On November 8th, the Department of Ecology, Washington Sea Grant and the West Coast Governors Alliance hosted a workshop in Montesano on Washington State Coastal Hazards and Sea Level Rise.

The **goals** of the workshop were:
- To discuss the findings of the 2012 National Academy of Sciences Sea Level Rise report for the coast of Washington;
- To explore how these findings can be used to evaluate local risk and vulnerability;
- To encourage networking and share lessons learned through Washington case studies;
- To identify potential barriers / opportunities as well as possible next steps to incorporating sea level rise into policies and planning.

Over 75 people took part in the workshop. Participants included academia, NGO, Port, private, real estate, and City, County, State, Federal and Tribal government representatives.

<table>
<thead>
<tr>
<th>Representing</th>
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</tr>
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<tbody>
<tr>
<td>Academia</td>
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<tr>
<td>City</td>
<td>7</td>
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<td>Port</td>
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<tr>
<td>Private</td>
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<tr>
<td>Real Estate</td>
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<td>State</td>
<td>40</td>
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<tr>
<td><strong>Grand Total</strong></td>
<td><strong>76</strong></td>
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**Evaluations and Next steps**

Workshop evaluations were overwhelmingly positive, with the majority of participants stating that their overall understanding of sea level rise was improved as a result of the workshops. The evaluations suggest participants desire more information and broader outreach to specific audiences.
While the workshop organizers may explore the possibility of hosting similar workshops in the future, they also want to highlight related events already on the calendar:

**Sound Waters 2013** is a "one day university for all", held for more than 15 years on the first Saturday in February on Whidbey Island, WA. ([http://www.beachwatchers.wsu.edu/island/soundwaters/2013.htm](http://www.beachwatchers.wsu.edu/island/soundwaters/2013.htm)) (For last year's program see [http://beachwatchers.net/sw_2012/](http://beachwatchers.net/sw_2012/))

**Coastal Flood Risk Reduction Course** through the National Disaster Preparedness Training Center of the University of Hawaii is a performance level course designed to provide an introduction to flood risk-reduction opportunities within coastal communities and island environments. This course is targeted for a broad cross section of professionals involved in emergency management, fire services, coastal zone managers, planners, developers, business and education. February 21, 2013. Forks, WA. ([https://ndptc.hawaii.edu/training/course_delivery/177](https://ndptc.hawaii.edu/training/course_delivery/177))

Additionally, the **Coastal Training Program for Washington State** ([http://www.coastaltraining-wa.org/](http://www.coastaltraining-wa.org/)) is working with workshop organizers, Sea Grant and Department of Ecology, on developing a workshop series on sea level rise and coastal hazard planning. The curriculum for this course is in development and is planned to be offered in late 2013.

As suggested in the breakout sessions, workshop organizers have published this report online, along with workshop PowerPoint presentations, speaker biographies, and participant lists, so that the information is publicly available and can support ongoing dialogue about these issues ([http://www.ecy.wa.gov/climatechange/events.htm](http://www.ecy.wa.gov/climatechange/events.htm)).

Additionally, for those of you interested in exploring the concept of building a **Coastal Hazards Network** to improve integration between levels of government and communication with the general public, please contact Gretchen Glaub at:

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Workshop breakout sessions

After presentations in the morning, the workshop focused on small group work in the afternoon. Participants were asked to generate suggested actions that would help them better prepare their community or organization for increasing coastal hazard risks from sea level rise. Participants worked at tables of approximately 6-10 people to develop consensus ideas; these were written on flip charts and shared with the wider audience.

The breakout ideas are listed below under common theme headings. Those entries in *italics* were put forward by multiple participant tables.

