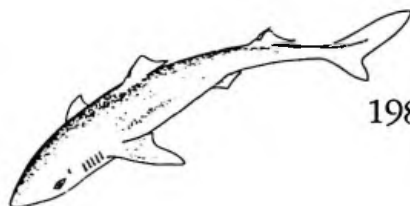


THE BULLETIN

Mount Desert Island
Biological Laboratory
Salsbury Cove
Maine 04672

Volume 24



1984

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INTRODUCTION

The Mount Desert Island Biological Laboratory is an independent non-profit biological station. It is located on the north shore of Mount Desert Island, which lies in the Gulf of Maine about 120 miles northeast of Portland near the mouth of the Bay of Fundy. The island, well known for its Acadia National Park, provides a variety of habitats including shallow and deep saltwater, a broad intertidal zone, saltwater and freshwater marshes, freshwater lakes and streams, forests and meadows.

The Laboratory is the largest cold water research facility in the Eastern United States, and its unique site and complement of year-round and summer investigators provide an outstanding environment for the study of various aspects of the physiology of marine and freshwater fauna. During 1984 the scientific personnel included 42 principal investigators, 31 associates, and 64 assistants/technicians, representing 53 institutions in 22 states and 4 foreign countries.

HISTORY AND ORGANIZATION

The Mount Desert Island Biological Laboratory was founded in 1898 at South Harpswell, Maine by J.S. Kingsley of Tufts University. Its present site at Salsbury Cove was donated by the Wild Gardens of Acadia, a land-holding group headed by George B. Dorr and John D. Rockefeller, Jr. which was instrumental in the founding of Acadia National Park. Relocation was completed in 1921.

The Laboratory was incorporated in 1914 under the laws of the State of Maine as a non-profit scientific and educational institution. Its original purpose was to teach undergraduate marine biology; however, the direction soon changed to providing a facility for marine research. Since the pioneering work of H.K. Smith, E.K. Marshall, and R.P. Forster on various aspects of renal and osmoregulatory physiology of local fauna, the Laboratory has become known worldwide as a center for investigations in electrolyte and transport physiology, developmental biology and electrophysiology.

The Mount Desert Island Biological Laboratory is owned and operated by the Board of Trustees and Members of the Corporation. At present there are 427 members. Officers of the Corporation - President, Vice-President, Director, Secretary and Treasurer - and an Executive Committee are elected from among the Trustees. The President and Executive Committee oversee the general administration and goals of the Laboratory. The Director, with the aid of a full-time Assistant Director and small staff, handles the daily operations.

FACILITIES

The Laboratory now owns about 250 acres. In addition to rocky shores, the site contains a freshwater pond and brook and land which varies from meadow and forest to sphagnum bog. This provides a great diversity of fauna. The Assistant Director can provide an estimate of the availability of any particular species.

Laboratories

All laboratories are single-story buildings of frame construction located along the shore.

HALSEY consists of 4 laboratories on a concrete slab. Flowing seawater is available in the laboratories or on an adjoining roofed deck. Summer use only.

HEGNER contains 8 laboratories of varying size on a concrete slab. Although not winterized, all laboratories are insulated in order to accommodate investigators requiring controlled temperature and humidity for their experiments. The laboratories have running seawater as well as access to aquaria and other holding tanks adjacent to the building.

The INSTRUMENT SHED is a small building containing one laboratory and a common room for general equipment and a water still. Summer use only.

KARNOFSKY is a year-round research building. It contains 4 large laboratories and an office set on a concrete slab. Flowing seawater is accessible on an attached, enclosed deck.

The KIDNEY SHED is a single large laboratory which can accommodate two compatible research groups. It is equipped with saltwater both in the laboratory and on an adjacent deck. Summer use only.

LEWIS contains 2 insulated laboratories on a concrete slab. Seawater tables are on an adjoining roofed deck. Summer use only.

MARSHALL, a year-round facility, houses 5 laboratories, an office, and a common-use tissue culture laboratory. Flowing seawater is available on an enclosed deck and in a central holding facility located in the basement.

NEAL contains 4 large and 4 small laboratories. Flowing seawater is available in all laboratories as well as at tables attached to the outside of the building. Summer use only.

UNION STATION has 2 laboratories on a concrete slab. Flowing seawater is available in the laboratories and on an adjoining roofed deck. Summer use only.

