Report of the NOAA Coral Reef IT Working Group Workshop

June 12-14, 2001
Silver Spring, MD

Background
The NOAA Coral Reef IT Working Group was commissioned by NOAA management to develop a single point of discovery for NOAA data and information of direct relevance to the management and preservation of the nation's coral reefs. Other goals of this effort are:
- to make NOAA the 'place to go' for coral reef data and information
- to provide one-stop shopping for external and internal users
- to support NOAA's contribution to the U.S. Coral Reef Task Force National Action Plan
- and to archive and preserve NOAA's coral reef data and information.

The scope of this effort is:
- First, to develop a prototype system (Version 1.0) that focuses on data sets from one or two U.S. reefs locations.
- Second, expand the system to include principal NOAA data and information resources for all U.S. reefs.
- And finally, to include other NOAA and non-NOAA data and information that are relevant to coral reef description and preservation.

The working group, in earlier meetings, adopted the following principles, proposed by T. Lapointe, to guide development of CoRIS.

Governing Principles for the NOAA Coral Reef Data and Information System (CoRIS)
1. This is NOAA's official site for coral reef data. As such, the site will:
    a. Provide rich and varied content
    b. Demonstrate rigorous scientific integrity
    c. Present the best of NOAA's culture
2. The site will provide direct access to data through a unified interface. Underlying this interface will be a data engine that will ensure a high level of quality control and, where appropriate, formal data archiving.
3. The site will be factual, as opposed to promotional, opinionated or provocative. (Note: This includes institutional and program promotion.)
4. The site will provide primarily final data and information that has had rigorous quality control scrutiny and peer review. In those few cases where operational or developmental information is

    provided, unambiguous warnings will be presented with a clear audit.
5. The site must be candid and realistic: Initial offerings will not be comprehensive. For incomplete offerings, state clearly "up top" what is included and what is not.
6. This is a NOAA site whose principal purpose is to provide a public service. As such, NOAA is the primary organization. References to offices within NOAA will be kept to the minimum necessary to assist the user in contacting relevant parties for questions, comments, or to request supplementary material.
7. The site will compliment and not replace, at least for the forseeable future, existing NOAA Coral Reef Web sites. These sites serve very important purposes, and have developed strong user communities. The following corollaries apply:
    a. Only single versions of information will be accessible.

        b.   Information will be reevaluated, as to its position and relevance.

        c.   The central NOAA site will be prominently referenced on all NOAA sites.

Workshop Approach

The CoRIS Working Group met in Silver Spring, MD from June 12-14 to produce the CoRIS design.

After the welcomes and workshop overview, each of the four teams - Content, Metadata, Technical, and Map - reported to the Working Group on the status of their work and recommendations. Considerable time was then devoted to reviewing characteristics of the principal NOAA data sets that are to be included in CoRIS. A summary of data set characteristics is presented in Table 1. Teams then split into separate sessions to continue the work of developing the CoRIS design. Team reports are attached.

Workshop objectives are listed in Attachment 1. During the workshop, teams met separately, or in combination, to work on specific objectives. The workshop agenda is in Attachment 2. Participants are listed in Attachment 3.

Opening remarks were made by Roger Griffis and Parmesh Dwivedi, outlining workshop objectives and working arrangements.

Workshop Recommendations for the CoRIS Prototype

During discussions throughout the workshop, the working group agreed to several recommendations and action items, reported here.

(1) The group stongly recommends collaboration with ReefBase. The following were asked to form a liaison group with ReefBase: J. Hendee, M. Eakin, A. Strong, A. Picciolo, P. Grose, E. Treml. J. Hendee was asked to write a Memorandum of Understanding with ReefBase that outlines areas of cooperation, and to invite Jamie Oliver to CoRIS IT Working Group meetings in the future.

(2) The group agreed to the Map Team's recommendation to adopt the ReefBase (or WCMC) base map for the CoRIS prototype. The Map Team was asked to decide what the CoRIS region should be, obtain or create shape files to outline the CoRIS region, and document what was done.

(3) In view of the short time available to develop the prototype, the Working Group recommended developing a single geo-search capability plus a few topic and metadata keyword field search capabilities.

Detailed design recommendations and action items are contained in the following Team Reports.

