

# Gulf of Maine NEWS

Regional Association for Research on the Gulf of Maine Summer 1993

## Accessing a New Gulf of Maine Environmental Data and Information System (EDIMS)

Wendell S. Brown, University of New Hampshire

Under the auspices of the Gulf of Maine Council on the Marine Environment, a University of New Hampshire development team has constructed and is testing a prototype Environmental Data and Information System for the region. The prototype EDIMS consists of a data directory and a few representative databases which can be accessed via Internet. We have developed a set of protocols that will enable users to (a) query a directory of the regional Gulf of Maine data sets; (b) electronically transfer a selected subset of these data to their own computing environment (for non-commercial use); and (c) communicate generally with the prototype.

A diverse set of databases are electronically available to users through the prototype EDIMS; including: a Gulf of Maine database directory, Gulf of Maine maps and bathymetry, Massachusetts Bays Program physical oceanographic data archive, real-time satellite imagery and meteorology from the NOAA/NOS Ocean Products Division, the New Brunswick Department of Environment real-time river discharges, the USGS sediment texture data archive,

Dartmouth model "data" for the Gulf of Maine, the Bedford Institute of Oceanography Atlantic Fisheries Adjustment Program (AFAP) hydrographic data archive. In the next few months we intend to add other electronic databases including: documentation, a "Who's Who" in the Gulf of Maine, the Gulf Watch mussel data, the Massachusetts EOE shellfish data archive.

Most of the prototype EDIMS databases reside on the EDIMS host client/server computer at the University of New Hampshire. (When fully implemented, most of the EDIMS databases will reside at their remote storage sites). At this stage in the prototype EDIMS development, most of the databases will be static; except for the regularly-updated NOAA meteorological and satellite imagery and river discharge databases. These data, except for imagery, are contained in flat ASCII files and are described in companion metadata files.

Information on approximately 150 other Gulf of Maine databases is available through the EDIMS SQL/ORACLE-based data directory. This directory is patterned after a PC-based version which was developed by Ed Woo (EPA, Boston) and is available through Joe Pelczarski (Massachusetts EOE/CZM). A simple query system enables EDIMS users to extract a subset of the EDIMS databases based on user-specified time and space criteria.

One of the main purposes of EDIMS is to enable a diverse group of data and information users/suppliers, including researchers, state/provincial/federal agency environmental managers and others, to access the wide variety of data and information to be used for their own particular missions. The prototype EDIMS will provide some user/suppliers with an opportunity to determine how to best use this newly available information. Through a series of workshops the user community will determine the priorities for the future development and implementation of an operational EDIMS in the Gulf of Maine region. *(continues on page 8)*

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*LeBaron Colt*

Wells National Estuarine  
Research Reserve  
*Michele Diome*

### OFFICERS:

Gordon Wallace, Chairman  
Daniel Lynch, Executive Director  
Genie Braasch, Associate Director

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## **ICES / GLOBEC Working Group on Cod and Climate Change**

*R. Gregory Lough, Northeast Fisheries Center*

The newly formed Working Group, the International Council for the Exploration of the Sea (ICES), met for the first time from June 7 through 11 in Lowestoft, U.K. under the chairmanship of Dr. Keith Brander. Thirty five scientists attended the meeting from North Sea countries, as well as Japan, Canada, and the United States. U.S. participants included Drs. Greg Lough, David Mountain, Ted Durbin, Geof Laurence, Bill Peterson, Tom Powell, and Brian Rothschild. The meeting agenda is described on p.13 of the U.S. GLOBEC NEWS, No.3, May 1993 which is available from the RARGOM headquarters office. A final report will be presented at the ICES Statutory Meeting in Dublin, in October 1993.

