

# The Ocean GIS Initiative

Esri's Commitment to Understanding Our Oceans

Didier SALOU



71 %



350 Millions



*Photography by  
ADIL IFTIKHAR*



2 %





YuBu © Great Barrier Reef  
Australia  
Jan14-18, 2011



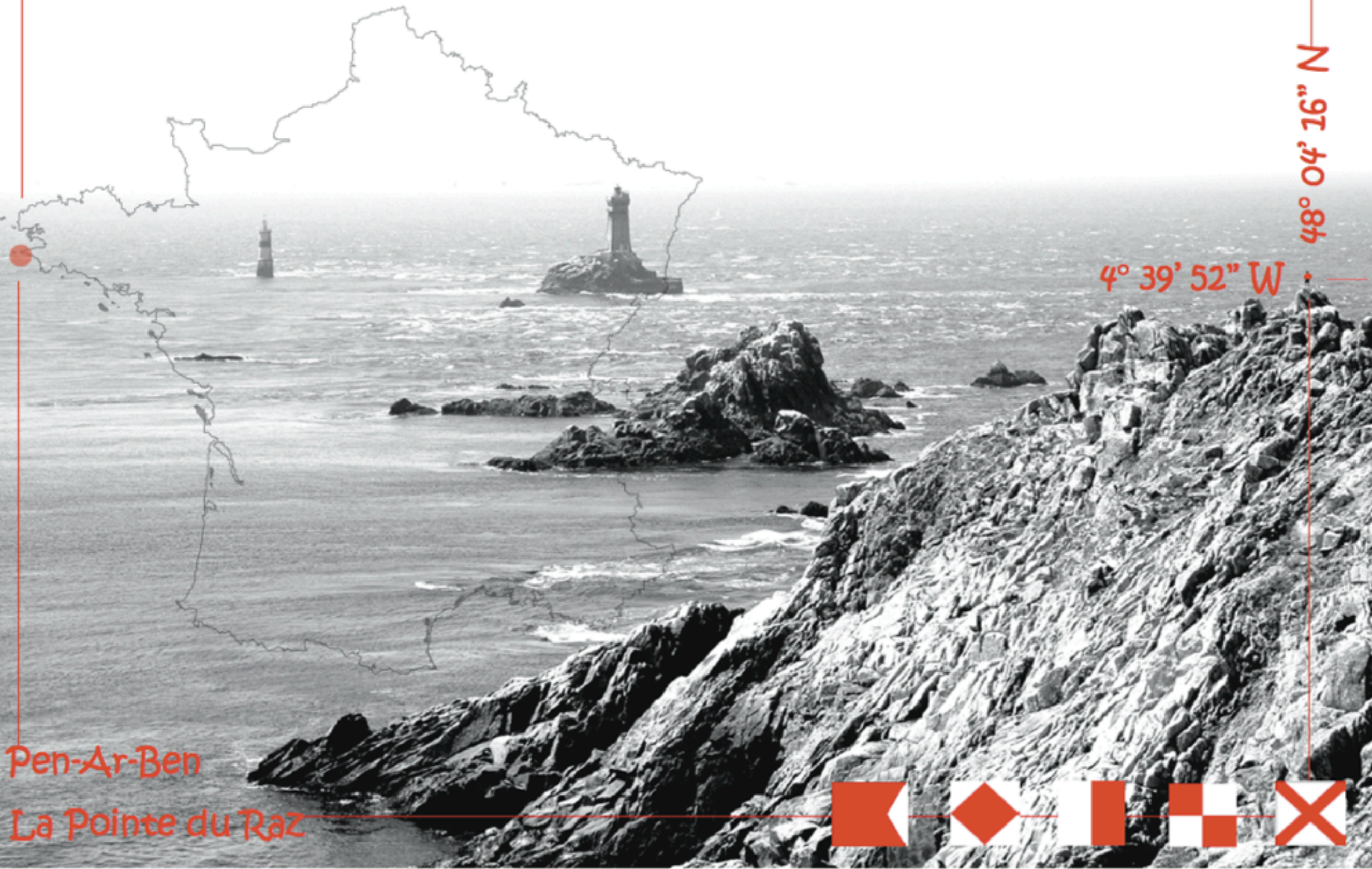
SIG



DESSINONS LA GÉOGRAPHIE

Dessinons la géographie - Paméla Simon

Un homme au bout du monde...

