

A Pilot Data System for the Pacific Coast Ocean Observing System (PaCOOS)

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Pacific Coast Ocean Observing System

*Providing ocean information for the sustained use of the California
Current Large Marine Ecosystem under a changing climate*





Project Goals and Objectives


- 
1. **Access** to distributed multi-disciplinary ecological datasets for the CCLME
 2. Long-term planning & design for **PaCOOS Data Management system**
 3. Identify steps to a fully **interoperable data system**
 4. Guidance for other regional OOS DM systems
 5. **Two pilot projects** - integrating distributed physical, geological & biological data sets
 - ***Pelagic observation systems*** (station and time series data)
 - ***Benthic habitat characterization & groundfish use database*** (gridded fields)





Accomplishments






- 
- Implemented OPeNDAP server for physical & biological data from CalCOFI
 - Integrated groundfish habitat characterization with habitat utilization database, available to IOOS Regional Associations
 - Started developing standardized semantic metadata for PaCOOS
 - Coordinators named; metadata team created
 - Combined data portal/Live Access Server to connect pilot projects
 - OPeNDAP to ArcGIS converters








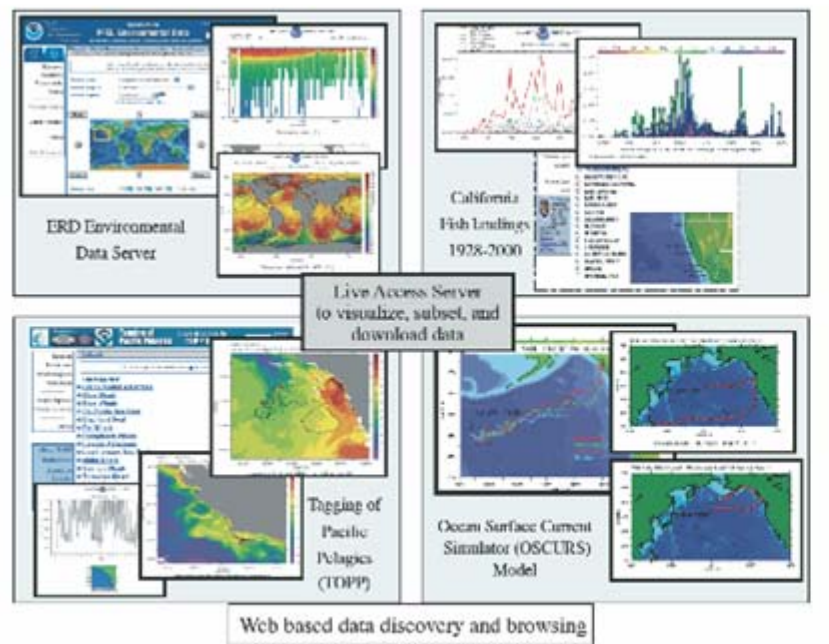
Two Pilot Projects

- Physical and Biological Water Column Data (SWFSC)
 - Biological, Geological and Physiographic Data (NWFSC)
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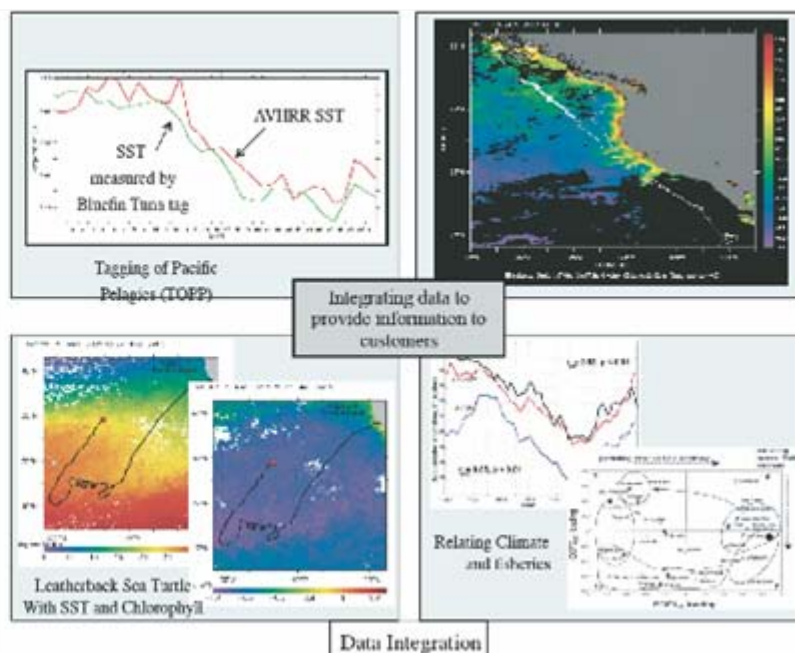
