What is ShoreZone?

Figure 1. Extent of ShoreZone imagery in Alaska. 85% of Alaska has been imaged using the ShoreZone method. Imagery and mapped data are all available online.

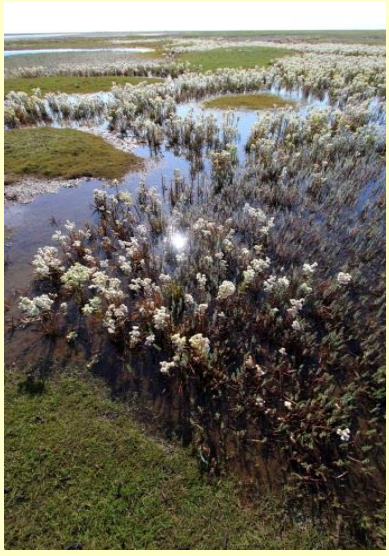
ShoreZone is a mapping and classification system that specializes in the collection and interpretation of low-altitude aerial imagery of the coastal environment. Its objective is to produce an integrated, searchable inventory of geomorphic and biological features of the intertidal and nearshore zones which can be used as a tool for science, education, management, and environmental hazard planning. The ShoreZone mapping system provides a spatial framework for coastal habitat assessment on local and regional scales. Imagery now exists for over 100,000 km of coastline from Alaska, British Columbia, Washington and Oregon. The Kotzebue Sound and St. Lawrence Island mapping is now completed. The Alaska ShoreZone coastal mapping program is a partnership of scientists, GIS specialists, web specialists, nonprofit organizations, and governmental agencies.

A full protocol of ShoreZone is available at www.shorezone.org as well as on the Coastal & Ocean Resources website (www.coastalandoceans.com). Imagery and data in mapped regions of Alaska can be viewed, queried, and downloaded at the NOAA ShoreZone website: (www.alaskafisheries.noaa.gov/shorezone/).

THE METHOD

Oblique low-altitude aerial video and digital still imagery of the shoreline is collected during summer low tides (zero-meter tide level or lower), usually from a helicopter flying at <100 m altitude. Video and still images are spatially-referenced and time-synchronized. Geomorphic, sedimentary, and biological features within each unit are mapped into across-shore *zones* with respect to relative tidal elevation. Units are digitized as shoreline segments in ArcGIS software, and then integrated with the coastal attribute data in a relational geodatabase. Mapped habitat features include wave exposure, substrate type, geomorphology, sediment texture, and biological assemblages ("biobands") such as salt marsh, canopy kelps, eelgrass and other biota (Fig. 2).

At a glance
Coastal high resolution imagery is available for 100,000 km of coastline from Alaska, British Columbia, Washington and Oregon.



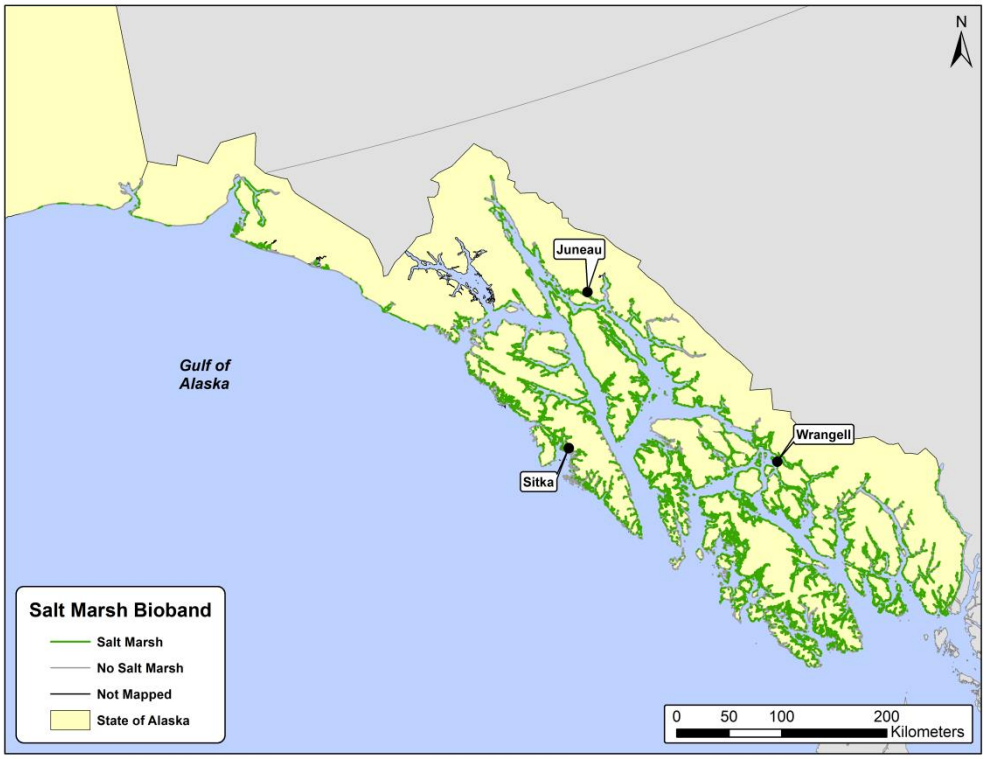


Figure 2. Extent of salt marsh in Southeast Alaska. Summary report, Imagery and mapped data can be viewed and downloaded at www.alaskafisheries.noaa.gov/shorezone/

