ISLAND COUNTY
SHORELINE MASTER PROGRAM UPDATE

MEREDITH PENNY
PLANNING MANAGER

GRANT JOHNSON
ASSOCIATE LONG RANGE PLANNER
# Timeline and Process

<table>
<thead>
<tr>
<th>General Process</th>
<th>Jointly Adopted Ordinance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bring topics and materials to the Technical Review Committee</td>
<td>Island County and Ecology will hold a joint public comment period</td>
</tr>
<tr>
<td>Then the Planning Commission</td>
<td>There will be a public comment hearing held during that period</td>
</tr>
<tr>
<td>Then the Board of Commissioners</td>
<td>Island County will adopt locally and then send it on for Ecology to adopt</td>
</tr>
<tr>
<td>In that general order for discussion</td>
<td><strong>Adoption by:</strong> June 2021</td>
</tr>
</tbody>
</table>

Questions and comments can be directed to: CompPlan@islandcountywa.gov
**TASKS**

**STATE COMPLIANCE**
State law, rules, and applicable updated guidance that may trigger the need for local SMP amendments

**STAFF INITIATED UPDATES**
Code changes implementing staff identified process improvements and language clarifications

**SHORELINE MAPPING**
Ensuring shoreline jurisdiction is accurately mapped, particularly as it relates to coastal lagoons and brackish wetlands, and Historic Beach Communities

**SEA LEVEL RISE**
Guidance and best management practices for shoreline property owners and coastal communities

Questions and comments can be directed to: CompPlan@islandcountywa.gov
ITEMS FOR DISCUSSION TODAY

1. Mapping Changes Related to Historic Beach Communities

2. Sea Level Rise Monitoring Program

Questions and comments can be directed to: CompPlan@islandcountywa.gov
SHORELINE MAPPING

Ensuring shoreline jurisdiction is accurately mapped, particularly as it relates to Historic Beach Communities
SHORELINE ENVIRONMENT DESIGNATIONS (SEDs)

- Shoreline Jurisdiction extends inland 200 feet from the Ordinary High Water Mark (OHWM), and also on certain lakes and streams.

- In Island County, Shoreline Jurisdiction is divided into six (6) different Shoreline Environment Designations (SED), and two (2) distinct overlays in the Shoreline Residential SED.

- Each SED has different standards for marine buffers, building setbacks, steep slope buffers, and impervious surface ratios.

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SHORELINE ENVIRONMENT DESIGNATIONS (SEDs)

- Shoreline Environment Designations (SEDs):
  - Natural (N)
  - Rural Conservancy (RC)
  - Urban Conservancy (UC)
  - Shoreline Residential (SR)
    - Shoreline Residential Canal Community (SRCC)
    - Shoreline Residential Historic Beach Community (SRHBC)
  - High Intensity (HI)

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HISTORIC BEACH COMMUNITY SED

- Identifying and mapping County’s shoreline that meet criteria of Historic Beach Community (HBC).

- Current version of SMP specifically classifies 25 plats as HBCs, but also states, “and other similarly situated plats meeting the definition of historic beach community set forth in section 17.05A.070.”

The HBC definition outlined in ICC 17.05A.070 reads as follows:

*Limited areas within the shoreline of Island County that have been platted in a dense pattern with small lots relative to other areas of the county. The existing marine waterfront lots are developed with residential structures constructed thirty (30) feet or less from the ordinary high water mark and the structures were established prior to enactment of the Shoreline Management Act.*

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MAPPING HBCs

- Many other areas meet criteria outlined in definition, resulting in individual determinations
- Staff’s goal: identify and map all areas of shoreline that meet criteria of HBC and eliminate individual determinations
- Specific criteria to identify and map the HBC’s:
  - 30-foot average building setback from the Ordinary High Water Mark (OHWM),
  - Plats finalized prior to the 1972 State Shoreline Management Act (SMA), or parcels developed prior to the 1972 SMA
  - Groups consisting at a minimum of five contiguous parcels, and
  - Areas that are currently mapped as Shoreline Residential.