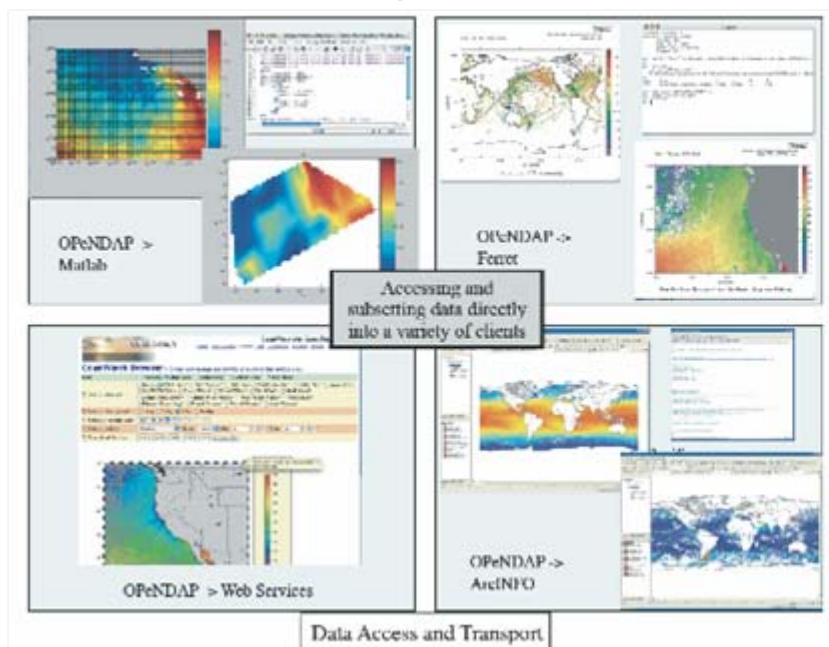
Pilot Projects Objectives

- 
- Part of the long-term planning & design for **PaCOOS Data system**
 - Make available to the **widest audience**
 - Example of **integration** of disparate data types
 - Allows both **visualization & transport**
 - **Common vocabulary** between data sets
 - **Transparency & interoperability** within larger data system
 - ***Greater presence of ecological data in IOOS***
- 
- 



Data Analysis at SWFSC's Environmental Research Division

Transforming Data into Information
Using IOOS Standards for Interoperability





http://oceanwatch.pfeg.noaa.gov/PaCOOS_data/

- Live Access Server to visualize, subset and download data
- Web-based data discovery and browsing
- Accessing and subsetting data directly into a variety of clients
- Integrating data to provide information to customers





Water Column Data Sets

- CalCOFI
- NE Pacific Globec
- SW Midwater Trawl Survey
- SW Protected Species Surveys



<i>Variable</i>	<i>CaCOFI</i>	<i>GLOBEC NEP Survey</i>	<i>SW Midwater Juvenile Rockfish Survey</i>	<i>SW Protected Resources Survey</i>
Time Range	1949-2002	2000-2002	1987-2004	1998-2002
Temperature	x	x	x	x
Dynamic Height	x		x	
Nitrate, Nitrite	x	x		
Oxygen	x	x		
Oxygen Saturation %	x			
Phaeopigments	x	x		x
Phosphate	x	x		
PAR		x	x	
Pressure	x			
Salinity	x	x	x	
Density	x		x	
Silicate	x	x		
Specific Volume Anomaly	x			
Transmissivity		x	x	
Chlorophyll	x	x	x	x
Zooplankton Abundance		x		
Euphotic Zone Productivity				x

