

Ecosystem-Based Management Decision Support System General Information Note



EBM - Decision Support System (DSS)

What is ecosystem-based management (EBM)?

"Ecosystem-based management (EBM) regards marine and coastal ecosystems as units with many ecological and social links. These connections can be numerous and complex, with disruptions to any part of an ecosystem - such as changes to habitats or fluctuations in the population of a species - having many knock-on effects."

What is a decision support system (DSS)?

A decision support system (DSS) is an interactive computer-based application to collect, organise, analyse and present data to facilitate quality decision-making for management, operations and planning. A well-designed DSS aids decision makers in compiling and analysing a variety of data from many sources (e.g. raw data, documents, expert knowledge) and thus promote better decisions, provided the data used are pertinent, accurate and up-to-date.

(UNEP 2011; Fanning et al. (2011) also online has guidance for marine EBM concerning all sections)

Application of EBM

The practical application of EBM still remains a challenging task given the complexities of ecosystems of interest. Utilising easy-to-apply operational methodologies can simplify EBM applications for decision makers and stakeholders involved.

EBM can become even easier to implement through the use of specifically-developed decision support systems that are available as software packages.

This guidance note outlines the characteristics of DSSs, why they are useful in applying EBM, and suggests existing software packages that can be used by decision makers.

Characteristics of a DSS

1. **Facilitation:** a DSS facilitates and supports specific decision-making activities and/or decision processes.
2. **Interaction:** DSSs are computer-based systems designed for interactive use by decision makers.
3. **Ancillary:** a DSS can **SUPPORT** decision makers at any level, (they are **NOT** intended to replace decision makers).
4. **Repeated Use:** DSSs are intended for repeated use and may be used routinely or used as needed for ad hoc decision support tasks.
5. **Task-oriented:** a DSS can provide specific capabilities that support one or more tasks related to decision-making, including: intelligence and data analysis; identification and design of alternatives; choice among alternatives; and decision implementation.
6. **Flexibility:** features are flexible and can be altered according to needs.

Why use a DSS?

Decision support systems increase the effectiveness of the decision making process by:

- improving the accuracy, timeliness and quality of a specific decision or a set of related decisions;
- providing a single platform that allows all users to access the same information;
- allowing users to access data from different sources concurrently; and,
- improving interpersonal communication, promoting learning and increasing decision maker satisfaction.

Ecosystem-Based Management - Decision Support System (EBM-DSS)

Integrated Spatial Planning (ISP) 5.0 software

The use of DSS software can be integrated into EBM applications. PROGES, an Italian-based consulting firm, has developed an innovative approach for implementing EBM applications using the Integrated Spatial Planning (ISP) 5.0 DSS software. The approach identifies and quantitatively assesses the relationships between ecosystem components, functions and services, along with the associated human activities, toward the establishment of a multi-stakeholder EBM scheme. The approach, referred to as the EBM protocol, is based on a set of guiding methodological steps (applied sequentially) which facilitates the application of EBM in a simplified way. These steps guide decision makers through a straight-forward steered path by providing analytical methods and tools that support the implementation of EBM.

STEP 1 - Preliminary phase: thematic scoping and stakeholders analysis

STEP 2 - Ecosystem Context Analysis: recognising connections within and across ecological and human systems spanning over the focused area

STEP 3 - Development of indexes and indicators for the quantitative assessment of EBM social, economic and ecological dynamics

STEP 4 - Data gathering and construction of tabular and GIS databases

STEP 5 - System Cause-Effect-Analysis: assessment of ecological risks and socio-economic stresses and identification of management interventions

Read more here: <http://bit.ly/PROGESISP>

INTEGRATED SPATIAL PLANNING (ISP) 5.0 DSS SOFTWARE.

