

# West Coast Coastal Atlas Workshop: a model for other regions

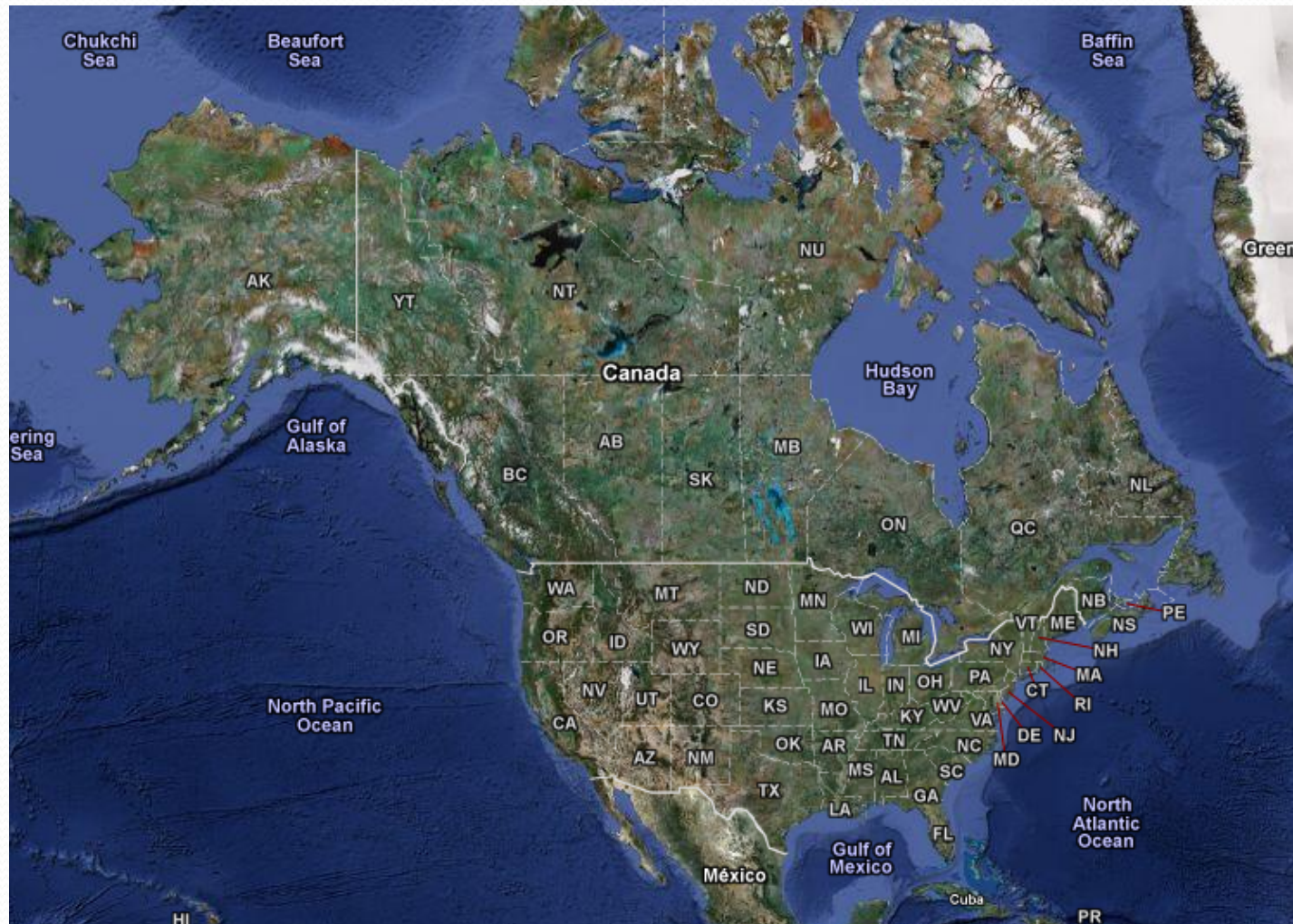



West Coast Coastal Atlas Workshop April 23-24, 2009 Seattle, WA USA

ICAN 4 Workshop, Trieste, Italy 11/17/09

Kathy Taylor, Ph.D.  
Washington State Department of Ecology, USA

# West Coast of North America





# Existing Coastal Atlas Applications Were Developed:

- By different government organizations
- To meet user needs in geographic area of governing body
- Using different technologies





# Resources/Support for the Washington Coastal Atlas

- Initiated, managed and maintained by Washington Department of Ecology.
- Funding sources:
  - State general funds
  - Washington's NOAA OCRM Coastal Zone Management grant (Federal funding).
- Other state agencies have contributed data, staff time & small amounts of funding for specific components.