The slide features a blue border with various marine life illustrations. At the top left, a circular inset shows hands holding a fish. Along the top edge, there are small illustrations of a blue fish, a yellow fish, and a brown fish. The left edge is decorated with a vertical strip of marine life including seaweed, a starfish, and various corals. At the bottom center, there is a large illustration of a shark. In the bottom right corner, there is a circular logo with a fish and the text 'NOAA' and 'NW Fisheries Science Center'.

Biological, Geological and Physiographic Data

NW Fisheries Science Center

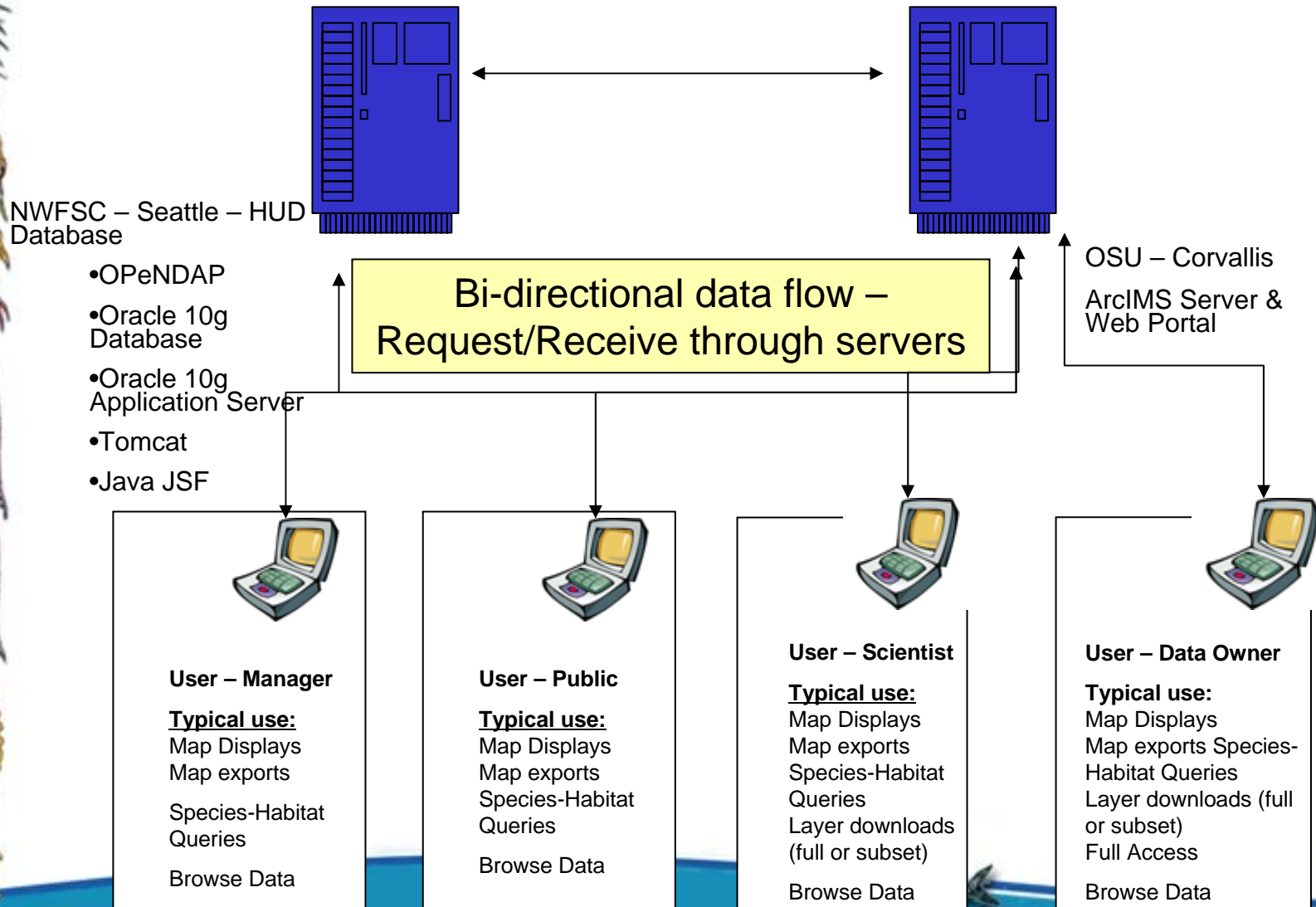


Integrate a variety of data sets

- Bathymetry coast-wide
- Topography coast-wide
- High-resolution side scan 15 data sets
- Data quality index
- Grain size
- Structure forming invertebrates
- Rock prediction layer
- Surface sample layer
- Habitat map
- Structure forming invertebrate data compiled coast-wide
- Habitat utilization database
 - Habitat preferences
 - Life history information



Groundfish/Benthic Habitat Data Storage and Distribution Architecture

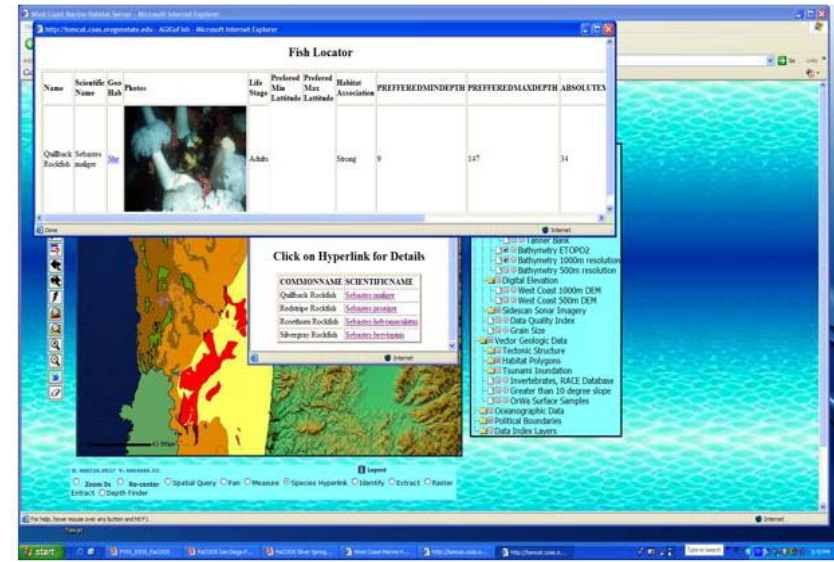
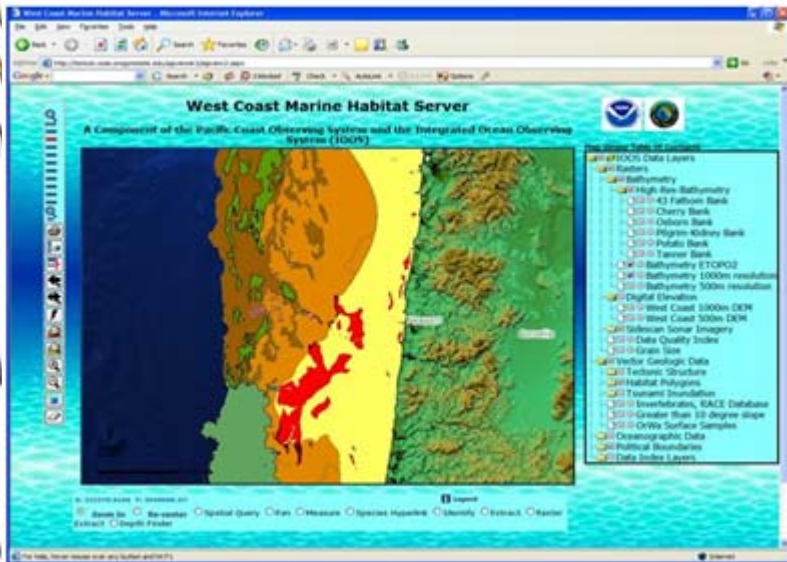