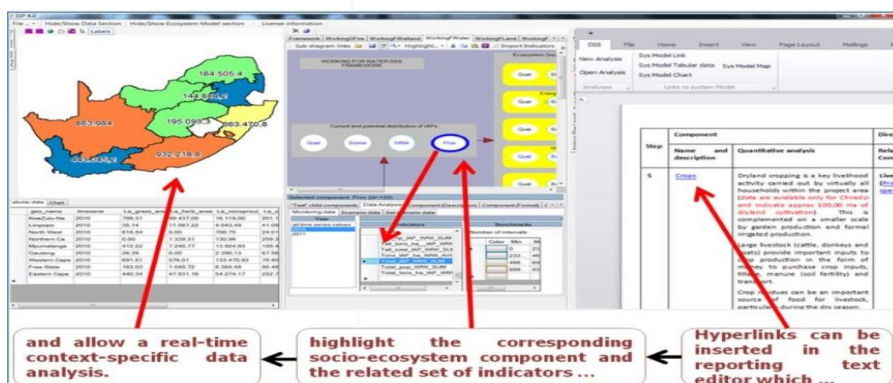
ISP 5.0 is a desktop-based application designed for use by non-technical and non-scientific persons, such as administrators and institutional decision-makers.

The software consists of a user interface which is made up of several components:

1. geospatial data (e.g. shapefiles)
2. system diagrams (box and arrow)
3. data and indicators (multi-scale and cross-sector analyses)
4. visual assessment tool (using images)
5. report generation tool (Word with text editor)



The Integrated Spatial Planning software: main data analysis functionalities



WHY USE ISP 5.0?

The software is tailor made for any typology of ecological and non-ecological management needs.

It systemically integrates and facilitates a bottom-up participatory planning process.

ISP allows for greater participation through the effective mobilization of local stakeholders. It also facilitates the development of a vision and a set of clearly stated and shared objectives.

It integrates institutional, socio-economic and environmental aspects of spatial planning within a unique and consistent framework. The software can be customized by non-professional users to address whatever planning and management task related to the ecosystem of interest.

Most importantly, it simplifies the practical application of EBM, especially when utilising the EBM protocol developed by PROGES.

For more guidance on using ISP 5.0
visit <http://bit.ly/ISP5.0>

Note: This information note specifically promotes PROGES ISP 5.0 within the context of the international funding for this project. Information on several alternative DSS options is readily available from online and other sources.

Caribbean experience with other DSS

CARIBBEAN PROTECTED AREAS GATEWAY

GEOGRAPHIC SCOPE

ACP Countries (15 countries)

PURPOSE

To improve access to and availability of information on biodiversity, governance and socioeconomic issues to improve decisions for protected area management. "Linking Data to Better Decisions"

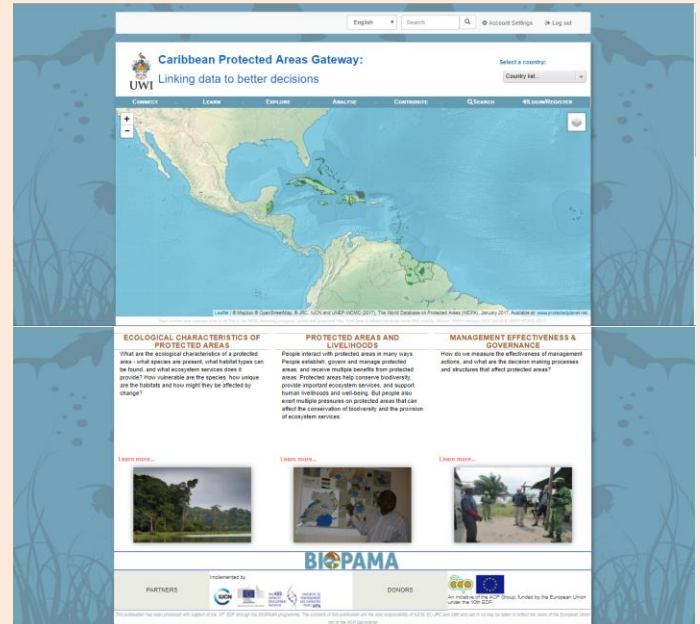
DATA

- Ecological
- Geospatial
- Socio-economic
- Climate
- Governance

COMPONENTS

1. Regional Reference Information System (RRIS)
2. GeoNode (layers, maps & documents)
3. Tools (e.g. MPA analysis tool)
4. Trainings (capacity & awareness building)