The topic being investigated by the Working Group - the effect of climate variability on cod stock fluctuations - is simply stated, but involves many different scientific disciplines and scales of investigation. Projects range in scope from the effects of small scale turbulence on encounter rates between fish larvae and their prey, to the effects of interdecadal changes in windfields on large scale circulation and transport of heat and young fish. In spite of the complexity of the processes by which variable physical forcing may affect cod stocks, the effects of climatic variability can be detected for several stocks. For example, periods of low temperature are observed to result in stock decline at the northern limits of the range (Barents Sea, Greenland); particular hydrographic and wind conditions result in unusual transport of eggs and larvae (Iceland-Greenland) or flush out deoxygenated basins where cod spawn (Baltic). These examples combine empiricism, a growing understanding of ocean/climate variability and detailed knowledge of processes during the life history (mainly early life history) of cod. They give grounds for believing that the question is not intractable and that we may be able to predict at least the broad direction of changes in stocks under different physical regimes.

The Global Ecosystem Dynamics (GLOBEC) approach provides a conceptual framework within which studies at different scales can be nested and it is obvious from the reports of work in progress or in planning that a great deal of research is already underway which is relevant to Cod and Climate Change, even when it is not primarily designed with that in mind (for example, studies of copepod dynamics and cod recruitment). The challenge for this Working Group was to identify themes and approaches which strengthen and facilitate the scientific programs being followed at individual or national levels and to propose and initiate work which can be carried out better at regional or international levels within ICES and GLOBEC.

A number of the unifying themes (to be discussed in the upcoming Working Group report) can be grouped roughly in relation to the scale of physical processes - large, intermediate, small - affecting them. Large scale processes range from global to regional (e.g. Georges Bank, the North Sea) and include long-term changes in atmosphere and oceanic dynamics, which affect cod stocks through changes in heat and transport. Intermediate scale processes include eddies, rings and fronts, which have effects due to localized aggregation, retention and enhancement of plankton production. Small scale processes include water column stability and turbulence, which affect plankton production and encounter rates. We have tried to identify key interactions between physical and biological processes at all of these scales in order to strengthen the rationale for physical oceanographers and biologists to work together from an early stage in developing models and observation programs. The categorization by scale is not rigid, because, for example, large scale events, such as anticyclones, are often the major cause of variability at small scales and models of intermediate scale features, such as fronts, may be sensitive to boundary conditions which are generated in a consistent dynamic way by a larger scale model.

The need to consider cod in the context of the ecosystem and possible models and methods for this were considered. Although variability in cod stocks is the principal issue, there are good reasons for including other species in the investigation when their dynamics interact with cod or if they are more sensitive indicators of ecosystem change than cod.

The Working Group has recommended two special workshops to be held in 1994 to plan and carry out retrospective analyses of physical and biological data, including considering the case for setting up a Cod and Climate database. Other recommendations were to propose topics for research which should be considered as themes for future workshops or joint sessions of committees at ICES meetings. There are also a number of proposals for specific action in relation to existing programs (e.g. the CPR) or the initiation of new regional programs.

Looking to the future, the consensus of the meeting was that the work of the group could be carried forward effectively by the special workshops during 1994 and that the Working Group should meet next in 1995 to review progress and carry out further coordination, if required.

To receive a copy of the final report, contact Dr. Keith Brander, MAFF Fisheries Laboratory, Pakefield Road, Lowestoft, Suffolk, NR33OHT, U.K.

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## First Major GLOBEC Field Program set to Begin on Georges Bank

Bill Peterson, NOAA

The U.S. GLOBEC/Georges Bank Program was initiated in 1991 with funding from NSF (Biological Oceanography) for two modeling projects and from NOAA (Office of Global Programs/Marine Ecosystem Response) for a pilot field project and some retrospective data analysis (summarized in U.S. GLOBEC News, Spring 1991 and Fall 1991). An additional modeling project was added in late 1991 (NOAA funding) as were two biotechnology projects (with NSF funding).

In January 1992, a team of academic and NOAA scientists began meeting regularly at Woods Hole for the purpose of writing a plan which would lead to the implementation of a full-scale study of the physical and biological dynamics of Georges Bank. As a result, the Northwest Atlantic Implementation Plan was published in June 1992 (U.S. GLOBEC Report #6, 1992). Subsequently a request for proposals was issued by the newly-established NOAA/NSF Interagency Program Coordination Office, with a September 1992 deadline. Two review panels were convened in December 1992, one to advise on the Implementation Plan, and the other to evaluate the northwest Atlantic proposals and their peer-reviews. A total of 37 proposals with over 100 co-principal investigators requesting \$13,000,000 were received and evaluated. Of this lot, we were able to fund 17 projects, (approx. \$5,000,000) to 73 scientists at 24 institutions, in the U.S., Canada and Japan.