Questions and comments can be directed to: CompPlan@islandcountywa.gov
## RESULTS

<table>
<thead>
<tr>
<th>Currently Mapped HBCs (Parcels)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Whidbey</td>
<td>Camano</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>305</td>
<td>308</td>
<td>613</td>
<td></td>
</tr>
<tr>
<td>49.76%</td>
<td>50.24%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proposed Mapped HBCs (Parcels)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Whidbey</td>
<td>Camano</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>2,460</td>
<td>1,293</td>
<td>3,753</td>
<td></td>
</tr>
<tr>
<td>65.55%</td>
<td>34.45%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Increase (Parcels)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Whidbey</td>
<td>Camano</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>+ 2,155</td>
<td>+ 985</td>
<td>+ 3,140</td>
<td></td>
</tr>
</tbody>
</table>

Questions and comments can be directed to: [CompPlan@islandcountywa.gov](mailto:CompPlan@islandcountywa.gov)
Monitor sea level rise to assess rates of changes and impacts and establish timeframes for reevaluating planning approach.
CALIBRATED APPROACH FOR ISLAND COUNTY

• More private assets in the shoreline than public assets
  • Information would be the most important first step
  • Provide strategies and guidance (Best Management Practices) tailored to specific types of vulnerable areas
  • Limited resources requires a certain degree of private initiative and community-based planning

• Don’t need to pick a projection
  • Work with a range of strategies that can be activated based on observed and measured impacts

• Monitor the changes over time
HISTORIC BEACH COMMUNITIES
- Dense pattern of small lots
- Residential structures within 30ft or less of the Ordinary High Water Mark
- Platted and constructed prior to the Shoreline Management Act

CANAL COMMUNITIES
- Spits formed to create a lagoon
- Resulting lagoon then dredged into canals
- Small lots, very close to the ordinary high water mark
- Typically include individual docks
- Also have many communities which did not dredge canals out of a lagoon but did develop along the outer spits

COASTAL BLUFF COMMUNITIES
- Development could be at the top of bluff or the base
- Feeder bluffs naturally erode and deliver sand to the beach
PLANNING FOR SEA LEVEL RISE

PROVIDING GUIDANCE TO INDIVIDUAL PROPERTY OWNERS
Provide information and cultivate greater preparedness for the impacts of sea-level rise to Island County’s Historic Beach, Canal, and Feeder Bluff communities.

PROVIDING GUIDANCE TO COMMUNITIES
Develop a framework for community-based coastal resiliency planning.

MONITORING
Create a programmatic framework for monitoring the effects of sea level rise as it relates to Island County’s Historic Beach, Canal, and Feeder Bluff communities.
PROVIDING GUIDANCE TO INDIVIDUAL PROPERTY OWNERS

Best management practices
PROVIDING GUIDANCE TO INDIVIDUAL PROPERTY OWNERS

Provide a framework for property owners to:

- identify vulnerabilities
- determine appropriate mitigation
- manage risk
Property owners could choose from a toolbox of adaptation options that include strategies for:

- Protection
- Accommodation
- Retreat
PROVIDING GUIDANCE TO INDIVIDUAL PROPERTY OWNERS

Would address private assets such as:

- Residential structures
- Septic tanks and drain fields
- Protective structures and devices
- Soft shore armoring
- Private wells
- Private drives
PROVIDING GUIDANCE TO INDIVIDUAL PROPERTY OWNERS

Property owners would be able to use the sea level rise projections from the WA Coastal Resiliency Project which are based on probabilities, in conjunction with the BMPs to determine their risk tolerance and strategies for their specific property and investments.

Table 2 RCP 4.3 Sea-level rise projections averaged for Island County in feet based on Miller et al projections.

