization (hard and soft) projects to simplify the ordinance.

Friends has been making the point throughout the SMP comment period that all structural stabilization techniques have impacts, and the rationale that supports treating them the same in allowance sections of the code is addressed in the growth board order as well as the Washington Administrative Code (WAC):

> However, the Petitioner appropriately takes exception to the County's statement that since "forage fish spawning areas are seaward of the OHWM, the SMP does not allow shoreline armoring "on" forage fish habitat". Armoring, whether it is hard or soft, and even when located above the OHWM, can result in impacts to shoreline ecological functions, including forage fish spawning areas, and it is those impacts which the SMA seeks to address (WAC 173-26-231(3)(a)(ii)). (GMHB FDO page 25 line 14)

Recommended changes to Section 6 of the draft ordinance (in red):

Section 6. Amends SJCC 18.50.420(3) and (4) for consistency - Hard or soft shoreline stabilization measures – Additional submittal requirements:

3. A geotechnical analysis for hard structural shoreline stabilization measures documenting that without the proposal there is ~~a significant possibility~~ conclusive evidence that development will be damaged within three years as a result of erosion caused by waves and currents, or that postponing the work until the need is imminent (within three years) will result in the loss of opportunities to avoid greater impacts on shoreline ecological functions. New and enlarged

hard structural shoreline stabilization measures are allowed only when needed to protect the types of upland structures and infrastructure identified in SJCC 18.50.350(A);

4. A geotechnical analysis for soft structural shoreline stabilization measures documenting that without the proposal there is ~~a significant possibility~~ conclusive evidence that development will be damaged within three years as a result of erosion caused by waves and currents, or that postponing the work until the need is imminent (within three years) will result in the loss of opportunities to avoid greater impacts on shoreline ecological functions. New and enlarged soft structural shoreline stabilization measures are allowed only when needed to protect the types of upland structures and infrastructure identified in SJCC 18.50.350(A);

In addition to the sections of the ordinance proposed to be updated in the staff report, Friends recommends changes to 18.50.350 for consistency among sections of the ordinance and compliance of the GMHB FDO and the WAC (in red):

Additional changes needed to the San Juan County Code for consistency:

18.50.350 Hard and soft structural shoreline stabilization measures – General regulations.

B. New, replaced, or enlarged hard or soft structural shoreline stabilization measures may be allowed when damage to them is expected within three years.

GMHB FDO Issue No. 4: Shoreline Stabilization, Part 2: Inclusion of hard materials in soft shore addressed in Section 1 and Section 5 of the draft ordinance:

In addition to the failure to comply with the allowance criteria for soft shoreline stabilization projects, the GMHB FDO found that the inclusion of hard materials in soft shore projects was non-compliant. As a result, the draft ordinance includes multiple changes to SJCC 18.50.390 as well as to SJCC 18.20.190 (S) definitions. Friends supports the majority of these changes and offers slight additions to improve the consistency and clarity of the code as well as to ensure compliance with the Washington Administrative Code and the GMHB FDO.

In addition to removing language referencing hard elements in soft shoreline stabilization projects, the definition of soft shoreline stabilization should also be expanded to improve clarity and consistency between sections of the SMP. This is especially important given that the prescriptive language regarding materials has been removed and the site-specific nature of separating true soft shoreline stabilization projects from hard shoreline stabilization projects. The Washington Department of Ecology's March 2014 *Shoreline Master Program Planning and Implementation Guidance: Soft Shoreline Stabilization* that the County references in the proposed new section E. of SJCC 18.50.390 is actually intended as guidance for jurisdictions and is not necessarily the best resource for soft shoreline stabilization project applicants. This document does, however, provide extensive information for local jurisdictions on how to define and incorporate soft shoreline stabilization elements into SMPs. The overarching theme of the Ecology document is the need to include the intent of shoreline stabilization in both the definition and subsequent project review. Friends has relied on specific text from this Ecology document to make the recommended additions to the ordinance amendments provided below. Friends recommends that staff refer to the Washington Department of Ecology's March 2014

Shoreline Master Program Planning and Implementation Guidance: Soft Shoreline Stabilization as they continue work to achieve compliance with the GMHB FDO.

The Washington Department of Ecology's March 2014 *Shoreline Master Program Planning and Implementation Guidance: Soft Shoreline Stabilization* is a good reference for jurisdictions' policy development when updating their SMP. It is also a good reference document for the County to use when evaluating soft shoreline stabilization applications. This document is not necessarily a suitable resource for applicants who are planning and designing soft shoreline stabilizations as the document is written to inform jurisdictions and is heavily focused on the development of policy. In the email dated July 20, 2018 from Joe Burcar to Linda Kuller (as included in the record), the Washington Department of Ecology also recommended providing the Washington State Department of Fish and Wildlife's *Marine Shoreline Design Guidelines* (https://wdfw.wa.gov/publications/01583/) which is a far more relevant resource for applicants who are planning and designing shoreline stabilizations. We recommend that the proposed new section E. of SJCC 18.50.390 be expanded to include reference to the Washington State Department of Fish and Wildlife's *Marine Shoreline Design Guidelines*.

Recommended changes to Section 1 of the draft ordinance (in red):
Section 1. Amends SJCC 18.20.190 "S" definitions as follows:
"Soft shoreline stabilization ~~measures~~" means shore erosion control structures and measures that contain key attributes that maintain or enhance ecological functions and are composed of primarily natural and semirigid or flexible materials, ~~logs,~~ bio-engineering tailored to site-specific natural conditions, and vegetation, organized in a nonlinear, sloping arrangement, that dissipate wave energy and minimize erosion in a way that is similar to natural shoreline processes. The number, extent, and appropriate use of these key features within stabilization projects will strongly influence whether or not they are considered soft. Soft shoreline stabilization projects must balance the need to control erosion while also maintaining and enhancing shoreline ecological functions.

Recommended changes to Section 5 of the draft ordinance (in red):
Section 5. Amends SJCC 18.50.390 Soft structural shoreline stabilization design standards, items (A) and (B) and adds a new item (E) depicted below as suggested by the WA. Department of Ecology:
A. The project must be designed to prevent increased erosion of adjacent properties. Soft shoreline stabilization projects may not include hard structural shoreline stabilization elements ~~if needed to tie in with hard structural shoreline stabilization measures on adjacent properties. The need to use hard structural shoreline elements must be documented as required in SJCC 18.50.350. The length of the hard structural shoreline stabilization transition area to adjacent properties shall be the shortest distance possible and not more than 10 linear feet. The hard structural shoreline stabilization transition area must not extend waterward of the OHWM, except as needed to connect to the adjoining stabilization structure. It must not extend onto adjacent property~~.

B. The soft shoreline stabilization design must ~~include an arrangement of various sizes of gravels, cobbles, logs, and boulders to~~ provide stability and dissipate wave and current energy without presenting extended linear faces to oncoming waves or currents.

E. Applicants may use the Washington Department of Ecology's March 2014 Shoreline Master Program Planning and Implementation Guidance: Soft Shoreline Stabilization and revisions thereto as well as the Washington State Department of Fish and Wildlife's March 2014 Marine Shoreline Design Guidelines and revisions thereto to plan and design soft shoreline stabilization measures. County staff shall rely on these same documents in reviewing shoreline stabilization applications.

F. Soft shoreline stabilization projects must balance the need to control erosion while also maintaining and enhancing shoreline ecological functions.

C. *GMHB FDO Issue No. 7 Evaluation of the Cumulative Impacts of Authorized Development: requirement to develop and implement a mechanism for documenting all project review actions in shoreline areas and process for periodically evaluating the cumulative effects of authorized development on shoreline conditions (WAC 173-26-191(2)(a)). Addressed in Section 2 of the draft ordinance.*

The tracking and evaluation of impacts to shoreline conditions, as identified in the GMHB FDO Issue No. 7 and addressed in Section 2 of the draft ordinance, is the most important component of this compliance process. It addresses how the county will authorize, track, monitor and adaptively manage *all* development actions in the shoreline to ensure no net loss. Note that it is our understanding that unpermitted shoreline projects, once code enforcement action has been taken, these projects then track as authorized development and would therefore be included in the evaluation of cumulative effects to ensure no net loss.

> The Board finds and concludes as follows: San Juan County's decision to adopt, and the Department of Ecology's decision to approve, San Juan County's Shoreline Master Program Update, which failed to include a mechanism for documenting all project review actions in shoreline areas and failed to include/identify a process for periodically evaluating the cumulative effects of authorized development on shoreline conditions fails to comply with the policies of the Shoreline Management Act and Shoreline Master Program Guidelines. (GMHB FDO page 34 line 21)
>
> Does the Update's lack of a process for periodically evaluating the cumulative effects of authorized development on shoreline conditions conflict with the SMP Guidelines (WAC 173-26-191(2)(a)(iii)(D))? While the program must be developed in such a way as to ensure NNL, the contents of that program are governed by WAC 173-26-191(2)(a), which includes a requirement for a "mechanism for documenting all project review actions in shoreline areas." In addition to this mechanism, the Guideline goes on to require local governments to identify "a process for periodically evaluating the

> cumulative effects of authorized development on shoreline conditions. **Clearly, the County neither identified a mechanism for documenting actions in shoreline areas nor a process for periodic evaluation**.
> (GMHB FDO page 34 line 6 with emphasis added by the GMHB)

In both the staff report and the proposed revisions to the ordinance, the County fails to develop or define either the mechanism or the process as required by the Order and the WAC. A general statement about periodic review that lacks even a reference to the need for a mechanism or a clear process does not come close to meeting the county's obligations under the SMA.

The County needs to provide details, including indicators and an implementation timeline, to demonstrate how the County will comply with the required tracking of shoreline project actions and evaluation of shoreline conditions as well as the process for adjustments in response to the findings. While all elements of this required tracking mechanism, as well as the process of evaluating impacts and adaptive adjustments to ensure no net loss of ecological function may not ultimately be reflected in amended ordinance language, the County staff report provides no explanatory text, details, or any discussion at all to demonstrate that a system responsive to the GMHB FDO has been developed. The staff report fails to demonstrate any progress or timeline for completion that will achieve compliance with the GMHB FDO.

During the SMP update process, entities in addition to Friends, submitted substantive comments to assist in this effort. The Washington State Department of Fish and Wildlife (WDFW) offered Priority Habitat and Species resources which includes effectiveness monitoring data and technical assistance to the County from WDFW for applying the data. The San Juan County Marine Resources Committee (MRC) recommended that the County support funding and implementation of a database capable of tracking the effectiveness of the County's regulatory protections. The MRC found that the County's implementation of shoreline regulations is not reliably providing the protections necessary for no net loss. In addition, WA Ecology's SMP Handbook (Publication Number 11-06-010) Chapter 4 No Net Loss of Ecological Functions, with the section, Potential No Net Loss Indicators, on pages 7 - 19, including but not limited to the following: area of eelgrass, kelps, forest cover, marine riparian vegetation classes, wetlands, floodplains; restored and/or permanently protected areas (habitat type and area); water quality, shellfish closures; length of armor on forage fish spawning beaches; length of armor on feeder bluffs; percent change in armor by drift cell.

We encourage the County, as it works to comply with the GMHB FDO, to revisit the comment letters from the Washington State Department of Fish and Wildlife and the San Juan County Marine Resources Committee, and Ecology's SMP Handbook (Publication Number 11-06-010) Chapter 4 No Net Loss of Ecological Functions these comments, included here as attachments. Just as the SMP update in and of itself did not satisfy this requirement, likewise, the County's proposed ordinance amendments in and of themselves do not satisfy this requirement.

> The problem, of course, is that the County's defense relies on the programmatic action itself, the update of the SMP, to address documentation and evaluation of cumulative impacts. The County concludes that while it must complete the cumulative impacts analysis for the update, there is no requirement for any other evaluation of impacts for the duration of the SMP. The Board does not agree.
> (GMHB FDO page 33, line 8)

Friends recommends that the County not lump the cumulative impacts review in with the overall review/update of the SMP. The county goes many years between SMP updates, and as the GMHB FDO states, impacts need to be addressed with a different and more frequent process. Doing the review annually would also allow the County to correct procedural problems that may contribute to the failure of mitigation actions.

