

Searching the Bay for Information: The Chesapeake Bay Bibliography and Network

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ABSTRACT

The Chesapeake Bay Bibliography, begun in 1970, is a comprehensive, continuously updated database of over 7,500 citations on the science, history and management of the Bay environment. This paper describes recent developments in the Bibliography, including its conversion in 1985 from a mainframe to a microcomputer - based system and the creation in 1987-88 of the *Chesapeake Bay Bibliography Thesaurus*. The paper concludes by discussing a new network of libraries which would access the Bibliography inhouse.

INTRODUCTION

I'd like to begin with a description of Chesapeake Bay by Captain John Smith in 1608:

"Here are mountains, hills, plains, valleys, rivers and brooks all running most pleasantly into a fair bay compassed but for the mouth with fruitful and delightful land...the mildness of the aire, the fertilitie of the soile, and the situation of the rivers are so propitious to the nature and use of man as no place is more convenient for pleasure, profit, and man's sustenance."

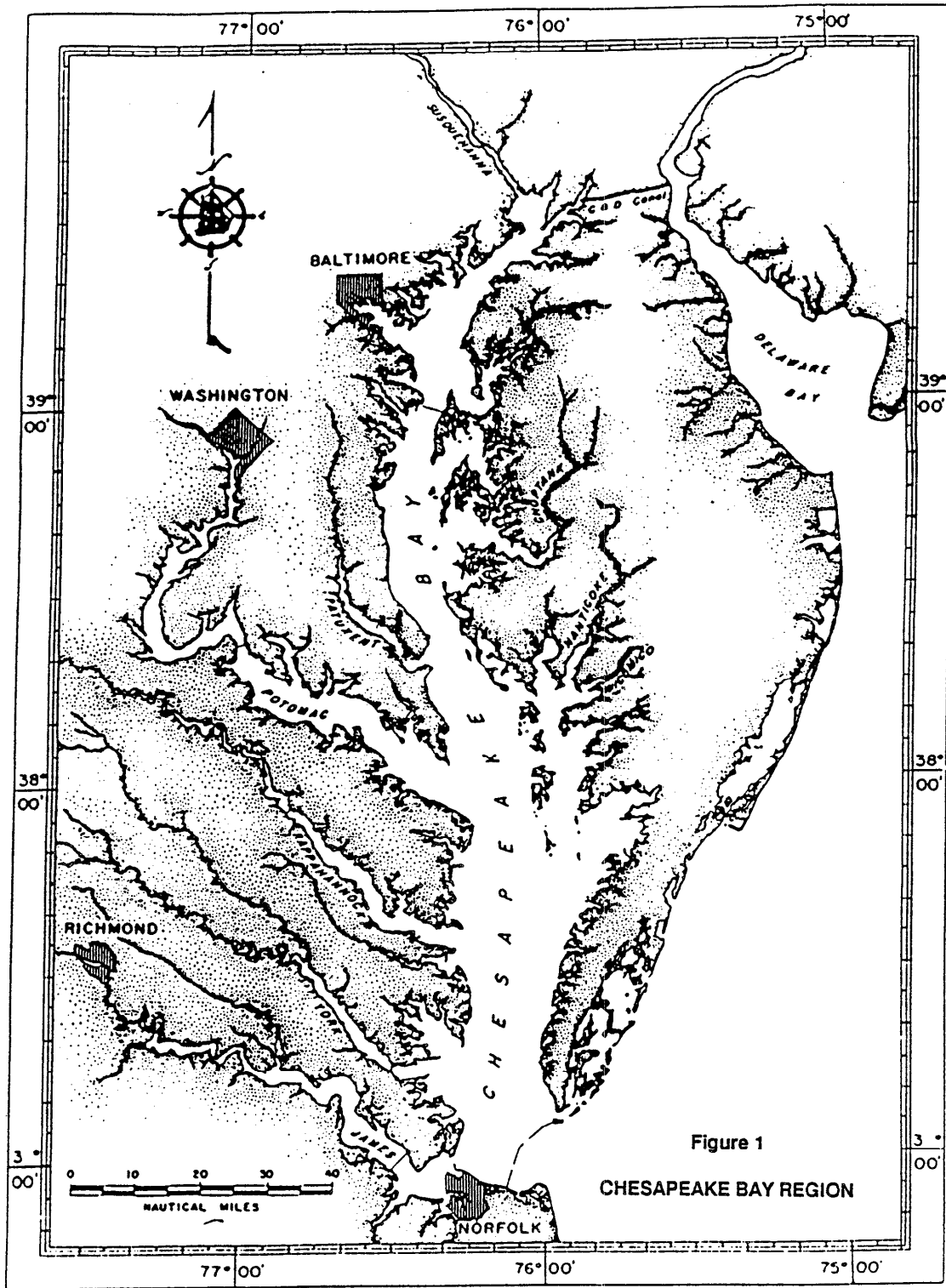
In 1970 when I first came to the Virginia Institute of Marine Science (VIMS), I found Chesapeake Bay to be as pleasant as Captain Smith had over 300 years before me. However, observant scientists looked beyond the surface beauty of the Bay and noted changes in the estuary that led them to investigate specific topics and identify developing problems. The need was apparent for detailed knowledge for those interested in management of and research on the environment and resources of the region. To meet this need we started the Chesapeake Bay Bibliography (CBB), a subject-indexed compilation of the literature concerning the Bay. This Bibliography is still thriving 17 years later.

