
A Mandate to Engage Coastal Users

**A REVIEW OF THE NATIONAL SEA GRANT
COLLEGE EXTENSION PROGRAM
AND
A CALL FOR GREATER
NATIONAL COMMITMENT TO ENGAGEMENT**

November 2000

The National Sea Grant Extension Review Panel

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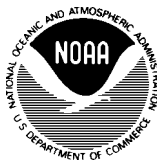
Oregon Sea Grant



Corvallis, Oregon

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Sea Grant is a unique partnership with public and private sectors, combining research, education, and technology transfer for public service. This national network of universities meets the changing environmental and economic needs of people in our coastal, ocean, and Great Lakes regions.



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Letter to National Sea Grant Office from Extension Review Panel Chair

November 22, 2000

Mr. Ronald C. Baird
Director, National Sea Grant College Program
1315 East-West Highway
Silver Spring MD 20910

Dear Mr. Baird,

On behalf of the Sea Grant Extension Review Panel, appointed by you in February 2000, I am pleased to submit the report "A Mandate to Engage Coastal Users," which is a review of the National Sea Grant College Extension Program and a call for greater national commitment to engagement. The Panel reviewed the organization, administration, and management of the Sea Grant Extension Program (SGEP) within NOAA, the National Sea Grant Office (NSGO), and its university partners. The Panel considered the placement of Sea Grant within NOAA and the need for NOAA to improve its contact with its user community. The Panel recommends improving the role of Sea Grant within NOAA, improving NOAA's organization with respect to its engagement with the public, and improving NSGO, SGEP, and their university partners. These recommendations are summarized in the Executive Summary of the report.

The Panel found the review to be stimulating, educational, and rewarding. Of particular note is the cooperation of all persons directly and indirectly related to Sea Grant programs in the United States. I would be remiss if I did not mention the outstanding, truly outstanding, assistance of Dr. James Murray, Director of the Sea Grant Extension Program, and Ms. Nikola Garber, Manager of the Knauss Sea Grant Fellows Program.

The Panel is confident you will find the report useful as NOAA, Sea Grant, and the Sea Grant Extension Program enhance an already effective Sea Grant engagement with the coastal users of the United States. Because the Panel believes the report will be useful to others, it urges that it be forwarded to the Secretary of Commerce, the Administrator of NOAA, the Department of Commerce Office of the Inspector General, the New Administration Transition Team, the Ocean Act 2000 Commission, the Pew Commission, and the Sea Grant Directors and their institutions.

As you have directed, Frank Kudrna will transmit this report to the National Sea Grant Review Panel.

Sincerely,

John V. Byrne
Chair, Sea Grant Extension Review Panel

Letter to Extension Review Panel Chair from National Sea Grant Office

January 5, 2001
Dr. John Byrne
Chair, Sea Grant Extension Review Panel
Oregon State University
Autzen House
811 SW Jefferson
Corvallis, Oregon 97333-4506

Dear Dr. Byrne:

I am in receipt of your letter, submitting on behalf of the Sea Grant Extension Review Panel that I appointed last February, the report "A Mandate to Engage Coastal Users," dated November 22, 2000. Let me first compliment you and the committee for a thorough review of the organization, administration and management of the Sea Grant Extension Program (SGEP) both within NOAA and its university partners. This was the first comprehensive review of SGEP in the 31-year history of the National Sea Grant College Program.

The report is timely, comprehensive and forward looking and I am confident that the thoughts and recommendations contained therein will be invaluable to the National Sea Grant College Program in the years ahead. The report will be particularly useful to the new administration transition team as it considers both the future role of Sea Grant within NOAA and the Agency's emerging need for greater engagement with its constituents and the public.

I have directed that the report be transmitted to the National Sea Grant Review Panel for their consideration and review. The report will be published in its entirety early in the New Year. It is our intention that the report be forwarded to the Administration Transition Team, the Secretary of Commerce, the Administrator of NOAA, the Department of Commerce Office of Inspector General, the Oceans Act 2000 Commission, Sea Grant institutions and relevant stakeholder organizations.

In addition, and in response to the extension panel's recommendation, I have requested that the National Panel, at its earliest convenience, form a task group to consider the implementation of the report's recommendations.

On behalf of NOAA and the National Sea Grant College Program, our sincere thanks and appreciation to you and colleagues for a job well done.

The Extension Review Panel has met its charge with distinction and is hereby formally discharged of further service in this capacity. It was particularly gratifying that you mention the excellent cooperation and assistance of our Sea Grant Community and National Office staff as well as the review being a stimulating, educational experience for the Panel.

We would hope, however, to be able to call on you and others who have served so well in this endeavor to help in the very important task of implementation that lies ahead.

Sincerely,
Ronald C. Baird
Director

Letter from National Sea Grant Review Panel

February 2, 2001

The National Sea Grant Review Panel (NSGRP) expresses its sincere appreciation to the National Sea Grant Extension Review Panel chaired by Dr. John V. Byrne. The Extension Review Panel did an outstanding job in assessing issues associated with the Sea Grant College Extension Programs. The 20 recommendations that are contained in this report provide an opportunity for NOAA, the National Sea Grant Office, the Sea Grant Colleges and the National Sea Grant Review Panel to all work together to increase the effectiveness of University-based extension services in coastal and marine areas.