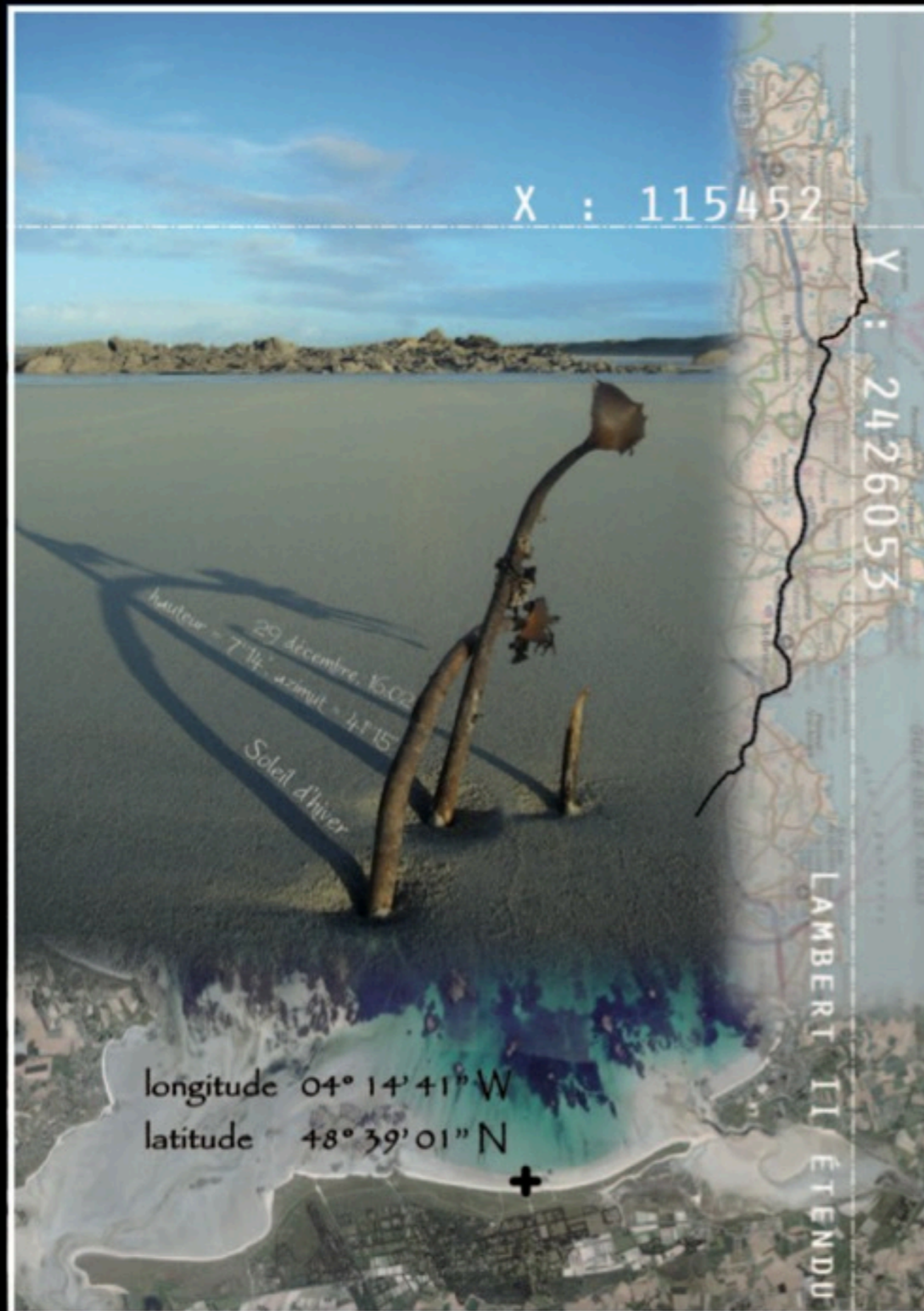


48° 04' 16" N

4° 39' 52" W

Pen-Ar-Ben

La Pointe du Raz



Hiver breton - Camille Pinet

2008 : *Année Internationale des Récifs Coralliens*



*Nouméa, Nouvelle-Calédonie, Pacifique Sud*



Duna Por do Sol - Anja Leistam Auer