# Purpose of Washington Coastal Atlas:

## Purpose

- *To make relevant information easily available for use in coastal and shoreline resource planning and management*



## Examples

- Provide information to update local Shoreline Master Programs
- View current or historic aerial photos of project sites
- Gather information prior to field work or site visits
- Quickly prepare maps to inform a variety of audiences on specific topics or projects
- Document shoreline uses
- Find information on slope stability for specific shoreline areas
- View changes over time in the marine shoreline or in upland land cover

# WA Coastal Atlas Target Audience

## Primary Targets

- Local governments implementing WA CZM through local Shoreline Master Programs
- State government agencies with authority to regulate or manage activities on the shorelines and tidelands of Washington

## Other important users

- Tribal governments
- Federal agencies
- Non-governmental organizations
- Outdoor recreation groups
- Real estate professionals
- Private citizens



# Coordination with other entities

## In Washington:

- Department of Natural Resources
- Department of Health (Shellfish Group)
- Department of Fish and Wildlife
- Puget Sound Partnership
- Department of Transportation
- Community, Trade, and Economic Development
- Parks
- Northwest Indian Fish Commission

## Outside of Washington:

- Oregon CZM program (OR Coastal Atlas, Public Access)
- NOAA Coastal Services Center (Coastal Change Analysis)
- ICAN





# Data Available

## • Biological/Habitat Features

- Wetlands
- Historic Estuary Maps
- Pocket Estuaries
- Dunegrass, Surfgrass
- Kelp, Eelgrass
- Salt Marsh
- Low Marsh

## • Physical Features

- Drift Cells
- Slope Stability
- Water Bodies (100k)
- Water Courses (100k)

## • Regulated Features

- Commercial Shellfish
- Flood Zone
- Drinking Water Wells
- Category Water (5, 4C, 4B, 4A, 2, 1)

## • Modifications

- Piers and Docks
- Shore Modification

## • Jurisdictional Delineations

- Watershed (WRIA) Boundaries
- Sub Basins
- Counties
- Cities
- Township/Range/Section