In addition, once the tracking system has been developed, other sections of the SMP may need to be revised to ensure consistency with this section. For example, if applicants are required to provide additional data in support of the tracking mechanism, that information may need to be included in the updated ordinance.

The following is a list of issues that must be addressed in order to comply with the GMHB FDO:

1. Indicators must be selected for their ability to meaningfully track and evaluate shoreline conditions, not just record what kinds of actions were authorized and they must cover all activities authorized in the shoreline.
    a. What categories of impacts will be assessed?
    b. What indicators will be used?
    c. Has the County Council allocated sufficient resources to comply with this component of the GMGB FDO?

2. Establishing this mechanism and process requires planning, a framework and clear implementation procedures, yet the County provides none of these.
    a. What information will be collected?
    b. Will the information include all shoreline code enforcement activities and associated mitigation actions?
    c. Who will collect or provide this information?
    d. How frequently will information be collected?
    e. How will information be recorded and stored so that it can be used in the evaluation of impacts to shoreline conditions?
    f. Has the County Council allocated sufficient resources to comply with this component of the GMGB FDO?

3. Identifying the process that will be used to evaluate cumulative impacts to shoreline conditions from all project actions in the shoreline?
    a. What staff will be involved?
    b. Does staff have the technical capacity to implement this requirement?
    c. What tribes and agencies will be engaged?

d. Has the County Council allocated sufficient resources to comply with this component of the GMGB FDO?

4. Identifying the process for making adjustments based on findings in 3 (above), to ensure no net loss
    a. Will the County address the impacts that are found by requiring the land owner to address the impacts (e.g. if approved mitigation actions were not successful)?
    b. Will the County address the impacts by requiring improvements in the same watershed (e.g. perhaps in conjunction with another development project - or as a stand-alone mitigation project)?
    c. Has the County Council allocated sufficient resources to comply with this component of the GMGB FDO?

In suggesting revisions to the county provided ordinance amendments below, Friends referenced and includes here the text of WAC 173-26-191(2)(a)(iii)(D).

> **Documentation of project review actions and changing conditions in shoreline areas.** Master programs or other local permit review ordinances addressing shoreline project review shall include a mechanism for documenting all project review actions in shoreline areas. Local governments shall also identify a process for periodically evaluating the cumulative effects of authorized development on shoreline conditions. This process could involve a joint effort by local governments, state resource agencies, affected Indian tribes, and other parties.

As noted above, in addition to revising the proposed new language to better meet the WAC, more substantive changes are needed than mere tweaking of the overly general text additions proposed below in Section 2 of the draft ordinance.

Recommended changes to Section 2 of the draft ordinance (in red):

Section 2. Adds a new item SJCC 18.50.020 (E)(3):

E. Responsibilities of Department Director and Planning Commission.

3. The Shoreline Master Program shall include:

a. A mechanism for documenting all project review actions in shoreline areas

b. A process for annually evaluating the cumulative effects of authorized development on shoreline conditions. The following information shall be used in the periodic annual evaluation of the Shoreline Master Program:

i. The department's permit tracking system;

ii. Aerial photographs;

iii. Other available data; and

iv. Field observations.

c. A process for proposing new actions and amendments based on the results of 3.b. ~~be periodically reviewed and amendments be made~~ as are necessary to reflect changing local circumstances, new information, improved data and changes in state statutes and regulations. ~~This periodic review shall include an evaluation of project~~

~~review actions in shoreline areas and the cumulative effects of authorized shoreline development.~~

The annual evaluation of cumulative effects ~~impact review~~ shall be coordinated with the Tribes, relevant State agencies and interested parties.

When developing its system to achieve compliance with this tracking mechanism and process for evaluating cumulative impacts to shoreline conditions component of the GMHB FDO, the County must bear in mind that the tracking and evaluation of impacts is what is used to determine the SMP's compliance with the SMA's overarching directive to achieve no net loss of shoreline ecological function and is thus it is among the most essential and critical elements of the entire ordinance.

Compliance with the GMHB FDO, and more importantly, success of the overall SMP in meeting no net loss requirements and protecting and restoring marine shorelines in support of Chinook salmon and Southern Resident Killer Whale recovery, as well as the economy and quality of life of the San Juan County community, is NOT achieved by the addition of brief and vague text about the County's intent. Friends of the San Juans finds that the County's response to this section of the GMHB FDO is woefully inadequate and that substantive changes are required.

Friends of the San Juans Recommended Changes in Summary of Ordinance Sections (in red):

Section 1. Amends SJCC 18.20.190 "S" definitions as follows:
"Soft shoreline stabilization ~~measures~~" means shore erosion control structures and measures that contain key attributes that maintain or enhance ecological functions[1] and are composed of primarily natural and semirigid or flexible materials, ~~logs,~~ bio-engineering tailored to site-specific natural conditions, and vegetation, organized in a nonlinear, sloping arrangement, that dissipate wave energy and minimize erosion in a way that is similar to natural shoreline processes. The number, extent, and appropriate use of these key features within stabilization projects will strongly influence whether or not they are considered soft.[2] Soft shoreline stabilization projects must balance the need to control erosion while also maintaining and enhancing shoreline ecological functions.[3]

Section 2. Adds a new item SJCC 18.50.020 (E)(3):
E. Responsibilities of Department Director and Planning Commission.
3. The Shoreline Master Program shall include:

a. A mechanism for documenting all project review actions in shoreline areas

b. A process for annually evaluating the cumulative effects of authorized development on shoreline conditions. The following information shall be used in the periodic annual evaluation of the Shoreline Master Program:

i. The department's permit tracking system;

ii. Aerial photographs;

iii. Other available data; and

iv. Field observations.

c. A process for proposing new actions and amendments based on the results of 3.b. ~~be periodically reviewed and amendments be made~~ as are necessary to reflect changing local circumstances, new information, improved data and changes in state statutes and regulations. ~~This periodic review shall include an evaluation of project review actions in shoreline areas and the cumulative effects of authorized shoreline development.~~

The annual evaluation of cumulative effects ~~impact review~~ shall be coordinated with the Tribes, relevant State agencies and interested parties.

Section 3. Amends SJCC 18.50.140 (C) Mitigation of adverse impacts to shoreline ecological functions:
C. Preferential consideration shall be given to measures that replace the impacts to functions directly and in the immediate vicinity of the impact. However, alternative compensatory mitigation within the watershed that addresses limiting factors or identified critical needs for shoreline resource conservation based on watershed or comprehensive plans applicable to the area of impact may be authorized. ~~When feasible, adverse impacts are to be mitigated on site. If off-site mitigation is proposed, the mitigation site must be located on the same island, as close as feasible to within the stormwater watershed of the development site.~~ A map of the County's stormwater watersheds for all County islands where development could occur and

watershed reports from the San Juan County Stormwater Basin Planning report dated June 26, 2014 is available on the County's web portal for GIS data and maps.

Section 4. Amends SJCC 18.50.350 Hard and soft structural shoreline stabilization measures – General regulations:

C. New, replaced, or enlarged soft structural shoreline stabilization measures for an existing primary structure may are not be allowed unless there is conclusive evidence documented by a geotechnical analysis, that the structure is in danger within three years as a result of from shoreline when there is a significant possibility that development will be damaged as a result of erosion caused by tidal action, waves and or currents.

1. Normal sloughing, erosion of steep bluffs, or shoreline erosion itself, without a scientific or geotechnical analysis, is not demonstration of need.

2. The geotechnical analysis should evaluate on-site drainage issues and address drainage problems away from the shoreline edge before considering structural shoreline stabilization.

3. The erosion control structure will not result in a net loss of shoreline ecological functions.

Section 5. Amends SJCC 18.50.390 Soft structural shoreline stabilization design standards, items (A) and (B) and adds a new item (E) depicted below as suggested by the WA. Department of Ecology:

A. The project must be designed to prevent increased erosion of adjacent properties. Soft shoreline stabilization projects may not include hard structural shoreline stabilization elements if needed to tie in with hard structural shoreline stabilization measures on adjacent properties. The need to use hard structural shoreline elements must be documented as required in SJCC 18.50.350. The length of the hard structural shoreline stabilization transition area to adjacent properties shall be the shortest distance possible and not more than 10 linear feet. The hard structural shoreline stabilization transition area must not extend waterward of the OHWM, except as needed to connect to the adjoining stabilization structure. It must not extend onto adjacent property.

B. The soft shoreline stabilization design must include an arrangement of various sizes of gravels, cobbles, logs, and boulders to provide stability and dissipate wave and current energy without presenting extended linear faces to oncoming waves or currents.

E. Applicants may use the Washington Department of Ecology's March 2014 Shoreline Master Program Planning and Implementation Guidance: Soft Shoreline Stabilization and revisions thereto as well as the Washington State Department of Fish and Wildlife's March 2014 Marine Shoreline Design Guidelines and revisions thereto to plan and design soft shoreline stabilization measures. County staff shall rely on these same documents in reviewing shoreline stabilization applications.

F. Soft shoreline stabilization projects must balance the need to control erosion while also maintaining and enhancing shoreline ecological functions.[4]

Section 6. Amends SJCC 18.50.420(3) and (4) for consistency - Hard or soft shoreline stabilization measures – Additional submittal requirements:

3. A geotechnical analysis for hard structural shoreline stabilization measures documenting that without the proposal there is ~~a significant possibility~~ conclusive evidence that development will be damaged within three years as a result of erosion caused by waves and currents, or that postponing the work until the need is imminent (within three years) will result in the loss of opportunities to avoid greater impacts on shoreline ecological functions. New and enlarged hard structural shoreline stabilization measures are allowed only when needed to protect the types of upland structures and infrastructure identified in SJCC 18.50.350(A);

4. A geotechnical analysis for soft structural shoreline stabilization measures documenting that without the proposal there is ~~a significant possibility~~ conclusive evidence that development will be damaged within three years as a result of erosion caused by waves and currents, or that postponing the work until the need is imminent (within three years) will result in the loss of opportunities to avoid greater impacts on shoreline ecological functions. New and enlarged soft structural shoreline stabilization measures are allowed only when needed to protect the types of upland structures and infrastructure identified in SJCC 18.50.350(A);

In addition to the sections of the ordinance proposed to be updated, Friends recommends changes to 18.50.350 for consistency among sections of the ordinance and compliance of the GMHB FDO and the WAC (in red):

Additional changes needed to the San Juan County Code for consistency:

18.50.350 Hard and soft structural shoreline stabilization measures – General regulations.

B. New, replaced, or enlarged hard or soft structural shoreline stabilization measures may be allowed when damage to them is expected within three years.

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[1] WA Department of Ecology. March 2014. Soft Shore Stabilization: shoreline master program planning and implementation guidance. Pub. No. 14-06009 Executive Summary Pg. viii

[2] WA Department of Ecology. March 2014. Soft Shore Stabilization: shoreline master program planning and implementation guidance. Pub. No. 14-06009 Executive Summary Pg. viii

[3] WA Department of Ecology. March 2014. Soft Shore Stabilization: shoreline master program planning and implementation guidance. Pub. No. 14-06009 Executive Summary Pg. viii

[4] WA Department of Ecology. March 2014. Soft Shore Stabilization: shoreline master program planning and implementation guidance. Pub. No. 14-06009 Executive Summary Pg. vii and viii.

State of Washington
DEPARTMENT OF FISH AND WILDLIFE
North Puget Sound • Region 4 • 16018 Mill Creek Blvd., Mill Creek, WA 98012-1296
Telephone: (425) 775-1311 • Fax: (425) 338-1066

December 8, 2015

Colin Maycock
San Juan County
Department of Community Development
P.O. Box 947
Friday Harbor, WA 98250

Re: San Juan County Draft Shoreline Master Program

Dear Mr. Maycock:

Thank you for the opportunity to comment on San Juan County's Draft Shoreline Master Program. The Washington Department of Fish and Wildlife (WDFW) acknowledges the hard work and countless hours that went into producing your draft Shoreline Master Program (SMP); we congratulate you on getting to the stage of final local adoption. We found many portions of your SMP to be excellent; we provide these comments to help you make it even better.

