The CLME Information Management System (IMS) and Regional Environmental Monitoring Programme (REMP).

Brief Report on IMS baseline Information Sources and on the Outcomes of the Evaluation of Regional Capacity and Training Needs & Modalities for IMS use (incl. analysis of potential CLME IMS users)

DELIVERABLES D. 3.2 and D.3.3

The "Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions" is a GEF funded Project. Its main objective is the Sustainable management of the shared Living Marine Resources of the Caribbean LME and adjacent areas through an integrated management approach that will meet the WSSD target for sustainable fisheries.

This document was prepared by Mr. Paul Geerders, Project leader of the IMS/REMP and provides IMS baseline Information Sources and on the Outcomes of the Evaluation of Regional Capacity and Training Needs & Modalities for IMS use including feedback from participating experts and users from regional organizations attending the IMS/REMP Promotion and Awareness Workshop held in January 2013 in Playa del Carmen, Mexico.

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IMS AND POTENTIAL USERS

The IMS/REMP Promotion and Awareness Workshop held in January 2013 in Playa del Carmen, Mexico, was an opportunity to interact with technical advisors to decision-makers, senior administrators in the participating countries and users from regional organisations, all being potential users of the IMS. During the workshop they were given a detailed insight in the IMS concept and contents, and they received a hands-on instruction on how to use the IMS. In addition their feedback was obtained on the system, its functionality, its contents and its performance. It is expected that they will continue to use the IMS to support their daily work; so far no specific needs have come forward concerning capacity and training.

In addition to the above mentioned categories, and from personal communications it can be concluded that the IMS already forms a welcome information source for researchers working at the various academic institutions of the region, as well as for NGO's active in the region.

In terms of training, the IMS users will find a User Manual at their disposal on the IMS site itself, both in English and in Spanish, and in various easy to handle formats including PDF. This is the first and direct level of user training. In addition, the project leader IMS/REMP and the technical managers are available to support users by e-mail or Skype, as a second level of user training. Based on the assessment during the Promotion and Awareness Workshop, it was decided that no further specific user training is required to work with the IMS, more than being able to work with a computer and an Internet browser.

IMS BASELINE INFORMATION SOURCES

The beta version of IMS/REMP (http://clmeims.gcfi.org/), operational since October 2012, was developed to cater for a broad range of information. To date IMS covers about 300 potential sources of data and information and includes references to about 400 publications.

The currently included themes were chosen to correspond to the Terms of Reference, are based upon suggestions from the user community, including the CLME stakeholders, and moreover take into account the requirements of the SAP Strategies. Special care was take to include references to information on the issues defined by the 3 x 3 (4) matrix and the 5 LME modules, and the GEF/LME indicators. The current broad panorama of themes serves to demonstrate the system's functionality and flexibility:

Biodiversity Organisations	GRAMED Assessments
CRFM Fisheries Publications	Economic Valuation Bibliography (English and Spanish)
Data Sources	Spiny Lobster Management
Monitoring Programs	Indicators (3 x 3(4) matrix)
Fora and other groupings	Ocean Data (IOC)
SAP Implementation	Ocean Expert (IOC)
Sources of Traditional Information	Ocean Docs (IOC)
Regional Agreements	

The advanced search engine of IMS allows for complex text searches, including with Boolean logic, either through the full contents of the IMS or focused only within specific themes or on specific issues, such as the 3 x 3 (4) matrix or the SAP Implementation. While IMS primarily presents the results of searches in a text and table form, it also offers the possibility to present the search results in a graphical, map-based manner (the IMS GIS project). Of course this implies that the providers of the metadata have included the required location information in their metadata contributions.

One major issue for an effective IMS is language. Careful consideration was given to this aspect during the IMS design and development phase. The current beta version of the IMS includes an English and a Spanish user interface, and user manuals for IMS are available in various formats including PDF, and both languages on the IMS main page. An online translator facility is being considered for implementation a later stage.

The metadata approach was chosen noting the current sensitivities in the region with respect to free and open access to data and information. Therefore, the IMS provides the users in the region with a dedicated directory with references (links) to the multitude of sources of data and information. In the contacts with potential users, including stakeholder organizations, the latter was emphasized as a very important and useful role for the IMS.

The identification of various monitoring programmes in the region, and the inclusion of their metadata in the IMS, allows to identify potential sources of data and information that could serve to generate Ecosystem Status Indicators (ESI) describing the actual status (baseline) and track the trends of the CLME ecosystems and environment (status, stress reduction and process indicators) in a cost effective and technically feasible way.

However, from the metadata in the IMS it can be concluded that the monitoring programmes in the region do not meet the essential criteria of updatedness, continuity and regional harmonization, required for a valid baseline for the SAP implementation and for governance in the region. Therefore, in order to be able to establish the required regional baseline, additional efforts will be required for regional harmonization and for ensuring the quality and continuity of these monitoring programmes. In the context of these efforts, IODE and ODINCARSA can play an important role based upon their longstanding experience in the field of marine data and information management.

