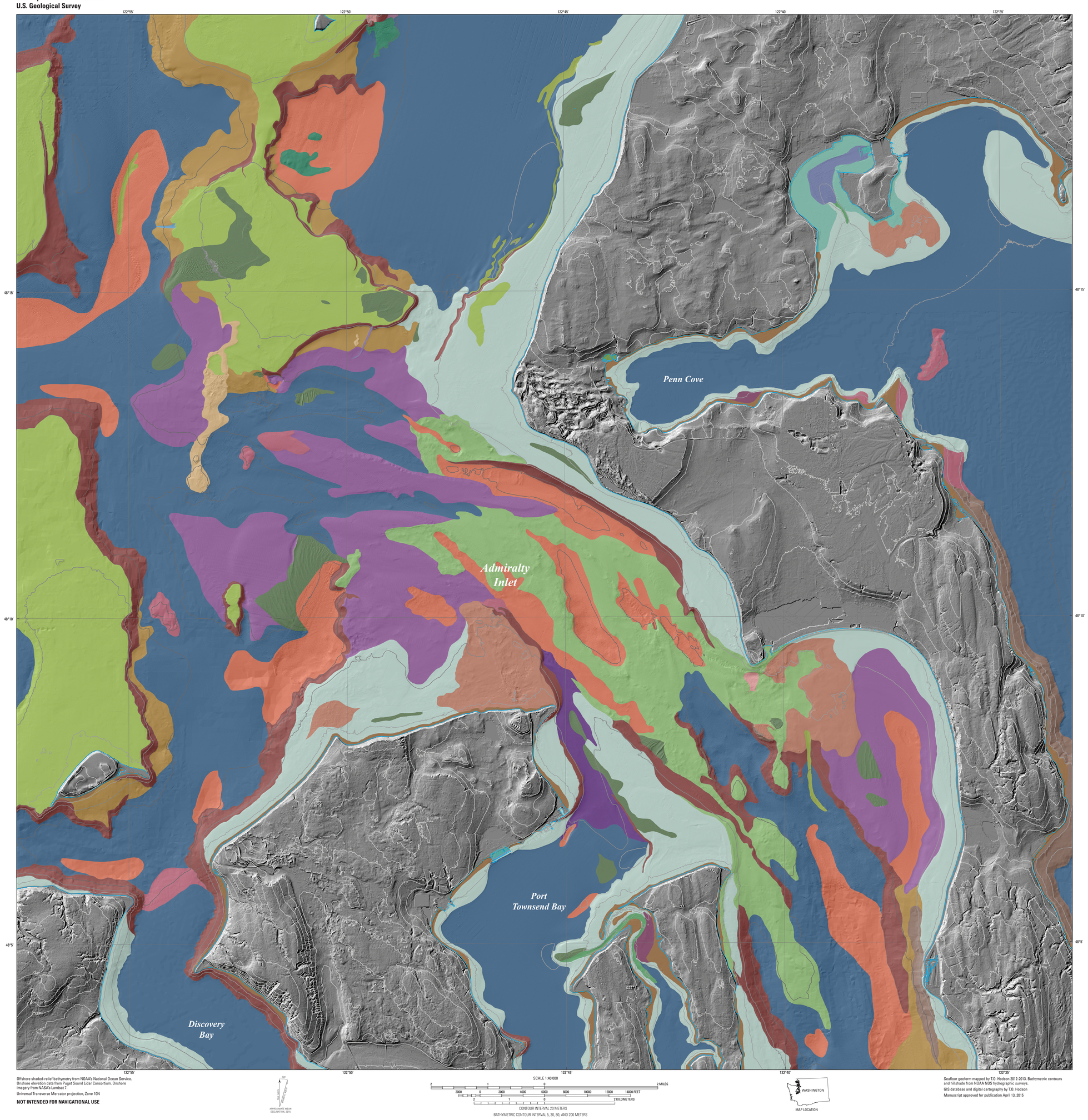
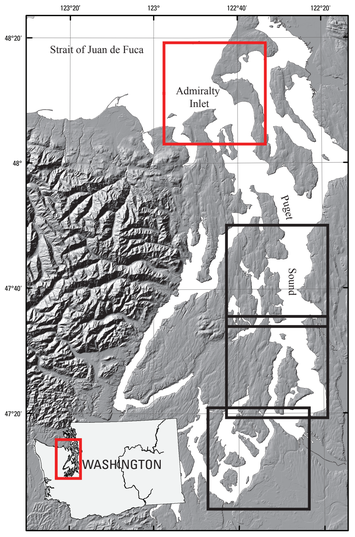
U.S. Department of the Interior
U.S. Geological Survey