<table>
<thead>
<tr>
<th>Year</th>
<th>Very Likely 95% probability</th>
<th>Likely 50% probability</th>
<th>Unlikely 1% probability</th>
<th>Mid-Range 17 - 83% probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2050</td>
<td>0.3</td>
<td>0.7</td>
<td>1.4</td>
<td>0.5 - 1.0</td>
</tr>
<tr>
<td>2070</td>
<td>0.5</td>
<td>1.1</td>
<td>2.4</td>
<td>0.7 - 1.5</td>
</tr>
<tr>
<td>2100</td>
<td>0.7</td>
<td>1.8</td>
<td>4.4</td>
<td>1.1 - 2.5</td>
</tr>
</tbody>
</table>

Table 3 RCP 5.5 Sea-level Rise Projections Averaged for Island County in Feet based on Miller et al projections.

<table>
<thead>
<tr>
<th>Year</th>
<th>Very Likely 95% probability</th>
<th>Likely 50% probability</th>
<th>Unlikely 1% probability</th>
<th>Mid-Range 17 - 83% probability</th>
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<tbody>
<tr>
<td>2050</td>
<td>0.3</td>
<td>0.8</td>
<td>1.5</td>
<td>0.5 - 1.0</td>
</tr>
<tr>
<td>2070</td>
<td>0.6</td>
<td>1.3</td>
<td>2.6</td>
<td>0.9 - 1.7</td>
</tr>
<tr>
<td>2100</td>
<td>1.0</td>
<td>2.2</td>
<td>5.0</td>
<td>1.5 - 3.0</td>
</tr>
</tbody>
</table>
PROVIDING GUIDANCE TO COASTAL COMMUNITIES

Framework for Community-Based Sea Level Rise Planning
PROVIDING GUIDANCE FOR COASTAL COMMUNITIES

Development of a guidebook for community-based long term coastal resiliency planning, to assist communities in preparing for the effects of sea level rise

Program components:

- Identification of vulnerable assets
- Community based strategies for improving resiliency and preparing for the impacts of sea-level rise, examples might include:
  - Community drainfield
  - Property acquisition and restoration
  - Beach nourishment
  - Dike repairs
  - Soft shore projects
- Monitoring, thresholds for action, and lead times
- Financing options
MONITORING SEA LEVEL RISE

On a Countywide Scale
MONITORING GOALS

- Provide for flexible, adaptive-management approach
- Track areas most impacted by sea level rise
- Track how quickly impacts from sea level rise are occurring
- Develop time frames and/or thresholds for reevaluating approach
SEVEN RECOMMENDED DATA SOURCES

1. Washington Department of Ecology (DOE)
   - DOE Coastal Monitoring and Analysis Program (CMAP) conducted boat-based LiDAR surveys over 135 miles of shoreline between 2013 and 2018
     - Funding awarded to repeat in 2019, data may not be available until 2021.

2. Washington Department of Fish and Wildlife
   - Hannah Faulkner, nearshore biologist with WDFW, monitors several armor removal sites in Island County.
SEVEN RECOMMENDED DATA SOURCES

3. NOAA National Geodetic Survey
   • National Ocean and Atmospheric Administration’s (NOAA) National Geodetic Survey Data Explorer includes locations of monuments with known vertical and horizontal coordinates

4. Long-Term Bluff Recession Rates in Puget Sound
   • Coastal Geological Services measured and compiled long-term bluff recession using two different methods; historical aerial photographs in GIS and NGS monuments
SEVEN RECOMMENDED DATA SOURCES

5. Diking District No. 1 Sunlight Beach Dike Monitoring
   - Aerial Whidbey monitoring the Sunlight Beach Dike, the mouth of Deer Lagoon, and a large area labeled “Henny Spit and Lagoon” for Diking District No. 1.

