Integrated Ocean and Coastal Mapping and the Need for Standards Development

“Map Once, Use Many Times”

Environmental Response Data Collection Standards Workshop
UNH/NOAA Coastal Response Research Center
25 September 2007

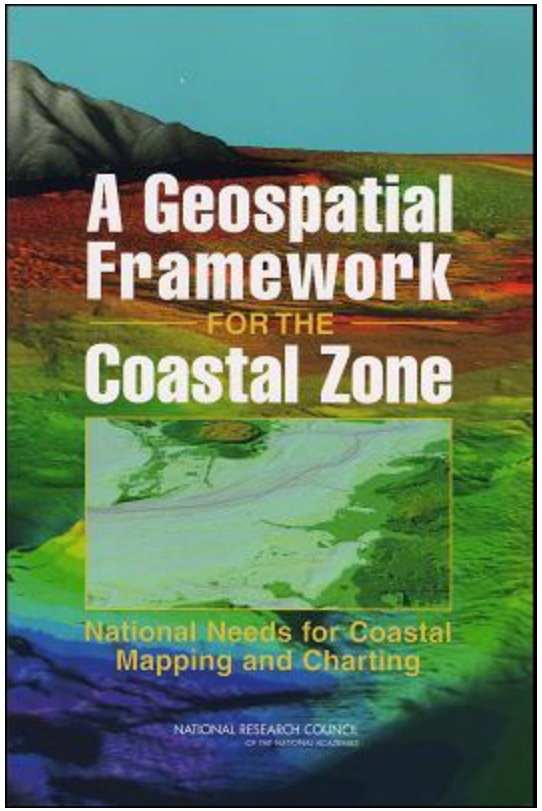
Ocean and Coastal Mapping

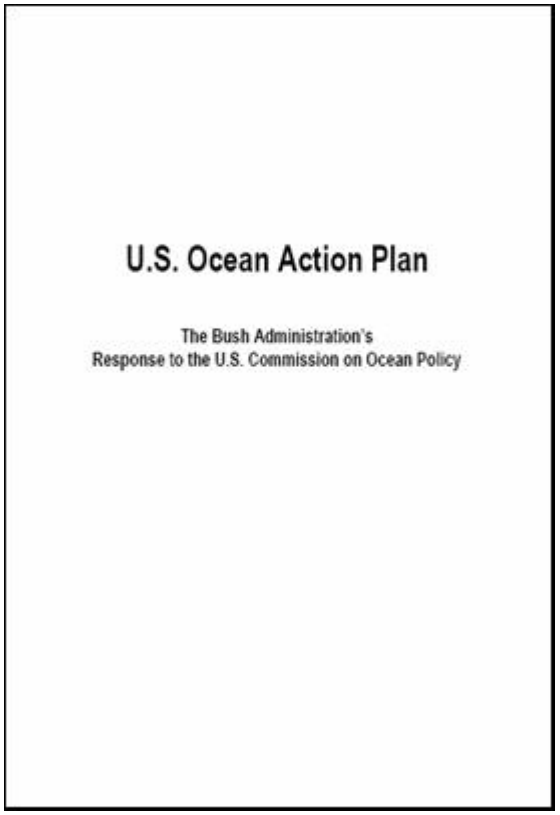
*The **acquisition** of physical, biological, geological, chemical, and archaeological characteristics and boundaries of ocean and coastal areas, resources, and sea beds through the use of acoustics, satellites, aerial photogrammetry, light and imaging, direct sampling, and other mapping technologies; the **management** and **dissemination** of these data; and the **development** of mapping tools and products.*

National Research Council Study (2004)

U.S. Ocean Action Plan (2005)

"Coordinate Ocean and Coastal Mapping Activities"





National Research Council Study (2004)

Common Needs

- *Consistent spatial framework for coastal data that allows a seamless transition from onshore to offshore*