WDFW is strictly an advisor on shoreline issues. We provide land use decision makers, such as San Juan County, with science-based advice to assist you in your responsibilities to manage your shorelines consistent with local values and state laws. In a spirit of partnership and keeping with our mission to perpetuate fish and wildlife and their habitat, we provide these comments so that you can consider additional ways to retain the health of San Juan's marine ecosystem. While this letter contains no mandate to alter portions of your SMP, we hope you carefully consider these comments as we wish to work with you to achieve our common goals.

We have two primary suggestions. The first is about ways we can support you; the second explores ideas about implementing your SMP in a way that allow you to learn and make improvements over time.

WDFW's Priority Habitats and Species (PHS) resources. PHS has been a core initiative of our agency for more than 25 years and is the primary way we provide relevant information to land use decision makers, such as local governments and landowners. We urge you to explore these ever-evolving resources and utilize them to the greatest extent you find helpful. The WDFW PHS section consists of:

- **PHS Technical Assistance** is available from WDFW Regional Habitat Biologists, such as myself. We can help you apply the general PHS Management Recommendations in specific situations to specific pieces of land. Consider us a resource to help you resolve land use challenges related to fish and wildlife. We are available to participate in efforts to develop watershed plans and advise on challenging permit applications involving PHS.
- **PHS List** which identifies those species and habitats which are at risk of extinction, tend to aggregate in vulnerable gatherings, or are economically/culturally valuable. In many cases the PHS List narrows down the Priority Areas to specific key habitats such as nesting sites or spawning beaches. We recommend you consider designating and protecting all PHS Priority Areas through your SMP (and CAO).
- **PHS Maps** provide an ever evolving picture of where these Priority Areas are located. These maps reflect the latest surveys of known locations of PHS species. We recommend you consider relying upon these maps as your SMP is implemented.
- **PHS Management Recommendations** provide science-based advice about how to manage land use consistent with the needs of the species or habitat. This general advice represents a synthesis of scientific literature vetted by agency scientists for land use decision makers. We recommend you have applicants refer to PHS Management Recommendations when they prepare site-specific Habitat Management Plans.
- **PHS Effectiveness Monitoring Tools using High Resolution Change Detection,** the newest PHS component, provides Puget Sound local governments an easy-to-use method for self-evaluation of shoreline (and upland) land use management, as measured against your own goals and benchmarks. This can help us understand through monitoring and adaptive management how we can better achieve the goal of no net loss of ecological function.

Monitoring and Adaptive Management. Increasingly jurisdictions are relying on monitoring and adaptive management to improve their regulatory and non-regulatory land use efforts. We agree that science-based monitoring and adaptive management is the best way to accommodate various shoreline uses while maintaining no net loss of shoreline ecological function. We also know from our own efforts to apply principles of adaptive management to our own work that it can be both challenging and costly. We offer our services to help you explore ways you can increase your use of adaptive management as you implement your SMP. As stated above, we can offer you PHS Effectiveness Monitoring data and assistance applying the data.

We provide detailed suggestions in Enclosure (1) related to PHS and adaptive management, among other things.

We greatly value the work San Juan County does to protect fish and wildlife. We are committed to collaborating with you to provide land use advice that is helpful, science-based, and mindful of the needs of the county and its citizens as well as fish and wildlife. If you have any questions about my comments please contact me.

I look forward to working with you in the months and years ahead.

Sincerely,

Doug Thompson
Habitat Biologist

cc: Brendan Brokes, Regional Habitat Program Manager, WDFW
Keith Folkerts, PHS Section Manager, WDFW
Robert Warinner, Assistant Regional Program Manager, WDFW
Bob Fritzen, Shoreline Planner, Washington Department of Ecology

WDFW Detailed Comments on San Juan County Draft Shoreline Master Program

Goals and Policies

Page numbers and line items are from the August 2015 Public Hearing Draft (#6)

p. 3, 3.2.C, line 29: We recommend you consider adding a goal related to achieving no net loss of shoreline ecological function at a countywide scale and an adaptive management program that can help you meet that goal. (Alternatively this goal could also fit under 3.2.F on page 9.) Rationale: Shoreline environments are complex; determining the kind and extent of compensatory mitigation for impacts to ecological function is inexact. A carefully designed monitoring and adaptive management program can help provide information to inform success. WDFW recommends that critical area protection be implemented with monitoring and adaptive management. We are available to assist with planning out a monitoring framework that conforms with the county's available resources.

p. 3, 3.2.C, line 44: We recommend you consider adding a policy related to achieving and demonstrating no net loss of shoreline ecological function by establishing and implementing a scientifically sound adaptive management program that includes monitoring of benchmarks. (Alternatively, this policy could also fit under 3.2.F on page 9.) Rational: Same as above; benchmarks are necessary so that monitoring data can be compared to a standard to determine if goals and objectives are being met or if adjustments are in order.

p. 4, 3.2.C.ii, line 35. The WAC referring to Fish and Wildlife Habitat Conservation Areas has been re-codified as WAC 365-190-130 (vice WAC 365-190-080(5)).

p. 24, 3.3.I, line 8. To which species does criterion d apply?

p. 24, 3.3.I, line 12. We recommend you add another criterion for Marine Habitat Management Area Overlays: designated marine Priority Areas for marine Priority Species. Rationale: Species are deemed a *Priority Species* through a scientifically sound process. PHS Priority Areas include areas documented to be important for supporting listed, vulnerable, and economically/culturally important species.

p. 24, 3.3.I, line 19. We recommend management plans refer to PHS Management Recommendations where applicable. Rationale: PHS Management Recommendations reflect WDFW's evolving science-based management recommendations for Priority Habitats and Priority Species.

p. 24, 3.3.I, line 30. We recommend a regional Habitat Biologist from WDFW participate on the interdisciplinary team to serve in an advisory role on fish and wildlife issues and coordinate agency resources in support of local watershed plans.

p. 50, 3.5.A, line 37. We recommend you consider adding a policy stating that the ongoing benefits achieved by mitigation project required for breakwaters, jetties, and groins should accrue for as long as the impacts caused by such structures. Rationale: The negative impacts caused by these structures continue to accrue for as long as the structure is in place; the compensatory mitigation provided for such impacts should provide a similar long-term continuous environmental lift.

p. 52, 3.5.B.ii, line 4. We recommend inserting the following, "The use of mooring buoys should be encouraged in waters of adequate depth to avoid vessel groundings…" Rationale: grounding of moored boats can damage benthic invertebrates and eelgrass.

p. 52, 3.5.B.ii, line 34. We recommend you consider adding a policy stating that piers and docks be designed to avoid or minimize disruptions to alongshore sediment transport. Rationale: the individual and cumulative effects of piers and docks can disrupt sediment transport in some reaches.

p. 53, 3.5.B.iii, line 1. We recommend you consider the following addition, "Embayments with poor flushing action or sites with herring spawning habitat, or eelgrass beds should not be considered for marina sites." Rationale: These resources are particularly important to the marine ecosystem and are unlikely to persist if marinas are developed in close proximity.

p. 53, 3.5.B.iii, line 9. We recommend reordering item c. (use of boat launches and dry storage) as item a. Rationale: Boats stored in dry storage and launched at boat launches is least consumptive of shoreline resources.

p. 57, 3.5.D. (Policies). In support of your goal regarding evaluations for shoreline stabilization, we recommend you consider a policy (a) that need for such a structure be demonstrated via a geotechnical and site slope stability analysis and (b) that the selection of a shoreline stabilization method are consistent with our *Marine Shoreline Design Guidelines.*

Shoreline Designation Maps

1. We recommend that maps of shoreline resources reference the most recent update of WDFW's Priority Habitat and Species (PHS) mapping of Priority Habitats and Priority Species.
2. We recommend that documented spawning sites for herring, sand lance and surf smelt be mapped and protected.
3. Specific inconsistencies between SMP maps and PHS maps:
    a. On Stuart Island a beach at the head of Reid Harbor is not listed on SMP maps as having forage fish, but this beach is not listed on PHS map; review of this site is in order.
    b. PHS maps document herring spawning at the north end of East Sound on Orcas and on the west side of East Sound across from Rosario which are not reflected on SMP maps.
    c. PHS maps document herring spawning on the north and NE sides of West Sound on Orcas Island and on the west side of West Sound across from White Beach Bay.
    d. PHS maps show herring spawning on Roche Harbor/Westcott Bay south of Roche Harbor and along the south side of Mosquito Pass as well as at Westcott Bay and Garrison Bay. PHS maps document herring spawning on the southern tip of the Deer Harbor Peninsula and on the SE side of Deer Harbor Peninsula in West Sound.
    e. PHS maps document herring spawning in Blind Bay, Shaw Island.
    f. PHS maps document herring spawning on North Lopez, Shoal Bay.
    g. PHS maps document forage fish spawning at the east end of Jones Bay on southwest Lopez Island.
    h. PHS maps document herring spawning on Lopez, at Hunter Bay and Mud Bay.

Proposed SMP Regulations

This is commenting on the 157-page CC Public Hearing Draft Ordinance (with alternatives) that adopts new SMP regulations and amends Comp Plan elements.

1. p. 12, 18.80.110 I.4.e. and f: We recommend these two provisions be retained. Rationale: Because the shoreline environment is extraordinarily complex mitigation/compensation efforts have a high degree of uncertainty. To reduce the risk, we recommend monitoring and adaptive management program with benchmarks to achieve no net loss over time.
2. Section 10; pages 22-32. We recommend Alternative 1. Rationale: Alternative 1 appears to more reliably protect shoreline ecological functions while providing other socially, culturally, and economically important shoreline uses. This alternative would reduce the need for compensatory mitigation.
3. p. 34-35. Section 14 Non-conforming structures. WDFW recommends retaining the standards contained in Section 5. Rationale: Section 5 standards allow for incremental improvement of ecological processes impacted by nonconforming structures over time while still allowing use of land. Perpetuating fish and wildlife species will likely be aided by reducing impacts by such structures over time. Providing no net loss of shoreline ecological functions would seem to be particularly challenging under provision E (p. 35, lines 11-15).
4. P. 36, Section 16.C. NOTE: WDFW's new PHS Effectiveness Monitoring using High Resolution Change Detection can help San Juan County identify instances of tree removal from shorelines and other critical areas. WDFW can provide scientifically sound tools to help you determine the implementation and effectiveness of your land use protection measures. Please contact WDFW for more information.
5. p. 40, Section 19.B. Mitigation, line 12. We recommend you add a sixth requirement related to monitoring and adaptive management. Rationale: Because the shoreline environment is extraordinarily complex mitigation/compensation efforts have a high degree of uncertainty. To reduce the risk, we recommend mitigation include a monitoring and adaptive management component with benchmarks.
6. p. 40, Section 19.C. Mitigation, line 12. We recommend you consider off-site mitigation that is consistent with mitigation options outlined in Ecology's *Wetlands & CAO Updates: Guidance for Small Cities* (Western Washington Version). Rationale: The Ecology guidelines provide science-based protections for fish and wildlife habitat.
7. p. 42, Section 20.F.14, items b and d. Recommend monitoring occur at completion of site construction and planting and at Years 1, 3 and 5, and when necessary, Years 7 and 10. Rationale: Three years of monitoring, especially of trees, is likely to not identify projects which for which corrective action should be taken.