6. Canal Communities Dredge Permit Monitoring
   - Dredging within Canal Communities required to maintain adequate depths for boat moorage and navigation every 5–10 years.
   - Dredge design and permitting process includes bathymetric mapping and comparison of past elevations.
SEVEN RECOMMENDED DATA SOURCES

7. Sound Water Stewards of Island County
   - Sound Water Stewards conduct intertidal monitoring of 12 beaches on Camano and Whidbey Islands, for a total of 24 monitoring locations
   - These data have been collected since 2003, all with the help of local volunteers.

Table 3. Beaches on Whidbey and Camano Islands Monitored by Sound Water Stewards.

<table>
<thead>
<tr>
<th>Whidbey Island</th>
<th>Camano Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ala Spit</td>
<td>Utsalady</td>
</tr>
<tr>
<td>Clinton</td>
<td>English Boom</td>
</tr>
<tr>
<td>Cornet Bay</td>
<td>Iverson Spit</td>
</tr>
<tr>
<td>Coupeville Town Park</td>
<td>Cavalero</td>
</tr>
<tr>
<td>Double Bluff</td>
<td>Tillicum</td>
</tr>
<tr>
<td>Lagoon Point</td>
<td>Pebble Beach</td>
</tr>
<tr>
<td>Langley</td>
<td>Mabana (road)</td>
</tr>
<tr>
<td>Ledgewood</td>
<td>Elger Bay</td>
</tr>
<tr>
<td>Partridge Point</td>
<td>Camano Island State Park</td>
</tr>
<tr>
<td>Possession Beach</td>
<td>Cama Beach State Park</td>
</tr>
<tr>
<td>Trail’s End Road (Greenbank)</td>
<td>Onamac Point</td>
</tr>
<tr>
<td>Hasty Lake Road/County Park</td>
<td>Madrona Beach</td>
</tr>
</tbody>
</table>
DATA SOURCES RECOMMENDED FOR EACH AREA OF FOCUS

### Table 5. Monitoring Targets, Areas Mapped, and Data for Canal Communities.

<table>
<thead>
<tr>
<th>Monitoring Target</th>
<th>Areas Mapped</th>
<th>Data Source</th>
<th>Data Format</th>
<th>Data to Compare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canal Communities</td>
<td>Lagoon Point, Sandy Hook, Mariner’s Cove</td>
<td>Puget Sound LiDAR consortium</td>
<td>LiDAR data, 0.5-meter DEMs</td>
<td>Compare tidal prism area over time. Extract profiles in problem locations and compare.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HOAs’ dredge design and permit records</td>
<td>Sedimentation rates, profiles, elevations</td>
<td>Explore changing locations of different shoreline proxies (e.g., MSL, MHHW, EHHW)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Island County Emergency Management Department</td>
<td>FEMA claims</td>
<td>Interpreted water levels from claims from different years</td>
</tr>
</tbody>
</table>

