The Marine Realms Information Bank: A Coastal and Marine Digital Library at USGS

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Collection 1

The collection of on-line documents accessible through the MRIB includes text, pictures, charts, map and data files, relevant to coastal and marine science.

Electronic Index Cards (EICs) 4

EICs contain metadata fields describing space, time and other classifying attributes of a document:

Essential Attributes
Authors, Curators, URL, Title, Last Modified Date, Participating Agencies, Content Type, File Type, Abstract, Geologic Time;

Procedural Attributes
Project Title, Location of Study Areas, Research Methods, Research Start and End Time;

Conceptual Attributes
Academic Disciplines, Physiographic Features, Biota, Hot Topics;

EIC Information
Indexers, Indexers Comments, Date of EIC Creation, Date of EIC Last Modification.

Abstract

The Marine Realms Information Bank (MRIB) is a distributed geolibrary of the USGS Coastal and Marine Geology Program that (1) links information existing in distributed and independent sources, and (2) prioritizes search and display of information by place (location on the Earth's surface).

The MRIB aims to provide easy access to knowledge pertaining to the ocean and the associated atmospheric and terrestrial environments to scientists, decision-makers, and the interested members of the public.

Web Interface 7

The MRIB Web interface comprises three sections:

Search History Menu enables users to see the already selected search criteria, and if needed, change them;

Selection Menu enables users to select one or a combination of categories. Selections can also be made by panning or zooming maps of the areas of study;

Content Cell shows the search results, display options, and navigation tools.

Classification Scheme

Location — Place of interest
Geologic Time — Era or period
Biota — Biological organism
Physiographic Feature — Dominant attribute
Discipline — Scientific field of investigation
Research Method — Scientific technique
Hot Topics — Contemporary matters of concern
Project Title
Agency — Participating organization
Author — Principal investigator
Audience — Project purpose
Class — Level of data interpretation
Format — Appearance of information

Concept 2

The MRIB is modeled after the operations of a traditional library and is executed through computer network technology. This system builds a central index of metadata about documents that exist in remote and independent sources, and uses a multifaceted catalog with map-based geographic search capabilities.

Classification Scheme 5

The classification scheme of the MRIB catalogues documents using 13 categories: location, biota, geologic time, physiographic feature, discipline, research method, hot topics, project title, agency, author, audience, class, and format.

Outputs 8

The MRIB search results are displayed in two basic formats:

Table containing hyperlinks and brief descriptions of the documents that met the selected search criteria;