**SURFIN LA BAULE**  
La plus longue plage d'Europe, sur la Planète bleue



Surfin La Baule - Olivier Chupin



# Pachyderme de l'île



Pachyderme de l'île - Yves Jazeron



6587

PACIFIC OCEAN

6614

Mid-Pacific Mountains

Mariana Trench

6583

6261

6049

6941

Ocean Basemap

GEBCO

NOAA

CHS

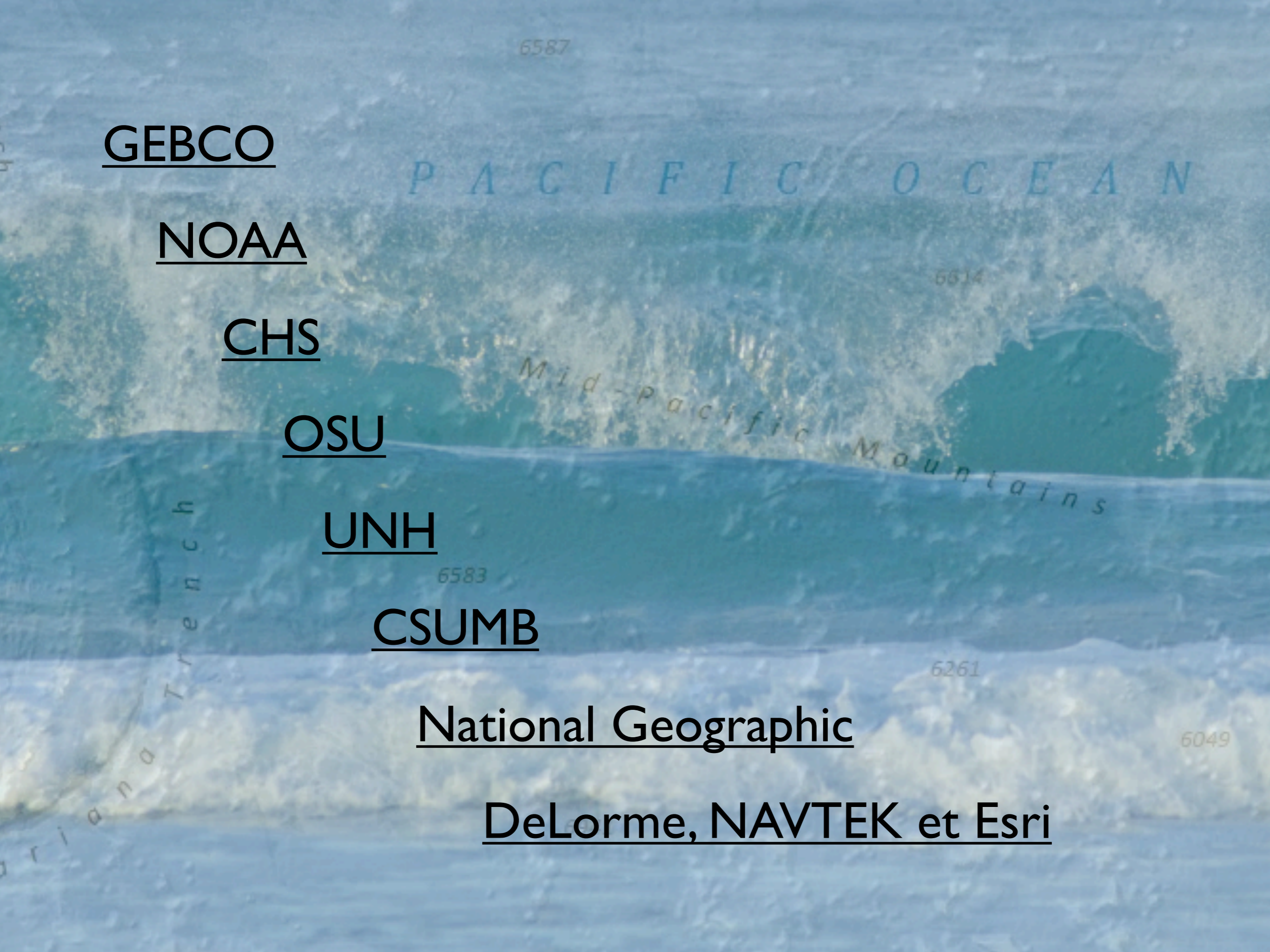
OSU

UNH

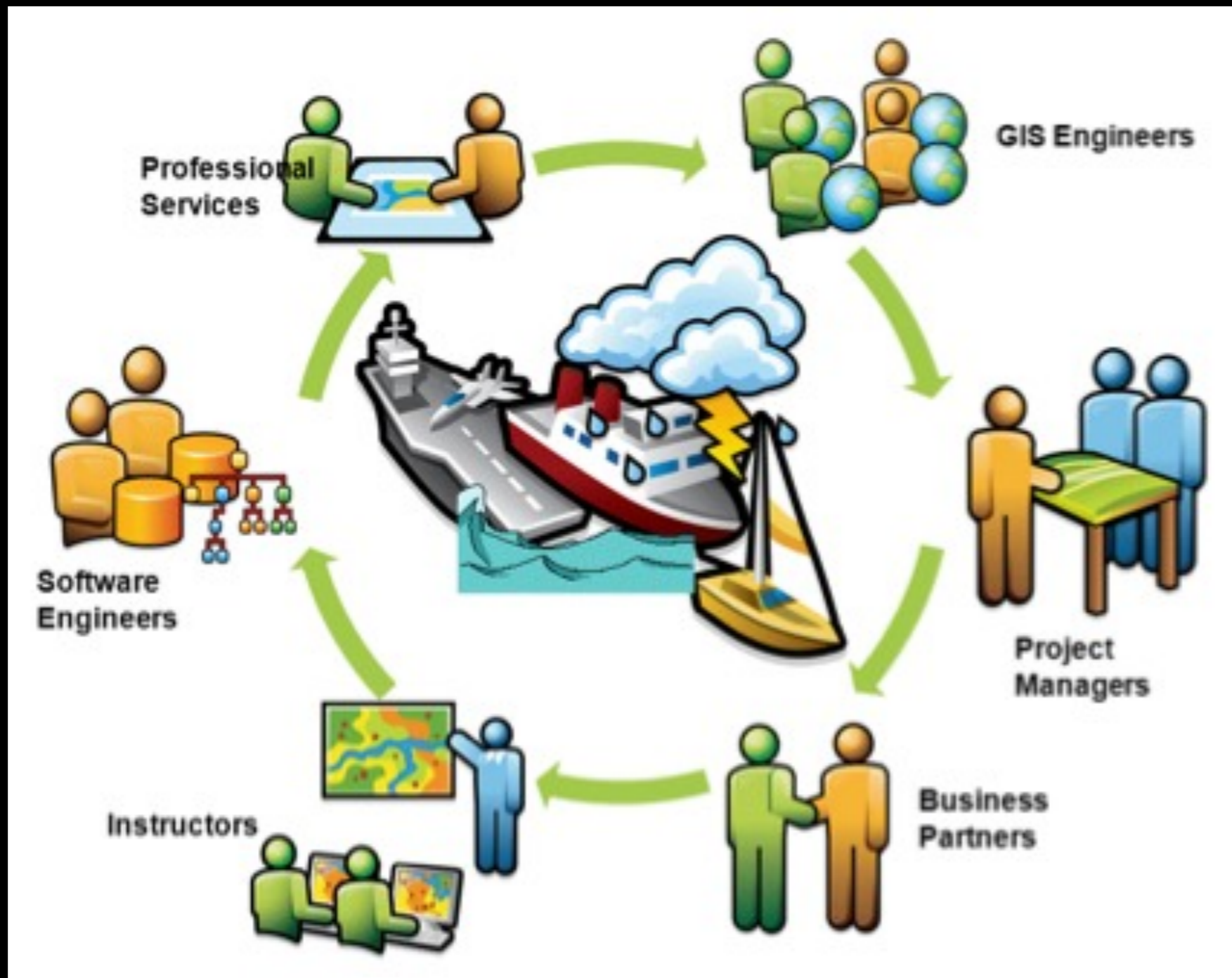
CSUMB

National Geographic

DeLorme, NAVTEK et Esri



# ESRI « ocean GIS team »



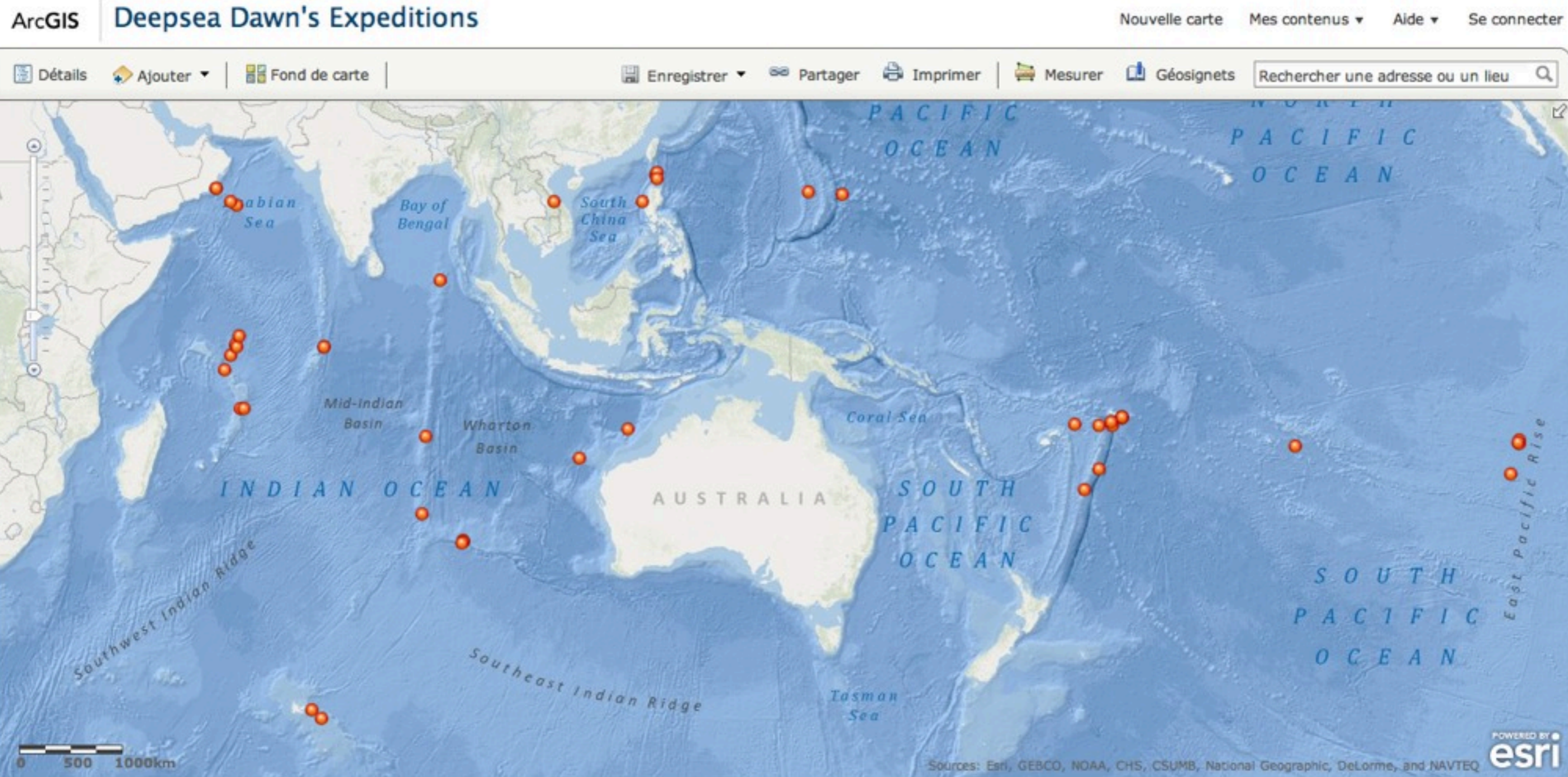
# ESRI « ocean GIS team »



