

Puget Sound:
An Estuary
of National
Significance



Nearshore Focus: Salmon Recovery in Puget Sound

- What is the nearshore? Why important?
- Large-scale landscape approach
- Juvenile chinook salmon centric
- 4 life history types
- 4 landscape classes
- Stressors

Puget Sound Nearshore Ecosystem Restoration Project



Photo courtesy of Michelle L. McConnell, Consultant

Tasks

- 1) Evaluate significant nearshore ecosystem degradation of
Sound
- 2) Formulate, evaluate, and screen potential solutions to these
problems
- 3) Recommend a series of actions and projects

Ecological Concepts

Physicochemical processes play a strong role in organizing and regulating estuarine-nearshore ecosystems.

Natural disturbance regimes sustain the structure and functions of regional estuarine-nearshore ecosystems.

Ecosystem function and performance is contingent upon landscape setting.

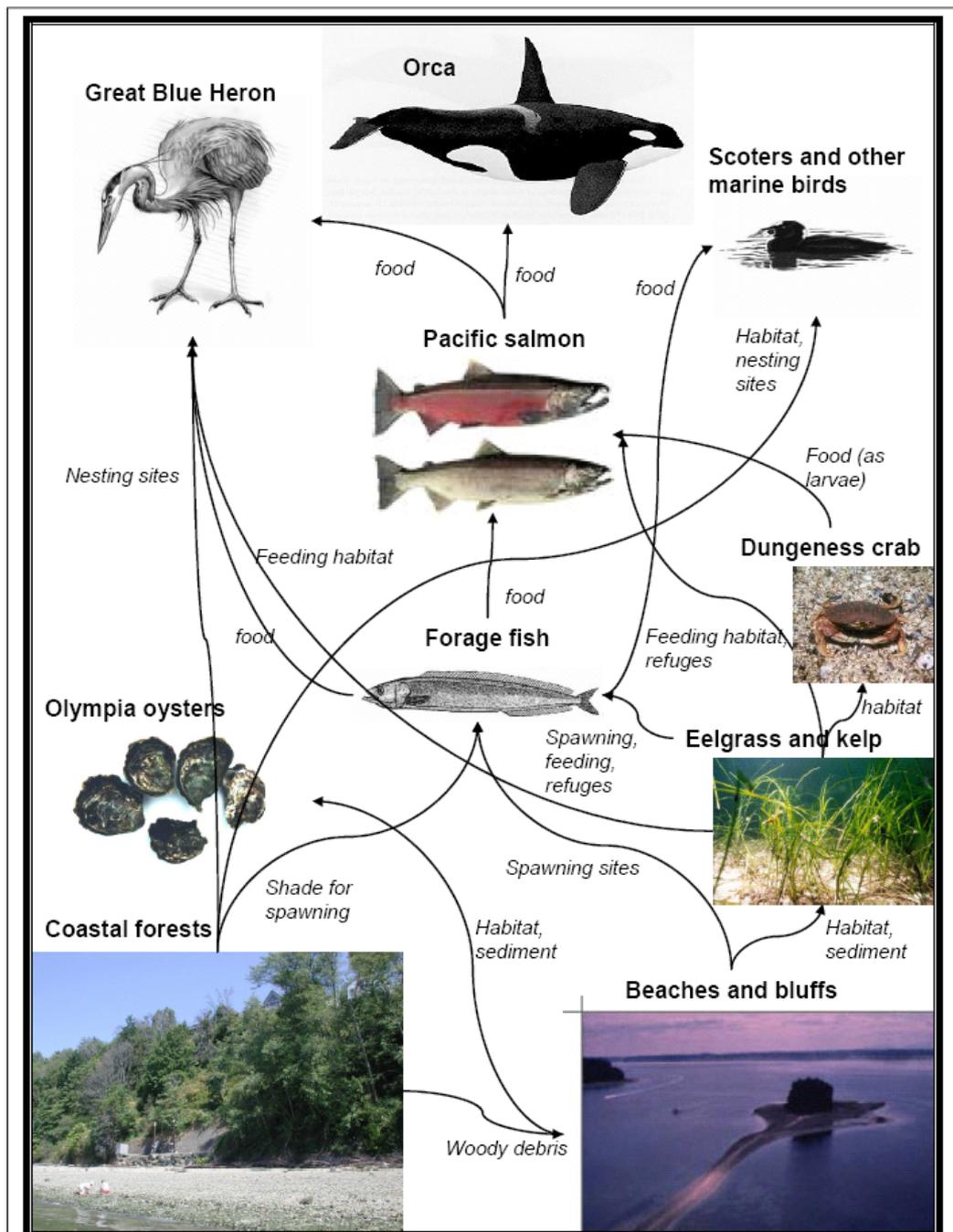
Strategic/Planning

Guiding Principles

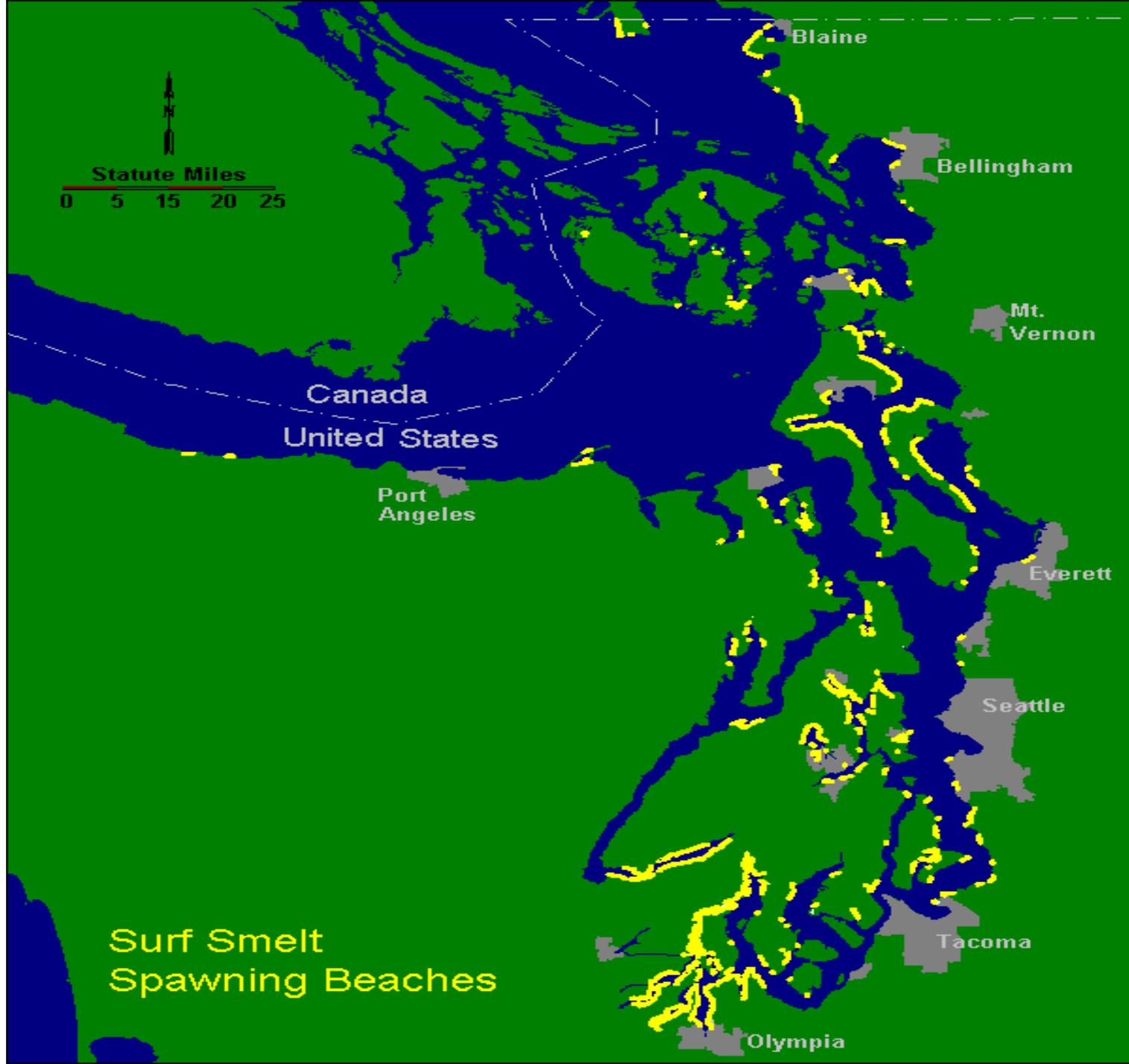
- **Promote protection of nearshore habitats and the processes that sustain their functions as a fundamental component of a nearshore ecosystem conservation program**

