

NHU-Q-02-001

Program Guide

New
Hampshire
Sea Grant
2002



This publication is made possible by the National Sea Grant College Program of the US Department of Commerce's National Oceanic and Atmospheric Administration under grant NA16RG1035 to the New Hampshire Sea Grant Program.

Additional copies are available from:

Sea Grant Communications
Kingman Farm
University of New Hampshire
Durham, NH 03824

UNHMP-AR-SG-02-7

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A Message from the Director

**Dear Colleagues and Friends
of NH Sea Grant:**

The past 12 months have been a very busy and productive period for NH Sea Grant. In my last message to you, I wrote about our preparations for a national review by a "Program Assessment Team (PAT)" designated by the National Sea Grant Office. Many of you replied to my request for your comments and suggestions regarding any aspect of the management, operation, results and impacts of NH Sea Grant. Thank you all very much for your assistance to the program.

The PAT review was a wholly positive and useful process for the entire staff and every aspect of the program. Overall, the program fared very well and we received guidance on a number of useful issues and concerns. The positive PAT response gives us the green light to continue our planning efforts for a recertification review for Sea Grant College Program status. A critical element in this review will be evidence of our effective service to New Hampshire, including all of our stakeholder groups across the entire state.

We've done some reorganizing over the last year. We have established a NH Sea Grant Management office in Morse Hall on the UNH campus, making a second administrative center with the NH Sea Grant Extension office at UNH's Kingman Farm in Madbury.

Our best news is that we have four new staff members! Three are in the Morse Hall office: Dr. Troy Hartley is our new assistant

director, with primary responsibilities for administering our research funding competition. Troy's background is in resource management; he is an expert in community capacity building. Dr. Pingguo He is an extension specialist in fishing gear and fish behavior; he has recently received a joint appointment as research associate professor in UNH's Institute for the Study of Earth, Oceans and Space. Pingguo brings to UNH long experience in cooperative research with commercial fishermen. Laurinda Sousa Smith, our new program support assistant, has established and now runs the new NH Sea Grant management office. She is assisting especially with the creation of our new searchable web-based project information database.

We also have one new staff member in our communications office at Kingman Farm. Kathy Schmitt is our new science writer. She will be handling media relations for the program as well as providing our staff and researchers with assistance in meeting their many communications needs.

I know I speak for all of our staff members, new and old, when I say that the future looks very bright for NH Sea Grant and that we all are focusing our energies on addressing the issues and solving the problems that are important to New Hampshire's citizens.

Sincerely,

A handwritten signature in black ink, appearing to read "Ann Bucklin". The signature is fluid and cursive, with a large, sweeping "A" and a long, horizontal stroke at the end.

Ann Bucklin
Professor and Director

Research Projects

Over the past 10 years there has been a remarkable expansion of initiatives, activities and organizations in marine research in northern New England. All of these have developed out of perceived needs and opportunities, and all have substantive contributions to make. Sea Grant's role in this rapidly evolving, multifaceted regime is to help define primary, secondary and shared responsibilities; match private, state and federal resources; and develop joint research programs.

Because of the complex processes occurring in the marine environment, many scientific endeavors need to be approached from a systems level. Our program encourages investigation of the offshore, nearshore and estuarine systems. These natural systems are very much interrelated and the health, vitality and functioning of one is heavily dependent upon the others.

The research efforts currently supported by our program fall into two general areas: **management and development of living marine resources** and **coastal development**. Our 2002 research projects are described briefly on the following pages.

Management and Development of Living Marine Resources

Scientific Basis for Management

Age, Growth and Reproduction in Atlantic Hagfish

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In response to declines and collapses in the traditional Gulf of Maine fisheries, species that were once considered alternative or underutilized are being harvested commercially. The Atlantic Hagfish (*Myxine glutinosa*) is one example. A fishery for this species developed in the early 1990s and landings ranged from one to three million pounds each year during 1996-99. However, little is known about reproduction and the reproductive success of hagfish, and this makes it impossible for resource managers to develop sound regulations for the fishery. In order to provide the needed management tools, this researcher will seek to determine the size at onset of reproductive maturity, the rate of reproduction, the reproductive fecundity, and the growth rate of hagfish.

Production Technologies and Aquaculture

Larval Diet, Visual Behavior and Juvenile Pigmentation in Hatchery-reared Summer Flounder

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Aquacultural production of flounder is increasingly important to supply consumer demand and to support future stock enhancement plans. However, hatchery-reared flounder frequently show pigment defects that reduce both their market value and their fitness for release. The etiology of these defects is poorly understood, but appears strongly linked to larval diet. A widely cited hypothesis proposes that nutritional deficiencies in larvae cause retinal defects that result in the failure of a hormonal signal necessary for correct adult pigmentation. This project will measure the effect of larval diet on visual behavior and final pigmentation of hatchery-reared summer flounder and determine whether early larval behavior serves as a predictor of pigmentation.