- *Increased collection and availability of data including shallow-water bathymetry, seafloor imagery, bottom type, habitat distribution and classification standards, land cover, etc.*

- *Easy access to up-to-date digital, geospatial data, imagery and mapping products*

- *Compatibility among data formats - or standards and transformation protocols that allow easy data exchange - and a means to evaluate data accuracy*

- *Increased inter- and intra-agency communication, cooperation and coordination*

U.S. Ocean Action Plan

- *Develop an annual inventory of Federal, Federally-funded, and non-Federal governmental ocean and coastal mapping programs and operations*
- *Assess and report on common and shared needs for development of coordinated programs*
- *Coordinate and leverage resources and efforts across the federal sector with industry, academic, NGO, and non-Federal government entities*
- *Set priorities for standards development and developing strategies for promulgation of standards for data acquisition, data, metadata, tools and products*
- *Develop shared and standardized mechanisms for processing, archiving, and distributing geospatial data, tolls, products and services*

IOCM Legislation

H.R. 2400 (Ocean and Coastal Mapping Integration Act)

Title III (Ocean and Coastal Mapping Integration) of S. 39 (National Ocean Exploration Program Act)

- *Codifies recommendations of NRC assessment and OAP*
- *"Develop a Federal ocean and coastal mapping plan for the Great Lakes, and coastal state waters, the territorial sea, the EEZ, and the continental shelf……."*
- *"develop data standards and protocols consistent with standards developed by FGDC for use by Federal, coastal state, and other entities in mapping……."*

JSOST Interagency Working Group on Ocean and Coastal Mapping

- *Co-chaired by NOAA, USGS, USACE and MMS*
- *Facilitate*
  - *coordination of Federal/Federally-supported OCM activities*
  - *coordination and leverage of resources across the Federal sector and with State, industry, academic and NGOs*
  - *development and maintenance of inventory of Federal/Federally-supported and non-Federal government OCM programs, operations and prioritized needs*
  - *prioritization for standards development and strategies for promulgation of standards for data acquisition, metadata, tools and products*
  - *assessment of R&D needs for more effective development, delivery, and application of geospatial tools, products and services*

JSOST IWC-OCM Technical Workshop

Develop a comprehensive ocean and coastal mapping data and activities inventory

Ocean and Coastal Mapping Inventory will offer a clearinghouse for data and interpretive information, and a registry of completed and projected mapping activities via a single web portal

Inventory will reduce duplication of mapping efforts and facilitate cooperative mapping activities and data accessibility

Reached consensus to use Geospatial One-Stop as the tool to build the OCM inventory

Why Standards and Protocols?

Standards facilitate the development, sharing and use of geospatial data

- *data collection standards/protocols*
- *metadata content standards*
- *positioning accuracy standards*
- *data content standards*
- *classification standards*
- *etc.*

Coastal and Marine Ecological Classification Standard: Path to Consistency

History of Classification: Why Do We Care?

The who, what, why, where, and how of CMECS

- NOAA, Ecological Society of America, USGS, NatureServe
- Consistent standard
- Common terminology; status and trends
- National, regional, and local application