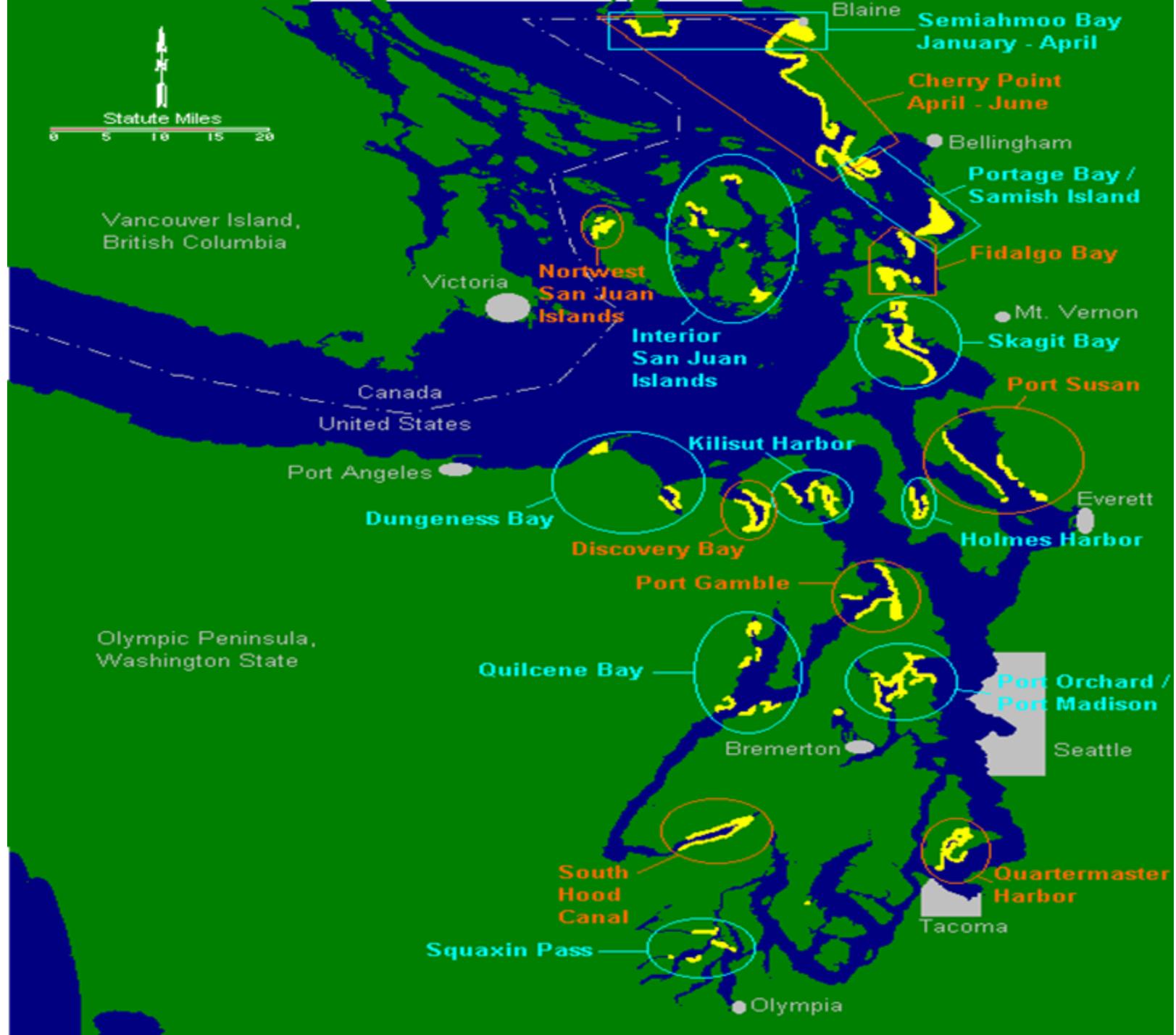
“How the nearshore works”- examples

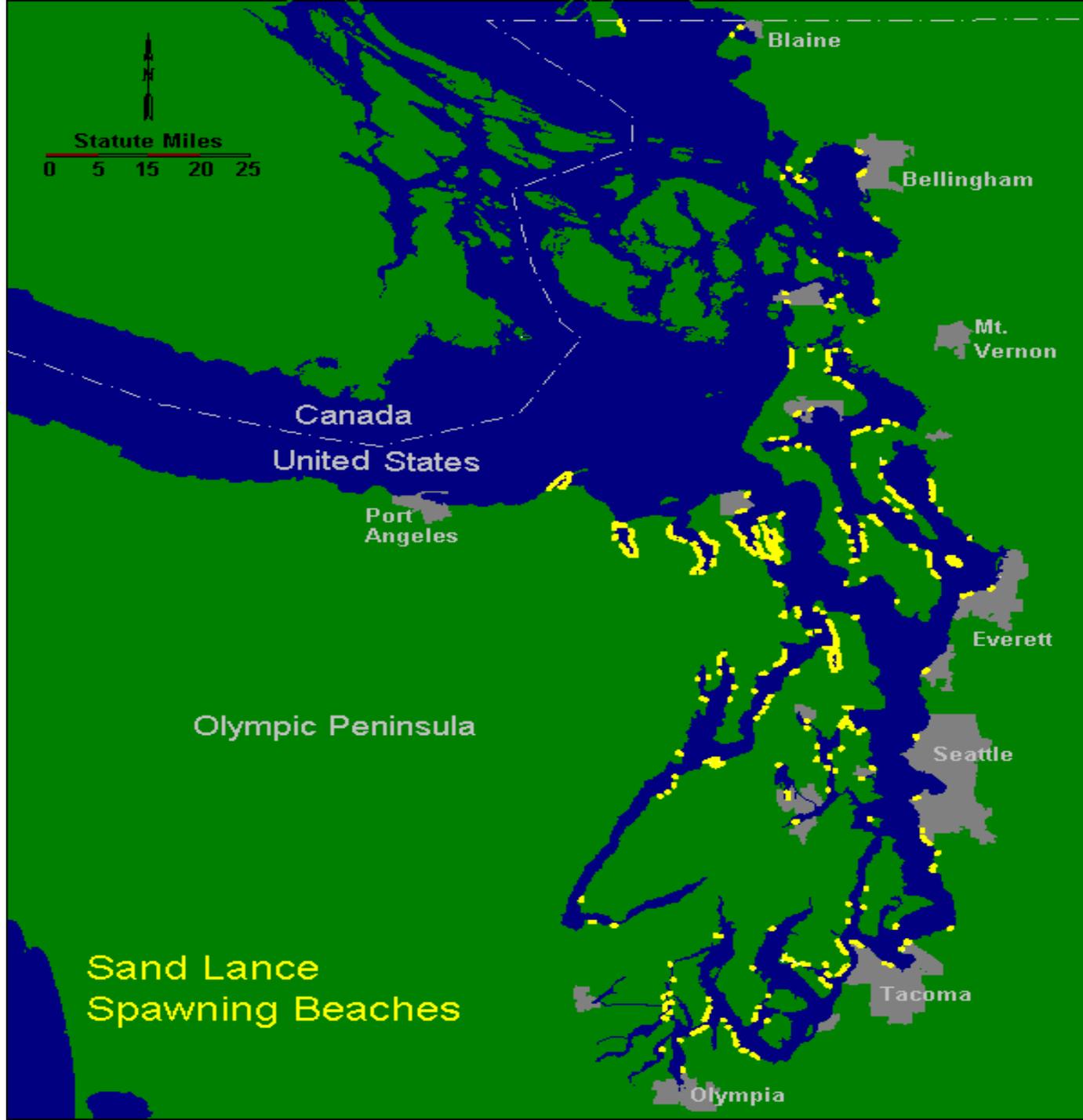
- **Eelgrass - functions (including critter use), understanding links between physical nearshore processes such as sedimentation patterns and longshore drift and the distribution and patch structure of eelgrass.**
- **Marine Riparian (biological component of spits, beaches, backshore, banks and bluffs)– role in food web contribution, beach structure dynamics, microclimate, critter use.**