BACKGROUND

Source material for the bibliographic citations in the CBB comes primarily from the VIMS library collection of approximately 500 primary journals in the marine and environmental sciences. Monographs, symposia, dissertations, theses, selected institutional and governmental reports, newspapers, and secondary sources are also scanned for relevant Bay material.

From 1970 through 1980 various bibliographers located and indexed the citations. VIMS Computer Center personnel entered the citations into a database run on an IBM 370/115 mainframe computer. Five volumes of the CBB were published as *VIMS Special Scientific Reports*. After this productive decade the project lost funding. Nevertheless, monitoring of the source publications continued, and handwritten cards of relevant citations were maintained from 1981-1984.

With the support of the Maryland Power Plant Research Program, the CBB was updated in 1985. The



three-year contract funded a graduate student who indexed the backlog of material, as well as current citations and entered them into a database converted to run on a Prime 9955 computer. The database is still run on this computer, but may also be transferred to the hard disk of our M-300 IBM/PC where we manage and search the CBB, using FYI 3000 Plus software.

APPROACH

A. Selection Criteria

We seek to maintain a comprehensive literature file of all topics associated with the Chesapeake Bay environment. Items not cited are abstracts, short notes, and letters to editors. Among the trade publications, articles are omitted if they are extremely brief, lack significant information, or consist largely of photographs.

To meet the geographic criteria a publication must discuss at least one of the following areas: (1) Chesapeake Bay or any of its tributaries, (2) Atlantic Coast of the Delmarva Peninsula, (3) Middle Atlantic Bight, and (4) land areas bordering 1, 2 and 3 (Figure 1). However, laboratory studies on animals and plants economically important to the Bay are cited even if they do not specifically mention the Chesapeake Bay area.

B. Selection Methods

The greatest number of citations are selected from a core group of primary journals (Table 1). All issues of the core journals are scanned by examining the title and authors' addresses of every paper for relevant criteria. Should the title not meet the selection criteria, but an author's address be in the Bay area, the entire paper is read to identify any relevance. All references cited in selected papers are checked for possible additional sources. If the paper is not available for indexing in the VIMS Library, a photocopy is obtained on interlibrary loan.

Most remaining primary journals outside of the core group are reviewed by scanning their contents tables. Special interest magazines and newsletters that frequently have current information on Bay reports and activities are scanned cover to cover (Table 2). They also often provide addresses and other information essential to obtaining additional material on the Bay.

We maintain contact with the Chesapeake Bay Liaison Office to assure the receipt of all U.S. Environmental Protection Agency Chesapeake Bay Program project reports. Also, we receive copies of all documents generated by the Chesapeake Research Consortium (CRC) and the Scientific and Technical Advisory Committee (STAC).

We continually look for opportunities to search other online databases. For example, a search on the Chesapeake Bay from the Aquatic Plant Program Bibliography, University of Florida, helped us to expand our coverage of relevant plants in the CBB. Likewise, searches run for library patrons in various DIALOG databases are routinely checked for appropriate additions.