Dawn J. Wright

Océanographe & géographe

# ESRI « ocean GIS team »



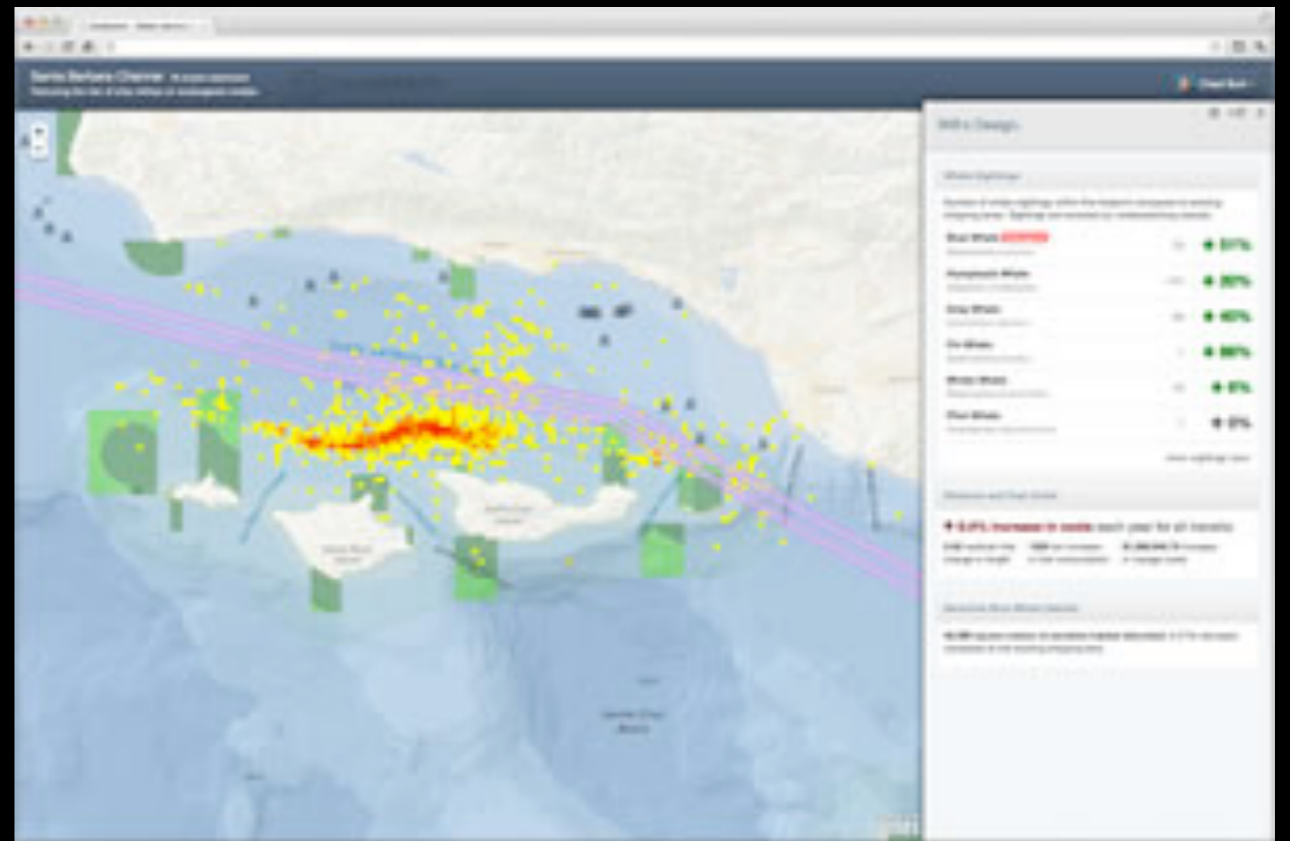
Vidéo

Les projets



Collaborative Geodesign

Will McClintock, Ph.D.