Data type/location	Principle Data	Original or Product	Current Size (mb)	5 year growth projection	Operational Developmental Archived	# Metadata Records
NOAA Data Sets for CoRIS						
OAR – AOML						
Near-real time data and historical data for *in-situ* meteorological and oceanographic data from 7 sites (SEAKEYS & CREWS)	X	X	2000	4000	Developmental	8 (20 more in the future)
Same data from Great Barrier Reef (5 sites)			30	1200	Developmental	5
Coral bleaching alerts - real-time and historically archived from same sites (GBR and Fl. Keys)	X	X	1	5	Developmental	1
Coral bleaching archives (worldwide)	X	X	0.28	0.25	Operational	
Coral spawning archives	X	X	0.1	0.1	Operational	
Archives of all coral list messages (from 1995)	X	X	19.1	20	Operational	
NESDIS - ORA						
SST field (Global, biweekly) -- near real time operational	X	Product	1310.4	44928	Operational / Archived	1
SST anomaly field (Global, biweekly) -- near real time operational	X	Product	1310.4	44928	Operational / Archived	1
Bleaching Hot Spot field (Global, biweekly) -- near real time operational	X	Product	1310.4	44928	Operational / Archived	1
Degree Heating Week (DHWs) field (Global, byweekly) -- near real time operational	X	Product	1310.4	44928	Operational / Archived	1
SST anomaly chart (Global, biweekly) -- near real time operational		Product	156	5616	Operational / Archived	
Bleaching Hot Spot charts (Global, biweekly) -- near real time operational		Product	43.68	1622.4	Operational / Archived	
Degree Heating Week (DHWs) charts (Global, byweekly) -- near real time operational		Product	43.68	1622.4	Operational / Archived	

Table 1 - NOAA Data Sets for CoRIS

Data type/location	Principle Data	Original or Product	Current Size (mb)	5 year growth projection	Operational Developmental Archived	# Metadata Records
Animation: SST anomaly chart (2,4,6 month coverage, Global, biweekly) - from above		Product	2.5	90	Operational / Archived	
Animation: HotSpot chart (2,4,6 month coverage, Eastern, Western, biweekly) - from above		Product	5.5	198	Operational / Archived	
Animation: DHWs (2,4,6 month coverage, Eastern, Western, Pacific, biweekly) - from above		Product	8.5	306	Operational / Archived	
Maximum Monthly Mean SST Climatology (Global, one file)	X	Product	2.1	2.1	Developmental	
Monthly Mean SST Climatology (Global, 12 files)	X	Product	25	25	Developmental	
Historical Maximum DHW and Time of Occurrence (Global, 2 files)	X	Product	4	4	Developmental	
Pathfinder SST field (Global, daily, 9km, 1985-present)	X	Product		14600	Developmental	1
NMFS						
Monitoring and research data from National Marine Sanctuaries (i.e. NW Hawaiian Islands)	X					< 10
NOS						
Benthic maps (a package of products, ranging from raw satellite data to vector data) (coral reef, seagrass)	X					
Products (FL Keys CD-rom)	X					
Marine Sanctuaries	X					
TOTAL SIZE (megabytes)			7,583	209,028		

Table 1 - NOAA Data Sets for CoRIS

Technical Team Report

CoRIS Technical Team Summary
June 12-14, and 20, 2001

Participants - Parmesh Dwivedi, Jeff Ogata, Peter Grose, Mike Shelby, Gang Liu, Michael Parke, Eric Treml, Dan Marner, Joseph Shirley, Jim Etro, Doug Hamilton

The job of the Technical Team is to design the technical elements, and their relationships, that will support the content and search capabilities needed by CoRIS. The design of the prototype system needs to be extensible for future versions of CoRIS, if needed.

The following principles are being used to develop the technical architecture design:
- The system should be self-sustaining
- IT security must be designed in from the beginning and must be a primary concern throughout the life cycle
- Choose open systems over proprietary systems to the extent possible
- Maintain separate development, test, and operational environments
- Access to CoRIS should be through a high bandwidth network
- Duplication of data and information access must be avoided

The team recommends the CoRIS system architecture design, shown in Figure 1.

CoRIS system functional specifications, to be provided, will be used in detailed design of the system.

During the workshop, there was discussion of the need to authenticate users for access to restricted NOAA data sets, such as NOS IKONOS and NMFS fisheries catch statistics. The Team recommends that CoRIS not take on that responsibility. If reference to those data sets is returned during a search, the user should be given contact information for obtaining the data from the appropriate NOAA component, where authentication processes are already in place.

