



# REACH WW02

Joseph Whidbey State Park, Swan Lake and South to Libbey Road

## SHORELINE LENGTH:

7.49 Miles

## REACH AREA:

381 Acres

## PSNERP PROCESS UNITS:

8057

### REACH SUMMARY

Joseph Whidbey State Park, Swan Lake and South to Libbey Road (Reach WW02) extends along the shoreline fronting the Swan Lake area south to the Point Partridge vicinity. The reach includes the Swan Lake feature, which is a coastal lagoon associated with the marine shoreline. Geomorphic shoreline processes are significantly influenced by a single north-trending drift cell starting at Point Partridge and continuing north through Reach WW01. Feeder Bluff and Feeder Bluff Exceptional shoretypes are located south of Swan Lake — these shorelines supply sediment to a long accretion area (barrier beach) fronting and extending north of Swan Lake. Feeder bluffs within the reach are substantial and have very little slope vegetation (Oblique Photos B, C and D).

Swan Lake is a large coastal lagoon comprising almost 20 percent of the reach area. The lagoon drains directly to the shoreline and is mapped as supporting salmonids in addition to providing significant habitat for numerous other species. One additional stream (without mapped salmon use) drains to the shoreline to the north of Swan Lake. Other shoreland habitats include WDFW mapped Bald Eagle territory, coastal cliffs, associated wetland areas and native oak and grass lands. Mapped aquatic habitats include geoduck habitat with patchy kelp intermittent throughout the reach.

Primary land uses within the shoreline area include shoreline residential development, park lands and open space. Most of the undeveloped open space area is mapped as wetland / coastal lagoon associated with the marine shoreline. Shoreline residential development occurs at rural densities along NW Beach Road, with houses setback between 100 and 150 feet behind the top of coastal bluffs. Residential yards and lawns typically extend to the edge of the bluff, with very little riparian vegetation. Joseph Whidbey State Park is minimally modified in the shoreline vicinity.

### GEOMORPHIC KEY INFORMATION

#### Geomorphic Shoretype (Map 9)

Feeder Bluff (29%) and Feeder Bluff Exceptional (33%) through south extent into Accretion Shoreform (35%) fronting Swan Lake vicinity

#### Net Shore Drift (Map 8)

This drift cell originates at a divergence zone at Point Partridge and extends northward to just west of Deception Pass.

#### Shoreform Current (Map 10)

Barrier Beach (32%); Bluff-backed Beach (68%)

#### Overall Rating of Degradation

Least (100%)

#### Coastal Floodplain:

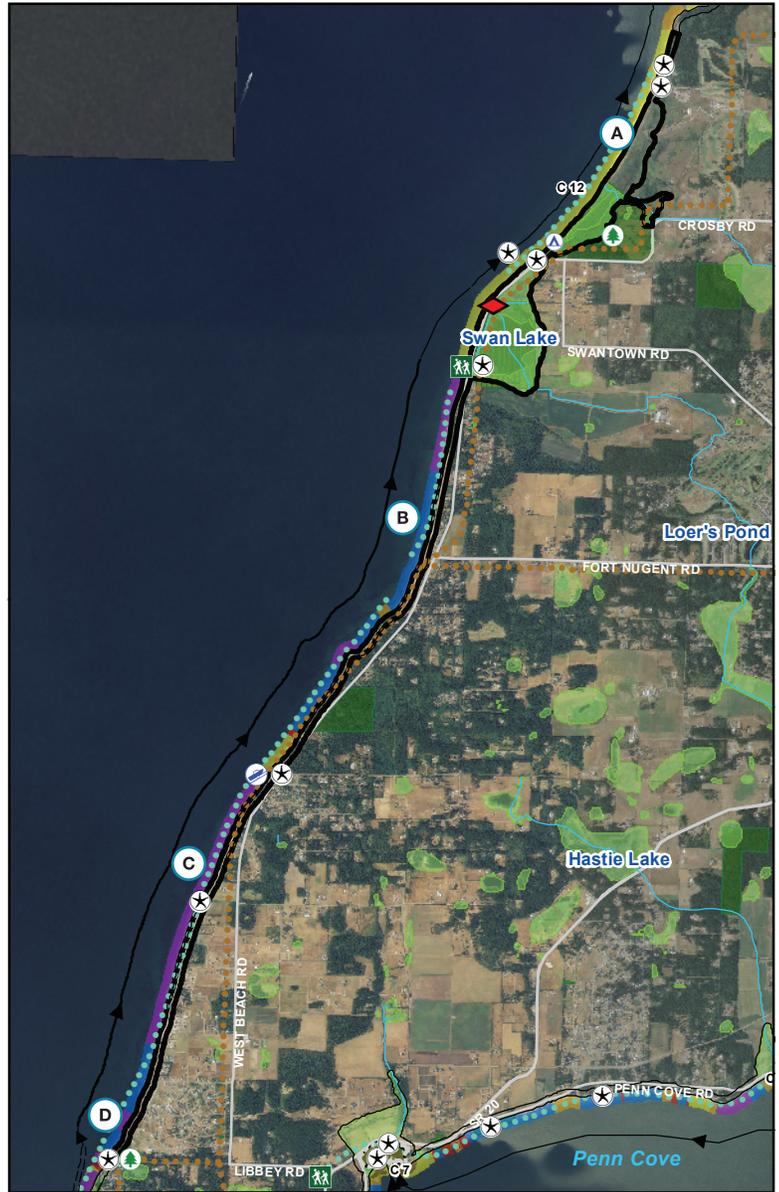
33%

#### Coastal Landslides & Toe Erosion:

Toe erosion along significant feeder bluff through south end of reach; intermittent areas of landslide.

