

## **IABIN – IWCAM BIODIVERSITY INFORMATICS WORKSHOP FOCUSING ON MARINE ISSUES FOR THE CARIBBEAN REGION**

### **Background:**

The Inter American Biodiversity Information Network (IABIN) was established in 1996 to promote technical cooperation and collaboration among countries of the Americas. The Caribbean falls within the hemispheric profile of the Americas and is mandated to support IABIN's aims and objectives. IABIN functions as an information sharing network on biological diversity. It is therefore relevant to decision-making on natural resources management and conservation and education for the promotion of sustainable development in the region.

### **IABIN Goals include:**

- Strengthen technical capacity to exchange biodiversity information and expertise across political, linguistic, and institutional boundaries.
- Provide access to biodiversity information useful to decision-makers to improve biodiversity conservation
- Enhance capacity to store, use, and distribute scientifically sound and update biodiversity information.
- Produce or adapt information products for decision makers (tools for decision-making) so they formulate effective environmental management policies and promote sustainable development in the region.

**Background.** During the 4<sup>th</sup> IABIN council meeting in Panama in 2005, Focal Points from the Greater Caribbean Region met to prioritize biodiversity topics that intersect with IABIN areas of work. The priorities are:

- marine species
- marine protected areas/coral reefs
- ecosystem recovery
- invasive species
- biodiversity and climate change

At the 5<sup>th</sup> IABIN council meeting in Uruguay in May 2007, 13 out of 15 IABIN Caribbean member States (see annex 3) were represented. At a special meeting on the 2<sup>nd</sup> day of the council meeting, a proposal was presented on a joint workshop between IABIN and the Integrated Watershed Coastal Areas Management (IWCAM), a regional initiative that seeks to promote the management of watersheds and coastal areas of the Caribbean.

**Proposed Caribbean Initiative Working Group Activity.** Dionne Newell, IABIN Focal Point for Jamaica and member of the IABIN Executive Committee, agreed to coordinate the proposed Caribbean initiative that has been budgeted at 30k. In May-June 2007, Ms. Newell queried the Caribbean Focal Points and received feedback that they would like to do a targeted activity that furthered database development in the priority areas as indicated in

the previous 2 Council meetings – marine species, coral reefs, and marine protected areas (MPAs).

The methodology is as follows:

1.) During the period June-October, 2007, the data in MPA Global for the Caribbean region was updated by Louisa Woods and Colette Wabnitz (see annex 1) for correctness and completeness that included the list of MPAs as well as basic descriptive data (see annex 2). These updated data were provided to the Government officials for further verification.

COMPLETED

2.) 16 new data fields of interest were added to the existing 19 fields for a total of 36 fields (see annex 2). COMPLETED

3.) During the period May-September 2007, IABIN Focal Points of the Caribbean designated the key Government official charged with marine protected area management for their Country. As marine protected areas are multi-jurisdictional, IABIN Focal Points choose to designate a mixture of government agencies and NGOs. The list of marine park managers was completed in October 2007. COMPLETED

4.) In October, 2007 the country specific databases with the 16 new effectiveness fields were sent out to the MPA managers. The official(s) from each Country were requested to fill in the fields with the objective of working with the other Caribbean Countries on a database that would contribute to an existing database called MPA Global [www.mpaglobal.org](http://www.mpaglobal.org), developed from and coordinated with the World Database on Protected Areas (WDPA), maintained by UNEP-World Conservation Monitoring Centre (see annex 1) and therefore compatible with the IABIN Protected Areas Thematic Network (PATN). IN PROCESS

5.) Once these data have been updated and/or collected by the Country MPA representative and provided back to MPA Global (via email), a workshop would be held where the Countries could share data and information. IN PROCESS

6.) The workshop agenda is designed to allow other initiatives to present their related work. These initiatives include (i) WCMC-WDPA (attributes, databases development and interoperability, and Management Effectiveness), (ii) the IABIN Protected Areas Thematic Network, (iii) the IABIN Ecosystems Thematic Network, (iv) the UNEP-CEP CaMPAM's (Caribbean Marine Protected Area Management Network and Forum), and **joint project** with IWCAM (Integrated Watershed Coastal Areas Management) on quantitative performance indicators for watershed management in SIDS. Location is Montego Bay, Jamaica in March 2008 and Dionne (Jamaica IABIN focal Point) and her team are looking into specific dates. Montego Bay Marine Park Trust is a fascinating public-private partnership that is a complex blend of industry, ecotourism, and commercial activity AND is an easy place to get to for all in the Caribbean and elsewhere. IN PROCESS