For more information visit: <http://caribbean-rris.biopama.org/>



CaribNode

GEOGRAPHIC SCOPE

Eastern Caribbean (9 countries)

PURPOSE

To support improved decision making for marine protected areas (MPAs)

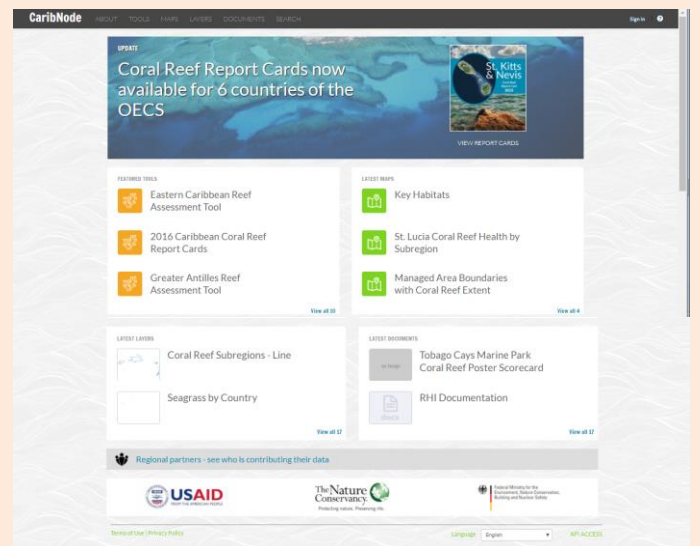
DATA

- Ecological
- Geospatial
- Socio-economic
- Climate

COMPONENTS

1. GeoNode (layers, maps & documents)
2. Tools (e.g. coral reef assessment tool)

For more information visit: <http://www.caribnode.org/>



Project on Biodiversity for Sustainable Development in the Caribbean through Ecosystem-Based Management

EBM-DSS INFORMATION NOTE

Caribbean experience with other DSS (cont'd)

CARIBBEAN MARINE ATLAS (CMA2)

GEOGRAPHIC SCOPE

CLME+ Countries (12 countries)

PURPOSE

To support improved decision making in Integrated Coastal Zone Management (ICZM) as well as for monitoring and evaluation of the CLME+ region.

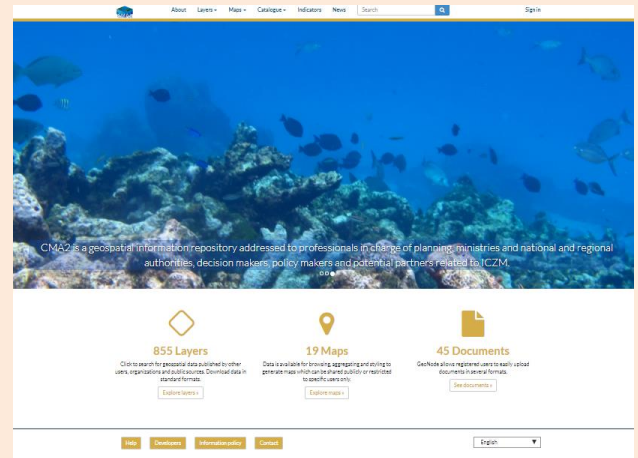
DATA

- Ecological
- Geospatial
- Socio-economic
- Climate
- Governance

COMPONENTS

1. GeoNode (layers, maps & documents)
2. Indicator Tools (e.g. coral health indicator)
3. Trainings (capacity & awareness building)

For more information visit: www.caribbeanmarineatlas.net



Marxan

GEOGRAPHIC SCOPE

Global

PURPOSE

To help decision makers find good solutions to conservation planning problems.

DATA

No data repository

COMPONENTS

1. Suite of tools (including software)

For more information visit: <http://marxan.org/>