University of California, Santa Barbara (UCSB)





**OCEAN  
HEALTH  
INDEX**



## An Index Organized by 10 Public Goals

Evaluated globally and by country, these 10 public goals represent the wide range of benefits that a healthy ocean provides to people. Each country's overall score is the average of its 10 goal scores. Overall scores and individual goal scores are directly comparable between all countries. All scores range from 0 to 100.

### THE GLOBAL OCEAN HEALTH INDEX SCORE IS THE AREA-WEIGHTED AVERAGE OF ALL COUNTRY SCORES

Each goal score reflects the current status and its likely near-future (~5 year) trajectory. Future trajectory incorporates the trend in status for the most recent ~5 years, the pressures that negatively impact ocean condition and the resilience factors that may improve it.

Higher scores indicate more successful and sustainable achievement of goals. Scores reveal what is working and what needs attention, information that can guide decisions that can improve conditions for ocean life and wellbeing for people everywhere.

Food Provision

24

Artisanal Fishing Opportunities

87

Natural Products

40

Carbon Storage

75

Coastal Protection

73

Coastal Livelihoods & Economies

75

Tourism & Recreation

10

Sense of Place

55

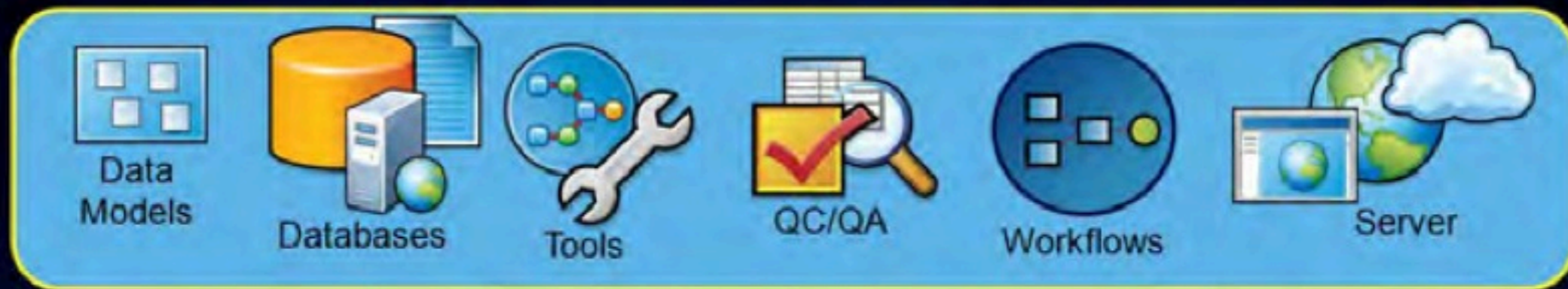
Clean Waters

78

Biodiversity

83

# ArcGIS for Maritime



# ArcGIS for Maritime

ArcGIS for Maritime is a comprehensive geospatial platform for chart production and nautical and bathymetric data management.

ArcGIS for Maritime includes workflows for nautical chart viewing and converting among International Hydrographic Organization data transfer standards; quality control/quality assurance; for management of bathymetric data (load into a Bathymetric Information System [BIS]; interact with grids, collections, and metadata; create surfaces, features, and queries; share in various modes); and for integration with data models such as Arc Marine, various map services such as the Ocean Basemap, and new tools as they are developed by the community.

# ArcGIS for Ocean Use Planning



Find and use geographic content and services for U.S. coastal and marine spatial planning communities and activities.

*"The ocean dominates the surface of the Earth and greatly affects our daily lives. It regulates Earth's climate, plays a critical role in the hydrologic cycle, sustains a large portion of Earth's biodiversity, supplies food and mineral resources, constitutes an important medium of national defense, provides an inexpensive means of transportation, is the final destination of many waste products, is a major location of human recreation, and inspires our aesthetic nature. However it also carries with it the threat of deadly tsunamis and hurricanes, industrial accidents, and outbreaks of waterborne pathogens." from: Critical Infrastructure for Ocean Research and Societal Needs in 2030*

## Introduction to Coastal and Marine Spatial Planning

"Coastal and Marine Spatial Planning (CMSP) is a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas. In practical terms, CMSP provides a public policy process for society to better determine how these areas are sustainably used and protected – now and for future generations.

CMSP is one of the nine priority objectives described in the Final Recommendations. The CMSP framework for the United States provides a definition of CMSP, identifies the reasons for engaging in CMSP, and describes its geographic scope. It articulates national CMSP objectives and describes how CMSP and CMS Plans are regional in scope and developed cooperatively among Federal, State, tribal, local authorities, and regional governance structures, with substantial stakeholder and public input. CMSP is intended to yield substantial economic, ecological, and social benefits."