7.) Prepare Caribbean Countries to make a unified presentation on MPA databasing and management effectiveness at the 11<sup>th</sup> International Coral reef Symposium in July 2008. IN PROCESS

## Meeting Justification:

The Caribbean Sea has a complex interaction of open ocean waters, coastal and ocean processes, and riverine flows that contribute to the rich and valuable marine ecological and biological diversity. High productivity is also found in nearshore habitats such as coral reefs, mangrove forests, and seagrass beds, which naturally dominate the coastal margins in all the islands. Coral reefs, mangroves, and seagrass beds function as spawning and nursery grounds for fish and invertebrates. They provide coastal protection against waves and storm surges, and coastal stabilization. Mangroves influence the productivity of coastal areas by contributing nutrients and acting as sediment traps in estuarine waters, thereby protecting coral reefs from sedimentation.

The coral reef fauna in the Caribbean Islands are the most diverse in the world, in terms of higher taxonomic variety. The Caribbean Sea hosts about 60 species of corals and about 1,500 species of fish, nearly a quarter of which are endemic. With high degree of endemism within the coral reefs, the Caribbean Sea is a biogeographically distinct area of coral reef development particularly important in terms of global biodiversity (Spalding et al. 2001). Marine turtles, which nest on the beaches in several of the islands, include the hawksbill, green and leatherback.

In the Caribbean region, hard coral cover has declined by 80%. 35% of mangroves have been lost in just 20 years. This has led to the adoption of various targets to increase the level of marine protection globally.

Sources of human-induced pressures include population growth and poorly planned coastal urban and industrial development, indiscriminate exploitation of coastal resources, as well as inappropriate agro-forestry and other land use practices. Exacerbating these pressures are inadequate environmental, technological, and economic policies, and/or their poor implementation and enforcement. Recent studies have revealed a trend of serious and continuing long-term decline in the health of Caribbean coral reefs (Wilkinson 2002, Gardner et al. 2003). Between 1990 and 2000, most of the countries showed decreasing mangrove cover (FAO 2003), making the coast more vulnerable to erosion and destroying the habitat of many species (UNEP/CEP 1996). Sandy foreshores and seagrass beds have not been spared. Most coastal fisheries resources are considered to be fully or overexploited and there is increasing evidence that pelagic predator biomass has been depleted (Mahon 2002, Myers and Worm 2003). Many local fisheries had collapsed by the mid-1980s following the depletion of lobster, conch and finfish stocks (UNEP 2000). Throughout the Insular Caribbean, overexploited fish stocks, loss and degradation of coastal habitats and reduced marine biodiversity are threatening the livelihoods of thousands of persons and reducing the income base of many of the countries whose socio-economic development is intricately linked with their marine living resources.

**Marine reserves** are important for preserving the biological diversity (“biodiversity”) of marine areas. They protect rare and threatened species, important natural habitats and provide benefits for fisheries species. Scientific research from around the world supports the concept that marine reserves are one of the best ways of protecting marine biodiversity. Marine reserves have been implemented worldwide in response to international concern for the conservation of marine biodiversity. The **World Parks Congress Recommendation**

23 (2003) recommends Protecting Marine Biodiversity and Ecosystem Processes through Marine Protected Areas beyond National Jurisdiction

**The Johannesburg Plan of Implementation** was negotiated by governments at the World Summit on Sustainable Development in 2002. The purpose of the Plan is to build on achievements made towards sustainable development since the United Nations Conference on the Environment and Development (UNCED) in Rio de Janeiro, 1992, and expedite the realization of remaining goals. Specific goals listed in the plan that are relevant to the marine environment include:

- Maintenance of the productivity and biodiversity of important marine and coastal areas within and beyond national jurisdiction
- Elimination of destructive fishing practices and establishment of marine protected areas including representative networks by 2012;
- Develop programmes to halt the loss of marine biodiversity, including coral reefs and wetlands