CA Current LME

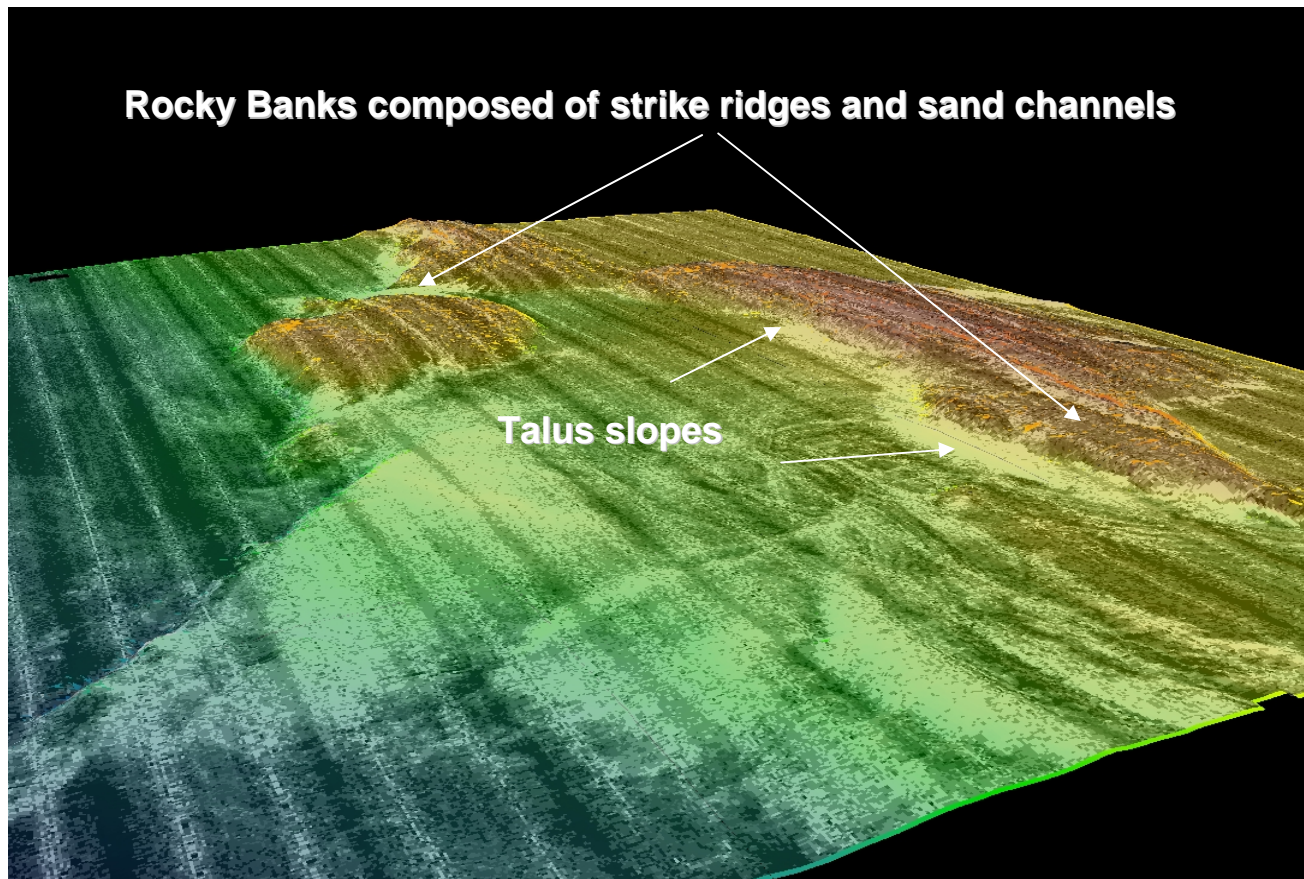
Habitat and Geology

Linked to

Biological Information

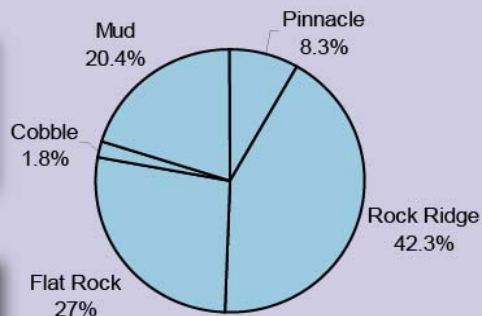


Interactive visualization of raw and modeled products

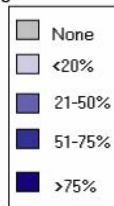