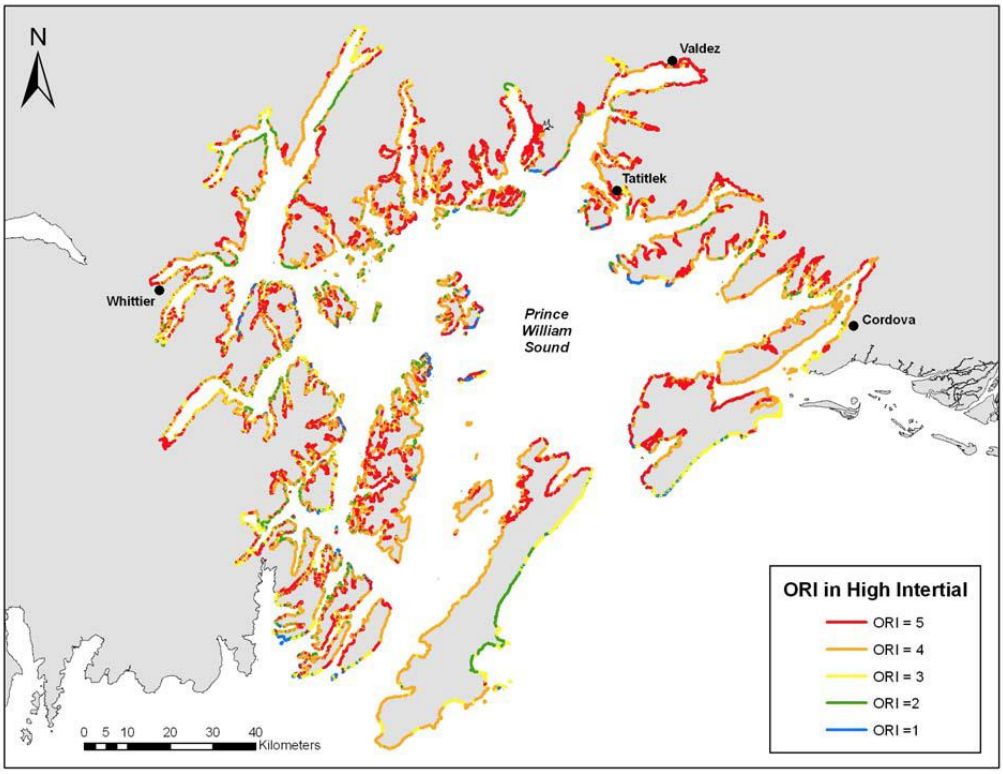


Figure 3. Oil residency index in the high intertidal zone of Prince William Sound. ORI is a function of wave exposure and sediment type. Highest values indicate an oil residence time of months to years.

Figure 4. Example of digital still imagery showing Nunivak Island. High resolution photos are linked to the helicopter trackline by a unique time code, providing a GPS position on the coastline for each image.

Applications of ShoreZone coastal mapping data and imagery include resource management, environmental hazard planning, recreation, education, outreach, and desktop reconnaissance. Research applications include habitat suitability modeling to predict the spread of invasive species such as the European green crab and the cordgrass Spartina.
The new updated protocol "Alaska ShoreZone Coastal Habitat Mapping Protocol" is now ready and includes: the Gulf of Alaska, and Bering, Chukchi and Beaufort Sea. Tim Robertson (Nuka Research) worked on this project funded by BOEM.

Figure 5. Shore stations allow to have a closer look at the substrate, geomorphology, plants, algae & invertebrate which are linked to the ShoreZone units.

ShoreZone: ShoreZone.org

Access to imagery & Mapped data
www.alaskafisheries.noaa.gov/shorezone/

ShoreZone protocol and links to BC, Oregon and Washington data
www.coastalandoceans.com

ShoreZone Contacts for Alaska:
Amalie Couvillion, The Nature Conservancy: acouvillion@tnc.org. (907) 865-5703
Steve Lewis, NMFS, Alaska Region, Analytical Team: Steve.Lewis@noaa.gov. (907) 586-7858
Cindy Hartmann Moore, NMFS, Alaska Region, Habitat Conservation Division: Cindy.Hartmann@noaa.gov. (907) 586-7585