MODALITIES FOR IMS USE

In order to fully profit from the contents of the IMS, it is important to understand the internal structure of the system. As mentioned earlier, the IMS is grouped around a number of themes. For some themes, due to their special character, several subthemes were defined. Each theme (or subtheme) refers to a table (rows and columns) of which the records contain the metadata description (mdd) of a source of data of information pertaining to the corresponding (sub)theme. Besides descriptive text, the metadata description contains a link to a site in Internet (URL). Schematically, this looks as follows:
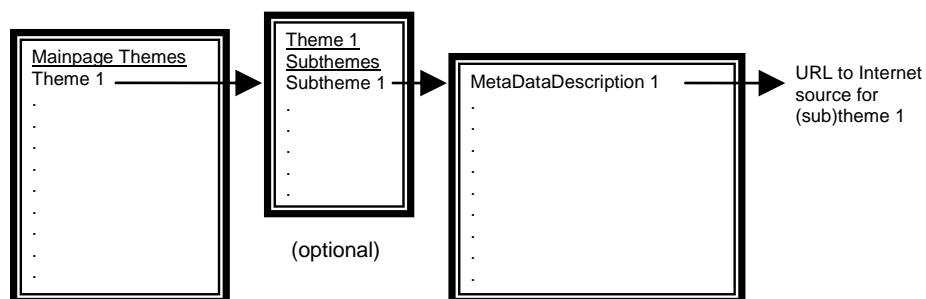
The user can search either through all tables with metadata descriptions, or only through the table related to a specific theme (or subtheme).

IMS/REMP UNDERPINNING THE POLICY CYCLE
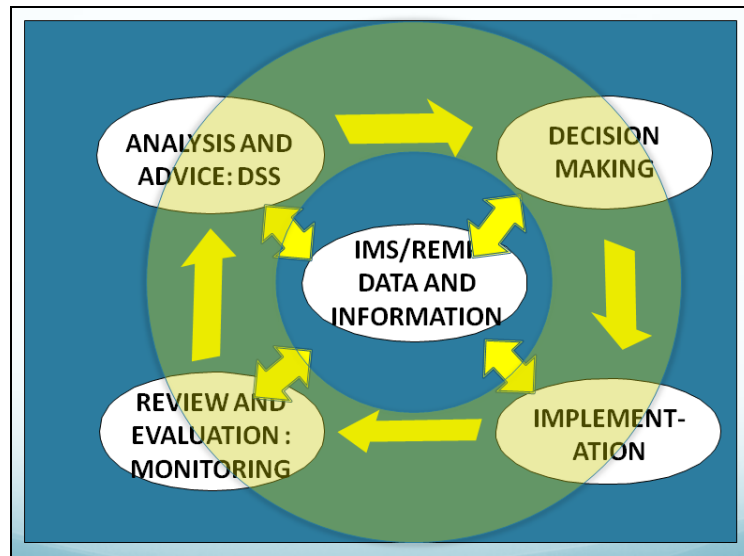
As indicated in the above diagram, CLME's data and information mechanism IMS/REMP actively supports and closely interacts with the different phases of the decision making process: the policy cycle. In each of the phases, IMS/REMP serves to identify references to data and information sources relevant for that specific phase. Additionally, the IMS/REMP can be 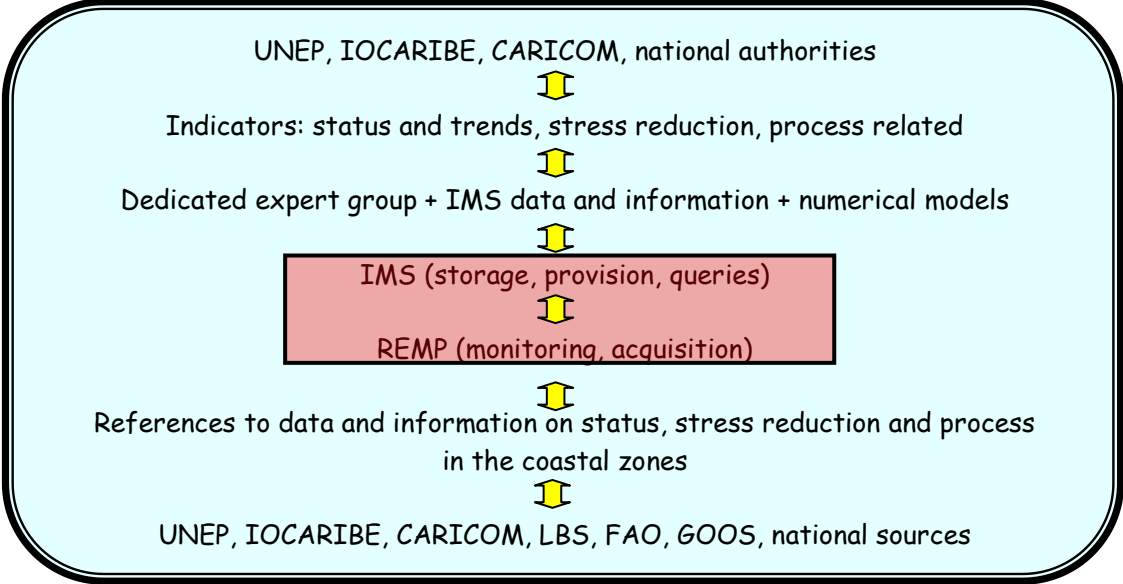used to store information on the proceedings and results of each phase of the process, as a reference for the future. This is a learning capability of the system allowing for an adaptive management approach, improving the quality of the decision-making process over time.

