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A cross-referenced index to current (1971-1972) biological and biology-related research on Chesapeake Bay

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A CROSS-REFERENCED INDEX TO CURRENT (1971-1972) BIOLOGICAL AND BIOLOGY-RELATED RESEARCH ON CHESAPEAKE BAY

by

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INTRODUCTION

The U.S. Army Corps of Engineers, in their Chesapeake Bay Resource Study, needs to establish both a "dynamic benchmark" of existing biological conditions and a foundation for the capability to predict the future effects of rapidly accelerating urbanization and industrial development and other resource management decisions on the biota of Chesapeake Bay. To meet that need it is mandatory to know the extensiveness and intensiveness of research activities.

This index was prepared to summarize, identify and cross-reference biological research in order to identify the present level of research efforts. Because of the large number of individuals and agencies involved in Bay research, the indexing effort was limited to the following sources for which project descriptions exist: RANN-supported research at the University of Maryland and Virginia Institute of Marine Science, The Rhode River Project, and current research (non-RANN) efforts of the Natural Resources Institute and the Virginia Institute of Marine Science. Four documents formed the primary sources, these are designated by Roman numerals as follows:

Vol. I -- The Chesapeake Bay: University of Maryland Research Outlines for the National Science Foundation Program in Research Applied to National Needs, For the Period July 1, 1971 - June 30, 1972, L. Eugene Cronin, R. Lamar Green and Robert W. Krauss, Principal Investigators.

Vol. II - Research on Chesapeake Bay and Contiguous Waters of the Chesapeake Bight of the Virginian Sea: At the Virginia Institute of Marine Science, Gloucester Point, Virginia and Wachapreague, Virginia, William J. Hargis, Jr., Director. RANN (IRRPOS) Project Report No. 4 & Sea Grant Program Report No. 4 in cooperation with Langley Research Center, National Aeronautics and Space Administration, Special Scientific Report No. 49 of the Virginia Institute of Marine Science Gloucester Point, Virginia 23062, June 1971.

Vol. III - Research on the Bay: Staff and Projects Related to the Resources of Chesapeake Bay. Natural Resources Institute, University of Maryland, Chesapeake Biological Laboratory, Seafood Processing Laboratory. Reference No. 71-30: L. Eugene Cronin, Director.

Vol. IV -- Rhode River Estuary: Volume II - Interdisciplinary Research on a Watershed-Estuarine System of the Chesapeake Bay. Submitted to National Science Foundation by Smithsonian Institution in Association with the Johns Hopkins University and University of Maryland.

Note: The Rhode River project (Volume IV alone) is composed of research proposals rather than project abstracts, and initial indexing was prepared from that source. A later description of Rhode River projects has come to our attention and has been designated as Volume IV-A. This document is: "The Rhode River Research Program, January 1972". Listings in Volume IV have been cross-referred to those listed in Volume IV-A.

The index was prepared from existing project abstracts and is by no means complete in scope. Many significant omissions such as the Bay biological research being conducted at the Johns Hopkins Chesapeake Bay Institute and the National Marine Fisheries Service at Oxford, Maryland are apparent, as well as the research being conducted by private institutions such as the Philadelphia Academy of Natural Sciences. In view of these omissions, this index becomes a first approximation to the task of detailed inventorying of current research. To remediate these omissions, we have circulated standard forms to all Bay researchers known to us. This form and an example are shown on page 57 and ff.

It is hoped that individuals and institutions will respond to the request for project abstracts and that this effort can be expanded beyond the narrow limitations of "biological or biologically-related" research. Researchers, managers, granting institutions, and students could benefit immensely from a continuing effort.

Citations given in the index refer to volume and project number or volume and page number. Each project is identified by complete title and by principal investigator(s) only (see page 34 and ff). Users, therefore, should have access to the original documents noted above for complete project descriptions.

Any effort of this type involves arbitrary decisions as to the assignment of projects to index categories and to the interpretation of the project descriptions themselves. We take full responsibility for these assignments. We have relied chiefly on the content of the written descriptions as the authority for indexing and have suppressed the interpretation or extension of these descriptions. Inclusivity was decided on the basis of biological or biologically-related content. This too was a difficult criterion to apply.