The goal of the U.S. GLOBEC program is to predict the effects of changes in the global environment on the abundance, variation in abundance and production of marine animals (particularly zooplankton and fish populations), through a fundamental understanding of the mechanisms that control variations in abundance in time and space.

Georges Bank was selected for study for several reasons. First, it is situated just north of a faunal boundary which separates subtropical species from temperate species, global warming could result in a northward shift of this boundary. Secondly, the Bank supports an economically valuable fishery for cod. Third, the Bank is of sufficient size and has a physical circulation (a cyclonic retention gyre) which enables distinct populations to develop and persist for long periods (time scale of months). Thus, we know that we can make repeated cruises to the Bank and study the dynamics of the same populations. Fourth, a 10-year + data base exists on interannual variations in cod and copepod abundance, hydrography, circulation, and on SST and ocean color from satellites which can be re-analyzed in a climate change context. Finally, the target species selected for study (cod, haddock, and the copepods *Calanus finmarchicus* and *Pseudocalanus*), are the subject of intense ecological study by many nations around the north Atlantic including Canada, Iceland, Norway, the UK, and Denmark.

The Georges Bank Study contains these components: retrospective data analysis, fine-scale process studies, broad-scale surveys, long-term monitoring/in situ instrumentation, and numerical modeling.

Projects concerned with retrospective data analysis are looking at a 1939-1941 zooplankton data set from Georges Bank, the 1977-1988 MARMAP data set on winds, hydrography and plankton abundance, and at the entire SST and ocean color data sets from NIMBUS and CZCS satellites for the Bank.

Broad-scale survey cruises and fine-scale process cruises will be conducted each month from January through July 1995. Broad scale cruises of 16 day duration are followed by 12 day process cruises. Thus, at least one ship will be on the Bank nearly continuously for seven months.

The broad-scale surveys provide information on Bank-wide variations in temperature, salinity, currents, phytoplankton, zooplankton and fish using CTD, ADCP, satellite imagery, fluorometry, plankton nets and towed acoustic sensors. A companion laboratory study of factors controlling diapause in *Calanus finmarchicus* will contribute to an understanding of the dynamics of overwintering populations. Genetic structure of Gulf of Maine, Georges Bank, and other *Calanus* populations living around the north Atlantic will be compared to determine degree of isolation of populations. In addition, monthly surveys of the distribution of schools of predatory fish (mackerel and herring) and invertebrate predators will provide data on the zooplankton predator fields. Much of this effort is a collaborative effort co-funded by the NOAA Coastal Ocean/Coastal Fisheries Ecosystem program.

The fine-scale studies planned for 1995 will focus on stratification of the water column, its seasonal evolution, and its effects on food chain dynamics. Physical oceanographic work includes study of currents using current meters, ship-board ADCPs, and drifters, and measurement of turbulence and mixing. Much of the biological work will involve the setting of drogues and following a patch of water for a number of days during which larval fish and zooplankton are sampled for study of birth, feeding, growth and mortality rates in relation to hydrographic features. Growth rates of copepods and larval fish will be estimated using molecular and conventional techniques. Detailed studies of vertical distribution of larval fish in relation to their prey field are planned using plankton pumps, nets, acoustics and video plankton cameras.

Long-term monitoring of circulation, phytoplankton and zooplankton biomass will be accomplished with continuous in situ measurements at three mooring sites on the Bank. Currents will be monitored with bottom-mounted upward looking ADCPs (operating at 300 kHz) with several VMCM current meters for calibration. There are two bio-optical packages on each mooring as well. Zooplankton biomass will be obtained by Tracor, Inc.

*(continues on page 8)*

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## Cod Sea Ranching Symposium held in Norway

*Richard Langton, Maine Department of Marine Resources*

A symposium on the "Sea Ranching of Cod and other Marine Species" was held from June 14 through 18 in Arendel, Norway. The meeting emphasized the Norwegians work in the area of stock enhancement for cod. Eight people from New England attended: Rich Langton, Chris Bartlett, Dan Marshall, Willis Spears, Roland Barnaby, Ann Bucklin, Terry Bradley, Walter Bagalowski. The members of this group, who represent different aspects of fisheries work, have written a trip report that summarizes the success and failures of the Norwegian efforts.