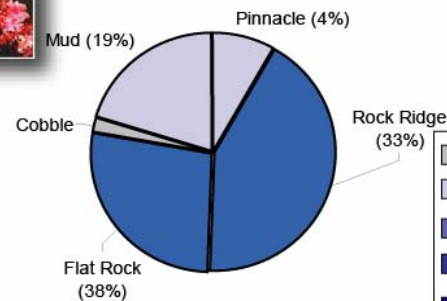


Habitat Associations

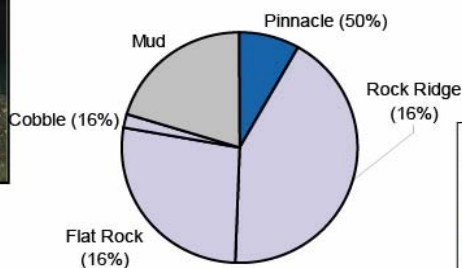
Dominant Habitat Types of Dive 3431



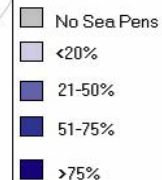
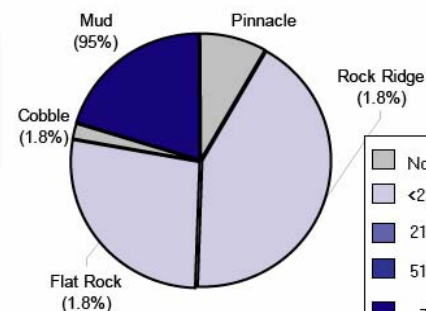
Swiftia sp. (Red Gorgonians)