**Tools, Data, and Information**

- **Data**
  - Need accurate current measurements and data – then base tools on that information. Include capability to incorporate refined SLR projections.
  - Data consortium- build a repository of data (clearinghouse) that can be used by the whole community.
  - Need for sharing of data; better integration
  - Need data on SLR impacting estuaries, salt marshes, and other natural systems, future wind and wave climatology, erosion rates, and shoreline migration

- **Tools**
  - Should be web based and inclusive (information can be lost when moving from tool to tool) – ONE tool is desired
    - Bring all known existing studies for any particular area together and access by typing in the physical address of a site to get all known levels of hazard and risk (vulnerability) (like DOGAMI does for LiDAR data in Portland Metro Area)
  - Tools need to be usable at the local level for consolidation, coordination, and dissemination of information
  - There needs to be a good understanding of how to apply the tool, what science the tool is based on as well as how to interpret results
  - Need a tool to incorporate extreme events
  - SLR will be a measurement from “today” or a projection. Tools should allow for varied interpretation/combination of this information
  - Need tools to allow intersection between coastal risk and vulnerability and marine spatial planning
  - Tools that can be applied and re-applied to different areas

- **Information**
  - Need accurate land elevation maps
    - Communities need more understanding/information on how to obtain elevation info
Need case studies to demonstrate use of existing risk and vulnerability assessments

Identified need for more detailed site specific information on topography to better inform models (sediment rates, LiDAR, etc)

More information on good vs. bad coastal development (grey/green)
  - How can restoration be targeted toward facilitating movement of species and habitats?

Local SLR scenarios with related erosion (bluff) projections to address proposed and existing infrastructure on Puget Sound feeder bluffs

What bluff stabilization methods are available for homeowners who live on an eroding feeder bluff?

### Plans and Policies

- Policies
  - Make actual policy address potential risks
    - Use data/tools to identify low lying areas where development/redevelopment should be denied or acquired
    - Build SLR into building code (like earthquake code)
    - Have state legislature identify a no build zone now to mitigate future vulnerabilities. Offer a fair market buyout to speed the process.
  - One climate change organization in WA State (like the PSP) where all information is funneled through – currently there are too many entities and NGOs working on the issue
  - Model policies/ordinances that address preventative flooding or precautionary approaches to land use planning, zoning, and development standards
    - Prevent “bad” development
  - Need better State and Federal leadership – policies, requirements, restrictions – on par with Transportation and Education
    - Need a regulatory flow chart for SLR
    - More authority from State for SMPs – legislative mandate/grants
    - Organize the effort to avoid appearing like everyone is doing the same work institutionalize the response
    - Coordinated response from government, including flood hazards and SLR
  - Leverage off of existing processes and actions
      - For SMP, select approach from range of science options

- Planning
  - Shoreline planning should emphasize phased retreat over static defensive response
Connection to marine spatial planning
- Use planning to determine high priority sites for conservation (where ecosystems might migrate) and feasibility of upland migration for existing habitats under conservation
- Alternative Futures Analysis for long range plans
- Need technical assistance/guidance on how to integrate existing/new data to existing planning efforts
- Make sure we don’t create a “sector against sector” approach – plans should aim for long term solutions
- Utilize scenario planning – shared results/information
- Incentives to include SLR in planning efforts
  - Tax breaks, grants, etc.
- Build sea level analysis into stormwater and river dynamics models
- Potential plan: consider max SLR over next 100 years. Identify all infrastructure and habitat within that area. Plan for 100% replacement or relocation of identified. Review and update annually.