While developing and implementing the IMS/REMP, three pilot projects were carried out as prototype demonstrations of how this mechanism works: for Integrated Coastal Area Management, for Economic Valuation, and for the Management of the Spiny Lobster Resource. The results of each of these pilot projects are available through the IMS.

As an example for the case of the Spiny Lobster Pilot Project: in the decision phase, information on the present stock of the resource and the impacts of previous measures is localized through the IMS. Then a decision is taken, e.g. on a renewed ban on catches, which is then transmitted to the participating countries for implementation. In this phase the countries can consult the IMS e.g. on the availability of appropriate promotional material, and on recommended supporting actions. Subsequently the implementation is verified and monitored, and references to the process and the results are included in the IMS. Meanwhile also the stocks of the resource are monitored and references to this information are included in the IMS as well. Then in the Analysis and Advice phase, all available information on the actions undertaken and their impacts is consulted and on this basis new advice is provided to the decision makers, thus closing the cycle.

For the case of Integrated Coastal Area Management Pilot Project, the following diagram is an alternative way to present the various steps of the process:

UNEP, IOCARIBE, CARICOM, national authorities

Indicators: status and trends, stress reduction, process related

Dedicated expert group + IMS data and information + numerical models

IMS (storage, provision, queries)

REMP (monitoring, acquisition)

References to data and information on status, stress reduction and process in the coastal zones

UNEP, IOCARIBE, CARICOM, LBS, FAO, GOOS, national sources

For the case of the pilot on Economic Valuation, the diagram below shows the various steps of the data and information process in an economic valuation project.

UNEP, IOCARIBE, CARICOM, FAO, national authorities

Economic Valuation estimate

Dedicated expert group + IMS data and information + economic valuation methodologies

IMS (storage, provision, queries)

REMP (monitoring, acquisition)

References to data and information on the resource + socio-economic information

UNEP, IOCARIBE, CARICOM, LBS, FAO, CERMES, national sources
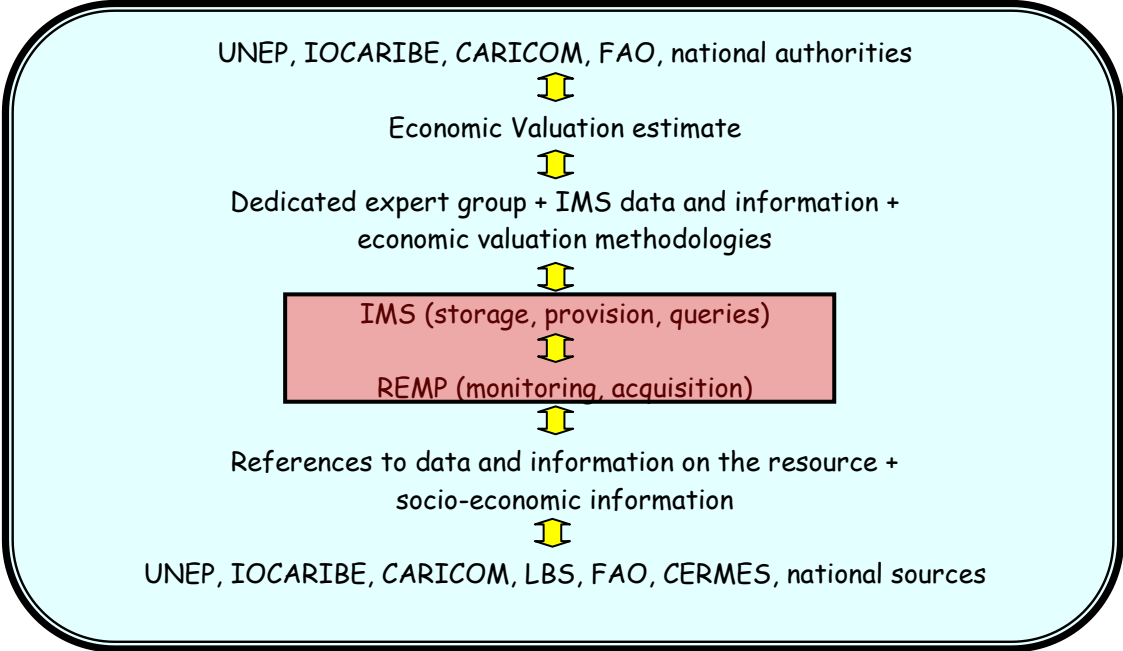
IMS/REMP UNDERPINNING THE SAP STRATEGIES