A major project in 1988 will be to screen the new *Chesapeake Bay Environmental Data Directory* for literature citations not in the CBB. This directory was compiled by Maryland and Virginia Sea Grant staff, who extracted Bay data from the National Environmental Data Referral Service (NEDRES).

To assure coverage of sources not available in the VIMS Library, we search selected abstracts and indexing services (Table 3). These secondary sources are searched geographically under Chesapeake Bay, Maryland or Virginia. *Aquatic Sciences and Fisheries Abstracts* (ASFA) is the heaviest yielder of relevant citations. It has a separate, convenient, geographic index with land and sea area delimitations.

THESAURUS

In anticipation of a growing number of CBB users, we recently created the *Chesapeake Bay Bibliography Thesaurus* to improve the indexing and retrieval of information. We hope it will help identify the keywords best suited for each specific search.

When the CBB was established in 1970, we selected the Water Resources Thesaurus, produced by the Office of Water Resources Research of the U.S. Department of the Interior, for our descriptor list. In the beginning we deleted all the names of animals and plants not native to the Bay, as well as terms not applicable to the Bay environment, such as icebergs and typhoons. We added to the CBB Thesaurus the common names of predominant indigenous animals and wetlands plants as suggested by VIMS scientists and proper geographic names of local rivers, harbors and so forth. Each citation added to the bibliography could have ten descriptors or fewer.

Now that we manage and search the database on the library's micro-computer, the FYI software compiles the keyword list. These key terms make up the basis of the CBB Thesaurus. They have conventional notations to link related search terms and identify the precise terms needed for good search results (Table 4).

Creating the CBB Thesaurus provided a great opportunity to "clean up" the indexing. Many overlapping keywords were eliminated, and the materials affected were then reindexed, thus strengthening the consistency of the database. New keywords were added judiciously to accommodate topics like acid rain, mitigation, and TBT (tributyltin), which are gaining prominence in the literature.

Plants and animals are indexed by their common names in the CBB. However, the CBB Thesaurus provides both the common name and the genus-species taxon name. In addition, there is a taxonomic list of every organism that appears in the CBB Thesaurus paired with its common name.

Geographic names that are used as keywords in the CBB are listed in a separate geographic list, but are not included in the main body of the CBB Thesaurus. The geographic list is arranged by rivers, counties, cities, bays, states, harbors, islands and "other."

NETWORK

In the future we hope to improve the distribution and exchange of Bay information by establishing a network of area libraries. These libraries will serve as access points for searching the CBB.

Funds are currently being sought to provide about twenty network sites with a copy of the CBB database and a suitable software package for searching it. We have found that FYI 3000 Plus, the software used for management of the CBB, will satisfy the following requirements of the network: 1) it can be legally distributed to member libraries along with the CBB in a self-contained form; 2) it runs on both the IBM PC and IBM PC compatible computers, which have emerged as the standard in libraries; 3) it has the ability to handle the number and variety of citations anticipated for the database; and 4) it is the most cost-efficient in terms of file preparation and software package purchase.

Libraries in the network will be selected from Bay area institutions that can collectively provide broad geographic and subject coverage. To encourage sharing of scientific and policy information, we will have two classes of network membership:

Class I - Major research libraries that will be given the CBB database and FYI software package (Table 5). These libraries must have

- 1) staff for CBB searching.
- 2) available hardware for running the system.
- 3) scientific research collections.

Class II - Public libraries, community college libraries, federal and state agency libraries, etc., that will affiliate with a Class I library to receive information from the CBB. These libraries must have

- 1) material on a topic that concerns the Bay.
- 2) a demonstrated need to provide Bay information to their patrons.

If funding is received, all potential Class I member libraries will be invited to send a representative to a one day meeting. The purpose of the meeting will be to fully describe the CBB network. The searching capabilities of the CBB on FYI will be demonstrated, and each representative will be given a copy of the CBB Thesaurus and a CBB/FYI Search Guide that we are going to prepare.

The responsibility of each library in the network to supply the CBB with copies of relevant documents from its institution will also be addressed. A Memorandum of Understanding will be written based on discussions at the meeting.