Barrel Sponge



Sea Pens



Photos by Brian Tissot

West Coast Marine Habitat Server - Microsoft Internet Explorer

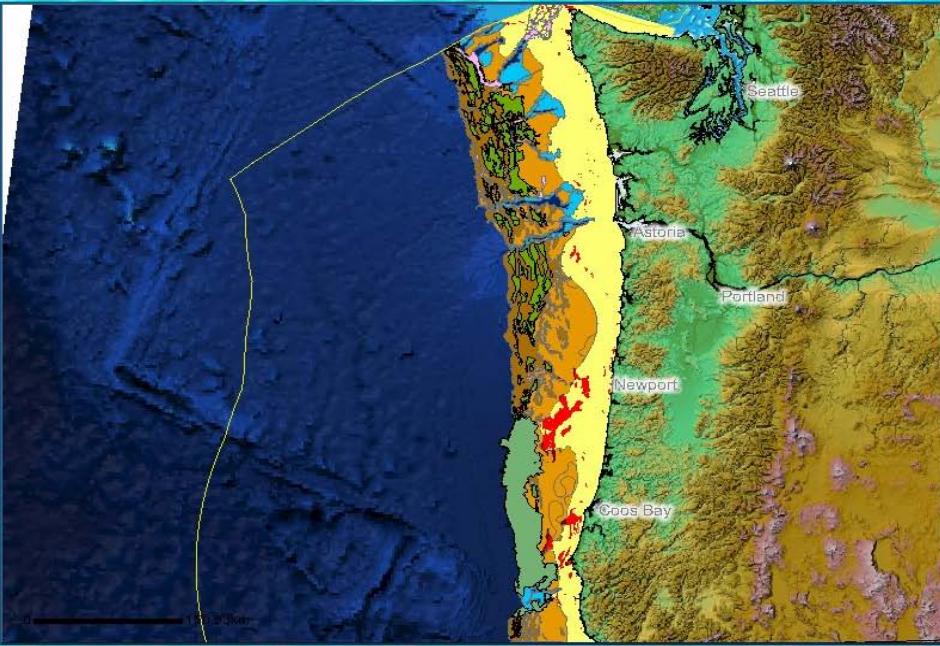
File Edit View Favorites Tools Help

Address <http://tomcat.coas.oregonstate.edu/agiview2/agiview2.aspx>

Google Search 3 blocked Check AutoLink AutoFill Options

West Coast Marine Habitat Server

A Component of the Pacific Coast Observing System and the Integrated Ocean Observing System (IOOS)



Map Viewer Table Of Contents

- IOOS Data Layers
 - Rasters
 - Bathymetry
 - High-Res-Bathymetry
 - 43 Fathom Bank
 - Cherry Bank
 - Osborn Bank
 - Pilgrim-Kidney Bank
 - Potato Bank
 - Tanner Bank
 - Bathymetry ETOPO2
 - Bathymetry 1000m resolution
 - Bathymetry 500m resolution
 - Digital Elevation
 - West Coast 1000m DEM
 - West Coast 500m DEM
 - Sidescan Sonar Imagery
 - Data Quality Index
 - Grain Size
 - Vector Geologic Data
 - Tectonic Structure
 - Habitat Polygons
 - Tsunami Inundation
 - Invertebrates, RACE Database
 - Greater than 10 degree slope
 - OrWa Surface Samples
 - Oceanographic Data
 - Political Boundaries
 - Data Index Layers

X: 31459.62 Y: 5365174.14


Legend

☒ Zoom In
 ☐ Re-center
 ☐ Spatial Query
 ☐ Pan
 ☐ Measure
 ☐ Species Hyperlink
 ☐ Identify
 ☐ Extract
 ☐ Raster
 ☐ Extract
 ☐ Depth Finder

Done Internet

http://tomcat.coas.oregonstate.edu - AGIGoFish - Microsoft Internet Explorer

Fish Locator

Name	Scientific Name	Geo Hab	Photos	Life Stage	Preferred Min Latitude	Preferred Max Latitude	Habitat Association	PREFERRED MIN DEPTH	PREFERRED MAX DEPTH	ABSOLUTE MIN LATITUDE
Dover Sole	Microstomus pacificus	Fs u		Adults	34	48	Strong	200	500	27.50

Done

Internet

Invertebrates

West Coast Marine Habitat Server - Microsoft Internet Explorer

http://tomcat.coas.oregonstate.edu - AGIQuery - Microsoft Internet Explorer

Query Window

[highlight selected records](#)

ID	HAULJOIN	START_LATI	START_LONG	SPECIES_CO	SPECIES_NA	COMMON_NAM	TYPE	SHAPE
2263	1090577	45.23871	-124.3221	43010	Metridium sp.	mull	anemone	[Geometry]

[more records](#)

Legend

Zoom In Re-center Spatial Query Pan Measure Species Hyperlink Identify Extract Raster Extract Depth Finder