The following diagrams show how IMS/REMP supports policy cycle implementation under each one of the proposed SAP Strategies. The diagrams show the institutions and organisations with key roles in the different components of the SAP implementation (i.e. advisory bodies, decision-making bodies, data and information providers, etc.). Reference is made to the different types of indicators: process, stress reduction and environmental and socio-economic status indicators. It should be noted that in many cases, national sources need to contribute data and information to the IMS through the REMP, in addition to the regional sources.

SAP Strategy 1: Enhance the regional governance arrangements for the protection of the marine environment.

UNEP-CEP

Indicators: status and trends, stress reduction, process

Dedicated expert group + IMS data and information + numerical models

IMS (storage, provision, queries)

REMP (monitoring, acquisition)

References to data and information on status, stress reduction and process

UNEP-CEP, TNC, FAO, USF, LBS, IOCARIBE, national sources
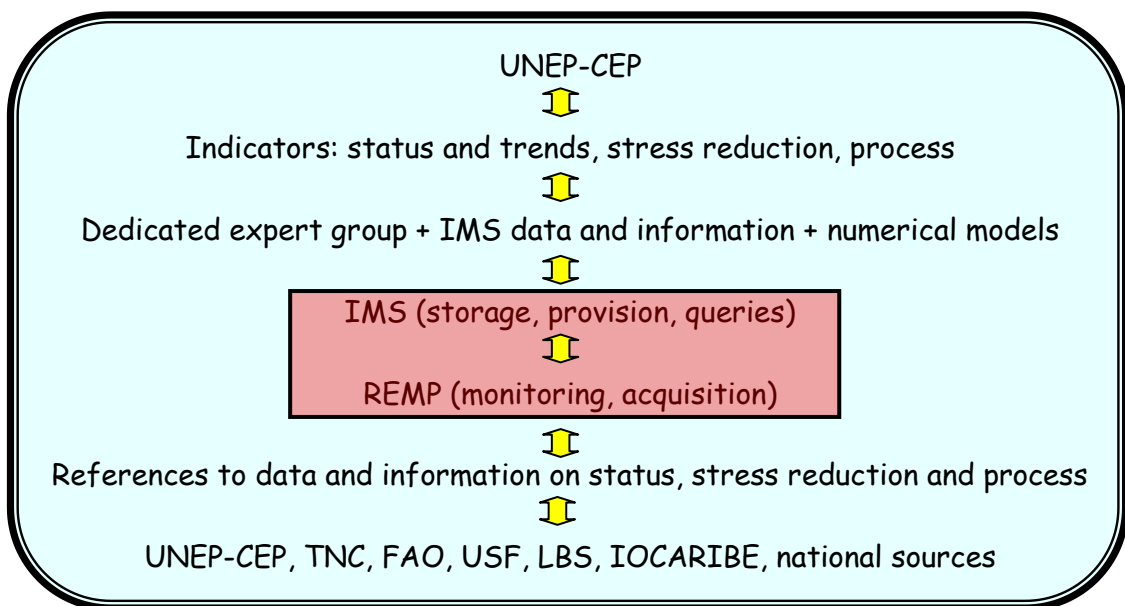
SAP Strategy 2: Enhance the regional governance arrangements for sustainable fisheries

WECAFC, CRFM, OSPESCA, OECS

Indicators: status and trends, stress reduction, process

Dedicated expert group + IMS data and information + numerical models

IMS (storage, provision, queries)

REMP (monitoring, acquisition)