Current research is dynamic, some indexed projects have been changed, assimilated into other projects, or in some cases, dropped. It is not possible to continually adjust the indexing to reflect the current status. We have deleted from the index only those projects that, to our knowledge, were never actually initiated.

Two-hundred and sixty-eight project summaries were indexed in this report--it is hoped that this effort can be improved, continued, and the coverage increased to include all Bay research efforts.

ACKNOWLEDGMENTS

Many people cooperated in making project summaries and other information available; their help is appreciated. Particular thanks are due to Frank Cockrell, Pearl Manchester and Dot Bloem; and to Ann Krym who typed the final index.

Pisces (cont'd)

Fundulus spp. (killifishes)
Ictalurus spp. (catfishes)
Leiostomus xanthurus, spot
Liparis (snailfish)
Menidia menidia, Atlantic silverside
Morone americana, white perch
Morone saxatilis, striped bass
Mugil curema, white mullet
Pogonias cromis, black drum
Pomatomus saltatrix, bluefish
Raja spp. (skates)
Ranchycentron canadum, cobia
Rhinoptera bonasus, cownosed ray
Scianenops occellata, red drum
Sphaeorides maculatus, northern puffer
Syngnathus spp. (pipefishes)
Trinectes maculatus, hogchoker
aquaculture
atlas
behavior
Baltimore Harbor
benthic
bibliography
blood chemistry
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chlorinated hydrocarbons
closed environmental cycle systems
Cyprinodontidae
Delaware River
diseases
fish eggs and larvae
fish kills
fisheries science curriculum
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Neomysis americana
parasites
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pesticides
pheromones
phytoplankton
polymorphism
populations
Potomac River
power plants
recreation
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scallop
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II - 184	Monogenetic Trematodes of Fishes of Puerto Rico	William J. Hargis, Jr. Adrian R. Lawler E. Lynn Suydam
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III - 9	Investigation of the Hydrographic and Ecological Effects of Enlargement of the Chesapeake and Delaware Canal	Ted S. Y. Koo
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III - 16	Populations of Striped Bass, Morone Saxatilis, in the Upper Chesapeake Bay	Raymond P. Morgan II
III - 17	Polymorphic Albumins of the White Perch, Morone americana	Raymond P. Morgan II
III - 18	Comparisons of the Blood Chemistry of Six Species of Fish of the Genus Morone, Including Striped Bass	Raymond P. Morgan II
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III - 30	Ecological Effects of Nuclear Steam Electric Station Operation on Estuarine Systems	Joseph A. Mihursky
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IV-2 = IVA-18	A Systems Analysis Model of Urbanization in the Rhode River Watershed	Laurence E. Coffin, Jr. Donald J. Belcher
IV-3 = IVA-1	Model Studies and Data Processing	Francis S. Williamson Howard H. Seliger Charles A. Rohde
*IV-4	White Tailed Deer As an Ecosystem Process	Helmut K. Buechner
IV-5 = IVA-17	Studies of Soils, Terrestrial Plant Communities, and the Rhode River Estuary Using Data From Remote Sensing	Francis S. Williamson
*IV-6	Impact of Waterfowl Concentration on the Estuarine Biota	William J. L. Sladen
*IV-7	Parasitic Helminths in Waterfowl Populations	Gerhard A. Schad
IV-8 = IVA-14	A Study of Suspended and Bottom Sediments in the Rhode River	Jack W. Pierce
IV-9 = IVA-16	Hydrology of the Rhode River Basin Near Galesville, Maryland	Edward J. Pluhowski
IV-10 = IVA-8	Autotrophic and Heterotrophic Phosphorus Metabolism in Algae	David L. Correll
IV-11 = IVA-15	Heavy Metals Study	Edward P. Radford John M. Frazier
*IV-12	Studies of Selected Groups of Aquatic Insects of Muddy Creek and its Tributaries in Relation to Environmental Variables	Eugene S. Morton
IV-13 = IVA-12	Microbiology of Estuarine Biogeochemical Cycles at the Land-Water Interface	Robert Ballentine
IV-14 = IVA-5	Physical, Chemical, and Biological Measures of Water Quality in the Rhode River	Robert L. Cory
IV-15 = IVA-4	Productivity of Phytoplankton and Zooplankton	Howard H. Seliger