Open-File Report 2015–1073
Sheet 2 of 4
Pamphlet accompanies map





DISCUSSION

Units displayed on this map represent the geoform component of the Coastal and Marine Ecological Classification-Standard (CMECS; Madden and others, 2009) draped over shaded-relief bathymetry from National Oceanographic Surveys, the majority of which were conducted between 2001 and 2011. Bathymetric contours represent the divisions between major benthic depth zones: shallow infralittoral (0–5 m), deep infralittoral (5–30 m), circalittoral (30–80 m), circalittoral offshore (80–200 m), and mesobenthic (200–1,000 m). Geoforms were manually classified based on their appearance in bathymetric data, with the aid of ground-truthed seafloor observations, historical seismic reflection surveys and bottom grabs, and knowledge of past and modern processes affecting the region.

Puget Sound as it exists today is the product of a complex interplay between tectonic, glacial, isostatic, and estuarine processes. The Puget Lowland, and the mountains that bound it, owe their origins to regional tectonic processes induced by the subduction of the Juan de Fuca Plate beneath the western edge of the North American continent. The north-south trending Puget Lowland trough has in turn shaped glaciation in the region—like water, glaciers and ice sheets flow downhill in response to the Earth's gravity, following the path of least resistance. During the Vashon stade of the Fraser glaciation (20,000–15,000 years ago), proglacial rivers flowing from the advancing Cordilleran Ice Sheet deposited a broad outwash plain that extends from the Olympic Mountains in the west to the Cascade Range in the east. The ice sheet eventually overran the Puget Lowland, carving the drumlin fields and the deep troughs that define the present-day Puget Lowland (Booth, 1994). Since glaciation, the landscape has been modified by a combination of coastal, tidal, fluvial, and mass-wasting processes. In addition, localized emergence and submergence tied to global sea level rise, isostatic rebound, and tectonics has strongly influenced the evolution of shallow (0–30 m) geoforms in the Puget Sound basin and neighboring Strait of Juan de Fuca, creating extensive wave-cut banks and submerged shore complexes.

REFERENCES CITED

Booth, D.B, 1994, Glaciofluvial infilling and scour of the Puget Lowland, Washington, during ice-sheet glaciation, Geology, v. 22, p. 695-698.

Madden, C.J., Goodin, K., Allee, R.J., Cicchetti, G., Moses, C., Finkbeiner, M., and Bamford, D., 2009, Coastal and marine ecological classification standard, version 3: National Oceanic and Atmospheric Administration and NatureServe, 126 p., http://coast.noaa.gov/digitalcoast/publications/cmecs/.

EXPLANATION

- Apron
- Basin
- Basin floor fan
- Breakwater/jetty
- Dredged channel
- Erosion scarp
- Esker
- Lagoon
- Marina
- Moraine
- Relic shore complex
- Relic spit
- Relic tidal channel
- Relic tidal flat
- Relic wave-cut platform
- Scour depression
- Sediment wave field
- Shore
- Sill
- Slope
- Slope gully
- Slump scar
- Submarine slide deposit
- Tidal channel
- Tidal flat
- Tidal furrow
- Tidalite drift
- Wave-cut bank

Offshore shaded-relief bathymetry from NOAA's National Ocean Service.
Onshore elevation data from Puget Sound Lidar Consortium. Onshore imagery from NASA's Landsat 7.
Universal Transverse Mercator projection, Zone 10N

NOT INTENDED FOR NAVIGATIONAL USE

APPROXIMATE MEAN DECLINATION, 2015

SCALE 1:40 000

2 0 1 0 2 MILES
2000 0 2000 4000 6000 8000 10000 12000 14000 FEET
2 1 0 2 KILOMETERS

CONTOUR INTERVAL 20 METERS
BATHYMETRIC CONTOUR INTERVAL 5, 30, 80, AND 200 METERS

WASHINGTON
MAP LOCATION

Seafloor geoform mapped by T.O. Hodson 2012-2013. Bathymetric contours and hillshade from NOAA NOS hydrographic surveys.
GIS database and digital cartography by T.O. Hodson
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CMECS Geoform Component Map of the Admiralty Inlet Map Area, Washington

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