References to data and information on status, stress reduction and process

WECAFC, CRFM, OSPESCA, OECS, FAO, national sources
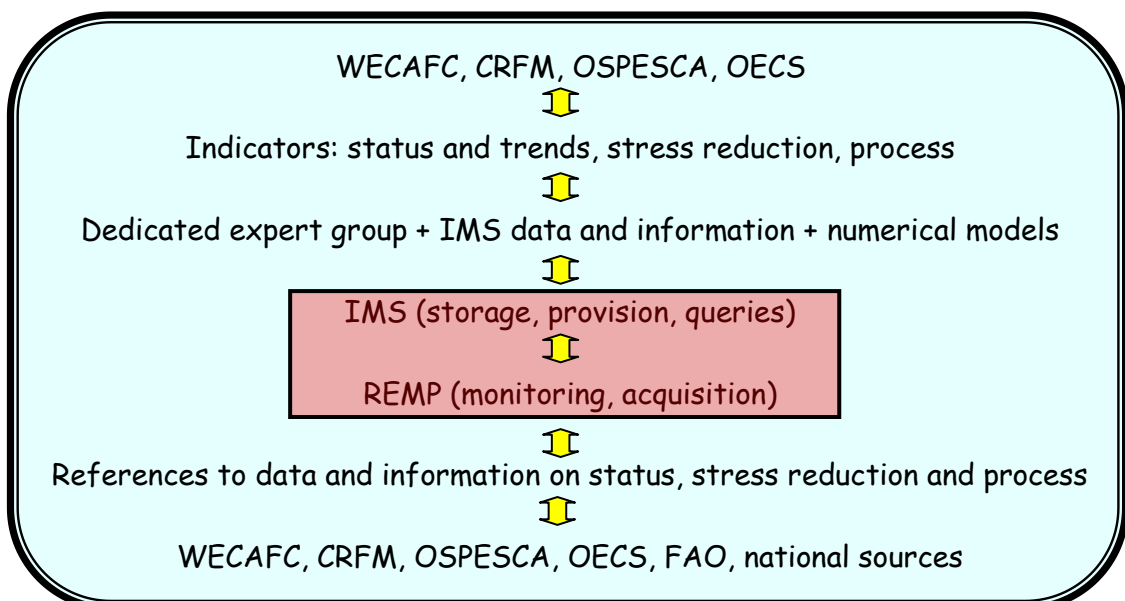
SAP Strategy 3: Establish and operationalise a regional policy coordination mechanism for ocean governance with initial focus on shared living marine resources

CRFM, OSPESCA, FAO

⇕

Indicators: status and trends, stress reduction, process

⇕

Dedicated expert group + IMS data and information + numerical models

⇕

IMS (storage, provision, queries)

⇕

REMP (monitoring, acquisition)

⇕

References to data and information on status, stress reduction and process

⇕

CRFM, OSPESCA, FAO, national sources
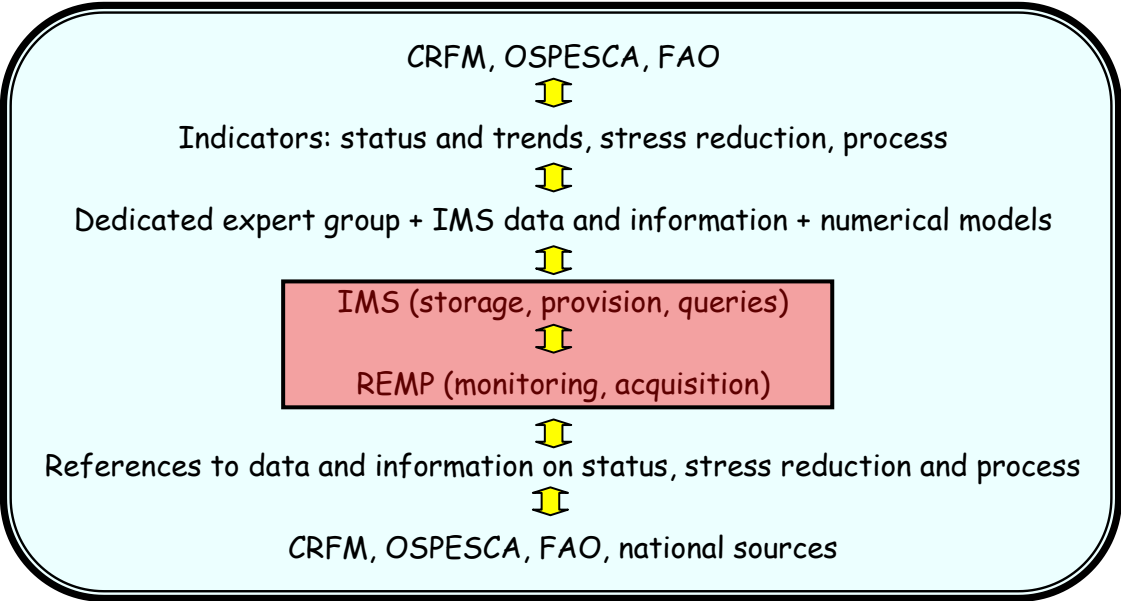
SAP Strategy 4: Enhance the governance arrangements for ecosystem-based management of reefs and associated ecosystems (e.g. seagrass beds, mangroves, reef slopes and coastal lagoons)

UNEP-CEP, WECAFC, OSPESCA, CRFM

⇕

Indicators: status and trends, stress reduction, process

⇕

Dedicated expert group + IMS data and information + numerical models

⇕

IMS (storage, provision, queries)

⇕

REMP (monitoring, acquisition)