Having received all necessary information about the CBB and meeting the above Class I requirements, each library will decide whether or not to participate in the network. Therefore, the final composition of the CBB network will be decided by its members.

Once the initial version of the CBB has been distributed to network members, VIMS will supply a completely updated file once per year thereafter. A network meeting will be held periodically to evaluate the project and address any suggestions for improvement.

Class II libraries will be determined after the Class I libraries are organized and have their CBB databases in place. At this point, all libraries that meet the requirements for Class II membership in the CBB network will be sent a letter describing the network and including a list of Class I members. If a library wants to join the network, it should contact the nearest Class I library member to set up information exchange agreements.

As the CBB network becomes established, I believe it will fulfill its role in providing information service to all who are working to once again make the Chesapeake Bay "convenient for pleasure, and profit, and man's sustenance."

TABLE 1
CORE PRIMARY JOURNALS

AMERICAN MALACOLOGICAL BULLETIN
AMERICAN NATURALIST
AMERICAN ZOOLOGIST
AQUACULTURAL ENGINEERING
AQUACULTURE
AQUACULTURE AND FISHERIES MANAGEMENT
AQUATIC BOTANY
AQUATIC TOXICOLOGY
ARCHIV FUR HYDROBIOLOGIE
ARCHIVES OF ENVIRONMENTAL CONTAMINATION AND TOXICOLOGY
BIOGEOCHEMISTRY
BIOLOGICAL BULLETIN
BIOLOGICAL CONSERVATION
BIOLOGICAL OCEANOGRAPHY
BIOLOGICAL REVIEWS
BOTANICA MARINA
BULLETIN OF ENVIRONMENTAL CONTAMINATION AND TOXICOLOGY
BULLETIN OF MARINE SCIENCE
CANADIAN JOURNAL OF FISHERIES AND AQUATIC SCIENCES
CHEMICAL GEOLOGY
CHEMISTRY AND ECOLOGY
CHEMOSPHERE
CLIMATIC CHANGE
COASTAL ENGINEERING
COASTAL MANAGEMENT
CONTINENTAL SHELF RESEARCH
COPEIA
CRUSTACEANA
DEEP-SEA RESEARCH
DISEASES OF AQUATIC ORGANISMS
ECOLOGICAL MONOGRAPHS
ECOLOGY
ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY
ENVIRONMENTAL BIOLOGY OF FISHES
ENVIRONMENTAL GEOLOGY AND WATER SCIENCES
ENVIRONMENTAL MANAGEMENT
ENVIRONMENTAL POLLUTION
ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY
ESTUARIES
ESTUARINE, COASTAL AND SHELF SCIENCE
FISHERIES RESEARCH
GEOLOGICAL SOCIETY OF AMERICA
GEOLOGY
GEO-MARINE LETTERS
HYDROBIOLOGIA
INTERNATIONAL JOURNAL OF ENVIRONMENTAL ANALYTICAL CHEMISTRY
INTERNATIONAL JOURNAL OF ENVIRONMENTAL STUDIES
INTERNATIONAL JOURNAL OF ESTUARINE AND COASTAL LAW
JOURNAL OF AQUATIC PLANT MANAGEMENT
JOURNAL OF BIOGEOGRAPHY
JOURNAL OF COASTAL RESEARCH
JOURNAL DU CONSEIL
JOURNAL OF CRUSTACEAN BIOLOGY