-- source <http://www.whitehouse.gov/administration/eop/oceans/cmsp>

# ArcGIS for Ocean Use Planning

**Choose Task**

Filter Lease Blocks

Make Report and Perform Analysis

Depth And Distance	Boundaries and Dumping Grounds	Wind Speed
Min/Max Depth (in feet):	0ft 25ft 50ft 75ft 100ft 125ft 150ft 175ft 200ft 225ft 250ft	
Min/Max Nautical Miles from shore:	0M 5M 10M 15M 20M 25M 30M 35M 40M 45M 50M	
Min Nautical Miles from shipping lanes:	0.25 0.5 0.75 1 2 3 4 5 6	

Update Values

Clear Values

**Other Data Of Interest**

Habitat Areas of Particular Concern [Show](#)

Critical Habitat Areas [Show](#)

Marine Protected Areas [Show](#)

**OCS Block Profile**

OCS Block: NJ18-05\_6328

Min Depth: -82 feet Max Depth: -112 feet

In Military Op Warn Area: Yes

DoD Assessment: In area with site specific regulations

Max Avg Wind Speed: 8.63

Dumping Ground: N/A

Sediment: sand

In WEA: Yes

In HAPC: No

In Critical Habitat: No

**OCS Selection Blocks Detail** [Hide](#)

**Depth and Distance Info**

- Between 0 and 100 meters deep.
- Between 5 and 15 nautical miles from shore.
- At least 1 nautical miles from any shipping.

**Boundary Info**

- Not in Restricted DoD Assessment Area. [Show](#)
- May or may not be in Military Special Restriction Area. [Hide](#)
- May or may not be in Military Op or Warn Area. [Show](#)
- May or may not be in Wind Energy Area. [Hide](#)

**Dumping Grounds**

- Are not in Ordinance Dump. [Show](#)
- May or may not be in Chemical Dump. [Show](#)
- May or may not be in Vessel Dump. [Show](#)
- May or may not be in Spoil Ground. [Show](#)

**Wind and Geology**

- At least 3 m/s average wind speed at 90m hub ht. [Show](#)

# Benthic Terrain Modeler (BTM)

The Benthic Terrain Modeler (BTM) provides a set of geoprocessing tools to analyze benthic terrain for the purposes of classifying surficial seafloor characteristics that may be in studies of benthic habitat, geomorphology, prediction of benthic fish species distribution, marine protected area design, and more.

Esri has placed resources toward collaborating with NOAA CSC on porting the original code from Visual Basic to Python for deployment in ArcGIS 10.x as a toolbox. In addition, certain functions in the tools will be available as separate web-based geoprocessing services.”