This report concludes that the Sea Grant Extension Program (SGEP) has proven its ability and is a valuable asset, particularly for NOAA's mission. The report extensively addresses the position of extension services within NOAA organizational structure. The report also provides a set of critical recommendations to improve the functioning of the Sea Grant extension network which when implemented will enable it to fulfill its potential in the decade ahead. There is emphasis placed on the development of regional extension programs and partnerships with other agencies. In addition, the report addresses the resource and professional development needs of SGEP leaders and their staff.

At its January 2000 meeting, the NSGRP approved the following motion:

"The National Sea Grant Review Panel (NSGRP) commends the Sea Grant Extension Review Panel (Byrne Panel) for their excellent report on Sea Grant Extension, 'A Mandate to Coastal users.' The Byrne Report has been well received by the NSGRP and others in the Sea Grant community. In its evaluation of the Byrne report, the NSGRP recognizes that Sea Grant research is an important element of the National Sea Grant College Programs and that research is the foundation of any expanded extension function for Sea Grant under NOAA. The NSGRP will develop options for elevating Sea Grant within NOAA to report directly to the Office of the NOAA [Administrator], as recommended in the 1994 Review of the NOAA National Sea Grant Colleges Program by the National Research Council and the Byrne Panel Report, and provide these options to the NOAA Administrator and the Secretary of Commerce. Even though it was not included in the charge to the Byrne Panel, we believe NOAA should also examine the possibility of consolidating additional university-based coastal and marine research and outreach. In addition, the NSGRP will establish a committee to develop a plan for implementing recommendations 2 through 20 of the Byrne Panel report and that the committee will consider the written comments provided by the National Office, SGA and Sea Grant Extension Assembly in carrying out its charge."

The National Sea Grant Review Panel will actively pursue dissemination of this report to appropriate government officials and commissions to ensure its recommendations and the efforts of the Implementation Committee are carried out.

Geraldine Knatz, Ph.D.
Chair
National Sea Grant Review Panel



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Abbreviations


NOAA	National Oceanic and Atmospheric Administration
NSGCP	National Sea Grant College Program
NSGO	National Sea Grant Office
NSGRP	National Sea Grant Review Panel
OAR	Office of Oceanic and Atmospheric Research
OIG	Office of Inspector General
Panel	National Sea Grant Extension Review Panel
PAT	Program Assessment Team
SGA	Sea Grant Association
SGEP	Sea Grant Extension Program
SGEPL	Assembly of Sea Grant Extension Program Leaders
USDA	United State Department of Agriculture

Executive Summary

*I*n 1999, world population reached 6 billion people. It has doubled in less than 40 years, is continuing to increase rapidly, and is projected to reach 8 to 10 billion people in the next 50 years. The accompanying pressure on world resources will be extreme, but none more so than on coastal resources. Today, over half the population of the United States lives in coastal counties; it is estimated that by 2025 roughly three-fourths of all Americans will live in coastal areas. As the demand for seafood increases, fisheries are being depleted or eliminated. When world production of oil peaks in the first decade of the 21st century, there will be increased pressure to drill in offshore and coastal areas. The conflict in use of the coastal areas between recreational and industrial users can only increase. The world economy is expanding, and by 2020 goods traded worldwide are expected to triple. With the U.S. as a major consumer of goods, the pressure on American ports will be immense. And then there are the threats from coastal hazards, the rise in sea level associated with global climate change, inadequate water supplies and water treatment—the list goes on.

The economic, environmental, and social demands on our coastal oceans and shorelines will be unparalleled in human history, and these demands will be similar throughout the world. The need for solutions to coastal problems, resolution of conflicts, and help in general will continue to grow as the threats to coastal areas increase. It will be imperative that all governments—local, state, and federal—engage their citizens and attend to their needs. The National Oceanic and Atmospheric Administration (NOAA) will be called on as it has never been called on before. To date, only one program in NOAA is dedicated exclusively to the transfer of ocean and coastal knowledge to the user: the Sea Grant Extension Program of the National Sea Grant College Program. Sea Grant Extension has proven its ability to take the information resulting from sound scientific research and present it as an honest broker to the public and stakeholders for use in making public and personal decisions.

Dr. Ronald C. Baird, director of the National Sea Grant College Program (NSGCP), appointed the National Sea Grant Extension Review Panel (Panel) in February 2000. The eight-member Panel was charged to review and evaluate the Sea Grant Extension Program (SGEP) and to provide recommendations to improve the organization, administration, and management of SGEP, the National Sea Grant



Office (NSGO), and its university partners within NOAA. The review was to be forward looking, providing the Sea Grant network with recommendations to enable SGEP to better fulfill its potential in the decade ahead.

SGEP has been effective in facilitating the nation's sustainable development of coastal resources by helping coastal citizens make better informed and wiser decisions. Because of limited funding, however, its full potential has not been realized. As coastal populations grow and as coastal issues increase in complexity, the grass roots educational and informational infrastructure provided by SGEP should be viewed as a valuable asset by all levels of government and particularly by NOAA, Sea Grant's parent agency, which has the task of maintaining and enhancing coastal resources. NOAA must move toward a new paradigm of public engagement to achieve its mission. SGEP has been a successful practitioner of public engagement for more than 30 years, and it is a valuable public asset to achieve the goal of sustainable coastal development. User demands for solutions to coastal problems, resolution of conflicts, and help in general will continue to grow as the threats to coastal areas increase.

