American Institute of Fishery Research Biologists

. . . BRIEFS . . .

VOL. 24, NO. 1 FEBRUARY 1995

Remember When?

In 1950, Dr. Robert Burgner (left) (AIFRB Fellow 1968) and Dr. W.F. Thompson (AIFRB Founding Incorporator in 1956) demonstrated the use of a fish-measuring device that Dr. Thompson helped design.

Polgar Fellowships for Hudson River Research

The Polgar Fellowship Program supports undergraduate and graduate research projects on the Hudson River. The program is jointly sponsored by the Hudson River Foundation and the New York State Department of Environmental Conservation's Hudson River National Estuarine Research Reserve Program. Proposals are accepted for research anywhere within the Hudson estuary as defined from New York Harbor to the Federal Dam at Troy, New York, and including the four marshes of National Estuarine Research Reserve (Stockport Flats, the Tivoli Bays, Iona Island Marsh, and Piedmont Marsh). Through this program we seek to gather information that contributes to physical, chemical, or biological understanding of the complex natural patterns, processes, and relationships that exist in the estuary, and to train students in estuarine studies. Projects on public policy aspects of the Hudson River environment are also eligible.

Summer grants of $3,500 plus limited additional funds for research expenses will be provided. Because of the training and educational aspects of the program, students must be sponsored by a major professor. The professor must be willing to commit sufficient time for supervision of the research and to attend one or more meetings to review these studies. Sponsoring professors will receive a $500 stipend.

Individuals interested in this program should send the original and five copies of their application to: Polgar Fellowship Committee, Hudson River Foundation, 40 West 20th Street, 9th Floor, New York, New York 10011. Applications should include: 1) letters of interest from the student and of support from the sponsor, 2) a short description of the research project (4-6 pages), including its significance, 3) a detailed timetable for the completion of the project, 4) a detailed budget with estimated cost of supplies, travel, and other expenses, and 5) the student's curriculum vitae. Proposals must be submitted by March 1, 1995.

If you have questions, or if you wish to discuss research ideas or to acquire copies of previous Polgar Fellowship Program annual reports, contact Dr. John Waldman at (212) 924-8290, or Elizabeth Blair at (914) 758-5193.

Research Associate Assistance Awards

AIFRB is ready to receive applications for the 1995 Research Associate Assistance Awards. This program provides travel assistance money for graduate students and other associate members to present papers at scientific meetings. Past awards have ranged from $100 to $350.

All AIFRB associate members in good standing are eligible to apply. Application is made through submission of a written request, a letter of support from the research mentor or supervisor, a statement naming the meeting, an abstract of the paper to be presented, and notification of the paper's acceptance for presentation.

The deadline for submitting applications for the 1995 program is **April 1, 1995.**

Applications should be sent to Thomas R. Lambert, Pacific Gas & Electric Company, 3400 Crow Canyon Road, San Ramon, CA 94583.

Research and Meeting Opportunities

Caribbean Conservation Corporation, one of the world's leading non-profit marine and coastal wildlife conservation organizations, has recently completed construction of a field research complex in the Central American tropics—the John H. Phipps Biological Field Station at Tortuguero, Costa Rica.

The John H. Phipps Biological Field Station is located on the northern Caribbean coast of Costa Rica, in a biological

cont. on page 2

Research and Meeting Opportunities *cont. from page 1*

corridor connecting Tortuguero National Park and the Barra del Colorado Wildlife Refuge. These two sanctuaries join with the 290,000-hectare Indio-Maiz Biological Reserve in Nicaragua to contain the largest continuous expanse of protected tropical rainforest north of the Amazon.

The Tortuguero area offers excellent research opportunities in ecology, botany, wildlife, hydrology, soils, and aquatic, estuarine, and terrestrial systems. The new complex is surrounded by a rich diversity of plant and animal species, giving scientists and students access to an interesting and wide array of habitat types, including four species of endangered marine turtles which crawl ashore to nest on Tortuguero's black sand beaches each year. Species lists of the flora and fauna of the area are available, as is an extensive bibliography spanning three decades of research conducted at Tortuguero.

The new station is open year-round and is an ideal site for anyone planning environmental studies or research throughout the Central American tropics, as well as for group meetings, conferences, and seminars. In addition to bedrooms and bathrooms, a spacious kitchen and dining hall, a classroom, quiet reading room, and rustic outdoor verandas, the complex includes a Natural History Visitor Center.

The John H. Phipps Biological Field Station offers comfortable, affordable, dormitory-style accommodations for up to 24 people. Meals, served three times a day, are included in all trip packages and are prepared Caribbean style with plenty of fresh fruit and vegetables. Tour guide services, research assistants, and extended in-country travel can also be arranged through Caribbean Conservation Corporation.

For a free color brochure of the John H. Phipps Biological Field Station at Tortuguero or for more information about arranging a stay at the new complex, contact Caribbean Conservation Corporation at (904) 373-6441.

National Estuarine Research Reserve System

In 1972, Congress established The National Estuarine Research Reserve System as part of the Coastal Zone Management Act in response to a growing concern about pollution of coastal waters, closing of shellfish beds, draining of marshes, and damage occurring to estuarine ecosystems. The goal of the National Estuarine Research Reserve System is to acquire and maintain a national system of estuaries in different coastal regions that will "serve as natural field laboratories in which to study and gather data on the natural and human processes occurring within the estuaries of the coastal zone." An improved understanding of coastal processes may serve to guide us in management and development of our coast.

There are presently, twenty-two designated National Estuarine Research Reserves in seventeen states and Puerto Rico. These reserve sites include nearly 555,000 acres of estuarine waters, marshes, shorelines, and adjacent uplands. The diversity represented by these reserves provides a valuable profile of America's estuaries.

Whereas many other "reserves" are designated for preservation, the National Estuarine Research Reserves serve as outdoor classrooms for schools, aquaria, and universities and are important as long-term research and monitoring sites for scientists. In addition, the reserves are available for public recreation as long as the recreational activities do not conflict with the research and educational goals. Each year, millions of people use the reserves for hiking, fishing, boating, horseback riding, and hunting.

The National Estuarine Research Reserve System includes habitats for hundreds of plant and animal species. Migratory waterfowl, hawks, ospreys, eagles, and shorebirds use these sites as critical nesting and resting areas. For the bird watcher, researcher, or hunter the sites serve to protect critical wildlife habitats from destruction.

Another important purpose of the reserves is the role they play in the environment as nurseries. It is estimated that 90% of commercially collected fish and shellfish spend at least part of their lives in the estuary. The commercial value of the estuary for fisheries is beyond estimation. If left undisturbed, the estuary can provide high yields of renewable protein that can feed large numbers of people for many, many years. The protection of our estuaries and an improved understanding of coastal processes can insure that these areas are available for generations to come.

For researchers, the reserves offer pristine habitat to study ecology and resource management issues. These areas have been acquired and protected from development, and as a result, have been left relatively undisturbed. The data that results from these estuarine studies is particularly valuable to Local, State, and Federal decision-makers that must set policy for coastal management.

Students from kindergarten through college use the estuarine reserves as outdoor laboratories, research centers, and interpretive centers. A number of sites have full-time education coordinators available to assist teachers and the public in taking full advantage of the educational opportunities of these natural systems.

The educational efforts in North Carolina began with the development of a curriculum guide, *Project Estuary.* The focus of this curriculum guide was to assist teachers, grades six through ten, to incorporate estuarine education into their regular science curricula. The guide was field tested and revised before it was distributed to every school system in North Carolina. Teachers generally found that the guide was easy to use and required few materials or equipment outside of their regular science materials. Another curriculum guide, *Sound Ideas,* has subsequently been developed for elementary teachers. These and other educational programs were made possible by funding from the National Oceanographic and Atmospheric Administration (NOAA) through the National Estuarine Research Reserve System.

The next stop in our educational outreach efforts has involved training teachers in estuarine ecology. Through funding from Federal, State, and Local sources, the North Carolina National Estuarine Research Reserve Program and

cont. on page 3

National Estuarine Research *cont. from page 2*

the University of North Carolina at Chapel Hill, have sponsored workshops for teachers from across the state. The training programs have been offered as week-long institutes involving field and classroom activities. Teachers seined for fish, used dip nets to sample life on the bottom of the marsh, took bird walks at dawn, examined carnivorous plants, and created scavenger hunts on the beach. They spent time graphing population data, examining marsh mud, and role-playing a County Commissioners meeting. The program involved teachers with activities that examined environmental, social, and policy issues.

As a result of these institutes, over 45 teachers have been trained as *Project Estuary* and *Sound Ideas* facilitators. Each of these facilitators has returned to his, or her, school system, offered additional training to teachers, as well as becoming strong advocates of estuarine studies. At many schools, these teacher-leaders set up intensive, interdisciplinary environmental field study units involving other teachers, students, and parents. Other special sessions on estuarine ecology have been offered at State and National science teacher meetings, resulting in the education of over 1,000 science teachers on coastal and wetland issues. Parents, teachers, and students have enthusiastically reported an improved understanding of coastal ecology and coastal management issues.

M. Gail Jones in Wetland Journal, Fall 1994

District Activities

Oregon-Southwest Washington *John F. Palmisano, Director*

Since the listing of the Sacramento River winter chinook salmon as threatened under the Endangered Species Act (ESA) in 1990, the National Marine Fisheries Service (NMFS) has received several petitions that requested ESA protection for various population segments of all seven species of *Oncorhynchus* found on the west coast of North America. Experience gained from Pacific salmon status reviews conducted by NMFS over the last several years has made it clear that determining the geographical boundaries and biological status of distinct population segments generally requires assessing populations and habitats that occur outside the range covered by specific petitions. For these reasons, NMFS has initiated comprehensive, coastwide status reviews for Pacific salmon to more accurately determine the geographic boundaries and status of distinct population segments.

At our November 1994 meeting, Merritt Tuttle, former Chief of NMFS' Environmental and Technical Services Division in Portland, Oregon, described to a small group of AIFRB members the new approach and schedule for NMFS' status review of Pacific salmon and anadromous trout in Washington, Oregon, Idaho, and California. These comprehensive reviews will allow NMFS to conduct a more thorough assessment of the ecological and genetic diversity of west coast salmon populations, and to identify the geographic extent and biological status of populations that represent substantial components of the overall diversity of the biological species. This systematic evaluation will allow NMFS to accomplish the major goal of the ESA—to conserve the diversity of these species and the ecosystems they inhabit.

NMFS proposes to complete comprehensive species status reviews and publish its determination whether or not to list the species according to the following schedule: coho salmon, December 15, 1994 (revised from October 20, 1994); steelhead trout, February 16, 1995; pink salmon, June 1, 1995; chum salmon, December 15, 1995; and sea-run cutthroat trout, April 1, 1996.

NMFS believes that the comprehensive approach will provide a more thorough and accurate assessment of the status and risks to anadromous salmonids throughout their ranges in the four states mentioned above. In addition, it will eliminate the need for petitions to list individual stocks of Pacific salmon along the west coast of North America. Over the next year, we will be waiting for NMFS' decisions that ultimately will determine the fate of these west coast species and their sport, commercial, and subsistence fisheries.

Our People

Russ Brown (AIFRB Associate 1990) is a fishery research biologist with the National Marine Fisheries Service at the Northeast Fisheries Science Center in Woods Hole, Massachusetts. He works on stock assessment and research related to Northwest Atlantic groundfish stocks.

Carlos Fetterolf (AIFRB Fellow 1973) has been appointed by Commerce Secretary Brown to the national Sea Grant Review Panel. The Sea Grant College Program is based on the Land Grant College premise of education, research, and outreach. There are 29 programs in coastal and Great Lakes states. The programs form partnerships among academia, government, and industry to meet environmental and economic needs associated with coastal and marine resources.

Reginal Harrell (AIFRB Fellow 1988) has succeeded **Fred Utter** (AIFRB Fellow 1983) as President of the Genetics Section of the American Fisheries Society.

William Herke (AIFRB Fellow 1978), Assistant Leader of the Louisiana Cooperative Fish and Wildlife Research Unit at Louisiana State University, has retired from federal service. He will continue on the boards of directors of the Coalition to Restore Coastal Louisiana and the Citizens for a Clean Environment and on the Louisiana Wildlife Federation's Fisheries Policy and Management Committee.

Brian R. Murphy (AIFRB Member 1988), Past-president of the American Fisheries Society's Education Section, has received the AFS Award of Excellence in Fisheries Education. Brian has moved to Virginia Tech as Head of the department of Fisheries and Wildlife Sciences. He had been Associate Department Head at Texas A & M.

National Marine Fisheries Service publication awards given to NMFS scientists for authoring the best publications appearing in the *Fishery Bulletin,* volume 91, and the *Marine Fisheries Review,* volume 54, went to **Michael H. Prager** (AIFRB Associate 1983), Honorable Mention for his paper in the *Fishery Bulletin,* and **Richard G. Bakkala** (AIFRB Member 1972), Outstanding Publication in the *Marine Fisheries Review.*

Meetings and New Publications

Water Quality Standards Academy

The U.S. Environmental Protection Agency (EPA) will be holding sessions of the "Water Quality Standards Academy" in 1995. The "Water Quality Standards Academy" is an introductory course on water quality standards and criteria. Dates and location are as follows: Minneapolis, Minnesota - May 15-19, 1995.

The "Water Quality Standards Academy" is a basic introductory course designed for those with fewer than six months of experience with the water quality standards and criteria programs. Others may also benefit from the course, including veterans of the water quality standards and criteria programs who want a refresher course. This is a comprehensive and highly structured course that introduces participants to all aspects of the water quality standards and criteria programs, including the interpretation and application of the water quality standards regulation, policies and program guidance; the development of water quality criteria (human health, aquatic life, sediment and biological); and all other facets of the program.

The course is conducted over a five-day period. Two sessions will be held concurrently. Session A will begin on Monday at 8:00 am and Session B will begin on Monday at 9:30 am. Both sessions will end at approximately 1:00 pm on Friday. EPA will assign participants to either Session A or Session B.

The attendance for the academy is free of charge; however, YOU MUST PRE-APPLY TO ATTEND.

Application forms are available from The Cadmus Group, 12401 Middlebrook Rd., Suite 201, Germantown, MD 20874.

Additional dates are also being scheduled in Portland, Oregon and Washington, DC.

Chitin Workshop

A scientific workshop on the biomedical, nutrition/dietary and food uses of chitin, one of the most plentiful organic compounds in the world, will be held April 17-19, 1995 in Raleigh, North Carolina.

The workshop, "Discoveries From the Sea: Current and Future Uses of Chitin," will take a prospective look at research opportunities and applications for chitin, chitosan, and other chitin derivatives. It is sponsored by the International Commission on Natural Health Products in conjunction with the American Chitoscience Society and with the cooperation of North Carolina State University (NCSU).

Chitin, a polysaccharide obtained from shells of crustaceans, has great value for a wide variety of health/medical applications, food uses, and environmental uses, ranging from dietary supplements and wound healing to cosmetics and water purification.

Workshop presentations will be made by some of the leading chitin experts and researchers in North America. Attendees will have an opportunity to share ideas and exchange information with the presenters about current and future research applications for chitin in the biomedical, nutrition/dietary, and food areas. Exhibit space will also be available for organizations who are already marketing chitin and chitin-containing products.

The workshop will be held at North Carolina University's Jane S. McKimmon Center for Extension and Continuing Education. As part of the program, a presentation and optional tour of the NCSU College of Textiles, recognized as the most modern and best-equipped university-based textile institution in the world and one engaged in significant chitin research, will be given by Sam Hudson, Ph.D., associate professor of polymer chemistry at NCSU.

The workshop is sponsored by the International Commission on National Health Products (ICNHP) and the American Chitoscience Society. For more information, contact ICNHP's Sue Taylor or Wendy Alpine, at 404-252-3663.

Northeast Fish and Wildlife Conference

Managing Fish and Wildlife Diversity is the theme of the 51st Annual Northeast Fish and Wildlife Conference to be held on April 9-12, 1995 at the Sheraton Fontainbleau in Ocean City, Maryland.

Technical sessions will cover freshwater fisheries, marine fisheries, wildlife, law enforcement, information and education, and conservation engineering. Poster sessions will focus on fisheries, wildlife, and videos. There will also be special group meetings.

More information is available from the Maryland Department of Natural Resources, 580 Taylor Avenue, Annapolis, MD 21401.

Trout Management and Culture Workshop

The *East Coast Trout Management and Culture Workshop II* will take place on May 31-June 2, 1995 at Penn State University. The workshop will be sponsored by the AFS Northeastern Division, the AFS Southern Division's Trout Committee, Duke Power Company, the National Park Service, the Pennsylvania Fish Commission, and the Tennessee Valley Authority.

The face of the angling public is predicted to undergo major changes in the next three to four decades. These changes will reflect changing demographic characteristics, changes in age structure, increases in minority participation and reduced population growth. Changes in angling participation may also reflect the ancillary benefits anglers derive from fishing, such as appreciation for natural environments, family and friendship interactions, relaxation, excitement, challenge and food for the table. Couple this with the continued loss of coldwater habitat to pollution, development and various other human activities. We must begin now to develop strategies that will allow us to respond to changing cultural and demographic patterns.

The trends mentioned above are based on a study conducted by the Sport Fishing Institute and are far from conclusive. However, this information does indicate some alarming trends, and sends the message that fishery management agencies need to be more aware of the factors that will constrain,

cont. on page 5

Trout Management Workshop

cont. from page 4

maintain, or enhance recreational trout fishing. Now is the time to begin to evaluate what biological and social considerations must be used if recreational angling is to be sustained; to collect science-based information that can be used as an educational tool and to develop common grounds on which resource managers and users can meet to address goals while protecting our valuable coldwater resources.

The East Coast Trout Management and Culture Workshop II will focus on these issues. The theme of the 1995 workshop is "Looking to the Future: How Can We Meet the Need?" It will concentrate on what we do and do not know about future management needs and directions, electrofishing injury, trout culture technology, new issues in trout culture, watershed processes (can watersheds recover from injury), issues in trout management and tailwater management techniques. Trout managers, culturists, and those engaged in research are encouraged to contribute papers related to these topics. Papers may review pertinent work, summarize ongoing or recently completed work and should look to future needs and challenges.

More information is available from Marty Marcinko, Pennsylvania Fish Commission, 450 Robinson Lane, Bellefonte, PA 16823.

International Larval Fish Conference

The Australian Society for Fish Biology will host the *International Larval Fish Conference* at the University of Sidney, Sidney, NSW Australia on June 26-July 2, 1995.

A comprehensive program on fish larvae has been developed, and excursions to fishery facilities and sightseeing features will be available.

For more information on registration, accommodations, and other needs, write Dr. Hoss, Beaufort Laboratory, 101 Pivers Island Road, Beaufort, NC 28516.

Herbivorous Fishes

Karol Opuszynski and Jerome Shireman have written *Herbivorous Fishes—Culture and Use For Weed Management,* a book of 272 pages.

This exciting new book focuses on freshwater, rather than marine, herbivorous fishes, primarily Chinese carp. Herbivorous fishes are important not only as food fish, but also as a means for biological vegetation control. Fish were placed into the herbivorous category if they consumed greater than fifty percent plant material. Contents include systematics, distribution, diversity, and abundance of herbivorous fishes, feeding behavior and food, structural adaptation, digestive mechanisms, energy budget: carnivores and herbivores, distribution of Chinese carp, introductions, life history, reproduction, development, feeding, growth, culture of Chinese carp, larval culture, diseases, grass carp and aquatic weed control, aquatic plant management, and utilization for counteracting eutrophication.

This book is available for $159.95 from CRC Press, 2000 Corporate Blvd., NW, Boca Raton, FL 33431.

New Lewis Publishers Books

The following books are available from Lewis Publishers, 2000 Corporate Blvd., NW, Boca Raton, FL 33431:

Quantitave Methods in Aquatic Ecotoxicology, by Michael C. Newman, is a 448-page book selling for $79.95.

This book provides a quantative treatment of the science of ecotoxicology. The first chapters consider fundamental concepts and definitions essential to understanding the fate and effects of toxicants at various levels of ecological organization as covered in the remaining chapters. Scientific ecotoxicology and associated topics are defined. The historical perspective, rationale, and characteristics are outlined for the strong inferential and quantitive approach advocated in this book. The general measurement process is discussed, and methodologies for defining and controlling variance, which could otherwise exclude valid conclusions regarding ecotoxicological endeavors, are considered.

Ecotoxicological concepts at increasing levels of ecological organization are discussed in the second part of the book. Quantitative methods used to measure toxicant effects are outlined in this section. The final chapter summarizes the book with a brief discussion of ecotoxicological assessment. Numerous figures and tables accompany text, with many statistical tables found in the appendix for quick reference. Although the book primarily focuses on aquatic systems, with appropriate modification the concepts and methods can be applied to terrestrial systems.

Biological Monitoring of Aquatic Systems has been edited by Stanford L. Loeb and Anne Spacie. This 1994 book of 400 pages sell for $65.

With regional, national, and global processes affecting both the structure and function of lakes and rivers, assessment methodology must encompass many attributes to evaluate the impact of these processes on water quality. This book brings together contributions by authors recognized as leaders in the development and utilization of geological monitoring techniques for freshwater ecosystems. It provides a conceptual framework for the use of biological monitoring to assess the environmental health of freshwater resources. *Biological Monitoring of Aquatic Systems* includes discussions concerning historical development, ecological basis, experimental design characteristics, case studies, and future concerns.

Aquatic Toxicology: Molecular, Biochemical, and Cellular Perspectives, edited by Donald C. Malins and Gary K. Ostrander, has 500 pages and is for sale for $60.

Aquatic Toxicology examines findings from recent research on the chronic effects of pollutants on aquatic species. Understanding these chronic effects is vital to determining the impact of small concentrations of pollutants on aquatic life in rivers, estuaries, lakes, and coastal waters. Featuring research from renowned experts in the field, this book evaluates modern techniques in the fields of molecular biology and biochemistry. It is indispensable to aquatic toxicologists, aquatic biochemists, fisheries scientists, industrial chemists, and researchers at federal, state, and university levels.

Meetings and New Publications

cont. from page 4

Fishes of the Tropical Eastern Pacific

This 1944 book by Gerald R. Allen and D.R. Robertson has 332 pages and 800 photographs and drawings.

This abundantly illustrated work concentrates on species that inhabit inshore reefs and adjacent sand, rubble, and weed habitats of the central Gulf of California southward to Ecuador, including the Revillagigedos, Cocos, and Galapagos Island groups.

Coverage is provided for the more common members of the coastal sand and mud-bottom communities and those found in river mouths and estuaries as well as for pelagic families of interest to commercial and recreational anglers.

This book costs $65 and can be purchased from Patricia Ledlie Bookseller, One Bean Road, Box 90, Buckfield, ME 04220.

Aquaculture Information Guide

Resource Guide to Aquaculture Information is now available. To obtain a copy, contact USDA, National Agriculture Library, Aquaculture Information Center, Beltsville, MD 20705, (301) 504-5558. The Guide may be accessed via AquaNIC, a multi-branched information system maintained at Purdue University in West Lafayette, and is linked to other aquaculture databases on the internet. For information on AquaNIC, contact LaDonn Swann, (317) 494-6264, FAX (317) 494-9347 or iswann@hub.ansc.purdue.edu.

Dissertation Abstract

Geomorphic, Hydrologic, and Hydraulic Determinants of Fish and Macroinvertebrate Communities in a Small Watershed

Robert J. Danehy, Ph. D. 1994
State University of New York, Syracuse

Temporal and spatial variability of aquatic communities were examined within a 116 km^2 watershed in central New York. Canonical correspondence analysis was used to examine fish and macroinvertebrate communities among sites and, for fish communities, among years. Abiotic data sets were developed from 21 geomorphic, hydrologic, and hydraulic variables. Subsets of the abiotic variables were developed for each analysis based on variable loading and variable non-collinearity.

Spatial differences among sites were determined primarily by geomorphic factors. Canonical correspondence analyses (CCA) of fish communities employing five abiotic variables for 13 sites in both 1991 and 1992 clearly separated sites and species. The first axis was based on a headwater-to-valley gradient, and the second axis reflected habitat complexity. The headwater-to-valley gradient was identified by the importance of water surface slope and mean depth. The habitat complexity gradient was based on the effect of large woody debris and Froude number variance.

Temporal differences in fish densities were related to hydrologic factors. In an analysis of six sites employing six hydrologically-derived variables for four years, the first and second axes of a CCA were strongly influenced by both maximum monthly and minimum monthly flows. Both flood—and drought—induced changes in the fish communities, with the communities at all sites responding similarly to the perturbations. These results suggest that large-scale efforts to biologically monitor lotic systems should take into account temporal variability.

Riffle fish were more strongly affected by hydrologic extremes than pool species. Annual differences in density were highly significant for slimy sculpin, longnose dace, and young-of-the-year brown trout ($p<0.0001$). Densities were not different (alpha=0.05) for pool-adapted species: adult brown trout, blacknose dace, white sucker, and creek chub. Densities of pool species were less affected than riffle species by extended low flows and high-flow conditions over the four-year period.

Aquatic insect communities were distributed primarily by a headwater-to-valley gradient and secondarily by subwatershed. Taxonomy to the genus level improved separation of sites within CCA ordinations, whereas the use of mixed taxonomic levels (lowest-practical-taxon approach) reduced the degree of separation. The exclusion of rare taxa and/ or the inclusion of abundant taxa reduced the capacity of the analysis to identify environmental gradients. Thus, ubiquitous genera provided little gradient information, whereas exclusion of rare genera did not allow their potentially unique habitat requirements to contribute to community gradient identification.

In Memoriam

Elwood "Woody" A. Seaman
AIFRB Emeritus 1975
October 13, 1994

Elwood "Woody" Armstrong Seaman, a fisheries biologist who served as the first executive director of the American Fisheries Society (AFS), died of pneumonia 13 October 1994 at a hospital in Harrisonburg, Virginia. He was 78.

Born 17 August 1916 in Wheeling, West Virginia, Mr. Seaman received his bachelor's degree in biology from the College of Wooster, followed by a master's degree in biology from Marshall University, and additional graduate work at the University of Michigan. During World War II, he served in the Navy as a biologist, researching malaria and filariasis.

From 1946 to 1954, Mr. Seaman served as chief of the Division of Fisheries in the West Virginia Conservation Commission, where he initiated a fish management program for the state. He then launched a private biological consulting service, which had an office in Pittsburgh, Pennsylvania, for two years. Mr. Seaman worked for the federal government in Washington, DC, from 1956 to 1981. He was a special assistant for natural resources with the Air Force, where he conducted wide-ranging research, and later initiated an environmental program for the Bureau of Reclamation during his stint as assistant to the bureau commissioner. Before his

cont. on page 7

In Memoriam

cont. from page 6

retirement in 1981, he also worked as a senior scientist for the U.S. Fish and Wildlife Service.

In addition to his busy career and extensive publishing, Mr. Seaman joined AFS as an active member in 1944. In 1957, he became secretary-treasurer of the Society and took over management of Society business, a responsibility he held until 1965. From his home in Vienna, Virginia, he conducted all AFS business on a volunteer basis—managing the membership records and finances, overseeing production of *Transactions* and other AFS publications, coordinating AFS meetings, etc. In 1957, he initiated the AFS *NEWSLETTER*, which he edited and produced until 1965. In 1962, at the direction of the AFS Executive Committee, Mr. Seaman opened the first permanent office of the Society, in Washington, DC, with a staff person to work under his direction. He then led the effort to build a financial base to enable the Society to hire its first full-time executive secretary, a goal accomplished in 1965. From 1968-69, he served as the 84th president of AFS.

Membership Report

New Associates (Students)

Karen Kellogg	PA
Susan Ann Miller	WA
Edward A. Baker	MI

New Associates (Professional)

Stephen K. Winchell	AK
Douglas J. Snyder	PA
Neil Eric Wohl	NJ

New Member

Allen Eric Peterson, Jr.	MA

Emeritus

Richard L. Kroger	MN
Dr. G. Morris Southward	NM
Don W. Kelley	CA

***Sammy M. Ray**, Membership Chairman*
Texas A & M University at Galveston,
5007 Avenue U, Galveston, TX 77551
Direct membership inquiries to the
Membership Chairman

District Directors

Alaska, Northern
Steven K. Davis
4175 Tudor Centre Dr. #101
Anchorage, AK 99508

Alaska, Southeast
Malin M. Babcock
Auke Bay Fisheries Lab.
Juneau, AK 99801

California, Northern
Richard F.G. Heimann
20 Lower Ragsdale Drive, Suite 100
Monterey, CA 93940

California, Southern
Charles T. Mitchell
3040 Redhill Avenue
Costa Mesa, CA 92626-4524

Carolina
Douglas S. Vaughan
173B Shell Landing Road
Beaufort, NC 28516-9802

Florida
Vacant

Great Lakes, South Central
Vacant

Gulf of Mexico, Northeast
Vacant

New York-New Jersey
Barbara E. Warkentine
1329 Balcom Avenue
Bronx, NY 10461

Oregon-SW Washington
John F. Palmisano
1990 NW 156th Avenue
Beaverton, OR 97006-5307

Texas
Sammy M. Ray
P.O. Box 1675
Galveston, TX 77553

Washington, DC
Vacant

Washington, NW
Gregory T. Ruggerone
4055 21st Ave. West, Suite 200
Seattle, WA 98199

BRIEFS, the newsletter of the American Institute of Fishery Research Biologists, is published six times a year. It is intended to communicate the professional activities and accomplishments of the Institute, its District, and Members; the results of research: the effects of management; unusual biological events; matters affecting the profession; political problems; and other matters of importance to the fishery community. Comments and contributions should be sent to the Editor, Dr. Oliver B. Cope, 15 Adamswood Road, Asheville, NC 28803. Subscription $20 a year to Institutions and Non-Members. Officers-Vaughn Anthony, Northeast Fisheries Center, 411 Davisville Road, East Falmouth, Massachusetts 02536, President; Katherine Myers, Fisheries Research Inst., WH-10, University of Washington, Seattle, Washington 98195, Secretary; Joseph Rachlin, Lehman College Bio., Bedford Park Blvd. West, Bronx, New York 10468, Treasurer.

ISSN-8755-0075

American Institute of Fishery Research Biologists

. . . BRIEFS . . .

VOL. 24, NO. 2 APRIL 1995

Who's Who in AIFRB

Martin Paul Schreibman

Martin Paul Schreibman, a Fellow of AIFRB since 1984, was born, raised, and schooled in New York City - strictly a "New Yorker." He earned his Bachelors degree from Brooklyn College and his Masters and Doctorate Degrees from New York University. Teaching at Brooklyn College of the City University of New York (CUNY) since 1962, he rose through the ranks to Full Professor in 1972, and in 1991 he was named Distinguished Professor. Over the years he has combined two full careers: as a university professor and as an active investigator in basic and applied studies in neuroendocrinology. Fish have served as experimental models in almost all of his studies, which include such diverse areas as osmoregulation, the genetic control of cancer, development and function of the reproductive system, aging, gravitational biology, and regenerating life support systems.