## • Transportation Features

- Major Roads
- Streets
- Railroads

## • Background Imagery

- USGS Topo Maps
- Aerial Imagery
- Hillshade
- Nautical Charts

## • Satellite Imagery

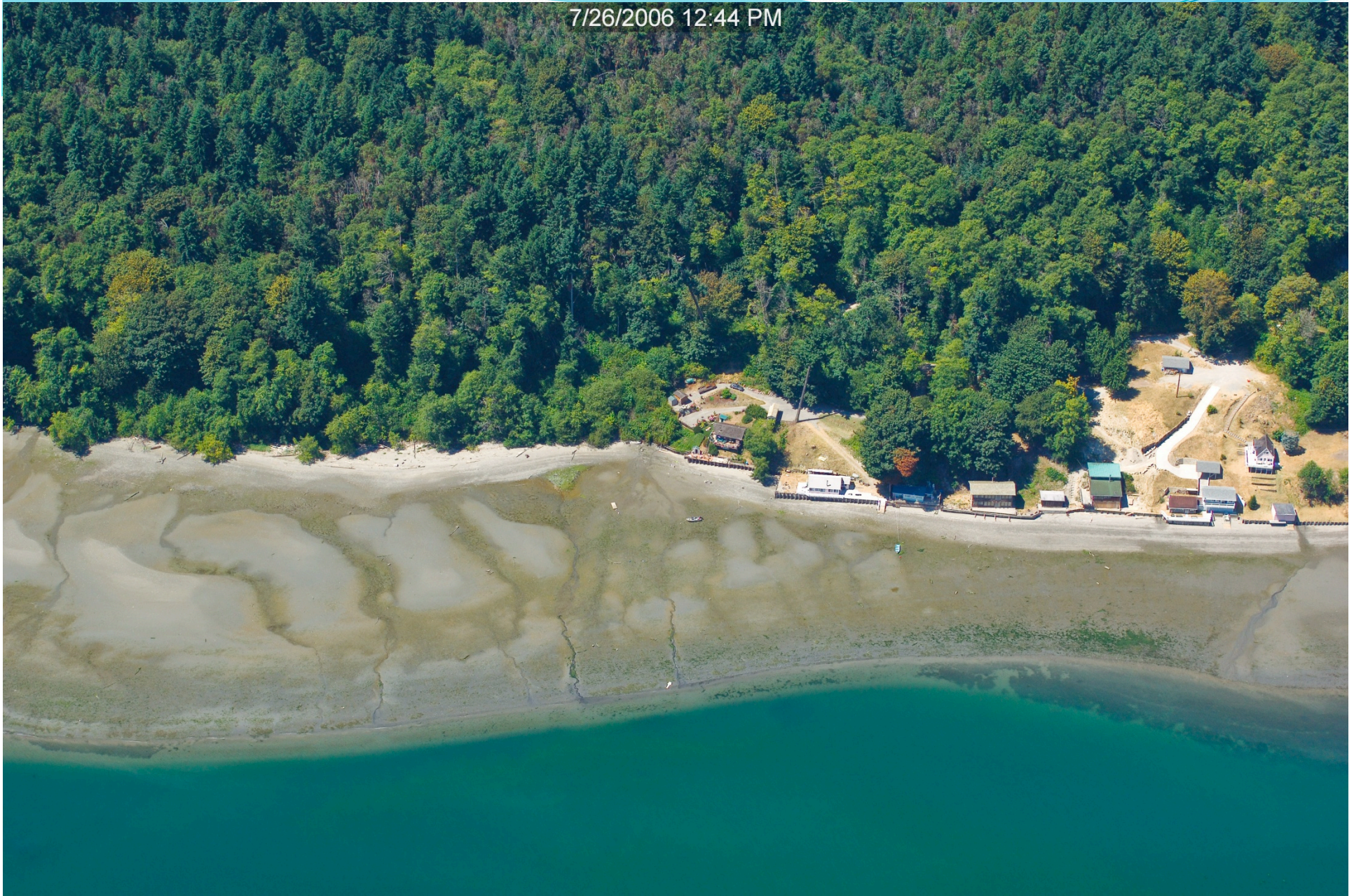
- Land Use/Land Cover 1991, 1996, 2001

## • Other Imagery

- Oblique shoreline photos 1976-77, 1992-'97, 2000-02, 2006



7/26/2006 12:44 PM





8/15/2006 1:45 PM













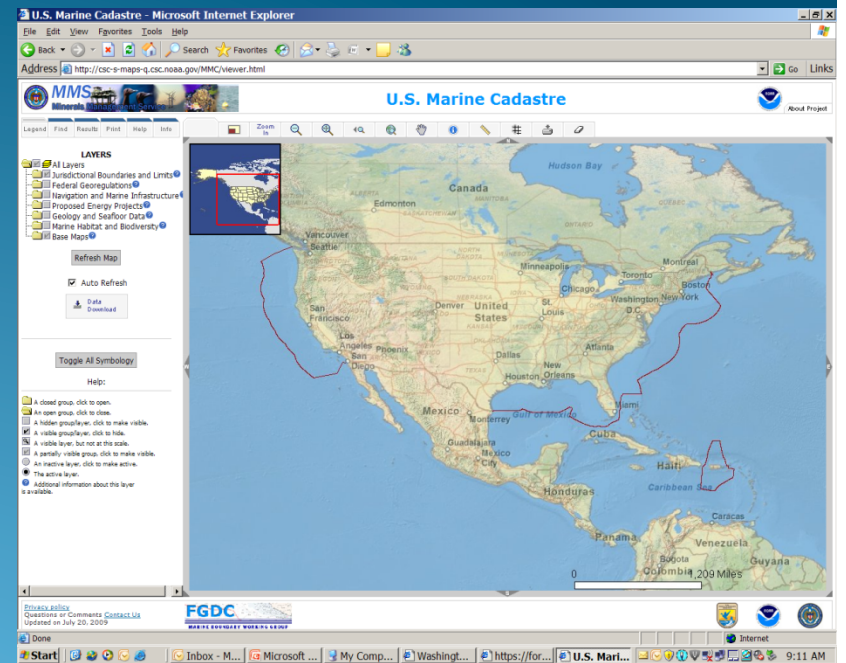
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# Further development