In an effort to develop "sustainable coasts" that will serve as a model for other nations, the United States must dramatically increase the resources it applies to coastal issues. It is critical that all nations of the world make every possible effort to manage their coastal resources wisely. As the U.S. civilian agency responsible for the wise use of America's ocean and atmospheric resources, it is imperative that NOAA analyze its organizational structure for addressing coastal and oceanic issues in order to provide optimal coordination and service to the citizens of the United States and ultimately of the world. Such analysis must address the role of Sea Grant in the full spectrum of NOAA activities, with particular attention to the role of Sea Grant Extension, with its extensive network already developed, as the base of a NOAA-wide outreach and engagement effort. Today NOAA has the opportunity to exhibit leadership in engaging the American public and set an example to be followed by other nations around the world. It is critical that NOAA make engagement with the public a major part of its mission; to do this it must restructure itself to enhance its connections with its user community.

The Panel recommends the creation of a new office, at the deputy assistant secretary level, that will report directly to the Office of the Administrator. This office, the NOAA Office of Outreach, Education, and Public Engagement, would include three functional elements: (1) the NSGCP, (2) a Division of Internal and External Liaison (coordination), and (3) a Division of Educational Affairs (Appendix E).

The director of the NSGCP would head the Office of Outreach, Education, and Public Engagement and would be responsible for the three functional elements of the office. The director would be supported by three associate directors: one for the Sea Grant program, one for internal and external liaison, and one for coordination of NOAA's educational activities. The purpose of the liaison division would be to enhance NOAA's interactions with its user community in a multidisciplinary way. This division would also serve to better communicate and integrate internally the

activities of NOAA's line office. The director of the Division of Internal and External Liaison should be the director of SGEP; he or she would assume the additional duty of overseeing the coordination of the outreach activities of the five line offices of NOAA. Each line office of NOAA would assign one person (one full-time employee) from its ranks to the liaison division. In addition to the restructuring, NOAA should incorporate outreach or engagement, including stakeholder input, and education into NOAA's mission statement. It should develop a significant budget for NOAA's outreach and education efforts. Management of this budget would be by the director of the Office of Outreach, Education, and Public Engagement.

The Division of Educational Affairs would be responsible for coordinating the many educational activities offered through NOAA's line offices. Recommendations for this division are clearly presented in the "NOAA Education White Paper" prepared by A. Beeton.¹⁸

By this reorganization, and with the addition of the related measures (for example, a mission statement and a budget), NOAA would improve the integration of its many excellent activities to better serve its constituents. It would send a strong message to the public that NOAA was in fact dedicated to serving their needs.

In addition to recommending the structural reorganization within NOAA, the Panel made other recommendations for enhancing NOAA's interaction with its user community and state coastal, ocean, and Great Lakes programs and for improving the operation of the NSGO, SGEP, and Sea Grant programs at universities throughout the nation.

NOAA

First and foremost NOAA must recognize the importance of connecting effectively with the public. In order for NOAA to assess its engagement with its users, *the Panel recommends that, as universities are doing, NOAA review the engagement test prepared by the Kellogg Commission on the Future of State and Land-Grant Universities* and recognize that the time has come for an expanded and coordinated outreach and engagement effort. Further, *NOAA should take steps to increase the number of SGEP specialists who provide a critical role in maintaining the coastal and ocean resources of this nation.*

Within the NOAA organization, ocean and coastal programs report to three assistant administrators (the National Ocean Service, the Office of Oceanic and Atmospheric Research, and the National Marine Fisheries Service), who often administer competing programs. This structure does not serve the user community well and does not allow for maximizing the effectiveness of Sea Grant, Sea Grant Extension, or NOAA coastal resources. The Panel believes this structural situation must be addressed and *recommends that NOAA reallocate resources and staff to enable the Sea Grant program to discharge its duties to its user communities.* NOAA should return at least one full-time Senior Executive Service position to Sea Grant and should add at least one full-time staff person to Sea Grant Extension so that it can meet needs under its existing programs.

NSGO

The need for engagement with citizens exists for several agencies within the federal government. NSGO has the opportunity to work with other federal agencies in engagement with citizens of the United States. By combining or coordinating efforts in partnerships, all can benefit. *The Panel recommends that the NSGO explore and pursue appropriate partnership opportunities.* Further, *it recommends that the NSGO add one additional staff person with responsibility for developing and administering such external partnerships.*

The Panel recommends the establishment of regional extension programs. Such programs should be multistate and, where possible, should be competitively funded by the NSGO in partnership with other agencies. These joint ventures should be in response to proposals developed to address grassroots needs. The regional programs selected for funding should be focused on issues that truly reflect regional/multistate needs.