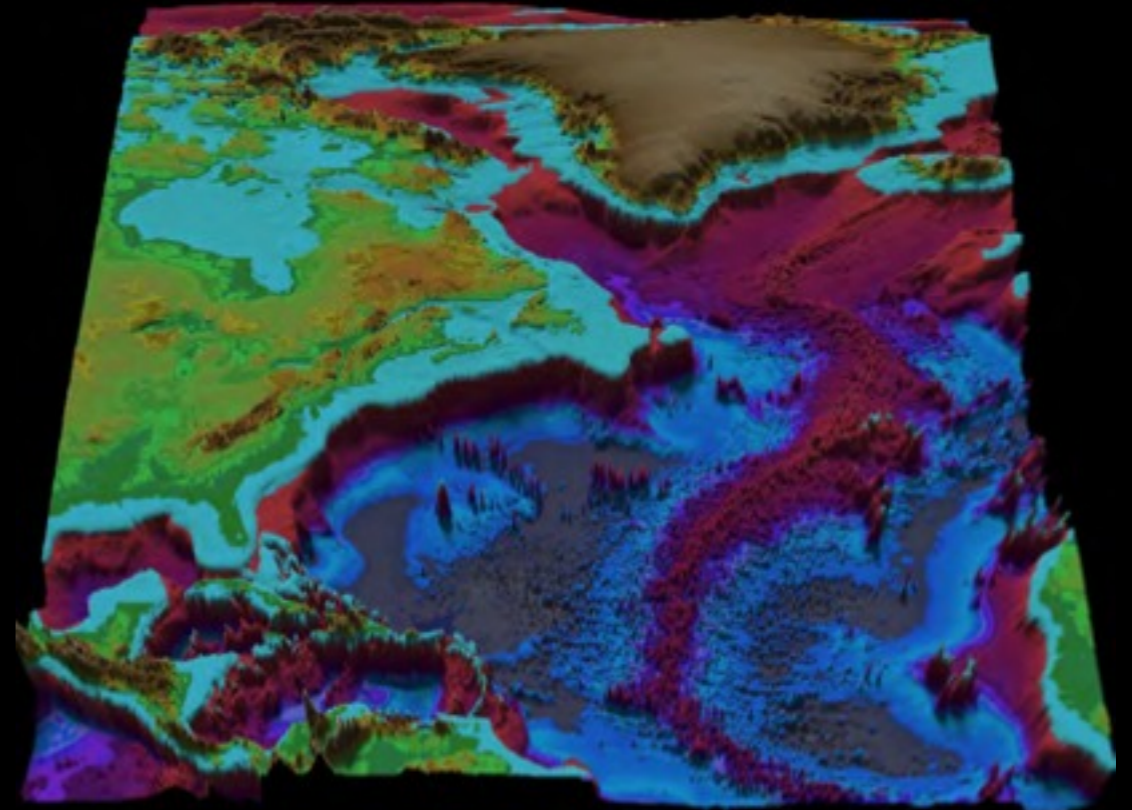
Les partenaires

# Quality Positioning Services (QPS)

QPS is a highly specialized company well-known in the hydrographic, petroleum, and oceanography communities for its domain knowledge and excellent software.

QPS recently acquired Esri partner IVS 3D, maker of the Fledermaus scientific visualization system, and is consolidating product lines.

Esri and QPS are now working together to integrate Fledermaus tools into the geoprocessing framework of the ArcGIS for Maritime solution for 10.1.



Fledermaus 3D visualization of the North Atlantic Ocean.



# Autres partenaires



Center for Coastal and Ocean Mapping  
Joint Hydrographic Center



Danish Ministry of the Environment  
National Survey and Cadastre



WEST COAST GOVERNORS  
ALLIANCE on OCEAN HEALTH  
CALIFORNIA OREGON WASHINGTON



RESTORE  
AMERICA'S  
ESTUARIES



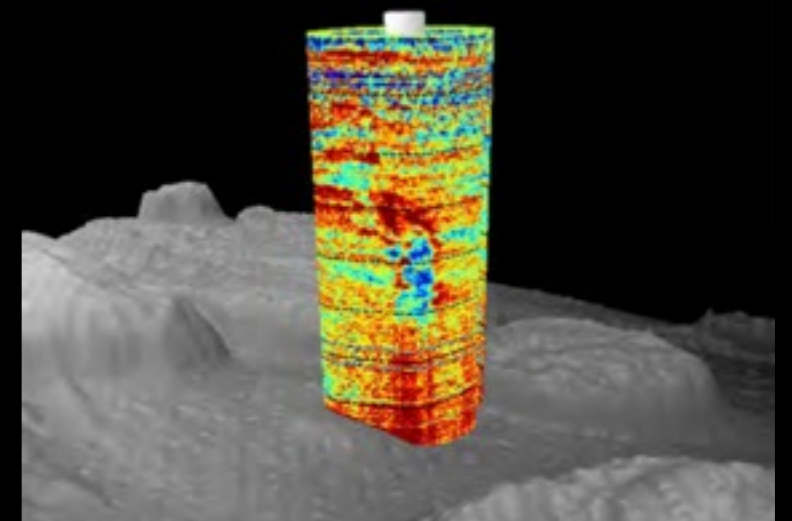
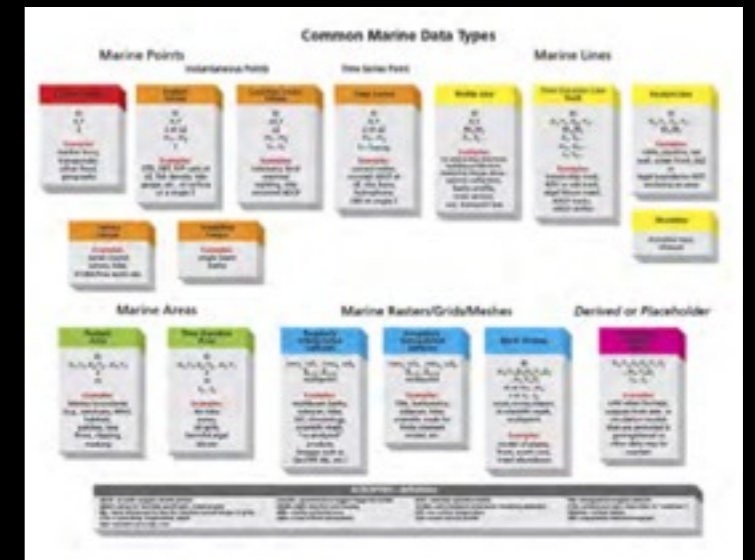
The International Business Alliance  
for Corporate Ocean Responsibility



# Les objectifs stratégiques

# Objectifs stratégiques

- Grow the Ocean Basemap
- Build a More Integrated Elevation Service
- Provide Intelligent Bathymetry in the Cloud
- Grow Ocean Use Planning Tools
- Expand the ArcGIS for Oceans Resource Center
- Convene an Oceans Summit
- Update and Support the Arc Marine Data Model
- Develop Vertical, Time-Dependent Data Transformations
- Improve Support for Multidimensional Data and Analyses (netCDF-4, HDF, ...)
- Support Ocean Numerical Models (ROMS, netCDF Markup Language, ...)



Merci