Dr. Schreibman's published work has provided significant, seminal, information related to genetic and neuroendocrine control of a variety of endocrine-regulated physiological processes. In recent years, it is the reproductive system that has been most closely studied. Early in the 1970's Dr. Schreibman and Dr. Klaus Kallman of the American Museum of Natural History, NY, demonstrated in platyfish *(Xiphophorus maculatus)* that the age of puberty is under the control of a gene located on the sex chromosome. This information, coupled with Martin's knowledge of the structure and function of the brain-pituitary-gonadal axis, has enabled him to detail, using fish model systems, the role of specific neurotransmitters and neuropeptides during development, maturation, and senescence.

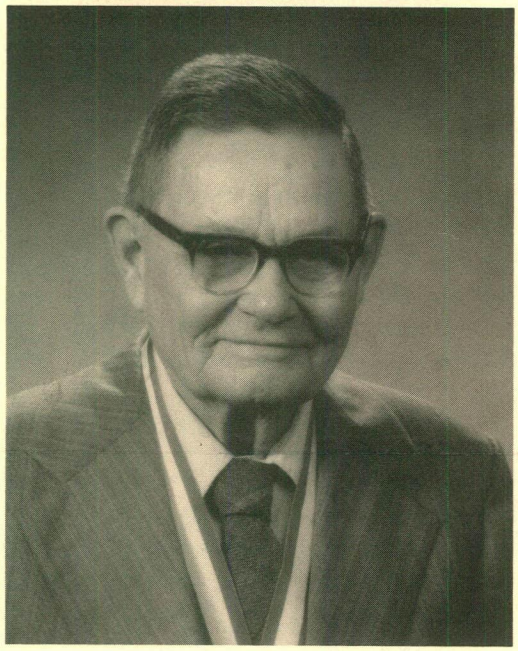
Among his many accomplishments, Martin's research, using the platyfish, has provided the most extensive longitudinal study of aging currently available in vertebrates. His studies of the relationship between genes that control the onset of the reproductive systems and those regulating longevity promise to yield important information. Over the years Martin demonstrated the advantages of using unconventional animals as models for understanding basic physiological systems and processes. In large measure his belief that unusual animal models could help resolve some basic questions for individuals in science and medicine, prompted him to edit a five-volume series with Peter K.T. Pang entitled "Vertebrate Endocrinology: Fundamentals and Biomedical Implications" (Academic Press).

Dr. Schreibman's research efforts, in addition to answering basic scientific questions, also have broad applied utility. Information derived from his research has been extended to diverse arenas which include aquaculture, space biology, ecology, and conservation, as well as to essential problems related to puberty that are being studied in clinical reproductive endocrinology units around the world. His ability to recognize, interpret and to seek the solution of basic scientific problems has made him sought after as a scientific participant by research communities in such countries as India, The Netherlands, Egypt, Israel, and Germany, especially in studies related to the neuroendocrine control of fish reproduction.

Martin's career of teaching and research has spanned more than thirty years and these efforts are still going strong. He is credited with over 150 scientific citations and seven books dealing with the various aspects of neuroendocrinology and microtechniques, and has organized a number of national and international symposia. He serves on the editorial boards of several journals, is a research associate at the New York Aquarium, Director of the Institute of Reproductive Neuroendocrinology, and of the Biological Assessment Center at Brooklyn College. In addition to his affiliation with AIFRB, Martin is a member of several other national societies and committees, including the National Academy of Science's Committee to the International Union of Biological Sciences, the National Association of State Universities and Land Grant Colleges and its Board of Oceans and Atmosphere and on the Northeastern Regional Aquaculture Center's Technical/Industrial Advisory Council.

William Ricker Wins Outstanding Achievement Award

Dr. W.E. Ricker has been chosen by the AIFRB to receive the Outstanding Achievement Award for 1994. Dr. Ricker's exploits are well known and he has been recognized repeatedly throughout the world as one of the most outstanding fisheries scientists of all time. His contributions to fisheries science and to the scientific basis of management of fisheries resources are second to none. While his principal contributions have been in population dynamics and salmon biology, he also achieved prominence as a limnologist for his theories on lake circulation, and excelled in entomology where he has become the world's authority on stoneflies.



He is probably best known for his extensive publications but his work in the area of scientific communication may be one of his greatest.

As editor of the Journal of the Fisheries Research Board of Canada (now Canadian Journal of Fisheries and Aquatic Sciences) from 1950 to 1962, he elevated this journal to the status it now enjoys. His self-taught expertise in Russian enabled him to create an awareness of Soviet fisheries science in the western world through nearly 100 translations of important Soviet publications. The translation of Baranov's 1918 classic work in population dynamics is one of the best examples of the importance of this effort. He also compiled and published a 428-page Russian-English glossary of fisheries and aquatic biology terms that is on the desk of most Russian fisheries scientists; today this continues to alleviate the communication problem.

During his outstanding career, Dr. Ricker authored over 200 publications covering all three of his principal research areas. They include original research papers, popular articles, reviews, syntheses, monographs, book chapters, and books, totaling more than 7,000 pages. His 1954 paper on stock and recruitment is still considered a classic reference in the field. He has served as editor of several books and special publications. His book "Computation and Interpretation of Biological Statistics of Fish Populations" has attracted such wide interest and use that it has been through two revisions and three printings (the latest in 1975) and translated into Russian and French since its original appearance in 1948.

In his long and illustrious career, in which he is still active today, Dr. Ricker has been the recipient of a variety of prestigious awards, including the following: elected as a Fellow of the Royal Society of Canada; Baldi Memorial Lecture Award in Limnology; Gold Medal of the Professional Institute of the Public Service of Canada; Award of Excellence of the American Fisheries Society (first recipient); Flavelle Medal of the Royal Society of Canada; Honorary D.Sc., University of Manitoba; and Honorary LL.D, Dalhousie University. In 1966 the Canadian Department of Fisheries and Oceans launched a new research vessel named in his honor, the R/V W.E. Ricker.

Dr. Ricker was born in Waterdown, Ontario. He studied at the University of Toronto and received his B.A. degree in 1930, M.S. in 1931, and Ph.D. in 1936. He served with the Fisheries Research Board of Canada from 1931 to 1939. He then joined Indiana University as professor of zoology until 1950 when he returned to the Fisheries Research Board. He served as both Editor of Publications and Biological Consultant for thirteen years. From 1962 to 1973 he was the chief scientist of the Research Board.

One of the major reasons AIFRB was founded was to encourage scientists to produce and communicate research results that could be used to solve our management problems. Dr. Ricker has done exactly that, and the AIFRB is long overdue in recognizing his truly outstanding achievements.

Footnote: In 1994 the Fisheries Science Documentary Society in Canada prepared a video describing Dr. Ricker's remarkable scientific journey from his boyhood days in North Bay, Ontario, to the present. The video is called "A Passion For Science; Bill Ricker: A Scientific Journey." Dick Beamish was Executive Producer and the video is distributed by Image Media, Unit 150, 12140 Horseshoe Way, Richmond, B.C., Canada, V7A 4V5, at a cost of $19.95 Canadian. It is an excellent production which runs for over twenty-six minutes and is well worth owning.

Roell Wins 1993 W.F. Thompson Award

The competition for the W.F. Thompson Award was very intense in 1993. A total of twenty-five papers were nominated for the award. The quality of the papers was excellent and a review team led by Dr. John Pearce finally picked a winner. The winning paper was written by Michael J. Roell and Donald J. Orth entitled "Trophic basis of production of stream-dwelling smallmouth bass, rock bass, and flathead catfish in relation to invertebrate bait harvest." It was published in the *Transactions of the American Fisheries Society,*

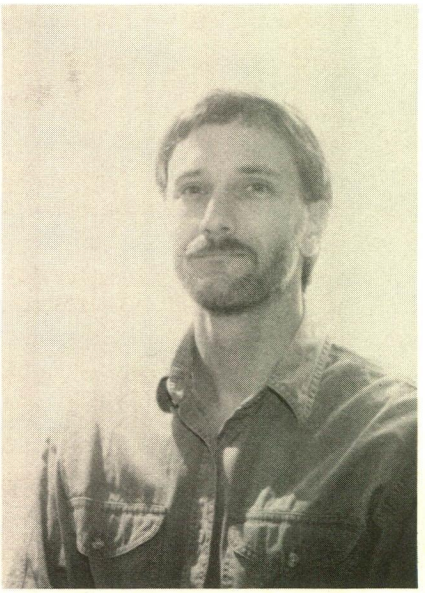
cont. on page 3

Roell Wins . . .

cont. from pg. 2

volume 122, 1993. The senior author, as a graduate student at Virginia Polytechnic Institute and State University, Blacksburg, Virginia, conducted the research during 1984-9. The research was part of his Ph.D. dissertation on the roles of predation, competition, and exploitation in the community dynamics of the New River in West Virginia. Dr. Roell receives a check for $750 and a Certificate of Achievement for his excellent research conducted while he was a graduate student. Dr. Orth receives a Certificate of Achievement for his guidance and co-authorship.

Past award winners are presented in the accompanying table.



W.F. Thompson Awards, 1963 - 1992

Year of Award	Chair	Recipient	Paper	Year Published
1963		Edmund S. Hobson	Feeding behavior in the three species of sharks. Pacif.Sci., 17 (2): 171-194	1963
1964		Paul N. Sund	The chaetognaths of the waters of the Peru region. Inter. Amer. Trop. Tuna Comm., Bul., 9 (3): 113-216	1964
1965		Kenneth J. Fischler	The use of catch-effort, catch-sampling and tagging data to estimate a population of blue crabs. Amer. Fish. Soc., Trans., 94 (4): 287-310	1965
1966-1968	Ernest O. Salo	William H. Bayliff	Population dynamics of the anchoveta, *Cetengraulis mysticetus*, in the Gulf of Panama, as determined by tagging experiments. Inter-Amer. Trop. Tuna Comm., Bull., 11 (4): 173-352	1966
1969	Ernest O. Salo	Quentin J. Stober	Underwater noise spectra, fish sounds and response to low frequencies of cutthroat trout *(Salmo clarki)* with reference to orientation and homing in Yellowstone Lake. Amer. Fish. Soc., Trans., 98 (4): 652-663	1969
1970	Ernest O. Salo	William W. Fox	An exponential surplus-yield model for optimizing exploited fish populations. Amer. Fish. Soc., Trans, 99 (1): 80-88	1970
1974	William J. Richards	Dean E. Arnold	Ingestion, assimilation, survival, and reproduction by *Daphnia pulex* fed seven species of blue-green algae. Limnol. Ocean., 16 (6): 906-920	1971
1980	Norman G. Benson	J. M. Redding	Possible adaptive significance of certain enzyme polymorphisms in steelhead trout *(Salmo gairdneri)*. Fish. Res. Bd. Canada, Jour., 36 (5): 544-551	1979
1978-1980	John B. Pearce	Richard B. Deriso	Harvesting strategies and parameter estimation for an age-structure model. Canad. Jour. Fish. Aquat. Sci., 37 (2): 268-282	1980
1982	John B. Pearce	Lewis S. Incze	Relationships between effects of environmental temperature and seston on growth and mortality of *Mytilus edulis* is a temperate northern estuary. Mar. Bio., 57 (3): 147-156	1980
1985	Wen-hwa Kwain	Katherine W. Myers	Temporal use of an Oregon estuary by hatchery and wild juvenile salmon. *In* Kennedy, V.S. (editor), Estuarine Comparisons, Academic Press, New York: 377-392	1982
1986	Wen-hwa Kwain	Terry K. Snowden G. Power	Prediction of rainbow trout embryo survival in relation to groundwater seepage and particle size of spawning substrates. Amer. Fish. Soc., Trans., 114 (6): 804-812	1985

W.F. Thompson Awards *cont. from page 4*

1987	David A. Farris	Robert J. Olson Christofer H. Boggs	Apex predation by yellowfin tuna *(Thunnus albacares):* independent estimates from gastric evacuation and stomach contents, bioenergetics, and cesium concentration. Canad. Jour. Fish. Aquat. Sci., 43 (9): 1760-1775	1986
1985-1988	Elizabeth F. Edwards	Kathleen S. Mayer	Waste transformer oil and PCB toxicity to rainbow trout. Amer. Fish. Soc., Trans., 114 (6): 869-886	1985
1989	William H. Bayliff	Matthew G. Mesa Carl B. Schreck	Eletrofishing mark-recapture and depletion methodologies evoke behavioral and physiological changes in cutthroat trout. Amer. Fish. Soc., Trans., 118:644-658	1989
1990	William H. Bayliff	Carole C. Baldwin	Morphology of the larvae of American Anthiinae (Teleostei: Serranidae) with comments on the relationships within the subfamily. Copeia, 1990 (4): 913-955	1990
1991	William H. Bayliff	Sharon J. Kramer	Growth, mortality, and movements of juvenile California halibut *Paralichthys californicus* in shallow coastal and bay habitats of San Diego County, California. U.S. Nat. Mar. Fish. Serv., Fish. Bull., 89 (2): 195-207	1991
1992	John B. Pearce	Murdock McAllister Randall Peterman Darren Gillis	Statistical evaluation of a large-scale fishing experiment designed to test for a genetic effect of size-selective fishing on British Columbia pink salmon *(Oncorhynchus gorbuscha).* Canad. Journ. Fish. Aquat. Sci., 49 (7): 1305-1314	1992

W.F. Thompson Award Nominations

The American Institute of Fishery Research Biologists established the annual W.F. Thompson Award in the early 1960's which is given for outstanding research and publication in fisheries or fisheries-related sciences performed by a student. Nominations are being sought for papers published in 1994. The requirements are as follows:

1. The research must have been conducted while the nominee was a student at an institution of higher learning in the western hemisphere.

2. Papers which are considered for the award must be concerned with freshwater or marine biological resource problems. They will be judged on the basis of originality, development and organization, and interest to current aquatic biological resource problems.

3. The results of the research must have been accepted for publication in a recognized scholarly journal, or as all or part of a book, within three years of termination of student status. (If an outstanding paper does not meet this requirement, due to a technically uncontrollable reason, such as military service, etc., it may still be considered.)

4. Authors may nominate their own papers.

5. Multiple authorship is permissible, provided a student is the senior author.

6. A resumé, including details of the student author's employment history in fisheries or fisheries-related science and his/her status as a student, must accompany the nomination.

7. The papers will be judged by a Committee, chaired by an AIFRB fellow or member appointed by the President of AIFRB. The Chairperson will select the other members of the Committee, who need not be members of AIFRB.

8. The award will consist of a certificate and a monetary award of $750. A faculty advisor or another non-student scientist co-authoring an award-winning paper will receive a certificate, but no money.

9. If the winning paper is based upon research carried out independently by two or more student co-authors, each will receive a certificate, and the monetary award will be divided equally among them.

10. In most cases the award will be given once each year, but if none of the papers nominated for the award is judged to be outstanding, the Committee is not obligated to select a winner of the award for that year.

11. Persons who have won the award are eligible to receive it a second time, provided the two awards are based on two distinctly different pieces of research.

Persons wishing to nominate papers for the W.F. Thompson Award should send six reprints or photocopies of each paper to the Chairman of the W.F. Thompson Award Committee. The Chairman for the 1994 award is Dr. John B. Pearce, Northeast Fisheries Science Center, 166 Water Street, Woods Hole, MA 02543-1097. The deadline for applying is August 1, 1995. The award will be made early in 1996.

NOAA's Center for Coastal Ecosystem Health

Using new funding appropriated by Congress in 1994, the National Oceanic and Atmospheric Administration is establishing the NOAA Center for Coastal Ecosystem Health in Charleston, South Carolina. The main goal of the Center is to contribute to the development of improved management strategies for achieving coastal ecological, cultural, and economic sustainability. The Center provides an opportunity for

cont. on page 5

NOAA'S Center for Coastal Ecosystem Health

cont. from page 4

NOAA to address several of its responsibilities in coastal environmental sciences and management by developing innovative partnerships with Federal, state, local, and private institutions. The Center will accomplish its mission through cooperative efforts with the science and management communities to provide the technologies, methodologies, and information necessary to assess, predict, and improve the health of the Nation's regional coastal ecosystems and their living marine resources. It will serve as a focal point for addressing national coastal environmental quality problems, such as nonpoint source pollution, nutrient overenrichment, and habitat loss and degradation.

NOAA established a management committee of senior staff to provide advice on the Center's programs and operations. Teams of NOAA and regional experts developed work plans for the initial Center efforts. These plans defined the preliminary facility, staffing, and other resource requirements associated with the Center start-up. Ultimately, Center staffing will include employees with expertise in scientific, engineering, coastal resource management, and data and information management fields. Start-up activities began during the summer of 1994, in temporary facilities located at the Charleston Naval Base. Renovations of the buildings designated for permanent Center quarters began in the fall of 1994, and are planned to be completed late in 1995.

The Center will be organized into three program areas: Coastal Management Services, Environmental Monitoring and Technology, and Data and Information System. Each of these major program areas will focus on specific aspects of coastal research and resource management:

Coastal Management Services. This element will develop and provide users with syntheses of environmental, legal, regulatory, and management practices information. Synthesis development will be based on Center data and information, and expertise in regulatory and non-regulatory approaches to coastal management problems. The methodology for production of these syntheses will be described as well. This activity will provide a unique national capability to develop, validate, and transfer regional management strategies for sustainable development that promote conservation of desirable aesthetic qualities and the functional ecology of natural coastal ecosystems.

One of the Center's primary areas of emphasis will be providing expertise in habitat restoration to foster rehabilitation of coastal habitats and improved management of coastal resources. Another area will focus on management needs in addressing the problem of nonpoint source pollution. The coastal management community will be provided with fundamental information, new technologies, and assistance in the application of restoration science to rehabilitate degraded coastal habitats. Education, training, and outreach activities will also be an important component of this element.

Environmental Monitoring and Technology. This element has three components. The Interdisciplinary Monitoring and Prediction component will demonstrate, evaluate, and provide to users new techniques and strategies for improved coastal ecosystem health monitoring through: 1) a long-term monitoring demonstration to measure anthropogenic impacts on coastal ecosystem health within the context of natural variability in a southeast ecosystem; 2) new protocols and methods for characterizing ecosystem health, which will improve the design and comparability of national and international monitoring programs; and 3) improved regional interdisciplinary model capabilities, using a real-time test bed of ground/water-based and satellite sensors to calibrate and verify model capabilities.

An Instrument/Technology Development component will develop and validate new environmental measurement and monitoring technologies by identifying promising tools and technologies in the Research and Development community; developing operational prototypes of high-priority instruments; demonstrating and testing them in a well-instrumented test bed; ensuring the utility and quality of the data produced; and transferring them to commercial production and operational implementation.

A Remote Sensing component will integrate data from a variety of satellite and aircraft sensors to provide near real-time and retrospective products for application to coastal land and water resource issues. Two initial activities are planned: 1) an operational coastal change analysis program (C-CAP) to create a data base of coastal emergent and submergent wetland and land cover change for all U.S. coastlines. The C-CAP facility will establish an operational system for the classification of coastal habitats; and 2) a regional ocean color operational capability to acquire near real-time high resolution data from ocean color satellites and generate high resolution coastal products for U.S. coastal areas.

Data and Information System. This element will be responsible for Center data and information management activities, including acquisition, quality control, processing, archiving, and dissemination. It will provide data and information for environmental planning, conservation, and sustainable development activities in the coastal zone, derived from state-of-the-art scientific data bases, using modern analytical tools and presentation techniques. Start-up activities will establish a national geographic database capability (beginning with the southeast region) consisting of base layer data in Geographic Information System (GIS) structure; provide network or active archive access to program-related coastal zone data bases; and build integrated cross-scale, GIS-related data bases focussed on specific problems, and linked with suitable models or model outputs. Also, a modern electronic library, serving Center staff and outside users, will be established by this element.

Strong ties will be built between external communities and the Center to ensure that data, information, and science-based strategies developed at the Center are effectively shared with users. Coastal zone managers and scientists will be encouraged to work at the Center and participate in the full suite of activities: evaluating and validating new strategies and technologies; proposing new target problem areas; and providing

cont. on page 6

NOAA'S Center for Coastal Ecosystem Health

cont. from page 5

continuous feedback as to the utility and quality of Center products and services. In addition, the Center will work with the National Sea Grant Program, other Federal agencies and programs, and state and local governments to translate and deliver these products to appropriate users and to the public. Center staff will assist local planners and administrators in coastal states to assess the trade-offs between economic development and environmental concerns to foster sustainability of coastal natural resources and ecosystems.

Curt Mason and Roz Cohen in
Earth System Monitor, Sept. 1994

Name Change — National Biological Survey

Secretary of the Interior Bruce Babbitt has renamed the department's newest bureau as the National Biological Service (NBS). When established in 1993, the bureau was named the National Biological Survey. In addition, Babbitt issued a Secretarial Order placing significant restrictions on the agency's activities, particularly those on private property. The service's use of volunteers will have strict parameters. The order also reiterated a requirement for independent scientific peer review of NBS study projects.

The name change came because "the old name was misleading," Babbitt said. He and NBS Director Ronald Pulliam noted that the new name should better reflect the agency's partnership orientation.

Our People

Ira R. Adelman (AIFRB Fellow 1989) of the Department of Fish and Wildlife at the University of Minnesota is the new chair of the American Fisheries Society Fisheries Scientists Certification Program. The committee will work to develop and recommend appropriately tiered discipline and specialty credentials.

AIFRB President **Vaughn C. Anthony** (Fellow 1980) has retired from the National Marine Fisheries Service after a productive career of research and administration. Vaughn has moved from Woods Hole, Massachusetts to Gaecklein Road, Boothbay, Maine 04537.

Vaughn Anthony authored an article in the March 1995 issue of *Fisheries*. The article, *American Institute of Fishery Research Biologists*, describes the functions, aims and activities of AIFRB.

Ole Mathisen (AIFRB Fellow 1968) has received the AFS Alaska Chapter's prestigious Wally Noerenberg Award for Fishery Excellence.

Matthew Scott (AIFRB Fellow 1979), a career Fisheries Biologist with more than 32 years of state service, has been named Deputy Commissioner of the Maine Department of Inland Fisheries and Wildlife. The appointment of Matthew Scott to the number two post at Fish and Wildlife was announced by Commissioner Ray "Bucky" Owen, who said that he "is pleased to have Matt on board at Fish and Wildlife. Matt's professional knowledge and career experience, as well as his abiding interest in protecting the resource, make him well-suited for the Deputy post. I look forward to working with Matt and sharing the challenges."

Scott, 59, is an active outdoorsman who brings to the new post a solid background in fisheries biology, environmental issues, public administration and state government.

A 1962 graduate of the University of Maine, Scott holds degrees in Wildlife Management and Public Administration. Early in his career, Scott worked for the Department of Inland Fisheries and Wildlife as a Fisheries Biologist. After 11 years with DIF&W, he joined the Maine Department of Environmental Protection as Chief Aquatic Biologist. From 1988 to 1994, Scott served as director of the Maine Low-Level Radioactive Waste Authority.

Scott has served in a number of volunteer positions with organizations active in environmental conservation. He is a 1978 recipient of the Conservationist of the Year Award from the Natural Resources Council of Maine.

District News

NORTHWEST WASHINGTON **John Strand, *Director***

On March 21, Charles M. Eaton of Bio-Marine Enterprises and Paul A. Dinnel of Dinnel Marine Research made a presentation to the District membership at the NMFS Auditorium in Seattle.

Based on recent studies in Puget Sound, Charles and Paul presented a new approach to the study of Demersal Fauna in its entirety, rather than focusing only on certain components of the community (e.g., fishes or invertebrate "biological resources"). It is hoped that this approach will lead to ecological insights into the structuring of Benthic Systems as a whole, and the development of metrics, based on this understanding, which will rapidly reflect conditions of ecological stress.

Meetings and New Publications

Great Lakes Research Conference

The International Association for Great Lakes Research announces the *38th Annual Conference on Great Lakes Research* to be held at the Kellogg Center on the campus of Michigan State University, May 28-June 1, 1995.

The purpose of the conference is to exchange information on all aspects of research applicable to the understanding of large lakes of the world and to the human societies surrounding them. The conference is of interest to professionals (and students) from many areas of science and technology.

To date, at least 25 special symposia are scheduled. Topics include such issues as physical dynamics, causality and risk assessment, atmospheric process, global change records in lakes, food chain transfers, large lakes of the world, contaminated sediments, toxicology, and exotic species.

cont. on page 7

Meetings and Publication

cont. from pg. 6

Registration for the conference will begin on Sunday May 28, followed by four days of technical sessions, poster presentations, and exhibits. Pre-registration is encouraged. For additional information on the 38th Annual Conference on Great Lakes Research please contact: John P. Giesy, Dept. of Fisheries and Wildlife, 13 Natural Resources Building, Michigan State University, East Lansing, MI 48824. Phone: (517) 353-2000. e-mail: 16990gny@msu.edu. Fax: (517) 423-1699.

Third National Reservoir Symposium

The Reservoir Committee of the Southern Division, American Fisheries Society is sponsoring the Third National Reservoir Symposium on June 12-14, 1995 at the Chattanooga Marriott in Chattanooga, Tennessee.

The goal of this symposium is to expand the knowledge of reservoir managers by offering presentations covering a diversity of topics essential to reservoir management but outside the realm of most management biologists' normal operation.

Program highlights include a plenary session followed by over 50 invited and contributed papers presented in the following session topics:

Administrating and marketing reservoir fisheries
Environmental assessment
Competitive fishing and angler perspectives
Data collection and analysis
Facilities management
Fish habitat management
Socioeconomics and optimum yield

The sessions will not be concurrent; therefore, each attendee will have the opportunity to attend all the sessions offered. In addition to formal sessions, a poster session will provide information concerning current research and concepts on a wide variety of reservoir management topics.

For information on programs, registration, and accommodations, write Scott Hale, Kentucky Dept. of Fish and Wildlife Resources, #1 Game Farm Road, Frankfort, KY 40601.

Gulf of Mexico Symposium

The Gulf of Mexico: A Large Marine Ecosystem is the title of a symposium to be held August 23-25, 1995 at the Holiday Inn Resort in St. Petersburg Beach, Florida. The invited paper symposium will have sessions on Gulf of Mexico Descriptive Oceanography, Living Aquatic Resources, Environmental and Ecological Perturbations, Functions and Processes, Ecosystem Management Regimes, Approaches to Health of the Ecosystem, and a special session on the Southern Gulf of Mexico. A peer-reviewed proceedings publication will be produced. Nominal registration fee will include the publication and handout materials. Hotel reservation should be made by 8 August. For information contact Herb Kumpf, National Marine Fisheries Service, 904/234-6541; Fred Kopfler, Environmental Protection Agency Gulf Program, 601/688-2712; or Karen Steidinger, Florida Department of Environmental Protection, 813/897-8626.

Southeastern Association Annual Conference

The 49th Annual Conference of the Southeastern Association of Fish and Wildlife Agencies will be held September 23-27, 1995, at the Stouffer Hotel and Convention Center in Nashville, Tennessee. The conference theme this year will be *The Status and Future of Ecosystem Management in the Southeast.*

You are invited to submit papers for review and inclusion in the program. Contributed papers and student posters addressing the conference theme are particularly encouraged, but papers on other topics are also welcome. Manuscripts must adhere to the guidelines published as a special supplement at the end of the 1985 Proceedings (Volume 39). If unavailable to potential contributors, a copy of these guidelines may be obtained from any session associate editor. If inadequate numbers of manuscripts are submitted and accepted by the editors for the technical sessions, session chairpersons will select and invite authors to give oral presentations to fill out the agenda based upon the quality of the abstracts submitted.

The deadline for receiving manuscripts is May 1, 1995. Students who plan on a poster presentation and others who would like to make oral presentations only must submit a ½ page single-spaced abstract to the appropriate Associate Editor no later than June 1, 1995. Poster space and program time is limited. Preference will be given to those who respond early. Persons who are to receive manuscripts/abstracts:

Fisheries Associate Editor: Richard W. Luebke, Texas Parks and Wildlife Department, Heart of the Hills Research Station, HC07, Box 62, Ingram, TX 78025 (210-866-3356)

ECOSET '95

This *International Conference on Ecological System Enhancement Technology for Aquatic Environments* will be the *Sixth International Conference on Aquatic Habitat Enhancement.* Sponsored and hosted by several Japanese organizations and societies, this meeting will take place on November 6-10, 1995 at Nihon University, Tokyo, Japan.

This conference is the sixth in a series of international conferences that began as the artificial reef conference in Texas, U.S.A. in 1974. The character of the successive conferences has evolved with time and so have their names to reflect this evolution. The first three conferences, whose focus was more or less confined to artificial reefs, were named the international artificial reef conferences. The fourth conference, held in Miami, Florida, U.S.A., broadened its scope of interest to "all aspects of artificial habitat utilization," naming itself the international conference on artificial habitats for fisheries. Carrying this trend further and intending to recognize artificial habitat technology as a tool to enhance the habitats, not just fisheries production, the fifth conference, held in Long Beach, California, U.S.A. in 1991, called itself the international conference for aquatic habitat enhancement.

In keeping with this tradition for continual evolution, the sixth conference to be held in Tokyo in 1995 stresses the importance of recognizing the habitat as an ecological system, calling itself the international conference on ecological sys-

tem enhancement technology for aquatic environments, ECOSET for short. In practice, the sixth conference embraces all the key subjects that have been covered by the previous five conferences and some more. The purpose of ECOSET '95 is to provide an international forum for the exchange of knowledge and experience in all aspects (creation, enhancement, improvement, conservation, management, utilization, mitigation, etc.) of aquatic ecological systems associated with artificial reefs, estuaries, wetlands, tidal flats, rivers, lakes, and other natural and man-made habitats.

The official languages of the conference will be English and Japanese, with on-site translation provided.

More information is available from ECOSET '95 Conference Secretariat Office, Japan International Marine Science and Technology Federation, Kyodo Building, Rm. 65, 1-3-5 Nihonbashi-Kakigara-Cho, Chuo-Ku, Tokyo 103, Japan.

Pacific Coast Crabs and Shrimps

Sea Challengers has published *Pacific Coast Crabs and Shrimps,* a 96-page quality paperback book by Gregory C. Jensen. The volume has beautiful colored photographs of 163 species of decapod crustaceans, pictorial keys, a glossary, selected references, an index, and a species checklist.

This new monograph on invertebrates is the first ever Pacific coast color field guide for this important group of marine animals. The guide describes 163 species of crabs, shrimps and lobsters that occur in the nearshore waters from Alaska to Northern Baja California. The narrative for each species includes the identification, size, geographic range, and habitat, as well as natural history notes.

