



DHI MARKET AREA: ENVIRONMENT AND ECOSYSTEMS

ECOSYSTEM-BASED MANAGEMENT

Saving wetlands and coral reefs for the benefit of local communities

Ecosystem-based management is a strategy for the integrated management of land, water and living resources in a holistic approach. An ecosystem approach addresses many relationships across biological, spatial and organisational scales. Globally driven, such an approach promotes conservation and sustainable resource use. It combines environmental knowledge and coordination with governing agencies to initiate, sustain and enforce habitat/species protection and include public education and involvement. Moreover, ecosystem-based management involves community influence as well as planning and management from local, regional and national government bodies and management agencies.

- THE CHALLENGES**
- Contending with extensive habitat destruction caused by human activities
 - Dealing with ecosystem loss, depletion of valuable natural resources and the multiple services that they often provide to local communities
 - Enhancing knowledge of ecosystem components and functions
 - Increasing knowledge base of cumulative impacts of multiple sector interventions
 - Setting up meaningful and appropriate management units with the ability to respond to threats
 - Increasing inter-agency collaboration and making existing data (normally dispersed among authorities) more cohesive

OUR APPROACH At DHI, we adopt a holistic approach towards managing natural resources and development projects. We address various interacting variables affecting ecosystems, including biological, physical and chemical factors as well as spatial and organisational challenges. We strive to attain a balance via adaptive management in order to deal with constant environmental changes.

OUR SOLUTIONS Our holistic and adaptive approach calls for allowing flexibility and inclusiveness. This helps to deal with constant environmental, societal and political change. We use dynamic modelling tools to describe the physical and natural environment, species inter-linkages and connectivity within and beyond the system. With model scenarios, we offer advice on conservation, restoration and mitigation measures. Moreover, we help bridge science and policy through communication between managers, resource users, scientists, government bodies and other stakeholders. In addition, we offer extensive access to graphics, figures, resource maps and diagrams for a fact-based dialogue.

THE ULTIMATE GOAL SUSTAINABLE DEVELOPMENT WITH ECOSYSTEM-BASED MANAGEMENT

Less than 16% of the earth's surface and less than 1% of the marine environment are categorised and managed as protected areas

International Union for Conservation of Nature (IUCN)

OUR TOOLS AND SERVICES

At DHI, we have extensive experience in building competence and promoting technological development in all areas related to water environments. In the context of ecosystem-based management, our tools and services include:

- numerical modelling with our MIKE Powered by DHI software:
 - Catchment management models for wetlands (MIKE HYDRO Basin)
 - Ocean 3D current models (MIKE 3)
 - Biological modelling tools (MIKE ECO Lab)
- agent-based modelling to secure survival and distribution of species during critical stages of their life cycle
- combination of habitat and species predictability models with field surveys and calibration for reality checks
- remote sensing techniques (DHI GRAS)
- Decision Support Systems (DSS) for management information and real-time data
- capacity building and training by THE ACADEMY by DHI
- support for the implementation of EU's Water Framework Directive, Marine Strategy Framework Directive, Habitats Directive, Natura 2000, the Ramsar Convention as well as the Convention for Biological Diversity
- establishment of baselines, indicators, setting thresholds and establishing threats and risks
- preparation and conduction of extensive environmental monitoring programmes focused on maintaining environmental services
- support to local authorities in the implementation of ecosystem-based management, complying with national and international regulations

Contact us: info@dhigroup.com
For more information, visit: www.dhigroup.com