Mechanisms for searching parent-child metadata records were discussed. Parent records should be stored in the CoRIS Catalog and carry a flag to indicate that child records exist, and where to find them. The search engine will need the capability to start software on local sites to search local data bases or files for data that meet user requirements.

Peter provided copies of draft User Interface screens for search and discovery. The "Topic/Subtopic" screen provides a sample for helping the user by providing a hierarchy of choices.

The team needs policy decisions from the Working Group on two issues:

- that CoRIS will not take on the liability of providing access to restricted data and information resources. The CoRIS site will be designed to return information about such data in a query result, but will direct users to the source contact or web site to obtain data.
- that CoRIS will not provide access to data and information that are not actively maintained and supported by the provider (Note: the provider may be a data center).

The Technical Team requests the following from other teams:
- Metadata Team: specifiy what kinds of information will be included in the CoRIS Catalog. Will it include only FGDC and MARC metadata records? Will every child have a parent?

- Map Team: provide the base map to be used for user search and discovery, with one or more polygons that define the CoRIS area.

The Technical Team also recommends development of a list of hierarchical geographic regions, with polygons, to be used in place-name searches. There should be no more than five levels of detail, starting with "Global" at the top level, then ocean names (Atlantic, Pacific, Indian), then regional names, and so on.

CoRIS Functional Specifications

The Technical Team outlined the first draft Functional Specifications of the CoRIS design. Following the workshop, the team continues to evaluate workable designs. The final list of functional specifications will be made available when it is completed.

ACTIONS

June 22 Provide Tony Picciolo a copy of sample search and discovery user interface screens, for his use in considering how to arrange keywords in a hierarchy for search and discovery.

June 22 Dan Marner distribute System Functional Specifications to the team for review and comment.

June 27 Team: Revise and approve final system architecture and functional specifications.

CoRIS System Architecture

CLIENT

CLIENT

External Servers
•NOAA Server
•NEDI
•FGDC Clearinghouse
•Other coral sites

INTERNET

CLIENT

CoRIS Web Site

CoRIS Page (UI)   Information (static)

Data Discovery Interface (UI)

Data Discovery Tool
Geo / Text

CoRIS
Catalog

CART

Results / Preview
Select

INTERNET

Get Data

Metadata

OAR
AOML

NESDIS
ORA

NMFS

NOS

Library
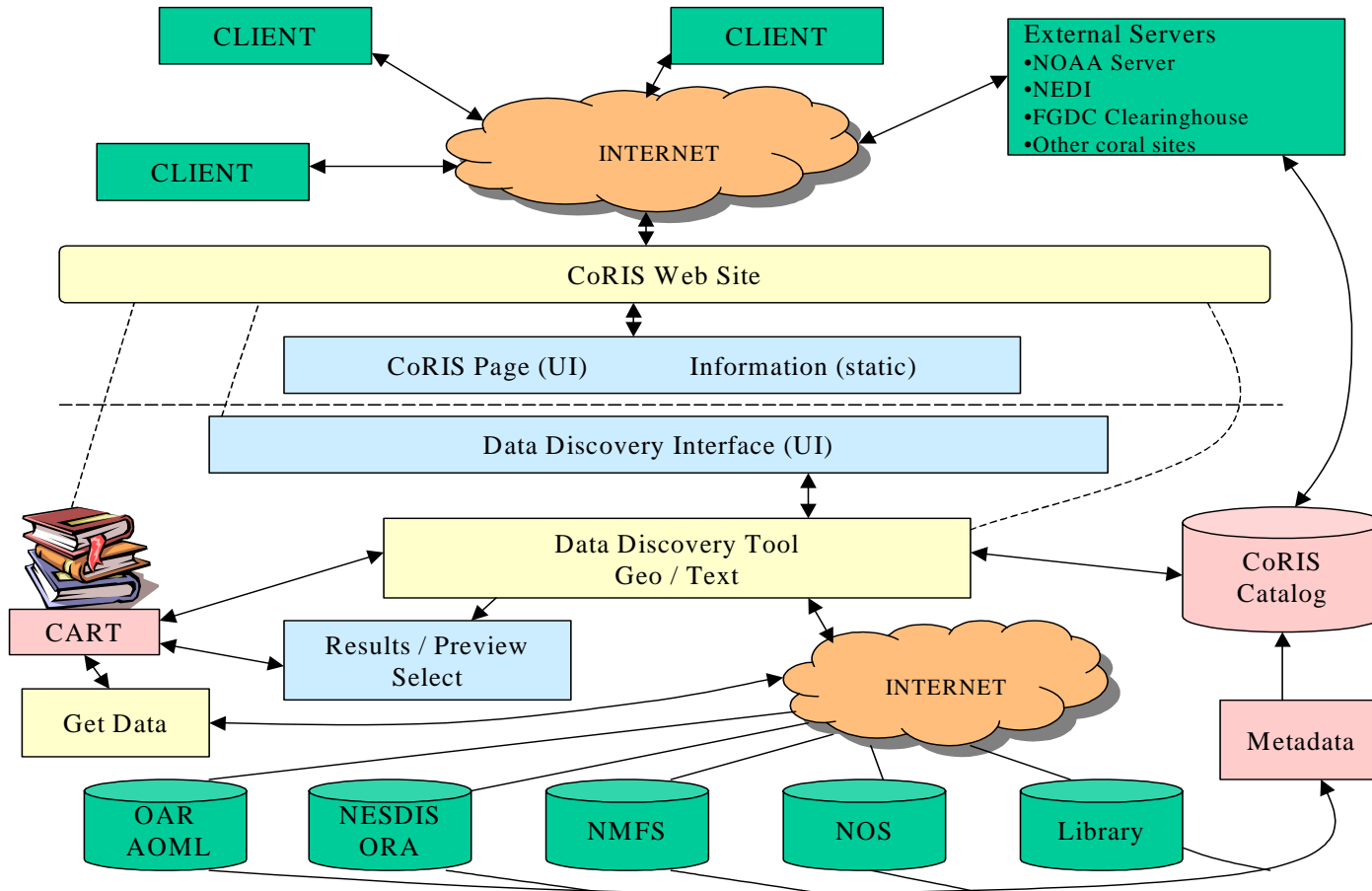
Figure 1 - CoRIS system architecture design