To allow the NSGO to inform its legislative and executive overseers, and others, of Sea Grant's accomplishments and to create a strong basis for Program Assessment Team reviews, *the Panel recommends that individual Sea Grant programs report accomplishments and project milestones to the NSGO* in a timely, succinct, and comprehensible manner, preferably in electronic form. *It will be the responsibility of the NSGO to store this information in a database that allows easy retrieval.* *The Panel also recommends that the NSGO add an additional extension person who, among other responsibilities, would be expected to develop and maintain a data management system for SGEP.*

Finally, with respect to the NSGO, the Panel has confidence in the capabilities of the local Sea Grant program leaders and believes they should not be restricted by generalized rules imposed by the NSGO. Therefore, *the Panel recommends that local Sea Grant programs not be constrained to distribute funds according to a fixed formula, but rather that the distribution of less than half the federal funds to peer-reviewed activities should require appropriate explanation and justification.*

University Programs

During the past two decades, the decreasing proportion of federal Sea Grant funds that support the salaries of extension staff in the field, combined with the need to maintain staff levels, has caused Sea Grant program directors to obtain substantial shares of staff salaries from non-Sea Grant funds (state, private, or local agencies, and so on). While this buy-in is viewed as testimony to the excellent work of SGEP, such external funding creates the potential for a dilution of allegiance to the core SGEP. *The Panel recommends that formal principles be developed to guide the use of outside funds in the support of program priorities and needs at the strategic planning level.*

Extension work is about people helping people; the people doing the helping are the extension agents. The leadership of this extension effort is important. There-

fore, ***the Panel recommends that the Sea Grant program director have a formal role in hiring the SGEP leader and evaluating his or her performance.*** It is not always necessary that the extension leader report directly to the Sea Grant program director, but the formal relationship of the extension leader to the Sea Grant program director should be specified in the extension leader's position description and letter of appointment.

In similar fashion, there are programs in which extension specialists do not report directly to the SGEP leader. This can be counterproductive to extension program integrity, leadership, teamwork, and evaluation. ***The Panel recommends that all extension specialist job descriptions and letters of appointment clearly state the formal reporting and performance assessment relationship with the extension program leader.***

Because of the need for the modern extension specialist to understand scientific methodology, research procedures, and the nature of complex problems and emerging issues, some graduate training (for example, at least to the master's degree level) seems in order. Moreover, demands on specialists to be more active in conducting applied research begs for advanced graduate and research training. As appropriate, ongoing professional development of existing extension specialists should include experience in research methodology and graduate studies. ***The Panel recommends that whenever possible Sea Grant programs require graduate degrees of all new extension specialist hires.*** In addition, the Panel urges the creation of programs to encourage and facilitate professional development leading to graduate degrees for existing staff.

It may be difficult to find candidates for SGEP positions that have the full suite of skills described above. Thus, on-the-job training becomes more and more important. ***The Panel recommends that all SGEP staff be actively engaged in self-directed professional development planning and implementation, encouraged and approved by their supervisors.*** Extension specialist involvement in professional societies and their activities can offer the opportunity for intellectual renewal. This can translate into cross-fertilization of ideas, new energies, and new contacts with which to conceive and develop innovative programs.

The Panel recommends that Sea Grant program directors allocate travel support for specialists to attend at least one professional society meeting or event each year. The specialists should expect to submit a report on their meeting experiences, to discuss with their supervisors the relevance to their work of such meeting attendance, and to share with their colleagues new ideas stimulated by their attendance.

Implementation

Finally, the analysis of SGEP and the recommendations included in this report will be of little value unless they are fully considered and implemented; this is important to Sea Grant and to NOAA, but most importantly to the American public.

The Panel recommends that the National Sea Grant Review Panel (NSGRP) develop an implementation plan for the recommendations outlined in this report and follow the implementation of the plan to completion. The Panel also recommends that the NSGRP engage both the Oceans 2000 Act Commission and the Pew Oceans Commission as it develops and implements the plan.

Recommendations: A Summary

NOAA should

1. Create a new Office of Outreach, Education, and Public Engagement. The office would be at the deputy assistant secretary level and would include three functional elements: (a) the National Sea Grant College Program, (b) a Division of Internal and External Liaison, and (c) a Division of Educational Affairs.
2. Review its engagement with users with the aid of the engagement test prepared by the Kellogg Commission on the Future of State and Land-Grant Universities
3. Increase the number of SGEP specialists who provide a critical role in maintaining the coastal and ocean resources of this nation
4. Reallocate resources and staff to enable the Sea Grant program to discharge its duties to its user communities

NSGO should

5. Explore and pursue appropriate partnership opportunities
6. Add one additional extension staff person with responsibility for the development and administration of partnerships
7. Establish regional extension programs
8. Establish procedures for individual Sea Grant programs to report accomplishments and project milestones (preferably in electronic form) to the NSGO
9. Store information in a database that allows easy retrieval
10. Add an additional person whose responsibilities include the development and maintenance of a data management system for SGEP
11. Avoid constraining the distribution by universities of funds according to a fixed formula, but rather require appropriate explanation and justification for any distribution of less than half the federal funds to peer-reviewed activities

University programs should

12. Develop formal principles to guide the use of outside funds in the support of program priorities and needs at the strategic planning level
13. Develop a formal role for the Sea Grant program director in hiring the SGEP leader and evaluating his or her performance
14. Clearly state in extension specialist job descriptions and letters of appointment the formal reporting and performance assessment relationships with the extension program leader
15. Include the SGEP leader as a full member of the program management team
16. Require graduate degrees of all new extension specialist hires
17. Encourage all SGEP staff to be actively engaged in self-directed professional development planning and implementation
18. Allocate travel support for specialists to attend at least one professional meeting or event each year

Implementation by the NSGRP

19. Develop an implementation plan for the recommendations and follow the implementation to completion
20. Engage both the Oceans 2000 Act Commission and the Pew Oceans Commission as it develops and implements the plan



