

Coastal/Infrastructure PAWG
Revised list of key vulnerability/adaptation topics

1. Improve data and monitoring to support planning for SLR changes on the coast. There is an inadequate system for data monitoring and observing snow, streamflow, water quality in Puget Sound, etc. Adequate spatial coverage for these systems does not exist in Washington or globally. Issues include:

- a. **Improve nearshore elevation data control points:** Detailed mapping is needed to accurately examine potential impacts of 1 -2 ' SLR. LIDAR mapping exists in some locations, but its accuracy is dependent on elevation control points that are inadequate for coastal SLR planning. Federal (e.g., NOAA) and county agencies gather elevation data and their activities should be coordinated and enhanced.
- b. **Visual imagery:** The availability of images or models of the potential impacts of SLR on communities and habitats would help raise awareness.
- c. **Technical assistance to various agencies, including state and local.** Small port districts and other local governments face challenges understanding the SLR scenarios. The state could provide benchmarks or validated estimates that might assist with planning. For example, when WSDOT designs a bridge, information is incorporated from a state-wide contour map showing anticipated tectonic movement. Something similar might exist for SLR risk. Who is responsible for providing this type of data?
- d. **Information for the public.** The public will need to better understand the potential impacts of climate change on the coast. Decisions are needed on the guidance that should be provided to them and to other non-governmental organizations. When uncertainty is so high, what guidance can or should be given about development options on the coast?

2. Shoreline hardening has implications for resilience of natural and built systems. Armoring is needed to protect vital infrastructure and communities. New armoring should be discouraged wherever possible to protect habitat and protect the ability of the beach to adapt to change in sea level (beach-forming materials.) A challenge is that concerns about sea level rise (SLR) may trigger desire for greater armoring of shoreline (whether needed or out of fear). Issues include:

- a. **Avoid non-essential armoring:** Policies should clearly avoid non-essential armoring to protect sensitive shoreline habitat and protect source material for beaches – balanced with property rights. This is a major issue regarding residential development along shorelines. Needed: **Clear justifications for disallowing a proposed bulkhead.**

- b. **“Emergency” exemptions need to be addressed.** For example, the state of OR has a policy adopted in 1977 that states that no home can bulkhead. However, many permits are issued for single-family home bulkheads as part of “emergency” permitting. Climate change may very likely be considered an emergency situation.
- c. **Protection of vital infrastructure:** Additional armoring and diking may be needed in places to protect vital infrastructure and communities. Land use policies and permitting processes should be examined to recognize the broader benefits of public facilities. Public facilities should not necessarily be held to more stringent review than single-family shoreline alterations (e.g., A state park dock proposal requires a Shoreline Conditional Use Permit, while an individual dock may be exempt from Shoreline permits.)
- d. **Reclamation:** There may be opportunities for reclamation of certain armored shorelines. Ideally, watershed plans or other pre-planning will guide off-site mitigation to the most important restoration/reclamation projects. The specific situations that may require bulkheads need to be identified.
- e. **Agricultural diking** is a large factor for habitat. There are no consistent records across counties on where dikes exist.
- f. The response/role of **railroad fills** along the Sound is very important. There is a need to work with railroads on potential opportunities for protection/habitat restoration efforts. (e.g., Bellingham.)
- g. Other states (e.g., MA, SC, and MD) have used **state-mandated setbacks** – that might be useful in WA. This might be an option on low-bank shorelines. Studies would be needed to determine how setbacks can be applied to single-family homes. Where structures currently exist over water (e.g., docks) there will be requirements for raising the structures. The freeboard will change. Placement of critical facilities (e.g., sewage treatment plants and railroads) must be addressed.
- h. There is a need to address guidelines for dealing with differential behaviors – such as when one property has bulkheads and other do not. A potential for litigation exists, that the state might address in its guidelines.

3. Community/infrastructure vulnerability is of concern. There is a need to examine SLR scenarios to identify at-risk infrastructure and communities. Olympia is examining stormwater backup impacts from a one foot SLR. There is also a need to examine vulnerability from the perspective context of extreme **storm intensity**. For example, the December '06 storm event raised the tide in Olympia by 3 feet over predicted levels.