CoRIS Metadata Team Summary

6/12-14/2001

Metadata Team members:

David Anderson	Andy Bruckner	Tony Picciolo
Jim Hendee	Mary Lou Cumberpatch	Lillian Becker
Mark McCaffrey	Darryl Tagami	Susan Starke
Alan Strong	Dorthy Anderson	Eric Treml
Don Collins	Janice Beattie	Chris Reedy
Sheri Phillips	Mark Eakin	
Tom Hourigan	Anna Fiolek	

Introduction: The CoRIS Working Group has emphasized the importance of metadata in the data search and discovery mechanism and to the longevity of the project and effective, long-term use of the data being served. As such, it is critical that Federal Geographic Data Committee (FGDC) compliant metadata be required from spatial data providers and used within CoRIS. An exception exists for library resources that will rely on existing MARC metadata standards appropriate for journals and other publications that are not inherently spatial. The following are issue-specific recommendations from the Metadata Team to the CoRIS Working Group.

I. Keywords & Glossary

- Keyword list will be revised by Tony Picciolo and forwarded to CoRIS Working Group by July 4. At the request of the Technical Team, an attempt will then be made to reorganize the keywords hierarchically.
- Tony Picciolo will compile the CoRIS glossary by compiling subsets of several existing NOAA glossary pages. It is envisioned that this preliminary glossary will be included in the first version of CoRIS and expanded with time.

II. Metadata Standards

- FGDC-compliant metadata is required for all CoRIS data providers, with the exception of the library resources that use MARC metadata standards.
- FGDC-compliant metadata needs to be distributed with the data.
- CoRIS should consider becoming an FGDC clearinghouse node and/or become compatible with the FGDC clearinghouse system. Details are available here: http://www.fgdc.gov/clearinghouse/clearinghouse.html
- Education and training in FGDC-compliant metadata creation is paramount. Resources may be available through NOS (Andrew Rushin). Eric Treml will investigate this further and report back to the Subgroup by July 4.
- A Metadata Manager (new position) should be integrated within the management structure of CoRIS to assist the Web Site Manager. At the very least, metadata oversight responsibilities need to be added to this framework. The position description will be developed by Mark McCaffrey and submitted by July 4.

Responsibilities include:
- Serve as liaison with Data Manager and CoRIS Steering Committee
- FGDC-compliant metadata education
- Final QA/QC of all metadata being submitted to CoRIS system
- Primary point of contact for all CoRIS-related metadata questions (compliance, compatibility, parent/child issues, etc.)
- Develop long-term metadata maintenance scheme
- Insure compatibility/compliance with NOAA Server & FGDC clearinghouse system.
- Become familiar with FGDC's National Biological Information Infrastructure and MARC Standards.