There is interest in New England for the possibilities of enhancement as a solution to the extremely low stock levels that have resulted from over fishing. Two recent legislative events are indicative of a commitment to this idea. An amendment to the Magnuson Fishery Conservation and Management Act entitled "Northwest Atlantic Ocean Fisheries Reinvestment Program" includes the concept of helping to restore over fished New England ground fish stocks through aqua culture or hatchery programs. The State of Maine has also passed a piece of legislation that creates a commission to evaluate the potential of hatchery reared juveniles for stock enhancement purposes. By January 1994, this commission will report to the Maine State Legislature regarding the economic viability of an enhancement program. If the economic picture looks promising then the commission will address the technical aspects of establishing a program.

Although this enhancement idea is currently being promoted in the political arena, the group who attended the symposium believes that its research potential is also promising. The Norwegian experience has demonstrated that the "carrying capacity" of the environment has to be evaluated together with any enhancement program if juveniles are to survive. There are also a suite of behavioral and genetic considerations that have to be resolved when releasing fish into the natural environment. A balanced research program, focusing on the interdependence of the different life-history stages of cod and their environmental constraints, a critical review of existing enhancement programs, and the development of a pilot hatchery program, would be required to accurately assess the potential for success or failure of enhancement of ground fish stocks in New England. The consensus of the New England participants at the Norwegian meeting was that we should be guardedly optimistic about a New England enhancement program.

Contact Rich Langton, Maine Dept. of Marine Resources, Marine Sciences Laboratory, P.O. Box 8, West Boothbay Harbor, ME 04575-0008, if you would like to receive the trip report.

## Joint Statement signed at Council on the Marine Environment Meeting

The Council on the Marine Environment met from July 14 through 16 at Plymouth, Massachusetts. RARGOM members Genie Braasch, Dan Lynch, David Townsend, and Page Valentine attended.

The Joint Statement, which has been under negotiation during the past year, spells out an agenda for increased communication and collaboration between the Regional Association, the Regional Marine Research Board, and the Council on the Marine Environment. Already approved by the Board and the Association, it was endorsed as written by the Council. Representatives from each of the three organizations spoke about the need for this agreement. "This is yet another important step towards the integration of research and management efforts in the Gulf of Maine", observed departing Council Chair Trudy Coxe. David Townsend, Executive Director of the Regional Marine Research Board said that "The Gulf of Maine is fortunate to have three organizations focused on science and management on a regional basis. This agreement will provide the opportunity to forge new levels of cooperation among researchers, managers, and user groups". It was noted that the agreement should be viewed as a first step towards future collaboration. "This agreement has tremendous potential", stated Dan Lynch, "Each separate organization represents a network of institutions that transcends traditional scientific and organizational barriers. Together, our efforts to understand and manage the Gulf of Maine will be greatly amplified".

The committee reports summarized below are included because of their potential interest to the research community. Other details (minutes) of the meeting are available on request from either the RARGOM or Council Headquarters office.

**Data and Information Management:** Joe Pelczarski said that a user needs analysis, a database directory, and the prototype EDIMS (described on page 1 of this newsletter) have been completed. The Council resolved that the committee should discuss the feasibility of forming a joint committee between the Association, the RMR Board, and the Council for coordination of regional data and information efforts.

**Habitats:** Stewart Fefer said that the Priority Habitat Program has developed a systematic approach: nine weighted criteria have been established and will be used to rank species. The committee plans to have a list of fifty priority species designated by fall. From that list, regional priority habitats will be identified.

**Point Source Inventory:** Rosemary Monahan described work on an inventory of industrial and municipal discharges in cooperation with the EPA and NOAA. The purpose of the inventory is to create a regional description for management purposes. The inventory may eventually give seasonal and annual averages which could be linked with the priority habitat work to identify areas in need of special protection.