⇕

References to data and information on status, stress reduction and process

⇕

TNC, UNEP, OSPESCA, CRFM, USF, FAO, WECAFC, LBS, national sources
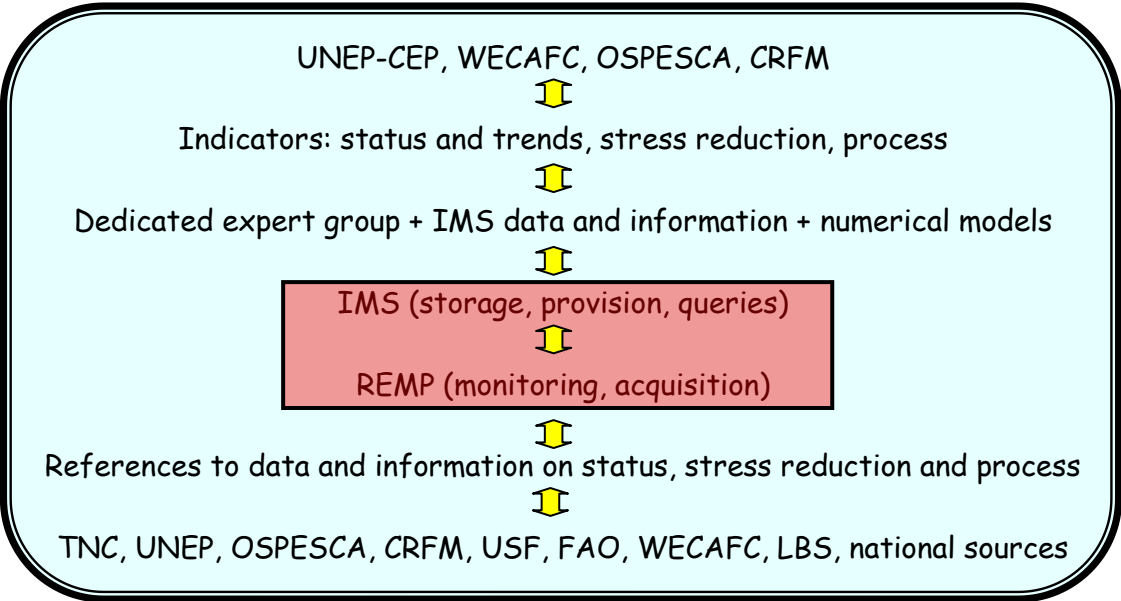
SAP Sub-Strategy 4A: Enhance the governance arrangements for implementing an ecosystems approach for spiny lobster fisheries

WECAFC, UNEP-CEP, OSPESCA, CRFM

Indicators: status and trends, stress reduction, process

Dedicated expert group + IMS data and information + numerical models

IMS (storage, provision, queries)

REMP (monitoring, acquisition)

References to data and information on status, stress reduction and process

WECAFC, UNEP-CEP, OSPESCA, CRFM, TNC, USF, FAO, IOCARIBE, national sources
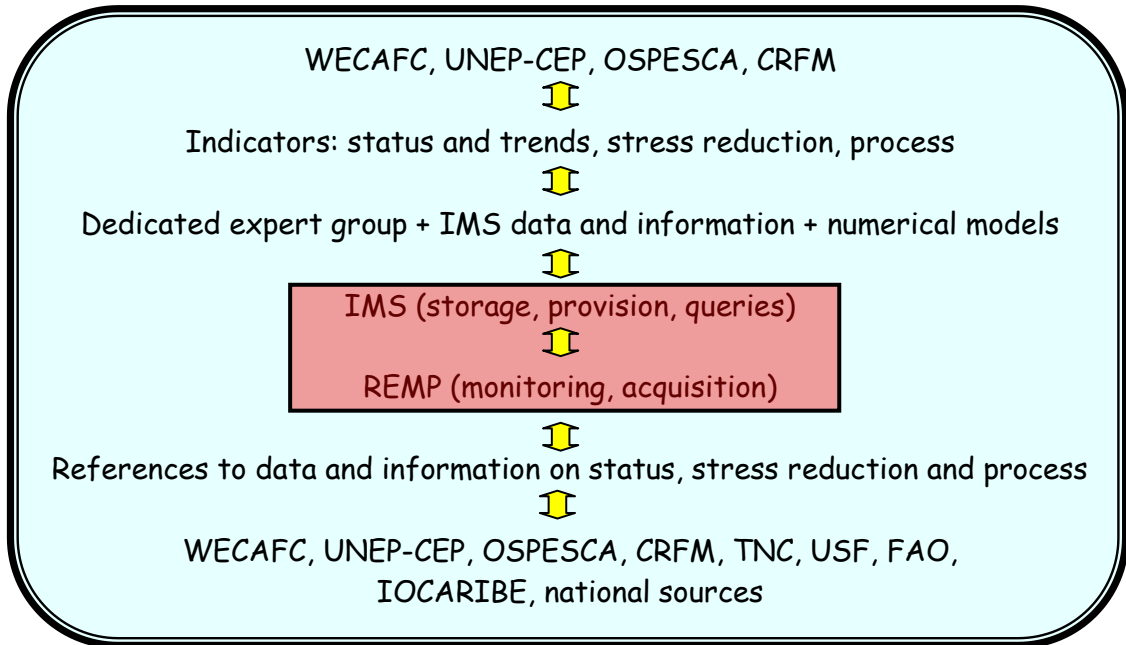
Sub-Strategy 4B: Enhance the governance arrangements for implementing an ecosystem approach for the queen conch fisheries