A Mandate to Engage Coastal Users

A Review of the National Sea Grant College Extension Program and a Call for Greater National Commitment to Engagement

Background and Charge to the Panel

Athelstan Spilhaus first suggested the idea of establishing “sea grant colleges” in existing universities in his keynote address to the 1963 meeting of the American Fisheries Society. He drew parallels with the land grant college system: “one of the best investments this nation ever made. The same kind of imagination and foresight should be applied to the exploration of the sea.”¹

Senator Claiborne Pell of Rhode Island and Congressman Paul Rogers of Florida were interested in the concept and ultimately introduced legislation that led to the passage of the National Sea Grant College and Program Act of 1966.² For the Sea Grant Extension Programs (SGEPs), then referred to as marine advisory programs, the act called for

encouraging and developing programs consisting of instruction, practical demonstrations, publications, and otherwise, by sea grant colleges and other suitable institutes, laboratories, and public and private agencies through marine advisory programs with the object of imparting useful information to persons currently employed or interested in the various fields related to the development of marine resources, the scientific community, and the general public.

Since 1966 SGEP has grown and taken its current form. Significant growth occurred in the 1970s. Staffing peaked at about 380 specialists by the late 1980s. Today the program consists of about 300 specialists.³

The story of the development and maturation of SGEP is a rich one. SGEP is about people: over the years hundreds of agents and specialists have laid the foundation for Sea Grant and contributed to its success. They have developed relationships with universities, industry, and government agencies during more than three decades. Their efforts have provided SGEP with the infrastructure needed to expand its problem-solving ability to address the increasingly complex issues of the 21st century.

The mission of SGEP is to provide for effective two-way communication between the users and the producers of knowledge, with the goal of solving the practical problems of the users. Extension work is the design of issue-oriented, problem-



solving programs and their application through partnerships with stakeholders both within and external to the university community.

SGEPs take many forms. Typically they are university-based assistance programs that aid individuals and groups in applying research-based knowledge to their daily lives. Extension requires a dedicated group of people whose training and expertise may draw on the fields of biology, sociology, economics, public policy, education, engineering, and allied fields. Extension specialists usually have subject matter expertise in a discipline important to the geographic area to which they are assigned. They are also skilled communicators.

As institutional Sea Grant programs evolved, a variety of organizational structures developed. Probably no two SGEPs are organized in the same way, but a few general patterns exist. More than one-half of the 30 SGEPs have formal administrative linkages with the United States Department of Agriculture's Cooperative Extension Service. In other programs without formal ties to the Cooperative Extension Service, lines of authority are typically more direct, often with specialists reporting to their SGEP leader, who may report directly to the Sea Grant director. Whatever the organizational structure, SGEP has a distinguished record of applying science-based approaches to real world problems that have had significant impact on coastal citizens at the local, regional, and national levels.

In 1993, at the request of the National Oceanic and Atmospheric Administration (NOAA) administrator, Dr. D. James Baker, the Ocean Studies Board of the National Research Council conducted a review of the NOAA National Sea Grant College Program (NSGCP).⁴ The review had two main purposes: to provide the basis for improvement of the program and to provide the basis for reauthorization of the Sea Grant College Act. As a result of the review, the National Research Council made six recommendations to address problems associated with management, organization, and fiscal complexities. These recommendations were (1) to relocate the NSGCP within NOAA so that it would report directly to the Office of the Administrator; (2) to develop a single strategic plan among the state Sea Grant directors and the National Sea Grant Office (NSGO); (3) to clarify the roles and responsibilities of the NSGO and the National Sea Grant Review Panel (NSGRP); (4) to standardize and streamline the proposal review process; (5) to enhance the interactions between Sea Grant and industry; and (6) to increase the level of funding.

In July 1998, the U.S. Department of Commerce Office of Inspector General (OIG) concluded an evaluation of the NSGCP, focusing on the degree to which the NSGCP was achieving its goals as determined by the National Sea Grant College Program Act of 1966.² In particular the OIG "found that widespread changes are underway, as the NSGO implements a number of recommendations from the comprehensive 1994 National Research Council study." Generally, the OIG review indicated satisfaction with the progress that the NSGO was making in implementing the findings of the National Research Council review. Because of the changes, the OIG focused its review on certain administrative issues. Among the six major findings, one was related to SGEP: "marine extension program should benefit from the

new evaluation process.” The OIG report raised several concerns about SGEP, including (1) that neither the NSGO nor the National Research Council had conducted a review of SGEPs and “programmatically attention to the [SG]EP is long overdue”; and (2) that the NSGO should ensure that the new review procedures “focus on the effectiveness of the SGEP and recommend improvements, in those extension programs whose organizational arrangements and techniques are generally not associated with the most productive, integrated, and dynamic [SG]EP programs.”

The OIG decided not to undertake a full review of SGEP while the new Sea Grant evaluation procedures were being developed. The OIG report states, “because of the numerous changes anticipated and currently underway, we believe that a full-scale OIG review of the Sea Grant program would be more valuable in about two years.”⁵

The NSGRP is an independent committee established by Congress for the purpose of advising the secretary of commerce and the director of the NSGO on matters related to “the operation of sea grant programs” and the formulation and application of planning guidelines and priorities. Because Sea Grant had recently moved to decentralize program management and implement new administrative procedures, the NSGRP, the NSGO, and the Sea Grant institutions identified several issues that required critical analysis of the new approaches to SGEP as that component of Sea Grant looked to the future.