PROJECT NUMBER	PROJECT TITLE	INVESTIGATORS
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IV-17 = IVA-10	Population Ecology of Foraminifera and Infaunal Bivalves in Relation to Environmental Variables	Martin A. Buzas
*IV-18	Adaptive Processes in Primary Producers	Edward P. Karlander
IV-19 = IVA-7	Studies of Estuarine Ciliate Protozoa as a Function of Environmental Change	Eugene B. Small
IV-20 = IVA-3	Heterotrophy in Benthic Plant Communities	Raymond A. Galloway
IV-21 = IVA-9	Studies of the Physical Hydrography of the Rhode River Estuary	Donald W. Pritchard

* These projects were never initiated, are not included in the 1972 Rhode River Research Program, and were therefore not referenced in the index.

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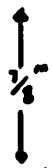
PROJECT NUMBER	PROJECT TITLE	INVESTIGATORS
IVA-1 = IV-3	Model Studies, Data Processing, and Project Coordination for the Rhode River Program	Charles A. Rohde Francis Williamson
*IVA-2	Ecology of Rooted Aquatic Vegetation in Rhode River	Charles H. Southwick
IVA-3 = IV-20	Heterotrophy in Benthic Plant Communities in Rhode River	Raymond A. Galloway
IVA-4 = IV-15	Productivity of Phytoplankton and Zooplankton in the Rhode River	Howard H. Seliger
IVA-5 = IV-14	Physical, Chemical, and Biological Measures of Water Quality in the Rhode River	Robert L. Cory
*IVA-6	Exclusion and Enclosure Experiments to Study Biological Interactions of Benthic Estuarine Invertebrates	Richard Strathmann
IVA-7 = IV-19	Studies of Estuarine Ciliate Protozoa as a Function of Environmental Change in the Rhode River	Eugene B. Small
IVA-8 = IV-10	Autotrophic and Heterotrophic Phosphorus Metabolism and Microbial Communities	David L. Correll
IVA-9 = IV-21	Studies of the Physical Hydrography of the Rhode River Estuary	Donald W. Pritchard
IVA-10 = IV-17	Population Ecology of Foraminifera and Infaunal Bivalves in Relation to Environmental Variables in Rhode River	Martin A. Buzas
IVA-11 = IV-16	Studies on the Distribution, Abundance, and Diseases of Rooted Aquatic Vegetation in Rhode River	George A. Bean William L. Klarman
IVA-12 = IV-13	Microbiology of Estuarine Biogeochemical Cycles at the Land-water Interface	Robert Ballentine
*IVA-13	The Role of Organic Debris and Associated Organisms in Detritus Food Chains in the Rhode River	Colin P. Rees

PROJECT NUMBER	PROJECT TITLE	INVESTIGATORS
IVA-14 = IV-8	A Study of Suspended and Bottom Sediments in the Rhode River	Jack W. Pierce
IVA-15 = IV-11	Trace Metals in the Chesapeake Bay Biological Aspects	Edward P. Radford John M. Frazier
IVA-16 = IV-9	Hydrology of the Rhode River Basin	Edward J. Pluhowski
IVA-17 = IV-5	Evaluation of Remotely Sensed Data from the Rhode River Estuary Watershed	Francis S. Williamson Dale W. Jenkins
IVA-18 = IV-2	A Systems Analysis Model of Urbanization in the Rhode River Watershed	Laurence E. Coffin Donald J. Belcher
IVA-19 = IV-1	Land Use Planning in the Rhode River Watershed	J. Kevin Sullivan
*IVA-20	Marsh Grass Productivity in the Rhode River	Bert G. Drake

* Not in Volume IV



Name of Institution_____
Address_____
_____
_____

PROJECT TITLE: (ALL CAPS, UNDERLINED, IN BLOCK FORM)

PRINCIPAL INVESTIGATOR(S):

(Name and Title)

" " "

" " "

Collaborator(s): (Name and Title)

OBJECTIVES:

(Use numbers as follows:)

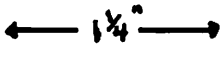
1.