Greg Jensen's book includes . . . species of decapods found between Alaska and Mexico and occurring at the shore or within a few miles of shore. He has pulled together information about all of them, and gives it to us in an accessible, easily understood format. Much of what he tells us is based on his own observations of these animals. Features used for identification of each species are accompanied by a brief account of the geographic range, habitat, diet, behavior, and other aspects of its biology. All of this information will be of interest to those who wish to understand the roles of decapods as carnivores, herbivores, or scavengers, and to appreciate how they are specialized for living where they do. One aim of Greg's work is to encourage us to protect these animals and to treat them with the respect they deserve.

This book costs $19.95 from Sea Challengers, 4 Somerset Rise, Monterey, CA 93940

Wildlife Law Enforcement

The fourth edition of this book by William F. Sigler (AIFRB Fellow 1960) will appear in 1995. The 400-page paperback is a one-of-kind practical guide to real-life situations and issues encountered by wildlife conservation and law-enforcement professionals. The extremely thorough fourth edition features case laws involving endangered species, DNA profiling, toxic materials, and technology in the courtroom; increased coverage of rare animal and commercial poaching; and undercover and arrest procedures.

Order the book from Wm. C. Brown Publishers, 2460 Kerper Blvd., Dubuque, IA 52004-0539.

Biology and Ecology of Fishes

James S. Diana of the University of Michigan has authored this text reference in fisheries biology. The book of 425 pages considers both the biological and management needs in the field of fish ecology. It is designed as a textbook for upper division or graduate classes in fish ecology, fishery biology, and related courses, and is broad enough to include many areas of interest to practicing fish ecologists and fishery managers.

In writing this book, the author has decided that keeping the interest of readers is as important as including relevant facts and important literature. A case study approach is used throughout as the main emphasis for the text. Reviews of information are included, but most of the emphasis is on covering studies and concepts.

This book emphasizes how fishes deal with environmental conditions in their survival, growth, and population processes. This is most commonly considered fish ecology, although the emphasis of some sections of the book is more commonly found in books on fish biology. Processes like growth, population structure, and behavior are included in the book, and are the underpinnings for a foundation in fishery management.

Excellent coverage of current and historic themes in fish ecology is provided, and will help prepare students to understand and analyze the concepts of importance in the field, allowing the student to be able to cope more effectively with future changes in the field, and to remain current in spite of changing methods or emphases.

This volume is available for $45 from Cooper Publishing Group, LLC, 1048 Summit Drive, Carmel, IN 46032.

Blackwell Science Books

Blackwell Science books are available in the U.S. from Nautilus Publishing, Inc., 2025 First Avenue, Suite 1000, Seattle, WA 98121-2100.

Fisheries Biology, Assessment and Management, by Michael King.

As the over-exploitation of fish stocks continues on a global scale, the need to develop and enhance skills in fisheries assessment and management becomes ever-more urgent if we are to ensure that fish remain a renewable resource providing employment and food.

Fisheries Biology, Assessment and Management is a new, core text which provides essential information and expert guidance on modern methods of resources management for both temperate and tropical fisheries and is directed to students of marine science and biology and fisheries researchers, scientists, and managers.

Modern catching methods are reviewed in full, analyses of fisheries resources species are provided, from invertebrates (such as sea cucumbers) to migratory fish species (such as tuna) and, unlike other available texts, *Fisheries Biology, Assessment and Management* contains a large number of

worked examples and numerous graphs, charts, diagrams and line drawings.

Destined to become the foundation text and leading reference in this vital area of fisheries science, this new work examines the following areas: Resource species—molluscs, crustaceans, echinoderms, and fish. Fishing gear and methods (including destructive methods). Population dynamics—distribution and abundance, morphometrics, selectivity of fishing gear, growth (including length recruitment, and mortality) catch curves, and cohort analysis. Fisheries yield—from classical methods to simulation models. Fisheries assessment—data requirements, collection and analyses, potential yield analyses, financial analyses, and fisheries monitoring. Fisheries management—management objectives and fisheries regulations. References. Appendices. 176 illustrations, 320 pages, 244 x 172mm. The price in England is 24.99 pounds.

Broodstock Management and Egg and Larval Quality, Edited By Niall Bromage and Ronald J. Roberts.

At present, the supply of eggs and fry is one of the major constraints on future aquaculture development. For the majority of farmed species, production is totally dependent on harvesting of broodstocks or seed from wild populations. At present we know little about the control of reproduction of most farmed finfish nor the detailed nutrient, metabolic and husbandry requirements of the broodstock or the ways in which they might be managed to optimise seed production and improve the quality of eggs and larvae. Newer technologies such as ploidy and gender manipulation, induced spawning and cryopreservation are coming to the forefront of modern broodstock management and all of these topics are considered, in detail, in this new text.

Broodstack Management and Egg and Larval Quality has been written as a standard text for commercial practitioners and students of aquaculture, fish biology and fisheries and provides a comprehensive review of current and future methods of broodstock and hatchery management.

The range of marine and freshwater tropical and temperate finfish species considered, together with contributions from many of the world's most eminent fish biologists, provide comprehensive and international coverage of this increasingly important area of aquaculture. Species and topics covered within the text include: Red sea bream; Gilthead bream; Trout; Sturgeon; Channel catfish; African catfish; Pacific salmon; Croaker and red drum; Halibut and cod; Tilapia; Carp; Sea bass; Sperm quality; Biotechnology and genetic manipulation; Lipids; Larval foods; Cryopreservation. 58 illustrations, 432 pages, 244 x 172mm. The price in England is 59.50 pounds.

Alosa Symposium Book

Anadromous Alosa Symposium, edited by J.E. Cooper, R.T. Eades, R.J. Klauda, and J.G. Loesch is a 169-page 1994 book from the Tidewater Chapter of the American Fisheries Society.

Populations of anadromous *Alosa*—American shad, alewife, and blueback herring have declined along the Atlantic coast, in large part because their spawning streams have been dammed or degraded. Although technology has brought about improvements in water quality and fish passages around dams, a firm understanding of the biology of anadromous *Alosa* is necessary to the development of future management strategies.

A 1993 symposium brought together members of various agencies and institutions that were conducting *Alosa* research to share information organized around several broad topics: life history and biology, stock assessment and management, fish passage, commercial and recreational fisheries, culture and stocking, and ecological roles in freshwater systems. This book includes selected symposium presentations that contribute to the basic understanding of *Alosa* populations, particularly the commercially and recreationally important species. The book is essential reading for anyone working with *Alosa* populations or for anyone interested in migratory species.

This volume is available for $20 from the American Fisheries Society, 5410 Grosvenor Lane, Suite110, Bethesda, MD 20814.

Membership Report

New Associates (Students)	
Allen K. Fukuyama	WA
Adrian P. Spidle	WA
New Members	
Dr. Erich K. Stabineau	NC
Dr. Jeffrey C. Barrett	WA
Promoted to Member	
Dr. Anne Henderson-Arzapalo	WV
Promoted to Fellow	
Dr. Bruce A. Barton	SD
New Fellow	
Dr. John R. Morning	ME
Emeritus	
Dr. Perry W. Gilbert	FL

Sammy M. Ray, Membership Chairman
Texas A & M University at Galveston,
5007 Avenue U, Galveston, TX 77551
Direct membership inquiries to the Membership Chairman.

District Directors

Alaska, Northern
Steven K. Davis
4175 Tudor Centre Dr. #101
Anchorage, AK 99508

Alaska, Southeast
Malin M. Babcock
Auke Bay Fisheries Lab.
Juneau, AK 99801

Atlantic Provinces
Vacant

California, Northern
Richard F.G. Heimann
20 Lower Ragsdale Drive, Suite 100
Monterey, CA 93940

California, Southern
Charles T. Mitchell
3040 Redhill Avenue
Costa Mesa, CA 92626-4524

Capital
Frank M. Panek
National Park Service
P.O. Box 7127
Washington, DC 20013-7127

Carolina
Douglas S. Vaughan
173B Shell Landing Road
Beaufort, NC 28516-9802

Florida
Vacant

Great Lakes, South Central
Vacant

Gulf of Mexico, Northeast
Vacant

Keystone
Barbara E. Warkentine
1329 Balcom Avenue
Bronx, NY 10461

New England
John B. Pearce
Northeast Fisheries Center
166 Water Street
Woods Hole, MA 02543-1097

Oregon-SW Washington
John F. Palmisano
1990 NW 156th Avenue
Beaverton, OR 97006-5307

Texas
Sammy M. Ray
P.O. Box 1675
Galveston, TX 77553

Washington, NW
John Strand
16535-188th Ave. NE
Woodville, WA 98072

BRIEFS, the newsletter of the American Institute of Fishery Research Biologists, is published six times a year. It is intended to communicate the professional activities and accomplishments of the Institute, its District, and Members; the results of research: the effects of management; unusual biological events; matters affecting the profession; political problems; and other matters of importance to the fishery community. Comments and contributions should be sent to the Editor, Dr. Oliver B. Cope, 15 Adamswood Road, Asheville, NC 28803. Subscription $20 a year to Institutions and Non-Members. Officers-Vaughn Anthony, P.O. Box 459, Boothbay, ME 04537, President; Katherine Myers, Fisheries Research Inst., WH-10, University of Washington, Seattle, Washington 98195, Secretary; Joseph Rachlin, Lehman College Bio., Bedford Park Blvd. West, Bronx, New York 10468, Treasurer.

ISSN-8755-0075

American Institute of Fishery Research Biologists

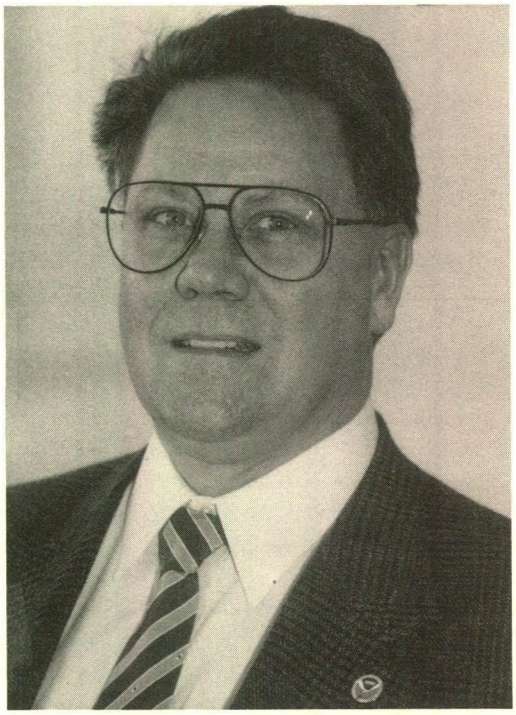
. . . BRIEFS . . .

VOL. 24, NO. 3 JUNE 1995

Who's Who in AIFRB

Michael Dahlberg

Michael Dahlberg, a distinguished Fellow of the Alaska District and an AIFRB member since 1968, was recently named director of the National Marine Fisheries Service's Auke Bay Laboratory in Juneau. This latest appointment follows a long list of accomplishments in both national and international fisheries arenas.



As director of the Auke Bay Laboratory, Mike oversees a broad and diverse research program covering Alaska's anadromous, estuarine, and marine ecosystems. Ongoing research investigates habitat impacts, fisheries enhancement, U.S./Canada Treaty issues, groundfish resource assessments, and high-seas salmon fisheries. An important new program will study the salmonid carrying-capacity of the North Pacific. Mike's international experience will help lead the Auke Bay Laboratory's research programs into the 21st century.

Mike was born in Miami, Florida, and grew up in Beaverton, Oregon. He chose a career in fisheries, emphasizing statistics, population dynamics, and resource assessment. He attended Oregon State University as a fisheries major, gaining a B.S. in 1962. Continuing at OSU with a research assistantship, Mike got his M.S. in fisheries with a minor in statistics in 1963 and went on to the University of Washington. While at UW from 1963 to 1968, he was with the Fisheries Research Institute and studied population dynamics of sockeye salmon in the Chignik Lakes on the Alaska Peninsula.

After completing his Ph.D. in 1968, Mike joined the Department of Forestry and Wildlife at Virginia Polytechnic Institute as their first fisheries faculty member. He taught classes there until 1970 when he joined the National Marine Fisheries Service and managed the Marine Gamefish Statistics Program at the NMFS Narragansett Laboratory in Rhode Island. While there, he began designing a needed system for monitoring the sport catch in U.S. Atlantic coastal waters.

Mike moved to Alaska in 1971 to take a position with the Auke Bay Laboratory and continue his work on sockeye salmon. He has since been a vital leader of ABL's Biometrics unit and Marine Fisheries Assessment Program responsible for stock assessment of sable fish and rockfish in the Gulf of Alaska for the North Pacific Fisheries Management Council. His staff also investigates ecology and population dynamics of salmonids in offshore waters of the North Pacific.

Over his career, Mike has authored or coauthored more than 125 scientific papers and reports, many of which were significant in supporting fisheries management. His published observations of incidental and illegal catches of salmonids in North Pacific driftnet fisheries provided the scientific basis for important multinational agreements.

Mike is widely recognized for his contributions to high-seas fisheries research and international negotiations. In 1977, he was selected to advise the International North Pacific Fisheries Commission (INPFC) regarding the high-seas distribution of salmonids in the North Pacific. His scientific advice was critical to the State Department in renegotiating the INPFC Treaty in 1978 and again in modifying the Treaty Annex in 1986. He was U.S. scientist member of the Subcommittee on Salmon of the INPFC from 1987 to 1991, when the Commission was replaced by the new North Pacific Anadromous Fish Commission, and he now serves as U.S. scientific expert on this new Commission.

Mike was also the State Department's lead scientific advisor in negotiations with Japan, Taiwan, and the Republic of Korea on monitoring agreements required by the High Seas Driftnet Monitoring and Control Act of 1987. After designing the sampling program and protocol used by international scientific observers to monitor high-seas driftnet fisheries, Mike worked with scientists from the United States, Canada, Japan, Taiwan, and the Republic of Korea to train and supervise the largest multinational fishery observer program in history. Information from this program was vital in establishing the U.S.-sponsored United Nations worldwide moratorium on large-scale driftnet fishing.

cont. on page 2

Michael Dahlberg *cont. from page 1*

In recognition of his accomplishments, Mike has received numerous scientific awards and honors, including a State of Alaska Commendation in 1989, the Department of Commerce Certificate of Recognition in 1990, the Alaska Fisheries Distinguished Service Award in 1990, and a shared Department of Commerce group Silver Medal in 1993.

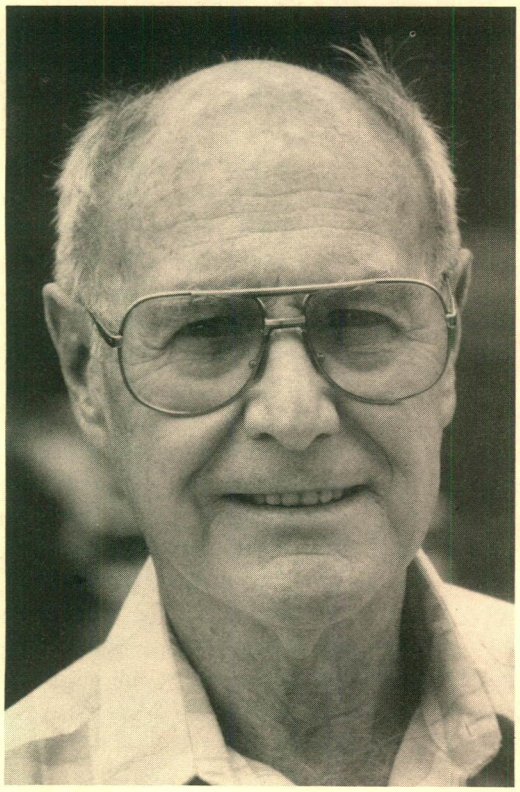
Mike lives in the Auke Bay area and enjoys outdoor activities, travel, and visiting his two daughters and four grandchildren. He is an accomplished scuba diver and underwater photographer and has much experience observing and interacting with marine life in Alaska and tropical waters, such as Truk Lagoon and Palau. His underwater experiences include handfeeding fish eggs to a Steller sea lion.

As new director of the Auke Bay Laboratory, Mike will oversee research by nearly 100 scientists. His leadership will have an important role in the future development, conservation, and management of Alaska's fisheries resources--the largest in the United States.

Cope Wins AIFRB Award

The first AIFRB Distinguished Service Award was awarded to BRIEF'S editor Oliver "Ollie" Cope at the August 1994 Board of Control Meeting in Halifax, Nova Scotia. This award is given in recognition of an individuals outstanding and sustained service to AIFRB.

Oliver Cope, born in San Francisco, California in 1916, is a distant cousin of Edward Drinker Cope, whose career in ichthyology, herpetology and palaeontology is legend, as was the famous Cope and Marsh rivalry that spiced early palaeontological studies in the United States. Ollie, the son of a California family that dates back to the '49er days attended public schools in San Francisco and followed his father to Stanford University where he received the A.B., M.A., and Ph.D. degrees in biology. In 1942, Ollie was called to active duty by the U.S. Navy in whose service as an entomologist he served in North Carolina, New Guinea, and the Philippines. Following the end of World War II, he stayed involved with service activities and eventually retired from the U.S. Naval Reserve with the rank of captain.



Ollie's career as a Fishery Research Biologist began in 1946 with a position with the U.S. Fish and Wildlife Service's Central Valley Investigations at Stanford California. Here, his studies involved salmon in the Sacramento-San Joaquin valleys, fish populations in the Sacramento-San Joaquin Delta, and trout investigations at Convict Creek in the Sierra Nevada. A 1947 assignment took him to Anchorage, Alaska where he investigated the effects of new insecticides on the biota of trout and salmon streams.

Ollie's scope of work expanded in 1948 to include inquiries on cutthroat trout in Yellowstone Lake, and in 1952 he moved to headquarters at Utah State University at Logan, where he continued summer work with cutthroats at Yellowstone as part of the Rocky Mountain Sport Fisheries Investigations. He also studied the greenback trout (an E.D. Cope species) in Rocky Mountain National Park.

In 1962, Ollie was given the assignment of organizing a Fish-Pesticide Research Laboratory in the Fish and Wildlife Service's Wildlife Research Center in Denver, Colorado. Demands for additional pesticide studies eventually led to the establishment of several outlying units at other Fish and Wildlife Service Laboratories. In 1966, Ollie became Director of a new, large Fish-Pesticide Research Laboratory on the campus of the University of Missouri at Columbia, Missouri.

It was evident that Ollie's career was gradually taking him in an easterly direction, and in 1969, he was transferred to the central office of the Fish and Wildlife Service in Washington, D.C., to serve as Chief of the Branch of Fish Husbandry Research in the Division of Fishery Research. In this post, he coordinated the activities of the Service's laboratories concerned with fish diseases, fish nutrition, and fish culture methods. He also served during this period on the Editorial Review Board of the Fish and Wildlife Service. He learned his trade well, as his latter service as Editor of AIFRB's BRIEFS will attest.

Ollie eventually transferred to the Office of Water Resources Research of the U.S. Department of the Interior as a scientist selecting, monitoring, and reviewing grants to Water Resources Institutes at Land-Grant Colleges in various states. In 1974, Ollie retired from federal service and moved back west to Colorado, where he contracted to edit the technical publications of the Colorado Division of Wildlife. He also edited symposium proceedings for Trout Unlimited, the Fish and Wildlife Service, and AIFRB. While in Denver, he also worked at the Fish and Wildlife Reference Service, evaluating

cont. on page 3

Cope Wins . . .

cont. from pg. 2

accessions for incorporation in the then developing data base. In 1981, he moved to Asheville, North Carolina where he currently resides.

Ollie's career with AIFRB began in 1963 with his election to the rank of Fellow, and in 1982 he was elected to Emeritus status. 1982 was also a significant year for AIFRB, because in that year Ollie took over the editorship of BRIEFS, starting with Volume 12, Number 1, a responsibility that he has had for the past 13 years. During these years, he has with the help and encouragement of several Presidents, many District Directors, and numerous other AIFRB members who have contributed articles, photos, and announcements developed this Newsletter into the current quality eight-page format that is a reflection of his high standards, and is eagerly read by all AIFRB members, and graces the shelves of several libraries. Thus, it was clear to all present at the Halifax Board of Control Meeting that Ollie's singular contribution to AIFRB should be recognized in a very special way, and so he was overwhelmingly nominated and unanimously elected to be the first recipient of the new AIFRB Distinguished Service Award. And so we all congratulate Ollie, wish him well, and look forward to many more stellar issues of BRIEFS under his exemplary stewardship.

Board of Control Meeting—1995

The annual meeting of AIFRB (Board of Control Meeting) for 1995 will take place at the Hyatt Regency Tampa, in Tampa, Florida, on August 26 and 27. Members who will lead each discussion are given in brackets after each item. Additional agenda items are welcome. Notify the President of any new items that should be discussed. Also please notify the President or the discussion leader of any opinions that you may have and want expressed at the meeting. As always, all members of AIFRB are encouraged to attend the meeting.

The following agenda will be used:

1. Call to order by the President, 9:00 a.m., August 26, 1995
2. Introductions
3. Review and Adoption of Agenda
4. Approval of Minutes of 1994 Annual Meeting at Halifax, Canada
5. President's Report (Anthony)
6. Secretary's Report (Myers)
7. Treasurer's Report (Rachlin)
8. Membership Committee Report (Ray)
9. *BRIEFS* (Cope)
   a. Report of *BRIEFS* Editor
   b. Content of *BRIEFS* for 1996
10. Report of Publishing Editor (Merriner)
11. District Activities
    a. Reports from District Directors
    b. New Directors
12. Awards (Anthony)
    a. Travel Assistance Awards (Lambert)
    b. W.F. Thompson Best Paper Awards (Pearce)
    c. Outstanding Achievement Award for individuals
    d. AIFRB Group Award of Excellence
    e. Distinguished Service Award
13. Other business (Anthony)
14. Farewell comments by President (Anthony)
15. Transfer of Chair to New President (Anthony)
16. Arrangement for 1995 Meeting (Hubbs)

1995 Social Gathering

The AIFRB is sponsoring a social gathering from 6:00 p.m. to 8:00 p.m. on August 27 at the Hyatt Regency Tampa in Tampa, Florida, following the Board of Control meeting. All members and spouses of AIFRB are invited. Just wear your AIFRB lapel pin for admission. Prospective members of AIFRB will also be invited. This will be a good opportunity to meet other members from other districts. Refreshments and drinks will be provided. Photos will be taken for the files of *Briefs*. All District Directors are asked to notify their members of the gathering as most members will be arriving in Tampa that day for the AFS meeting. John Palmisano, the Director of the Oregon-Southwest Washington District, will coordinate the social.

Changes In Emeritus Status

In my President's Report of last October (*Briefs*, Vol. 23, No. 5., pp. 2 and 3) I explained the changes in the Emeritus Category that were discussed at last year's Board of Control meeting at Halifax. The Charter was changed slightly and a committee was formed to evaluate further changes. The Charter now reads (Bylaws, Section 4—Designation of Emeritus Fellows and Members) "The Membership Committee, by majority vote, may designate as Emeritus Fellow or Emeritus Member, any Fellow or Member who, having been a member in good standing for at least five years, may (this word was changed from "shall") request that status, having by reason of age or disability retired from professional employment in

cont. on page 4

New District Director of New England District

Dr. John (Jack) B. Pearce was born in 1930 in Dearborn, Michigan and was raised in Tucson, Arizona. He attended the University of Arizona and graduated as valedictorian from Humboldt State University with a BA in 1957.

He completed his PhD in Zoology at the University of Washington in 1962 and had NIH Post-Doctoral Fellowships at the University of Copenhagen (Denmark), the Marine Laboratory, Helsingor, and at the Scottish Marine Biological Laboratory at Millprot, Scotland. Dr. Pearce also held a NSF Appointment with the Systematics-Ecology Program of the Marine Biological Laboratory in Woods Hole, MA (1963-5).

Dr. Pearce worked with the Arizona Fish and Game Commission's Migratory Waterfowl Program and was Assistant Professor at Humboldt State University from 1965 to 1967. He directed the NOAA/NMFS Marine Environmental Studies at Sandy Hook Laboratory (NJ) from 1967-84. He has been an adjunct or Associate Professor at Lehigh University, Rutgers University, and City University of New York.

Dr. Pearce was the first director of NOAA's National Estuarine Program Office (1984-5) and is presently the Deputy Director, Northeast Fisheries Science Center (NEFC), NOAA/NMFS, Woods Hole, MA, and Officer-in-Charge of the Woods Hole Laboratory. He served as Acting Director, NEFC during the periods 1990-1991 and 1994.

He has published over 100 papers on benthic ecology, symbiosis in marine organisms, effects of pollution, and long-term environmental monitoring. He continues to do research: 1) on parasitic crabs, their distribution and recruitment as affected by environmental and habitat changes, and 2) the cumulative effects of urbanization and industrialization of living marine resources and their estuarine and coastal shelf habitats.

Dr. Pearce has been a Fellow of AIFRB since 1975 and is currently the Chair of the W.F. Thompson Award Committee for 1992-1994. He also served as Chair for the 1978-1982 awards. In October, 1992, he was named as a "Fellow" of the American Association for the Advancement of Science (AAAS).

Changes . . . *cont. from page 3*

fishery biology. Emeritus Fellows or Emeritus Members shall not be required to pay fees or dues". This sentence used to include the words ". . . shall be privileged and requested to take part in all activities and shall be privileged and requested to take part in all activities and shall not hold office or vote in the election of officers or in the amendment of the Articles of Incorporation or the Bylaws." The committee was asked to evaluate the options of 1) holding office as an Emeritus Member or Fellow, 2) paying dues, 3) undergoing promotion to an Emeritus and providing guidelines to the Membership Committee Chairman on procedures for awarding that designation. I have received limited correspondence on this issue and the committee is not sure how to proceed. This is an important item which will generate some discussion at the Board of Control Meeting in Tampa. Some important changes may be made. The opinions of our members, especially the at-large members (those without a District Director) are badly needed. If you have any comments at all and cannot be present at the meeting, please send them to the President at P.O. Box 459, Boothbay, ME 04537, ASAP.

New District Director of the Capitol District

Dr. Frank M. Panek has been the Fisheries Program Manager for the National Park Service in Washington, D.C. since 1992. In this capacity Frank provides national leadership in fisheries management and research activities within the Service and provides technical assistance to over 150 national park units supporting aquatic, marine, and fishery resources. From 1976 to 1992 he worked as a fisheries biologist, regional fisheries manager, and then regional supervisor for natural resources with the New York State Department of Environmental Conservation. His work in New York included Great Lakes trout and salmon fisheries, assessments of the warmwater fisheries of the St. Lawrence Seaway, evaluations of the use of hybrid striped bass for recreational fisheries enhancement, evaluations of the use and effects of triploid grass carp on aquatic vegetation, and various studies to evaluate the effects of sportfishing regulations on trout, largemouth and smallmouth bass populations. He also served as a Research Fisheries Biologist with the New York Ocean Science Laboratory in Montauk, N.Y. were he studied juvenile weakfish in the nearshore waters of eastern Long Island and distributions of fish eggs and fish larvae in the Peconic Bay System. He began his professional career as a Fisheries Scientist with Carolina Power and Light Company in New Hill, N.C. in 1973.

Dr. Panek has been a member of AIFRB since 1968. He is also a member of Sigma Xi: the Scientific Research Society, and the American Fisheries Society where he served as the New York Chapter President in 1988. He received a B.S. from Upsala College in East Orange, N.J. and an MS and Ph.D. from Rutgers University. His major professional interests are in recreational fisheries management and the biogeography of freshwater fishes.

W.F. Thompson Award

The American Institute of Fishery Research Biologists annually awards the W.F. Thompson award for the one outstanding research and publication in a fisheries journal or a fisheries-related journal written while the nominee was a student. In the April issue of *Briefs* there was an article on the nominations for 1994. Persons wishing to nominate a best student paper are urged to forward the nomination to Dr. Jack Pearce, Northeast Fisheries Science Center, 166 Water Street, Woods Hole, Massachusetts 02543. The deadline for applying is 1 August 1995.

In 1993 we received well over a score of nominations, most of which were excellent. We are hoping to do equally well for 1994. I want to announce that there is an opportunity for a member of the AIFRB to take over the role of developing a review team that would handle 1995 nominations. I have personally found my participation in the process to be very rewarding and educational. Most papers submitted are at the cutting edge of fisheries research today, and for many people in mid to higher levels of research and management, having an opportunity to review the broad spectra of papers provides insight into where fisheries science is now and might be headed in the next decade or so.

I participated as chairman of the review team in 1978-1982, and more recently have been responsible for the 1992-1993 nominations. I would like to step aside, at least for two or three years, and welcome letters from individuals who would be willing to carry the process forward in 1995. Please write me at the above address if you have an interest in doing this. I can guarantee it is not onerous, does provide real insight into current fisheries research, and, when managed over a period of three or four years, provides an opportunity to see changes within a short time. Papers being received today, relative to the mid-1980's, are far superior in the sense that they are using techniques that might not even have been available just a decade ago. I encourage you to write to me.

John B. Pearce

Our People

Dr. **Robert P. Carline** (AIFRB Fellow 1992) and Leader of the Pennsylvania Cooperative Fish and Wildlife Research Unit, and **Gene R. Huntsman** (AIFRB Fellow 1984) and Team Leader for Reef and Coastal Pelagic Resources at the Beaufort, N.C. Laboratory of the National Marine Fisheries Service, are candidates for the office of Second Vice-President of the American Fisheries Society. The winner will become President in 1998.

Doug Austin (AIFRB Associate 1984) received the American Fisheries Society's North Central Most Active Chapter Award in recognition of the Illinois Chapter's role in aquatic resource management, advocacy, and professional development.

Dr. **Leonard Durham** (AIFRB Emeritus 1990) was honored by the North Central Division of the American Fisheries Society by granting him the Division's 1994 Excellence in Fisheries Science Award.

John Lyons (AIFRB Member 1988) has received the 1994 Best Paper Award of the Wisconsin Chapter of the American Fisheries Society. John's paper dealt with the development of an index of biotic integrity for cold-water streams in Wisconsin.

In recognition of more than three decades of dedicated fisheries conservation and management work, **Dick Schaefer** of the National Marine Fisheries Service was presented the Captain David H. Hart Award by the Atlantic States Marine Fisheries Commission at their annual meeting in October. Schaefer is the first federal employee to receive the award and its first living recipient. The commission honored Schaefer for previous valuable efforts and continued service in the development and implementation of major cooperative state and federal fisheries management programs.

Dr. **Robert G. Werner** (AIFRB 1991) has received a Professional Achievement award for the New York Chapter of AFS, and has also been recognized for his paper on Muskellunge.