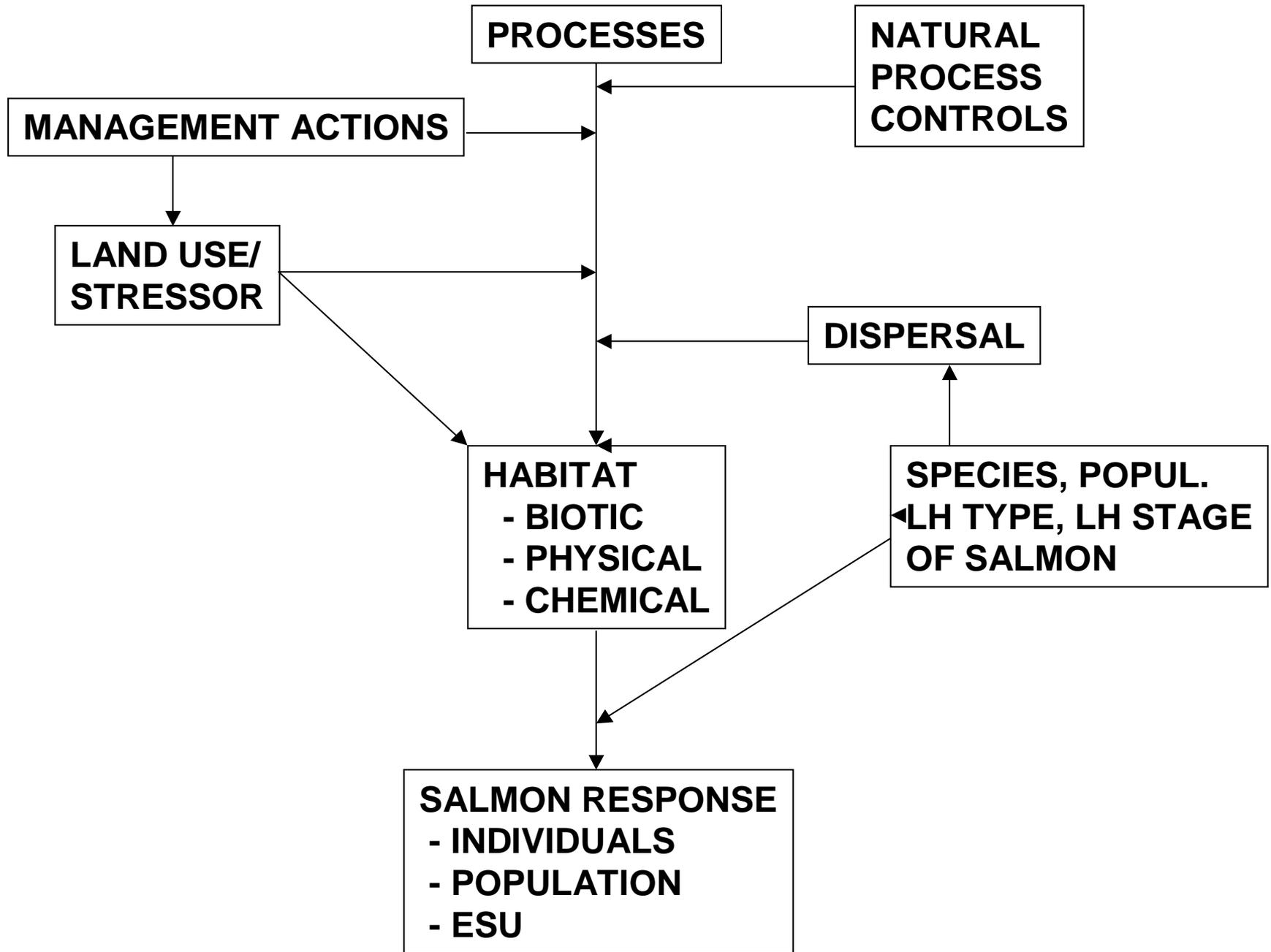


Nearshore Valued Ecological Components











Distribution of Juvenile Salmon in Puget Sound - Draft

This map is designed to show the relative distribution of Juvenile Salmon within the five major regions of Puget Sound.

Each region has a pie chart which shows the relative amount of fish from each of the five regions that inhabit that region's nearshore. A larger pie chart implies the region provides more habitat to more juveniles.