8. p. 43, Section 21.A.2 Mitigation Plan, line 16: We recommend mitigation plans be consistent with best available science and include goals, objectives (including benchmarks), and monitoring methods (including sampling frequency). We also note that a fifty percent likelihood of achieving it purpose leaves a high risk of failure, which is inconsistent with PHS Management Recommendations and Ecology's wetland guidance.
9. P. 58, Section 19.A, 12, line 7. We recommend striking the phase "unless adverse impacts are mitigated." Rationale: impacts to erosion-accretion processes associated with feeder bluffs should be avoided as compensatory mitigation of such vital processes would be challenging and risky.
10. P. 58, Section 29, B. 1, lines 14-16. We recommend adopting language provided by Ecology. Rationale: Aquatic life is protected by avoiding to the extent possible and carefully minimizing wood with toxic compounds; in our Hydraulic Permit Approvals we often reference *Best Management Practices for the Use of Treated Wood in Aquatic Environments* by the Western Wood Preservers Institute.
11. P. 58, Section 29, B. 6-7, lines 26-35. We recommend retaining #6 and deleting #7. Rationale: Avoiding storage building helps minimize loss of shoreline ecological function such as loss of shading via tree removal.
12. P. 61, Section 31, table X, "Decking." Recommend referencing WDFW grating requirements for piers and floats from WAC 220-660-140 and WAC 220-660-380. Rationale: Consistency between local and state regulations helps applicants avoid confusion and unnecessary expense.
13. P. 70, Section 44, F., Lines 17-18. We recommend keeping F's original language. Rationale: this approach is most likely to minimize adverse impacts to forage fish.
14. P. 71, Section 45, C., line 13. We recommend adding a fifth element: When a proposal is on a shoreline reach with forage fish spawning habitat, applicants consider using sand and gravel that is suitable as spawning substrate.
15. Page 71, Section 47, B., line 31. We recommend establishing a lower threshold at which a project is considered a replacement versus repair. Rationale: requiring softer options (as is required for projects which replace 100% of a project but not 99.99%) provide opportunities to explore possible means of accomplishing the applicant's goal at a lower environmental cost. Establishing the threshold at 100% causes missed opportunities to achieve your SMP's goals and policies and improve habitat functions.
16. P. 78, Section 51.A. 2, lines 8-9. We recommend that when converting from forestry applicants be required to maintain a specified percentage of shade and large wood recruitment. Rationale: Maintaining shade and large wood recruitment functions are key to maintaining shoreline ecological functions (including bank stability and litterfall). Specifying a certain percentage, for example, 80% shade and 75% large wood recruitment, provides applicants a means of converting the land while minimizing function degradation.

17. P. 99, Section 65.A.3.a, line 23. We recommend striking (a). Rationale: This precludes potential restoration projects within important fish spawning areas.
18. P. 100, Section 65.C.2, lines 23-24. We recommend striking "by processes other than the erosion-accretion process." Rationale: No need to limit restoration projects based on the source of degradation; we want to encourage restoration regardless of the reason for the degradation.

Existing Critical Areas Ordinance

WDFW has not conducted a detailed review of San Juan County's Critical Areas Ordinance (CAO, which is largely incorporated by reference), so instead we provide general comments:

1. Primary functions that are provided by marine and freshwater riparian areas include bank stability, shading, recruitment of large wood, supplying nutrients in support of the food web, filtering of excess nutrients and pollutants, and providing fish and wildlife habitat. We recommend riparian areas provide these functions to the greatest extent practicable in keeping with local values and state laws and regulations. In general, riparian functions are provided to a high degree by a natural vegetated strip that is the width of one site potential tree (a wider area may be needed to accommodate natural rates of riparian large wood recruitment on steep slopes). While this general rule is backed by reliable science[1], when applied at a site scale this general rule must be ground-truthed with site-specific conditions.
2. When, for other legitimate social, cultural, or economic reasons, this degree of protection is not provided, we recommend monitoring and adaptive management to ensure the County meets its habitat-related goals and its goal of no net loss of ecological function. When a CAO provides a level of protection that is significantly less, it is all the more important to provide careful monitoring and adaptive management and for the jurisdiction to be willing to modify its management of riparian areas based on the outcome of such monitoring.
3. When determining what kind and amount of compensatory mitigation is "appropriate" we recommend that the site's historical range of natural variability be a data point that informs restoration and compensatory mitigation efforts.
4. We recommend jurisdictions consider protection at the watershed scale (watershed-scale processes, land use, and other factors) while identifying the level of riparian protection on a stream reach scale.
5. We recommend local jurisdictions designate species of local significance consistent with the PHS List. We also recommend that CAO's designate and protect PHS as Fish and Wildlife Habitat Conservation Areas. We recommend that PHS Management Recommendations be considered when developing site-specific habitat management plans.

[1] See Forest Ecosystem Management: An Ecological, Economic, and Social Assessment, Forest Ecosystem Management Team (FEMAT), US Forest Service, 1993. See the frequently referred to "FEMAT curves" on p. V-27.

We also recommend that jurisdictions within the Puget Sound utilize PHS Effectiveness Monitoring as part of their adaptive management program.

san juan county
marine stewardship area
our sea • our source • our future

SAN JUAN COUNTY
MARINE RESOURCES COMMITTEE
135 RHONE STREET, FRIDAY HARBOR, WA 98250

MARINE RESOURCES COMMITTEE
SAN JUAN COUNTY
WASHINGTON
OUR WATERS ARE IMPORTANT

November 25, 2015

San Juan County Council
350 Court St. No. 1
Friday Harbor, WA 98250

Re: Shoreline Master Program Update – Monitoring Recommendations

In its work as the Citizen Advisory Committee for Salmon Recovery, the MRC worked closely with the San Juan Lead Entity on its monitoring and adaptive management process. The 2014 report identified findings regarding cumulative impacts from shoreline development activity on nearshore habitat functions. These included the following:

- Incremental but cumulative shoreline development activity is ongoing, and has the potential to affect habitats in the nearshore environment.

- Existing regulations and their implementation are not reliably providing the protections necessary for the state-mandated "no net loss" of habitat for juvenile salmon and forage fish.

- A permit database that is specifically designed to track the effectiveness of the County's regulatory protections for nearshore habitats is critical to the monitoring component of the local salmon recovery program.

The MRC recommends that the county council support funding and implementation of a permit database that is capable of serving this purpose. Without a robust monitoring tool such as this, the county's success in meeting the goal of "no net loss" of marine habitat functions will be very difficult to assure.

Sincerely,

Terry Turner

Terry Turner, Chair
SJC Marine Resources Committee

Chapter 4
No Net Loss of Shoreline Ecological Functions

All phases
Shoreline Master Program Planning Process

Introduction

The Shoreline Management Act (SMA) provides a broad policy framework for protecting the natural resources and ecology of the shoreline environment. The SMP Guidelines establish the standard of "no net loss" of shoreline ecological functions as the means of implementing that framework through shoreline master programs. WAC 173-26-186(8) directs that master programs "include policies and regulations designed to achieve no net loss of those ecological functions." (The specific sections of the Guidelines addressing the NNL requirement are included at the end of this chapter.)

> *RCW 90.58.020: The legislature finds that the shorelines of the state are among the most valuable and fragile of its natural resources and that there is great concern throughout the state relating to their utilization, protection, restoration, and preservation…This policy contemplates protecting against adverse effects to the public health, the land and its vegetation and wildlife, and the waters of the state and their aquatic life...*

The SMP Guidelines, adopted in 2003, constitute the first actual rule (WAC) in Washington State to incorporate the no net loss requirement. The concept of no net loss in this State originated with earlier efforts to protect wetlands. In 1989, Governor Booth Gardner signed an Executive Order establishing a statewide goal regarding wetlands protection. "It is the interim goal...to achieve no overall net loss in acreage and function of Washington's remaining wetlands base. It is further the long-term goal to increase the quantity and quality of Washington's wetlands resource base." (E.O. 89-10).

What does no net loss mean?

Over time, the existing condition of shoreline ecological functions should remain the same as the SMP is implemented. Simply stated, the no net loss standard is designed to halt the introduction of new impacts to shoreline ecological functions resulting from new development. Both protection and restoration are needed to achieve no net loss. Restoration activities also may result in improvements to shoreline ecological functions over time.

Local governments must achieve this standard through both the SMP planning process and by appropriately regulating individual developments as they are proposed in the future. No net loss

should be achieved over time by establishing environment designations, implementing SMP policies and regulations that protect the shoreline, and restoring sections of the shoreline. Based on past practice, current science tells us that most, if not all, shoreline development produces some impact to ecological functions. However, the recognition that future development will occur is basic to the no net loss standard. The challenge is in maintaining shoreline ecological functions while allowing appropriate new development, ensuring adequate land for preferred shoreline uses and public access. With due diligence, local governments can properly locate and design development projects and require conditions to avoid or minimize impacts.

No net loss incorporates the following concepts:

- The existing condition of shoreline ecological functions should not deteriorate due to permitted development. The existing condition or baseline is documented in the shoreline inventory and characterization. (See Chapter 7.) Shoreline functions may improve through shoreline restoration.
- New adverse impacts to the shoreline environment that result from planned development should be avoided. When this is not possible, impacts should be minimized through mitigation sequencing.
- Mitigation for development projects alone cannot prevent all cumulative adverse impacts to the shoreline environment, so restoration is also needed.

Practices that help achieve no net loss

The following SMP update practices will help to meet the no net loss requirement:

- **Locate, design and mitigate development within a watershed context**. During the SMP update process, use the characterization of ecosystem processes and functions to identify the best areas for future development and mitigation. The characterization can provide important information regarding areas that have a high potential for restoration and can be used for offsite mitigation. Such an approach can use a combination of onsite and offsite mitigation that helps restore critical processes and generates a greater “lift” in ecosystem functions.
- **Prohibit uses** that are not water-dependent or preferred shoreline uses. For example, office and multi-family housing buildings are not water-dependent or preferred uses. There is no requirement to provide a place for all types of uses within shoreline jurisdiction.
- **Require that all future shoreline development**, including water-dependent and preferred uses, is carried out in a manner that limits further degradation of the shoreline environment. No uses or activities, including preferred uses, are exempt from the requirement to protect shoreline ecological functions.
- **Require buffers and setbacks.** Vegetated buffers and building setbacks from those buffers reduce the impacts of development on the shoreline environment.
- **Establish appropriate shoreline environment designations**. The environment designations must reflect the inventory and characterization. A shoreline landscape that is relatively unaltered should be designated Natural and protected from any use that would

degrade the natural character of the shoreline. (In practice, this would avoid future impacts, the first objective of no net loss.) New shoreline development in such environs is limited, resulting in avoidance of new impacts.)

- **Establish strong policies and regulations.** Policies and regulations will define what type of development can occur in each shoreline environment designation, determine the level of review required through the type of shoreline permit, and set up mitigation measures and restoration requirements.
- **Develop policies and requirements for restoration.** These should be consistent with the shoreline restoration plan prepared during the SMP planning process.
- **Recommend actions outside shoreline jurisdiction.** The master program or an SMP supporting document can recommend actions for properties that are outside shoreline jurisdiction but have impacts on shorelands. For example, the SMP could call for improved stormwater treatment of runoff from roads, or replacement of septic systems with sewers. Recommending these actions could help create awareness of problems and provide support for them, although outside the authority of the SMP. Such recommendations could be included in the shoreline management strategy or in a brief chapter within the SMP. This would also satisfy the SMA adjacent lands policy (RCW 90-58.340) that local governments are obligated to meet.
- **In all cases, require mitigation sequencing**. The SMP must include regulations that require developers to follow mitigation sequencing: avoid impacts, minimize impacts, rectify impacts, reduce impacts over time, compensate for impacts, monitor impacts and take corrective measures. Avoiding impacts means not taking an action or part of an action in order to prevent impacts to ecological functions. Impacts can be avoided in many different ways: structures may be sited further from properly functioning shoreline areas; different landscaping plants or techniques may be used; a less impactful use may be substituted; or a proposal may be redesigned altogether.

How to demonstrate no net loss

Local governments demonstrate no net loss at two levels -- through the comprehensive SMP update planning process and over time, during the project review and permitting processes (in other words, during SMP implementation).

No net loss in the SMP planning process

The following graphic provides a visual description of the role of the SMP update in achieving no net loss. Through mitigation and restoration, a jurisdiction would achieve no net loss of shoreline ecological functions.