NODDS: The NAVY/NOAA Oceanographic Data Distribution System

On 16 June 1994 RADM G.L. Chesbrough, the Oceanographer of the Navy, and Diana Josephson, the Deputy Under Secretary of Commerce for Oceans and Atmosphere, signed an annex to the Navy-NOAA Umbrella Memorandum of Agreement. This signing was noteworthy because it signified formal approval for NOAA to use the Navy's new NODDS data distribution system. The introduction of NOAA NODDS is significant because NODDS will provide direct access to synoptic environmental information to a large number of people around the country in a way that was never possible before.

For the first time NOAA will be able to provide resource managers, researchers, educators, and others with direct access to near real-time synoptic data that can be used with their desktop computers in the office or laboratory or even on ships at sea. With its new capabilities and flexibility, NOAA NODDS is a major improvement over older systems such as the CNODDS system that it replaces and that provided users with vector graphic representations of preprocessed contoured products.

NODDS was developed by the Navy's Fleet Numerical Meteorology and Oceanography Center (FNMOC) in Monterey, California to meet a need to provide Department of Defense users throughout the world with direct access to environmental information in a digital form. John Garthner and Ralph Loveless, the principal developers of NODDS, decided that they needed a system that would work with the most common computer (the 286 PC) and use ordinary telephone lines for communications. Since there was no money to support this development, John and Ralph used as much off-the-shelf software as possible and filled in the rest

cont. on page 6

NODDS . . .

cont. from pg. 5

themselves. The result was a program that was a success from the day it was introduced. There are now close to 1000 DOD NODDS users around the world. It has been used from ships at sea and from the Antarctic as well as from Saudi Arabia during Operation Desert Storm.

NODDS is a client/server type of system. The client gets to define areas of interest anywhere in the world and then pick products of interest from a menu. The products include synoptic observations, satellite images, warnings, such as high seas or tropical cyclone warnings, and analyses and forecasts produced by numerical models and available as gridded fields. Once the user has defined the area of interest and products desired, the system automatically dials the appropriate telephone number in Monterey, logs onto the host data base server, downloads the data and hangs up the phone. The client software then provides options for displaying the data, saving it for future use, or porting it to other applications programs. The third option is possible because the system downloads actual data and not vector graphics.

As mentioned above, NODDS works on computers as simple as 286-class PCs, as well as on 386 and 486 PCs. A VGA monitor is needed to display satellite images, a mouse is desirable, a hard disk is required and at least 1 MB of RAM, but all these hardware specifications are available on most PCs. (Macintosh and UNIX versions of NODDS are being tested as well.)

Now that the Navy has provided NODDS to NOAA, civilians can share in the use of this new technology. The NOAA adaption of NODDS is called NOAA NODDS and it is managed by the NOAA's Ocean Applications Branch (OAB). A Component of the National Ocean Service, OAB is collocated with FNMOC in Monterey. OAB was established in Monterey in 1985 to provide a gateway for civilian access to Navy products and technology such as NODDS. The OAB host for the NOAA NODDS system is data base management system called NEONS (described in the June 1993 issue of the *Earth System Monitor*).

Requests for NOAA NODDS service come from a large number of NOAA offices in all five of the NOAA line organizations, other Federal, state and local government offices, universities and K-12 schools, researchers, commercial interests, and foreign users. The reasons for requesting NOAA NODDS service are as varied as the backgrounds of the different user groups making the requests. The reason mentioned most often is the ability to use NODDS with simple, inexpensive, available desk-top PCs. Users don't have to buy new equipment. (I use it on my desk with the same 286-class PC that I use for simple tasks such as word processing and e-mail.) A second reason often stated is the flexibility the user has to select different areas of interest and different sets of products as desired. Other reasons include the access to FNMOC data that is not otherwise available, the ability to port the Nodds data into other applications programs and new and different display options incorporated into NODDS.

The products presently available with NOAA NODDS service include FNMOC oceanographic and meteorological products such as winds, atmospheric pressures, waves, atmospheric pressures, waves, air and ocean temperatures. All these numerical products are provided as gridded data and then contoured on the users PC for display. They are available as analyses and as forecasts. Other products include infrared and visual satellite images, synoptic surface and upper-air observations and warnings. Later this year NOAA products from sources such as the NOS Ocean Products Branch will be added to the suite of products available through NOAA NODDS.

NODDS display options include map displays using either mercator or polar stereographic projections, looping of time series data, split-screen displays, satellite displays including enhancement and overlay options, a slide show option that allows the preparation of up to 99 screen displays for later use, and displays of three-dimensional gridded data. Users also have the option of annotating the displays with lines, symbols or words and storing that information along with the downloaded data.

NOAA NODDS is an outstanding example of dual-use technology transfer and interagency cooperation. It also represents a major change in the way in which NOAA can provide the public with access to environmental information. For additional information NOAA NODDS and how to apply for the service, please contact the Chief, NOAA Ocean Applications Branch, 7 Grace Hopper Street, Monterey, CA 93943.

William G. Schramm in
Earth System Monitor,
Sept. 1994

Ballast-water Invasions of Chesapeake Bay

Each hour, foreign and domestic cargo ships jettison millions of gallons of ballast water in North American ports and waterways. Drawn aboard in foreign countries to stabilize large ships during ocean crossings, this water can contain hundreds of species of marine or freshwater organisms, ranging from small fish and crabs to microscopic algae and larvae of many invertebrate groups, such as clams, shrimp and worms.

Biologists are calling the discharge of these organisms "ecological roulette" on a global scale, and in North America, the stakes may be irreversible changes in our marine estuaries and freshwater ecosystems. Once released, it is anyone's guess which of these organisms may establish themselves and thrive in North American waters.

To date, roughly 150 foreign species have been reported in the San Francisco Bay and the Great Lakes, where invasions have received the most attention. As world shipping traffic grows (an estimated fleet of 39,000 cargo ships sail the world's oceans), odds are good that the number of these intruders will also increase, preying upon, providing food for, and competing with native North American species.

cont. on page 7

Ballast-water Invasions . . .

cont. from pg. 6

At the Smithsonian's Environmental Research Center—known as SERC—in Edgewater, Md., ecologist Greg Ruiz is trying to take the guesswork out of assessing the present risk to the Chesapeake from ballast water discharge in Baltimore Harbor. Ruiz has developed a long-term program that will examine the mechanisms, patterns, and consequences of the introduction of exotic species into the bay.

Carried out in collaboration with a team of scientist—Anson Hines, Wayne Coats and Linda McCann of SERC; William Jaeckel of the Smithsonian Marine Station in Link Port, Fla; James Carlton, David Smith and Marjorie Wonham of Williams College in Massachusetts—the SERC program will be first to examine the complete picture of "human mediated" introductions to Chesapeake Bay.

"Today, the single largest source of alien species is the worldwide movement of ballast water. Each year the Chesapeake receives billions of gallons of ballast water from foreign ports," Ruiz says," greatly exceeding the amounts jettisoned in other Atlantic ports in North America and making the bay a hotspot for the release of alien species and their potential invasion."

"One of our goals is to document this history of invasions in the Chesapeake Bay, as well as to estimate the importance of nonindigenous species now living there. By measuring the frequency and consequences of past invasions, we can get a better idea of how susceptible the bay is now."

Since the 1600s, ships have been bringing exotic marine species to the Chesapeake. "Fishing and shipping-related industries that are a primary source of species introductions have a long history in the bay region," Ruiz says. Some foreign species may have been established locally for decades or even centuries. Species discovered and classified as indigenous since that time may, in fact, be intruders.

Using the scientific literature and other resources to compile a history of known biological invasions in the Chesapeake Bay, the SERC team plans to establish a data base of exotic plants and animals that have become established there, their source and timing of introduction, and their method of introduction.

"The number of alien species currently reported for the Chesapeake is relatively small compared with the numbers reported for San Francisco Bay and the Great Lakes. Very likely, there have been a greater number of successful invasions in the Chesapeake than reported," he says.

Also, researchers are certain that some species have been introduced to the Chesapeake over and over, perhaps for decades, yet, for one reason or another, they have never established themselves.

"It's a statistical probability, like playing a lottery that you don't ever hit," says ecologist Anson Hines. "One Day, the right combination of conditions occurs and that species gains a foothold in a new environment."

Calculating the probability of new invasions is a complex task, Ruiz says, primarily because of the many different and constantly changing variables involved.

"First, we have virtually hundreds of species being introduced daily from different regions around the globe. Density and composition of these species is highly variable among ships and seasons." In Oregon, a recent study of plankton arriving in ballast from Japan found at least 367 distinct taxa of marine organisms. "Some ships can carry as much as 40 million gallons of water—that's comparable to transporting a small lake with its community of loving organisms intact," Ruiz says.

Second, temperature and climate, at both ends of the journey, are critical variables that constantly change. "Few tropical species would survive from a ship dumping its ballast in Baltimore in the dead of winter. But what about species from European waters with a similar seasonal cycle which arrive during hospitable spring or summer temperatures when the abundance of food is high?" he asks.

Once a foreign organism arrives in the Chesapeake, a myriad of natural variables—predators, disease, parasites, prey, water salinity, and water quality—come into play. Water salinity varies from around the globe, screening out many organisms. In some cases, Ruiz says, raising the water quality of a polluted river may actually help foreign species establish a foothold.

To get a handle on what foreign species are arriving in the Chesapeake today, the SERC team has been monitoring domestic and foreign cargo ships at Baltimore harbor. Team scientists board arriving ships at the harbor and use plankton nets to take samples from ballast tanks. These samples are brought back to SERC where the organisms are classified and evaluated.

"To date, foreign ballast water from 32 ships has been samples, and our analysis indicated that live organisms arrive from ports as distant as Japan and Korea. We have also observed variations in density and diversity of ballast brought about by seasonal patterns," Ruiz says. Organisms identified include crabs, shrimp, worms, clams, and unicellular algae.

A map in the hallway outside Ruiz's laboratory shows the origins of cargo ships that have been sampled. About 40 percent of the ships are from the Mediterranean, and about 40 percent hail from northwest Europe. Others have come from the Indian Ocean, Japan, and Australia.

One problem SERC scientists face in identifying intruders is that most of the aquatic species in ballast water are in larval stages. These larvae exist as plankton floating near the surface of the ocean and are easily sucked in by ballast pumps. Yet the literature traditionally describes adults.

In the SERC laboratory, Ruiz and his colleagues cultivate captured larvae, allowing them to grow to their adult stage and thus simplifying identification. Scientists from the Smithsonian's National Museum of Natural History and other research institutions are also consulted on identifications. "We've been classifying larvae to the lowest taxonomic group possible," Ruiz says. "It is important to note that we have not been checking for bacteria and viruses, which are certainly present."

cont. on page 8

Ballast-water Invasions . . .

cont. from pg. 7

"Our work assessing invasion rates and exploring ways to reduce the risk associated with invasions is being carried out in cooperation with the shipping industry, natural resource managers, and government agencies," Ruiz says. "It is a difficult issue because invasions can have a negative economic impact on the bay, but new regulations for shipping may have major economic impact as well. At this point, we aren't advocating any regulatory action concerning the introduction of new species. We are trying to describe and understand the process and its consequences."

Recently, federal regulations against the discharge of ballast water in the Great Lakes were established and studies are being conducted on ways to reduce the number of foreign marine organisms being introduced in North American ports.

Not all aspects of invasions are negative, Ruiz points out. "Introduced species often become food for native species. Currently, we have no reports of local or regional extinctions in the Chesapeake that have been caused by invasions."

Marine and freshwater ecosystems of North America are only one segment of this global phenomenon. "Ships are picking up species from the Chesapeake and other ports on each continent and transporting them to ports all over the world," Ruiz says. "We are only beginning to understand the impact of these invasions on biodiversity, ecosystem functions, and fishery dynamics."

John Barrat in *Smithsonian Institution Research Reports,* Spring 1994

Meetings and New Publications

Fifth Annual Symposium—Reproductive Physiology of Fish

A symposium on the reproductive physiology of fish will be held at the main campus of The University of Texas at Austin on July 2-8, 1995. This symposium will provide an excellent opportunity for scientists interested in all aspects of fish reproductive biology to interact and exchange information on the most recent advances in this field. The symposium will consist of oral sessions, poster sessions, and demonstrations. Session topics will include a variety of research topics such as gonadal physiology, gametogenesis, hypothalamicpituitary axis, behavior, reproductive life history, environmental influences on reproduction, and aquaculture. Proceedings based on oral and poster presentations will be published as short papers in book form shortly after the meeting. Accommodations and full meal services will be available at affordable prices on campus, and a Texas-style social program for participants and guests is also planned. Limited financial assistance for junior scientists is anticipated. Contact: Dr. Peter Thomas, The University of Texas at Austin, Marine Science Institute, P.O. B. 1267, Port Aransas, TX 78373, USA.

Publications of the National Status and Trends Program

The National Oceanic and Atmospheric Administration has a National Status and Trends Program for Marine Environmental Quality. Three recent publications emanating from this Program deal with pollution in the waters of important U.S. bays and estuaries.

Assessment of Chemical Contaminants in the Chesapeake and Delaware Bays. This coastal contamination assessment report summarizes results of the National Status and Trends (NS&T) Program from sites in the Chesapeake and Delaware Bays. It characterizes the systems, drainage basins, and inputs that influence the concentrations of contaminants and biological responses to those substances. These results are shown in relation to those obtained at all other NS&T sites around the United States. This summary is intended to provide information to assist local and state resource managers evaluate toxic contaminant conditions in their areas and place those conditions in perspective to those throughout the nation.

Toxic Contaminants in the Gulf of Maine. This report summarizes results of the National Status and Trends (NS&T) Program from the Gulf of Maine Region. It characterizes the system, its drainage basin, and inputs that influence the concentrations of contaminants and biological responses to those substances. These results are shown in relation to those obtained at all other NS&T sites around the United States. This summary is intended to provide information to assist local and state resource managers in evaluating toxic contaminant conditions in their areas and placing those conditions in perspective to those throughout the Gulf and across the nation.

Assessment of Chemical Contaminants in the Hudson-Raritan Estuary and Coastal New Jersey Area. This coastal contamination assessment summarizes results of the National Status and Trends (NS&T) Program from sites in the Hudson-Raritan Estuary and coastal New Jersey. It characterizes the system, its drainage basin, and inputs that influence the concentration of contaminants and biological responses to those substances. These results are shown in relation to those obtained at all other NS&T sites around the United States. This summary is intended to provide information to assist local and state resource managers in evaluating toxic contaminant conditions in their areas and placing those conditions in perspective to those throughout the nation.

Theses reports are available from NOAA, Coastal Monitoring and Bioeffects Assessment Division, Silver Spring, Maryland 20910-3281.

Hake

The following 1994 volume is available from Chapman and Hall, Inc., One Penn Plaza, 41st Floor, New York, NY 10119. *Hake. Fisheries, Products, and Markets,* edited by J. Alheit Rostock and T.J. Pitcher.

This book is a well-edited and integrated handbook covering all major aspects of the biology and exploitation of the hakes, a group of fishes of wide commercial importance

cont. on page 9

Meetings and Publication

cont. from pg. 8

internationally. The book will be of great value to fish biologists, fisheries scientists, and those involved in fish production and quality.

Contents: Introduction to hake fish and fisheries of the world. Biology and fisheries of hake stocks (stock biology, growth, migration, reproduction, etc; historical development of the fishery, fleet and stock structure; current status and assessment of the fishery; species interactions in the fishery; current management regime and institutions; future prospects for the fishery, possible underexploited stocks). Quality control, processing, product development. World markets and economics of hake fisheries.

The book has 256 pages and costs $69.

Fish Feeding Ecology

Deanna J. Stouder, Kurt L. Fresh, and Robert J. Feller are the editors of *Theory and Application in Fish Feeding Ecology*, a 402-page 1994 hard-cover book selling for $49.95.

A useful tool for understanding the broad-ranging effects of changing environmental conditions in aquatic ecosystems, this book links theoretical and practical aspects of fish foraging research. Fish feeding experts share their recent research, filling the gaps between contemporary information and theoretical issues.

The 20 essays in this volume examine foraging theory, habitat gradients and landscape ecology, disturbance, and invasive species. This valuable title integrates recently uncovered information with current techniques to address the many problems involved in the management of fishery resources.

Features: Focuses on effects of environmental changes in aquatic ecology. Links the theoretical with the practical issues of recent research of fish feeding. Addresses the many problems of managing fishery resources. Covers the major research dealing with fish foraging.

Main sections cover Foraging Theory, Habitat Gradients and Landscape Ecology, Disturbance, Invasive Species, and Epilog.

Order this book from St. Lucie Press, 100 E. Linton Blvd., Suite 403B, Delray Beach, FL 33483.

In Memoriam

Thomas J. Costello
AIFRB Emeritus 1984
January 10, 1995

Thomas James Costello died January 10, 1995 in Gainesville Florida. His wife and three of his five children live in Gainesville. T.J. Costello retired in 1984 after 30+ years at NOAA's Tropical Atlantic Biological Laboratory in Key Biscayne, Florida. T.J. published more than 30 technical papers on research dealing with pink shrimp, spiny lobsters, culture of macrobrachium, and fish farming. T.J. was a graduate of the University of Washington, School of Fisheries, with graduate studies at the University of Miami Institute of Marine Science. He served as an adjunct faculty member for the University of Miami.

Membership Report

Inquiries regarding membership should be directed to Dr. Sammy Ray, membership Chairman, Texas A&M University at Galveston, 5007 Avenue U. Galveston, Texas 77550.

District Directors

Alaska, Northern
Steven K. Davis
4175 Tudor Centre Dr. #101
Anchorage, AK 99508

Alaska, Southeast
Malin M. Babcock
Auke Bay Fisheries Lab.
Juneau, AK 99801

Atlantic Provinces
Vacant

California, Northern
Richard F.G. Heimann
20 Lower Ragsdale Drive, Suite 100
Monterey, CA 93940

California, Southern
Charles T. Mitchell
3040 Redhill Avenue
Costa Mesa, CA 92626-4524

Capital
Frank M. Panek
National Park Service
P.O. Box 7127
Washington, DC 20013-7127

Carolina
Douglas S. Vaughan
173B Shell Landing Road
Beaufort, NC 28516-9802

Florida
Vacant

Great Lakes, South Central
Vacant

Gulf of Mexico, Northeast
Vacant

Keystone
Barbara E. Warkentine
1329 Balcom Avenue
Bronx, NY 10461

New England
John B. Pearce
Northeast Fisheries Center
166 Water Street
Woods Hole, MA 02543-1097

Oregon-SW Washington
John F. Palmisano
1990 NW 156th Avenue
Beaverton, OR 97006-5307

Texas
Sammy M. Ray
P.O. Box 1675
Galveston, TX 77553

Washington, NW
John Strand
8520 - 154th Ave.
Northeast
Redmond, WA 98052

BRIEFS, the newsletter of the American Institute of Fishery Research Biologists, is published six times a year. It is intended to communicate the professional activities and accomplishments of the Institute, its District, and Members; the results of research: the effects of management; unusual biological events; matters affecting the profession; political problems; and other matters of importance to the fishery community. Comments and contributions should be sent to the Editor, Dr. Oliver B. Cope, 15 Adamswood Road, Asheville, NC 28803. Subscription $20 a year to Institutions and Non-Members. Officers-Vaughn Anthony, P.O. Box 459, Boothbay, ME 04537, President; Katherine Myers, Fisheries Research Inst., WH-10, University of Washington, Seattle, Washington 98195, Secretary; Joseph Rachlin, Lehman College Bio., Bedford Park Blvd. West, Bronx, New York 10468, Treasurer.

ISSN-8755-0075

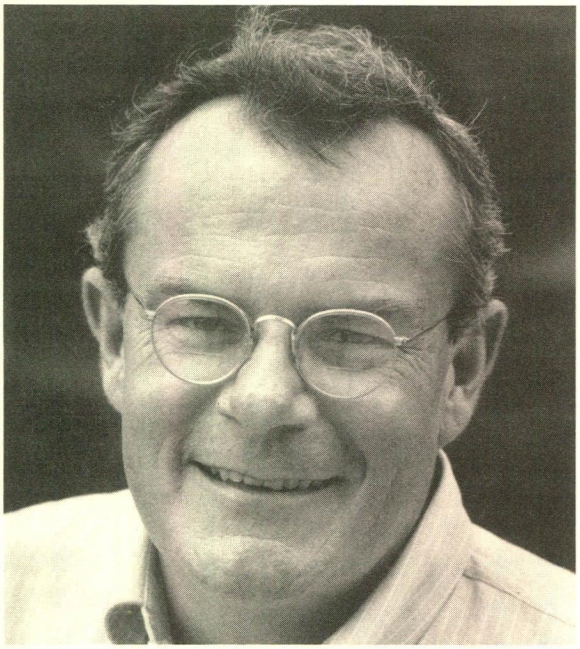
American Institute of Fishery Research Biologists

. . . BRIEFS . . .

VOL. 24, NO. 4 AUGUST 1995

Who's Who in AIFRB
JOHN MERRINER

John has been an AIFRB member since 1975. His interest in fishes began when chasing trout in the Shenandoah Valley, Virginia, National Forest streams and smallmouth bass in the Shenandoah River. An urban cultural diversity experience took place at Rutgers University in New Jersey while obtaining a BA. But his fisheries career began in earnest at North Carolina State University in Zoology where he received his MS while affiliated with the Cooperative Fishery Unit research program on centrarchid genetics and Ph.D. working in



marine fisheries with Bill Hassler. In 1970 John joined the Virginia Institute of Marine Sciences as a Marine Scientist working on anadromous fishes (ecology and fisheries for alosids and striped bass). He became an Assistant Professor at the School of Marine Science, College of William and Mary in 1973. He moved up to Senior Marine Scientist and Ichthyology Department Head at VIMS in 1975 and that was followed by a promotion to Associate Professor at the College of William and Mary in 1976. Research interests expanded to ichthyoplankton, power plant impacts, and estuarine habitat function. While teaching fisheries science courses, John served as major professor for 8 Masters and 5 Ph.D. students and served on numerous other student committees. At VIMS he undertook an increasing role as state agency advisor, serving as technical support for marine resource management (recreational and commercial) in Virginia and participation with Atlantic States Marine Fisheries Commission technical committees. Specifically, he served on a number of state and commission committees for territorial sea resource management, including alosids, sciaenids, menhaden and striped bass. John undertook an IPA in 1980 at the National Marine Fisheries Service Laboratory in Beaufort, North Carolina, which included Atlantic and gulf menhaden research as well as reef fish ecology and fishery management on the U.S. south Atlantic continental shelf. In 1982 he became a bona fide NMFS employee in the position of division chief. He retains Associate Faculty status at VIMS School of Marine Science. Since June of this year, John's duties have centered on representing NMFS Southeast Fisheries Science Center's technical programs in reource management and research functions to the South Atlantic Fishery Management Council and the Atlantic and Gulf States Marine Fisheries Commissions.

John's intense interest in life history and fisheries management is not limited to weakfish, the subject of his Ph.D. dissertation, or to sciaenids. His current research interests include Atlantic and gulf menhaden ecology and management, south Atlantic bight reef fish ecology and management, coastal fisheries and protected species interactions, and ecology of sea turtles. He has published over 50 open literature papers on these and other topics. Research within the Fisheries Division generates basic ecological information as well as fishery status and assessments provided to fisheries managers at the state and federal levels. Focusing on a number of fish

cont. on page 2

RICKER PRESENTED AWARD

American Institute of Fishery Research Biologists OUTSTANDING ACHIEVEMENT AWARD for 1994 was presented to Dr. William E. Ricker on June 13,1995 at the Canadian Department of Fisheries and Ocean's Pacific Biological Station, Nanaimo, British Columbia. The award was announced in *BRIEFS*, April 1995 with a summary of Dr. Ricker's career and awards. Past President Jack Helle journeyed to Vancouver Island from Juneau, Alaska to make the presentation for President Vaughn Anthony.

Local arrangements were made by AIFRB Fellow and former Director of the Pacific Biological Station, Dr. Richard Beamish. Festivities began with a special luncheon at a local restaurant attended by Dr. Ricker; Dr. Don Noakes, Director of the Pacific Biological Station; Dr. Beamish; Karl Ricker, Dr. Ricker's son; and Helle. The presentation of the award

cont. on page 2

John Merriner... *cont. from page 1*

species and fisheries has provided him with a wide perspective when dealing with coastal and regional fishery management issues.

John has long been on the Atlantic Menhaden Advisory Committee first as a representative from Virginia in the mid-1970's and since 1982 as a representative from NMFS. He also serves on the ASMFC's Atlantic Menhaden Board. At present he serves on the South Atlantic Fishery Management Council's Snapper Grouper Assessment Panel, Wreckfish Review Panel, Shrimp Fishery Review Panel, and SEAMAP committee. He also serves on the Middle Atlantic Fishery Management Council's Summer Flounder Technical Monitoring Committee, the Gulf States Marine Fisheries Commission's Gulf Menhaden Advisory Committee, and several Atlantic States Marine Fisheries Commission's Interjurisdictional Fishery Management technical committees. He provides liaison with the southeast coastal states in Cooperative Fisheries statistics, participated in development of the southeast region's COMFIN initiative, and is a member of the Plan Design Team for current state and federal efforts to develop a comprehensive cooperative Atlantic coast Fishery Statistics Program from Maine to Florida. He serves on the Technical Advisory committee for NOAA's Cooperative Institute for Fisheries Oceanography. It was natural when the Southeast Fisheries Science Center needed a person to serve as an Atlantic coast focal point for NMFS science and management that John was selected.

John has been active in the American Fisheries Society at all levels, including: service as vice-president and president of the Tidewater Chapter; assisted in the formation of the Marine Fisheries Section; chaired a Marine Fisheries Section scientific review panel for the Florida Marine Research Institute Fishery Programs; and has served as associate editor for Transactions and North American Journal of Fishery Management. He also has been active in the American Society of Ichthyology and Herpetology, the Southeast Estuarine Research Society, and Sigma Xi. He undertook more activities in support of AIFRB following the untimely death of John Reintjes in 1988. John Merriner assumed production editor responsibilities for BRIEFS and other tasks as requested and accepted. These have included bimonthly mailings of AIFRB BRIEFS, organization and distribution of the 1992 membership directory, annual brochures, conducting AIFRB's logo contest, charter review, distribution of AIFRB pins, and fabrication of AIFRB's traveling display. In addition he served as the Carolina District vice-director (1986-1987) and director (1988-1989). In his slack times, he's gardening, beating back the NC jungle, and trying to catch a 10 pound speckled seatrout or occassionally other wily fishes of the area.

Ricker Presented Award... *cont. from page 1*

was made at a meeting attended by staff and friends at the Pacific Biological Station. Dr. Ricker has received many prestigious awards, some in formal circumstances. Because everyone in the room knew Dr. Ricker personally, we kept this presentation at a personal level. Scientists representing many fields were in the audience: ichthyology, ecology, genetics, biometrics, parasitology, age and growth, physiology et al. All had consulted with Ricker for one reason or another throughout their careers, which is testimony to Ricker's broad expertise in many disciplines. During the presentation Helle related Vaughn Anthony's use of Ricker's book as campfire reading during summer research in remote areas of Alaska during the early 1960's when he was a graduate student at the University of Washington. The book was tattered and torn from use and getting carried around in a wet knapsack in a small boat in the rain. Helle also commented that his collection of Ricker's papers on size changes in Pacific salmon are worn and torn from use; and he has worn-out his copy of "The Stock Concept", the symposium proceedings that contains Ricker's famous review paper on "Hereditary and Environmental Factors Affecting Certain Salmonid Populations". Seems like everyone has a worn-out copy of at least one of Ricker's publications. Many in the audience talked about Bill Ricker's editing and writing abilities and how they had the benefit of his patience and personal teaching ability that encouraged young scientific writers.

Left to right: *Dr. Don Noakes, Dr. Jack Helle and Dr. William E. Ricker at award presentation*

After the presentation a small group adjourned to Don Noak's office for a lively discussion of the status of Pacific salmon population. Dr. Ricker is still actively publishing on the size of salmon population British Columbia.

That evening Don Noakes hosted a large group of people at his house for a salmon barbecue. During the evening Ricker's music talents came to light: he was an active choir singer for many years. On a recent trip to Russia he and a Russian lady sang a rare Russian folk song at a banquet. The Russians were amazed that he knew this rare folk melody and sang in Russian no less!

Dr. Ricker is an amazing man of many interest and abilities. His personal life as a devoted husband and caring father matches his brilliant career in fisheries. Our profession has been enriched enormously by this humble man.

Cope Resigns as Editor

Due to a recent stroke, Ollie Cope has been forced by his doctor to step down as Editor of *BRIEFS* after thirteen outstanding years of service to AIFRB. It was only in the last issue of *BRIEFS* that we honored Ollie with the announcement that he had received the first AIFRB Distinguished Service Award, which was created especially for people like Ollie Cope. Ollie is doing very well and progressing nicely day by day. In fact he plans to attend the Board of Control Meeting in Tampa on August 26th and 27th. We will name a new Editor at that time. Anyone interested in this important job is encouraged to notify the President at P.O. Box 459, Boothbay, Maine 04537.

Social Reminder

On Sunday, August 27th, the AIFRB will hold a social gathering form 6-8pm at the Hyatt Regency in Tampa Florida.

Oops, first time learner and then, Weather Alert! Felix put a crimp in the production schedule and arrival of *BRIEFS* would be too late. I hope you came anyway. jm

1995 AIFRB Research Assistance Award Program

Thomas R. Lambert, Chair of the Research Assistance Award Program announces 13 associate members received awards. A total of $3,250 was distributed to the recipients to defray travel expenses to present papers at scientific meetings. The recipients and abstract of their papers are listed below.

Kelly L. Bryan, an M.S. student in Wildlife & Fisheries Science at Pennsylvania State University sponsored by Jay R. Stauffer, Jr., presented her paper at The American Society of Ichthyologists and Herpetologists annual meeting held at the University of Alberta, Edmonton, Canada.

Growth and Feeding of *Percina caprodes* (Rafinesque) in Woodcock Creek, Pennsylvania.

Food habits of the logperch, *Percina caprodes* (Rafinesque), were studied from Woodcock Creek upstream of Woodcock Creek Lake in Crawford County, Pennsylvania near Blooming Valley. Six collections were made from November 1990 through October 1991. Stomach contents of 112 logperch were examined. Wilcoxon's Signed Rank Test revealed the logperch were selectively feeding on Chironomidae during 18 July 1991 collection date and randomly feeding on remaining collection dates.

Wen-Xian Du, graduate student at the University of Florida studying under Cheng-i Wei, presented his paper at the Institute of Food Technologists annual meeting at Anaheim, California.

Determination of Oxytetracycline, Sulfadimethoxine and Ormetoprim Residues in Catfish Using High Performance Liquid Chromatography

Oxytetracycline(OTC) and Romet-30 (1 part ormetoprim [OMP] and 5 parts sulfadimethoxine [SDM]) are the two drugs currently approved by the FDA to treat bacterial infections in aquacultured catfish. Drug residues may occur in market catfish if proper management practices are not followed.