WECAFC, UNEP-CEP, OSPESCA, CRFM, CFMC, CITES

Indicators: status and trends, stress reduction, process

Dedicated expert group + IMS data and information + numerical models

IMS (storage, provision, queries)

REMP (monitoring, acquisition)

References to data and information on status, stress reduction and process

WECAFC, UNEP-CEP, OSPESCA, CRFM, CFMC, CITES, OBIS, FAO, LBS, TNC, national sources

Strategy 5: "Enhance the governance arrangements for implementing an ecosystem approach for pelagic fisheries

WECAFC, CRFM, OSPESCA

Indicators: status and trends, stress reduction, process

Dedicated expert group + IMS data and information + numerical models

IMS (storage, provision, queries)

REMP (monitoring, acquisition)

References to data and information on status, stress reduction and process

WECAFC, CRFM, OSPESCA, FAO, LBS, TNC, national sources
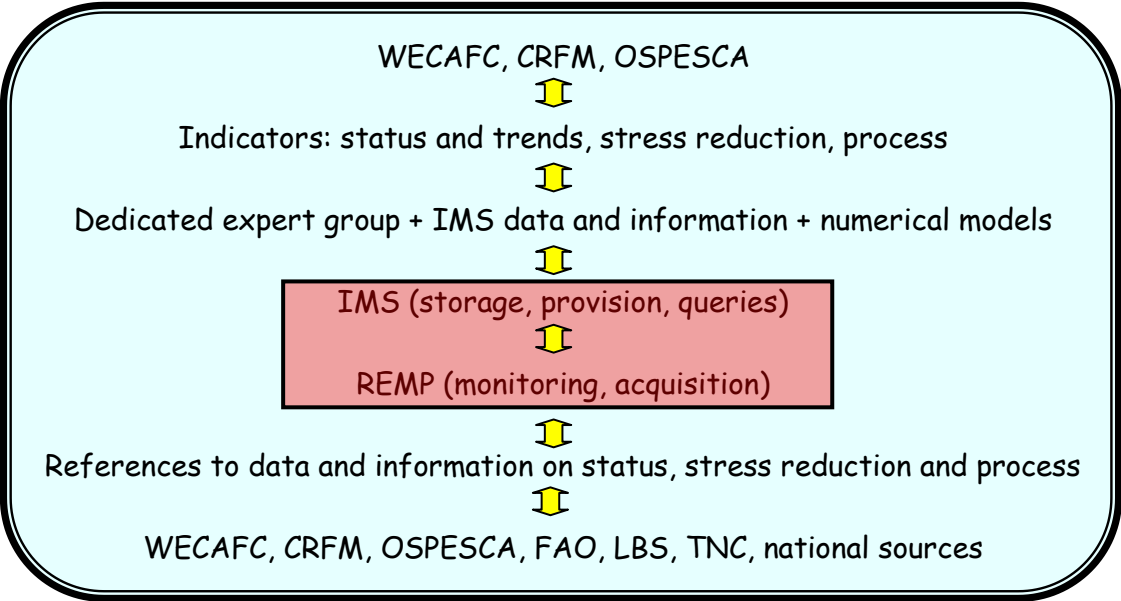
Sub-strategy 5A: Enhance the governance arrangements for implementing an ecosystem approach for flyingfish fisheries

CRFM

Indicators: status and trends, stress reduction, process

Dedicated expert group + IMS data and information + numerical models

IMS (storage, provision, queries)

REMP (monitoring, acquisition)