- In cooperation with NOAA and MMS, we are working towards display of marine data layers from the Multipurpose Marine Cadastre on the Washington Coastal Atlas (*Darby Veeck*)



# Further Development

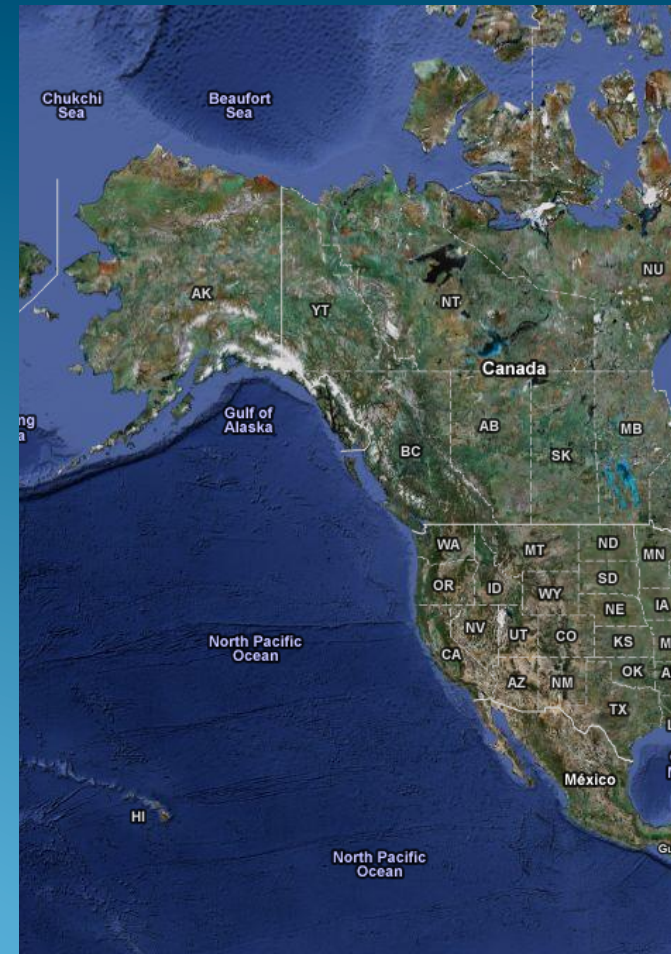
- Adding information on public access to Washington marine shorelines (*Deborah Purce*)
- User survey



# Further Development

- Increasing interoperability w/other atlases through the International Coastal Atlas Network (*Liz O'Dea*)

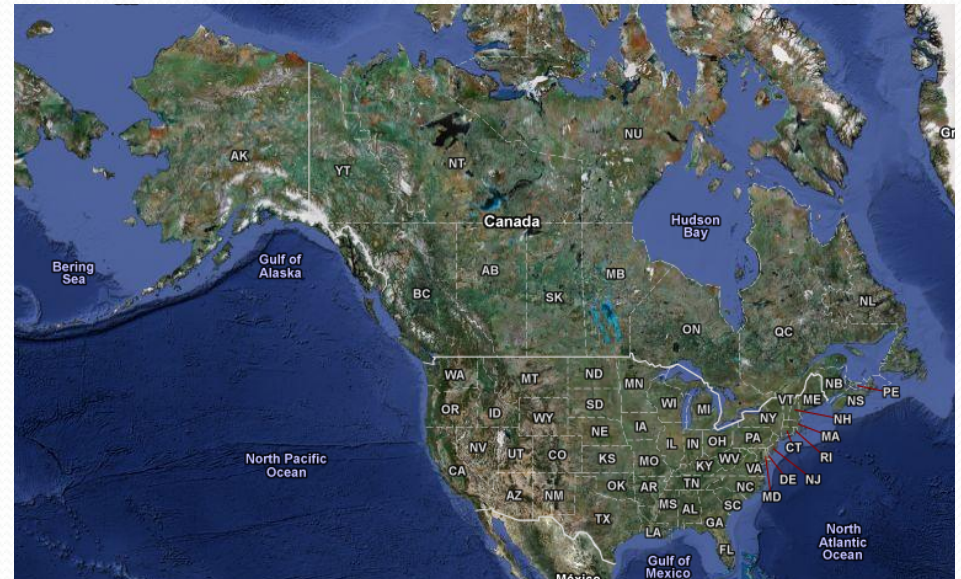
**ICAN**  
International Coastal Atlas Network