A rapid HPLC method for analysis of OTC in catfish has been developed using ethylenediaminetetraacetic acid (EDTA) along with 50% trichloroacetic acid and 1 M HCl for extraction. Following clean-up using a Sep-pak C_{18} cartridge, muscle extract was subjected to HPLC analysis using an Ultrasphere octadecylsilane column and a mobile phase of acetonitrile - 0.02 M phosphate buffer (pH 2.3) containing 1.3 mM EDTA (17:83). Mean recovery rate was 92.5% for OTC over 0.05-1.0 ppm.

An HPLC method was also developed to determine SDM and OMP simultaneously in catfish. SDM and OMP were extracted from fish muscle using tetrabutylammonium hydroxide and methylene chloride at pH 10. The extract was analyzed using an Ultrasphere octadecylsilane (ODS) column, with acetonitrile - methanol - 0.1 M phosphate buffer (pH 4.0) - 1- heptanesulfonic acid sodium salt concentrate (20:2:76:2) as the mobile phase. Mean recovery rates were 86.3% for OMP and 87.9% for SDM in fish muscle over the range of 0.05-5.0 ppm.

Catfish were fed OTC or Romet-30 medicated feed for 8 weeks at subtherapeutic doses from 12.5-50 mg/kg fish, and then a basal diet for an additional 3 weeks(withdrawal period). Fish receiving 50 mg OTC for 4 weeks had significantly ($p< 0.05$) higher residue than those receiving 12.5 mg OTC. Those receiving Romet-30 for 4 weeks showed no difference in OMP or SDM residue among the three treatment groups. Catfish treated with 50 mg medicated feed for 8 weeks had the highest OTC, or OMP and SDM residues, followed by the 25 mg and then the 12.5 mg groups, and the differences among the three groups were significant. No OMP or SDM was found in any of the catfish after the 3-week withdrawal period.

Jennifer L. Frederick is a graduate student at the University of Hawaii studying migration of post-larval coral reef fishes with advisor, James D. Parrish at the Hawaii Cooperative Fishery Research Unit. She presented her paper at the International Larval Fish Conference held in Sydney, Australia.

Movement and Early Survivorship of Juvenile Coral Reef Fishes on Artificial Patch Reef

There is increasing interest among marine ecologists in determining the nature of post-settlement losses of coral reef fishes and the value of post-larvae as predictors of the distribution and abundance of adult populations. This study distinguishes migration as an important post-settlement phenomenon that affects estimates of early survivorship rates of juvenile coral reef fishes. Individuals settling onto artificial patch habitats were collected, marked, released and tracked over an isolated system of artificial patch habitats. Movement and survival of marked juveniles were monitored by visual census. Some recently settled juvenile fishes moved as much as 100 meters over open sand. Survivorship rates calculated from observations of uniquely marked individuals were contrasted with survivorship rates estimated by comparing the initial number of newly settled individuals at a site with the number of individuals there after a given time interval. The comparison revealed that new settlers and immigrants can mask the loss of individuals included in the original census and inflate survivorship. Survivorship can also be underestimated when new settlers subsequently emigrate and survive at another site, but are unwittingly recorded as lost due to mortality.

cont. on page 4

Awards Program... *cont. from pg. 3*

Jeongmok Kim, a graduate student at this University of Florida studying with advisor Cheng-i Wei, presented his paper at the Institute of Food Technologists annual meeting at Anaheim, California.

Antibacterial Activity of Essential Oil Components Against *(Salmonella typhimurium)* Spiked to Fish Cubes

Many naturally occurring compounds found in edible plants, spices, and herbs are shown to possess antimicrobial functions. This study was undertaken to investigate the potential of using plant essential oil compounds,carvacrol, citral, and geraniol, in treating *Salmonella typhimurium* and its rifampicin resistant (Rif^R) strain. The determinations of the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) in tryptic soy broth showed that carvacrol had a MIC and MBC value of 250 μg/mL, while those for citral and geraniol were at 500μg/mL.

Bactericidal activity of carvacrol, citral and geraniol at 0.5, 1.5 and 3% were determined against Rif^RS. *typhimuruim* spiked fish cubes (red grouper,*Epinephelus morio*)(6.12 $\log_{10}$cfu/g). Controls (Tween20 and Butterfield's buffer) and treated fish samples were stored at 5°C. At time intervals of 0,1,2 and 4 days, quadruplicate samples were removed from each group and homogenized with 9 volumes (w/v) of Butterfield's phosphate buffer. Aliquots of the homogenates were plated on four tryptic soy agar plates containing 0.01% rifampicin. A 2 $\log_{10}$ decrease in bacterial numbers occurred with control fish cubes following storage at 5°C for 4 days. Carvacrol at 3% completely killed spiked bacteria even on day 0. Fish samples treated with 0.5% carvacrol,citral or geraniol showed significant ($P<0.05$) decrease in bacterial numbers by 1.51 and 1.54 $\log_{10}$cfu/g, respectively, after 1 day storage. However, citral reduced the number by 0.65$\log_{10}$cfu/g. Fish cubes treated with 1.5% carvacrol, citral or geraniol had significantly($P<0.05$) lower bacterial counts than controls following 2 days of storage. Fish cubes treated with citral at 0.5,1.5,and 3% reduced the bacterial number by 0.32,2.45, and 3.35$\log_{10}$cfu/g, respectively, following 4 days of storage. Carvacrol, citral, and geraniol at 3% were more effective than 0.5% in killing bacteria spiked on fish cubes. A comparison among the three compounds showed that carvacrol was the most potent bactericidal agent, followed by geraniol and then citral. Therefore, carvacrol and geraniol could be used as potential antibacterial agents in seafood to inhibit the growth of pathogens.

W. Ladd Knotek will present results of his master's research at the annual meeting of the American Fisheries Society in Tampa, Florida. He is a graduate student working with advisor, Donald J. Orth at Virginia Polytechnic Institute and State University.

Field Verification of an Individual-based Model for a Riverine Population of Smallmouth Bass

Fish recruitment depends, in part, on life-stage specific processes that occur on small spatio-temporal scales. Individual-based models (IBM) attempt to simulate these processes by incorporating size-dependent habitat use, condition, and behavioral differences of individuals in the population. Smallmouth bass nesting success varies among males due to many abiotic and biotic factors that vary in space and time, making the individual-based approach well suited to this problem. An IBM for riverine smallmouth bass reproduction and young-of-year (YOY) dynamics has been developed to improve our understanding of the influence of alternative flow regimes on recruitment. Model simulations of spawning time, nest success, and brood survival were compared with field data from the North Anna River, Virginia, to elucidate the importance of density-dependent and density-independent mechanisms determining early brood survival. Current modeling approaches are critiqued with regard to observed differences in survival among early life stages and primary causes of mortality during these periods: nest failure attributed to flooding, egg mortality due to fungus *(Saprolegnia parasitica)* infection, and eel *(Anguilla rostrata)* predation of eggs and larvae.

David Love will present his findings at the International Symposium on Biology, Management and Economics of Crabs from High Latitude Habitats to be held in Anchorage, Alaska. The research was conducted at the National Marine Fisheries Service's Auke Bay Laboratory under the direction of Program Manager, Stanley Rice.

Histological and Hemolymph Changes Following Dinospore Release from Tanner Crab Infected with Bitter Crab Disease

Motile dinospore stages of the parasitic dinoflagellates (*Hematodinium* spp.) which cause Bitter Crab Syndrome (BCS) in southeastern Alaska Tanner crab, *Chionoecetes bairdi*, were observed exiting heavily infected hosts via the gill lamellae. This was the first reported observation of a site of dinospore release from the host. Histological examination of gill tissue indicated damaged respiratory epithelia and fragile lamellar cuticle. Moribund Tanner crab hosts were lethargic and often had watery hemolymph following sporulation. Heavily infected pre-terminal molt Tanner crab had lower tissue osmolality and reduced hemocyanin levels coupled with higher K+ concentrations. Heavily infected and moribund crabs which had sporulated may lose significant volumes of hemolymph proteins via the gill lamellae thus possibly compromising their ion-regulatory abilities.

Peter Perschbacher is conducting water quality research at the University of Arkansas at Pine Bluff. He presented his paper as a poster at the Third National Reservoir Symposium in Chattanooga, Tennessee. He was sponsored by Carole R. Engle, Aquaculture/Fisheries Coordinator at UAPB.

A Field Test for Detection and Monitoring of Algal-causing Off-flavors in Water and Fish

Increasing levels and complaints of off-flavor in cultured fish and shellfish and in drinking water around the world have been tied to planktonic and benthic cyanobacteria (bluegreen algae) that release MIB (methylisoborneol) which produces a musty taste, or geosmin producing an earthy, pond bottom taste. Fishery resources are also affected. Cedar Lake, a shallow, eutrophic reservoir in Manitoba, contained off-flavor walleye, pike, herring and whitefish from a planktonic bluegreen alga (Yurkowski and Tabachek, 1980).

An off-flavor episode typically results from spring or late summer proliferation of one or more species of benthic or planktonic cyanobacteria, followed by release of geosmin or MIB into the water and development of disagreeable taste. The "mud line" in fish presumably is so named because of the concentration of lipids in this tissue which tend to absorb the off-flavor compounds. Once the cyanobacteria disappear in the course of seasonal succession, purging of fish tissue occurs in a matter of days to months depend-

cont. on page 5

Awards Program... *cont. from pg. 4*

ing on level of MIB or geosmin, fat levels and water temperature (Johnsen and Lloyd, 1992).

At present, detection of off-flavor compounds in drinking water and in fish flesh is by taste and odor testing or by gas chromatography. Simplified colorimetric procedures would allow monitoring of water and fish to aid in alerting reservoir managers to potential deterioration in the quality of the water or fishery resource. The goal of our research was to develop colorimetric methodologies for water and fish samples suitable for use in the field and development into a Hach-style test.

Greg Peters is a Ph.D. student at Oregon State University studying biosystems modeling under the direction of Michael T. Morrissey, Director of the OSU Seafood Laboratory. He presented his paper at the Institute of Food Technologists meeting in Anaheim, California.

Determination of Quality Parameters for the Pacific Whiting Fishery Using Neural Network and Induction Modeling

The primary research objective was to determine the effects of various factors and their relationships on the product quality of Pacific whiting. This understanding will enable processors to produce a more uniform product, thus, minimizing reformulation. Additionally, the information can be used to trade off quality, yield, and cost to optimize production.

Alternative harvesting and processing input combination, as well as product quality attributes and their influences, were collected for the 1992-94 Pacific whiting seasons. This data was combined with other research on Pacific whiting quality to develop a comprehensive model of the Pacific whiting fishery. New modeling methods were used to isolate the importance of each input variable and document it interactive effects on other variables. Neural network modeling does not have the limitations of standard modeling techniques. A neural network model can learn and adjust weights among inputs and interactions as situations change. This allows for development of models which assign weights to all inputs, yet is easily maintained and updated.

Another modeling method, known as induction, divides the information into smaller more defined subgroups based on nonlinearities, which are analyzed separately using regression. A hybrid model was developed by combining the results of the two modeling methods. Significant factors included variables intrinsic to the fish: Moisture content, salinity, pH, length, weight, and processing variables such as : processing time, storage temperature, date, wash time, and inhibitors. Most of the variables were highly interactive and non-linear. After accounting for significant variables, 90% of the variation of quality and yield could be explained.

The information derived from these models can be used to optimize production decisions and maximize profit. Quality influences of Pacific whiting are crucial for long term production and can be used to benefit the entire industry.

Siriporn Pipatsattayanuwong is focusing her M.S. thesis research on the development of value-added product from Pacific whiting. She is a research assistant of Jae W. Park at Oregon State University's Seafood Laboratory. Her paper was presented at the Institute of Food Technologists meeting in Anaheim, California.

Functional Property and Shelf Life of Fresh Surimi from Pacific Whiting

All commercially available surimi are frozen with 8-9% cryoprotectants. Cryoprotectants are used in surimi to minimize protein denaturation during frozen storage. However, previous studies indicate that gel functionality of frozen surimi continues to decrease during storage. The high level of cryoprotectants contribute a significant amount of sweetness to the surimibased food. A concept of fresh or unfrozen surimi has become of our interest to overcome these problems. The objectives of this study were to investigate gel functionality and shelf life of fresh surimi from Pacific whiting *(Merluccius productus)* and to compare it with its counterpart, frozen surimi.

Total aerobic plate count (APC), gel forming ability measured using a torsion test, and color of gels were evaluated during the storage of fresh surimi at refrigerated temperature (5°C). Quality parameters were measured at Day 0, 1, 3, 5, and 7. Effects of cryoprotective additives (a mixture (1:1) of sucrose and sorbitol) at 0, 3, 6, and 9% on gel functionality and colors of surimi were investigated. Quality parameters were evaluated before freezing (Day 0) and during frozen storage (Day 1, Day 14, and Day 60).

Microbial counts (APC) of fresh surimi during storage increased gradually and reached over 10^6 counts at Day 7. Gel functionality of fresh surimi with shear stress at 29-35 kPa and shear strain at 1.89-2.12 did not change ($P>0.05$) during 7 days storage. In frozen surimi, the reduction of stress and strain after freezing was minimized as the levels of cryoprotectnats increased. Strain values of fresh surimi was not different ($P>0.05$) from that of frozen surimi with 9% cryoprotectants. However, stress values of fresh surimi was almost 3 times higher than that of frozen surimi with 9% cryoprotectants. Overall, fresh surimi from Pacific whiting, if is used within 5 days, performed significantly better than frozen surimi.

Timothy D. Stecko is a masters student in the ecology program at Pennsylvania State University under the supervision of Jay R Stauffer. He presented his paper at the American Society of Ichthyologists and Herpetologists meeting at the University of Alberta in Edmonton, Alberta, Canada.

Scale Shape Analysis of Six Species of Pennsylvania Centrarchids

Information collected from fish scales has served researchers in numerous ways (i.e., manage fish populations, study piscivore diets, identify fish remains at archaeological sites). The use of computerized shapes of six species of Pennsylvania centrarchids, *(Ambloplites rupestris, Lepomis gibbosus, L. macronchirus, Micropterus dolomieui, Pomoxis annularis, P. nigromaculatus),* were analyzed to discriminate among species. Scale images were magnified, 10X to 40X, using an Olympus SZ60 binocular dissecting microscope. Video images were generated with the aid of a microscope mounted, Sony CCD IRIS color video camera, a Targa + 16/32 video board, and a 486-33Mhz personal computer. Images were captured and analyzed with Mocha video analysis software. All specimens were obtained from the Pennsylvania State Fish Museum. Differences in scale shape were discernible at the species level through principle component analysis of box truss parameters.

Ellen S. van Snik, a doctoral candidate in ecology studying under Jay R. Stauffer, Jr. at Pennsylvania State University,

cont. on page 6

Awards Program... *cont. from pg. 5*

presented her paper at the American Society of Ichthyologists and Herpetologists meeting at the University of Alberta in Edmonton, Alberta Canada.

Habitat Partitioning Among Darters in the Allegheny River System

Habitat partitioning among eleven species of darters (Percidae: Etheostomatini) from the Allegheny River system was studied through underwater observation. *Percina caprodes* and *Percina copelandi* consistently occupied deeper habitats than *Etheostoma* species. Depth and water velocity were important variables by which *Etheostoma* species segregated. Analysis of niche breadth values indicated that species differed widely in their degree of specialization in habitat use; *Etheostoma zonale* is a habitat generalist wheras *Etheostoma camurum, Etheostoma tippecanoe,* and *Percina caprodes* tend towards habitat specialization. Segregation along spatial axes appears to be an important mechanism allowing the coexistence of these closely related and ecologically similar species. Microhabitat quantification on a fine scale was important in discovering habitat differences in this diverse system.

Jirawat Yongsawatdigul is working towards his Ph.D. degree at Oregon State University's Seafood Laboratory under the supervision of Jae W. Park. He presented his paper at the Institute of Food Technologists annual meeting at Anaheim, California.

Effect of Heating Rate on Gelation of Fish Proteins from Pacific Whiting and Alaska Pollock

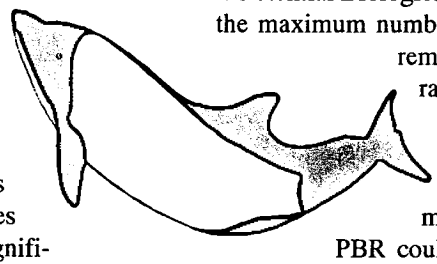
Thermally-induced unfolding and aggregation of muscle proteins result in a matrix that gives muscle foods their texture and water retention properties. It is recognized that slow heating improves textural properties of protein gels by allowing the aggregation process to be completed. However, our previous studies have shown that rapid heating maximized gel functionality of Pacific whiting surimi. This indicated that other factors, besides unfolding and aggregation processes, could play a vital role in gelation. The objectives of our study were to investigate the heating rate dependency of surimi gel as well as to compare variation in rheological properties and microstructure caused by different heating regimes.

Alaska pollock *(Theragra chalcogramma)* and Pacific whiting *(Merluccius productus)* surimi pastes were prepared to contain final protein of 12.2%. Five different heating rates (1, 5, 10, 20, 30°C/min) were applied using the ohmic heater to measure shear stress and shear strain; and differential scanning calorimeter (DSC) to monitor transition temperature and denaturation enthalphy of myosin. Scanning electron microscope (SEM) and sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) were used to evaluate gel microstructures and protein patterns of the samples, respectively.

Pacific whiting gels prepared at slower heating rates exhibited lower shear stress, shear strain, and myosin heavy chain content as observed on SDS-PAGE. This corresponded to poor gel network structures obtained from SEM. The results suggested that a slow heating facilitated proteolysis in whiting surimi. On the other hand, shear stress and cross-linkings of myosin from pollock surimi increased as heating rates decreased. DSC thermograms of pollock also revealed that denaturation temperature of myosin decreased when heating was reduced. Consequently, the time for denatured myosin to aggregate was prolonged, resulting in orderly fine gel network structures.

Marine Mammals:
New Guidelines Proposed for the Zero Mortality Rate Goal

The MMPA amendments of 1994 call for a reduction in the incidental serious injury and mortality of marine mammals in commercial fishing operations to insignificant levels approaching a zero mortality and serious injury rate within seven years, or by April, 2001. The proposed rule to implement Section 118 of the MMPA proposes a series of biological objectives to determine when the Zero Mortality Rate Goal (ZMRG) has been met.



Now that a definitive deadline has been imposed for attaining the ZMRG, the fishing industry, other interested constituents, and the government must develop objective standards to determine when the ZMRG has been reached, as well as gauge any progress toward its attainment. Developing specific objective raises three fundamental questions: 1) what does insignificant mean? 2) how close to zero do we need to approach? and 3) what rate should we use as the measurement?

First, in determining what is insignificant, it is helpful to review what is meant by significant. For example, a statistician may think in terms of probabilities, whereas an economist may focus on the level of additional effort versus output as significant in determining an optimum level of efficiency. On the other hand, many people may regard "a lot" of something as being significant. NMFS has proposed that the ZMRG should address the biological significance of levels of incidental mortality and serious injury to marine mammal stocks.

The next step is to identify the level of loss that could be considered biologically insignificant to a marine mammal stock. The MMPA gives us an important starting point with the Potential Biological Removal level, or PBR. The PBR is the maximum number of marine mammals that could be removed from a stock (by other than natural causes) and still allow that stock to reach and maintain its Optimum Sustainable Population (OSP). Therefore, NMFS concluded that the removal of a small portion of a stock's PBR could be considered insignificant to the stock's ability to reach and maintain OSP.

In December, 1992, NMFS proposed to Congress that a level of mortality or serious injury that would delay recovery of a severely depleted stock of marine mammals by no more than 10% could be considered biologically insignificant. Modeling exercises confirmed that limiting incidental remov-

cont. on page 7

Marine Mammals... *cont. from pg. 6*

als to 10% of a stock's PBR would cause the population to delay achieving OSP by no more than 10%. Therefore, NMFS proposed that if total fishery-related mortality and serious injury is less than 10% of PBR for a marine mammal stock, it will be determined as "insignificant" for that stock. In addition, fisheries that interact with declining, depleted, threatened, or endangered stocks of marine mammals will be examined more closely to ensure that any incidental loss from these stocks is, indeed, insignificant.

In cases where the total loss for a given stock exceeds 10% of PBR, some fisheries may still contribute only a small (or insignificant) amount of that loss. Therefore, NMFS proposes a second tier of consideration for individual fisheries when total incidental loss exceeds 10%. A fishery contributing removals of no more than 1% of a stock's PBR, even when total loss due to all fisheries exceeds 10%, would be determined to have an insignificant effect on that stock. It is important to note that the proposal for ZMRG is the same as the criteria for determining Category III fisheries in the proposed list of fisheries.

Second, incidental losses must "approach a zero rate". Some have argued that "zero means zero". Others have argued that incidental losses are accidental and despite a fishery's best efforts, some marine mammals may still get caught incidentally in their nets. NMFS proposes to control incidental loss of marine mammals through regulation or restrictions only to the point that these losses are biologically insignificant to marine mammal stocks. However, NMFS would continue efforts with the fishing industry to design, refine and use technologies and methods that are more "marine mammal friendly".

Lastly, what rate should we use? Since the 1988 Amendments to the MMPA were passed, NMFA has looked primarily at the number of marine mammals caught by an individual vessel over a 20-day period. An alternative is the number of marine mammals killed by a given fishery in a year. Unfortunately, these rates are not directly related to biological significance. In the first case, a fishery with a large number of vessels would remove more marine mammals than a small fishery if the per-vessel rates were the same. In the second case, the mortality of one right whale, and endangered species, has more biological significance to a population than the mortality of one California sea lion.

The proposed definition for attaining the ZMRG has been developed around the biological significance of the magnitude of the incidental mortality and serious injury of marine mammals of a particular stock. This approach is biologically justifiable, and progress toward it would be based upon the best available scientific information. NMFS looks forward to receiving your comments on the ZMRG and other aspects of the proposed regulations. For more information, call Tom Eagle at 301/713-2322.

From NMFS, Marine Mammal Bulletin

District Activities

New England District

At the time of this writing, newspaper headlines in the Boston Globe and the New York Times indicate that increasingly the scientific and general academic communities will be faced with reduced funding in coming years and decades, perhaps reductions of 25-30 percent. As most of us know, when real funding is reduced, there is almost immediately a reduction in research programs accompanied by a greatly reduced need for new college graduates and graduate degrees to carry out research. This is true whether you are considering fisheries research in the Great Lakes and the Middle-Atlantic Bight, or linear accelerators and fission energy at Princeton. Reductions in funding for research, although not extensive in past decades, invariably have had certain ancillary or subsequent effects. First of all, lower-graded researchers and technicians are the first to go. Subsequently, colleges of fisheries, or departments of marine biology, decide that they must reduce the number of entering students or cease training "excessive" graduate students. If the reductions in funding go on for long enough periods of time, this translates into a reduced need for faculty, with non-tenured faculty then looking and competing for jobs with government agencies or with the private sector. This is followed by further-decreasing needs for new graduates or new employees, less diversity in research, less productivity in research, and further legislative calls for reductions in education and research.

Again, if the issue goes on for a long enough period of time (this has rarely happened since the great depression), the entire field or discipline begins to suffer. People begin to question the agencies' needs for certain kinds of fisheries (or wildlife) research or habitat studies. Research agencies and colleges become more introspective, and reorganize to "teach the basics". One is then left with the question, "what should broad disciplines such as marine sciences or fisheries do when faced with cuts?" Rather than responding in the traditional way, it probably would be most appropriate for principal scientists to consider what really needs to be done at a moment when there are significantly reduced levels of funding. Students must make a decision whether to enter a particular field or defer their training until there are better opportunities for jobs, or be trained but engage in a "sideline" for a period. It would appear to me that we are in such a climate today. The New England states, which have large numbers of universities and colleges with programs in marine science and fisheries, represent areas particularly vulnerable and increasingly hard hit.

For the above reasons, I ask if scientists working in the New England area sharing this concern would like to organize one or two future sessions of the New England District and Southern New England Chapter of the American Fisheries Society (AFS) to consider certain of the above matters. What should we be doing locally to adjust research and training activities to fit the pattern provided by present funding levels?

cont. on page 8

District Activities... *cont. from pg. 7*

What kinds of courses should students think about taking, at a time when fisheries management may be rapidly changing? If you as a New England District member of the AIFRB (by virtue of residence) have an interest in such issues, please write to me so that we can consider how best to meet and carry on a discussion of these contemporary problems. They will not go away easily, or by themselves; we certainly do not want the profession to find itself in the same situation as certain fisheries are, i.e. almost "extinct."

John B. Pearce, Director
New England District
NMFS/NOAA
Woods Hole, MA 02543
(508) 548-5123 (fax: 5124)
internet email: jpearce@whsun1.wh.whoi.edu

Oregon-Southwest Washington District,
John F. Palmisano, Director

Northwest Washington District
John A. Strand, Director

On May 20th, the Northwest Washington and the Oregon-Southwest Washington Districts of AIFRB held their first joint meeting in over a decade! About two o'clock on a Saturday afternoon, members and guests converged at the "midway" point in Chehalis, Washington, to renew old acquaintances and make new ones. Each district contributed about one-half of the total 15 members and guests that attended. The meeting consisted of a social gathering that was followed by a formal presentation by Dr. John G. Williams of the National Marine Fisheries Service in Seattle, Washington, and finally by a celebration dinner.

The topic of Dr. Williams' talk was *Columbia River Chinook Salmon Survivals Past and Present: Are They Too Low For Stocks To Survive?* Dr. Williams reviewed the plight of downstream migrating salmonid smolts that attempt to safely navigate past the large hydroelectric facilities on the Columbia and Snake rivers each spring. He presented information which now suggests that dam related-mortality may not be the major factor preventing the return of abundance for these salmonid stocks. Instead, increased numbers of smolts in the Columbia-Snake system and the North Pacific Ocean, which are produced by large hatchery programs of Pacific Rim countries, may be competing for a limited food base that causes a decline in fish survival and reduces individual fish size.

There is evidence that recent reductions in ocean productivity, especially in the California Current off Washington, Oregon, and California, is actually reducing the food base for salmonids from the Pacific Northwest. At the same time, there has been an increase in the productivity of the Alaska Current that is likely responsible for the record commercial harvest of 141 million salmon that the state experienced during 1994. These shifts in productivity appear to be cyclic and are driven by atmospheric conditions, such as the strength and location of Aleutian low pressures systems and cyclonic wind conditions in the Gulf of Alaska. From the mid-1940s to the mid-1970s, the California Current was more productive, as were its associated fisheries. Since 1976, however, there has been a reversal in ocean productivity that now favors the fisheries in the Alaska Current.

Finally, Dr. Williams revealed that large accumulations of floating debris, which formerly occurred each spring behind Columbia system dams, likely interfered with the safe downstream passage of smolts. Thus, this debris may have been more responsible for subsequent small returns of adults than the amount of water spilled at the dams during those years of downstream smolt migration.

MEMBERSHIP REPORT

Associate-Student	
Robert Blizard	CA
Stephem W. Brashear	KS
Kelly Bryan	PA
Gregory J. Peters	OR
Siriporn Pipatsattayanuwong	OR
Jirawat Yongsawatdigul	OR
Jennifer Frederick	HI
Christopher J. Donohoe	OR
Associate-Professional	
Daniel L. Martin	CA
Susan M. Yakymi	WA
Promoted to Member	
Robert J. Brown	NC
Robert L. Dixon	NC
Member	
Cecil Jennings	GA
Richard A. Jacobson	CT
Dr. Kevin T. Hill	CA
Judith Ann Gordon	AK
Dr. John Kocik	MA
Promoted To Fellow	
Dr. Christopher M. Dewees	CA
Emeritus	
Richard Ruelle	SD
Paul R. Olson	WA
C. Paul Ruggles	Nova Scotia
Joe L. Banks	WA
Dr. William R. Meehan	AK

Dr. Sammy M. Ray, Membership Chairman
Texas A&M University at Galveston
5007 Avenue U
Galveston, Texas 77551

Direct membership inquiries to the Membership Chairman

In Memoriam

William F. (Bill) Sigler, AIFRB Fellow 1960
1909-1995

After a long, interesting and productive career as a Utah State University professor, fishery biologist, consultant, author and sportsman William F. Sigler died Sunday, June 25, 1995 at the Logan Regional Hospital from complications following a stroke.

Following graduation from Empire Township High School in LeRoy, Illinois, he attended Illinois Wesleyan University in Bloomington, Illinois. During the Depression he joined the Civilian Conservation Corps and later was employed by the U.S. Soil Conservation Service. He finished his education at Illinois Normal University and Iowa State University Ames, Iowa where he earned his BS (1940), MS (1941) and PhD (1947). His education was interrupted during the second World War when he volunteered for service with the United States Navy.

Bill was employed by Utah State University in 1947 assuming the position of Department Head in 1950 and continuing in that position until his retirement in 1974. His "Wildlife Law Enforcement" class was the first to be taught on a university campus. He contributed to the development and evolution of the Fisheries and Wildlife Department building it from three faculty members in 1950 to fifteen members with world wide recognition.

He has been honored by his peers as a Distinguished Graduate of Iowa State University, USU Faculty Honor Lecture, Wildlife Conservationist of the Year, Utah, by the National Wildlife Federation. He was elected a Fellow for the Institute of Fishery Research Biologists in 1960 and as a Fellow for the American Association for the Advancement of Science in the same year. Bill's biography is in Who's Who in America, World Who's Who in Science Contemporary Authors, American Men and Women in Science, Notable Americans of the Bicentennial Era, Who's Who in the West and Who's Who in the World.

As President of W.F. Sigler and Associates, a consulting firm in natural resources and environmental planning, he had assignments all over the United States as well as in Africa and South America. He authored more than 100 popular and technical publications concerning conservation of natural resources and fisheries. He contributed a weekly column to the Herald Journal for 10 years. He is author of "Wildlife Law Enforcement" of which the fourth edition has just been published. He and his son, John collaborated on "Fishes of the Great Basin" and "Recreational Fisheries" both published by the Nevada Press, Reno, Nevada and on a second edition to the "Fishes of Utah" due out in 1996, as well as invited papers of regional interest.

Those desiring may contribute to the William F. Sigler Memorial Scholarship Fund, Department of Fisheries and Wildlife, College of Natural Resources, Utah State University, UMC 5200, Logan UT 84322-5200.