Geographic Regions

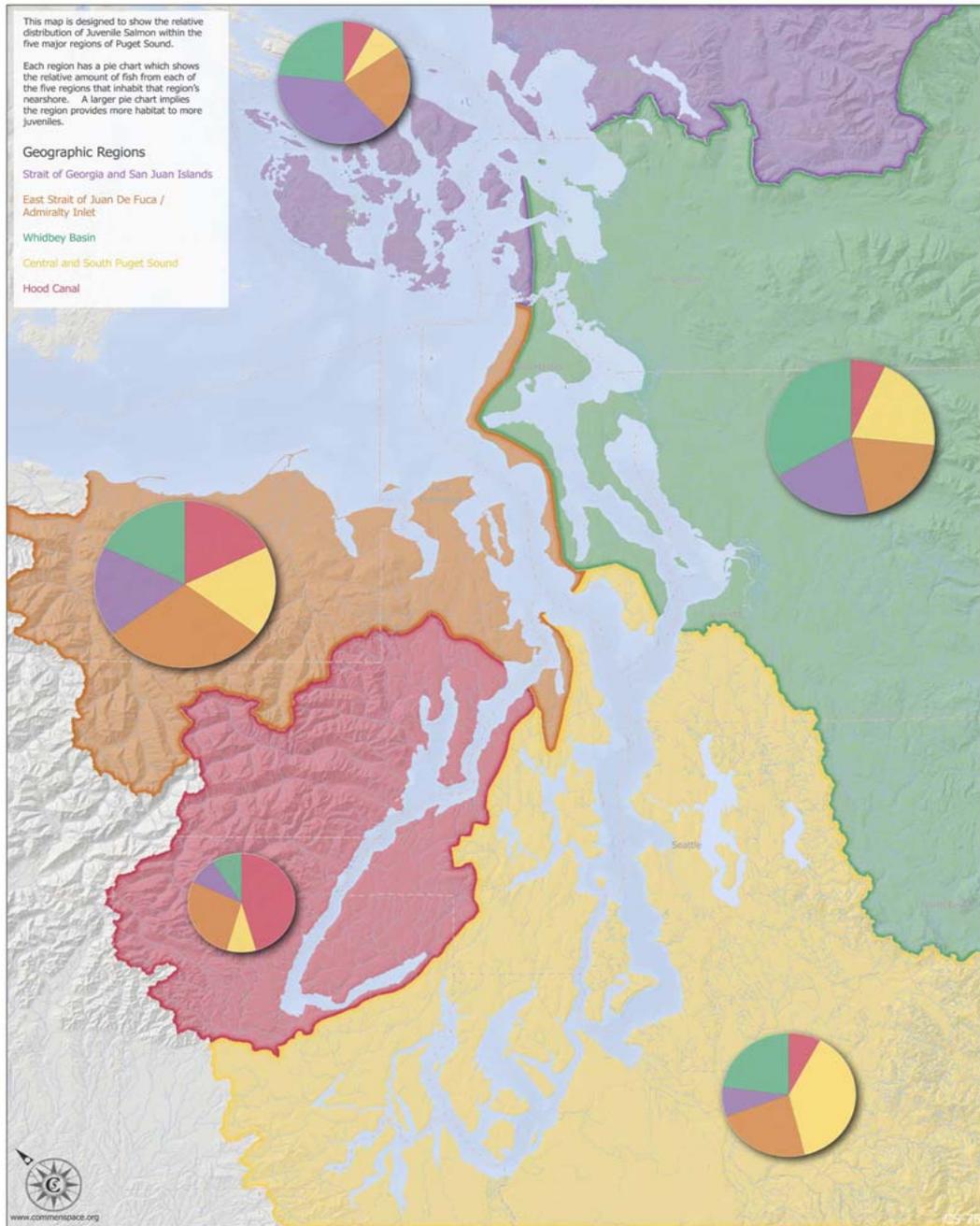
Strait of Georgia and San Juan Islands

East Strait of Juan De Fuca / Admiralty Inlet

Whidbey Basin

Central and South Puget Sound

Hood Canal



PUGET SOUND NEARSHORE & SUB-BASINS

LEGEND

Subregions are represented by individual hues. Darker tones indicate nearshore portions of each subregion.