SMP updates: Achieving no net loss of ecological function

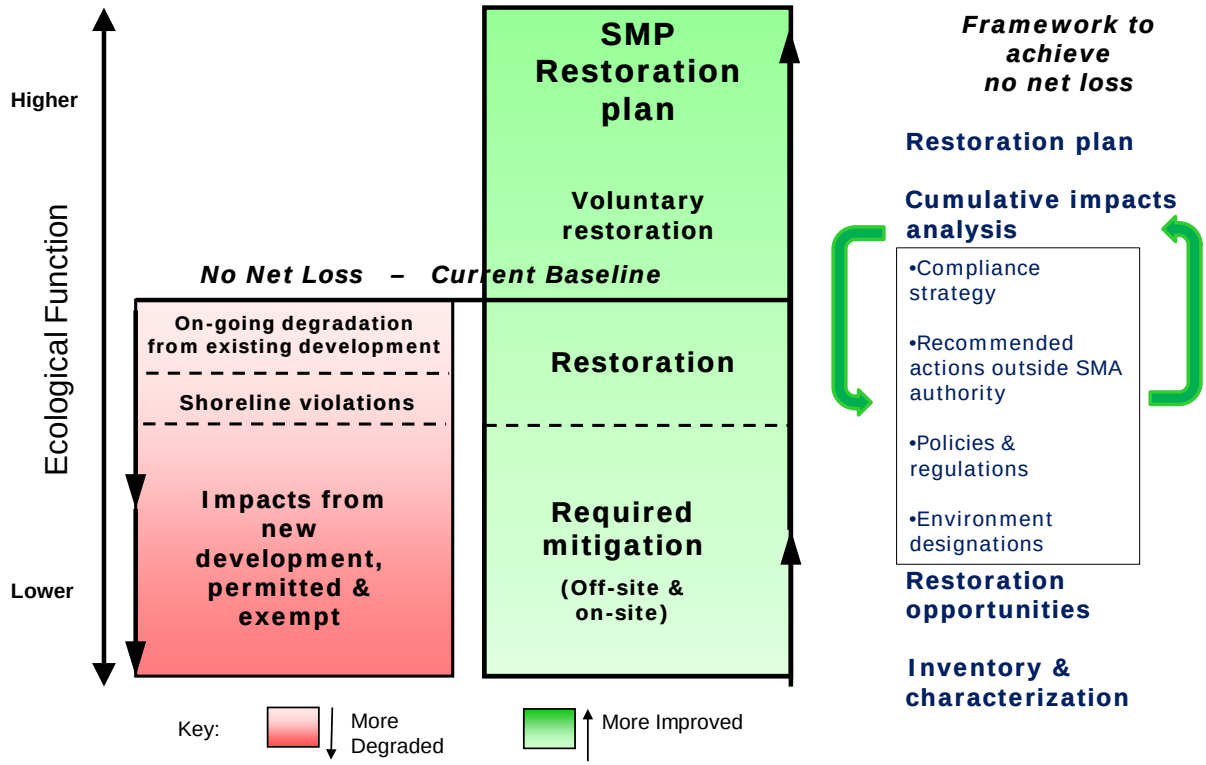


Figure 4-1: During the SMP update process, local governments should use existing shoreline conditions as the baseline for measuring no net loss of shoreline ecological functions.

Local governments show that their updated SMP will result in no net loss of ecological function by completing several tasks in the comprehensive SMP update process, including:

- **Shoreline inventory and characterization**. The shoreline inventory documents shoreline baseline conditions and the characterization analyzes shoreline functions and processes. (See SMP Handbook Chapter 7.
- **Shoreline use analysis.** The use analysis estimates the future demand for shoreline space and potential use conflicts over a minimum 20-year planning period and projects future trends.
- **Shoreline management recommendations.** Management recommendations translate the inventory and characterization findings into SMP policies, regulations, environment designations and protection strategies for each shoreline planning unit.
- **Restoration plan.** The restoration plan includes restoration opportunities, priorities and timelines for shoreline restoration.
- **Cumulative impacts analysis.** This analysis assesses the cumulative impacts on shoreline ecological functions from "reasonably foreseeable future development" allowed by the SMP, considering at a minimum habitat, hydrology and water quality functions.

Analyzing cumulative impacts is necessary to identify and compensate for the total predictable, incremental effects on shoreline functions after applying mitigation measures and restoration.

- **No net loss summary.** This narrative provides an overall picture of how the jurisdiction will meet the NNL requirement. This "executive summary" will explain how information from the supporting documents listed above was applied in developing and revising policies and regulations within the updated SMP. The summary should compare the conclusions of the supporting documents with the environment designations and use regulations to demonstrate how these provisions avoid, reduce, and mitigate reasonably foreseeable impacts in order to achieve NNL. This summary should provide a general chronology of the update while providing reference to the specific chronology captured in the SMP checklist. The purpose of this summary and other supporting documents is to ensure that the SMP environment designations, policies, regulations and shoreline restoration plan are based on the findings of the inventory and characterization and the cumulative impacts analysis and will achieve NNL. Documentation of this information will also provide a record of the jurisdiction's decisions on SMP policies and regulations in relation to NNL.

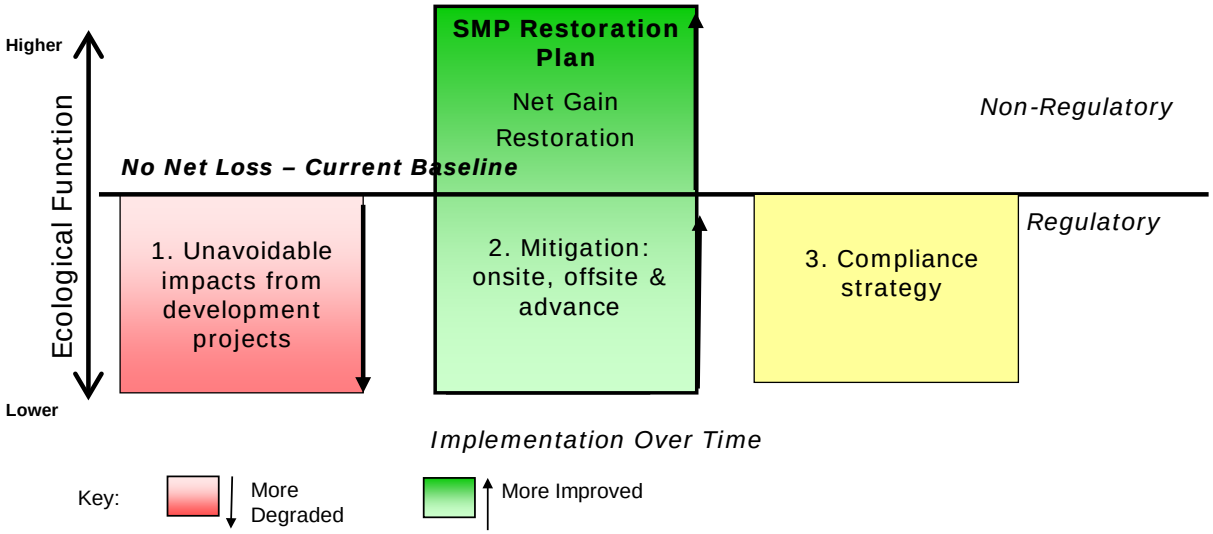
To approve a comprehensive SMP update, Ecology's Director must formally conclude that the proposed SMP, when implemented over its planning horizon, typically 20 years, will result in "no net loss of ecological functions necessary to sustain shoreline natural resources." This conclusion will be based upon the documents listed above, a completed SMP submittal checklist and supporting map portfolio.

No net loss in the permit process

When the SMP goes into effect, careful and thorough implementation will be necessary to achieve no net loss. For example, if the SMP prohibits office buildings and condominiums in the Conservancy environment, then your jurisdiction should not approve these uses in that environment. The cumulative impacts analysis would have shown that no net loss would be achieved if office buildings and condominiums are prohibited in the Conservancy environment. Allowing offices and condominiums under this scenario would result in a loss of shoreline functions.

When implementing the updated SMP, no net loss principles (first avoiding, then minimizing and compensating for ecological impacts) are applied again as individual shoreline project applications are reviewed and approved, conditioned, or denied. The following graphic demonstrates how the no net loss requirement is partially achieved during the permit process.

Achieving no net loss of ecological functions at the project level



1. Impacts from shoreline development projects, after mitigation and restoration measures. SMP should encourage appropriate use of innovative measures such as clustering, TDRs, site specific BMPs, etc. to reduce impacts.

2. On-site, off-site and advance mitigation. SMPs should lay out the conditions when off-site mitigation will be allowed or preferred. Innovative techniques such as wetland banking (advance mitigation) should be addressed in SMPs. SMP restoration plans should help identify priority sites and types of sites for the most effective off-site restoration activities.

3. A compliance strategy should include a mechanism to document project review actions and a method to periodically evaluate the cumulative effects of authorized shoreline development. The compliance strategy should include inspection of development projects, and identify priorities for enforcement to improve protection of the most significant shoreline features and functions.

Figure 4-2: SMPs must include regulations that require developers to follow mitigation sequencing. Restoration will also be needed in order to achieve no net loss.

During the planning process, incomplete information about a potential future development and its impacts limits your ability to address no net loss. To close this information gap, unanticipated development impacts are identified through more detailed, site-specific information received at the permit review level.

Project review completes the Guidelines' combined planning and permit review framework for achieving no net loss. It assures that unanticipated impacts will still be subject to a cumulative impacts evaluation as applications for shoreline exemptions, conditional uses, and shoreline permits are reviewed.

> *WAC 173-26-201(3)(d)(iii):For development projects that may have unanticipatable or uncommon impacts that cannot be reasonably identified at the time of master program development, the master program policies and regulations should use the permitting or conditional use permitting processes to ensure that all impacts are addressed and that there is no net loss of ecological function of the shoreline after mitigation.*

One way to comply with the SMP Guidelines requirement is to apply an established mitigation sequence such as that in the State

Environmental Policy Act (*SEPA* - *WAC 197-11-768*) on a case-by-case basis during project review.

Another way is through a conditional use permit (CUP). CUPs are automatically required for unanticipated types of development ("unclassified" uses). The SMP also may require CUPS for developments in which the impacts cannot be fully known at the planning level. Through the CUP review process, "consideration shall be given to the cumulative impact of additional requests for like actions in the area" [*WAC 173-27-160(2)]*.

Potential no net loss indicators

Local planners working on SMP updates have asked for a tool to measure no net loss. In response, Ecology staff scientists and planners, with input from several state agencies and local governments, developed a list of potential No Net Loss indicators for Shoreline Master Programs (Table 4-1, below). This table of indicators can be used by local governments to help track the status of shoreline functions. Tracking several indicators can help to meet the "no net loss" of shoreline ecological functions standard of the SMP Guidelines.

The table shows 15 potential indicators and the type of measurement for each, such as acres, linear feet, number, percent cover, etc. The table shows the shoreline functions – water quality, water quantity and habitat – that are affected by the indicator, as well as specific impairments related to the indicator. Other columns include limitations for using the indicators, where the indicators are best used, and the availability of data. The indicators are limited to the area within shoreline jurisdiction where SMP regulations are implemented.

Figure 4-3: The linear length or area of bulkheads may be used as an indicator of no net loss of shoreline ecological functions. Photo by Hugh Shipman.

Measuring and continuing to track these indicators can give you a picture of shoreline conditions and ecological functions. The indicators can be measured to track loss or gain. For example, the length of shoreline stabilization may increase or decrease, or the acreage of riparian vegetation may increase or decrease. As conditions change over time, you may need to make changes to your SMP if tracking the indicators shows that your community is not achieving "no net loss" of shoreline ecological functions.