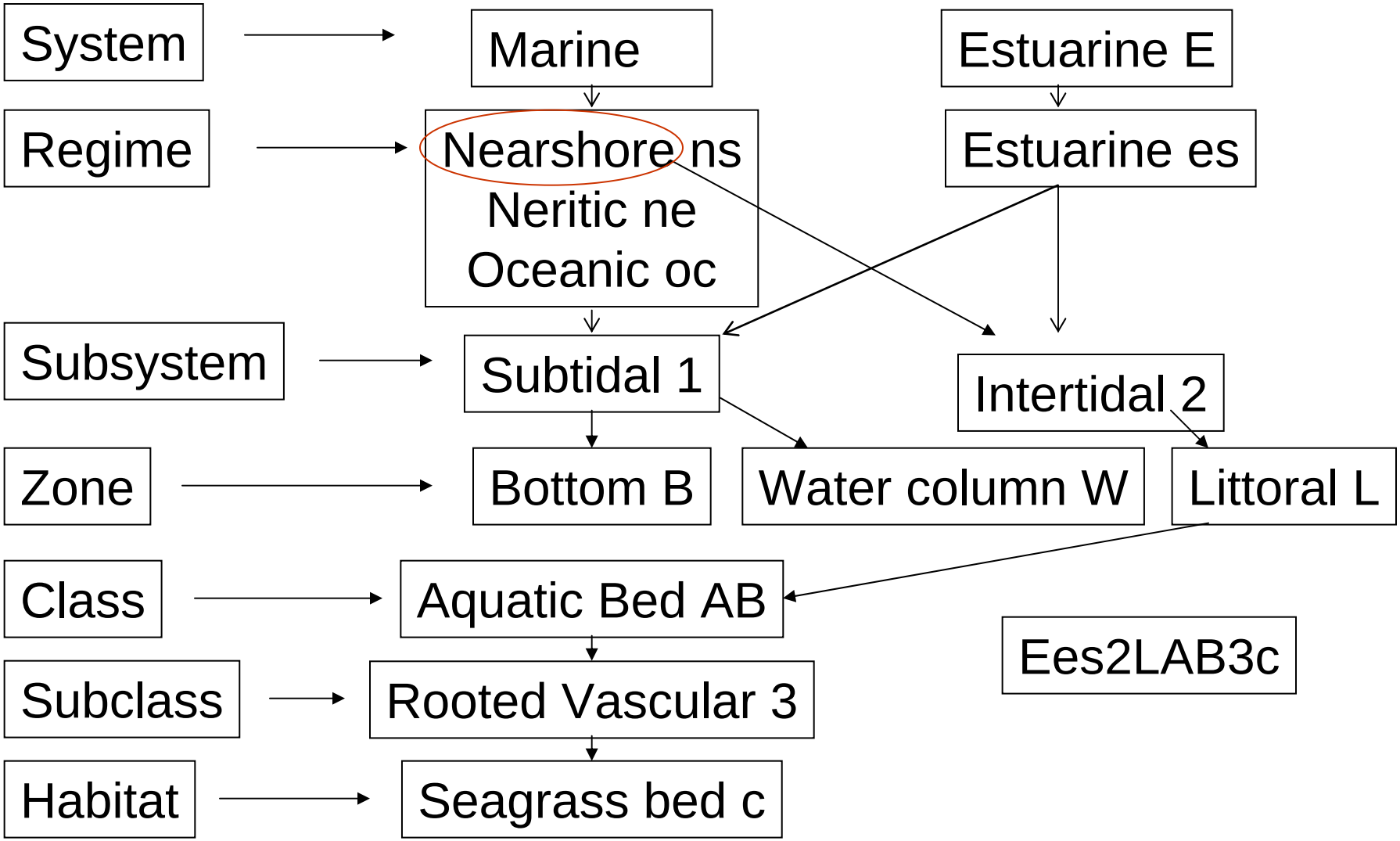
What's already out there?

- Classification of wetlands and deepwater habitats of the United States (Cowardin et al. 1979)
- Local classification systems (Dethier 1990,1992; Greene et al. 1999; Holthus and Maragos 1995; Wieland 1993)

Benefits of CMECS

- Marine Conservation — defines what needs to be considered
- Provides description of physical habitat and associated biology
- Establishes ecological boundaries
- Basis for census of habitat types
- Aids with developing system of protected areas that includes representatives of all habitat types

Coastal and Marine Ecological Classification Standard Hierarchical Structure Draft Version III



Next Steps

- **CMECS Version III Guidance document**
- **Develop mapping guidance document**
- **Pilot applications**
  - Gulf of Mexico seagrass, sediments
- **On-line catalog of CMECS habitat units**
- **Glossary**