For help, hover mouse over any button and hit F1

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Safety

Web Apps

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series

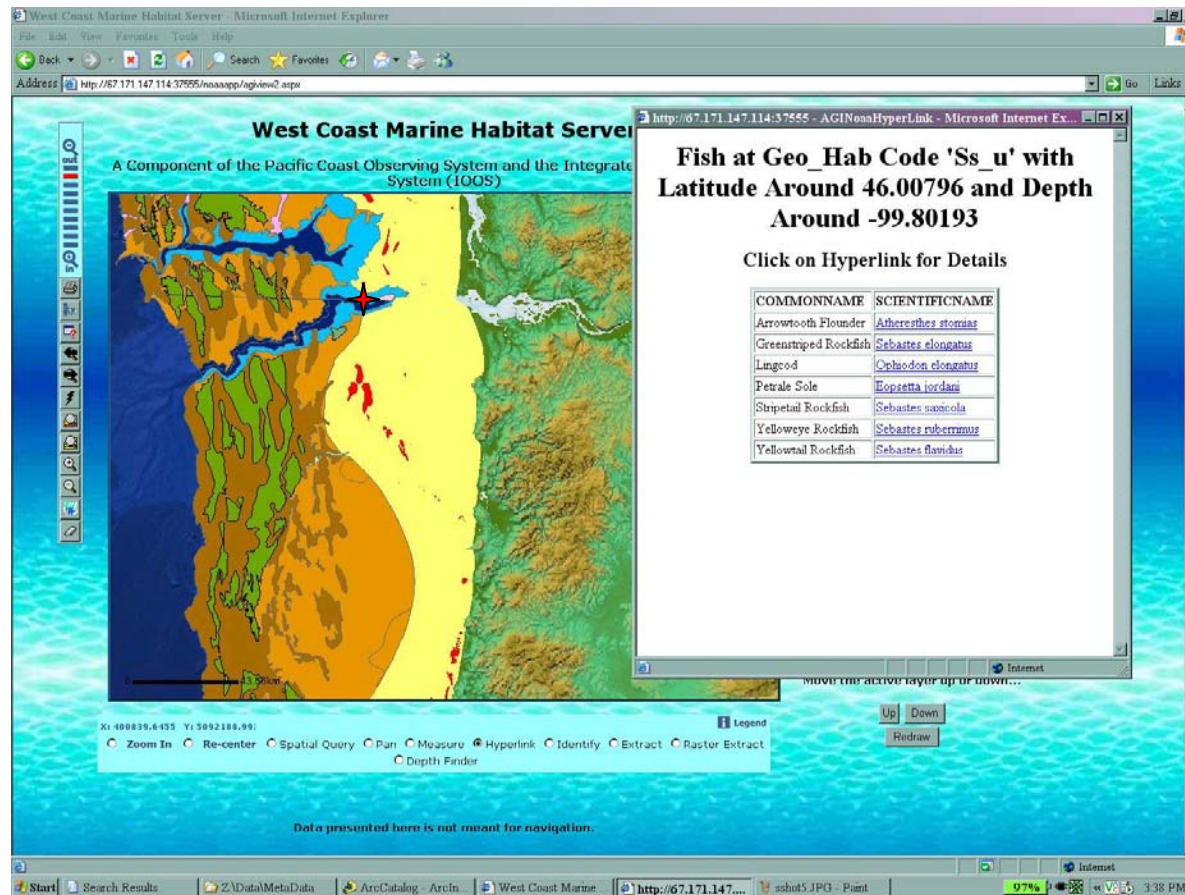
Division

OMI

Webmaster

start Silver Springs 07-17... Liz Project West Coast Marine H... Microsoft PowerPoint... NWFSC Staff Director... http://tomcat.coas.o... Type to search 3:20 PM


Advanced Queries: Bycatch Mitigation Tools



The site supports spatial queries that call relational databases such as the Habitat Use Database (HUD). Areas of minimum overlap with by catch species can be mapped



The Future

- Continue efforts to agree upon & implement **community standards**
 - Identify/support **integration & delivery** of additional west coast data sets
 - Coastwide NWFSC **bottom trawl data**
 - Coastwide **acoustic survey**
 - Partner **biologic datasets** when available
 - Develop and provide linkages to subsurface geophysical data, earthquake data, tsunami runup models, **integrated interpretations.**
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