TABLE 4-1: POTENTIAL NO NET LOSS INDICATORS for SHORELINE MASTER PROGRAMS

Indicator (all in shoreline jurisdiction)	Functions affected – key categories – water quality, water quantity and habitat	Type of Impairment**	Limitations of indicator	Where	Is data available or reasonable to obtain
Forest cover: Acres converted from forest land to other land uses.	Water quality–sediment, nutrients & toxic filtration, conversion, and/or retention; temperature regulation. Water quantity–flow regulation. Habitat-structure for habitat life needs; input of organics & LWM*.	Reduces forest buffers and decreases filtering, conversion, and/or retention of pollutants from surface & subsurface flow; increases quantity of pollutants to aquatic habitats. Alters the delivery and timing of water to aquatic areas, increasing quantity of water delivered to aquatic habitats during high and low flows, which affects habitat structures. Increases water temperature. Loss of nesting sites, rearing, refuge & foraging areas.	Doesn't identify future land use. May be difficult to determine acres in shoreline jurisdiction without finer scale analysis.	Rural.***	Details of application available from DNR and local government. Class IV forest practice applications. CCAP data.
Shoreline stabilization: Linear length or area of bulkheads, revetments, bioengineering, seawalls, groins, retaining walls,	Habitat-Riparian and aquatic habitat, sediment supply. Input of organics, prey base, & LWM. Structure for habitat life needs.	Interrupts habitat-forming processes, such as beaches & channel migration, by impacting sediment supply and transport. Loss of nesting sites, rearing, refuge & foraging areas. Loss of prey base with	Combines different types of stabilization measures into one general category; impacts may vary.	Rural, urban.	Is data available from local government, including permits & SDP exempt projects? Can locals track over time? HPA information can supplement other data, but is not sufficient on

TABLE 4-1: POTENTIAL NO NET LOSS INDICATORS for SHORELINE MASTER PROGRAMS					
Indicator (all in shoreline jurisdiction)	**Functions affected – key categories – water quality, water quantity and habitat**	**Type of Impairment****	**Limitations of indicator**	**Where**	**Is data available or reasonable to obtain**
gabions. (Includes decrease in length, change to soft structure.)		associated loss of riparian vegetation.			its own. Detailed aerial photos may also show stabilization changes.
Marine & freshwater riparian vegetation: Linear measurement of mature native riparian vegetation of a given width (buffer width) or percent cover of different vegetation classes.	Water quality–sediment, phosphorus & toxic filtration, conversion, and/or retention; temperature regulation. Water quantity–flow regulation. Habitat-input of organics, prey base, & LWM. Structure for habitat life needs.	Removes capacity of riparian vegetation to filter surface flows, sediment, phosphorous and toxics; subsurface removal or conversion of nitrogen, pathogens. Increases overland and subsurface flows. Increases water temperature. Reduces prey base. Loss of LWM that provides instream structure. Loss of nesting sites, rearing, refuge & foraging areas.	No permit, so no record of change. Focused project needed to track. Useful only if a baseline exists. Methodology needs to be able to measure change. May be difficult to measure over short time frame.	Rural, urban.	Can locals measure and track? Use sample areas, aerial photos. Puget Sound LIDAR consortium has some data.
Acres of permanently protected areas, with no or limited development: Public ownership, current use/PBRS, conservation	Water quality–sediment, phosphorus & toxic filtration, conversion, and/or retention; temperature regulation. Water quantity-flow regulation.	Loss of nesting sites, rearing, refuge & foraging areas.	How measure degree of protection? Limit to protected areas with no development? Difficult to connect with specific functions.	Rural, urban.	Need info on ownership, PBRS, easements. Other info available from county auditor and assessor? Land trusts. NRCS and state agencies are also

TABLE 4-1: POTENTIAL NO NET LOSS INDICATORS for SHORELINE MASTER PROGRAMS					
Indicator (all in shoreline jurisdiction)	**Functions affected – key categories – water quality, water quantity and habitat**	**Type of Impairment****	**Limitations of indicator**	**Where**	**Is data available or reasonable to obtain**
easements, fee ownerships, NGOs.	Habitat- Riparian and aquatic habitat, sediment supply. Input of organics, prey base, & LWM. Structure for habitat life needs.				sources for permanently protected lands.
Piers/docks/floats, overwater structures: Number of structures, square footage of new and replacement. Or track grating, piling, construction materials.	Habitat. Water quality-toxics.	Increase in predation, reduction in light and aquatic vegetation and simplification of food web.	All docks not same – i.e. grating, materials vary, location affects impacts. New docks partially mitigate impacts.	Rural, urban.	Is data available from local government, including permits and SDP exempt projects? Can locals track over time? Use DNR data – number of and area over water. HPA information can supplement other data, but is not sufficient on its own. Good to monitor late spring/early summer.
Road lengths (feet) within 200 feet of water body.	Water quantity. Water quality. Habitat- connectivity.	Intercepts and changes timing of flows to aquatic habitat. Increases sediment and toxics.	Is there much new road development in shoreline jurisdiction?	Rural, urban.	Data available from DNR, local governments and WSDOT. CCAP data needs analysis to provide relevant information.
Number of road crossings of water bodies -bridges, culverts.	Habitat - Instream functions. Water quality.	Simplifies stream habitat structure, increases channel confinement and interrupts habitat forming processes.	Is there much new road development in shoreline jurisdiction? Distinguishing between fish friendly crossings	Rural, urban.	Culvert inventories vary in quality. WDFW has fish passage barrier data, but it is incomplete. Remote sensing data? SHIAPP

TABLE 4-1: POTENTIAL NO NET LOSS INDICATORS for SHORELINE MASTER PROGRAMS

Indicator (all in shoreline jurisdiction)	Functions affected – key categories – water quality, water quantity and habitat	Type of Impairment**	Limitations of indicator	Where	Is data available or reasonable to obtain
		Increases delivery of pollutants.	and others. Combining broad range of activities.		data? CCAP data needs analysis to provide relevant information.
Water quality: 303(d) list. All water quality parameters such as temperature, dissolved oxygen, fecal coliform, heavy metals, toxics, organics and biological indices (e.g., Biological Index of Biotic Integrity). Shellfish listings closures.	Water quality.	Impairment is specific to type of listed 303(d) issue (e.g. increased temperature, low dissolved oxygen, increased fecal coliform, heavy metals and toxic organics.)	How relate to functions? Some impacts from outside shoreline jurisdiction. Only impaired waters are listed & measured; no WQ improvement project in place. No criteria to remove from list. Sampling methodology changes, not always comparable. Marine & fresh water lists updated in alternating 2-year cycles. Some impacts from outside shoreline jurisdiction and municipality. Emergency closures updated regularly. Uneven data. Changes may be too frequent for NNL purposes. Limited to	Rural, urban.	Accessible data from Ecology. Is water body on or off list? In some cases, only a portion (e.g., reach) of a water body is listed. 303(d) – comprehensive, Dept of Health Shellfish Program.

TABLE 4-1: POTENTIAL NO NET LOSS INDICATORS for SHORELINE MASTER PROGRAMS					
Indicator (all in shoreline jurisdiction)	**Functions affected – key categories – water quality, water quantity and habitat**	**Type of Impairment****	**Limitations of indicator**	**Where**	**Is data available or reasonable to obtain**
			fecal coliform. Reflects impacts on human health, not shellfish health.		
Levees/dikes: Linear feet, floodplain area gained from levee setbacks.	Water quality –sediment removal, temperature regulation. Water quantity–water storage, flooding. Habitat–structure for habitat life needs (e.g., low LWM, stream bed aggradation, river mouth progradation).	Impairs natural flooding regime. Reduces floodplain sediment retention, denitrification and hyporheic functions. Decreases groundwater storage and base flows. Interferes with formation of habitat structure such as distributary channels in tidal and riparian and in-channel and off-channel habitat in freshwater settings. Removes habitat structure for nesting, rearing, refuge and foraging.	Can change in habitat quality as a result of levee/dikes be easily measured? Various types and locations of levees & dikes are lumped together. Types of openings in levees and dikes vary; impacts may vary.	Rural, urban.	Measure increase/decrease in lineal feet, quality of levee related to riparian vegetation & slope. Is data from local governments or FEMA?
Floodplain area: Acres allowed to flood –tidal and river (lack of flood control and lack of other structures such as houses.)	Water quality – removal of toxics, sediment, phosphorous and pathogens through adsorption, filtration and retention. Removal of nitrogen through	Impairment similar to that for levees & dikes with loss of floodplain from diking & filling.	Availability of data, maintenance of data.	Rural, urban.	Do local governments measure this for shoreline inventory? FEMA floodplain info available.

TABLE 4-1: POTENTIAL NO NET LOSS INDICATORS for SHORELINE MASTER PROGRAMS					
Indicator (all in shoreline jurisdiction)	**Functions affected – key categories – water quality, water quantity and habitat**	**Type of Impairment****	**Limitations of indicator**	**Where**	**Is data available or reasonable to obtain**
	denitrification. Temperature regulation. Water quantity – water storage and flow regulation and reduction in downstream flooding. Habitat - formation of habitat structure from LWM, vegetation communities and sediment type/channel configuration that support habitat life needs. Input of organics and prey base.				
Number of bald eagle & osprey nests & roosts & great blue heron rookeries.	Habitat – structure for habitat life needs.	Indicator of impaired habitat.	More suitable for counties than cities.	Rural.	WDFW data – most up-to-date for eagles.
Percent cover of invasive species in riparian zones.	Habitat – Riparian and aquatic habitat, sediment supply. Input of organics & LWM. Structure for habitat life needs.	Overwhelms native plants, compromising ecosystem. Potential effect on physical structure and food web dynamics.	Requires field work. May be useful if data set is available. Use Noxious Weeds list to define invasive species?	Rural, urban.	Is data available? Conservation districts? WA Invasive Species Council? (working on baseline assessment due in May 2011)
Impervious surface area.	Water quality – removal of toxics, sediment, phosphorous and	Reduces vegetative buffers and decreases filtering of	Covered by other indicators? Percentage increase in developed	Urban	Aerial photos or other remote sensing techniques show

TABLE 4-1: POTENTIAL NO NET LOSS INDICATORS for SHORELINE MASTER PROGRAMS					
Indicator (all in shoreline jurisdiction)	**Functions affected – key categories – water quality, water quantity and habitat**	**Type of Impairment****	**Limitations of indicator**	**Where**	**Is data available or reasonable to obtain**
	pathogens through adsorption, filtration and retention. Removal of nitrogen through denitrification. Temperature regulation. Water quantity – water storage and flow regulation and reduction in downstream flooding. Habitat - formation of habitat structure from LWM, vegetation communities and sediment type/channel configuration that support habitat life needs. Input of organics.	pollutants from surface & subsurface flow. Alters the delivery and timing of water to aquatic areas, increasing quantity of water and pollutants delivered to aquatic habitats during high and low flows, which affects habitat structure. Increases water temperature Reduces prey base (by associated removal of vegetation) Loss of nesting sites, rearing, refuge & foraging areas.	urban areas would be small and may not be useful indicator. Some land surface cover layers are inaccurate, e.g. showing impervious for clearcut forest.		impervious cover. Local governments require new impervious information in permit applications.
Wetlands acreage: Fill of natural wetlands and constructed or engineered wetlands. This includes nearshore tidal estuaries.	Water Quality – Wetlands filter pollutants and store sediment. Water Quantity – Affect groundwater storage and flow regulation. Habitat – Affects habitat structure, results in loss of wetland vegetation	Changes to natural hydrological, chemical, and physical regimes affect the production and succession of a wetland's ecology, and therefore its functions and values.	Difficult to track. Could be covered in other indicators (impervious surface and water quality), however other indicators don't get at wetland conversion to non-impervious land use such as landscaping or	Rural, urban	Is data available? Local permit tracking? Ecology? Core of Engineers?

TABLE 4-1: POTENTIAL NO NET LOSS INDICATORS for SHORELINE MASTER PROGRAMS					
Indicator (all in shoreline jurisdiction)	**Functions affected – key categories – water quality, water quantity and habitat**	**Type of Impairment****	**Limitations of indicator**	**Where**	**Is data available or reasonable to obtain**
	communities that support habitat life needs.		agriculture. May require field work.		
Area of seagrasses, kelp and emergent aquatic vegetation.	Habitat – structure for habitat life needs, including food and shelter for many species.	Decreases in aquatic vegetation such as eelgrass and kelp results in loss of food and shelter for many species.	Multiple factors affect growth and sustainability of aquatic vegetation.	Aquatic	Seagrass, kelp and emergent aquatic vegetation data along shoreline available from DNR Shorezone. (1994-2000) More recent local data available at those sites that are among the stratified randomly sampled sites.