# Resources

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## Workshops

A series of workshops have been in the planning stages during the past year. We are pleased to announce the following workshop events, made possible with support from the Regional Marine Research Board, the Council on the Marine Environment, and the UNH Sea Grant Program.

**A Data and Information Management** workshop will be held later this fall. Its steering committee members are Marilyn Buchholtz ten Brink (USGS), Wendell Brown (UNH), John Paul (EPA), Don Phelps (EPA, Chair), and Jeff Rosen (AMS). Additional information can be obtained from Dr. Don Phelps, EPA Environmental Research Laboratory, Narragansett, RI 02882, (401) 782-3004.

The goal of this workshop is to recommend an approach for the development of an information management system (IMS) that will serve the needs of the greater scientific, regulatory, and management community of the Gulf of Maine. Specific objectives will be to review user needs, review existing IMS's, define attributes for a Gulf of Maine IMS, define approaches for linking the IMS, recommend oversight mechanisms, roles and responsibilities for development, implementation and maintenance for an IMS; develop funding strategies, and define the relationships among the IMS systems that have national scope.

A workshop on **Circulation Modeling in the Gulf of Maine** will be held later this fall. The organizing committee comprises David Brooks (Texas A&M Univ.), David Greenberg (Bedford Institute of Oceanography), Daniel Lynch (Dartmouth College, Chair), Richard Signell (USGS), and David Townsend (Univ. of Maine/RMRP).

There are presently several active circulation modeling projects in the region. Each has its own objectives and scientific plan, operates on different space and time scales, and has different operable software. This workshop is intended to provide a detailed picture of these diverse projects to the scientific and management communities in order to communicate the nature of the modeling enterprise and the type of results becoming available in the next few years. A second, equally important goal is to enhance the cooperative working linkages among the several active modeling teams, and to share dynamical insights and conceptual problems. The plenary sessions during day one will be open to the scientific and resource management communities; day two will be devoted to working sessions among the modelers.

**A Habitat** workshop will be held at the Maine Department of Marine Resources' new laboratory in Boothbay Harbor next April. The steering committee includes Peter Auster (NURC-UCAP), Michele Dionne (Wells Reserve), Rich Langton (Maine DMR), Dave Stevenson (Maine DMR) and Page Valentine (USGS).

The goals of the workshop are to exchange information

about Gulf of Maine habitats, to identify information gaps, and to develop a framework for a coordinated research program. The workshop will provide information needed to identify and prioritize, in terms of their impacts, natural and human-induced changes to important coastal and offshore marine habitats in the Gulf of Maine. Gulf-wide topics such as the role of scale in biological processes (space/time), topographic and substrate variations, and physical disturbances, will be explored by the working groups. The working groups will represent four habitat areas: estuaries, near shore benthic, offshore benthic, and pelagic.

## Grants / Sponsored Research

**The Natural Sciences and Engineering Research Council** of Canada has announced its "International Scientific Exchange Awards Program". This program provides support for visits of foreign scientists invited by Canadian researchers eligible for NSERC grants. The fields of research supported through NSERC awards include, but are not limited to: biology, computing and information science, environmental quality, geology, interdisciplinary research, oceans and inland waters. Support will normally be limited to visits lasting from one month to six months. Candidates must be nominated by a Canadian researcher. The nomination must be endorsed by the host institution. For further information, telephone (613) 995-5992.

**The National Science Foundation**, Division of Ocean Sciences, recently sent out a "Dear Colleague Letter", which provides target dates and deadlines for 1993/94, and a complete staff list. To receive this publication, contact Dr. M. Grant Gross, Division Director, (202) 357-9639.

We received the Federal Register description of the "**Financial Assistance for Research and Development Projects to Strengthen and Develop the U.S. Fishing Industry**" (vol. 58, no. 132, 7-13-93, pgs. 37707-37715). The RARGOM office also has a complete listing of current projects sponsored by the S-K Program. Applications should be sent to the regional office; they must be received by September 13, 1993.