District Directors

Alaska, Northern
Steven K. Davis
4175 Tudor Centre Dr. #101
Anchorage, AK 99508

Alaska, Southeast
Malin M. Babcock
Auke Bay Fisheries Lab.
Juneau, AK 99801

Atlantic Provinces
Vacant

California, Northern
Richard F.G. Heimann
20 Lower Ragsdale Drive,
Suite 100
Monterey, CA 93940

California, Southern
Charles T. Mitchell
3040 Redhill Avenue
Costa Mesa, CA 92626-4524

Capital
Frank M. Panek
National Park Service
P.O. Box 7127
Washington, DC 20013-7127

Carolina
Douglas S. Vaughan
173B Shell Landing Road
Beaufort, NC 28516-9802

Florida
Vacant

Great Lakes, South Central
Vacant

Gulf of Mexico, Northeast
Vacant

Keystone
Barbara E. Warkentine
1329 Balcom Avenue
Bronx, NY 10461

New England
John B. Pearce
Northeast Fisheries Center
166 Water Street
Woods Hole, MA 02543-
1097

Oregon-SW Washington
John F. Palmisano
1990 NW 156th Avenue
Beaverton, OR 97006-5307

Texas
Sammy M. Ray
P.O. Box 1675
Galveston, TX 77553

Washington, NW
John Strand
8520 - 154th Ave.
Northeast
Redmond, WA 98052

American Institute of Fishery Research Biologists
c/o Joseph Rachlin
Lehman College, Biology
Bedford Park Boulevard West
Bronx, NY 10468-1589
Address Correction Requested

KINSTON, NC 285
PM
24 AUG
1995

FIRST CLASS

Dr. William H. Bayliff
IATTC, Scripps Inst. Oceanog.
8604 La Jolla Shores Drive
La Jolla, CA
92037-1508

BRIEFS, the newsletter of the American Institute of Fishery Research Biologists, is published six times a year. It is intended to communicate the professional activities and accomplishments of the Institute, its District, and Members; the results of research: the effects of management; unusual biological events; matters affecting the profession; political problems; and other matters of importance to the fishery community. Comments and contributions should be sent to the President, Dr. Vaughn Anthony. Subscription $20 a year to Institutions and Non-Members. Officers-Vaughn Anthony, P.O. Box 459, Boothbay, ME 04537, President; Katherine Myers, Fisheries Research Inst., WH-10, University of Washington, Seattle, Washington 98195, Secretary; Joseph Rachlin, Lehman College Bio., Bedford Park Blvd. West, Bronx, New York 10468, Treasurer.

ISSN-8755-0075

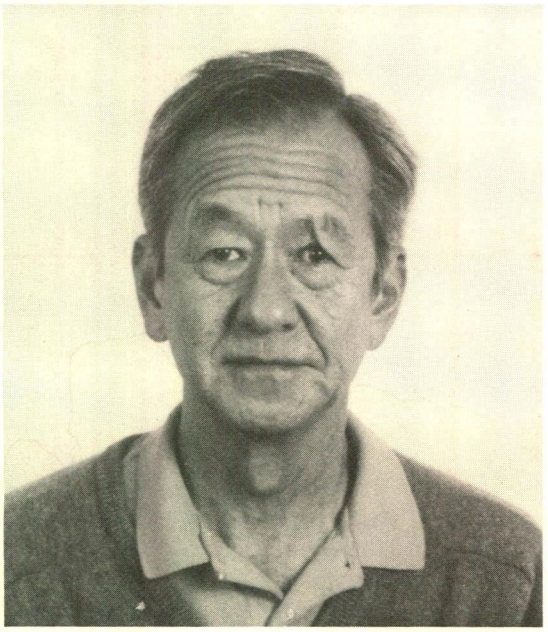
American Institute of Fishery Research Biologists

. . . BRIEFS . . .

VOL. 24, NO. 5 OCTOBER 1995

Who's Who in AIFRB
SUSUMU KATO

A member of the Northern California District since the mid 70's, Sus' regular attendance at meetings has been hampered by his retirement. After more than 30 years in government service, Susumu "Sus" Kato retired in 1993, and he hasn't stopped since. Be it in the South Pacific or South America, if there's an ocean resource to be harvested, processed or marketed, Kato's name eventually enters the conversation.



Born and raised on a sugar plantation on the island of Oahu in Hawaii, it wasn't until serving in the Coast Guard that Kato decided the ocean was where he wanted to make his living. Returning to school at the University of Hawaii, he earned his degree in Marine Biology and completed his master's work researching shark behavior in the South Pacific. In 1961, he started work with the Bureau of Commercial Fisheries in San Diego, continuing his work on shark behavior including a study of potential shark repellents funded in part by the U.S.Navy. In 1968, Kato started working for a project geared towards conducting research with practical applications for fisheries. It was here that he started to develop his reputation within the commercial fishing community. Since that time, Sus has worked very closely with the fishermen and industry, always trying to combine their knowledge and expertise with new ideas, technologies and gear types.

In 1971, the Bureau of Commercial Fisheries was transferred to the National Marine Fisheries Service (NMFS) under the National Oceanic and Atmospheric Administration. Kato moved to the NMFS laboratory in Tiburon, California, to head up the Underutilized Fisheries Investigation. In this capacity, Kato identified species with fisheries potential and made the initial market contact with processors and buyers. After the market links were established, Kato worked with the fishermen to develop harvesting and handling techniques so the product met the buyer specifications.

Although Kato has been instrumental in developing several successful fisheries along the west coast of the United States, the fishery he is best known for is the red sea urchin fishery in California. In 1970, when dive clubs in California were still having urchin crushing contests, Kato realized there was a successful fishery harvesting green urchins on the east coast of the United States. The roe from these urchins were going to restaurants in New York and Chicago that catered to Japanese businessmen. Seeing the potential for this resource on the west coast, he convinced a processor in Avila to split shifts at the plant and process fish fillets during the day and urchin roe by at night. Someone would then take the freshly processed roe to Los Angeles and sell it the following day. As fresh roe or uni became regularly available, the restaurants in Los Angeles would not use anything else. Before this, they were selling a fresh-frozen product. Kato then flew to Japan to study Japanese processing techniques and make market contacts. The information he brought back combined with a fortuitous drop in the exchange rate in 1973 opened the Japanese market to California fishermen. A fishery which began with two individuals selling to local restaurants in 1972, expanded to 10 processors and 100 divers producing 22 million pounds of roe by 1981. In 1985 when the fishery expanded into northern California, it ranked as the number one fishery in dollar value in the state.

Some of the other fisheries Kato has been involved in developing include the longline fishery for swordfish, octopus trap fishery, sea cucumber, pelagic red crab, pink shrimp, and slime eel fisheries. In the late 1960's he collaborated with a squid fisherman to develop the squid pump. The pump was a radical departure from traditional harvesting methods and greatly increased fishing efficiency. Kato then instigated a project to develop a squid sorting machine to improve the quality and price of the product.

Kato's respect for other cultures and his ability to speak several languages enables him to work comfortably in an international market. Growing up he spoke a dialect of Japanese in the home but it wasn't until he took classes in colleg

cont. on page 2

Susumu Kato... *cont. from page 1*

he mastered the language. Kato is also fluent in Spanish and can communicate in Portuguese and a dialect of Vietnamese. Much of his effort has been directed at introducing new products to markets in Japan.

Sus has consistently published scientific and technical journals throughout his career and is an active speaker and participant in extension work. He worked closely with California Sea Grant throughout his career. He has over 30 publications covering a broad range of subjects and was awarded the Department of Commerce Silver Medal for his work in Fishery Development. He is likely the only fisheries biologist ever featured in People Magazine and has that rare quality of being held in equal esteem by his scientific colleagues and the fishing community.

As part of his trade, Sus manages to make just about anything taste good and his contributions to pot luck meals are always looked forward to with great anticipation. He is an excellent cook and in addition to bizarre creatures from the sea, his dishes frequently include portions of wild mushrooms harvested from the woods. When not sneaking through the woods harvesting mushrooms (mushroomers are worse than fishermen for keeping spots secret) or pulling crayfish traps for a feed, you can probably find him swatting a tennis ball around somewhere.

President's Report To The Board of Control and Farewell Address—1995

The Charter requires the President to report to the Board of Control on 1) major accomplishments during the past year, 2) activities of both standing and ad hoc committees, 3) the financial health of the Institute and 4) to provide a current list of Directors and Regional Directors. As I leave my position as President I also wish to make some additional remarks on the progress we have made and the work ahead.

We formed two new Districts this past year and added three new District Directors. I feel that this was a significant achievement. The fishery scientists in Florida and eastern Canada, however, should have District Directors.

We have brought the W.F. Thompson paper awards up to date by awarding four W.F. Thompson Awards in three years with the fifth award (papers published in 1994) currently being reviewed. Bill Bayliff and Jack Pearce should be congratulated for these efforts.

I am very happy that the first Distinguished Service Award was created and given to Ollie Cope during the past year. This is a recognition award that was badly needed! Ollie was also an excellent choice for the first recipient. The Outstanding Achievement Award was also a highlight this year. Jack Helle and Dick Beamish deserve our greatest thanks for their role in presenting this award to Dr. Ricker.

The Research Assistance Award program was again handled very well by Tom Lambert with thirteen people funded to attend meetings to present a paper.

The committee to redo the Display was successful largely due to the efforts of Bill Wilson and John Merriner. Copies of the recent Briefs, the Recruitment Brochure, the Research Assistance Award, W.F. Thompson Award and Principles were on the display at the AFS meeting.

The "Who's Who in AIFRB" Committee was another step forward in recognizing our people. Ollie Cope directed this effort and Roy Nakatani, Martin Paul Schreichman, Michael Dahlberg and, John Merriner were recognized under this program during this year.

In an attempt to follow in the productive footsteps of my predecessors, I have tried, during my three years, to respond to questions from our members. In response to guidance to Directors as to their duties when members are widely dispersed and already overtaxed in meeting participation, I wrote "The Question of District Directors" which appeared in the December, 1993, edition of Briefs.

For further clarification as to the roll of AIFRB I wrote an article in Fisheries (March, 1995) on this subject as well as the article on "Selectivity in the Recruitment Process" in Briefs (October, 1994). The establishment of "Who's Who in AIFRB" in Briefs to recognize competence and achievement directly addresses a major role of the Institute.

I am very proud of the progress we have made in a number of areas. We rewrote the Charter to remove sexism, to modernize it and make it more suitable to today's needs. We also changed the membership of the Board of Control in the Charter. The Secretary, Treasurer, Editor and Chairperson of the Membership Committee were ex-officio Members who could not vote on certain items. They are so knowledgeable that their votes are needed in the conduct of affairs by the Board of Control. They are now official Members of the Board of Control and have voting status.

We better defined the criteria for Associate Members, Members and Fellows at the request of the Membership Committee Chairman and this was put into the Charter.

We changed the term of President from two to three years which addressed two problems mainly. Past presidents and presidents of other institutions agreed that the first year on the job as president was a strong learning experience and the second and last year of the presidency was the only period that the president could really function well. Also, under a two year format, arrangements for the election of the next president had to be made during the first year as president, and the president-elect was only in office for four months before assuming the presidency.

We revised the "Principles of Professional Conduct for Fishery Biologists" so they could be framed to fit on an office wall. We finished the logo which was initiated under Jack Helle and dispersed lapel pins to all Members.

I have rewritten the Procedures Document twice and I now feel that it is a very useful reference. I encourage future Presidents to continue this practice.

We changed membership procedures so that new members should be nominated by an existing AIFRB Member (except for graduate students wishing to become associate members). This provides some screening against unethical scientists becoming members.

I am disappointed in the lack of progress in several areas. The Principles that were rewritten and redesigned did not reach the Members of AIFRB during my tenure. This was one of my major goals and I hope we can get it done soon.

cont. on page 3

President's Farewell Address... *cont. from page 2*

The Charter and Directory have still not been republished but should be available in 1996.

We need the help of more scientists who want to help further the goals of AIFRB. We need to increase our membership for proper representation of our people and we need to promote our people more from Members to Fellows within AIFRB.

The Members of AIFRB should receive further recognition in Briefs for their accomplishments such as promotions, publications and participation on progressive committees.

I wish to thank all members of the Board of Control for working with me during the past three years. My service as President was a great experience and honor for me. I encourage those that are supportive of our profession to get involved in the activities of our Institute. We exist to support the profession of fishery biology so that we can be more effective as scientists. When your copy of the Principles of Professional Conduct arrives, please post them in an obvious place and do your best to follow them carefully and encourage others to do the same. Attend a Board of Control meeting and publish your opinions in Briefs on the state of our profession. Encourage other good scientists to join AIFRB as a means of supporting the high ethics of our profession. Only through active participation can the goals of AIFRB be achieved.

Board of Control Meeting Highlights

The 39th annual meeting the American Institute of Fishery Research Biologists (AIFRB) was held at the Hyatt Regency Tampa Downtown Hotel in Tampa, Florida on August 26-27, 1995. On the Board were Vaughn C. Anthony, Outgoing President; Clark Hubbs, President-Elect; John H. Helle, Past-President; Charles F. Cole, Past-President; Katherine W. Myers, Outgoing Secretary; Joseph W. Rachlin, Treasurer; Sammy M. Ray, Membership Chairman and Texas District Director; Judith Wern, Membership Assistant; Oliver B. Cope, Outgoing BRIEFS Editor; John V. Merriner, Production Editor; Frank M. Panek, Capital District Director; Barbara Warkentine, Northeastern Regional Director and Keystone District Director; Douglas S. Vaughan, Southeastern Regional Director and Carolina District Director; Richard Heimann, Outgoing Southwestern Regional Director and Northern California District Director; John A. Strand, Northwestern Washington District Director; John F. Palmisano, Oregon-Southwest Washington District Director; and William J. Wilson, Northern Alaska District.

Treasurer's Report

Treasurer Joseph Rachlin delivered a comprehensive report on the state of AIFRB finances. This included a cash flow report (Table 1), a comparison report (Table 2), and current portfolio status (Table 3).

In reporting on dues status, the Treasurer revealed that 19 members have three-year delinquencies in AIFRB dues and are eligible to be dropped from membership. There are 91 others who are delinquent by one or two years. The total shortfall in dues is $3,480.

Table 1. Cash Flow Report

Category Description	*8/2/94-8/7/95*	*% of Total*
INFLOWS		
Check Return	250.00	0.97%
Dues Receipts	16,026.00	62.44%
List Rental	540.00	2.10%
Transfer Funds	8,850.07	34.48%
TOTAL INFLOWS	25,666.07	100.00%
OUTFLOWS		
AFS-Contribution	300.00	1.26%
Bank Service Charge	159.81	0.67%
Board of Control	9,014.29	37.97%
BRIEFS	5,015.43	21.13%
Distrct Reimbursement	704.94	2.97%
District Service Award	136.40	0.57%
Editor's Expense	25.54	0.11%
President Costs	230.11	0.97%
Production	2,995.95	12.62%
Research Awards	3,500.00	14.74%
Thompson Award	750.00	3.16%
Treasurer's Expense	905.26	3.81%
OUTFLOWS - Other	0.00	0%
TOTAL OUTFLOWS	23,737.73	100.00%
OVERALL TOTAL	1,928.34	100.00%

Table 2. Comparison Report

Category Description	*8/9/93-8/1/94*	*8/2/94-8/7/95*	$ *Difference*
INFLOWS			
Check Return	0.00	250.00	250.00
Dues Receipts	16,002.00	16,026.00	24.00
List Rental	270.00	540.00	270.00
Transfer Funds	3,000.00	8,850.07	5,850.07
Inflows - Other	5.31	0.00	-5.31
TOTAL INFLOWS	19,277.31	25,666.07	6,388.76
OUTFLOWS			
AFS-Contribution	300.00	300.00	0.00
Bank Service Charge	80.54	159.81	-79.27
Board of Control	4,445.87	9,014.29	-4,568.42
BRIEFS	4,921.00	5,015.43	-94.43
Distrct Reimbursement	420.00	704.94	-284.94
Dist Service Award	0.00	136.40	-136.40
Editor's Expense	44.29	25.54	18.75
Membership	276.96	0.00	276.96
Membership-Secy	2,000.00	0.00	2,000.00
OTHER	70.50	0.00	70.50
President Costs	1,953.18	230.11	1,723.07
Production	2,300.00	2,995.95	-695.95
Res. Award	3,300.00	3,500.00	-200.00
Secretary Exp.	191.65	0.00	191.65
Thompson Award	1,500.00	750.00	750.00
Treasurer's Exp	919.02	905.26	13.76
Outflows-Other	0.00	0.00	.00
TOTAL OUTFLOWS	22,723.01	23,737.73	-1,014.72
OVERALL TOTAL	-3,445.70	1,928.34	5,374.04

Treasurer's Report... *cont. from pg. 3*

Table 3. AIFRB Current Portfolio Status as of August 7, 1995

Name	*Quantity*	*Market Value*
Money Funds		
Smith Barney Funds Inc	564.02 Shares@ 1.000	$ 564.02
Stocks		
Putnam Invt Grade Mun TR	1,100 Shares@ 12.875	$14,162.50
Putnam Managed Mun Income	1,800 Shares@ 10.25	$18,450.00
Mutual Funds		
Aim Balanced Fund	480.357 Shares@ 17.68	$ 8,492.71
Franklin Tax Free NJ,Fund	621.661 Shares@ 11.43	$ 7,105.59

Total Value of Portfolio = $48,774.82

Membership Report

Chairman Sammy Ray and his assistant, Judy Wern, reviewed the activities of the Committee in 1994-1995, and summarized the results of the reviews of applications for membership and promotion. Over the past year, the Committee and the Board approved 35 applications for new membership: 17 Associates (student), 5 Associates (professional), 11 Members, and 2 Fellows. President Vaughn Anthony, who has recently retired to Maine, gave Outgoing Secretary Kate Myers an award (two "Maine - The Way Life Should Be" coffee mugs) for recruiting the most new members in 1994-95.

There were 15 applications for promotions and Emeritus status, and one application was rejected. The Board voted that "no change in membership status shall be granted to members who are not current in their annual dues payments."

The President appointed Sammy M. Ray (Chair), Texas A&M University-Galveston, Texas; Judith Wern (Assistant to the Chair), Texas A&M University-Galveston, Texas, Kendall Warner, Maine Inland Fish & Wildlife, Bangor, Maine; Barbara Warkentine, SUNY Maritime College, Bronx, N.Y.; Martin Golden, Huntington Beach, California; and Bruce Wing, NMFS, Auke Bay Laboratory, Juneau, Alaska, to the 1996 Membership Committee.

The Board discussed Emeritus status, and agreed that two important issues must be confronted by the Institute: (1) whether or not Emeritus members should pay dues, and (2) whether or not the Emeritus rank should be a promotion in status. President-Elect Hubbs concluded by saying that he would bring these issues before the Board at next year's meeting.

BRIEFS

Oliver B. Cope, Outgoing BRIEFS Editor, reported on the five issues of BRIEFS that appeared during the past year (Vol. 23, nos. 5 and 6; Vol. 24, nos. 1-3). Because of Editor Cope's recent illness, Production Editor John Merriner assembled materials for the August and October issues of BRIEFS (Vol. 24, nos. 45).

The Board discussed the contents of BRIEFS. The popular "Who's Who in AIFRB" series, initiated in 1995 to honor outstanding people in the membership, will be continued. District Directors were asked to write articles not only about eminent members in their own districts, but also about those members at large deserving such recognition. The Board decided that a short description (e.g., job title, employer, area of research, city, state) will be added to the "Membership Report" that appears in each issue. As approved by the Board at the 1994 annual meeting, a list of District Directors will be published in BRIEFS at least two times a year, and will be updated when there are changes in addresses. Outgoing Editor Cope said that he would like to see more editorials in BRIEFS.

President Hubbs will appoint a new BRIEFS editor. Until a new Editor is appointed, contributions to BRIEFS should be sent to Dr. John Merriner (NMFS Lab, 101 Pivers Island Rd, Beaufort, NC 28516). Deadlines for contributions are: November 15 (December issue), January 15 (February issue), March 15 (April issue), May 15 (June issue), July 15 (August issue), and September 15 (October issue). Members are encouraged to submit editorials, items of interest to fishery researchers, information on members, upcoming meetings, and new publications, dissertation and thesis abstracts, and memorials for members who have passed away.

Production Editor's Report

Production Editor John Merriner reviewed production activities in 1995. The 1995 version of the membership brochure was reprinted, and copies were distributed to the Board. The new 1996 membership brochure will be ready in January.

The printing of a new membership directory and the revised Bylaws and Policy Statements, delayed by shortfalls in 1995 membership dues payments, was authorized by the Board. The Bylaws pamphlet will be the same size as the old pamphlet, but a different color. The new membership directory will be alphabetized for all members with a secondary listing of all members by State. The State list will include only names. The cutoff date for address changes will be December 31, 1995. Telephone numbers and computer E-mail addresses will also be included in the new directory, if provided by members. Bids are being obtained for a lithograph of the AIFRB logo and printing of the Principles.

New Regional Directors, Districts, District Directors and Activities

The Board approved the following individuals, named by the President, as Regional Directors for 1996: (1) Steven K. Davis, Alaska and Western Canada Region (defined as Alaska, Alberta, British Columbia, Northwest Territories, and Yukon); (2) John A. Strand, Northwestern States Region (defined as Idaho, Montana, Oregon, and Washington); (3) Daniel Howard, Southwestern States and Western Mexico Region (defined as Arizona, California, Colorado, Hawaii, Nevada, New Mexico, Utah, Western Mexico, and Wyoming); (4) Dora R. Passino-Reader, Central States and Middle Canada

cont. on page 5

District Activities... *cont. from pg. 4*

Region (defined as Illinois, Indiana, Iowa, Kansas, Kentucky, Manitoba, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, Ontario, Saskatchewan, South Dakota, and Wisconsin); (5) Barbara Warkentine, Northeastern States and Eastern Canada Region (defined as Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Brunswick, Newfoundland, New Hampshire, New Jersey, New York, Nova Scotia, Pennsylvania, Prince Edward Island, Quebec, Rhode Island, Vermont, Virginia, and West Virginia); and (6) Douglas S. Vaughan, Southeastern States and Eastern Mexico Region (defined as Alabama, Arkansas, Eastern Mexico, Florida, Georgia, Louisiana, Mississippi, North Carolina, Puerto Rico, South Carolina, Tennessee, Texas, and Virgin Islands).

The Board approved the formation of three new districts in the Northeastern Region (Capital, Keystone, New England), which were tentatively approved in 1994, and the appointments by the President of five new district directors: (1) Frank M. Panek, Capital District (formerly the Metro-Washington, D.C.; defined as Washington, D.C., and the States of Virginia, West Virginia, Delaware, and Maryland); (2) Barbara Warkentine, Keystone District (formerly New York-New Jersey; defined as the States of New York, New Jersey, Pennsylvania, and Connecticut); (3) John B. Pearce, New England District (defined as the States of Maine, Massachusetts, Vermont, Rhode Island, and New Hampshire); (4) W.B. Scott, Atlantic Maritime District (a proposed new district); and (5) Dora R. Passino-Reader, South Central Great Lakes District (defined as southeastern Michigan, northwestern Ohio, and southwestern Ontario).

The President appointed Charles T. Mitchell (Southern California District) and Malin Babcock (Southeastern Alaska District) as Interim District Directors until elections for new officers in these districts can be held.

Keystone District (approved August 26, 1995; defined as the States of Connecticut, New Jersey, New York, and Pennsylvania) Regional and District Director Barbara Warkentine presented the Northeastern Region and Keystone District report.

Three new districts were established within the Northeast Region of AIFRB. The "Capital District," the "Keystone District," and the "New England District." As a result of this the region was pleased to welcome two new District Directors: Frank M. Panek as District Director of the Capital District and John B. Pearce as District Director of the New England District (see BRIEFS Vol 24 #3.)

As of August 1995 the current membership for the Northeast Region stands at **163**, of which **53** are in the Keystone District. The region recruited seven new members.

Ms. Ellen S. van Snik and Karen Kellog (The Pennsylvania State University), and William Ladd Knotek of VPI were selected to receive research awards from AIFRB's 1995 Research Assistance Award Program.

Although no regional or district activities were held, the members of this area are far from idle. Many of them have had major changes in their careers, have achieved political status in major fisheries societies, and have been recognized by their peers for their contributions towards the field of fishery science. The accomplishments of many of our members have been published during the past year in the AIFRB newsletter BRIEFS.

Capital District (approved August 26, 1995; defined as Washington, D.C. and the States of Delaware, Maryland, Virginia, and West Virginia) Interim District Director Frank M. Panek presented the Capital District report. The new district represents a total of 67 members.

Virginia	30 members
Maryland	28 members
West Virginia	3 members
Delaware	3 members
Washington, DC	3 members

The membership is distributed in three major clusters within the District: metropolitan Washington D.C., Maryland's eastern shore,and western Virginia. The metropolitan Washington D.C. area supports the most members and western Virginia the fewest. This geographic distribution of members creates planning and logistical problems for attendance at district meetings and other functions.

The following items should be given priority in the administration of the District. Feedback from the membership has been entirely positive and supportive.

1. Provide recognition of accomplishments and achievements of members by promotion in active membership rank. A quick review of the membership suggests that several members may be eligible for promotion.
2. Encourage fishery scientists to apply for membership and inform non-members of the professional benefits of membership. Encourage graduate students and recent graduates to consider Associate Membership. Set a goal of maintaining about 100 members in the District by 1997.
3. Encourage greater competition from district members for the W.F. Thompson Best Paper Award and for the Research Assistance Awards. Consider establishing a District Best Student Paper Award.
4. Provide special recognition of outstanding professional contributions in fisheries science or fisheries program administration by including notices of member's accomplishments in *Briefs*. Dick Schaefer (NMFS) has agreed to chair a committee on Professional Recognition.

The district's first organizational meeting was held on August 4, 1995. Dr. Reid Goforth, Cooperative Fish & Wildlife Research Unit Supervisor for the National Biological Service was the guest speaker and discussed: *"The History and Future of Fisheries Research in the U.S. Department of the Interior: The Role of the Cooperative Research Unit."*

Attendance at the meeting was poor (three members) and highlights the difficulties in holding organizational meetings. Several members have suggested that we consider sponsoring a symposium or paper session at another professional meeting (the Virginia Academy of Sciences and AFS Potomac Chapter

cont. on page 6

District Activities... *cont. from pg. 5*

were two suggestions). Others have suggested that meetings be rotated among the three geographic clusters of the membership to encourage local participation. Additional strategies for improving member participation in district activities will be explored during the upcoming year. I am particularly interested in getting graduate students more involved in AIFRB activities.

New England District (approved August 26, 1995; defined as the States of Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) John B. Pearce is the newly appointed Interim Director. There was no report presented for this district.

Carolina District (approved March 4, 1975; defined as the States of North Carolina and South Carolina) Interim District Director Douglas S. Vaughan presented the Carolina District report.

At the AIFRB Board of Control meeting in Halifax, August 20-21, Douglas Vaughan was confirmed as Director of the Carolina District. This coming winter/spring he hopes to line up candidates for Director and Vice-Director.

Current membership:

Status	South Carolina	North Carolina
Active	5	16
Emeritus	1	6
Delinquent	4	2

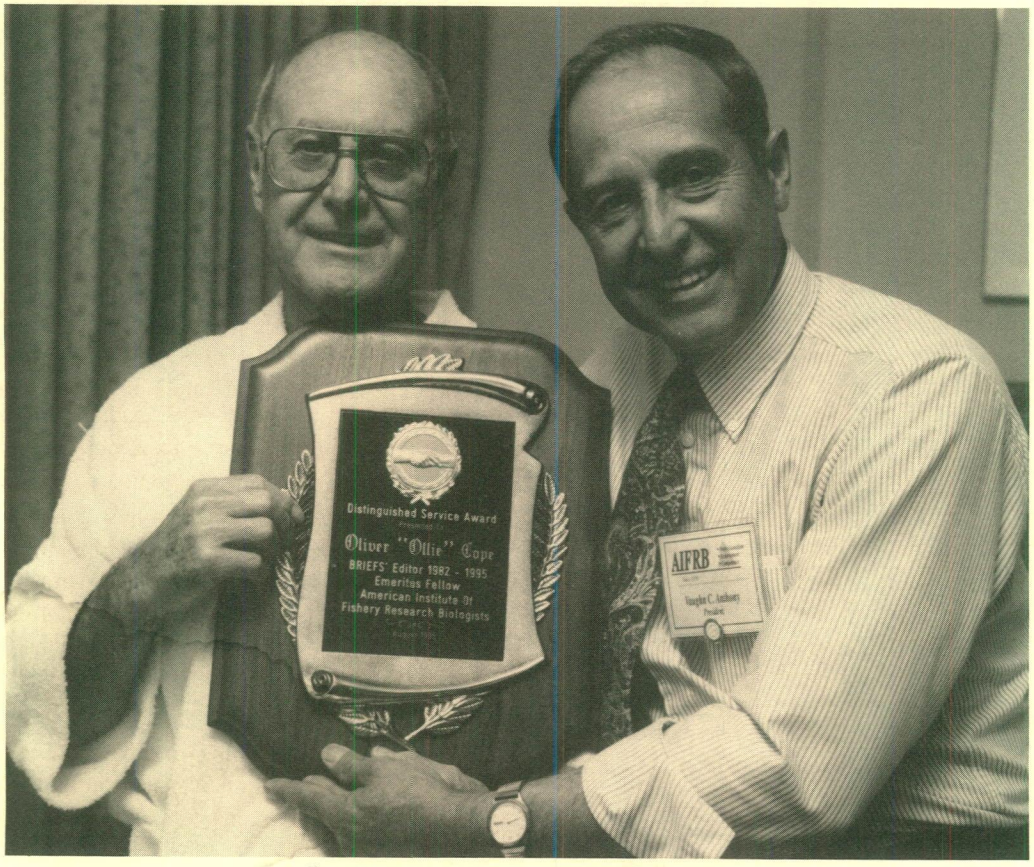
He remains concerned about the large proportion of delinquents in South Carolina. Total membership remains at 34. The District lost two members from South Carolina and one from North Carolina, while gaining one in South Carolina and two in North Carolina. Two specific nodes exist, one in the Charleston, SC, area, and the other in the Beaufort, NC, area. The potential continues to exist for a large group in the Raleigh area associated with NCSU which has yet to be tapped.

The problem plaguing this district is to determine under what context a relatively large gathering of members can be drawn together.

Florida District (approved July 7, 1970; defined as the State of Florida, exclusive of that portion including, Tallahassee and west) The office of Florida District Director is presently vacant. There was no report presented for this district.

Northeast Gulf of Mexico District (approved May 8, 19 76; defined as the States of Mississippi, Louisiana, Alabama, and a portion of the State of Florida (Tallahassee and west) The office of Northeast Gulf of Mexico District Director is presently vacant. There was no report presented for this district.

Texas District (approved Sept. 26, 1980, defined as the state of Texas) District Director Sammy Ray presented the Texas District report. Elections are in progress for a new Texas District Director. Ballots have been mailed to the twenty-one persons in the Texas District with a request for the vote to be returned by September 15. Candidates are Dr. James M. Nance, Chief of Fishery Management Division at the National Marine Fisheries Service Galveston Laboratory, and Dr. David R. Sager, Chief of the Environmental Quality Branch of the Resource Protection Division of the Texas Parks and Wildlife Department in Austin.