* LWM – Large Woody Material

** For some indicators, decreasing the length or area of the indicator would result in a benefit to shoreline functions (e.g., shoreline stabilization, piers & docks.) For other indicators, increasing the length or area of the indicator would result in a benefit to functions (e.g. forest cover, riparian vegetation.)

*** Rural includes rural residential, agricultural and forestry areas.

CCAP – Coastal Change Analysis Program

NGO – Non-government organization

PBRS – Public Benefit Rating System

NRCS – National Resource Conservation Service

Inventory provides baseline

A baseline of shoreline ecological conditions is necessary in order to use indicators. You need a starting point. Fortunately, the shoreline inventory and characterization provide the baseline for measuring no net loss. The best time to collect data related to the indicators is during the shoreline inventory.

Some local governments have completed their inventory, and don't plan on collecting new data in the near future. Existing inventory data should provide good information for some of the indicators – impervious surfaces, levees and dikes, shoreline stabilization, floodplains, vegetation, overwater structures – as they are required as part of the inventory, to the extent that such information is available.

If you are working on the inventory now or will be in the future

Look at the indicators list. Consider what you now know about your shorelines. Are you aware of extensive riparian vegetation, a large number of eagle nests, water quality problems or limited shoreline armoring? Would these indicators be able to be counted as part of the inventory and tracked over time? What about other indicators? As you work on the inventory, keep the potential indicators in mind. If you find out there aren't any eagle nests, they would not be a good indicator for your community. If you learn there are many feet of roads in shoreline jurisdiction, and there are also long-term plans to remove some road lengths, road length may be a good indicator. Keep in mind that data about the indicators needs to be available now and in the future.

If your inventory is complete

Look at the indicators list. Consider your shoreline conditions and the inventory information that you have available. Are several of the indicators on the list reflected in your inventory? Does your inventory include the amount of shoreline stabilization or overwater structures such as piers and docks (this information is commonly included in inventories.) If so, you can choose several indicators from the list. If Ecology's potential indicators are not applicable to your shorelines, what inventory information could be useful as one or more indicators?

Selecting other indicators

If Ecology's potential indicators are not appropriate for your shoreline, you may develop your own. Your local government may have data specific to your shorelines that could be useful for indicators. These indicators should be relevant to the regulatory authority that your local government has over factors that affect the indicators. If an upstream city's activities have significant effects on water quality along your shoreline, then water quality is not an appropriate indicator to measure net loss or gain that can be attributed to your local government's actions. When determining what indicators to use, consider the following criteria:

- Data are available, reliable and can be gathered in a consistent manner over time. Note that data may be specific for some areas and not available for other areas

within your jurisdiction. Example, current eelgrass data are available for some nearshore areas and not others.

- The data selected for measurement provide an indication of ecological function within shoreline jurisdiction.
- Indicators are relevant to implementation of local policies and regulations. The number of orcas that pass by offshore is not a reflection of your local SMP's effectiveness, as orcas can range through the waters of many jurisdictions, even going out of state or country.
- Data have the potential to show change over a relatively short time period.
- Indicators are used by other agencies such as the Puget Sound Partnership.

An indicator may be present throughout your shoreline jurisdiction, such as impervious surfaces in urban areas, or limited to one or several shoreline reaches, such as freshwater riparian vegetation. A small percent reduction of impervious surfaces throughout shoreline jurisdiction could have significant positive effects on shoreline functions. On the other hand, the loss of riparian vegetation in one or several reaches could have significant detrimental impacts on shoreline functions. You could choose one or two indicators that occur throughout shoreline jurisdiction and several other indicators that occur in one or several reaches where a gain or loss represents a substantial change to shoreline functions.

Choosing appropriate indicators

Choose indicators that represent habitat, water quantity and water quality in your community. For example, shoreline stabilization affects habitat; forest cover affects habitat, water quantity and water quality; and the 303(d) list reflects water quality. This combination of indicators, if they adequately represent your shorelines, would be good to track.

The indicators you choose should take into account the anticipated future development along your shorelines. Projecting "reasonably foreseeable future development and use of the shoreline" is part of the Cumulative Impacts Analysis. If you expect that urban, suburban or high intensity development will occur along the shoreline, consider indicators related to such development. These may include impervious surface area, shoreline stabilization, overwater structures, riparian vegetation, road lengths or invasive species, among others.

Figure 4-4: Riparian vegetation, overwater structures and impervious surfaces are potential indicators of no net loss.

Keep in mind any restoration that you expect to occur. If your plans call for removing bulkheads and restoring habitat, appropriate indicators might be riparian vegetation, eagle and osprey nests, and the length of shoreline armoring.

Avoid choosing an indicator that does not represent your shoreline, for example, forest cover if forest cover would not occur naturally. Avoid choosing several indicators that may represent the same impacts on ecological function – e.g., riparian vegetation in a relatively undeveloped area, and acres of permanently protected areas in the same location.

Tracking indicators

Develop a process and method to track the indicators. The SMP Guidelines state, "Master programs or other local permit review ordinances addressing shoreline project review shall include a mechanism for documenting all project review actions in shoreline areas. Local governments shall also identify a process for periodically evaluating the cumulative effects of authorized development on shoreline conditions. This process could involve a joint effort by local governments, state resource agencies, affected Indian tribes, and other parties" **[**WAC 173-26-191(2)(a)(iii)(D)].

Tracking your indicators can help you determine whether you are achieving no net loss. Determine how often you will measure your indicators – annually, when you update your SMP, or something in between? What do the indicators tell you compared with the baseline? How will the information be analyzed? Figure out early what you will be looking for, how it will be measured, and what it might mean.

Some options for tracking indicators:

- Track through the permit process. This may work for some development features, such as impervious surface coverage, length of bulkheads, and vegetation clearing. Developments that are exempt from the requirements for a Shoreline Substantial Development permit usually need local building or other permits. How often will these be checked? Can you keep a running tally, or run a software program annually?
- Track through local data that is updated regularly.
- Track through state or federal or other data sources. Who in your department will follow up, and when should that happen? (Refer to the indicators table for potential data sources.)
- Track changes through aerial photos or shoreline field visits, on land and water. Identify the process you will use.

Reporting use of indicators

The SMP Guidelines require local governments to show how NNL will be achieved, although specific indicators are not required. However, you are required to show in the Cumulative Impacts Analysis and No Net Loss report how the SMP will achieve no net loss when implemented over time. Your choice of indicators, rationale for choosing them, and explanation of how they will be tracked and evaluated should be discussed in these reports. Your SMP also can discuss how you will use indicators to show whether you are achieving no net loss.

Shoreline Master Program Guidelines

SMP Guidelines specifically addressing No Net Loss

WAC 173-26-186

(8) Through numerous references to and emphasis on the maintenance, protection, restoration, and preservation of "fragile" shoreline "natural resources," "public health," "the land and its vegetation and wildlife," "the waters and their aquatic life," "ecology," and "environment," the act makes protection of the shoreline environment an essential statewide policy goal consistent with the other policy goals of the act. It is recognized that shoreline ecological functions may be impaired not only by shoreline development subject to the substantial development permit requirement of the act but also by past actions, unregulated activities, and development that is exempt from the act's permit requirements. The principle regarding protecting shoreline ecological systems is accomplished by these guidelines in several ways, and in the context of related principles. These include:

(a) Local government is guided in its review and amendment of local master programs so that it uses a process that identifies, inventories, and ensures meaningful understanding of current and potential ecological functions provided by affected shorelines.

(b) Local master programs shall include policies and regulations designed to achieve **no net loss** of those ecological functions.

(i) Local master programs shall include regulations and mitigation standards ensuring that each permitted development **will not cause a net loss** of ecological functions of the shoreline; local government shall design and implement such regulations and mitigation standards in a manner consistent with all relevant constitutional and other legal limitations on the regulation of private property.

(ii) Local master programs shall include regulations ensuring that exempt development in the aggregate **will not cause a net loss** of ecological functions of the shoreline.

SMP Guidelines generally addressing environmental protection and related to No Net Loss

Scientific and technical information

WAC 173-26-201(2)(a)
(a) **Use of scientific and technical information.** To satisfy the requirements for the use of scientific and technical information in RCW 90.58.100(1), local governments shall incorporate the following two steps into their master program development and amendment process.

First, identify and assemble the most current, accurate, and complete scientific and technical information available that is applicable to the issues of concern. The context, scope, magnitude, significance, and potential limitations of the scientific information should be considered. At a minimum, make use of and, where applicable, incorporate all available scientific information, aerial photography, inventory data, technical assistance materials, manuals and services from reliable sources of science….

Second, base master program provisions on an analysis incorporating the most current, accurate, and complete scientific or technical information available. Local governments should be prepared to identify the following:

(i) Scientific information and management recommendations on which the master program provisions are based;

(ii) Assumptions made concerning, and data gaps in, the scientific information; and

(iii) Risks to ecological functions associated with master program provisions. Address potential risks as described in WAC 173-26-201 (3)(d).

Shoreline ecological functions

WAC 173-26-201(3)(d)(i):
(C) Shoreline ecological functions include, but are not limited to:

In rivers and streams and associated flood plains:

Hydrologic: Transport of water and sediment across the natural range of flow variability; attenuating flow energy; developing pools, riffles, gravel bars, recruitment and transport of large woody debris and other organic material.

Shoreline vegetation: Maintaining temperature; removing excessive nutrients and toxic compound, sediment removal and stabilization; attenuation of flow energy; and provision of large woody debris and other organic matter.

Hyporheic functions: Removing excessive nutrients and toxic compound, water storage, support of vegetation, and sediment storage and maintenance of base flows.

Habitat for native aquatic and shoreline-dependent birds, invertebrates, mammals; amphibians; and anadromous and resident native fish: Habitat functions may include, but are not limited to, space or conditions for reproduction; resting, hiding and migration; and food production and delivery.

In lakes:

Hydrologic: Storing water and sediment, attenuating wave energy, removing excessive nutrients and toxic compounds, recruitment of large woody debris and other organic material.

Shoreline vegetation: Maintaining temperature; removing excessive nutrients and toxic compound, attenuating wave energy, sediment removal and stabilization; and providing woody debris and other organic matter.

Hyporheic functions: Removing excessive nutrients and toxic compound, water storage, support of vegetation, and sediment storage and maintenance of base flows.

Habitat for aquatic and shoreline-dependent birds, invertebrates, mammals; amphibians; and anadromous and resident native fish: Habitat functions may include, but are not limited to, space or conditions for reproduction, resting, hiding and migration; and food production and delivery.

In marine waters:

Hydrologic: Transporting and stabilizing sediment, attenuating wave and tidal energy, removing excessive nutrients and toxic compounds; recruitment, redistribution and reduction of woody debris and other organic material.

Vegetation: Maintaining temperature; removing excessive nutrients and toxic compound, attenuating wave energy, sediment removal and stabilization; and providing woody debris and other organic matter.

Habitat for aquatic and shoreline-dependent birds, invertebrates, mammals; amphibians; and anadromous and resident native fish: Habitat functions may include, but are not limited to, space or conditions for reproduction, resting, hiding and migration; and food production and delivery.

Wetlands:

Hydrological: Storing water and sediment, attenuating wave energy, removing excessive nutrients and toxic compounds, recruiting woody debris and other organic material.

Vegetation: Maintaining temperature; removing excessive nutrients and toxic compound, attenuating wave energy, removing and stabilizing sediment; and providing woody debris and other organic matter.

Hyporheic functions: Removing excessive nutrients and toxic compound, storing water and maintaining base flows, storing sediment and support of vegetation.