After obtaining input for a review from the Sea Grant Association and the Assembly of Sea Grant Extension Program Leaders (SGEPL), the NSGRP requested the director of the NSGO to appoint a senior level panel to conduct the review. The National Sea Grant Extension Review Panel (Panel) was to include individuals from among the groups with which SGEP interacts (researchers, stakeholders, and state agencies) as well as individuals with administrative and institutional knowledge and experience with university extension programs. The eight-member Panel, chaired by Dr. John V. Byrne, president emeritus of Oregon State University and a former administrator of NOAA, was appointed in February 2000. The Panel members, with biographies, are listed in Appendix A.

The Panel was charged to review and to evaluate SGEP and to provide recommendations for the improvement of the organization, administration, and management of SGEP within NOAA, the NSGO, and its university partners. It was requested that the review be forward looking and designed to provide the Sea Grant network with strategies, guidance, and recommendations to enable SGEP to meet its full potential in the decades ahead (Appendix B). The Panel was given latitude to address all issues it considered important to the future success of SGEP and was specifically requested to address the following questions:

1. Are there best management practices for the organization and management of SGEPs at the individual university Sea Grant programs?
2. Are the national and regional structures of SGEP sufficient to meet future demand? How do we build outreach into national competitions?

3. How can SGEP's relationship with the Office of Oceanic and Atmospheric Research and the rest of NOAA be improved?
4. Can SGEP effectiveness be improved by developing new and creative partnerships with other agencies?
5. Is the NSGO adequately fulfilling its SGEP leadership responsibilities?
6. Collectively, is SGEP organized to address the proper mix of programmatic issues?

The Panel added program and staff diversity to this list of issues.

The Panel held three meetings (Silver Spring, Maryland; Seattle, Washington; and Porter, Indiana) to gather information from 39 individuals representing a number of different federal and state agencies and stakeholder groups (Appendix C). In addition, the Panel received extensive background material and input from a variety of sources over its six months of operation (Appendix D).

This report provides the context and setting for SGEP and the rationale for a strong and dynamic SGEP to address complex societal issues. It addresses the existing SGEP, identifies opportunities for improvement, and recommends actions to strengthen the SGEP in order for it to meet future societal needs. The report addresses the demand for SGEP services; describes needed changes in administration, management, and funding; and provides a vision for the future.

Context for the Sea Grant Extension Program

About 2.5 billion people currently live within 60 miles of the world's coasts. In the United States, over half the nation's population lives within coastal counties that make up less than one-fifth of the total land area of the U.S.⁶ The economy of these coastal counties is critical to the economic well-being of the entire nation. They provide a wide array of goods and services and account for at least 30 percent of the gross national product of the United States.⁷ Growth in economic activity and population in coastal counties is continuing. For example, between 1970 and 1989, nearly 14,000 housing units were built every week,⁸ resulting in a 25 percent growth in the population of coastal counties since 1970. From 1996 to 2015, the nation's coastal population is projected to increase from 141 million to 166 million.⁹

Our national coastal and ocean resources encompass an immense area with more than 95,000 miles of coastline and more than 3.4 million square miles of ocean within the U.S. territorial sea. The complexity of managing the natural and economic resources of the nation's coastal area continues to increase. Development has resulted in the filling of coastal wetlands, affecting wildlife habitat and coastal water quality. Streams have been converted to concrete channels for flood control at the expense of sand supply to our beaches, often resulting in severe erosion. Coastal water quality has been compromised by the infusion of pollutants from agricultural and urban runoff. Many of our coastal fisheries are collapsing.


In almost every case, these issues can be addressed if we conduct good scientific research and use effective ways to communicate the results of that research to the public and its decision makers. SGEP was established to facilitate the communication needed to help apply scientific observations and solutions to the identified problems and issues. Only 300 such extension agents are now deployed for service to address these issues. This work force is insufficient to address adequately the issues raised along the extensive reach of the nation's coastlines.

Although any Sea Grant program could be offered as an example, California provides a good case study of the challenges raised in ocean and coastal management. California's population increased from 18 million in 1964 to 34 million today—and that number is climbing rapidly. Currently, 80 percent of California's population lives within 30 miles of the coast. In 1992, California was estimated to have generated \$17.3 billion from seven "ocean dependent" industries.¹⁰ Coastal tourism accounted for nearly \$10 billion of this total, and coastal ports for about \$6 billion. California's economy is highly dependent on coastal tourism and on commerce relating to the transportation of goods through its ports. Because California represents the world's sixth largest economy, the global implications of this economic activity are clear. However, there are currently only 10 SGEP specialists to serve the people living and working along the entire 1,100-mile California coastline.

The resolution of complex management issues along the nation's coasts must involve a mix of biological, oceanographic, political, diplomatic, technological, marketing, academic, economic, and other factors—often difficult to assemble and to understand.¹¹ However, the questions most commonly raised by the public are

- Is it safe to swim in the ocean?
- Is it safe to eat the fish caught off the coast?
- Are fisheries stocks really in danger?
- Have we lost, or are we losing, our coastal wetlands and other important coastal habitats?
- Can we protect our beaches and structures from coastal erosion?
- Can we maintain the quality of life in our coastal communities?