### Table 6. Monitoring Targets, Areas Mapped, and Data for Coastal Bluffs.

<table>
<thead>
<tr>
<th>Monitoring Target</th>
<th>Areas Mapped</th>
<th>Data Source</th>
<th>Data Format</th>
<th>Data to Compare</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Whidbey Bluffs</td>
<td>West Beach to Point Partridge</td>
<td>WDOE, Weiner et al. (2015, 2018)</td>
<td>LiDAR and 0.5-meter DEMs</td>
<td>Compare profiles or proxies between 2015 and 2018 WDOE DEMS with 2006 LiDAR data.</td>
</tr>
<tr>
<td>South Whidbey Bluffs</td>
<td>Ledgewood and Useless Bay</td>
<td>WDOE, Weiner et al. (2015, 2018)</td>
<td>LiDAR and 0.5-meter DEMs</td>
<td>Compare profiles or proxies from WDOE DEMS with 2006 LiDAR.</td>
</tr>
<tr>
<td>East Whidbey Bluffs</td>
<td>Mayor Point, Penn Cove, Rocky Point</td>
<td>NGS Monuments</td>
<td>Background bluff recession rates</td>
<td>Repeat monument measurements in field, compare to Historical Rates by CGS.</td>
</tr>
<tr>
<td>East Whidbey Bluffs</td>
<td>Mayor Point, Oak Harbor and WCLT’s Waterman Property</td>
<td>WDFW Before and After armor removal</td>
<td>DEMs</td>
<td>Compare with future monitoring data only.</td>
</tr>
<tr>
<td>West Camano Bluffs</td>
<td>Sunset Drive, Northwest Camano</td>
<td>NGS monument benchmark sheets, reference notes</td>
<td>Background bluff recession rates</td>
<td>Measure and compare monument and references locations.</td>
</tr>
<tr>
<td>South of Elger Bay, Southwest Camano</td>
<td>WDOE, Weiner et al. (2015, 2018)</td>
<td>LiDAR and 0.5-meter DEMs</td>
<td>Compare profiles or proxies with 2006 LiDAR.</td>
<td></td>
</tr>
<tr>
<td>East Camano Bluffs</td>
<td>Barnum Point, Bluffs off Highland Drive</td>
<td>GIS points with historical bluff recession rates</td>
<td>Background bluff recession rates</td>
<td>Repeat monument measurements in field, compare to Historical Rates by CGS.</td>
</tr>
</tbody>
</table>

### Table 7. Monitoring Targets, Areas Mapped, and Data for Historic Beach Communities.

<table>
<thead>
<tr>
<th>Monitoring Target</th>
<th>Areas Mapped</th>
<th>Data Source</th>
<th>Data Format</th>
<th>Data to compare</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Whidbey HBCs</td>
<td>Swantown, Harlin Lake County Park, West Beach County Park</td>
<td>WDOE, Weiner et al. (2015, 2018)</td>
<td>LiDAR and 0.5-meter DEMs</td>
<td>Compare profiles or proxies with 2006 LiDAR</td>
</tr>
<tr>
<td>Southwest Whidbey HBCs</td>
<td>Useless Bay, Sunlight Shores</td>
<td>WDOE DEMS, Aerial Whidbey DEMs, LiDAR</td>
<td>0.5-meter DEMs</td>
<td>Compare profiles or proxies from recent DEMs with 2006 LiDAR.</td>
</tr>
<tr>
<td>East Whidbey HBCs</td>
<td>Langley</td>
<td>Sound Water Stewards</td>
<td>Beach Profiles</td>
<td>Compare profiles or proxies with 2006 LiDAR</td>
</tr>
<tr>
<td></td>
<td>Clinton, Troll’s End Road (near Greenbank), Possession Beach</td>
<td>Sound Water Stewards</td>
<td>Beach Profiles</td>
<td>Compare profiles or proxies with 2006 LiDAR</td>
</tr>
<tr>
<td>West Camano Island</td>
<td>Utsalady, Madrona Beach, Onemac Point, Mabana Road, Pebble Beach</td>
<td>Sound Water Stewards</td>
<td>Beach Profiles</td>
<td>Compare profiles or proxies with 2006 LiDAR</td>
</tr>
<tr>
<td>East Camano Island</td>
<td>Tillicum</td>
<td>Sound Water Stewards</td>
<td>Beach Profiles</td>
<td>Compare profiles or proxies with 2006 LiDAR</td>
</tr>
</tbody>
</table>
CONSIDERATIONS

Critical decisions relevant to final monitoring approach:

- If and how much funding available to support monitoring,
- Spatial extent of monitoring program
- If effort would be supported and completed by Island County staff, or via a consultant.

Much of monitoring data collection and analysis could be conducted by Island County professionals.

Collaborations between data scientists and GIS professionals in the Departments of Public Works and Natural Resources could benefit this program.
THANK YOU!

MEREDITH PENNY
PLANNING MANAGER

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ASSOCIATE LONG RANGE PLANNER

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