- a. Olympia is thinking about “regional protection measures” for additional diking, etc. and is interested in better understanding the potential role of

the state and federal government in providing guidelines, assistance, and money to ensure protection of Olympia. (See Cantwell's tsunami efforts).

- b. **State and local government nearshore facility management should lead by example.** One example is the funding provided in 2005 Puget Sound Initiative to State Parks to improve shoreline park wastewater facilities; intent is to move from marginal to exemplary.

4. Various land use planning tools may provide options for adapting to coastal changes due to climate change.

- a. **Shoreline Master Programs:** All SMPs are being updated through state-funded comprehensive updates. SMP law intends that the act be implemented at the local level, but guidance from the state on the minimum rises in sea level that should be considered would be helpful. ECY does not have a clear statement on sea level rise to include in these minimum requirements. Guidance versus rules would be helpful to consider planning for SLR.
- b. **SEPA:** CA just passed legislation requiring that SLR information be included in their environmental review process. This has potential in WA as well.
- c. **Flood hazard maps** have been “modernized” through digitizing but do not have improved elevation information. FEMA relies on historical records to see flood zones. This effort should recognize and consider that things are changing.
- d. **Coastal zone hazard** maps are driven by landslide risks. This is a very limited view.
- e. WA could consider “**rolling easements**” like Titus (Maryland Law Review) proposed. (Bellingham looked into rolling easements but could not find any current examples.)
- f. **Legislative support:** There should be some proactive emphasis on planning the use of coasts wisely at the state legislature. For example, the Shoreline Management Act treats bulkheads as “customary” rather than a shoreline modification that should be avoided or minimized to maximum extent. See Maryland as an example of comprehensive SLR response.
- g. **Comprehensive plans** and the critical area assessments may be useful to consider SLR. Updates are due on these assessments. This may provide an opportunity to consider setbacks vs critical area. Right now consider critical area assessments consider erosion, but not SLR. The infrastructure/capital facilities element of comp plans provides an opportunity for to address SLR and roads, facilities placement. .
- h. **Funding:** “restrict funding for projects in coastal areas” if projects have not gone through a SLR screen, but recognize the need to fund infrastructure retrofit in coastal areas. Alternatively, mandate a process to consider SLR as a component of all new coastal area construction. The

insurance industry is very interested in SLR and setbacks. There are private sector interests from different perspectives. The real estate industry may not want to expose SLR maps. Trends that continue to increase vulnerability should be stopped, but actions need to be taken that do not require statements about specific amounts of SLR. Actions should not create litigation over what specific levels of rise might or might not be.

- i. **Consider how to deal with uncertainty.** More detailed vulnerability studies are needed – including tiered assessments of vulnerability. The state could help communities do this – raise awareness to target actions (similar to CTED efforts in 90's for GMA planning and other emergency mgt approaches. The Dept of Homeland Security – has funding to support interoperability). Vulnerability assessment is important to ensure that the public and others are aware of the decisions and assessments. Not everything should automatically be prohibited – as some activities may have less vulnerability and less impact (e.g., shellfish facilities or recreational fields).
- j. **JARPA permitting process** should be considered as an opportunity to consider SLR
- k. **All current permitting processes** that affect coastal areas should be examined to determine how to take SLR into account.
- l. **The hydraulic project approval (HPA) process** can provide guidance and training for individuals. The legislative scope of this process should be examined as it is currently based on “ordinary high water” and this will rise. This is very limited, but can be an asset in that field people can talk one-on-one with land owners.

5. Other considerations

- a. Consider differences in jurisdictional levels in future discussion (state sideboards – GMA, SMA)
- b. Need to think about differences between public and private perspectives and options
- c. Identify ways the state can lead by example (include recognizing costs of implementing responses to SLR).
- d. Consider how the priorities that may be implied in these recommendations can best be communicated.
- e. Broaden the discussion to include not only SLR, but also inundation, erosion, low-level flooding, etc.