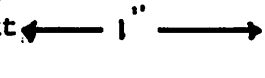
2.

3.

STATUS:

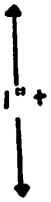
(Should be short, accurate and intelligible to non-technical readers. Include initiation date, principal activities, present status of the work, and a brief statement of work planned in next 6-12 months. Use narrative form in short paragraphs as needed.)





FINANCIAL SUPPORT:

(Simple listing in vertical form, with principal agency source first. Specify sources rather than amount of support.)



Special Instructions

1. For general format, see sample attached.

2. When using narrative form, indent for paragraphs and single-space within paragraphs.

3. When using numbering, use block form.

4. Top center margins should be 2", left margin 1-1/4", right margin 1", bottom margin (if necessary to go to 2 pages) not less than 1".

SAMPLE

Natural Resources Institute
Chesapeake Biological Laboratory
Department of Environmental Research
Prince Frederick, Maryland 20678

PROJECT TITLE: THE EFFECTS OF THERMAL LOADING AND WATER QUALITY ON ESTUARINE PRIMARY PRODUCTION.

PRINCIPAL INVESTIGATORS:

Joseph A. Mihursky, Research Associate Professor
David A. Flemer, Research Assistant Professor

OBJECTIVES:

1. To learn the effects of power plants on primary production and phytoplankton standing crops.

2. To determine the effects of nutrients on primary production and phytoplankton standing crops.

3. To evaluate the role of marshes in utilizing nutrient inputs to the estuarine ecosystem.

STATUS:

We have completed over two years of field work in the Patuxent estuary and are in the third year of work in a continuation of previous effort. Intake-effluent studies on photosynthesis were reported by Hamilton, D.C., Jr., et al., 1970. Power Plants: Effects of Chlorination on Estuarine Primary Production. Science, Vol. 197(3941):197-198. The results of the first two years of field work has been released in two technical reports (NRI Ref. No. 69-37E and NRI Ref. No. 71-6). This work should permit several nutrient budgets to be calculated for the estuary. Carbon-nitrogen, carbon-chlorophyll and carbon-carbohydrate ratios will help us evaluate the nutritional quality of the suspended particulate matter. Efforts are directed toward evaluating the role of light as a limiting factor in phytoplanktonic photosynthesis of this turbid estuarine system. We will initiate temperature and nutrient enrichment experiments and both field and laboratory approaches will be used. Our studies include estimates of marsh primary production in the upper Patuxent.

FINANCIAL SUPPORT:

Office of Water Resources Research, U.S. Dept. of the Interior
Maryland Water Resources Research Center
Natural Resources Institute
National Science Foundation, Undergraduate Research Participation Program

INFORMATION FOR COOPERATORS

The U.S. Army Corps of Engineers has launched an extensive review of the existing social, economic, legal, and environmental condition of the Chesapeake Bay. The objective of this review is the development of a plan to provide the Corps with the basic information required to permit the proper management of the Bay and its associated environs.

The Corps has asked the University of Maryland, the Virginia Institute of Marine Sciences, and the Smithsonian Institution to cooperate in an effort to summarize the status of existing biological information on the Chesapeake Bay, to review the activities, capabilities, and facilities of groups involved in Bay research, and to determine the effort required to provide a functional capability for predicting the ecological consequences of human activities that may impact on the Bay. Dr. Andrew McErlean at the University of Maryland has been named to coordinate the activities required to accomplish this goal. While the above three institutions will bear the primary responsibility in this endeavor, the report is to be comprehensive in scope. Therefore, the assistance and cooperation of all scientists and groups interested in Bay research is required. The results of this effort will be a summary of present knowledge and a research plan which identifies the critical areas for future research.

In order to summarize the existing condition of Bay biota, you will be asked to provide certain information on the current knowledge of the Bay populations and processes within your specialty. Your cooperation in providing this needed information will insure that the final report has maximum scientific value as an accurate reflection of the current "State of the Art" and will be used in identifying gaps in our present knowledge.