However, at the current rate of increase of the **global MPA network**, the earliest any of these targets might be met is 2045. A major challenge to achieving these targets and monitoring progress towards them is a lack of sufficient or reliable data on MPAs. The work done to update **MPA Global and the WDPA** has greatly improved the level and reliability of information available for MPAs globally and in the Caribbean, there are still gaps.<sup>1</sup> It is important that mechanisms are in place that will assist the region in strengthening technical capacities and infrastructural development in order to achieve the biodiversity conservation goals. The focus for the region is the identification of strategies that can be employed that will facilitate the strengthening of individual countries and the Caribbean region as a whole in technical and structural capacities especially as it relates to bioinformatics. This proposed **joint IABIN/ IWCAM** initiative consists of a number of components that are in synergy with the IABIN project. Some of these include the development of GIS capabilities for the management of watersheds and coastal areas and the development of indicator tools for monitoring these areas. In the context of IABIN, the Protected Areas thematic network would encompass the development of tools for the monitoring and management of watersheds and coastal areas. The similarities of the two objectives and the limitations in resources in the region further strengthen the need to conduct a joint workshop for development of the monitoring tools for the region.

Caribbean Countries have requested technical assistance to achieve the commitments laid out in the **WSSD Plan of Implementation and the CBD targets**. A critical component of meeting these goals is the availability of appropriate and adequate data with which to establish robust baselines and monitor progress towards the goals. This IABIN activity will further improve and expand the MPA data available for the region. This will ensure that the extent and status of marine protection in the Caribbean is accurately represented within regional and global databases that are a) highly visible online and b) used for global and regional monitoring purposes. The contributions and successes of Caribbean MPAs to the

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<sup>1</sup> Wood, L. J., Laughren, J., Fish, L., Pauly, D. 2007. Assessing progress towards global marine protection targets: shortfalls in information and action. Fisheries Centre Working Paper #2007-03. The University of British Columbia, Vancouver, B.C., Canada. Available at <http://www.fisheries.ubc.ca/publications/working/index.php>

global MPA network and marine protection targets will thus be more accurate, more visible and more explicit. The data will also be available to all Caribbean countries for use at regional and national levels, to facilitate planning. This greater visibility and understanding will facilitate:

- the planning, economic valuation, and ecotourism potential of protected areas and their integration into all sectors by providing strategic advice to policy makers;
- the strengthening of capacity and effectiveness of protected area managers through the provision of guidance, tools and information, and as a vehicle for networking;
- The procurement of increased investment in marine protected areas by demonstrating their value to the public and corporate donors, as well as governments.
- The coordination of national, regional and global efforts to meet various marine biodiversity and protection targets.
- preparations for the CBD Biodiversity 2010 and WSSD 2012 reporting requirements

### **IABIN – IWCAM meeting main objectives:**

The main objectives of the meeting are to:

- Establish collaborations between IABIN and current regional initiatives including IWCAM in order to strengthen the region's capacity in data collection, assimilation and consolidation to prevent the duplication of efforts.
- Establish collaborative mechanisms especially among smaller Caribbean states, where project proposals are developed for access to content-building grants from IABIN thematic networks. Emphasis will be placed on common areas of interest including Invasive Alien species, Protected Areas and Ecosystems and Pollinators.
- Establish a Caribbean management effectiveness database using the existing MPA Global database and review geospatial technologies with respect to development of monitoring and evaluation tools for protected areas management.
- Prepare Caribbean Countries to make a unified presentation on MPA databasing and management effectiveness at the 11<sup>th</sup> International Coral reef Symposium in July 2008.

### **Workshop Activities:**

It is proposed that the activities of the workshop would take place over two or three days with one to two days devoted to IABIN and the third day, a joint workshop between IABIN and IWCAM.

### **Draft Agenda -- Caribbean Workshop – venue to be determined.**

#### **Day 1. Morning**

- |         |   |
|---------|---|
| 9:00 am | Overall IABIN and IWCAM Initiatives (Newell, Huber, and Sweeney)                      |
| 9:30    | Review of complementary projects in the region TNC, UNEP, GEF Projects in the region. |

10:30 (Madden) IABIN's Marine Classification Standard and The ETN Marine Ecosystem Standard Format and (Eduardo & Cristiano) IABIN Protected Areas Thematic Network in collaboration with WCMC-WDPA and CaMPAM's (CARibbean Marine Protected AREa Management Network and Forum).