We also received a notice about the "**Northwest Atlantic Ocean Fisheries Reinvestment Program**"; which has been authorized for "the purpose of promoting development of commercial fisheries and markets for underutilized species of the northwest Atlantic Ocean, developing alternative fishing opportunities for participants in the New England Groundfish fishery; providing technical support and assistance to U.S. fishermen and fish processors...; creating new economic opportunities through the improved processing and expanded use of fish waste; and helping to restore overfished New England groundfish stocks through aquaculture or hatchery programs". For more information, contact Mr. Ken Beal, NMFS regional office, (508) 281-9267.

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## National Oceanic & Atmospheric Administration

Richard H. Wheeler or Shirley V. Smith

### National Marine Fisheries Service

Saltonstall-Kennedy Program Office

1335 East-West Highway

Silver Spring, MD 20910

(301) 713-2358

Fax: (301) 588-4853

Regional Contact:

Mr. Kenneth L. Beal

S-K Program Administrator

National Marine Fisheries Service

One Blackburn Drive,

Gloucester, MA 01930

(508) 281-9267

### Areas of Interest:

Economic growth and development of the U.S. Fishing industry.

Funding priorities:

A. Develop methods for eliminating or reducing the inadvertent capture or destruction of juvenile or sublegal-sized fish and shellfish, non-targeted species and/or protected species in commercial or recreational fishing operations.

B. Conduct biological, economic, social and other studies to improve fisheries management, including controlled access, resolution of user conflicts, impact of harvest gear types, area of capture, and season; and evaluation of competing gear groups on product type, quality and market value.

C. Develop innovative approaches to achieving optimum use of living marine resources by the commercial and recreational fishing industry, and transferring effort from over-harvested to underutilized fisheries.

D. Conduct research for domestication and mass culture of living freshwater and marine resources.

E. Conduct studies on marine fishery safety issues through the development and distribution of purified marine biotoxin standards; synthesis of derivatives to trace the accumulation of toxins in the foodweb; development of new detection methods for toxic phytoplankton; determination of the role of environmental factors in toxin production; development of standard methods to prepare contaminated fish and indicator species for analysis, and standard disposal methods for biotoxin-containing catch.

F. Conduct studies on the microbiological safety of fishery products by developing rapid methods of identification of bacteria and viruses, developing processes for their control, and determining the effect of various technologies and processes on product contamination and bacterial growth.

G. Develop a nutrient composition data base, specific for the requirements of nutritional labeling, for the currently identified 20 most frequently consumed fish/shellfish species in the final rule for Voluntary Labeling of Raw Fruit, Vegetables, and Fish, published at 56 FR 60880, 11/27/91.

H. Conduct research in the area of habitat protection.

I. Conduct biological and technological studies to enhance the management of threatened and endangered species of salmon in the Western United States.

J. Compare national and international regulatory agency methods of parasite detection and analysis with industry detection methodology and capabilities to establish a process to resolve existing differences regarding types, methodologies and tolerances currently in use for parasites.

K. Produce moisture level data for wild harvest and farm-raised shrimp and scallops, taking into account species, geographical, and handling variations, in order to establish baselines that may be used to measure the degree to which water weight is inappropriately added to the product through processing.

### Purpose:

The Saltonstall-Kennedy (S-K) Grant Program assists persons in carrying out research and development projects that address aspects of U.S. fisheries including harvesting, processing and associated infrastructures. For the purposes of this notice, a fishery is defined as one or more stocks of fish, including tuna and shellfish that are identified as a unit based on geographic, scientific, technical recreational and economic characteristics, and any and all phases of fishing for such stocks. An example of a fishery is New England whiting.

**Legal Basis:** Governmental Agency

### Eligibility:

U.S. citizens are eligible. Any coastal state, public or private university or institution, or qualified individual.

The distribution of S-K funding during 1991-1992:

Universities - 50%, Fishery Development Foundations - 20%, Industry Associations - 10%, State and Local Governments - 8%, Other Applicants - 12%.

### Financial Data:

The S-K fund is capitalized through annual transfers by the Secretary of Agriculture to the Secretary of Commerce in amounts equal to 30% of the gross receipts collected under the customs laws on imports of fish and fish products.

amount of support per award: \$10,000 to \$400,000,

\$100,000 average grant

total amount of support: \$6,700,000 in FY 1991

\$6,100,000 in FY 1992-93

total funding (Northeast): \$1,700,000 in FY 1992-93

matching fund requirements: Although the S-K act does not require that applicants share in the total costs of a project, it is encouraged. If project costs are shared, NMFS must provide at least 50% of total project costs.