JOURNAL OF ENVIRONMENTAL ECONOMICS AND MANAGEMENT
JOURNAL OF ENVIRONMENTAL MANAGEMENT
JOURNAL OF ENVIRONMENTAL QUALITY
JOURNAL OF EXPERIMENTAL MARINE BIOLOGY AND ECOLOGY
JOURNAL OF FISH BIOLOGY
JOURNAL OF FISH DISEASES
JOURNAL OF GEOLOGY
JOURNAL OF GEOPHYSICAL RESEARCH
JOURNAL OF MOLLUSCAN STUDIES
JOURNAL OF PHYCOLOGY
JOURNAL OF PHYSICAL OCEANOGRAPHY
JOURNAL OF PLANKTON RESEARCH
JOURNAL OF SEDIMENTARY PETROLOGY
JOURNAL OF SHELLFISH RESEARCH
JOURNAL OF SHORELINE MANAGEMENT
JOURNAL OF THE NORTH AMERICAN BENTHOLOGICAL SOCIETY
JOURNAL OF THE WATER POLLUTION CONTROL FEDERATION
JOURNAL OF WATERWAY, PORT, COASTAL AND OCEAN ENGINEERING
LIMNOLOGY AND OCEANOGRAPHY
MALACOLOGIA
MALACOLOGICAL REVIEW
MARINE BEHAVIOR AND PHYSIOLOGY
MARINE BIOLOGY
MARINE CHEMISTRY
MARINE ECOLOGY
MARINE ECOLOGY PROGRESS SERIES
MARINE ENVIRONMENTAL RESEARCH
MARINE FISHERIES REVIEW
MARINE GEOLOGY
MARINE GEOPHYSICAL RESEARCH
MARINE MAMMAL SCIENCE
MARINE MICROBIAL FOODWEBS
MARINE POLICY
MARINE POLLUTION BULLETIN
MARINE RESOURCES ECONOMICS
MARINE TECHNOLOGY SOCIETY JOURNAL
MARITIME SEDIMENTS AND ATLANTIC GEOLOGY
MICROBIAL ECOLOGY
NAUTILUS
NORTH AMERICAN JOURNAL OF FISHERIES MANAGEMENT
OCEANS
OCEANUS
OECOLOGIA
OIKOS
OPHELIA
PROCEEDINGS OF THE BIOLOGICAL SOCIETY OF WASHINGTON
PROGRESSIVE FISH-CULTURIST
RESTORATION AND MANAGEMENT NOTES
SCIENCE OF THE TOTAL ENVIRONMENT
SEA FRONTIERS
SEA TECHNOLOGY
SEDIMENTARY GEOLOGY
SEDIMENTOLOGY
SHORE AND BEACH
SOUTHEASTERN GEOLOGY
TRANSACTIONS OF THE AMERICAN FISHERIES SOCIETY
U.S. FISHERY BULLETIN

120

VELIGER
VIRGINIA JOURNAL OF NATURAL RESOURCES LAW
VIRGINIA JOURNAL OF SCIENCE
WATER, AIR AND SOIL POLLUTION
WATER RESEARCH
WATER RESOURCES BULLETIN
WATER RESOURCES RESEARCH
WETLANDS

TABLE 2

MAGAZINES AND NEWSLETTERS

BARRIER ISLANDS NEWSLETTER (NATIONAL WILDLIFE FEDERATION)
CHESAPEAKE BAY FOUNDATION BAY WATCHER BULLETIN
CHESAPEAKE BAY FOUNDATION NEWS
CHESAPEAKE BAY MAGAZINE
CHESAPEAKE CITIZEN REPORT (ALLIANCE FOR THE CHESAPEAKE BAY)
CHESAPEAKE RIVER REPORT (ALLIANCE FOR THE CHESAPEAKE BAY)
CERCULAR COASTAL ENGINEERING RESEARCH CENTER (U.S. ARMY CORPS OF ENGINEERS)
COASTAL ZONE MANAGEMENT (NAUTILUS PRESS)
DELAWARE SEA GRANT REPORTER
ECOLOGY USA
ECOPHORA (CALVERT MARINE MUSEUM)
ESTUARINE RESEARCH FEDERATION NEWSLETTER
KEYSTONE IN THE CLEANUP (PA DEPT. OF ENVIRONMENTAL RESOURCES)
MARINE FISH MANAGEMENT (NAUTILUS PRESS)
MARYLAND MARINE NOTES (MARYLAND SEA GRANT)
MARYLAND SEA GRANT
NATIONAL ESTUARINE RESERVE RESEARCH SYSTEM STATUS REPORT (NOAA)
NATIONAL FISHERMAN
NATIONAL MARINE SANCTUARY PROGRAM STATUS REPORT (NOAA)
NATIONAL SCIENCE FOUNDATION BULLETIN
NATIONAL WETLANDS NEWSLETTER (NATIONAL WETLANDS TECHNICAL COUNCIL)
NATURE CONSERVANCY MAGAZINE
NORTHERN VIRGINIA COASTAL ZONE MONITOR
OCEAN SCIENCE NEWS (NAUTILUS PRESS)
OUTDOOR REPORT (VA DEPT. GAME AND INLAND FISHERIES)
SFI BULLETIN (SPORT FISHING INSTITUTE)
SOCIETY OF WETLAND SCIENTISTS BULLETIN
TIDINGS (THE LOWER JAMES RIVER ASSOCIATION)
UNDERWATER NATURALIST (AMERICAN LITTORAL SOCIETY)
VIRGINIA CONSERVANCY NOTES (NATURE CONSERVANCY, VA CHAPTER)
VIRGINIA MARINE RESOURCE BULLETIN (VA SEA GRANT)
VIRGINIA NATURAL RESOURCES NEWSLETTER (VA SECRETARY OF NATURAL RESOURCES)
VIRGINIA WILDLIFE
VIRGINIA WILDLIFE FEDERATION RECORD
WATER NEWS (VA WATER RESOURCES RESEARCH CENTER)
WASHINGTON LETTER OF OCEANOGRAPHY