Study Space

Three small buildings away from the center of activity are available during the summer for study and writing.

Other Buildings

The OFFICE/MAINTENANCE SHOP is a centrally located year-round building. The upper level contains the administrative office, a small reference library, and an instrument room with vibration-free concrete footings to bedrock for analytical balances.

The DIRECTOR'S OFFICE contains a small summer office and conference room.

DAHLGREN HALL, the former village schoolhouse, has been converted into a lecture hall which can seat 120 people. Seminars and other meetings are held here during the summer.

Support Facilities

1. Equipment for general use includes high-speed and ultracentrifuges, balances, pH meters, osmometer, spectrophotometers, flame photometer, scintillation counters, and microtome equipment. There also is a new tissue culture facility which includes incubators, hoods, and an inverted microscope.

2. Year-round seawater system and two centralized holding facilities.

3. A dock consisting of two floats with live-wells and attached live-cars for maintaining specimens.

4. Two power boats - 22' and 16' - and rowing skiffs are available for specimen collecting. The Laboratory also owns a 32' collecting boat, the SQUALUS, but has found it more cost-effective to contract with local fishermen for specimen supplies.

Housing **

Seventeen cottages are maintained by the Laboratory as rental units for summer investigators and their families. Two efficiency apartments are also rental units on a year-round basis. Privately owned cottages and rooms are available near the Laboratory or in neighboring communities.

Three summer cottages have been converted into dormitories for 30 young men and women.

A dining hall, run by a cook/manager, is the eating and socializing area for the dormitory residents. It is also used for informal seminars and receptions.

** [Salsbury Cove is a small community with a post office and general store; therefore an automobile is essential for family mobility. Bar Harbor, 6 miles away, and Ellsworth, 12 miles north on the mainland, offer excellent shopping facilities and hospitals.]

APPLICATIONS AND FELLOWSHIPS

Research space is available for the entire summer season (June 1 - Sept. 30) or a half-season (June 1 - July 31 or August 1 - Sept. 30). Applications for the coming summer must be submitted by January 31 of each year. Investigators are invited to use the year-round facilities at other times of the year, but such plans should include prior consultation with the MDIBL Office concerning available facilities and specimen supply.

A limited number of fellowships and scholarships are available to research scientists and students. These funds may be used to cover the cost of laboratory rent, housing, and supplies.

For further information on applications and financial aid, contact:

Dr. David L. Wynes, Assistant Director
Mount Desert Island Biological Laboratory
Salsbury Cove, Maine 04672
(207) 288-3605

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ACKNOWLEDGMENTS

The Mount Desert Island Biological Laboratory is indebted to the National Science Foundation and the National Institutes of Health for substantial support. Funds for renovations of buildings and new construction have permitted the Laboratory to expand and upgrade its facilities, and contributions to operating costs have greatly improved the efficiency of research activities. The individual research projects which have been served by the Laboratory are variously funded by private and government agencies, and all of these projects have benefited from the NSF and NIH grants to the Laboratory.

SCIENTIFIC PERSONNEL 1984

Principal Investigator

Klaus Beyenbach, Ph.D.
Associate Professor, Section Physiology
School of Veterinary Medicine
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James L. Boyer, M.D.
Director, Liver Study Unit
Yale Medical School

Ronald G. Butler, Ph.D.
Associate Professor, Dept. of Biological Sciences
Duquesne University

Alan N. Charney, M.D.
Chief, Nephrology Section
Veterans Admin. Medical Center, New York

Gary W. Conrad, Ph.D.
Professor, Division of Biology
Kansas State University

Helen F. Cserr, Ph.D.
Professor, Division of Biology and Medicine
Brown University

David C. Dawson, Ph.D.
Associate Professor, Dept. of Physiology
University of Michigan Medical School

Charles E. Dinsmore, Ph.D.
Associate Professor, Dept. of Anatomy
Rush Medical College

William L. Doyle, Ph.D.
Professor Emeritus, Dept. of Anatomy
University of Chicago

Michael Duffey, Ph.D.
Assistant Professor, Dept. of Physiology
State University of New York, Buffalo

Henry F. Edelhauser, Ph.D.
Professor, Dept. of Physiology
Medical College of Wisconsin