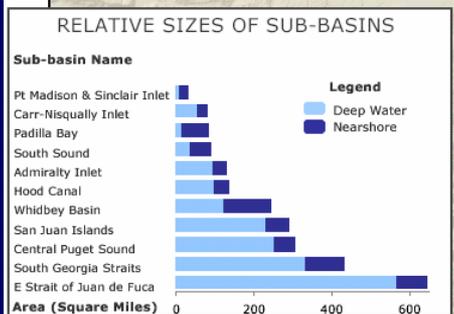
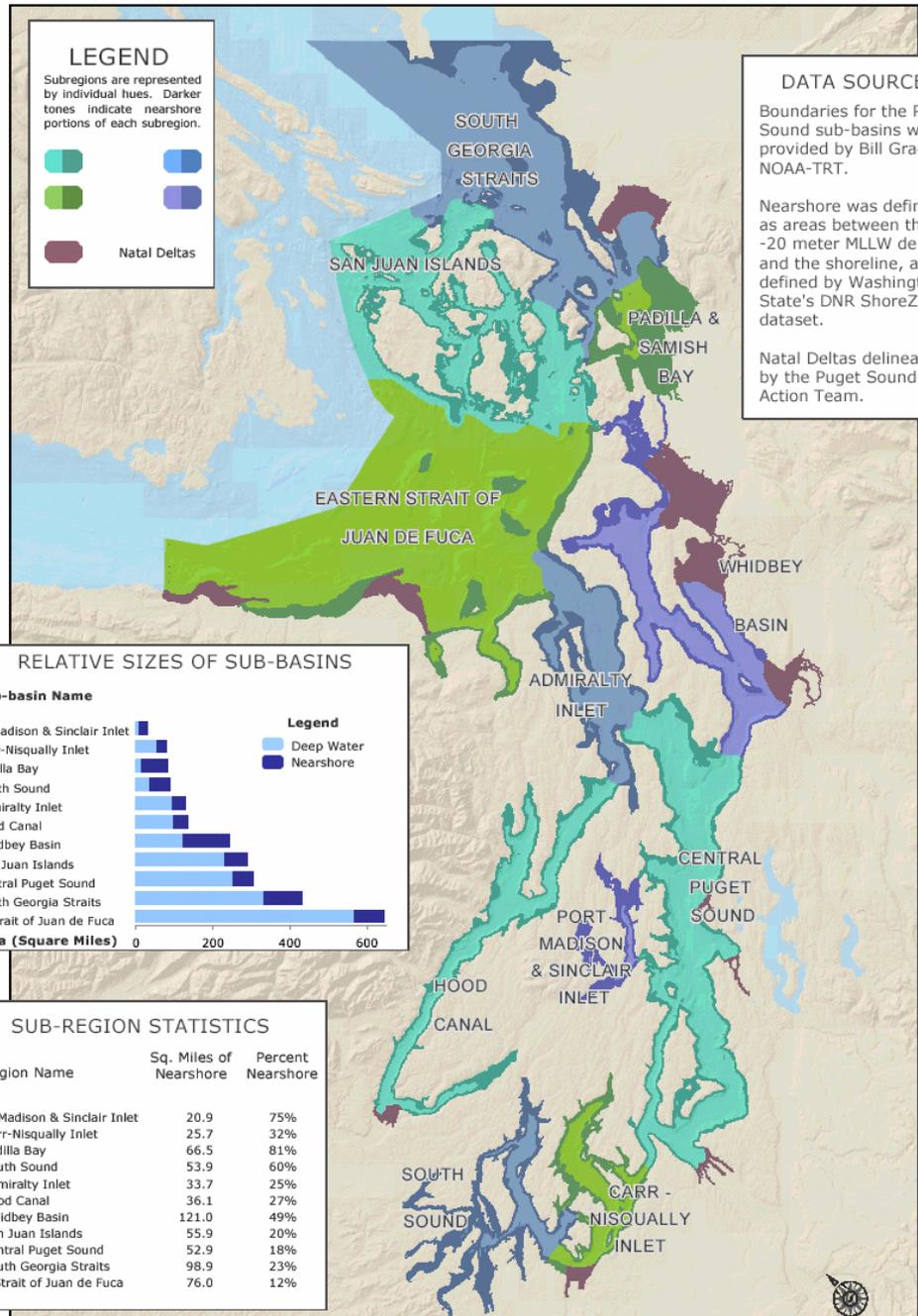
Natal Deltas

DATA SOURCES

Boundaries for the Puget Sound sub-basins were provided by Bill Graeber, NOAA-TRT.

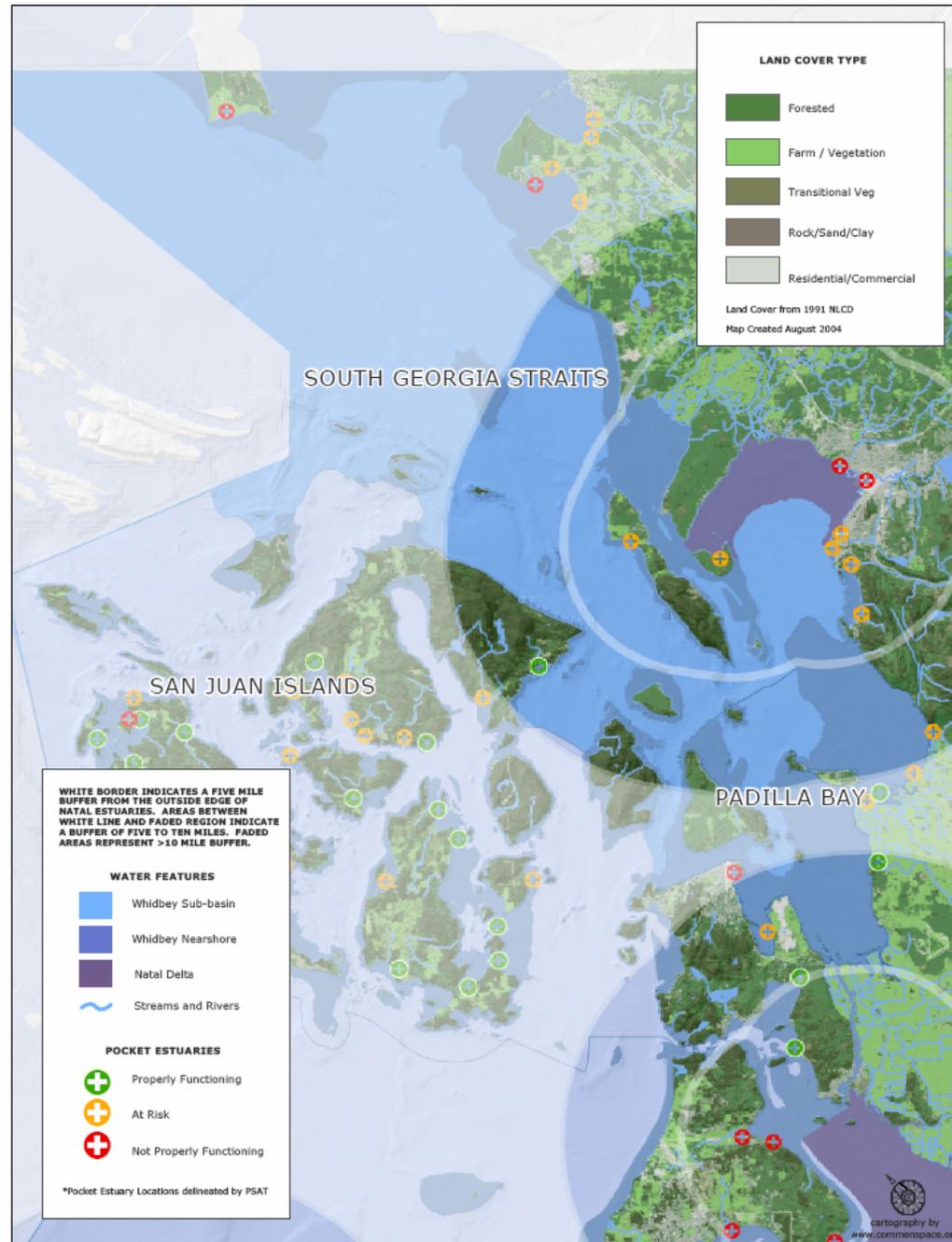
Nearshore was defined as areas between the -20 meter MLLW depth and the shoreline, as defined by Washington State's DNR ShoreZone dataset.