Map containing symbols marking the geographical locations discussed in the documents that met the selected search criteria. The symbols are hyperlinked to the remote documents.
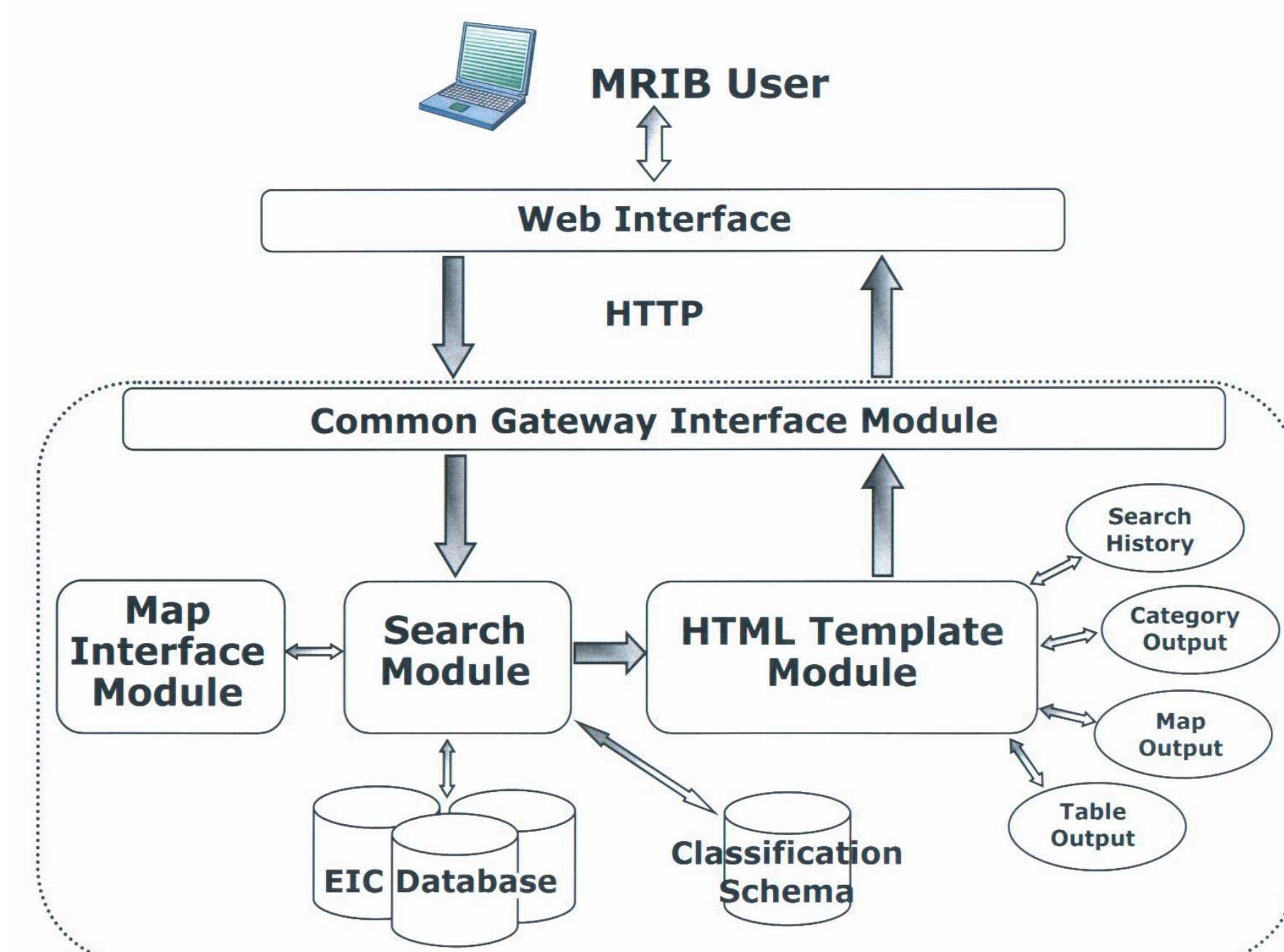
Software Architecture 3

The MRIB software architecture is divided in three independent components:

EIC Database. A metadata profile, called an Electronic Index Card (EIC), is created for each document indexed in the MRIB. The collection of all the cards creates the EIC Database;
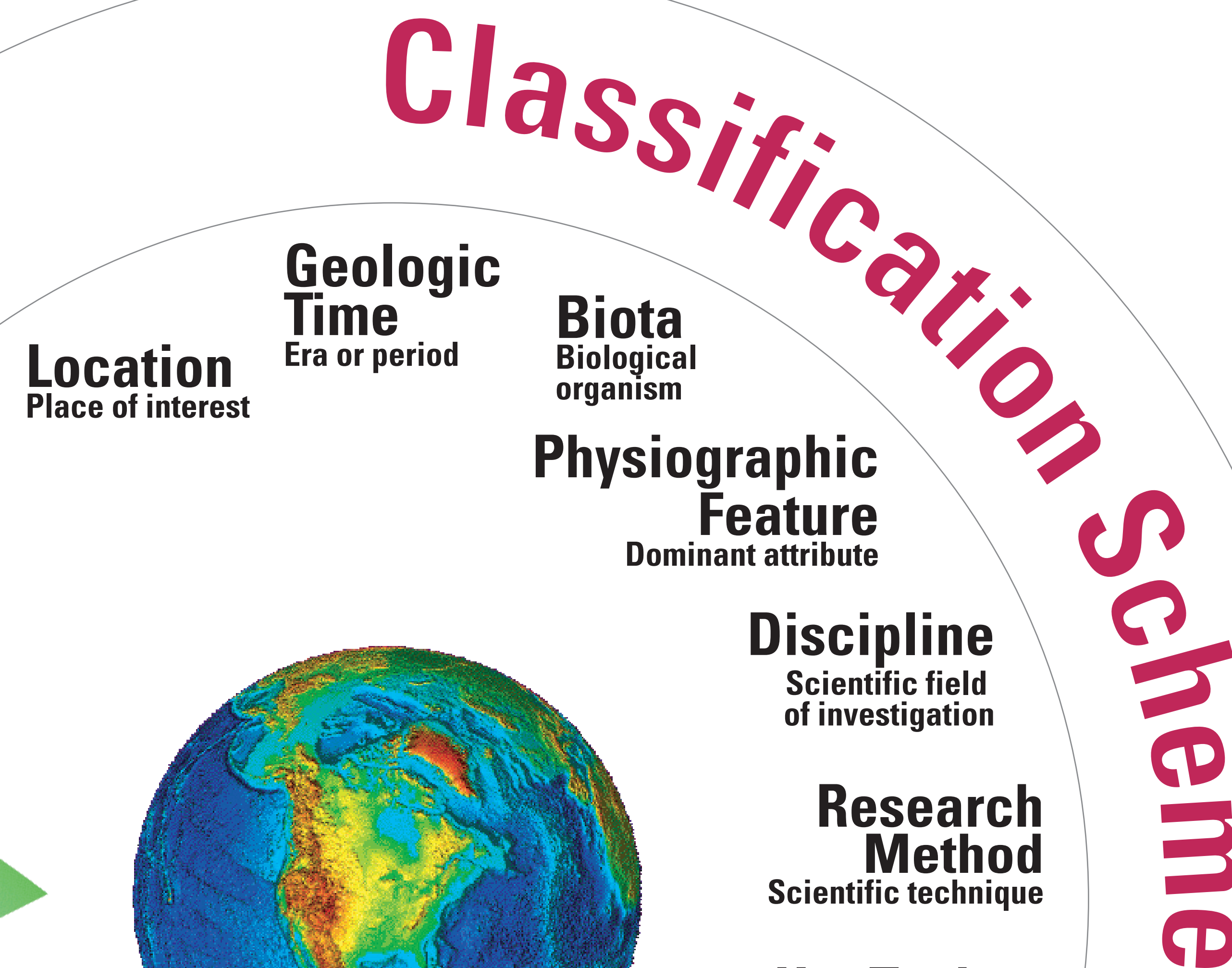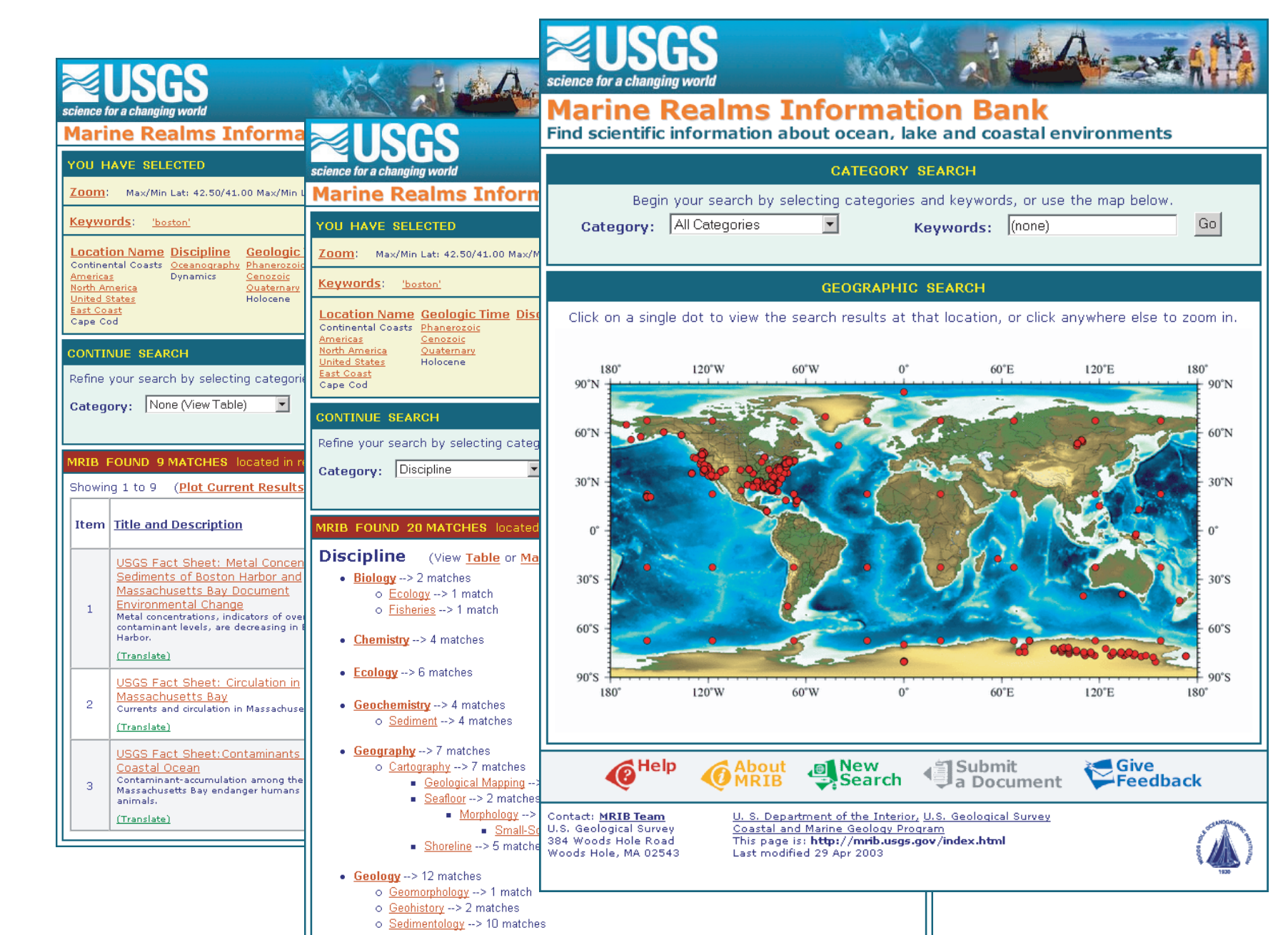
Search Engine. A customized database management system that sorts the EICs according to the MRIB classification scheme and the users' needs;

Web Interface. The user interface is designed to encourage browsing as well as searching, so as to preserve the strengths of a traditional library catalog while taking advantage of the flexibility of digital technology.

MRIB User
Web Interface
HTTP
Common Gateway Interface Module
Map Interface Module
Search Module
HTML Template Module
Search History
Category Output
Map Output
Table Output
EIC Database
Classification Schema

Search and Retrieval 6

The MRIB provides users with three search strategies to locate documents: 1) select categories, 2) browse maps, and 3) search keywords. These search strategies can be used separately or combined. The MRIB query process begins with the user issuing a search request to the Web browser. The Common Gateway Interface module parses this request and passes it on to the search module. The search module queries the EIC database for matching records. For geographical searches the map interface module is also invoked to handle latitude and longitude parameters. Once the matching records are retrieved, the search module calls upon one of several HTML templates chosen by the user (table, map, or category view). Finally, the Web page of results is sent back to the user.