Number of Applicants Most Recent Year:

175 for fiscal year 1992-93

Number of Awards (Nationwide): 57 for fiscal year 1992-93.

Number of Awards (Northeast): 17 for fiscal year 1992-93.

### Representative Awards:

An ongoing project at Maine DMR: \$156,619 for "Location of juvenile groundfish and Northern Shrimp populations by season - Phase II"

### Application Information:

Format and other instructions available from grantor agencies and published in annual Federal Register solicitation.

Duration: 1 year to eighteen months

Deadline: Program announcement in spring each year, with deadline 60 days thereafter.

**This year's deadline is September 13, 1993.**

### Publications:

Annual report, bibliography, application guidelines are available.

# Calendar

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## August

30-9/1 "Aquaculture and the Marine Environment: The Shaping of Public Policy"  
Lillie Auditorium, MBL, Woods Hole, MA  
contact: Lou Ann King (508) 548-3705

8, 10:00 a.m.

## RARGOM meeting

Maine Department of Marine Resources Lab  
West Boothbay Harbor, ME  
contact: Genie Braasch, Dartmouth College,  
(603)646-3480

## September

1 Target Date "Oceanographic Instrumentation Program"  
contact: Lawrence Clark, NSF Division of Ocean Sciences (202) 357-7837

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Program Deadline "Biotic Survey and Inventory Program"  
contact: Leonard Krishtalka, NSF Division of Environmental Biology (202) 357-7475

1 Target Date "Shipboard Scientific Support Equipment Program"  
contact: Richard West, NSF Division of Ocean Sciences (202) 357-7837

## November

1 Target Date "Instrumentation Development"  
contact: Lawrence Clark, NSF Division of Ocean Sciences (202) 357-7837

3 Final proposal deadline "1994 Undersea Research" North Atlantic region  
NURC-UCAP/NOAA  
contact: Peter Auster, (203) 445-4714

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Target Date "Biological Oceanography"  
contact: Phil Taylor, NSF Division of Ocean Sciences (202) 357-9600

7-10 "10th Technical Seminar on Chemical Spills"  
sponsor: Environment Canada, St. John, NB  
contact: Susan Clarke (819) 953-5227

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Target Date "Chemical Oceanography"  
contact: Neil Andersen, NSF Division of Ocean Sciences (202) 357-7910

8-10 "3rd International Conference on Estuarine and Coastal Modeling", sponsor: American Society of Civil Engineers  
contact: Malcolm Spaulding, URI (401) 792-2537

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Target Date "Marine Geology/Geophysics"  
contact: Bilal Haq, NSF Division of Ocean Sciences (202) 357-7312

9 Abstract deadline "American Geophysical Union" meeting, San Francisco CA, Dec. 6-10  
contact: AGU editorial office (202) 462-6900

1

Target Date "Physical Oceanography"  
contact: Dick Lambert, NSF Division of Ocean Sciences (202) 357-7906

13 Final proposal deadline "1994 Saltonstall-Kennedy fisheries research grant"  
S-K Program Office/NMFS/NOAA  
contact: Kenneth Beal, (508) 281-9267

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Program Deadline "Mid-Career Research Fellowships in Environmental Biology"  
contact: Leonard Krishtalka, NSF Division of Environmental Biology (202) 357-7475

29 Program Deadline "Basic Research in Conservation and Restoration Biology"  
contact: Joann Roskoski, NSF Division of Environmental Biology (202) 357-7332 or -9734

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Final proposal deadline for "Non-point source pollution", National Estuarine Research Reserve System, Sanctuaries and Reserves Division / NOS / NOAA  
contact: Capt. Francesca Cava (301) 713-3125

30 Abstracts Deadline for "Coastal Zone Canada '94", to be held September 20-23, 1994 in Halifax, Nova Scotia  
contact: Mr. Brain Nicholls, Fisheries and Oceans Canada (902)429-9497

14-18

"12th Biennial International Conference of the Estuarine Research Federation"  
Hilton Head, SC  
contact: Rick DeVoe, SC Sea Grant Consortium (803) 727-2078

## October

1 Target Date "Ship Operations Support"  
contact: Dolly Dieter, NSF Division of Ocean Sciences (202) 357-7837

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Abstract deadline "1994 Ocean Sciences Meeting", to be held San Diego, CA on February 21-25, 1994. Note: A special session on GLOBEC modeling has been proposed, but is still tentative. Contact Jim Eckman at Dalhousie Univ. in August, in September at Skidaway (912-598-2453). email is always J.ECKMAN (omnet).