- Qualities of the Metadata Manager include: clear verbal and written skills, scientific fluency, advanced technical skills (HTML, XML, data management), and knowledge of NOAA's programmatic and technical structure.

- For the first version, CoRIS Working Group members will be used to assist the primary data providers in producing FGDC-compliant metadata (see below). Andrew Rushin, NOS Metadata Specialist, will be available for consultation (Andrew.Rushin@noaa.gov, 301.713.1156 x109).

NESDIS/NGDC	David Anderson
NESDIS/NODC	Tony Picciolo
NESDIS/ORA	Al Strong
NOS/CSC	Eric Treml
NOS	Peter Grose
NMFS	Darryl Tagami
OAR/AOML	Jim Hendee

III. Metadata Creation

- Any tool can be used, but the results must be FGDC-compliant (hierarchical text form with FGDC headings) with the exception of existing library resources. Authors are encouraged to use CNS and MP for error checking and converting. For additional details, see: http://www.fgdc.gov/metadata/toollist/metatool.html
- The Metadata Team will recommend Metadata creation tools by July 4. Sheri Phillips will document the results.
- Metadata will be created by the data provider with the assistance of the CoRIS working group member mentioned above. Metadata will then be sent to the Metadata Manager within CoRIS management for the final quality check before it is assimilated within the system.
- Metadata maintenance will be addressed after version 1.0 of CoRIS is released (after September, 2001). URL maintenance, in particular, will need to be addressed. It is imperative that the data and metadata remain inextricably associated to ensure the preservation and proper use of the data.
- Parent/child metadata will be implemented on a data set-by-data set basis. Data providers should check with their line-office representatives and/or Andrew Rushin for assistance. The parent/child hierarchy in the search mechanism needs to be addressed by the CoRIS Technical Team, as the clearinghouse software can not differentiate between the parent and child files. On-the-fly technical solutions may prove useful in many cases.

III. Required FGDC metadata elements for CoRIS functionality

The following list of sections and subsections will be used to help direct the data providers to particular sections of the FGDC standard that may be most applicable. This is NOT recommending an FGDC-lite strategy, rather pointing new metadata creators in the right direction. All elements outlined under A, below, are required for the search and discover mechanisms proposed by the Technical Team.

A. Required elements for ALL data sets (e.g. reports, videography, spatial data, images)
    Section 1: Identification
        Elements 1.1 using Online Linkage (8.10) information is mandatory
        Elements 1.2 - 1.5 Mandatory
        Element 1.6 (Keywords) CoRIS Thesauri use is mandatory
        Element 1.6 1/2 (Taxonomy) Mandatory if applicable
        Element 1.7 - 1.13 Mandatory if applicable
    Section 6: Distribution
        Element 6.1 Mandatory
        Elements 6.2 - 6.3 Mandatory if applicable
        Element 6.4 Mandatory
        Elements 6.5 - 6.7 Mandatory if applicable
B. Required elements for quantitative data (e.g. numeric data files, video transects)

The following, in addition to those above (A):
Section 2: Data Quality
   Mandatory if applicable
Section 4: Spatial Reference
   Mandatory if applicable
C. Required elements for spatial data (e.g. maps, georeferenced images, GIS files)
The following, in addition to those above (A and B):
Section 3: Spatial Data Organization
   Mandatory if applicable
Section 5: Entity and Attribute
Mandatory if applicable

IV. Search & Discovery

- Z39.50 protocol should be used for CoRIS data search and discovery for the following reasons:
 1. Z39.50 is compatible with NOAA Library and NOAA Server
 2. FGDC clearinghouse activities require Z39.50
 3. Z39.50 is supported in the international community
 Additional details are available here: http://www.blueangeltech.com/Standards/GeoProfile/geo22.htm
- A parallel search strategy is recommended to facilitate the simultaneous search of NOAA Library documents in MARC/Dublin Core format, as well as, FGDC metadata within the CoRIS system. This will avoid redundancy and allow users to discover potential data sources and applicable literature within one search. This also avoids the potentially problematic step of translating existing metadata for library resources from MARC/Dublin Core to FGDC standards.