# Many Needs are Regional:

- **West Coast Governors' Agreement on Ocean Health** (Washington, Oregon, California)
- **Pacific Coast Collaborative** (Washington, Oregon, California, Alaska, and British Columbia)





# No Existing Communication Channel for all of the Coastal Atlases on the West Coast

- This was the first time a meeting like this had been held on the west coast
- Many of the participants had never met each other prior to the workshop

# Washington Coastal Atlas Team



Kathy Taylor  
Darby Veeck  
Deborah Purce  
Liz O'Dea  
Dan Saul

Address [http://www.ecy.wa.gov/programs/sea/sma/atlas\\_home.html](http://www.ecy.wa.gov/programs/sea/sma/atlas_home.html)

DEPARTMENT OF ECOLOGY  
State of Washington

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## Washington Coastal Atlas

**COASTAL ATLAS HOME**  
Start Mapping  
Tips for Using Site  
Useful Links



**Start Mapping**  
Use the Coastal Atlas to learn about Washington's marine shorelines and the land areas near Puget Sound, the outer coast, and the estuarine portion of the Columbia River. You can view aerial photographs of marine shorelines, locate different habitat types, physical features, see changes in land cover, and much more.

**Tips for Using this Site**  
Learn how to navigate the Washington Coastal Atlas, view shoreline photos, use the mapping tools and create customized maps.

**Useful Links**  
Links to coastal public access information, other coastal atlas sites and Department of Ecology partner web sites.

**Coastal Atlas Partners**





# Oregon Coastal Atlas



Tanya Haddad, Oregon Department of Land Conservation and Development

The screenshot shows the Oregon Coastal Atlas website interface. At the top, the title "Oregon Coastal Atlas" is displayed in a large, stylized font. Below the title is a navigation bar with buttons for "Home", "Maps", "Tools", "Learn", and "Search". The "Home" button is currently selected. The main content area is divided into several sections:

- Atlas News:** Features a globe graphic with the acronym "ICAN" and the text "International Coastal Atlas Network".
- Welcome to Oregon's Coastal Atlas:** A text block stating: "We hope you enjoy your visit to our website! The Oregon Coastal Atlas is a... the ambitious goal of being a useful resource for the various audiences that constituency of the Oregon Coastal Zone. The project is a depot for traditio which can be used to inform decision-making relating to the Oregon C background information for different coastal systems, access to interactive analysis tools, and direct download access to various planning and natural res coastal zone management."
- Atlas Site Map:** A tree view showing the website's structure:
  - Home
    - About Us
    - Contact US
    - Funding
    - Traffic Reports
  - Maps
    - Oregon Coastal Zone
    - Estuaries
    - Sandy Shores
    - Rocky Shores
  - Tools
- Maps & Tools:** A section with a "Maps" sub-section containing a map image and text: "The Coastal Atlas includes an Internet Map Server which can be used by visitors to view a variety of standard, preformatted and commonly requested base and overlay data served in the Atlas archives. Those who do not have access to a desktop GIS may use this tool to create simple personalized maps using data relevant to the coast. Maps can be given personalized titles and output to PDF format for use in printed reports, email, etc."
- Learn:** A section with a "Learn" sub-section containing a photo of people on a beach and text: "This sectio introductor coastal geo Sandy Shor Areas), coastal topics (A Processes) and Atlas rela descriptions, software li inquiry into coastal setti both broad background r summaries and links to n"
- Search:** A section with a "Search" sub-section.