Engagement, communication and education
- Engagement
  - More workshops like today
    - Bring elected officials to workshops
    - Share today’s presentations with communities
    - Evening meeting for public
  - Coordinated state response: how to engage outlying communities?
  - Local grassroots groups need to be tapped, like MRCs
    - Support and facilitate local workshops to engage community and planners, perhaps MRCs
  - Communities must be well informed so that can support planning officials
  - Inform and engage local media
    - Counteract current undermining of climate science in the media, on a national and local level. Locally, use community meetings and other outreach programs to present evidence and impacts of climate change and SLR
    - Articles in the community newspaper
  - Take advantage of FEMA floodplain map meetings to engage community
  - Use Hurricane Sandy as a learning tool
    - Talk about costs mitigating vs. costs responding/replacing
  - Case studies, pilots, identifying already vulnerable infrastructure and what happens when an event occurs- not to scare people but to make the costs and consequences more real
  - Hold local competitions for resilient designs
- Communication
Our own crisis – need a way to get communities on board BEFORE a catastrophic event
Communication of available tools and information is needed so users can learn from each other
Present hazards information in a non-alarmist way
   - Could use “flood risk” if SLR is not an accepted term
   - Better messaging about risks/hazards vs. climate change/SLR
   - Make it RELEVANT – local level
   - Make it real- use existing storm events and add little changes (like a rise in sea level) to show what the effect might be
Be able to discuss in lay-terms
Case studies- not just data availability, but small-scale examples
   - Ability to understand local dynamics

Education
Presentations similar to Phil Mote’s would help build awareness
Visuals
   - YouTube
   - Graphics to display SLR impacts so public can see what’s coming, but make sure to keep it realistic
Options for retreat
Make technical information accessible/useable by a non-technical audience
Educate and empower the citizens; share info- not just rule
   - Need better confidence in the science
Link storm events to personal actions/responsibilities and preparedness
Outreach to most vulnerable groups – schools, retirement communities, etc
Incorporate the youth
   - Create apps/games

Building capacity
Need: Money, funding, resources, time
For outreach, land acquisition, and restoration
What scenario to plan for? What priority does SLR get?
Additional staff
Training
Training needed for existing tools- how to use them, what capabilities are, etc
Climate change trainings for planners, practitioners
Planner training and tools for local government, including coastal and shoreline planners) to help educate the public and legislators
Need for central location (clearinghouse) where people can learn about available tools/information/data
• **Build a coastal vulnerability network (emergency management, construction, engineering, shoreline planners, communication plans, web mapping books, Smartphone/tablet apps, data, private/public partnerships**
  o Agencies, tribes, and jurisdictions should develop programs that address the issue and coordinate
  o Develop a network/working group
  o Coordination and integration of state agency programs
  o Coastal community workgroup to learn from each other
  o Linking emergency managers, public works, and planners together more frequently
  o Central website for information
• “Hot shot” team that goes to communities and helps them plan for resilience (local communities lack capacity to learn it all)
• Use media, universities, and agencies to educate public
  o Sharing information through social media
• Ability to translate global issues to local understanding
• More State/Federal financial assistance contingent upon local climate change planning
• Pull together a toolkit for an interagency state team to put on more workshops like this!

**Partnership and collaboration**
• Work with other agencies/programs to reduce costs and collaborate ideas
• Better guidance from Ecology and Commerce
• Avenue to communicate, network, share ideas, successes, and failures
• More face to face contact- annual meetings, lessons learned, real world examples, what’s working, new ideas, etc
• Educational resources for elementary and college classes
• Focused sessions at existing meetings (APA, Commerce Planners Forums, Shoreline Planners Meetings, WSAC) to share case studies and lessons learned
• Grant programs help both the public and private sectors take on preparedness ahead of time, instead of as crisis management
  o After a crisis, use the opportunity to educate the public and decision makers
• Develop links between science and policy makers
• Networking with UW CIG, Sea Grant, EcoAdapt, Ecology, private sector
• One whole day focused on learning ONE tool or studying one case study
• Dialogue between insurance agencies, states, Feds
• Pool resources to apply for grants, use cooperative agreements to coordinate efforts across agencies
• Link the need for adaptation with need for mitigation
• FEMA and SMP incorporation of SLR Analysis/Requirements
As listed above, the workshop breakout sessions generated a variety of ideas on how best to take forward coastal adaptation efforts in Washington State. All organizations – from local communities and businesses to statewide agencies – can utilize these ideas to inform their future work on addressing coastal hazards and sea level rise.

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