V. Spatial Coverage

- There will be no spatial constraint put on data submitted to CoRIS. Common sense will be used by the data provider and the CoRIS Technical Manager on what subset, if any, should be imposed (e.g. nautical charts, aerial photography, etc.). It is acknowledged that several of the most important factors affecting coral reefs lie significantly upstream/upland from the coral communities themselves.

VI. Action items/requests to the Technical Subgroup

Implemented in CoRIS v1.0
- Parallel query system as outlined in IV above
- Z39.50 implementation is highly recommended

Implemented after CoRIS v1.0
- FGDC-compliant on-line metadata creation tool
- QA/QC program to assist the CoRIS Metadata Manager automatically check metadata records for CoRIS-required elements/values
- Implement a glossary 'suggestion box' for on-line word and definition submissions
- URL maintenance plan will be needed for metadata, as well as the CoRIS Web portal

VII. Time-line

Date	Task
July 4	Version 1.0 keyword list (I)
	Version 1.0 glossary (I)
	FGDC-compliant metadata assistance recommendation (II)
	FGDC Metadata Manager position description (II)
	Metadata creation tools recommendations (III)
July 15	Begin metadata creation for all primary data sets
August 15	First draft of metadata for ALL primary data sets are due
August 31	Final metadata for ALL primary data sets are due to CoRIS Working Group

October   Metadata Team reconvenes to review process and implementation

Content Team

The Content Team was led by Tom Lapointe, and composed of all members of the Working Group. The CoRIS web content design was well developed by the Content Team before the workshop. The final content design was distributed at the workshop and adopted.

NOAA Library personnel presented a discussion on metadata for library material, and how it differs from standard FGDC metadata. It was recommended that the priority for developing metadata for library material should be: (1) publications, (2) journal articles, and (3) photos.

Map Team

J. Hendee, M. Eakin, A. Strong, P. Grose made up the Map Team. It was agreed to use WCMC image maps plus shape files. Their scale is coarse, but NOAA can improve them and provide improvements back to WCMC. T. Lapointe noted that NOS has data needed to improve map shorelines.

In view of the long-term nature of making improvements to existing maps, it was recommended that the Map Team should be a standing committee after development of the CoRIS prototype.

Archive Team

NOAA coral reef data and information will be preserved, protected and made available through the archive plan. Many data sets are in developmental stages, and many others are operational, or being updated daily or weekly. Those data will remain with their host organizations, who will provide access through CoRIS, as well as their own facilities. The Archive Team includes Parmesh Dwivedi and Doug Hamilton.

When data sets reach the point that changes are no longer needed, then the data can be stored in the archive at the National Oceanographic Data Center. A requirement for this process is that every data set to be stored must be accompanied by valid, standard metadata records. Those standards are defined by the Metadata Team.

The following Archive Principles are used to guide development and implementation of systems and procedures for CoRIS data archive.

> PRESERVE – Data, information and documentation that have lasting value to the nation are preserved in accordance with NOAA' stated policies and available resources, and according to National Archives and Records Agency (NARA) guidelines.

> PROTECT - The integrity of data and information is protected against loss, physical damage, or alteration. The evidentiary value of data is not impaired in the archival work of processing, arrangement, storage and use.

> INVENTORY - Archive holdings are inventoried and described sufficiently for internal control and for access by users of the archives.

> DISTRIBUTE - Archive holdings are made available (1) in an open environment, and (2) as soon as possible after being acquired.
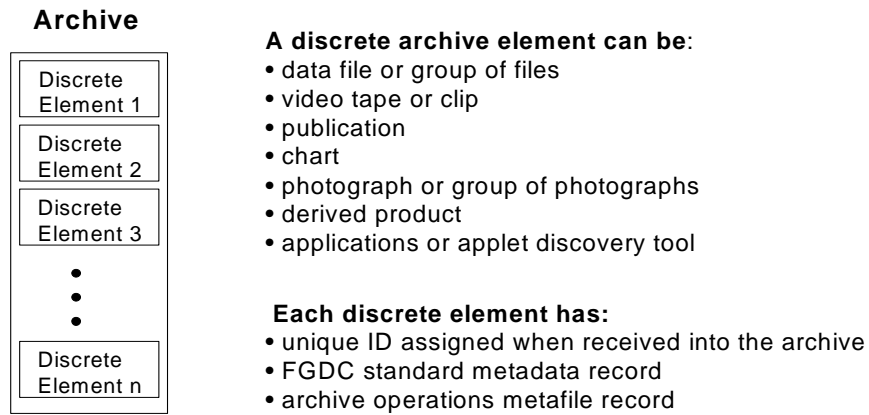
> MIGRATE - Data storage, description, and retrieval techniques are upgraded continuously to maintain parity with current information system/ storage technologies.