Coastal Development

Ecosystem Processes

Trophic Status of Casco Bay, Maine, as Delineated by Seaweed Diversity and Tissue Analysis

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Casco Bay is the second largest bay in Maine and, because of its size, complexity and habitat diversity, it provides a variety of critical environments for juvenile and adult fish and birds. Unfortunately, the Bay has experienced diverse sources of toxic pollution (polyaromatic hydrocarbons, heavy metals, sewer discharges, etc.), which have degraded wildlife habitats and diminished water quality. A number of organizations have come together to develop a Casco Bay Plan designed to reverse this degradation. This research will contribute to that effort by characterizing seaweed populations from estuarine and open coastal sites in the Bay and evaluating possible long-term changes, by evaluating several recent changes in seaweed communities due to human introductions and/or anthropogenic effects, and by analyzing seaweed tissue for PAH, trace metals and nutrient pollution in order to compare polluted and pristine sites.

Alternative Uses of Coastal Resources

Economic Valuation of Beach Erosion Control and Benefit Transfers

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The sandy beaches of Maine and New Hampshire provide for a wide variety of uses and contribute significantly to the economies and natural resource bases of the two states. This research project will evaluate alternative beach erosion control programs in terms of their effects on beach uses. Its benefits will include the establishment of guidelines on the economic valuation of beaches for policy-makers and planners who have to decide on alternative beach uses and development plans.

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Sea Grant Web Resources

Nationally, Sea Grant maintains a wide range of online resources. Each Sea Grant program maintains a web site and each region collaborates in a regional web site.

Visit **www.nsgo.seagrants.org/**

NationalSeaGrant.html to find links to all these sites. The brief descriptions below highlight the regional web site for our region as well as a number of specialty web sites maintained by different programs around the country.

Northeast Sea Grant

This site features news from the Sea Grant programs in Connecticut, Maine, New Hampshire, Rhode Island, and Massachusetts (MIT and WHOI). Of special interest is an "Ask Sea Grant" section where visitors can submit marine-related questions to Sea Grant experts, as well as view past questions and answers. (**web.mit.edu/seagrants/northeast**)

National Sea Grant Library

The National Sea Grant Library houses the only complete collection of Sea Grant-funded work, including 28,000 titles and a total of 84,000 documents. Its web site features a searchable database from which citations, abstracts and sometimes the full text of Sea Grant publications may be obtained. (**nsgd.gso.uri.edu**)

Sea Grant News Media Center

The Sea Grant Media Center provides access to the world of marine research and to resources available through the National Sea Grant College Program. This site provides resources such as tip sheets and an experts guide for members of the news

media, researchers, educators and the public. (www.seagrantnews.org)

Sea Grant's Marine Science Careers

Created and maintained by NH Sea Grant and Woods Hole Oceanographic Institution Sea Grant, this site introduces students to a wide range of marine career fields. It features different professionals who provide insights into their jobs. The site also provides some experts' views on the future of marine science careers. The site is an outgrowth of the popular Sea Grant publication on the subject, ***Marine Science Careers***. (www.marinecareers.net)

Sea Grant Nonindigenous Species (SGNIS)

This site contains a comprehensive collection of research publications and education materials produced by Sea Grant programs and other research institutions across the country on zebra mussels and other aquatic nuisance species. All materials have either appeared in professional science journals or have been through a rigorous scientific review to ensure their quality. (www.sgnis.org)

Sea Grant Coastal Recreation & Tourism

Created by Oregon Sea Grant, this site serves as a portal to online resources for those involved in the marine recreation trades. It includes links to documents, projects and other useful information available online from Sea Grant programs around the country. (seagrant.orst.edu/crt)

Sea Grant Earthwatch Radio

Earthwatch Radio is produced by staff and students at the Sea Grant Institute and the Institute for Environmental Studies at the University of Wisconsin-Madison. The

program covers a wide range of subjects that concern science and the environment, giving special attention to global climate change, the Great Lakes and the oceans. This site includes a searchable database of archived stories. (seagrant.wisc.edu/Earthwatch)

Coastal Environmental Economics Extension Network

A joint effort of NOAA and Sea Grant, this project focuses on the economic values provided by coastal environmental resources in four geographic areas: New England, Chesapeake Bay, South Florida and the Great Lakes. This site provides links to regional environmental valuation information for use in coastal management issues. (www.mdsg.umd.edu/Extension/valuation)

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