References to data and information on status, stress reduction and process

CRFM, IOCARIBE, TNC, OBIS, FAO, national sources
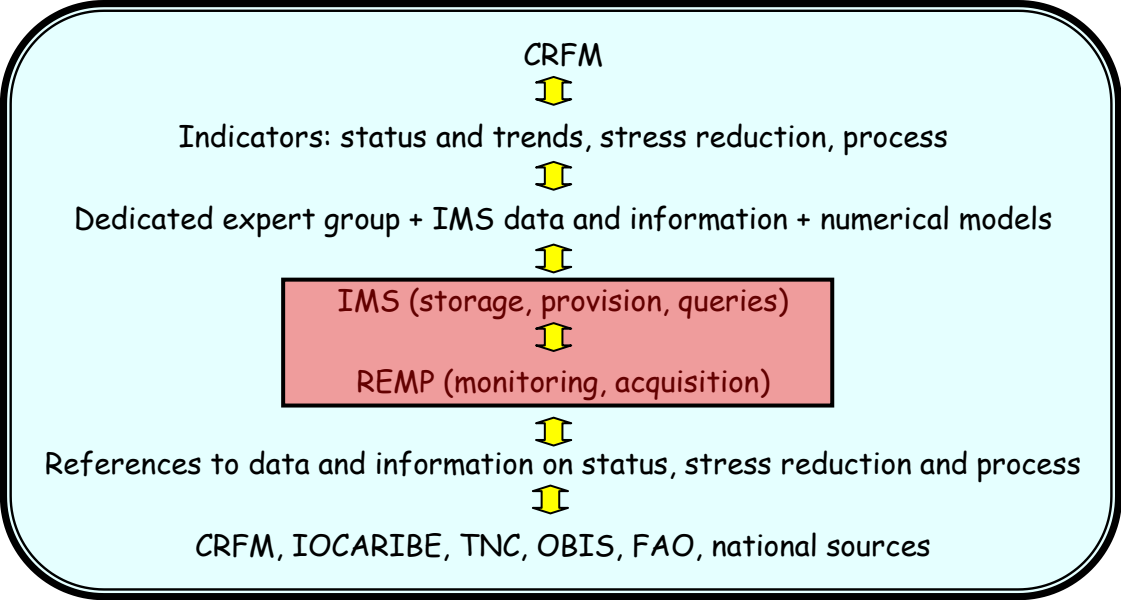
Sub-strategy 5B: Enhance the governance arrangements for implementing an ecosystem approach for large pelagic fisheries

WECAFC, CRFM, OSPESCA
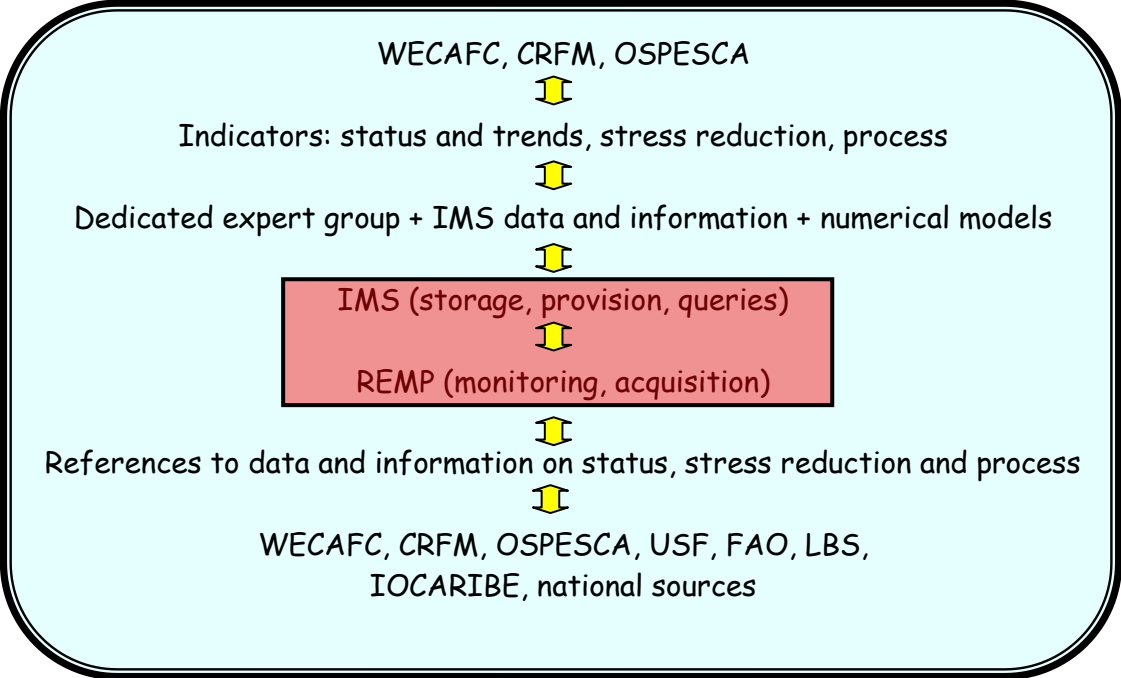
Indicators: status and trends, stress reduction, process

Dedicated expert group + IMS data and information + numerical models

IMS (storage, provision, queries)

REMP (monitoring, acquisition)

References to data and information on status, stress reduction and process

WECAFC, CRFM, OSPESCA, USF, FAO, LBS,
IOCARIBE, national sources

Strategy 6: Establish governance arrangements for implementing ecosystem-based management of the Guianas-Brazil continental shelf

FAO, WECAFC, UNEP-CEP, CRFM

Indicators: status and trends, stress reduction, process

Dedicated expert group + IMS data and information + numerical models

IMS (storage, provision, queries)

REMP (monitoring, acquisition)

References to data and information on status, stress reduction and process

FAO, WECAFC, UNEP-CEP, CRFM, IOCARIBE, USF,
LBS, IOCARIBE, national sources