Natal Deltas delineated by the Puget Sound Action Team.

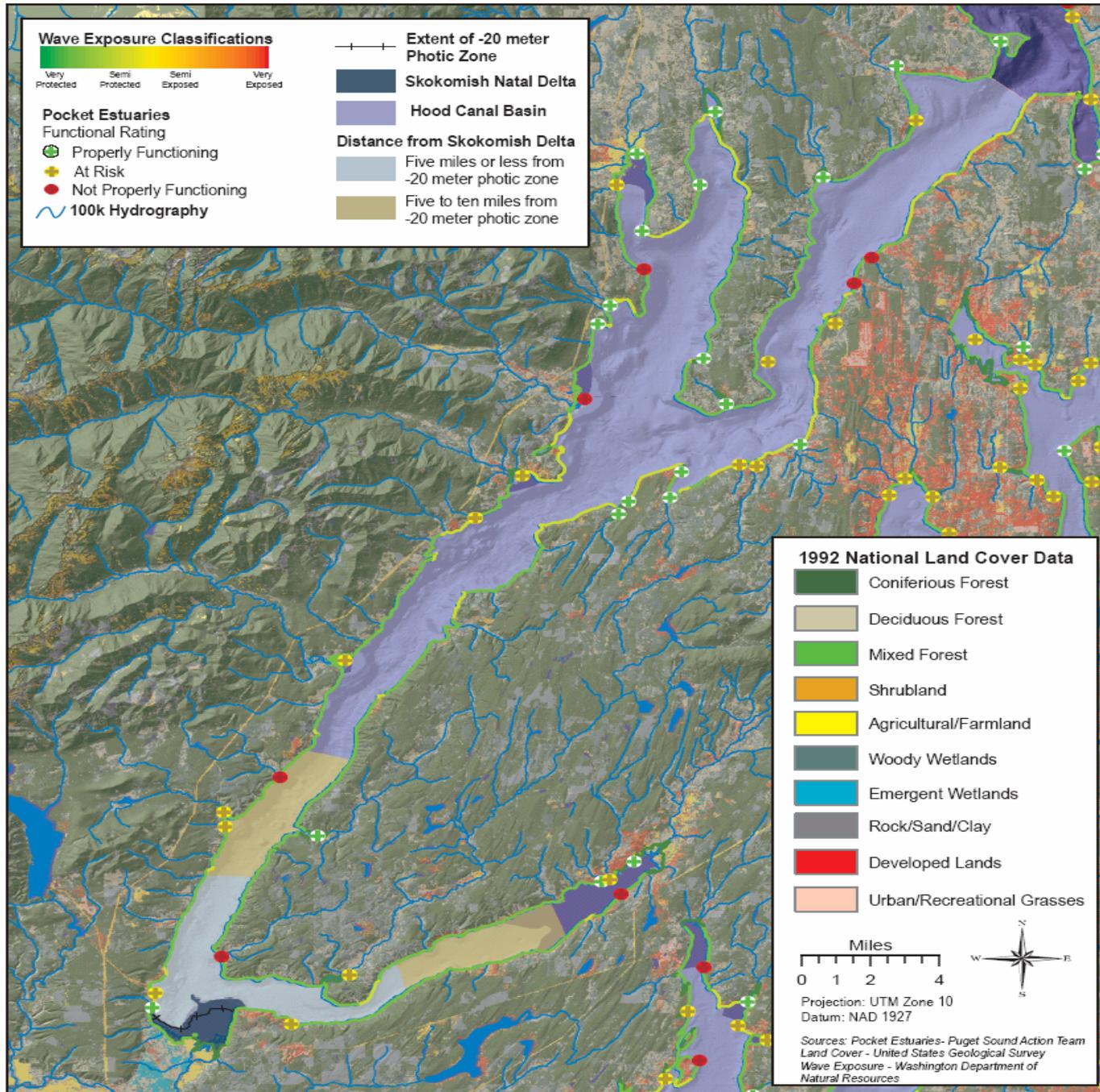


SUB-REGION STATISTICS

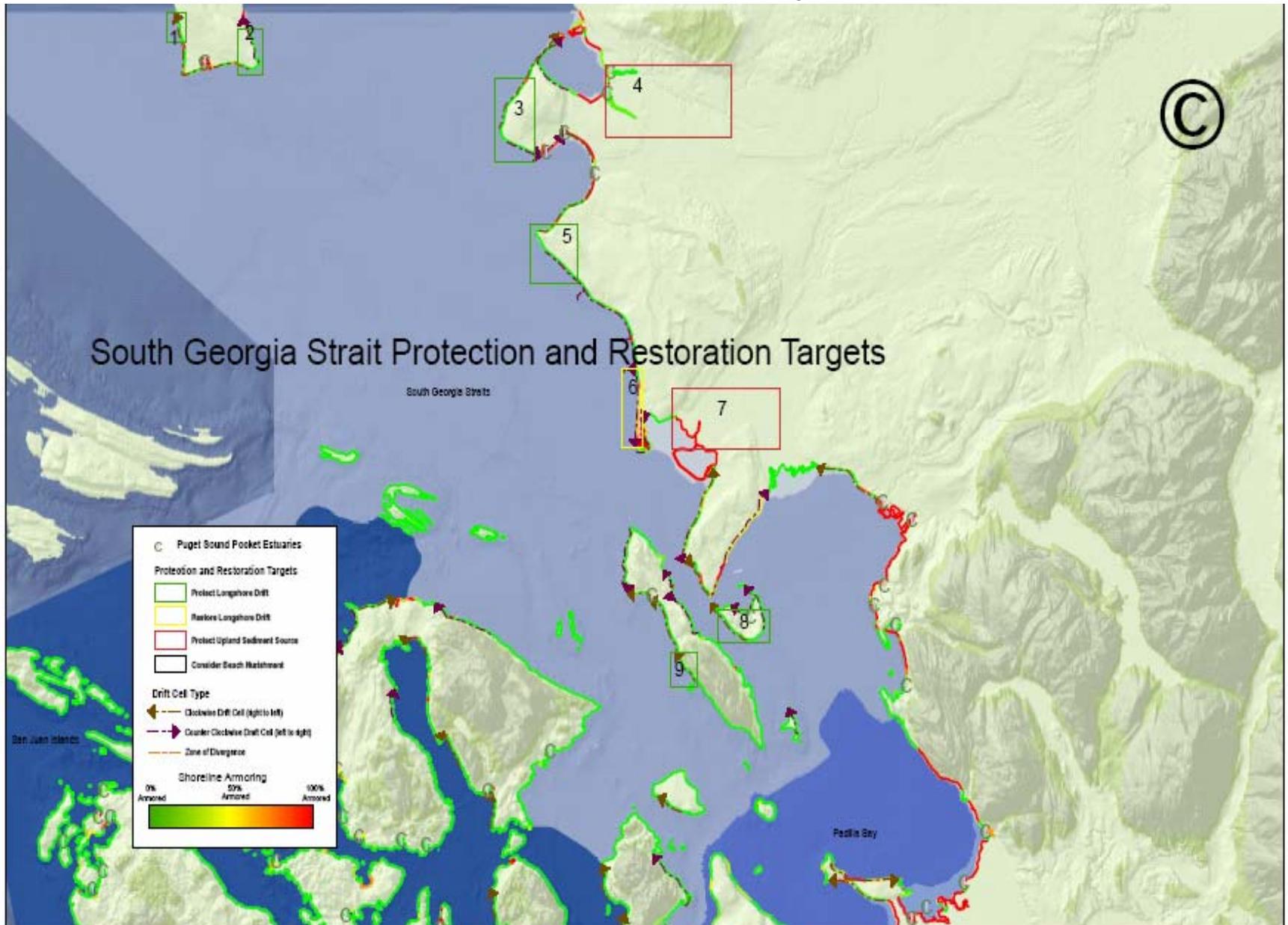
Region Name	Sq. Miles of Nearshore	Percent Nearshore
Pt Madison & Sinclair Inlet	20.9	75%
Carr-Nisqually Inlet	25.7	32%
Padilla Bay	66.5	81%
South Sound	53.9	60%
Admiralty Inlet	33.7	25%
Hood Canal	36.1	27%
Whidbey Basin	121.0	49%
San Juan Islands	55.9	20%
Central Puget Sound	52.9	18%
South Georgia Straits	98.9	23%
E Strait of Juan de Fuca	76.0	12%



Hood Canal Pocket Estuaries



Drift Cell Analysis



Key Protection and Restoration Actions: S. Georgia Basin

- Shallow water/low gradient habitats + PE within 5 miles of Nooksack River
- Protect against catastrophic events
- Small creeks - direct rearing
- Habitat for Cherry Point herring
- Protect shorelines through SMP
- Functioning drift cells
- Shift in-water working periods
- Wastewater reclamation/reuse
- Natural processes - reconnect Nooksack/Lummi
- Targeted restoration in Bellingham Bay – cap toxic sediments
- Restore shallow water/low gradient habitats + PE within 5 miles of Nooksack River
- Small creeks
- Remove tide gates
- Local actions to restore Cherry Point herring population

West Coast Shellfish 2015

Research Goals

3.3. GOAL - Ecological impacts (positive and negative) associated with shellfish growing and harvesting, should be documented, understood, and incorporated into the shellfish industry



Gertrude Island

McNeill Island

Eagle Island

Anderson Island, WA

Anderson Island

Ketrion Island

Stellacoom

Silcox Island

Short Island
Barlow Island

Image © 2007 DigitalGlobe
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Google™

Pointer 47°09'32.00" N 122°41'04.59" W elev 244 ft

Streaming 100%

DuPont

Eye alt 11.52 mi