#### Steep Slopes

20%



Reach Boundaries	Public Access	Accretion Shoreform	Left to Right
Streams	Parks/Open Space	Feeder Bluff	Right to Left
Wetlands	Kayak Campsite	Feeder Bluff Exceptional	Convergence Zone
Trails (Existing)	Boat Ramp	Modified	Divergence Zone
Trails (Low Tide)	Ferry Terminal	No Appreciable Drift	No Appreciable Drift
Trailhead	Marina	Transport Zone	Drift
C# Conservation Site	Tide Gate		
R# Restoration Site			



Shoreline Oblique Photos (2006)

## HABITATS & SPECIES

### Significant & Unique Features (Maps 5-7)

Geoduck habitat fronting Swan Lake marine shoreline vicinity; patchy kelp mapped intermittently; coastal lagoon areas extending north from Swan Lake. Marine areas designated ESA critical habitat for Green Sturgeon. Swan Lake and surrounding areas are listed as County Habitat of Local Importance.

<b>Coastal Lagoons</b>	<b>Coastal Stream Mouths</b>	<b>Wetlands (Map 4)</b>
73 acres (19%)	2	43%

### Forage Fish

**Sandlance** None mapped      **Smelt** 25%

**Herring** None mapped

## LAND & SHORELINE USE

### Shoreline Modifications (Map 13)

Generally limited modification; armoring associated with areas of dense residential development fronting Swan Lake and in the vicinity of the Hastie Lake Road Boat Launch; a tide gate is located at the northwest corner of Swan Lake.

**Armoring (% of shoreline) (Map 13)** 11%

### Zoning (Map 11)

Rural (62%); Federal (16%) / Parks (13%) / Rural Residential (8%) / Commercial Agriculture (1%)

### Current Land Use (Map 12)

**Number of Parcels** 346      **Average Parcel Size** 3.98 Acres

Primarily public park lands; significant open space associated with uses throughout reach.

### Shoreland Priority Habitats & Species (Map 5)

Bald Eagle buffer; Cliff; Wetland; 8 acres of mapped Native Oaks and Grassland

### Marine Priority Habitats & Species (Map 5)

Two documented Pigeon Guillemot nesting colonies at Swan Lake and Hastie Lake

### Salmonid Fish Use (Map 5)

None mapped within coastal streams. Nearshore areas are designated ESA critical habitat for Chinook (Puget Sound ESU).

### Public Access (Map 16)

Hastie Lake Road Boat Launch, West Beach Vista (adjacent to Swan Lake); significant access through Joseph Whidbey State Park; additional County owned public beach access at the end of Lebbey Rd (Point Partridge).

### Overwater Structures (Map 14)

No overwater structures

### Shellfish & Aquaculture (Map 15)

Approved shellfish growing area; no mapped or classified shellfish beaches.

## KEY MANAGEMENT ISSUES

- Slope / bluff stability for existing and future land uses at the top of slopes (focused on land uses and modifications such as clearing, impervious surfaces, modified surface / groundwater dynamics).
- Subdivision — additional modification of feeder bluff / steep slope areas due to greater intensity of use.
- Water quality issues associated with additional development (subdivision / intensified use) — including implications of septic systems and road runoff.
- Drinking water supply (aquifer) issues associated with additional development (subdivision / intensified use) — saltwater intrusion and potential exacerbation from SLR. Reach area mapped as 'Very-High Risk' for saltwater intrusion (Island County Risk Rating Map).
- Potential use conflicts associated with public access to beaches and private residential property rights.
- Potential implications of sea level rise (SLR) on Swan Lake lagoon, adjoining coastal wetland areas, barrier beaches; associated wetlands (loss of habitat); and further bluff erosion.
- Potential implications of SLR and coastal flooding on development within or near coastal floodplain areas (residential development in Swan Lake vicinity).
- Coastal flooding, storm damage, and tsunami hazard at Swan Lake and Hastie Lake (Whitecap Lane).
- Hazards of bluff erosion and potentially rapid erosion rates along West Beach Road.

## RESTORATION OPPORTUNITIES

Three potential restoration opportunities were identified from review of Ecology 2006 shoreline oblique photography during development of this Inventory:

1. Remove derelict structures (piles and remnants of pier / boat ramp) along marine shoreline just north of Swan Lake.
2. Remove tide gate and associated armoring that restricts tidal exchange between Swan Lake and the marine shoreline.
3. Remove concrete debris (degrading shoreline armoring) to the south of the row of shoreline residences fronting the shoreline adjacent to Swan Lake.

Swan Lake restoration is additionally identified by the Island County Estuarine Restoration Program report (2001).

## CONSERVATION OPPORTUNITIES

**C12:** Undeveloped beach and backshore.