

“Marine Ecoregional Planning”

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Mr. Odell introduced the idea of marine ecoregional planning and defined it as:

- Assessments that integrate diverse data on habitats, species, marine resource use to provide baselines for ecosystem-based management approaches
- Identification of sites that best represent diversity of species and habitats within an ecoregional planning area -- the “portfolio”
- Information to assist in development of strategies to abate threats
- The next generation of marine ecoregional assessments will include analyses of connectivity, meta-population and food web dynamics, and better characterization of habitat-species relationships.

- Steps:
 - o Identify conservation targets -- habitats and species
 - o Set conservation goals for each target (number, extent, spatial distribution)
 - o Assess viability: condition and threats
 - o Portfolio: site section
 - o Select priority areas for conservation based on ecological importance and biodiversity representation.

- Methods:
 - o Establish expert teams (species, habitats, peer review)
 - o Identify targets – the habitats and species to focus on for effective conservation of the whole system
 - o Map those locations and evaluate viability – how likely are they to persist over time given current condition and threats
 - o Establish ecological representation goals – minimum goals for conservation and restoration
 - o Identify, map, analyze threats/positive factors – human uses that impact marine ecosystems and enabling conditions for conservation

- Target selection:
 - o Course (habitat types, e.g. seagrass, salt marsh, rocky subtidal, etc.)
 - o Species assemblages (e.g. anadromous fishes)
 - o Fine (threatened and endangered, species unlikely to be effectively conserved through habitat protection alone)

- Compilation and analysis of spatial data:
 - o This is the most labor intensive step and includes collection and integration of diverse data that characterizes the ecoregion, including data layers for bathymetry, substrate, currents and other oceanographic conditions, diverse, habitats, species, and human uses.
 - o A marine ecoregional assessment currently underway for the NW Atlantic (east U.S. coast) is utilizing comprehensive benthic survey data to characterize marine habitats

- Benthic conservation targets:
 - o Marine ecoregional assessments have largely relied on geophysical “surrogates” for biodiversity – constructed habitat classes assumed to support diverse species.
 - o Conservation goals were then set based on mostly untested assumptions
 - o The NW Atlantic Assessment is characterizing benthic habitats using principal components and classification and regression analysis of detailed species and habitat data.
 - o Proof of concept pilot study for this method indicates potential to improve regional scale marine conservation by providing a robust marine habitat classification system that explicitly links species level data with specific habitat types.
 - o Next steps include using marine habitat classification to produce context specific maps showing sensitivity to various human impacts.

- Human use mapping – such as fishing, shipping, energy production, etc:
 - o Multiple uses and multiple management objectives – challenging and necessary precursor to ecosystem based management approaches
 - o GIS overlays of human uses and sensitive areas can help inform marine area management plans and strategies to balance ecological and economic objectives.

Other Remarks:

- TNC has worked with partners to produce and update marine assessments around the U.S and around the world
- The NW Atlantic Marine Ecoregional Assessment covers Cape Hatteras to the Bay of Fundy and is scheduled to be completed in early 2009.
- The Nature Conservancy defines a successful marine ecoregional assessment as:
 - o Objective and transparent, created with diverse partners
 - o A helpful decision support system for locating appropriate areas for energy infrastructure, aquaculture, dredging, and other human uses
 - o A biodiversity blueprint to inform ecosystem based management approaches
 - o Baseline information to support regional ocean governance initiatives