Options For The Oceans
Scientific Insights for Decision Makers

Analyzing Options: New Tools to Assist Planning

Coastal and ocean environments provide a number of important benefits to people. However, a growing variety and intensity of human activities (such as energy production, fishing, coastal development, transportation) threaten the sustained delivery of these ecosystem services. The Marine Initiative of the Natural Capital Project uses the framework of ecosystem services to inform ecosystem-based management of marine and coastal waters. We have developed a tool, Marine InVEST (Integrated Valuation of Ecosystem Services and Trade-offs), which can explore alternative management scenarios. Marine InVest can be used over multiple scales and spanning diverse habitats, policy questions, and stakeholders. Already, the tool is being used effectively on the West Coast of Vancouver Island, Canada. In collaboration with West Coast Aquatic, a public-private partnership with participation from many levels of government and other stakeholders, we are using Marine InVEST to help inform a coastal and marine spatial plan that balances the interests of a diverse suite of stakeholders. With funding from NSF and NOAA, we are beginning work with Marine InVEST in the Chesapeake Bay, Galveston Bay, and Puget Sound. We are excited to work with other federal, state, and tribal agencies in the United States to explore Marine InVEST's utility in the implementation of the National Ocean Policy.

THE TOOLKIT

Marine InVEST uses spatially explicit models to show how various sectors—from aquaculture to energy—are affected by how humans interact with the marine environment.

We know intuitively that ecosystem services have value, but we often take them for granted until they are compromised (e.g. living habitats as buffers for storm waves). InVEST can be used to map and value ecosystem services such as protection from coastal hazards.

Marine InVEST meets this need by providing:

- Biophysical outputs (e.g., reduction in height of storm waves by living habitats).
- Ecosystem service outputs (e.g., reduction in flooding of property).
- Economic or social outputs (e.g., avoided costs from flooding, number of people affected).

MORE INFORMATION

InVEST 2.0 is a freely available software program that helps decision-makers value ecosystem services and assess the potential impacts of decisions. It can be used to inform marine spatial planning, ecosystem-based management, payment for ecosystem service schemes and more.

Resources:

Natural Capital Project
- http://www.naturalcapitalproject.org

InVEST
- http://invest.ecoinformatics.org

Group on Earth Observations
- http://www.earthobservations.org/geobon.shtml

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