TABLE 3

ABSTRACTING AND INDEXING SERVICES

AQUACULTURE ABSTRACTS
AQUATIC SCIENCES AND FISHERIES ABSTRACTS
DEEP SEA RESEARCH-OCEANOGRAPHIC LITERATURE REVIEW
DISSERTATION ABSTRACTS
ENVIRONMENTAL LAW REPORTER
EPA PUBLICATIONS BIBLIOGRAPHY
GEO ABSTRACTS E. SEDIMENTOLOGY
HELMINTHOLOGICAL ABSTRACTS
MARINE AFFAIRS BIBLIOGRAPHY
OCEANIC ABSTRACTS
OCEANOGRAPHIC INDEX
POLLUTION ABSTRACTS
PROTOZOOLOGICAL ABSTRACTS
SELECTED WATER RESOURCES ABSTRACTS
WILDLIFE ABSTRACTS
ZOOLOGICAL RECORD

TABLE 4

SELECTION FROM THE CHESAPEAKE BAY BIBLIOGRAPHY THESAURUS

OXYGEN DEMAND

NT	BIOCHEMICAL OXYGEN DEMAND
RT	AERATION
	ANOXIA
	DISSOLVED OXYGEN
	EUTROPHICATION
	METABOLISM
	OXIDATION
	OXYGEN
	OXYGEN DEPLETION
	PHOTOSYNTHESIS
	PHYSIOLOGY
	PRIMARY PRODUCTIVITY
	PRODUCTIVITY
	RESPIRATION
	WATER QUALITY

OXYGEN DEPLETION

SN	Used for low oxygen conditions
RT	ANAEROBIC CONDITIONS
	ANOXIA
	DEGRADATION
	DISSOLVED OXYGEN
	EUTROPHICATION
	FISHKILL
	OXYGEN
	OXYGEN DEMAND

OXYGENATION

USE	AERATION
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OYSTER DRILLS

UF	<u>UROSALPINX CINEREA</u>
BT	GASTROPODS
	MOLLUSCS
	SNAILS
RT	OYSTERS
	PARASITES

TABLE 5
POTENTIAL NETWORK LIBRARIES

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA
CHESAPEAKE BAY INSTITUTE
CHESAPEAKE BIOLOGICAL LABORATORY, CEES
GEORGE MASON UNIVERSITY
JOHNS HOPKINS UNIVERSITY
MARYLAND LAW LIBRARY
OLD DOMINION UNIVERSITY
OXFORD LABORATORY, NMFS & STATE OF MARYLAND
PENNSYLVANIA STATE UNIVERSITY
SMITHSONIAN ENVIRONMENTAL RESEARCH CENTER
UNIVERSITY OF DELAWARE
UNIVERSITY OF MARYLAND
UNIVERSITY OF RICHMOND, SCIENCE LIBRARY
UNIVERSITY OF VIRGINIA
VIRGINIA COMMONWEALTH UNIVERSITY, ACADEMIC CAMPUS
VIRGINIA INSTITUTE OF MARINE SCIENCE
VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY
VIRGINIA STATE LIBRARY