

NOAA Coral Reef Data & Information IT Working Group Workshop Report
March 20 - 21, 2001
NOAA / NESDIS / NODC

Executive Summary:

The NOAA Coral Reef Data & Information IT Working Group met on March 20 and 21, 2001 in Silver Spring to frame the conceptual architecture of a web portal to provide a consolidated access to NOAA's coral reef data and information with an ultimate goal to make NOAA the place to go in the Federal Government for data and information on coral reefs.

NOAA Line Offices with an interest in coral reefs provided official representation (listed in Attachment 1) to this working group, thus making it possible to rapidly agree to plans for this important area of NOAA responsibility. The workshop produced:

- (a) conceptual architecture and framework for this proposed system
- (b) inventory of NOAA's coral reef data & information resources
- (c) user, customer, and constituents requirements
- (d) methodology to be used for managing "NOAA Coral Web Site"
- (e) data archive and preservation process.

Development of coral reef data and information management systems in this project will proceed in a stepwise fashion. A prototype (version 0.1) of the conceptual framework will be implemented by focusing on one or two coral reefs. Then, in version 1.0, the system will be expanded to include NOAA's principal data and information resources. Version 1.0 will be demonstrated to NOAA management 6 months after project approval. The system will then grow as other coral reef data and information resources are included.

Conceptual Architecture and Framework:

A conceptual framework was presented by P. Dwivedi for discussion (see Attachment 2). Elements of the architecture will include:

- 1. a single NOAA web portal to coral reef data and information resources
- 2. data and information management systems, including archive management
- 3. centralized access to distributed data and information.

The web site is envisioned as a global map display, from which users can obtain regional reports or data and information from specific coral reefs. Users will also have access to other options - such as Library, NOAA Sites, General Information - from the opening web page. Coral reef data set descriptions (metadata) will be required for all data sets, and will help users find the data and information they need.

Data and information will continue to be managed in various NOAA Line Offices. Data sets will be stored in, and be accessible from, NOAA data archives.

Inventory of Existing Coral Reef Data and Information Resources:

A list of NOAA coral reef data and information collections was compiled, and is shown in Attachment 3. The Working Group highlighted several items as "Principal Data" to be included in the prototype system. The list is a working list that will grow and be improved during the project. Several non-NOAA data sources appear at the bottom of the list.

User Requirements:

Development of the system will be guided by NOAA and user requirements. The following documents containing user requirements were presented during the workshop:

- A National Program to Assess, Inventory, and Monitor US Coral Reefs, prepared for the US Coral Reef Task Force (D. Turgeon)
- A National Program to Assess, Inventory, and Monitor Coral Reef Ecosystems (D. Turgeon)
- Talking Points Regarding the Need for Developing a National Monitoring Network and a Coral Monitoring Data and Information System (D. Turgeon)
- CRIDMS Development Plans - produced by the NODC-NOS/OSP-OAR/AOML Data Management Team (S. Rohmann)

Recognizing that not all requirements can be met, the Working Group developed the following prioritized list of user groups:

1. Coral Reef Managers
 - NOAA
 - Other Federal, State, and Territory Coral Reef Managers
 - International Coral Reef Managers
2. Researchers
3. Constituents and Policy Makers
4. General Public
 - Education (K-12)
 - Non-governmental organizations
 - Reef Users
 - Media - work with NOAA Public Affairs

A starting list of requirements is provided in Attachment 4.

Web Site Methodology:

The group agreed to adopt the methodology introduced by T. La Pointe; it is used to manage NOAA's Marine Protected Areas web site. A web content group / editorial board, with representatives from each NOAA Line Office, will guide the design of the coral reef web site. The web content group / editorial board was established. T. La Pointe agreed to begin its operation by developing a "strawman" Site Management Guide for review by the board. The guide will include principles, policies, and roles and responsibilities for managing the web site.

Data Archive and Preservation Process:

Data will be stored in NOAA archives using NOAA and NARA (National Archives and Records Administration) standards. These standards will ensure the integrity and preservation of coral reef data for users in the future. Data in archives cannot be treated in the manner of "store it and forget it". Inventories of data in archives will be available to users, and facilities for access to the data will be a part of the system.

Project Milestones:

The group produced the following list of tasks (some with dates) for continuing the project.

- NOAA Coral Reef IT Work Shop March 20-21, 2001
- Identify principal NOAA coral reef data and information resources
- Identify users and requirements
- develop project plan
- Follow-up IT Work Shop – March 29, 2001
- Define project scope and terminology
- Present Conceptual NCRDIMS to NOAA – mid-April 2001

When the project is approved:

- Design the coral reef website architecture
- Review website architecture
- Design prototype CR website
 - Review by IT working group
 - Review by CR community experts
- Implement Version 0.1 (prototype) of CR website
- Implement Version 1.0 with principal NOAA coral reef resources
- Demonstrate initial operating capability to
 - NOAA Line Offices Approval + 6 months
 - Coral Reef Task Force

Working Group Issues and Concerns:

As discussion progressed, several issues were raised that need special attention.