11:30 Facilitated discussion to: How to facilitate Caribbean countries participation in IABIN Thematic Networks? What kind of coordination should exist among existing projects to best serve the region?

2:00 Presentations by Countries on expanded MPAGlobal database – Countries to give update on MPA progress, constraints, ecological services, ecotourism, sustainability, cost recovery.

**Day 2. Morning.** Continue Country presentations

**Day 2 Afternoon.** Next steps for merging the excel database with MPAGlobal

**Day 3. IABIN / IWCAM joint meeting**

a. IWCAM introduction presentation

Presentation of IWCAM regional assessment of indicator mechanisms for the evaluation of Watersheds and coastal areas. Include gaps and weaknesses and recommendations on possible tools.

b. IABIN – IWCAM synergies.

c. Lunch presentation: Presentation on Cost Effectiveness Analysis and Integrated Coastal Zone Management of Coral Reefs – Decision Support Modelling (Huber). Afternoon field trip to MB Marine Park.

## II. Budget

The IABIN GEF project has an approved budget of 30k. The “Integrating Watershed & Coastal Areas Management in Caribbean Small Island Developing States (IWCAM)” has a separate budget.

**Table I: Estimated budget for IABIN Caribbean Marine Park Data Compilation workshop**

Category	Estimated Cost
Travel (Air / Ground)	15 countries at 600=9000
Accommodation/ Food (20 persons for 3 days)	12,000
Consultant services	9,000
Total	30,000

## Annex 1. Marine Protected Area (MPA) Databases and data in the Caribbean

At present there are 3 pertinent databasing initiatives to the Caribbean:

**1.) MPA Global: [www.mpaglobal.org](http://www.mpaglobal.org).** This is a collaborative project between the Sea Around Us Project at the University of British Columbia, UNEP-World Conservation Monitoring Centre and World Wildlife Fund to update the marine portion of the World Database on Protected Areas, maintained by UNEP-WCMC. The project is managed by Louisa Wood, MSc of the *Sea Around Us* Project, UBC Fisheries Centre as part of her PhD project. **Louisa Wood has expanded the MPAGlobal Database to as part of this IABIN Initiative to include additional marine park effectiveness fields.**

Data currently in MPA Global were extracted from the World Database on Protected Areas (WDPA) managed by the UNEP WCMC. The definition for inclusion of an MPA in the database is that the legal or agreed boundary of the protected area must extend beyond the mean high water mark. This means that sites including land can be considered to be MPAs provided that part of the protected area boundary extends beyond the mean high water mark. To date, over 200,000 edits have been made to the database globally, using information researched from more than 1,000 sources, including governmental data, non-governmental data, peer-reviewed literature, legislation, personal communications with in-country experts and others. The project is also updating the spatial data for the world's MPAs: to date there are GIS polygons of MPA boundaries available for around 70% of MPAs by number and over 95% by area.

All of the data collected and added to MPA Global are provided to UNEP-WCMC on a regular basis for integration with the WDPA. The data in MPA Global can also be edited directly online through the website (the user of the database would need to register to be able to submit edits). All edits are attributed to the person who submitted them as well as the original source of the data. Although there is not currently a download option for the database, extractions of the database are available upon request.

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**2.) Updating and verifying MPAGlobal** for the wider Caribbean -- A related initiative is an effort coordinated by Colette Wabnitz (also of the of the Sea Around Us Project)

<http://www.searoundus.org/> at the Fisheries Centre, University of British Colombia.

This project focuses on the ecological role of green sea turtles, and using remotely sensed imagery and spatial modelling of seagrass beds to estimate carrying capacity of greens in the Caribbean. Additionally, this effort is working on updating existing information on Marine Protected Areas in the Wider Caribbean Region. It collaborates closely with the MPA effort mentioned above in 1. and is currently validating derived information. For each country, the project seeks to do the following: Confirm whether the MPA list is correct; and

- a) Confirm whether specific information associated with each MPA in the database, is correct, and obtain it where it is not yet available.
- b) Obtain updated or new spatial data of MPA boundaries

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**3.) UN Environment Programme, Caribbean Environment Programme -- Caribbean MPA database -- UNEP-CEP CaMPAM's (CARibbean MARine Protected AREa Management Network and Forum)** database is being built on Plone software managed by

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Other key players to this initiative include UNEP-CEP (Alessandra Vanzella and Nelson Andrade) Work has been done as part of the UNEP-CEP Training the Trainers MPA Management with a course planned for Fall 2007. The project expects to complete the updating and population of the ca. 365 MPAs of the wider Caribbean by December, 2007.