Franklin H. Epstein, M.D.
Professor of Medicine, Harvard Medical School
Chief, Renal Unit, Beth Israel Hospital

Associates

W. Cliff
D. Sawyer
M. Wilhelm

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Dr. B. Cohen
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SCIENTIFIC PERSONNEL 1984

Principal Investigator

David H. Evans, Ph.D.
Chairman, Dept. of Zoology
University of Florida

Linda Farmer, Ph.D.
Associate Professor, Dept. of Biology
University of Miami

Joan D. Ferraris, Ph.D.
Research Scientist
Mount Desert Island Biological Laboratory

John N. Forrest, M.D.
Associate Professor, Section Nephrology
Yale Medical School

Roy P. Forster, Ph.D.
Professor Emeritus, Dept. of Biological Sciences
Dartmouth College

Raymond A. Frizzell, Ph.D.
Professor, Dept. of Physiology & Biophysics
University of Alabama at Birmingham

Leon Goldstein, Ph.D.
Chairman, Dept. of Physiology & Biophysics
Brown University

Rainer F. Greger, M.D.
Associate Professor, Max Planck Institut fur Biophysik
Frankfurt, West Germany

Jack A. Groot, Ph.D.
Professor, Dept. of Animal Physiology
University of Amsterdam, The Netherlands

Richard J. Hoffmann, Ph.D.
Associate Professor, Dept. of Zoology
Iowa State University

George W. Kidder III, Ph.D.
Chairman, Dept. of Biological Sciences
Illinois State University

Rolf Kinne, M.D.
Director, Max Planck Institut fur System Physiologie
Dortmund, West Germany

Associates

Dr. J. Claiborne
Dr. G. Kormanik
S. Robbins

A. LaCasce
M. Ratner
H. Roderick

D. Gifford
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Dr. E. Schlatter

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Dr. E. Kinne-Saffran
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B. Vickermann

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Principal Investigator

Arnost Kleinzeller, M.D.
Professor, Dept. of Physiology
University of Pennsylvania School of Medicine

Thomas Koob, Ph.D.
Research Associate, Dept. of Biology
University of New Mexico

Jerome Lowenstein, M.D.
Professor
New York University School of Medicine

Thomas H. Maren, M.D.
Professor, Dept. of Pharmacology
University of Florida College of Medicine

Sandra K. Masur, Ph.D.
Assistant Professor, Dept. of Physiology & Biophysics
Mount Sinai School of Medicine

Martin Morad, Ph.D.
Professor, Dept. of Physiology
University of Pennsylvania School of Medicine

Raymond Rappaport, Ph.D.
Professor, Dept. of Biological Sciences
Union College

Victor Sapirstein, Ph.D.
Director of Cell Research
Eunice Kennedy Shriver Center

Bodil Schmidt-Nielsen, Ph.D.
Research Scientist
Mount Desert Island Biological Laboratory

Patricio Silva, M.D.
Associate Professor, Harvard Medical School
Associate Director, Renal Unit,
Beth Israel Hospital

Associates

I. Caballero
K. Thompson

Dr. I. Callard
Dr. D. Cox
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Principal Investigator

Richard Solomon, M.D.
Chief, Renal Division
Roger Williams General Hospital

John B. Stokes, M.D.
Director, Division Nephrology
University of Iowa School of Medicine

Hilmar Stolte, M.D.
Professor and Academic Director
Dept. of Internal Medicine
Hannover Medical School
Hannover, West Germany

Erik Swenson, M.D.
Research Fellow
Division of Respiratory Diseases
University of Washington School of Medicine

David W. Towle, Ph.D.
Professor, Dept. of Biology
University of Richmond

Michele G. Wheatly, Ph.D.
Assistant Professor, Dept. of Zoology
University of Florida

Michael Wiederholt, M.D.
Professor, Klinikum Steglitz der Freien
Universitat Berlin
Berlin, West Germany

Jose Zadunaisky, M.D.
Professor, Dept. of Physiology & Biophysics
New York University Medical Center

Associates

D. Dorsey
M. Taylor

M. Blackmore
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B. Elger
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1984 SEMINARS