Habitat for aquatic and shoreline-dependent birds, invertebrates, mammals; amphibians; and anadromous and resident native fish: Habitat functions may include, but are not limited to, space or conditions for reproduction, resting, hiding and migration; and food production and delivery.

(D) The overall condition of habitat and shoreline resources are determined by the following ecosystem-wide processes and ecological functions:

The distribution, diversity, and complexity of the watersheds, marine environments, and landscape-scale features that form the aquatic systems to which species, populations, and communities are uniquely adapted.

The spatial and temporal connectivity within and between watersheds and along marine shorelines. Drainage network connections include flood plains, wetlands, upslope areas, headwater tributaries, and naturally functioning routes to areas critical for fulfilling life history requirements of aquatic and riverine-dependent species.

The shorelines, beaches, banks, marine near-shore habitats, and bottom configurations that provide the physical framework of the aquatic system.

The timing, volume, and distribution of woody debris recruitment in rivers, streams and marine habitat areas.

The water quality necessary to maintain the biological, physical, and chemical integrity of the system and support survival, growth, reproduction, and migration of individuals composing aquatic and riverine communities.

The sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.

The range of flow variability sufficient to create and sustain fluvial, aquatic, and wetland habitats, the patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows, and duration of flood plain inundation and water table elevation in meadows and wetlands.

The species composition and structural diversity of plant communities in river and stream areas and wetlands that provides summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of woody debris sufficient to sustain physical complexity and stability.

(E) Local governments should use the characterization and analysis called for in this section to prepare master program policies and regulations designed to achieve **no net loss** of ecological functions necessary to support shoreline resources and to plan for the restoration of the ecosystem-wide processes and individual ecological functions on a comprehensive basis over time.

Precautionary principle

WAC 173-26-201(3)(g)
The level of detail of inventory information and planning analysis will be a consideration in setting shoreline regulations. As a general rule, the less known about existing resources, the more protective shoreline master program provisions should be to avoid unanticipated impacts to shoreline resources. If there is a question about the extent or condition of an existing ecological

resource, then the master program provisions shall be sufficient to reasonably assure that the resource is protected in a manner consistent with the policies of these guidelines.

Mitigation sequencing

WAC 173-26-201(2)
(e) **Environmental impact mitigation.**

(i) To assure **no net loss** of shoreline ecological functions, master programs shall include provisions that require proposed individual uses and developments to analyze environmental impacts of the proposal and include measures to mitigate environmental impacts not otherwise avoided or mitigated by compliance with the master program and other applicable regulations. To the extent Washington's State Environmental Policy Act of 1971 (SEPA), chapter 43.21C RCW, is applicable, the analysis of such environmental impacts shall be conducted consistent with the rules implementing SEPA, which also address environmental impact mitigation in WAC 197-11-660 and define mitigation in WAC 197-11-768. Master programs shall indicate that, where required, mitigation measures shall be applied in the following sequence of steps listed in order of priority, with (e)(i)(A) of this subsection being top priority.

(A) Avoiding the impact altogether by not taking a certain action or parts of an action;

(B) Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts;

(C) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

(D) Reducing or eliminating the impact over time by preservation and maintenance operations;

(E) Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and

(F) Monitoring the impact and the compensation projects and taking appropriate corrective measures.

(ii) In determining appropriate mitigation measures applicable to shoreline development, lower priority measures shall be applied only where higher priority measures are determined to be infeasible or inapplicable.

Consistent with WAC 173-26-186 (5) and (8), master programs shall also provide direction with regard to mitigation for the impact of the development so that:

(A) Application of the mitigation sequence achieves **no net loss** of ecological functions for each new development and does not result in required mitigation in excess of that necessary to assure that development will result in **no net loss** of shoreline ecological functions and not have a significant adverse impact on other shoreline functions fostered by the policy of the act.

(B) When compensatory measures are appropriate pursuant to the mitigation priority sequence above, preferential consideration shall be given to measures that replace the impacted functions directly and in the immediate vicinity of the impact. However, alternative compensatory mitigation within the watershed that addresses limiting factors or identified critical needs for shoreline resource conservation based on watershed or comprehensive resource management plans applicable to the area of impact may be authorized. Authorization of compensatory mitigation measures may require appropriate safeguards, terms or conditions as necessary to ensure **no net loss** of ecological functions.

Shoreline inventory and characterization

WAC 173-26-201(3)(c)
Local government shall, at a minimum, and to the extent such information is relevant and reasonably available, collect the following information:

(i) Shoreline and adjacent land use patterns and transportation and utility facilities, including the extent of existing structures, impervious surfaces, vegetation and shoreline modifications in shoreline jurisdiction. Special attention should be paid to identification of water-oriented uses and related navigation, transportation and utility facilities.

(ii) Critical areas, including wetlands, aquifer recharge areas, fish and wildlife conservation areas, geologically hazardous areas, and frequently flooded areas. See also WAC 173-26-221.

(iii) Degraded areas and sites with potential for ecological restoration.

(iv) Areas of special interest, such as priority habitats, developing or redeveloping harbors and waterfronts, previously identified toxic or hazardous material clean-up sites, dredged material disposal sites, or eroding shorelines, to be addressed through new master program provisions.

(v) Conditions and regulations in shoreland and adjacent areas that affect shorelines, such as surface water management and land use regulations. This information may be useful in achieving mutual consistency between the master program and other development regulations.

(vi) Existing and potential shoreline public access sites, including public rights of way and utility corridors.

(vii) General location of channel migration zones, and flood plains.

(viii) Gaps in existing information. During the initial inventory, local governments should identify what additional information may be necessary for more effective shoreline management.

(ix) If the shoreline is rapidly developing or subject to substantial human changes such as clearing and grading, past and current records or historical aerial photographs may be necessary to identify cumulative impacts, such as bulkhead construction, intrusive development on priority

habitats, and conversion of harbor areas to nonwater-oriented uses.

(x) If archaeological or historic resources have been identified in shoreline jurisdiction, consult with the state historic preservation office and local affected Indian tribes regarding existing archaeological and historical information.

WAC 173-26-201(3)(d)
Analyze shoreline issues of concern. Before establishing specific master program provisions, local governments shall analyze the information gathered in (c) of this subsection and as necessary to ensure effective shoreline management provisions, address the topics below, where applicable.

(i) **Characterization of functions and ecosystem-wide processes.**
(A) Prepare a characterization of shoreline ecosystems and their associated ecological functions. The characterization consists of three steps:

(I) Identify the ecosystem-wide processes and ecological functions based on the list in (d)(i)(C) of this subsection that apply to the shoreline(s) of the jurisdiction.

(II) Assess the ecosystem-wide processes to determine their relationship to ecological functions present within the jurisdiction and identify which ecological functions are healthy, which have been significantly altered and/or adversely impacted and which functions may have previously existed and are missing based on the values identified in (d)(i)(D) of this subsection; and

(III) Identify specific measures necessary to protect and/or restore the ecological functions and ecosystem-wide processes.

Use analysis

WAC 173-26-201(3)(d)
(ii) **Shoreline use analysis and priorities.** Conduct an analysis to estimate the future demand for shoreline space and potential use conflicts. Characterize current shoreline use patterns and projected trends to ensure appropriate uses consistent with chapter 90.58 RCW and WAC 173-26-201 (2)(d) and 173-26-211(5).

If the jurisdiction includes a designated harbor area or urban waterfront with intensive uses or significant development or redevelopment issues, work with the Washington state department of natural resources and port authorities to ensure consistency with harbor area statutes and regulations, and to address port plans. Identify measures and strategies to encourage appropriate use of these shoreline areas in accordance with the use priorities of chapter 90.58 RCW and WAC 173-26-201 (2)(d) while pursuing opportunities for ecological restoration.

Cumulative Impacts

WAC 173-26-186

(d) Local master programs shall evaluate and consider cumulative impacts of reasonably foreseeable future development on shoreline ecological functions and other shoreline functions fostered by the policy goals of the act. To ensure **no net loss** of ecological functions and protection of other shoreline functions and/or uses, master programs shall contain policies, programs, and regulations that address adverse cumulative impacts and fairly allocate the burden of addressing cumulative impacts among development opportunities. Evaluation of such cumulative impacts should consider:

(i) Current circumstances affecting the shorelines and relevant natural processes;

(ii) Reasonably foreseeable future development and use of the shoreline; and

(iii) Beneficial effects of any established regulatory programs under other local, state, and federal laws.

It is recognized that methods of determining reasonably foreseeable future development may vary according to local circumstances, including demographic and economic characteristics and the nature and extent of local shorelines.

(e) The guidelines are not intended to limit the use of regulatory incentives, voluntary modification of development proposals, and voluntary mitigation measures that are designed to restore as well as protect shoreline ecological functions.

Restoration Planning

WAC 173-26-186(8)
(c) For counties and cities containing any shorelines with impaired ecological functions, master programs shall include goals and policies that provide for restoration of such impaired ecological functions. These master program provisions shall identify existing policies and programs that contribute to planned restoration goals and identify any additional policies and programs that local government will implement to achieve its goals. These master program elements regarding restoration should make real and meaningful use of established or funded nonregulatory policies and programs that contribute to restoration of ecological functions, and should appropriately consider the direct or indirect effects of other regulatory or nonregulatory programs under other local, state, and federal laws, as well as any restoration effects that may flow indirectly from shoreline development regulations and mitigation standards.

WAC 173-26-201(2)(f)
Shoreline restoration planning. Consistent with principle WAC 173-26-186 (8)(c), master programs shall include goals, policies and actions for restoration of impaired shoreline ecological functions. These master program provisions should be designed to achieve overall improvements in shoreline ecological functions over time, when compared to the status upon adoption of the master program. The approach to restoration planning may vary significantly among local jurisdictions, depending on:

- The size of the jurisdiction;

• The extent and condition of shorelines in the jurisdiction;

• The availability of grants, volunteer programs or other tools for restoration; and

• The nature of the ecological functions to be addressed by restoration planning.

Master program restoration plans shall consider and address the following subjects:

(i) Identify degraded areas, impaired ecological functions, and sites with potential for ecological restoration;

(ii) Establish overall goals and priorities for restoration of degraded areas and impaired ecological functions;

(iii) Identify existing and ongoing projects and programs that are currently being implemented, or are reasonably assured of being implemented (based on an evaluation of funding likely in the foreseeable future), which are designed to contribute to local restoration goals;

(iv) Identify additional projects and programs needed to achieve local restoration goals, and implementation strategies including identifying prospective funding sources for those projects and programs;

(v) Identify timelines and benchmarks for implementing restoration projects and programs and achieving local restoration goals;

(vi) Provide for mechanisms or strategies to ensure that restoration projects and programs will be implemented according to plans and to appropriately review the effectiveness of the projects and programs in meeting the overall restoration goals.

Specific Shoreline Activity and Use Standards

Numerous additional specific references exist in the SMP Guidelines, requiring SMP regulations resulting in **no net loss** of shoreline ecological functions. Specific shoreline activity standards referencing NNL are located at:

WAC 173-26-221(2)(c)(ii)(C) and (D): Geologically hazardous areas.
WAC 173-26-221(2)(c)(iii)(C): Critical saltwater habitats
WAC 173-26-221(2)(c)(iv)(C): Critical freshwater habitats
WAC 173-26-221(3): Flood hazard reduction
WAC 173-26-221(4)(d): Public access
WAC 173-26-221(5): Shoreline vegetation conservation
WAC 173-26-221(6): Water quality, storm water and nonpoint pollution

WAC 173-26-231: Shoreline modifications, including shoreline stabilization, piers and docks, fill, breakwaters, jetties, groins and weirs, beach and dunes management, dredging and dredge material disposal, shoreline habitat and natural systems-enhancement projects.

Specific shoreline use standards referencing NNL are located at:

WAC 173-26-241(2)(a)(iv), addressing the following uses:
Agriculture
Aquaculture
Boating facilities
Commercial development
Forest practices
Industry
In-stream structural uses
Mining
Recreational development
Residential development
Transportation and parking
Utilities