In addition, several NGOs are doing work pertinent to these efforts. These include:

- 1.) Within IABIN Ecosystems Thematic Network -- Chris Madden at NATURESERVE (Marine Ecosystem Classification and standard format for marine ecosystem database for IABIN) Contacts: [chris\\_madden@natureserve.org](mailto:chris_madden@natureserve.org) and Vince Abreu [abreu@umich.edu](mailto:abreu@umich.edu);
- 2.) TNC – Steve Schill [sschill@tnc.org](mailto:sschill@tnc.org); and Philip Kramer [pkramer@TNC.ORG](mailto:pkramer@TNC.ORG); TNC is doing MPA work in the Caribbean 1.) geospatial; 2) site based demonstration locations to advance specific protected areas; 3) Systems scale work focused on selected countries (6 countries in progress in the insular Caribbean).

3.) Reefs at Risk work done for the Caribbean

[http://pdf.wri.org/reefrisk\\_caribbean\\_execsumm.pdf](http://pdf.wri.org/reefrisk_caribbean_execsumm.pdf)

4.) Floyd Homer of the World Commission on PAs (WCMC-WDPA)

## **Annex 2.**

### **Data fields that already exist in MPA Global and would be verified & updated**

- 1) MPA name
- 2) Designation type
- 3) MPA location (country or territory)
- 4) Central latitude & longitude
- 5) MPA boundary data (preferably as a zipped ESRI shapefile or interchange file)
- 6) Date MPA was designated (yyyy-mm-dd)
- 7) Name & year of legislation/agreement used to designate the MPA
- 8) Total area of MPA (including land)
- 9) Marine portion of MPA (from mean high water mark)
- 10) Qualitative indication (all/part/none) of MPA that is no-take (i.e. extraction of all resources is prohibited)
- 11) Area that is no-take
- 12) Ownership details (i.e. owner, tenure rights etc)
- 13) Administration
- 14) Management Authority
- 15) IUCN category
- 16) World Heritage designation
- 17) Ramsar designation
- 18) Presence/absence of various habitats in MPA
- 19) Type & area of dominant habitat within MPA

### **New data fields for which data collection is proposed under the IABIN/IWCAM initiative, that would be added to MPA Global if sufficient data are collected**

- 20) Reason(s) for designation of MPA
- 21) Is the MPA part of a larger spatial marine resource management plan
- 22) List up to 2 primary MPA objectives
- 23) Management plan exists for MPA
- 24) Start & end dates of management plan
- 25) List top two critical management activities
- 26) Budget needed for MPA (USD)
- 27) Budget available for MPA (USD)
- 28) Source(s) of budget & values (USD)
- 29) Number of staff Permanent Temporary
- 30) Contact information of MPA manager
- 31) MPA website URL
- 32) Key species occurring within MPA
- 33) Top two threats to the MPA
- 34) Invasive Species present
- 35) Invasive species 1
- 36) Invasive species 2

**Annex 3. It is proposed that Caribbean focal point representatives, biodiversity technical experts from agencies across the region, IABIN representatives and Coordinating Institutions would participate.**

**Participating Countries:**

1. Antigua and Barbuda
2. Bahamas
3. Barbados
4. Belize
5. Dominica
6. Dominican Republic
7. Grenada
8. Guyana
9. Haiti
10. Jamaica
11. Saint Kitts and Nevis
12. Saint Lucia
13. Saint Vincent and the Grenadines
14. Suriname
15. Trinidad & Tobago

**Other Participating Regional Initiatives and Institutions:**

- a. [UNEP Caribbean Environment Programme](#)
- b. [International Coral Reef Action Network \(ICARN\)](#)
- c. [TNC Caribbean program](#) – conducts work in Bahamas, Dominican Republic, Eastern Caribbean and Jamaica
- d. [BirdLife International](#)
- e. [OECS Secretariat](#)
- f. [OBIS](#)
- g. [CariNet](#) member
- h. University of the West Indies
- i. CARDI
- j. IICA
- k. Environmental government Ministries