These questions are important both to the individual and to the economic and environmental well-being of small communities, large urban areas, states, and nations that depend on coastal and ocean resources. Recent information indicates that swimming can be a concern at the nation's beaches. In 1998, there were over 7,200 beach closures and advisories in coastal and Great Lakes waters. This represents a substantial increase over previous years, even though changes in the number of closures may result from improved monitoring and reporting procedures, or increased instances of rainfall causing increased discharge of pollutant-bearing runoff.¹²



Although market fish and shellfish may be safe to eat, substantial safeguards must be put in place to ensure that they are. In 1985 over 40 percent of shellfish beds had temporary harvest restrictions because of concerns about fecal coliform bacteria or proximity to other contaminant sources. Fishery stocks remain a source of concern in the U.S. and globally; with few exceptions, stocks are declining, and the majority of fisheries are thought to be fully utilized or over utilized. Coastal wetland losses have become significant. In Louisiana about 50 square miles of wetlands are lost each year, and in southern California approximately 90 percent of the wetlands have been lost. Finally, shoreline erosion is a concern along most coastlines that are subject to wave attack and longshore current forces.

NOAA, as both a science and service agency, is charged with the stewardship of the nation's coastal and ocean resources. However, all the reviews, studies, and detailed analyses of these issues will not produce on-the-ground results unless the agency puts the necessary information in the hands of users: home owners, fishers, port directors, developers, and all public officials. Absent this outreach, the job will not be done, and both our natural resources and our economy will suffer.

The United States receives substantial economic, social, and environmental benefits from its ocean and coastal resources. The maintenance of those resources can be achieved only through the clear communication of sound science-based information to users—the role of SGEP. The current 300 SGEP specialists do an excellent job with limited resources. However, the level of their activity is inadequate to fulfill their mission along the nation's 95,000 miles of coastline.

SGEP currently serves a diverse clientele: fishers, boaters, recreational users, counties, municipalities, and so on. The demand for SGEP services in large urban areas has greatly increased as coastal demographics change and new clientele emerge. SGEP has not kept pace with these changes and has lagged behind in its ability to provide SGEP services to urban stakeholders. For example, with a combined population of 34 million, the cities of Chicago, Los Angeles, Miami, and New York each have but one extension specialist.

Rapid changes in urban coastal environments require broader engagement with diverse audiences. At its current staffing and funding levels, however, SGEP is not positioned to (nor can it be expected to) initiate a bold new program to address issues of concern to such multicultural urban audiences. Rather, by enhancing its support of programs like Sea Grant Extension—programs that can deploy staff to interact directly as educational and technical resources in multicultural urban settings—the federal government as a whole, and NOAA in particular, could improve minority group access to

1. Career-inspiring, K-12 marine science educational experiences
2. Nutritionally beneficial seafood resources for the dinner table
3. Urban waterfront revitalization and brownfield redevelopment
4. Coastal resource-based business ventures and employment opportunities

Demand for extension service is enormous and greatly exceeds available extension resources. With more resources, Sea Grant could provide additional services to its existing client base and to a broader and more diverse clientele, including the growing urban and minority populations of our coastal communities. ***The Panel recommends that NOAA take steps to increase the number of SGEP specialists who provide a critical role in maintaining the coastal and ocean resources of this nation.***

As the world served by SGEP is changing, so too are the universities that serve as the base for Sea Grant. During the 1990s, faced by the unprecedented speed of change in both American and global society and economics, higher education recognized the need for its own reform. A number of professional educational organizations, such as the American Council on Education and the Pew Charitable Trust, attempted to stimulate reform in higher education. But none gained greater attention than the Kellogg Commission on the Future of State and Land-Grant Universities. The Kellogg Commission, which included CEOs of 25 major public universities joined by seven business and public leaders, clearly defined the needs and the directions for reform, directions that are guiding universities, public and private, toward reform throughout the United States today.

Universities are improving equity of access, becoming genuine learning communities, serving the learning needs of students anywhere, anytime, and becoming increasingly responsive to the needs of society as they engage with their many publics—local, national, and global. NOAA is also facing a similar need for enhanced engagement. Engagement is more than traditional extension or outreach. It involves a partnership between the university and elements of society in which there is a mutual determination of goals and objectives designed to address societal problems and a sharing of expertise and resources. Engagement provides the opportunity for all—public, faculty, staff, students—to learn together in the solution of important societal problems.

Engagement is now a fundamental part of every university's mission and is being integrated with the other principal missions of the university: learning and the creation and application of knowledge. Engagement with society is an important characteristic of the university of today, and it will certainly be a defining characteristic of the university of tomorrow.

For NOAA to truly recognize and internalize the need for outreach, the agency must come to terms with the need for 21st-century institutions—be they government agencies, universities, or nongovernmental organizations—to become engaged in societal issues with their constituents. The Kellogg Commission noted that there are seven “guiding characteristics” that help define the “engaged institution.”¹³ Although the Kellogg Commission was explicitly addressing university engagement, it is clear to this Panel that the criteria of the Kellogg Commission are also relevant to NOAA:

- *Responsiveness*: Is the agency listening to those it serves? Are its communications timely and clear? Is NOAA asking the right questions of its constituents and reacting accordingly?
- *Respect for partners*: Does the agency respect the skills, capabilities, responsibilities, and situations of its partners?
- *Neutrality vs. advocacy*: Is the agency committed to science-based nonadvocacy, and does it support the need for impartial facilitation and presentation of research-based information?
- *Accessibility*: Is the agency easily accessible to its various users and stakeholders? Is it willing to take major steps to increase public awareness of its resources, programs, products, and services?
- *Integration*: Is the agency committed to the integration of its service mission with its mission as a generator and provider of research-based information?
- *Coordination*: Is the agency taking steps to ensure coordination of all its outreach and engagement activities?
- *Resources*: Is the agency willing to commit to the reallocation of internal resources that will nurture full agency engagement? Is it willing to contribute as a partner toward that end?