PARTICIPATE - Archive management is performed within NESDIS and NOAA guidelines. Knowledge and experience in managing archives are shared among data centers and scientific institutions. Current disposition schedules are maintained for all data sets and data bases according to NARA requirements.
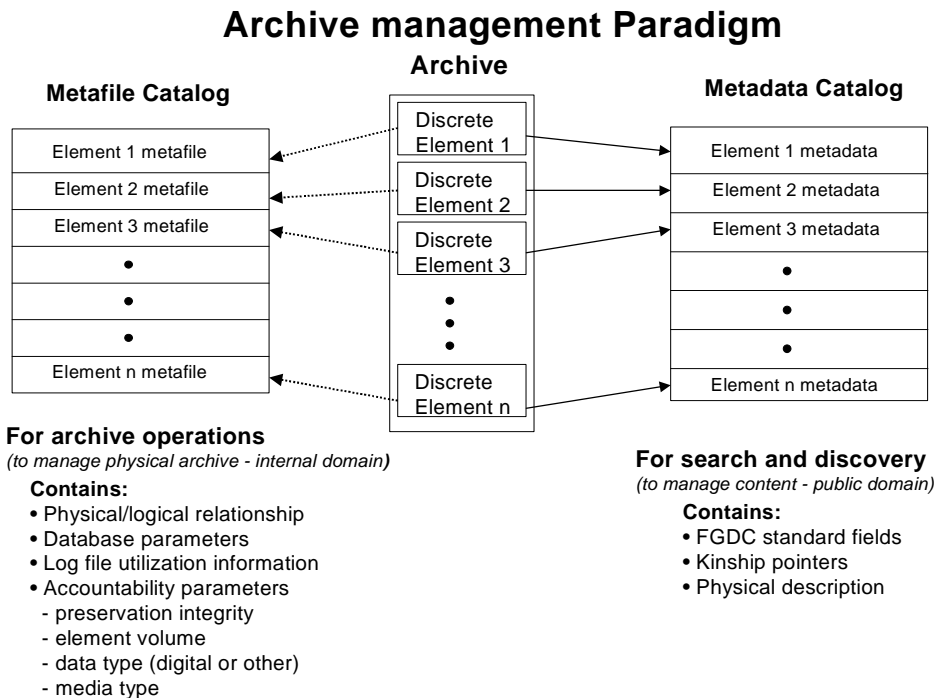
The archive paradigm that is outlined in the next two slides provides a conceptual plan for managing coral reef archive data.

Archive management Paradigm

Slide 1

Archive

Discrete Element 1
Discrete Element 2
Discrete Element 3
• • •
Discrete Element n

A discrete archive element can be:
- data file or group of files
- video tape or clip
- publication
- chart
- photograph or group of photographs
- derived product
- applications or applet discovery tool

Each discrete element has:
- unique ID assigned when received into the archive
- FGDC standard metadata record
- archive operations metafile record

Archive management Paradigm

Slide 2

Metafile Catalog   **Archive**   **Metadata Catalog**

Element 1 metafile
Element 2 metafile
Element 3 metafile
•
•
•
Element n metafile

Discrete Element 1
Discrete Element 2
Discrete Element 3
• • •
Discrete Element n

Element 1 metadata
Element 2 metadata
Element 3 metadata
•
•
•
Element n metadata

For archive operations
(to manage physical archive - internal domain)
Contains:
- Physical/logical relationship
- Database parameters
- Log file utilization information
- Accountability parameters
  - preservation integrity
  - element volume
  - data type (digital or other)
  - media type

For search and discovery
(to manage content - public domain)
Contains:
- FGDC standard fields
- Kinship pointers
- Physical description

Acknowldegements

The Working Group thanks Parmesh Dwivedi and his staff for organizaing and hosting the workshop.

Cheryl Ingram - for organizing and ensuring that rooms and supplies were available when needed.

Bill Burton - for connecting computers to networks, and projectors to computers, in different rooms as the meeting moved about, and getting them all to work on time so that discussions were not delayed.

Phil Lautenschlager - for systems support and general handyman.