- The difficulty of getting agreement to an official NOAA Coral Reef map (to be determined by NOAA decision group led by Jim Hendee)
- A significant amount of work will be needed to create, review and edit quality text for the NOAA Coral Reef website. It must follow NOAA style (referenced documents), be coherent (as though written by one individual), accurate, and demonstrate that NOAA believes in the value of the site.
- Whether or not the web address “www.coralreef.noaa.gov” will be available for use as the NOAA principal web portal.
- The choice of mapping technology for displaying website maps. The long-term goal is to use Geographic Information System (GIS) technology.

Workshop Action Items:

- Provide metadata framework and guidelines (NESDIS)
- Provide CHAMP regulations (Hendee)
- Look into NURP/SeaGrant data (Hendee)
- Metadata profile for coral reef data (NCDDC/NGDC)
- Standard NOAA map of coral reefs (Hendee & group)
- See what REEFBASE is already doing (IT Working Group)
- Website content package for review (La Pointe and Dwivedi)
- E-mail data sets spreadsheet to team (Lowe)
- Complete data set spreadsheet and send to Parmesh (All)
- Provide proposed org (web interface) to show NOAA management (La Pointe)
- Recommend members of official NOAA coral reef map decision group (Hendee)

ATTACHMENTS

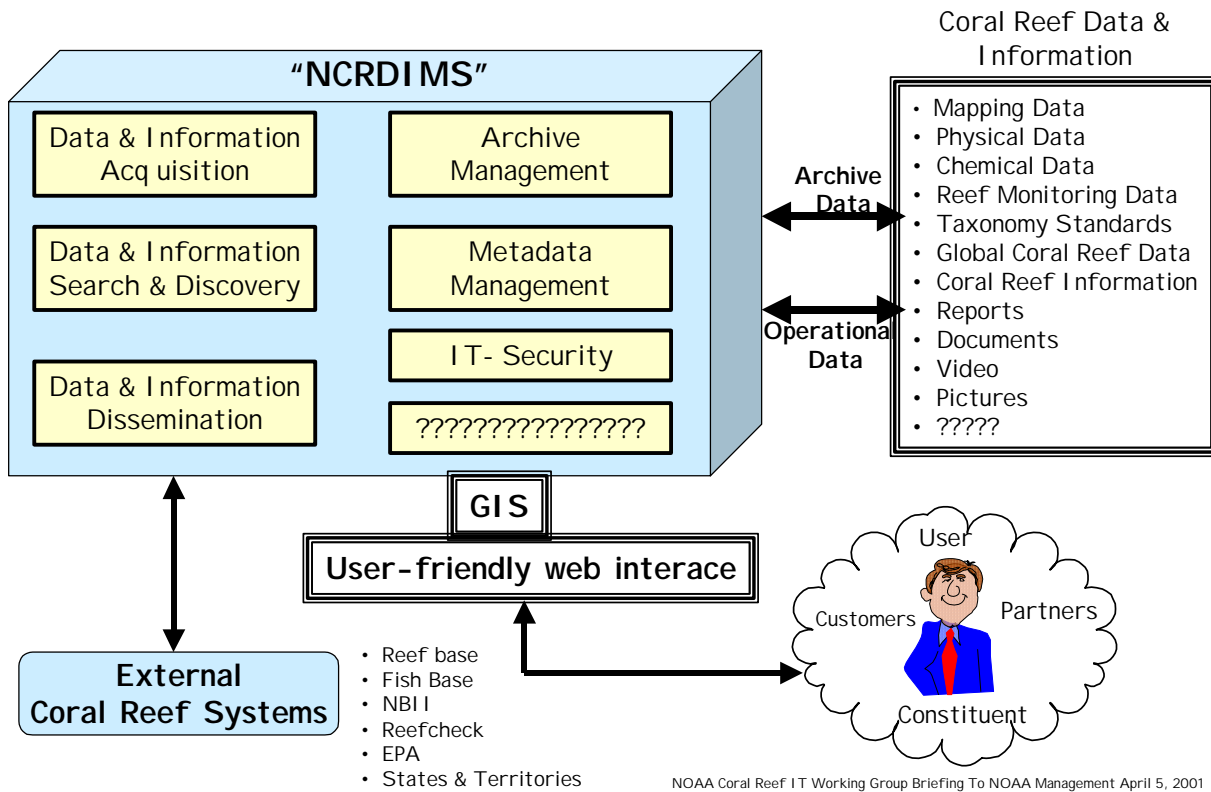
Attachment 1 - Coral Reef Work Shop Participants and Line Office Representatives

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NOTE: The names of NOAA Line Office representative's are in bold type.