Morning Transport

- July 9 "The Thick Limb of Henle's Loop." Dr. Rainer Greger, Max Planck Institut fur Biophysik
- July 16 "The Measurement of Intracellular Ca^{++} ." Dr. Gary Conrad, Kansas State University
- July 23 "Binding Sites of Na^+ Cotransporters." Dr. Rolf Kinne, Max Planck Institut fur System Physiologie
- July 30 "Potassium Transport in the Collecting Tubules." Dr. John Stokes, University of Iowa
- Aug. 6 "Mechanism and Regulation of Ionic Conductance in Epithelial Cells." Dr. David Dawson, University of Michigan
- Aug. 13 "Implications of a New Oubain-Resistance Gene." Dr. Lewis Cantley, Harvard University
- Aug. 20 "Phospholipid-Dependent Control of Membrane Events." Dr. Victor Sapirostein, Eunice Kennedy Shriver Center
- Aug. 27 "Active Ion Transport by Primary Cultures of Avian Salt Gland Cells." Dr. Stephen Ernst, University of Michigan

Noon

- June 20 "Possible Functions of FMRF-Amide Peptides, and Other Matters Arising." Dr. Michael Greenberg, University of Florida
- June 26 " Ca^{++} Store Antagonists and Effects on Intestinal Transport and Insulin Release." Dr. Geoffrey Sharp, Cornell University
- July 10 "Long-Term Regulation of Transmitter Release and Terminal Size in Frog Neuromuscular Junction." Dr. Alan Grinnel, University of California
- July 12 "Modulation of Paracellular Ion-Selectivity in the Goldfish Intestine by Serotonin and Epinephrine." Dr. Jack Groot, University of Amsterdam
- July 18 "Factors Responsible for Guidance of Pronephric Duct Outgrowth in Development." Dr. Malcolm Steinberg, Princeton University
- July 19 "Vitamin A and Epithelial Tissues: with Emphasis on the Corneal Epithelium." Dr. John Ubels, Medical College of Wisconsin
- July 25 "Modulation of Synaptic Transmission by Three Neurohormonal Substances at Lobster Neuromuscular Junctions." Dr. Edward Kravitz, Harvard Medical School
- Aug. 2 "Evolutionary Aspects of Metabolic Compartmentation." Dr. J.W. Campbell, Rice University

1984 SEMINARS

Noon

- Aug. 9 "Single Channels in the Rectal Gland." Dr. Rainer Greger, Max Planck Institut fur Biophysik
- Aug. 14 "Ammonia and Bicarbonate Transport in the Distal Nephron." Dr. Maurice Burg, National Institutes of Health
- Aug. 16 "Endocrine Control of Elasmobranch Reproductive Tract." Dr. Thomas Koob, University of New Mexico
- "NaCl Transport in Flounder Bladder." Dr. John Stokes, University of Iowa

Evening

- June 19 "Clam Hearts, Neuropeptides, and Evolution." Dr. Michael Greenberg, University of Florida
- June 26 "Calcium Handling and Regulation of Cell Function." Dr. Geoffrey Sharp, Cornell University
- July 3 "The Phylogenetic Basis of Corneal Transparency, From Fish to Man." Dr. Henry Edelhauser, Medical College of Wisconsin
- July 10 "Echolocation in Bats. How Do They Do It?" Dr. Alan Grinnell, University of California
- July 17 "Desmosomes and Cell Recognition: Molecular Organization and Interactions." Dr. Malcolm Steinberg, Princeton University
- July 24 "The Well-Modulated Lobster: Neurohormones and Aspects of Lobster Behavior." Dr. Edward Kravitz, Harvard Medical School
- July 31 "Acid Rain: Causes, Consequences, and Controversies." Dr. Gene Likens, Institute of Ecosystems Studies, The New York Botanical Garden, Cary Arboretum.
- Aug. 8 "From Fish to Philosopher Revisited." Dr. Helen Cserr, Brown University
- Aug. 14 "Salt, Water, and the Kidney." Dr. Maurice Burg, National Institutes of Health
- Aug. 21 "Substance P and Neurotensin - Neuropeptides with Multiple Physiological Roles." Dr. Susan Leeman, University of Massachusetts

Special Seminars

- Feb. 23 "Solvent Properties of a Cell Nucleus." Dr. David Miller, Michigan Cancer Foundation
- Oct. 29 "The Irreversible Kidney Damage Caused by Analgesics." Dr. Peter Bach, Robens Institute for Industrial & Environmental Health, Univ. of Surrey