NOAA CoRIS Workshop Objectives

Produce CoRIS System Design

Metadata Team
   - produce an approved CoRIS list of keywords to be used by metadata creators
   - specify the CoRIS metadata standard, and a process for certifying that metadata records meet
          the standard

Technical Team
   - produce the system architecture design, with hardware and software specifications
   - specify the design for supplying up-to-date keyword files to metadata creators

Metadata and Technical Teams Jointly
   - outline how to maintain and manage metadata (e.g. XML)
   - consider the use of standard web-based search tools for search and discovery
   - specify how the parent-child metadata model can be implemented
   - outline the next level of detail of the search and discovery paradigm elements and their relationships

Content and Metadata Teams Jointly
   - provide a more detailed design of the Data Discovery report
   - design and use of the Virtual Library

ATTACHMENT 1

NOAA CoRIS Workshop

June 12-14, 2001
Building SSMC3
1315 East-West Highway
Silver Spring, MD

Agenda

Tuesday, June 12

Location: SSMC3, Room 4513 - Conference Center
 8:30   Working arrangements - P. Dwivedi
 8:45   Welcome - R.Griffis
 9:00   Review CoRIS Project scope, Workshop objectives and expected outputs (P.Dwivedi)
Team reports:
 9:30   Technical design team report (P. Dwivedi)
10:00   Break
10:15   Web content design team report (T.LaPointe)
11:15   Library Report
11:30   Metadata team report (M. Eakin)

12:30   Lunch

Team reports (continued)
 1:30   Map team report (J. Hendee)
 1:45   Security (J. Ogata)
 2:15   Line Office overviews of NOAA principal data sets (summary, size, format, amount of metadata...)
 3:30   Team break-out sessions

        Metadata Team - Room 4513
                Specify the CoRIS metadata standard
                Outline a process for certifying that metadata records meet the CoRIS standard
                Produce an approved list of CoRIS keywords to be used by metadata producers
        Technical Team - Room 4817
                Produce the CoRIS system architecture design, with hardware/software specs
                Outline a procedure for providing up-to-date keyword files to metadata creators
        Content Team - Room 2503
                Final review of content

NOAA CoRIS Workshop

Agenda (continued)

Wednesday, June 13

8:30   SSMC3 (Room 4817) Joint opening session
9:00   Team break-out sessions

      Joint Metadata and Technical Teams - Room 4817
          Outline methods for maintaining metadata (e.g. XML)
          Consider the use of standard web-based tools for search / discovery
          Specify how the parent-child metadata model can be implemented
          Outline the next level of design detail for search / discovery paradigm

12:00 Lunch

1:00   Team break-out sessions

      Metadata - Room 2503
          ESDIM project meeting
      Technical Team - Room 4817
          Produce CoRIS system architecture design (continued)

4:30   Joint closing session to discuss progress

Thursday, June 14

8:30   SSMC3 (Room 4817) Joint opening session
9:00   Team break-out sessions

      Joint meeting of Metadata and Content Teams, with Library reps - Room 4817
          Specify the design and use of the Virtual Library
          Outline in detail the design of the Discovery report
      Technical Team - Room 2503
          Produce CoRIS system architecture design (continued)

12:00 Lunch

1:00   Joint Session - Final Reports (Room 4817)

ATTACHMENT 2

NOAA CoRIS Workshop - June 12-14, 2001
PARTICIPANTS

Name	E-mail	Organization	Telephone	
Anderson, David	David.M.Anderson@noaa.gov	NESDIS / NGDC	303-497-6237	
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Bruckner, Andy	Andy.Bruckner@noaa.gov	NMFS / FPR	301-713-2319	x140
Christensen, John	John.Christensen@noaa.gov	NOS / CCMA	301-713-3028	x153
Collins, Donald	Donald.Collins@noaa.gov	NESDIS / NODC	301-713-3275	x154
Coyne, Michael	Michael.Coyne@noaa.gov	NOS / CCMA	301-713-3028	x175
Cumberpatch, Mary Lou	Mary.Lou.Cumberpatch@noaa.gov	NOAA Central Library	301-713-2600	
Dwivedi, Parmesh	Parmesh.Dwivedi@noaa.gov	NESDIS / NODC	301-713-3264	x164
Eakin, C. Mark	Mark.Eakin@noaa.gov	NESDIS / NGDC	303-497-6172	
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ATTACHMENT 3