"Ollie" Cope receives the Distinguished Service Award

District Activities... *cont. from pg. 6*

Southern California District (approved October 10, 1960; defined as the counties of Santa Barbara, Ventura, Los Angeles, and San Bernardino, and those lying south of them in the State of California) District Director Charles T. Mitchell was not able to attend the meeting. No written report was provided for this district.

Northern California District (Central California District was approved August 21, 1978; a name change from "Central California" to "Northern California" was approved on September 11, 1987; there is no official definition of district boundaries) District Director Richard F.G. Heimann presented the Northern California District report.

The current District officers are: Dick Heimann, Director; Dan Howard, Vice Director; and Tom Moore, Secretary-Treasurer. The terms of these officers expire this fall and the District will be holding an election to select a Secretary-Treasurer and Vice Director for 1996-97; Dan Howard will automatically advance to Director.

The District gained at least two new members in the past year, bringing our total membership to about 83.

The District attempted to hold to its usual pattern of holding five meetings at bimonthly intervals between September and May. The September meeting is planned as a business and planning meeting, and the January meeting as a banquet. The remaining three meetings are dinner meetings featuring a guest speaker.

The annual business and planning meeting was held on September 10, 1994 at the San Francisco Bay National Wildlife Refuge in Fremont. The actions taken at the Board of Control meeting in Halifax were discussed, and speakers for the year's dinner meetings were tentatively selected. About 10 members and guests turned out for this meeting, which also included a pot luck meal and a chance to enjoy some fresh air and the Refuge's wildlife.

However, some of the planning for the November meeting went awry when the District could not get the planned speaker because of scheduling conflicts, and attempts to find a substitute could not be resolved quickly. By then the holiday season was approaching, and the District opted to forego this meeting.

The Holiday Banquet was held in San Francisco on January 14 at a Chinese restaurant with the unlikely name of Emmy's. The banquet was again arranged by member Tom Jow, and the food was even more delicious than the exceptionally delicious fare we have grown to expect at these banquets! This event is usually well attended by members, family and friends; however only 17 enjoyed it this year, probably because the District was a little late in getting the announcement out.

The March dinner meeting was held at Palo Alto Joe's in Palo Alto on March 16th. The guest speaker was Jennifer Nielsen, who is presently a visiting scientist at Stanford's Hopkins Marine Station. Her topic was "Ethology, Ecology, and Evolution in California Salmonid Conservation". Twenty-three members and guests attended this meeting and were enlightened about salmon and steelhead genetics.

The final dinner meeting for the year was held at the Pasand Restaurant in San Rafael on May 18th. David Lawhead, who is part of the California Department of Fish and Game's Natural Community Conservation Planning Program in San Diego spoke on the topic "Can the Environmental Species Act Survive the 1990's?" David discussed progress in the planning effort that seeks to protect sensitive species and their habitats on a regional basis by working cooperatively with the "stakeholders" in the area. Although attendance at the meeting was sparse, the 13 who made it were intensely interested and there was considerable lively discussion.

The District's next event, the first for 1995-96, will be a business and planning meeting to be held at the Gulf of the Farralon's National Marine Sanctuary facility in San Francisco. The District will select speaker topics for the coming year and also nominate candidates for Vice Director and Secretary-Treasurer.

Other than meetings, District activities included sending letters and information about AIFRB and its Student Award Program to four institutions in Northern California that had not been previously contacted. This mailing resulted at least one award (and a new member!). The District also distributed AIFRB information at the AFS Cal-Neva Chapter meeting in Napa in February. About 50 of our brochures were picked up. Hopefully, this interest will also be translated into some new members.

South Central Great Lakes District (approved January 24, 1968; defined as southeastern Michigan, northwestern Ohio, and southwestern Ontario) Dora R. Passino-Reader is the newly appointed interim Director. There was no report presented for this district.

Oregon-Southwestern Washington District (approved December 29, 1961; defined as the State of Oregon and southern counties of Washington including Pacific, Cowlitz, Clark, Skamania, Klickitat, Lewis, and Wahkiakum) Interim District Director John F. Palmisano presented the Oregon-Southwestern Washington District report. Previous to his appointment, the District went for eight or nine years without holding any meetings. Historically, the District had approximately 60 to 100 members. A former District Director lost all of the District records. This year the District held four meetings, and one of these was a joint meeting with the Northwestern Washington District. Most of the District's members are emeritus. Director Palmisano is trying to get people interested in joining the Institute, but many potential members are already overextended in their professional activities. A new chapter of the American Fisheries Society (AFS) was formed in Portland, and it may be possible to cosponsor a meeting with this group. He sends out a District newsletter, and gets FAX, telephone, and post cards from the membership in response. No one has volunteered to run for office in his district, and his term expires at the end of next August. The idea for holding a social at this year's annual BOC meeting came from the Oregon-Southwestern Washington District members.

Northwest Washington District (approved June 1, 1959; defined as the State of Washington exclusive of Pacific, Cowlitz, Clark, Skamania, Klickitat, Lewis, and Wahkiakum

cont. on page 8

District Activities... *cont. from pg. 7*

counties) District Director John A. Strand presented the report of the Northwest Washington District.

In November 1994, John Strand was elected District Director. He succeeds Greg Ruggerone, who was subsequently appointed Regional Director by AIFRB President Vaughn Anthony. Al Giorgi was elected Vice Director succeeding Richard Brodeur. Hal Michael and Mike Feddin continue as District Treasurer and District Historian, respectively.

The Western Washington District held three meetings between November 1994 and May 1995. The first meeting was held November 17,1994. The occasion was the District's annual banquet arranged by Ken Chew of the School of Fisheries, University of Washington, which was held at the Imperial Garden Restaurant in Mill Valley, Washington. Theodore W. Pietsch, also of the School of Fisheries, provided a special presentation on biodiversity of the Kuril Archipelago. The annual banquet was attended by more than 100 members and guests.

At the second meeting held March 21,1995, Paul Dinnel and Charles Eaton presented results of recent research to develop new metrics to study the health of Puget Sound benthos. Rather than benthic infauna, demersal fauna (marine fish and larger macroinvertebrates) were sampled in two different paired locations (contaminated vs. reference) using research-sized beam and otter trawls. The sampling was conducted to assess the utility of using trawl-caught demersal macro fauna as an index to define the relative ecological health of marine environments. The sampling also was undertaken to assess the logistics of using trawls to quantitatively define populations of demersal fauna by measuring within-and between-station variability with increasing number of samples.

The third meeting of the year was held jointly with the Oregon-Southwest Washington District on May 20, 1995 at the Kit Carson Restaurant in Chehalis, Washington. The speaker was John Williams of the National Marine Fisheries Service in Seattle, Washington, who spoke on the status of chinook salmon stocks in the Columbia River. John provided his insights on factors contributing to the historical decline of chinook in the Columbia drainage, inclusive of the effects of impoundment, pollution, fishing, loss of genetic diversity, and climate change. While John indicated that chinook stocks are at a critical level, it still may be possible to reverse population declines by addressing habitat loss, particularly in the upper watersheds, modifying hatchery practices, and changing how water is used.

There are presently 196 members on the District's mailing list. Over the year, information of AIFRB was sent to six potential new members.

The District's treasury as of August 1, 1995 is approximately $260.00. In May, the membership was asked for a modest $5.00 in dues to support the District Newsletter, announcements of District Meetings and other activities. Approximately 12 members responded to the request for $5.00 in District dues. The Board expressed their appreciation for the activities of District member Mike Freudian, who has written many excellent biographies of District members for publication in the District newsletter.

Southeastern Alaska District (approved April 11, 1988; not defined, but includes all of Southeastern Alaska from Yakutat southward; formerly the Alaska District, approved October 22, 1965) Past-President Jack Helle summarized district activities for District Director Malin M. Babcock, who was not able to attend the meeting. Jack reported on his presentation of the AIFRB Outstanding Individual Achievement Award to Dr. William Ricker in Nanaimo, B.C. In other District activities, Mike Murphy wrote the "Who's Who in AIFRB" article on Dr. Mike Dahlberg for BRIEFS. Past-President Helle noted that they are having difficulty in finding a new District Director. Because the District is small, almost everyone has already served as Director, and it may be necessary to "recycle" people into this position.

Northern Alaska District (approved April 11, 1988; defined as all of Alaska north and west of Yakutat) Former District Director William J. Wilson presented a written report prepared by District Director Steven K. Davis, who was not able to attend the meeting.

The Northern Alaska District has over the last year entered a period of dormancy. Members have been satisfied with current news and events transmitted through the *Briefs* and the District's own newsletter. Most if not all AIFRB members residing in this district are also members of the American Fisheries Society, which is well established and has a very active Alaska Chapter. In the past, former AIFRB directors have attempted to hold meetings, schedule seminars and host social gatherings, all with limited success. Turnout has been low with many of these same activities being similarly organized by AFS. For this reason, members have chosen to avoid duplication by participating primarily in AFS functions.

In late-1993 Steve was elected District Director. He began a newsletter, and tried to hold a series of brown-bag seminars but received little interest. He is disappointed to report that other efforts to stimulate increased activity in the district have failed. In recognition of the current interest of the district's membership (to be active members of <u>two</u> professional organizations, but truly <u>active</u> in only one), he has chosen to:

1. manage the district by serving as the principal AIFRB contact in Alaska;
2. facilitate transfer of information as it pertains to AIFRB, fisheries science and research; and
3. recruit new members.

He expects to continue operating the district in this fashion for the foreseeable future. He welcomes new ideas on how AIFRB can make a greater contribution to Alaska and its members.

Research Assistance Awards

Thomas R. (Tom) Lambert, Chair of the Research Assistance Award program, sent a report showing that 13 Associate Members received $250 awards from AIFRB this year. The recipients and abstracts of their papers were published in the August 1995 issue of BRIEFS (Vol. 24, No. 4). The President appointed Tom Lambert to chair the 1996 Research Assistance Award program.

cont. on page 9

Research Assistance... *cont. from pg. 8*

The Board agreed that all recipients of this award must he Associate Members in good standing (that is, the Treasurer should have received a check for all dues and membership fees prior to the April 1 deadline for award applications).

W.F. Thompson Award

In 1995, the 1993 W.F. Thompson Award was given to Michael J. Roell and Donald J. Orth. Their paper, entitled "Trophic basis of production of stream-dwelling smallmouth bass, rock bass, and flathead catfish in relation to invertebrate bait harvest," was published in Transactions of The American Fisheries Society, (122:62). The award was announced in the April issue of BRIEFS (Vol. 24, No. 2).

John B. Pearce, Chair of the 1994 W.F. Thompson Award Committee, will announce the winner by February 1996. The President appointed John B. Pearce to Chair the 1995 W.F. Thompson Award Committee.

Outstanding Achievement Award for Individuals

The 1994 Outstanding Achievement Award for Individuals was presented to Dr. William Ricker (see BRIEFS, Vol. 24, No. 43. The Board chose an individual for the 1995 award; the selection will be announced at a later date.

Group Award of Excellence

A committee (Anthony, Helle, and Hubbs) was appointed last year to consider a nomination for the Group Award of Excellence made at the 1994 meeting. After considerable discussion, the Board decided not to give a Group Award this year. The Board approved the formation of a committee (chaired by President Clark Hubbs) to consider a Group Award for next year.

Distinguished Service Award

President Anthony presented the first AIFRB Distinguished Service Award to Dr. Oliver B. (Ollie) Cope, for his outstanding service to AIFRB as BRIEFS Editor, 19821995. During the presentation, Ollie noted that his wife, Patty, played a very important role in his work.

The Board selected a new winner this year, and the name will be announced later.

Emeritus Status

The question of whether an Emeritus Member or Fellow of AIFRB should have to pay dues, have limits on activities and whether the category should be changed to one of a promotion in status was discussed again. At present it was agreed that no dues are required and there are no restrictions on activities (holding office,etc.).

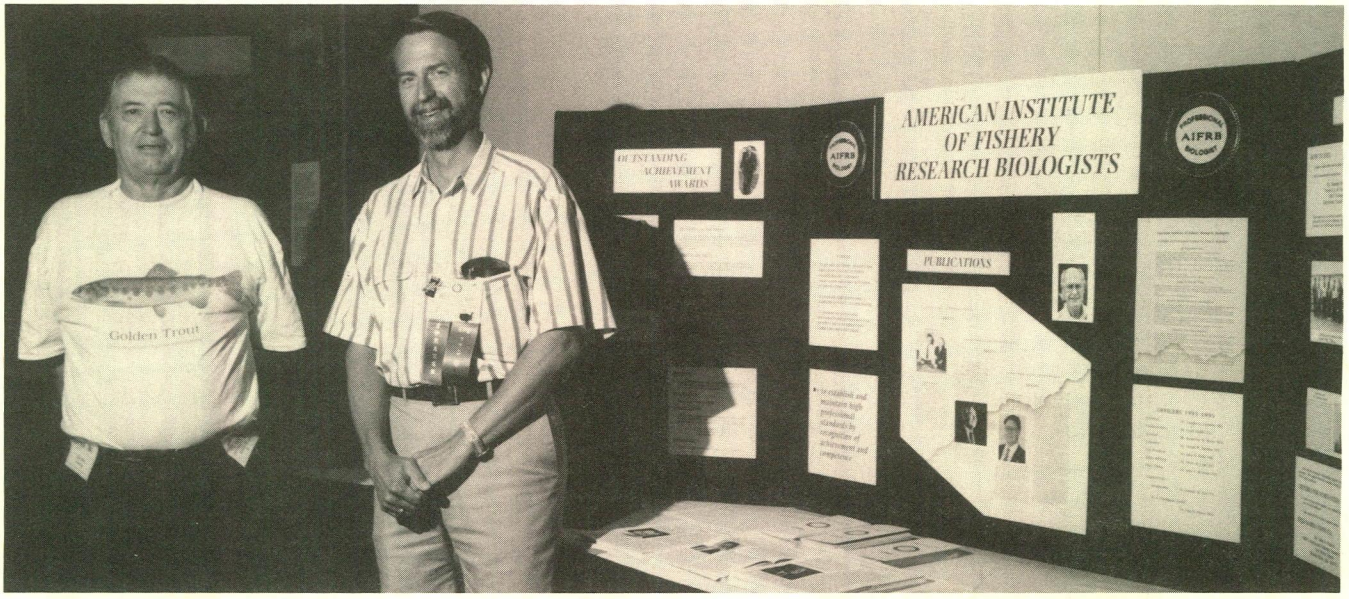
This matter will be discussed again at the next Board of Control Meeting.

AIFRB Logo

The Board gave approval for ordering mugs and hats printed with the AIFRB logo to be ready for next year's annual meeting in Detroit, Michigan.

New AIFRB Display

The Board thanked William J. Wilson (Northern Alaska District) and Production Editor John Merriner for making the new AIFRB display, which was exhibited at the 1995 AFS meeting in Tampa, Florida. Membership Chairman Sammy Ray will set up the display at the Texas AFS meeting in mid September, and Northern California District Director Dick Heimann will use the display at the California AFS meeting in January. The Secretary should be notified about the location of the display. Those wishing to use the display should contact the Secretary to determine its whereabouts.



President Hubbs and Bill Wilson with the New AIFRB Display

AIFRB 40th Anniversary in 1996

The BOC discussed possible activities for the 40th Anniversary of AIFRB in 1996, including an historical review by Honorary Incorporators of the Institute, a written history of AIFRB, and a one-day symposium with invited speakers on a topic central to AIFRB's mission to be held at next year's annual meeting in Detroit, Michigan.

Institute Archives

The Institute's archives are located at the University of Washington, Fisheries Research Institute (FRI), in Seattle. Members are requested to send materials for the archives to: Kate Myers, University of Washington, Fisheries Research Institute, Box 357980, Seattle, WA 98195-7980 (telephone: 206 543-1101).

Changing of the Guard

President Anthony made some farewell comments to the Board of Control. He reviewed the progress made over the past three years and some of the work that remains to be done. He thanked everyone for all of their fine efforts during his term as President. He especially thanked Kate Meyers and Jack Helle. Kate has been secretary since September of 1991 and is now stepping down from that position. Jack Helle was extremely helpful to the President over the past three years and President Anthony hoped he could be as helpful to Clark Hubbs in the future. The President stated that it was an honor and a great experience to serve as President of AIFRB. He then passed the gavel to the next President, Clark Hubbs and stepped down from the chair.

President Hubbs then appointed Barbara E. Warkentine, Joseph W. Rachlin and John V. Merriner as Secretary, Treasurer, and Production Editor, respectively, for 1996. He also appointed an Award Plaque Committee and an Outstanding Achievement Award Committee for 1996 and adjourned the meeting at 5:00 p.m. on Sunday, August 27, 1995.

Notice to the Membership:

The current total society membership is 984, of which 213 (21.6%) are emeritus members. At the current dues structure of $20 per non-emeritus member, the expected annual cash inflow to the society is $15,420. However, the society is currently carrying 100 (13.0%) delinquent members for a net loss of $2,000 per annum. This means that we can anticipate revenues of $13,420 to conduct the society's business. In fiscal 1995 it cost the society $23,737.73 to conduct its business, in fiscal 1994 annual expenditures were $22,723.01, and in fiscal 1993 they were $21,598.70. In order to cover the shortfall between cash inflow and outflow, in each of these years, the society was forced to dip into its diminishing investment assets. These data stimulated the Board of Control, at its recent meeting, to examine its current dues structure, as it was felt by all that a "healthy organization" must meet its annual expenditures by its annual dues inflow.

Several proposals were presented including:

1) an increase to either $30 or $35 per paying member, with a charge of $5 for emeritus members, to help defray the increased cost of their receipt of BRIEFS.
2) a graded dues structure of $35 for Fellows, $25 for Members, $20 for Associate members, and $10 for all new emeritus members with current emeritus members being grandfathered in at the current no charge status.
3) a graded dues structure, as in number 2 above, but with a charge of $5 for each emeritus member.

Before making its final decision regarding the society's dues structure we would like to have input from the membership. **Please direct your comments to our new President, Dr. Clark Hubbs,** University of Texas, Department of Zoology, Austin Texas 78712. The Board of Control will vote on this matter at its next meeting.

President Hubbs closes the meeting with gusto!

Board of Control Meeting 1995 —Mugshot

District Directors

Alaska, Northern
Steven K. Davis
LGL Research Associates, Inc.
4175 Tudor Centre Dr. #101
Anchorage, AK 99508

Alaska, Southeast
Malin M. Babcock
11305 Glacier Highway
Juneau, AK 99801-8626

Atlantic Maritime
W.B. Scott
Huntsman Marine Lab
Brandy Cove Rd.
St Andrews, NB Canada EOG2X0

California, Northern
Richard F.G. Heimann
20 Lower Ragsdale Drive, Suite 100
Monterey, CA 93940

California, Southern
Charles T. Mitchell
MBC Applied Environmental Sciences
3040 Redhill Avenue
Costa Mesa, CA 92626-4524

Capital
Frank M. Panek
National Park Service
4401 N. Fairfax Dr., RM 810-D
MD-820 ARLSQ
Arlington, VA 22203

Carolina
Douglas S. Vaughan
214 Shell Landing Road
Beaufort, NC 28516

Florida
Vacant

Great Lakes, South Central
Dora R. Passino-Reader
National Fish. Center
1451 Green Road
Ann Arbor, MI 48105-2897

Gulf of Mexico, Northeast
Vacant

Keystone
Barbara E. Warkentine
1329 Balcom Avenue
Bronx, NY 10461

New England
John B. Pearce
Northeast Fisheries Center
166 Water Street
Woods Hole, MA 02543-1097

Oregon-SW Washington
John F. Palmisano
1990 NW 156th Avenue
Beaverton, OR 97006-5307

Texas
Sammy M. Ray
P.O. Box 1675
Galveston, TX 77553

Washington, NW
John A. Strand
16535 188th Ave. NE
Woodinville, WA 98072

MEMBERSHIP REPORT

Associate-Professional

Trace L. Bishop	CA

Associate-Student

Jennifer R. Wiens	KS
Kevin Pope	SD

Emeritus

Dr. John M. Neuhold	NY

Member

Dr. Colleen A. Caldwell	NM
Carrie E. Wilson	CA
Dr. David H. Secor	MD
Kurt L. Fresh	WA
Dr. Michael J. Hansen	MI
Dr. John G. Williams	WA

Dr. Sammy M. Ray, Membership Chairman
Texas A&M University at Galveston
5007 Avenue U
Galveston, Texas 77551

Direct membership inquiries to the
Membership Chairman

BRIEFS, the newsletter of the American Institute of Fishery Research Biologists, is published six times a year. It is intended to communicate the professional activities and accomplishments of the Institute, its District, and Members; the results of research: the effects of management; unusual biological events; matters affecting the profession; political problems; and other matters of importance to the fishery community. Comments and contributions should be sent to the Editor, Dr. Gene R. Huntsman, 205 Blades Road, Havelock NC 28532. Subscription $20 a year to Institutions and Non-Members. Officers-Clark Hubbs, University of Texas, Department of Zeology, Austin, TX 78712, President; Barbara Warkentine, 1329 Balcom Ave., Bronx, NY 10461, Secretary; Joseph Rachlin, Lehman College Bio., Bedford Park Blvd. West, Bronx, New York 10468, Treasurer.

ISSN-8755-0075

American Institute of Fishery Research Biologists
c/o Joseph Rachlin
Lehman College, Biology
Bedford Park Boulevard West
Bronx, NY 10468-1589

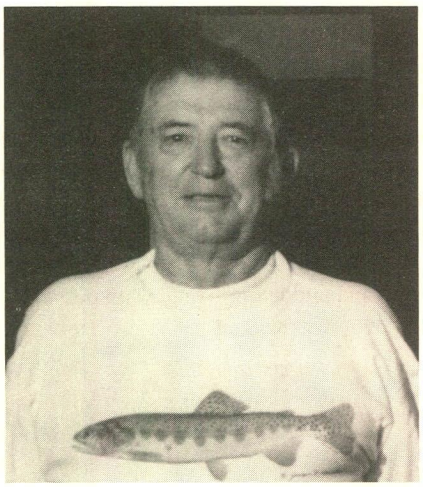
Address Correction Requested

American Institute of Fishery Research Biologists

. . . BRIEFS . . .

VOL. 24, NO. 6 DECEMBER 1995

Presidents Message



Briefs (Vol. 24, No. 5) included a notice of possible changes in dues structure from $20 per paying member and free to Emeritus Members to:

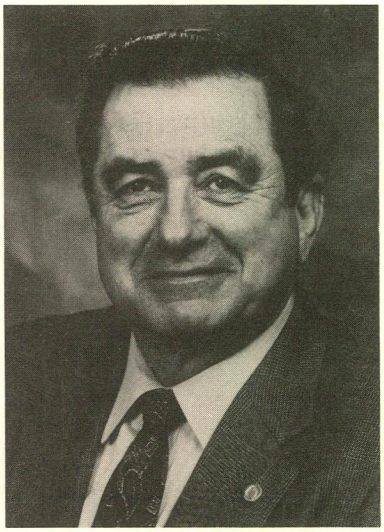
1) $30 or $35 for members and $5 for Emeritus Members or
2) $35 for Fellows, $25 for Members, $20 for Associate Members, and free to Emeritus Members or
3) the same as #2 but $5 for Emeritus Members

I have received a few communications that endorsed the concept of increased dues but would appreciate more response from the membership.

The Board of Control will also discuss the status of Retired or Emeritus Members. My personal circumstances are that I am a Retired Member of some societies such as AFS, an Active Member of other societies such as AIFRB, and an Emeritus Faculty Member. The academic community uses Emeritus status as a promotion from prior professorial appointment. In my department, about 75% of retired faculty become Emeritus, and the other 25% has Retired status. The procedures for Emeritus status involve a recommendation by the department, approval by the Dean, then the Provost, then the President, then the Chancellor, then the Board of Regents. The crucial action is of the department, but any of the academic brass can turn down the recommendation. These complications mean that obtaining Emeritus status is a minor honor.

Clearly, all AIFRB members now with Emeritus status would retain that status. At present, AIFRB members apply to the Membership Committee (Sammy Ray) to obtain Emeritus status. The only change would be that some would be Emeritus and other Retired Members. Again, I would appreciate insight into the opinions of the members at large.

Who's Who in AIFRB
Gerald R. Bouck



Gerald (Jerry) Bouck is a Fellow and a long-standing member of AIFRB and a very respected participant in the Oregon-Southwestern Washington District. Bouck recently retired as Senior Scientist in the Division of Fish and Wildlife at the Bonneville Power Administration (BPA) in Portland, Oregon, and received the Administrator's Award for Distinguished Service. He served as the agency's technical expert in the field of salmon ecology. His successful federal career of nearly 33 years also included employment in the U.S. Fish and Wildlife Service (USFWS) and the U.S. Environmental Protection Agency (EPA). Paramount among his career accomplishments is his pioneering and standard-setting research on the effects of gas supersaturation on aquatic organisms. Jerry continues to be active in Northwest fisheries issues as a private consultant.

Jerry's outdoor career began on a Michigan farm where, as a young boy, he learned to hunt, fish, and trap. This experience served him well in the U.S. Air Force, where he trained Korean War pilots in wilderness survival skills. Thence, Jerry worked his way through college while raising a family and earned a B.S. degree in biology and chemistry at Central Michigan University. Jerry attended graduate school at Michigan State University, where he earned a M.S. degree in fishery biology and physiology. As a National Institutes of Health Predoctoral Fellow, Jerry earned a Ph.D. in Fisheries and wildlife in 1966, with emphasis in physiological ecology.

cont. on page 2

Who's Who in AIFRB... *cont. from page 1*

Much of his training and early career involved the development of laboratory methods for the early detection and prevention of environmental stress in fish. In his doctoral research, he adapted a variety of blood tests, including enzyme analyses, and discovered that stressed fish usually had elevated enzyme levels in their plasma from damaged cells. Through the use of isozymes and histochemistry, these elevated plasma enzymes could be traced to specific tissues or cells, before there was obvious histopathology.

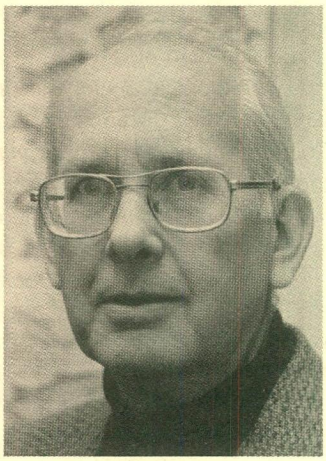
Protecting Pacific salmon became Jerry's life work. He led the EPA's effort to protect salmon from thermal pollution in the Columbia River basin, as well as from pulp and paper trade wastes, heavy metal mining wastes, and gas supersaturation. Jerry also helped set regional water quality standards. In the USFWS, he found that well intended therapeutics could inhibit the tolerance of salmon smolts to sea water. In both agencies, he developed methods and created laboratory facilities for investigating salmon. As one result, he and his staff were given special achievement awards, which included an EPA Silver Medal and an EPA Gold Medal for environmental protection.

As BPA's Chief of Biological Research, Columbia River salmon enhancement became Jerry's primary concern, and he administered projects to implement the Northwest Power Planning Council's Fish and Wildlife Program. These projects included efforts both on wild salmon, such as improvement and monitoring on numerous streams, and on hatchery-produced salmon to improve their quality and quantity. Examples of his projects included funding construction of a fish disease laboratory at Oregon State University, research on specific salmon pathogens, vaccine research, drug registration, hatchery surveys, use of supplemental oxygen, and an augmented fish health monitoring program in Oregon, Washington, and Idaho. Finally, as Senior Scientist, Jerry represented the BPA on the National Marine Fisheries Service's interagency technical advisory panel that reviewed and evaluated all scientific data in petitions to list several Columbia River salmon stocks under the Federal Endangered Species Act.

Jerry's favorite professional subject for 30 years was gas supersaturation and its causes, biological impacts, and remedies. Following laboratory experiments and field investigations, he drafted for the National Academy of Science what ultimately became the EPA water quality criterion for total dissolved gases, and this was adopted by many states and nations. He also invented and published an inexpensive method of degassing water for use in public aquaria, hatcheries, and fishery laboratories. Additionally, he developed, with others, a standardized method for measuring total dissolved gases, which was published in *Standard Methods for the Examination of Water and Wastewater* 17th edition. He has shared his knowledge of gas supersaturations widely via numerous publications, as well as workshops, lectures, and visits to several countries.

In addition to AIFRB, Jerrry was a member in many professional societies and was particularly active in the American Fisheries Society (AFS). As a Life Member, he has served the AFS as the President of the Western Division, President of the Bioengineering Section, and Chairman of the Board of Professional Certification. He also served on the AFS Executive Committee, and chaired numerous standing and special committees. More recently, Jerry co-Chaired and developed the 1993 AFS Annual Meeting that was held in Portland, Oregon. Now that he is retired, Jerry devotes much of his free time to fishing and hunting activities but remains active in the Portland Chapter of AFS and in the Oregon-Southwestern Washington District of AIFRB.

Who's Who in AIFRB
James B. Reynolds.



Dr. James Reynolds came to Alaska in 1978 as the leader of the newly-formed Alaska Cooperative Fishery Research Unit from a previous incarnation as a mid-westerner. He obtained his B.S. at Utah State University in, some would say, the dark ages, with a major in wildlife management. He subsequently moved to Ames and earned his M.S. and Ph.D. in fishery biology from Iowa State University under the direction of Dr. K.D. Carlander. With a new sheep skin in hand, he began the new age as a fishery biologist with the U.S. Fish and Wildlife Service in 1966. (Good golly Miss Molly, that's 30 years with them! How did he do it?) at the Great Lakes Regional laboratory in Ann Arbor, then moved to the University of Missouri's Cooperative Fishery Research Unit in 1972 as the assistant leader.

Since coming to Alaska, Jim's creel has been filled to over the limit with students, expansion of the Unit, participating in the functioning of the Alaska Chapter of AFS, and community service. When the Unit started, student and faculty research projects supported by the Unit emphasized the Chena River (these efforts spawned a chapter on the Chena River in the book Water Quality in Northern American River Systems). As Jim got the feel of the tiller, the Unit's efforts began focusing on other areas of the State in the early 1980's leading to its current statewide program. Student projects conducted under his direction have included such things as ecology and impact of fishing on Arctic grayling, hydraulic barrier impacts on riverine fishes, impact of placer mining on Arctic grayling, effects of jet boats on salmon embryos in the redd,

cont. on page 3

Who's Who in AIFRB... *cont. from page 2*

potential negative impacts of electro-fishing on fish, and projects on ecology of Arctic grayling an Dolly Varden. Under his direction there have been over 25 masters and doctoral students recruited to the profession.

In 1991, his responsibilities really bloomed; the Fishery Unit combined with the Wildlife Unit and Jim was named the Unit leader (maybe his B.S. will be of some use now). During this time, and he continues to do so, he has taught several university courses on fishery dynamics and fishery management, and he has traveled all over the U.S. presenting a short course on electro-fishing for the U.S. Fish and Wildlife Service's Fishery Academy.