# British Columbia, Canada: Pacific Coastal Resources Atlas

**Welcome to the  
Pacific Coastal Resources Atlas**



- Atlas Description** View information about the atlas and its functionalities.
- Launch Atlas** For viewing the Coastal Atlas.
- Request Account** In order to add new data and get access to the mapping tools, you need an account.
- Add New Data** Login is required.

Brad Mason, Fisheries and Oceans Canada

# British Columbia, Canada: Coastal Resource Info System

**BRITISH COLUMBIA** Coastal Resource Information System

Close X Help ?

About Layers Legend Select Find Location Refresh Map Tutorial Disclaimer

Map Layers

- Administrative Boundaries
- Aquaculture
- Biological Resources
- Fisheries
- Human Use
- Marine Ecological Classification
- Offshore Oil and Gas
- Shoreline Biophysical Classification
- Basemap

Refresh Map

Automatically Refresh Map

**Notes:**  
Please refer to the following for descriptions of the functions of the controls in the layer list above.

- Click folder to show or hide contents.
- Click to turn off all layers in the associated folder.


IMF 5.1 build 06 patch 1

Scale: 1:3,092,675


Carol Ogborne, British Columbia Ministry of Agriculture and Lands  
John Harper, Coastal and Ocean Resources, Inc.



# Alaska ShoreZone



**NOAA Fisheries** NATIONAL MARINE FISHERIES SERVICE  
ALASKA REGIONAL OFFICE



- Home
- Fisheries
- Online Services
- Protected Species
- Habitat Conservation
- Regulations
- News
- Grants
- Jobs
- Administration

**Alaska Regional Office**  
alaskafisheries.noaa.gov  
PO Box 21668  
Juneau, Alaska 99802-1668  
[Contact Information](#)


Related Websites  
Select from below

**Accessibility**  
Text Size: [T](#) [T](#) [T](#)  
Text Only: [Yes](#) | [No](#)

## Alaska ShoreZone Coastal Mapping and Imagery

### INTRODUCTION

The ShoreZone mapping system has been in use since the early 1980s and has been applied to more than 40,000 km of shoreline in Washington and British Columbia (Berry et al 2004; Howes 2001). Through partnerships with other agencies and organizations, portions of southeastern and central Alaska have been imaged and mapped. This project is funded by NOAA and a number of other agencies and organizations as listed below.



Southeast Alaska Lynn Canal shoreline.  
Photo: NOAA Fisheries

This standardized system catalogs both geomorphic and biological resources at mapping scales of better than 1:10,000. The high resolution, attribute rich dataset is a useful tool for extrapolation of site data over broad spatial ranges and creating a variety of habitat models.

Low-tide-oblique aerial imagery sets this system apart from other mapping efforts. You can "fly the coastline" (video), view still photos, and access biophysical data using our interactive ArcIMS web-site. This site will include more of Alaska's coast-line as new data becomes available.

### FLY THE COASTLINE

### FLIGHT LOGS AND REPORTS

**Alaska Shorezone**      **Southeast Alaska (SE)**

» [Shorezone Website: Display and query](#)      » [2004 SE Flight Log, June 2005](#)

Mandy Lindeberg, Steve Lewis, Cindy Hartmann, NOAA Fisheries  
John Harper & Jodi Harney, Coastal and Ocean Resources, Inc.  
Mary Morris, Archipelago Marine Research.



## And Others:

- California Ocean Uses Atlas
- Southern California MarineMap Tool
- NOAA Multipurpose Marine Cadastre
- NOAA Legislative Atlas
- NOAA Emergency Response Management Application
- International Coastal Atlas Network (ICAN)



# No funding for workshop, but:



Supportive management at Washington Department of Ecology allows Ecology staff time for workshop planning



Staff and facility support from NOAA



Enthusiastic and energetic staff in Washington



Web site and informational support from ICAN



# Workshop Goals:

- Increase contact among existing and emerging coastal web atlas efforts on the west coast
- Inform each other of our future plans and data gaps
- Explore opportunities for collaboration





- The workshop brought together over 30 participants **from:**
  - Alaska, British Columbia, Washington, Oregon and California
- **representing:**
  - State coastal zone management programs, state universities, four branches of NOAA, private consulting firms, and nongovernmental organizations.