Attachment 2 - Coral Reef Data & Information Management Conceptual Framework Diagram

NOAA Coral Reef Data & Information Management System Conceptual Framework



Attachment 3 - NOAA Coral Reef Data & Information Inventory

<i>Oceanic & Atmospheric Research (OAR)</i>
<i>Near-real time data and historical data for in-situ meteorological and oceanographic data from 7 sites (Fl. Keys and Fl. Bay)</i>
<i>Coral bleaching alerts - real-time and historically archived from same sites - Garden Bank Reef and Florida Keys</i>
<i>CHAMP list server</i>
Coral bleaching alerts - real-time and historically archived from same sites - Great Barrier Reef (5 sites)
Coral reef maps of the world (scanned)
Literature abstracts search engine (coral diseases, storms, monitoring)
Original documents from International Coral Reef Initiative (policy docs)
Satellite imagery of Fl. Bay, including Fl. Keys w/ link to Hot Spot Data (AVHRR imagery)
Marine Sanctuary regulations
Historical temperature and salinity data
Miscellaneous themes and studies (i.e. sedimentation literature)
Global Coral Reef Monitoring Network (information and summary products hosted on AOML server)
Coral bleaching archives (worldwide)
Coral spawning archives
Coral list threads
On-line coral researchers directory
Archives of all coral list messages (from 1995)
Real-time data from Aquarius
<i>National Marine Fisheries Service (NMFS)</i>
<i>Monitoring and research data from National Marine Sanctuaries (i.e. NW Hawaiian Islands)</i>
Fisheries management plans

Fisheries catches
Population surveys
Essential Fish Habitats
Endangered species and marine mammal information (distributions)
Ground truth for mapping activities in Hawaii
UNEPS partnership to create global map and database of coral diseases
AGRA and CARACOM activities (current distribution of 2 corals on soon to be endangered list)
Coral trade analysis
Photo Ids for coral diseases and corals in trade (for aquariums)
<i>National Ocean Services (NOS)</i>
<i>Benthic maps (a package of products, ranging from raw satellite data to vector data) (coral reef, seagrass)</i>
<i>Products (FL Keys CD-rom)</i>
<i>Marine Sanctuaries data</i>
Nautical charts and hydrographic surveys
Legal documents (i.e. coastal zone summaries)
Aerial photography
Classification manuals
Site-specific monitoring data (i.e. water quality)
Flower Gardens
CRAMP
Coral photos
<i>National Environmental Satellite Data & Information Services (NESDIS)</i>
<i>Bleaching Hot Spot Chart (Eastern Hem. & Western Hem.)</i>
<i>Degree Heating Week (DHWs) charts (Eastern, Western, Pacific)</i>

<i>Hot spot indices pages (temperature Info, 24+25 selected reefs)</i>
<i>Bleaching events reports – search for specific dates, lats/longs</i>
<i>SST anomaly chart (Global)</i>
Paleoclimate records (time series data for individual sites)
Photogrammetric mapping
Bathymetry
High-res photographs including metadata
SST field (Global)
SST Time-series (1985-present, 2 yr each, 24+25 selected reefs)
Form to report information that NOAA needs to see re. Bleaching
Animation: SST anomaly chart (2,4,6 mo, Global) - from above
Animation: HotSpot chart (2,4,6 mo, Eastern, Western) - from above
Animation: DHWs (2,4,6, Eastern, Western, Pacific) - from above
Names of coral reefs under U.S. jurisdiction and their coordinates
NODC-archived originators' data sets of coral reef, seagrass bed and mangrove forest data.
NODC-archived physical, chemical, meteorological and biological data sets and product data bases related to coral reef areas.
Hot links to coral reef , seagrass beds and mangrove forests data sources and databases.
Lists of valid scientific names and higher classifications of of coral reef fishes and Scleractinian corals
Hot links to useful global coral reef ecosystem information websites, ordered by geographical regions.
Hot links to coral reef organism-oriented web sites, including coral reef photographs.
Glossary of coral reef terms.
Hot links to taxonomic databases.

Attachment 4 - User Requirements for Coral Reef Data & Information

- a single place in the Federal government for coral reef data and information
- support NOAA bi-annual report card on coral reef status
- Frequently Asked Questions section for general public users
- capability to search for data and information
- capability to limit some critical information (e.g. locations of valuable reef species)
- online forum for coral reef managers
- support the management of videography data sets
- metadata that are useful to non-specialists 20 years from now
- capability to forward data sets online to requestors
- hierarchical structure in web site, to provide data and information for regions as well as for specific coral reefs
- issue-driven or issue specific information distribution web site
- links between data sets and literature abstracts, and *vice versa*
- provide capability for users to input data and access those data
- work closely with NOAA Public Affairs to carefully manage the types of information provided to the media
- include links to non-NOAA coral reef data and information web sites
- web-based data synthesis and interpretation capability
- web-based facility to enable users to track the status of coral reef monitoring activities, grant distribution, data acquisition activities, to help users determine levels of success (or failure) over time
- a capability similar to NOS's MapFinder web site, to help users search available inventories
- weekly incident status board
- provide direct storage and management of a subset of the total coral monitoring data
- seamless linkage of comparable data from distributed sources
- user-friendly GIS-based mapping, and multi-variable analyses
- insure the integrity of included data sets and communication linkages among them

Note: Being assembled from several sources, some items may overlap with others.