Dr. Reynolds has been very active professionally. He has served on the editorial board of AIFRB, as secretary of the North American Benthological Society, as president of both the Alaska Chapter and the Education Section of the American Fisheries Society, and he currently serves as historian of the Alaska Chapter. He was instrumental in organizing and establishing the Arctic Unit (a student group) of the Alaska Chapter of AFS. In recognition of his efforts, the AFS Chapter awarded him the Wally Noerenberg Award for Fisheries Excellence in 1992, which included a monetary gift. One of the projects he is currently completing is editing the Proceedings of the AFS Symposium on Fish Ecology in Arctic North America.

Dr. Reynolds has not always been the consummate professional; he smolted that way. After instituting the Fishery Research Unit's "Bum Prop Award" for "best" blunder of the year, Jim earned it himself with distinction for two incidents in 1985. The first involved efforts to "ground truth" radio tags before executing a project on Arctic grayling migration. Unbeknownst to his co-investigators, it seems several transmitters were buried for subsequent location but "someone" forgot to remove the small magnets which prevented the radio tag from transmitting and they were lost. The second incident involved a trial run of a repaired jet boat. After taking the boat to the mid-reaches of the Chena River by trailer and launching it, it was discovered that the battery was dead. Fortunately (perhaps the students who were along would prefer the word "unfortunately") an electro-shocker boat operated by State biologists came along and gave them a jump. After proceeding upstream, the boat stalled. I guess it is not easy poling a large aluminum boat in a small meandering river, even downstream.

In the past 18 years, Dr. Reynolds has been a presenter at, or an active participant in, nearly every fishing meeting, symposium, or convention held in Alaska. He has freely given his time and talents to students across the state, and has contributed enormously to the growth of the fishery research profession in Alaska. Jim is admired by his peers for his breadth of knowledge in Arctic fish ecology and he is consulted internationally for his expertise in the effects of electroshocking on fishes. When Alaskan fish biologists are asked "Whom can we contact to get information on arctic or subarctic freshwater fishes?" Without a doubt the answer is usually "Dr. Jim Reynolds.

R.J.H. Beverton Wins Outstanding Achievement Award

Professor Raymond John Heaphy Beverton was chosen by AIFRB in August to receive the Outstanding Achievement Award for 1995, the fifteenth such award in the series. Unfortunately, Professor Beverton passed away on 23 July at the young age of 72. He was considered to be one of the world's leading marine fishery biologists with a personality to match. For many he was best known for his great classic book that he wrote with Sidney J. Holt, "On the Dynamics of Exploited Fish Populations" (1957). This work was the development of the modern age-structured approach to fish stock assessment. It led to the universal use of such things as the standard catch equation, yield-per-recruit analysis, virtual population analysis (VPA) and yield isopleths. The book provided a new language for evaluating the effects of fishing on fish stocks and even investigated "modern" avenues of research such as density dependence of growth and mortality on yields, length based assessments and multispecies modeling. It was often said at stock assessment working groups that nothing was new; it had already been stated by Beverton and Holt. In fact, the current demand for this book has been so great that in spite of a second reprinting in 1965, another reprint was needed in 1993, fifty years after the original work was completed!

Ray Beverton was not only a scientist of the highest order but an educator, editor and advisor to governments, institutes, and managing bodies around the world. He graduated from Cambridge University in 1947 earning the top first-class honors degree of that year and the Smart Prize for Zoology. Ray Beverton joined the staff of the Fisheries Laboratory in Lowestoft, U.K., in 1947 and completed his book by 1953. He became Deputy Director in 1959 and left in 1965. During his eighteen years at Lowestoft he was an avid proponent of the use of quantitative methods for providing a sound scientific basis for the management and rational exploitation of fisheries resources. He became very active in international fisheries work in the North Atlantic during these years under the auspices of organizations such as ICES (International Council for the Exploration of the Sea), and ICNAF (International Commission for Northwest Atlantic Fisheries).

Beverton assumed the post of Secretary and Chief Executive of the U.K. National Environmental Research Council (NERC) in 1965. NERC was a major new organization and the main U.K. funding source for non-governmental life science and environmental research. It brought together institutions as diverse as the Nature Conservancy, the Geological Survey, the British Antarctic Survey, the National Institute of Oceanography and the Laboratories of the Development Commission. During his time as executive head of the NERC he was honored by being appointed Commander of the British Empire (CBE) in 1968 and by being elected Fellow of the Royal Society (FRS) in 1975.

In the early 1980's following mandatory retirement from the NERC, he entered the academic arena and returned to a more direct involvement in fisheries research, first at the University of Bristol as a Senior Research Fellow and later at

cont. on page 4

May 2, 1994 Party at V. Anthonys at Woods Hole, Mass
Back Row:Frank Almeida, Bill Overholty, Kevin Friedland, Ray Couser, Paul Rega and Daughter Grace
Middle Row:Herbert Graham, Jack Pence, Wendy Gabriel, Vaughan Anthony. Professor Beverton and Emory Anderson
Front Row:Marvin Grosslin, Steve Clark, Steve Murawski and Andy Rosenberg

the University of Wales Institute of Science and Technology (UWIST). He moved to a full-time Chair as Professor of Fisheries Ecology in 1984 and became head of the Department of applied biology in 1987. He then became the head of the School of Pure and Applied Biology in the newly created University of Wales College of Cardiff in 1988.

As author of innumerable scientific papers, Ray established a high standard in the art of describing the results of scientific inquiry in writing. It was perhaps only natural, therefore, that he should be asked to assume, in 1983, the post of Editor of the premiere publication of ICES, the *Journal du Conseil* (now called the *ICES, Journal of Marine Science*). While serving as Editor until the end of 1991, he gained the respect of many young authors by his willingness to work with them to improve their manuscripts to acceptable standards, an attribute not universally shared by journal editors. During these years he was considered to be the most renowned active scientist in the ICES community.

Since the early 1980's Ray held positions of leadership in a multitude of societies, committees, and organizations including President of the Fisheries Society of the British Isles, Vice-President of the Freshwater Biological Association, Head of the U.K. Delegation to IOC, President of the Challenger Society for the Advancement of Marine Science, just to name a few. He is the recipient of various prominent awards, including CBE (1968) and FRS (1975) mentioned above and Honorary Doctorate of Science from the University of Wales in 1989, and most recently the American Fisheries Society Award of Excellence in 1993.

He was, as The Times (London) called him, "One of the world's leading marine fishery biologists, remaining at the top of his profession for about 40 years". It was said by the ICES Secretariate, that he "...had a lively and inquiring mind, a fluent and agreeable prose style and a full command of his material, which he could view from a wider perspective than is customary in his discipline". In spite of his brilliance, achievements, and impact on the fisheries profession, he was always unassuming, gracious, very likeable and personable to all those he encountered. He was truly a credit to the Profession of Fishery Research Biologists and a most deserving recipient of our outstanding achievement award.

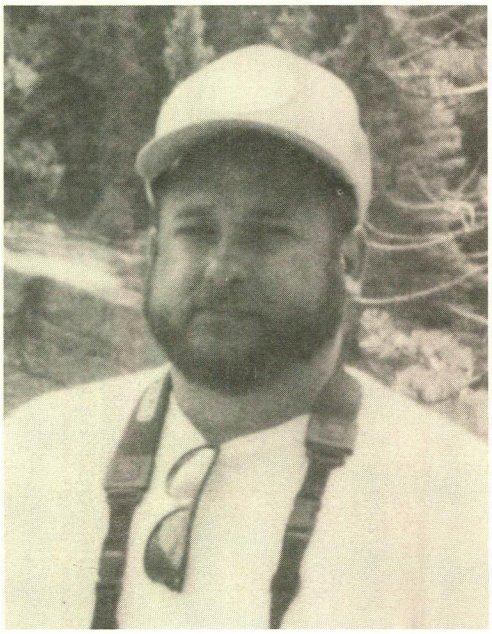
FOOTNOTE: The Outstanding Achievement Award was presented to Professor Beverton's widow, Kathy, during the opening plenary session of the ICES meeting in Aalborg, Denmark, on September 21, 1995. Over 500 members from the Council's 19 member countries and others witnessed the presentation made on behalf of AIFRB by Dr. Emory Anderson. Details and photos will be in the next issue of *Briefs*.

AIFRB Symposium - 1996 Chair Gil Radonski

A one day symposium sponsored by AIFRB will be held at the 1996 AFS meeting in Dearborn, Michigan. The purpose of the symposium is to celebrate AIFRB's 40th anniversary, provide a vehicle to showcase AIFRB, and possibly generate revenue.

The symposium format will conform to AFS's format and will be a concurrent session. The theme for the AFS Annual Meeting is *Sustainable Fisheries: Economics, Ecology and Ethics.*

New Texas District Director



Dr. David R. Sager is the newly elected Texas District Director (1996-1997). He obtained a B.S. degree in Biology with Zoology Emphasis from Alma College (1973), a M.S. degree in Fisheries from Louisiana State University (1976), and Ph.D. Degree in Marine Estuarine-Environmental Sciences from the University of Maryland (1986). He became an Associate member of the AIFRB in 1982 and was promoted to Member in 1987. Presently, he is Chief of the Environmental Quality Branch of the Resource Protection Division of Texas Parks and Wildlife Department in Austin. He has worked for over 20 years as a fisheries ecologist with emphasis on environmental impact assessment and ecological research. Dr. Sager has conducted research relating to habitat use, fisheries community structure and environmental impacts of construction activities, water diversion projects and chemicals or pollution events. He has organized and assisted in conducting several scientific workshops and conferences. Also, he has served as a technical reviewer for scientific publications and research grant institutions. Dr. Sager has authored over 60 technical reports and scientific publications.

The new Texas Vice-District Director is **Dr. James M. Nance** who joined the AIFRB as a Member in 1992. Dr. Nance has been active as a research fishery biologist at the National Marine Fisheries Service Galveston Laboratory and currently serves as the Chief of the Fishery Management Division.

Tampa Social Gathering A Success

A total of nearly 50 members, spouses,and guests attended the AIFRB social gathering on August 27 at the Hyatt Regency Tampa in Tampa, Florida, which followed the close of the two-day 1995 Board of Control meeting. AIFRB provided refreshments, drinks, and the opportunity for members to meet and converse with those from other districts. The gathering, possibly the first ever held for the entire AIFRB membership, was considered a success by those in attendance. The organization was heartened by this year's participation and hopes that attendance will double in 1996 and continue to increase in the future. District Directors are asked to encourage their members to attend the next AIFRB social gathering, which is scheduled for Detroit, Michigan, at the end of the August 1996 Board of Control meeting and preceding the AFS 126th annual meeting. Ideas for improving and enriching the social gathering should be sent to John Palmisano, the Director of the Oregon-Southwest Washington District.

Annual Chinese Banquet

Thursday, 2 November 1995 held by Seattle Area AIFRB.

A special family style, Chinese dinner was organized by Ken Chew for AIFRB members, spouses, significant others an interested non-members. For $17 per person attendees received twelve specially selected Chinese courses. Price included gratuities, tea, and fortune cookies of course. Graduate students were admitted at ½ price if a member of AIFRB or are applying for membership. The evening included a special presentation:

The Sea Otters are Coming! The Sea Otters are Coming!
by Dr. Glen VanBlaricom
Washington Cooperative Fish and Wildlife Research Unit,
University of Washington

Glenn VanBlaricom joined the University and the Cooperative Research Unit in 1993. He previously worked for the U.S. Fish and Wildlife Service for nearly 15 years with assignments at both San Simeon and Santa Cruz (University of California). Most of this time was devoted to the California Sea Otter Project. Glenn VanBlaricom received B.S. degrees in both Oceanography and Zoology from the University of Washington in 1972. He received his Ph.D. in Oceanography from Scripps Institution of Oceanography in 1978. Glenn is presently Assistant Unit Leader for Wildlife at the Cooperative Research Unit. He also holds the rank of Associate Professor at the University of Washington.

MEMBERSHIP REPORT

Associate-Student

Jarrad Kosa	MA
Craig Adams	WA
Andrew P. Hendry	WA

Sammy M. Ray, Membership Chairman
Texas A&M University at Galveston
Building 3311, Fort Crockett
Galveston, Texas 77551

Deceased

Lowell E. Keup	Fellow 1979

Direct membership inquiries to the Membership Chairman.

House of Representatives Votes Overwhelmingly for Fisheries Reform

from Network News Vol. III, No. III

Critical Amendments Receive Strong Bipartisan Support

In a resounding show of bipartisan support for federal fisheries reform, the U.S. House of Representative on October 18 voted to reauthorize the Magnuson Fishery Conservation and Management Act with critical strengthening amendments. The lopsided floor vote of 388-37 for the bill, H.R. 39, came after several years of deliberation. Not since the original authorization of the Magnuson Act nearly 20 years ago has there been such a significant and comprehensive debate on the House floor. Now, with little time left in the congressional session, the fate of our nation's fisheries lies in the hands of the Senate.

The most impressive aspect of the House vote, particularly during these days of intense partisan politics, was the overwhelming bipartisan backing for fisheries conservation. The day was filled with impassioned rhetoric as Republicans worked with Democrats to ensure passage of the strongest amendments possible.

All three of the amendments which the Network advocated passed by wide margins: An amendment introduced by Representative Wayne Gilchrest (R-MD), a leading champion for rational fisheries policy, strikes at the root of the overfishing problem. It redefines the goal; of "optimum yield" to prevent short-term economic and social factors from taking precedence over the long-term economic and ecological health of the fisheries. The amendment passed 304 to 113 with heavy support from both Republicans (126) and Democrats (177). Representative Gerry Studds (D-MA), long an effective proponent for fisheries conservation, also spoke eloquently on the House floor in support of the amendment.

Representative Porter Goss (R-FL) and Elizabeth Furse (D-OR) put forth an amendment to address the issue of bycatch and waste of valuable fish and other animals. In the Gulf of Mexico shrimp fishery, our nation's most wasteful, 80 percent of everything hauled in is thrown back dead. The amendment, which passed 294 to 129, closes a loophole created at committee markup that would have exempted the Gulf shrimp fishery from the bill's bycatch reduction provisions that apply to all other fisheries.

A third major amendment, introduced by Representative Sam Farr (D-CA), further strengthens the bill's habitat protection sections. Addressing the need to better protect critical habitat from damaging fishing activities, this amendment received strong support from people who fish commercially on both coasts and passed the House 251 to 162.

This historic victory is due in part of the collaboration and diversity of interests the Network has fostered among recreational, commercial, conservation, and other groups which have kept the Magnuson debate from becoming entrenched in the kind of rigid, adversarial positions that have characterized other reauthorization efforts in the past. Never before have so many diverse interests worked together on these issues.

The Network commends the sponsors of these important amendments and all those who spoke in favor of them during the four-hour debate. Their staffs also deserve credit for long hours, and in several cases, a few years' worth, of hard work. Finally, we would also like to thank the 100 member organizations of the Network for their active and tireless role in helping to bring about this success, as well as the thousands of individuals across the country who have contacted their representatives about this issue of great national importance.

The resounding House victory in changing the status quo bodes well for imminent Senate action, but we will need to continue the momentum to ensure that the job gets satisfactorily completed this year.

Review Of The Use Of Marine Fishery Reserves In The U.S. Southeastern Atlantic

A Symposium at the American Fisheries Society 125th Annual Meeting, 28-29 August, 1995, Tampa, Florida

At the request of the South Atlantic Fishery Management Council (SAFMC), a panel of scientists was assembled at a special symposium at the 1995 annual American Fisheries Society meeting in Tampa, Florida, U.S.A. The specific objectives of the symposium were to provide the SAFMC and the National Marine Fisheries Service with recommendations and guidance on the possible use of permanently protected areas for fisheries management in the southeastern U.S.

Panel Members Were:

Dr. Callum Roberts
Eastern Caribbean Center, University of the Virgin Islands

Dr. William J. Ballantine
Leigh Marine Laboratory, University of Auckland

Dr. Colin D. Buxton
Department of Ichthyology and Fisheries Science, Rhodes University

Dr. Paul Dayton
Scripps Institute of Oceanography, University of California, San Diego

Dr. Larry B. Crowder
Duke Marine Laboratory

Dr. Wally Milon
Food and Resource Economics Department, University of Florida

Dr. Michael K. Orbach
School of the Environment, Duke Marine Laboratory

Dr. Daniel Pauly
International Center for Living Aquatic Resource Management and University of British Columbia

Dr. Joel Trexler
Department of Biological Sciences, Florida International University

cont. on page 7

Review ... *cont. from pg. 6*

The need for this symposium arose as the result of a 1990 report by the Snapper-Grouper Plan Development Team (PDT) of the SAFMC. The team concluded that area closures were needed to protect the ecosystem and maintain reef fisheries. The report recommended closing some coastal areas to all fishing. NOAA was requested by the SAFMC to produce an independent review of the concept because the PDT's recommendations were a radical departure from traditional management measures to reduce fishing effort (i.e. quotas, bag limits, gear restrictions, limited entry, etc.).

Conclusions

After reviewing documents and discussing available information based on current scientific knowledge, the review participants reached the following consensus:

General Preamble:

There is an emerging consensus among fisheries scientist and managers throughout the world that marine fisheries reserves (sanctuaries, no take refuges) if well placed and of the appropriate size can achieve many of the goals that fishery management has failed to achieve using conventional methods. Particularly, there is overwhelming evidence from both temperate and tropical areas that exploited populations in protected areas will recover following cessation of fishing and that spawning biomass will be rebuilt. Also, there is widespread recognition throughout the world that loss of biodiversity is largely driven by ecosystem modifications and the habitat loss that ensues. Hence preserving biodiversity implies the maintenance or reestablishment of the natural ecosystems as in marine reserves in which no extractive anthropogenic effects are allowed or are minimized.

Properly designed marine reserves in combination with other management measures can be an effective management tool for reef fish resources in the U.S. South Atlantic region subject to the following conditions:

(a) Biological, ecological, social and economic objectives of the reserves are clearly specified.

(b) The relative biological, ecological, social and economic impacts of reserves in the context of other fishery management measures have been estimated for various constituents.

(c) The development of marine reserve proposals proceed with the involvement of all constituencies and stakeholders.

Recognizing the alarming declines in stocks of key fishery species, the panel would urge that reserve options be considered immediately as part of a comprehensive fisheries management plan to prevent irreversible loss to species and fisheries. The following points are relevant.

1. What is the potential of marine reserves to retain reef community biodiversity?

Marine reserves have great potential to retain or restore biodiversity at the species and community level primarily by preventing depletion of harvested species from direct harvest, indirect bycatch, and habitat alteration and by providing habitat protection and maintenance of ecological processes. Within species genetic diversity is also important and discussed under item #3.

2. Can marine reserves help maintain populations of non-target species vulnerable to fishing mortality under other management schemes?

Because of bycatch mortality and the multi-species and multi-gear nature of reef fisheries, marine reserves offer the best option for protecting particularly vulnerable reef species from fishing.

3. Can marine reserves facilitate preservation of innate stock characteristics?

There is a general lack of data on genetic impacts of fishing although there is sufficient information to believe that the risk of genetic selection by fishing gears is real, particularly for serial hermaphrodites in which one sex is more vulnerable to fishing. The precautionary principle suggests protecting some areas from harvesting would be prudent until more information is gained.

Marine reserves can contribute to the preservation of fish stock characteristics associated with long life spans. Size-selected mortality from fisheries has been linked to reduced size at maturation, size at sex change, diminished size at maturity, and increased reproductive effort early in life in a number of species. Protected areas can compensate for these size-selective influences of fisheries, depending on the area protected and its location relative to the dispersal patterns of fish species.

More research on larval and adult fish movement is needed to optimally plan reserves. The degree of protection is predicted to depend on the movement patterns of individual species. Species with large home ranges or large areas of activity are expected to need larger reserves. Protection is predicted to be greater for more sedentary species as compared to more mobile species. The degree of protection is predicted to depend on the size and number of reserves established although there are not sufficient data available to accurately predict what size or number would be optimum. If the total protected areas are small, then reserves are unlikely to provide much genetic protection because individuals will be exposed to fishing during part or all of their life cycle. A network of small reserves however may provide some genetic benefits.

4. Can marine reserves help reestablish natural population age structure?

A considerable body of research evidence in many parts of the world shows that marine reserves offer the best option for protecting particularly vulnerable reef species from fishing.

5. What is the potential of marine reserves to enhance production and export fertilized eggs and larvae?

Marine reserves have great potential for exporting eggs and larvae from reserves although the contribution to the total

cont. on page 8

Review... *cont. from pg. 7*

stock will depend on the species, size, location, and total area of reserves. It was recognized that reserves could play an important role in insuring against collapse of stocks.

6. What is the potential of marine reserves for improving fishing success through emigration of adults from the reserve?

The potential for "spill-over" of juveniles and adults will be species-specific and will depend on the size of reserves, the vagility and behavior of each species, and the total area protected. Where such spill-over occurs this will be a direct benefit to fisheries.

Acknowledgments

The organizers thank the American Fisheries Society for sponsoring the Symposium and for coordinating travel arrangements. Funding was provided by the Southeast Fisheries Science Center and the South Atlantic Fishery Management Council.

For more information contact:

J. Bohnsack

Miami Laboratory, Southeast Fisheries Science Center,
NMFS,NOAA 75 Virginia Beach Dr.
Miami, FL 33149

7th Stockholm Water Symposium-3rd EMECS-Conference

The Third International Conference on the Environmental Management of Enclosed Coastal Seas (EMECS) will be held jointly with the Stockholm Water Symposium. The joint 7th Stockholm Water Symposium-3rd EMECS-Conference will be held in Stockholm in the middle of August 1997.

The Swedish exposition to be held in 1997 commemorates the 100th anniversary of the holding of a major exposition in Stockholm in 1897. It will run from May 16 until August 17. The joint 7th Stockholm Water Symposium-3rd EMECS-Conference will be one of the main Expo '97 events in August.

-Theme: With Rivers to the Sea: Interactions of Land Activities, Fresh Water and Enclosed Coastal Seas

-Schedule:

. First announcement (call for papers) - April 1996

. Second announcement (participant registration) - January 1997

Reef Fish Symposium

The Alabama Chapter of AFS is hosting the midyear meeting of the Southern Division of AFS in Mobile, AL, 23-26 Feb 96. As part of that meeting there will be a reef fish symposium (23-24 Feb 96) that is a follow up to the Southeastern U.S. & Caribbean Reef Fish Workshop hosted by the Marine Resources Research Institute, South Carolina Department of Natural Resources, in Charleston in 1994. The meeting is located at the Adams Mark Hotel, (4 star), Mobile, Al.

National Undersea Research Program

Long-Term Ecosystem Observatories (LEO's)

The National Undersea Research Program has supported research at Long-Term Ecological Observatories (LEO's) at several sites off the coast of New Jersey. The Mid-Atlantic Bight National Undersea Research Center (MAB Center) has established three stations. One of these sites, LEO-2500, is described in a previous NURP newsletter (Vol. 1, No. 2, August 1994). The most extensive LEO efforts are currently found at LEO-15, a site approximately 5 km off the Rutgers University Marine Field Station at Tuckerton, NJ, where 34 major peer-reviewed research projects have been supported.

Since 1992, a multidisciplinary team of investigators has been studying the inner New York Bight continental shelf off New Jersey at a depth of about 15 m. This research has focused on an area that includes Beach Haven Ridge, a 1 km x 5 km long sandy ridge that is representative of numerous such ridges along the Atlantic coast. This site has been selected by the Mid-Atlantic Bight Center as a Long-Term Ecosystem Observatory (LEO-15); this is one of three such sites (the others at 750 and 2500 m depths) where a major goal is to improve our understanding of ecosystem dynamics by obtaining long-term oceanographic data sets. Biologists, chemists, geologists, and physical oceanographers have worked together in a series of interrelated research projects designed to improve our knowledge of the processes governing ecosystem change and stability in this region. In 1996, several of these investigators, as well as several individuals who have not previously been funded to work at the site, are proposing to expand on initial work in the region. The primary strength of these proposals is the spirit of cooperation that has characterized efforts in the last few years. Indeed, the sharing of ideas, objectives, and data has greatly improved individual projects in the past and will undoubtedly do so in the future. Proposed studies include recruitment of benthic organisms (particularly commercially important surfclams), sediment transport, oxygen, nutrient and trace metal dynamics, phytoplankton, fish biology, and physical oceanography. Clearly, the interrelated nature of these subjects is the strength of the LEO-15 concept and a factor that will contribute greatly to the goal of ecosystem understanding.

The Mid-Atlantic Bight is a particularly interesting area because of sporadic upwelling and hypoxic events that occur in the region; indeed, in 1976 a large-scale hypoxic event in the region caused extensive die-offs of many organisms, including commercial species.

Understanding these and related processes is central to many of the projects currently supported at LEO-15.

At present, the research is primarily supported by SCUBA, but the first two of a series of observatory "nodes"—bottom moorings with extensive remotely operated instrumentation—will be installed in the spring of 1996. This facility is being built with support from the National Science Foundation. The nodes were developed by the Ocean Systems Laboratory (OSL) at the Woods Hole Oceanographic Institution. The nodes will be connected to the field station at Tuckerton by a

cont. on page 9

Research Program... *cont. from pg. 8*

buried electro-optical; cable, providing ample electrical power and continuous bi-directional communication for operational control, data linkage, and live video transmission. Each node will have a bottom-mounted winch that can be used to control upward and downward movements of a buoyant instrument package. In addition to this vertical profiler, each node will have a series of "guest ports," furnishing power and communication for principal investigators to plug in additional instrument arrays. The observatory system will provide previously unobtainable real-time simultaneous physical, chemical, and biological measurements and allow for the study of low-frequency events and for event-triggered sampling.

With MAC/NURC support, OSL has developed a low-cost (less than $20,000), light-weight (<32 kg), shallow-water, free-swimming underwater vehicle to survey hydrography, currents, and water quality in estuaries and across the continental shelf. Plans are underway for the vehicle to be launched and recovered at the LEO-15 nodes in rapid response to oceanographic events identified in real-time data collected *in situ*, or through satellite remote sensing and meteorology. The autonomous vehicles will provide a rapid response and horizontally expand the study area to include an extensive network of nodes.

Most of the work at LEO-15 has just started; however, the studies of upwelling, sediment transport and recruitment have already yielded important results. Using a combination of satellite observations and instrumented *in situ* platforms deployed and maintained by divers, a new theory has been developed concerning the spatial and temporal pattern of upwelling and its relation to topography. Recurrent upwelling centers spaced at ~50 km intervals develop on the northern side to topographic highs in the same locations as previously observed regions of recurrent hypoxia. This finding will greatly reduce the present costs of monitoring and, in conjunction with a modeling effort, will allow forecasting of local oceanographic conditions. In 1995, a second year of multidisciplinary sediment transport studies at LEO-15 will generate the most comprehensive data set ever collected to validate the bottom boundary layer models currently being coupled to shelf circulation models to simulate and forecast seafloor responses to storms. Concurrent estimates of the abundance and rate of settlement of larval dispersal stages of the commercial surf clam have been made with respect to the spatial and temporal pattern of these near-coastal upwellings (value of fishery in the Mid-Atlantic Bight = $34 million). Significant differences in the intensity, but not the timing, of larval settlement have been found in successive years with different patterns of upwelling frequency and extent. These results will lead to more effective species management.

The findings outlined above are illustrative of the sorts of improvement in understanding that we expect (and are already beginning) to achieve at LEO-15. As additional investigators become involved, and diver-collected data is complemented by the addition of continuous, *in situ* instrumentation, it is certain that a more complete picture of the dynamics of these shelf habitats will emerge. The integration of biological, chemical, geological, and physical data (facilitated by workshops and regular meetings of principal investigators) will provide a coherent understanding of the dynamics of these important systems. It is this interdisciplinary approach using cutting-edge, *in situ* technology that makes the LEO-15 site unique.

District Directors

Alaska, Northern
Steven K. Davis
LGL Research Associates, Inc.
4175 Tudor Centre Dr. #101
Anchorage, AK 99508

Alaska, Southeast
Malin M. Babcock
11305 Glacier Highway
Juneau, AK 99801-8626

Atlantic Maritime
W.B. Scott
Huntsman Marine Lab
Brandy Cove Rd.
St. Andrews, NB Canada EOG2X0

California, Northern
Richard F.G. Heimann
20 Lower Ragsdale Drive, Suite 100
Monterey, CA 93940

California, Southern
Charles T. Mitchell
MBC Applied Environmental Sciences
3040 Redhill Avenue
Costa Mesa, CA 92626-4524

Capital
Frank M. Panek
National Park Service
4401 N. Fairfax Dr., RM 810-D
MD-820 ARLSQ
Arlington, VA 22203

Carolina
Douglas S. Vaughan
214 Shell Landing Road
Beaufort, NC 28516

Florida
Vacant

Great Lakes, South Central
Dora R. Passino-Reader
National Fish. Center
1451 Green Road
Ann Arbor, MI 48105-2897

Gulf of Mexico, Northeast
Vacant

Keystone
Barbara E. Warkentine
1329 Balcom Avenue
Bronx, NY 10461

New England
John B. Pearce
Northeast Fisheries Center
166 Water Street
Woods Hole, MA 02543-1097

Oregon-SW Washington
John F. Palmisano
1990 NW 156th Avenue
Beaverton, OR 97006-5307

Texas
David R. Sager
Texas Parks & Wildlife Dept.
4200 Smith School Rd.
Austin, TX 78744

Washington, NW
John Strand
16535 188th Ave. NE
Woodinville, WA 98072

BRIEFS, the newsletter of the American Institute of Fishery Research Biologists, is published six times a year. It is intended to communicate the professional activities and accomplishments of the Institute, its District, and Members; the results of research: the effects of management; unusual biological events; matters affecting the profession; political problems; and other matters of importance to the fishery community. Comments and contributions should be sent to the Editor, Dr. Gene R. Huntsman, 205 Blades Road, Havelock NC 28532. Subscription $20 a year to Institutions and Non-Members. Officers-Clark Hubbs, University of Texas, Department of Zeology, Austin, TX 78712, President; Barbara Warkentine, 1329 Balcom Ave., Bronx, NY 10461, Secretary; Joseph Rachlin, Lehman College Bio., Bedford Park Blvd. West, Bronx, New York 10468, Treasurer.
ISSN-8755-0075

92037-1508

Dr. William H. Bayliff
IATTC, Scripps Inst. Oceanog.
8604 La Jolla Shores Drive
La Jolla, CA
92037-1508

FIRST CLASS

American Institute of Fishery Research Biologists
c/o Joseph Rachlin
Lehman College, Biology
Bedford Park Boulevard West
Bronx, NY 10468-1589

Address Correction Requested

BEAUFORT, NC 28516
16 JAN 1995
PM