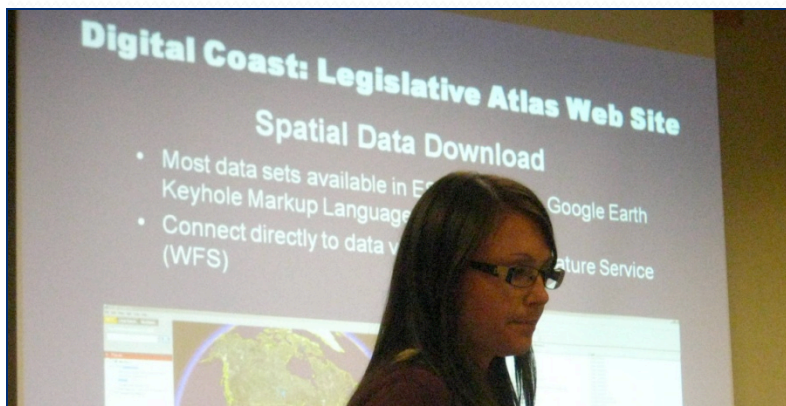
## 2-Day Workshop:

- Prior to workshop: Each coastal atlas submitted a 1 page summary describing their application
- Day 1: presentations and discussion of coastal web atlases and web mapping applications
- Day 2: structured discussions focused on collaborative groups, relevant legislation, regional information needs, data coordination and group priorities.



# Workshop Outcomes:

- Increased knowledge and communication



# Workshop Outcomes: Priority Data Needs

**Table 1: List of high priority data needs identified and categorized by Coastal Atlas workshop participants.**

Physical	Human	Biological	Data Integration /Communication
Bathymetry; seamless topo/bathy & LIDAR	High use areas – consumptive and non-consumptive	Habitat: +10 to -20 (and deeper)	ICAN framework for atlas connections – KML footprint of coastal atlases
Substrate types	Socioeconomic data – activity value	Population data	Continued coastal atlas communication – ICAN west coast forum, listserv
Shoreline & shoreline dynamics	Shoreline and marine alterations	Biogeographic assessments	Common basemap (classification, cartography, framework)
Oceanographic processes/regime	Cadastral scale ownership data		Outreach to advertise data/atlas, and promote user capability
			Metadata - guidance on appropriate use
			Guidelines for connectivity
			Data interoperability/standards – developer ease
			Participation & partnering: Google, Virtual Earth applications
			Data peer review and criteria for review



# Workshop Outcomes: Comprehensive Data Needs

Table 2: Comprehensive list of data needs identified by Coastal Atlas Workshop participants.


Regional data needs	Common data requests from users/partners	What information would you like regional neighbors to collect/share?
Basemap to define components – standard data set symbolization	Habitat change over time – baseline data needed	Russia/AK border – standardize data, ontology
Physical, biological mapping, socioeconomic data	Interoperability of data – academia	MMS (Mineral Management Service) nearshore data made available
Biophysical ocean zone – seamless shoreline mapping, standardized	Seafloor habitat, kelp data – MPA design	Navy data
Comprehensive, baseline shoreline mapping	Cadastral scale ownership data	Trans-boundary plans for threats such as oil spills
Document and provide available data, outreach: advertise and communicate atlas information	Integrate data for planning, decision-making	FERC – alternative energy spatial footprints, electrical transmission lines, pipelines
0-20m depth substrate data to define habitat	High-resolution bathymetry	Data collected by energy companies who are applying for permits in coastal environment
Outer coast of WA data, & BC information	Interns & graduate students	Army Corps LIDAR data and derived products
-10 to +10m LIDAR data	Ocean uses data (non-consumptive), translate uses into management decision tools	Commercial and recreational fishing grounds baseline for CA, OR & WA
Communicate data needs amongst group	Estuaries habitat mapping	Puget Sound vertical profiling buoy from NANOOS
Bathymetric mapping, habitat typing	Make resource information and products more available to local planners	Venus & Neptune Ocean Observing Systems with vertical profiling, etc., soon available (Aug '09?)
ICAN and IOOS connection to consume data easily	Students with GIS background, skills	
Standards and interoperability that are easy to use	Make IOOS data accessible via tools for discovery and usage	
Regional climate data	Access to ERMA, mechanism to update Environmental Sensitivity Index data	
Locations for publication of data	Benthic habitat data, accurate SLR maps, LIDAR	
0-20m depth substrate data , 0.5-1m resolution	Repeating data surveys	
Coastal armoring	Estuary bathymetry data	
ESHA (Environmentally Sensitive	Use ShoreZone for change	