1 Target Date "Shipboard Technicians"  
contact: Lisa Rom, NSF Division of Ocean Sciences (202) 357-7837

Cochairs: ASLO: Polly Penhale, NSF, (202) 357-7894; AGU: Suzette Kimball, Univ. VA (804) 924-1455

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*(EDIMS continued)*

**EDIMS User Documentation.**

The details concerning the use of EDIMS are contained in the prototype EDIMS documentation that can be obtained as described below. The documentation is designed to assist users in (a) accessing EDIMS, (b) navigating the EDIMS data directory, (c) using the Internet e-mail utility and (d) acquiring the EDIMS electronic data.

**Accessing EDIMS.**

- 1) Log into your own Internet node.
- 2) In what follows type what is in the brackets { ... } (note that keyboard entries are case-sensitive).
- 3) OK, {telnet metro.unh.edu}
- 4) login: {edims}
- 5) password: {!edims!}

The above puts the user into the EDIMS MAIN MENU.

**Navigating the EDIMS Directory.**

In the MAIN MENU the user has the option of "viewing" either the individual datasets in the directory by selecting DATASET or the different systems (which contain the individual datasets) by selecting SYSTEM.. The computer keypad keys - used to position the cursor for option selection and to initiate other actions - are defined at the bottom of the screen. You are encouraged to try your hand at navigating the directory. When you get into trouble refer to the EDIMS User Documentation. (The latter should be available electronically through EDIMS shortly).

A simple query mode has been implemented in the EDIMS Data Directory. The user can create a subset of the full list of databases by specifying a combination of the following criteria:

- 1) Character String
- 2) GIS or NON-GIS
- 3) Time Domain
- 4) Spatial Domain

Note that not all criteria must be used to create the desired database subset.

The EDIMS/Internet electronic mail system is accessible from the EDIMS MAIN MENU.

To exit EDIMS, move to the MAIN MENU and press PF4.

At present, electronic data transfer can occur only outside of EDIMS. The Internet File Transfer Protocol (FTP) feature is used to electronically "capture" selected data from the host and/or remote storage sites. The protocols for transferring datasets are described in the EDIMS User Documentation available by contacting Karen Garrison electronically at kmg@kepler.unh.edu. (telephone (603) 862-3156).

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*(GLOBEC continued)*

Modeling studies focus primarily on numerical simulation of circulation patterns on the Bank, particularly on the dynamics controlling the observed cyclonic gyre. Modeling studies include analysis of the effects of varying wind fields on circulation and the effects of storms, on the distribution and abundance of zooplankton. Modeling projects include both finite-element and the spectral primitive equation approaches. These modeling studies are a prelude for the fine-scale process studies planned for 1997 which will focus on "sources, sinks and retention mechanisms" of water and planktonic animals on the Bank. Most of the circulation studies carried out at the long-term mooring sites and during shipboard surveys have the goal of producing dynamic descriptions of the mean and variance of the around-Bank flow patterns. An understanding of the processes controlling circulation patterns must be gained before we can predict reliably the effects of climate change on dynamics of animal population on Georges Bank and other northwest Atlantic bank ecosystems.

For specific details about the projects, read the next GLOBEC newsletter: "U.S. GLOBEC News", which is about to go to press. To subscribe, contact Sharon Lynch, The U.S. GLOBEC Scientific Coordinating Office, Div. of Environmental Studies, U.C. Davis, Davis, CA 95616-8576 (916) 752-4163.

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**Gulf of Maine NEWS**

Summer 1993

Volume 1 Number 2

Issued four times a year

*Editor:* Eugenia F. Braasch