# Workshop Outcomes: List of Next Steps

- **a. Establish a peer review process for atlas data.**
- **b. Identify “backbone data” in terms of common datasets across atlas applications.**
- **c. Produce case studies illustrating how and why atlases are used, how data are served up and what data are served.**
- **d. Explore a connection to the West Coast Governors Agreement & the Pacific Coast Collaborative.**
- **e. Develop a common ontology.**

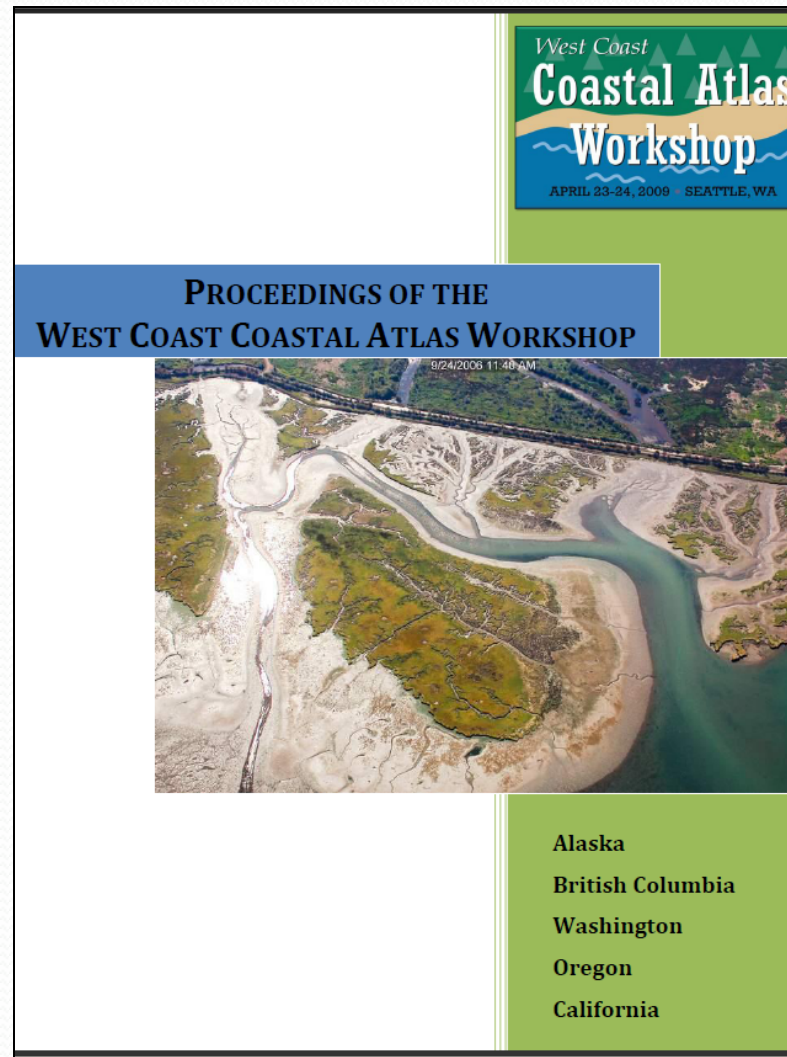




# Workshop Outcomes List of Next Steps:

- **f. Define the role of ICAN in this coordination effort.**
- **g. Identify funding sources and broader resources to maintain and expand atlases.**
- **h. Identify options for outreach and marketing of atlases.**
- **i. Options for continued collaboration as a group going forward.**

# Workshop Outcomes:







# Lessons to share:

- Funded directive is nice, but not essential
- Set reasonable goals
- Find and document areas of agreement or convergence
- Document results of workshop
- Actively communicate results of workshop to existing regional efforts

6/27/2006 10:26 AM

Questions?

[Kathy.Taylor@ecy.wa.gov](mailto:Kathy.Taylor@ecy.wa.gov)