The Panel recommends that, just as universities have, NOAA needs to take the measure of the test offered above and to recognize that the time has come for an expanded and coordinated outreach and engagement effort.

Clearly, NOAA could only benefit by better integration, use, and support of a network of outreach specialists charged with extending to all audiences the fruits of NOAA research and programs, as well as that of other federal research agencies. Fuller use of such a corps of extension “change agents” would provide the agency with three critical capabilities:

- Bottom-up identification of research questions, resource issues, and user needs
- Channels for feedback from stakeholders on the effectiveness of NOAA programs, and on short- and long-term strategic plans
- Honest brokering and translating of NOAA information to users and stakeholders, nurturing wise decisions and even broader use of NOAA products and services

Sea Grant has in place a proven corps of field-based, university-administered extension specialists deployed in 30 coastal states, currently providing over 50 million audience contacts a year. Clearly, the corps can provide for NOAA a broader outreach/extension capacity as noted above. NOAA has much to gain by recognizing Sea Grant as an asset well steeped in generating problem-solving research and putting it in the hands of users. NOAA should make Sea Grant its first stop when the agency needs to engage users and stakeholders on issues in coastal settings.

NOAA planning and coordination activities should have Sea Grant representation when research and outreach efforts are considered. Finally, NOAA should appreciate and tap the many advantages of its cooperative stewardship of university-based, extramural research and outreach programs like Sea Grant.

Partnerships

In addition to SGEP collaborations within NOAA, there are potential collaborations with programs in state and other federal agencies. Although some of them have been explored in a preliminary way, the time appears right for such collaborations to advance to another stage of development.


One such opportunity for significant collaboration is with the U.S. Department of Agriculture, most specifically with its Cooperative Extension Service. There exists in nearly every county of every state in the United States an extension program funded by federal, state, and county sources. Program priorities are established primarily at the county and state levels, within broad programmatic boundaries.

In coastal states it is logical that Cooperative Extension Service programs include coastal dimensions (for example, aquaculture, coastal policy and management, fisheries, and water quality). In those coastal states served by both the Cooperative Extension Service and an SGEP, it is inevitable that the two organizations engage in dialogue concerning their potential collaboration around similar goals. That dialogue is often uneven and has resulted in a patchwork pattern of relationships from state to state, ranging from those where Sea Grant specialists are employed and evaluated by the Cooperative Extension Service and funded by Sea Grant to those where little collaboration has yet taken place.

The NSGO should confer with the U.S. Department of Agriculture at the national level to establish a more coherent relationship between the SGEP network and the Cooperative Extension Service network. In addition, both the U.S. Department of Agriculture and the NSGO would benefit by initiating a national dialogue with the National Aeronautics and Space Administration's Space Grant Program. Although organizational cultures may differ, the benefits of such partnerships could be substantial, both in use of fiscal resources and in employment of personnel.

Collaboration with the U.S. Department of Agriculture could also result in a greater linkage between Sea Grant research and research of the state agricultural research stations. A number of state agricultural research stations have directed resources into marine programs such as aquaculture. The network of U.S. Department of Agriculture research stations could be approached in a manner similar to that suggested for the Cooperative Extension Service.

Other potential partnerships for SGEP lie with many of the research and educational programs sponsored by the National Science Foundation. Although the compatibility of goals of such programs has not been established, collaboration should be explored. The National Science Foundation could benefit from a relationship with a grass roots program such as Sea Grant.



On a global scale, Sea Grant would benefit from discussions and potential collaboration, through NOAA, with the United States Department of State. The State Department directs substantial resources to issues involving the world's coastal oceans. One of the State Department's strengths is its ability to assimilate and interpret geographically diverse information regarding the oceans, while Sea Grant brings access to a huge network of scientific capability residing in its member and affiliated institutions.

In many of the institutions where a Sea Grant College exists, there has been a long-standing federal-state relationship with the U.S. Department of Interior through its Cooperative Fish and Wildlife Research Units and its Water Resources Research Centers. Where that coexistence occurs, it is logical and should be relatively simple for the Sea Grant College to gain collaboration on those coastal programs relevant to Sea Grant's strategic objectives.

In every state SGEP should seek a lasting relationship with the state agencies that have mandated responsibilities for coastal, ocean, or Great Lakes programs. In many states that collaboration already exists and has been highlighted by several of the Program Assessment Team reviews. However, partnerships need constant nurturing, especially because changes in personnel can create a weakening of the bond. A particular effort should be made to cooperate with the Coastal States Organization, which is well aware of the needs and issues relevant to every state having a coastline. A partnership between Sea Grant and the Coastal States Organization could be beneficial to coastal users throughout America.

Another group of organizations with which SGEP should engage are the non-governmental organizations at the national and state level. Collaboration may not always be possible because of a strong advocacy position taken by a particular nongovernmental organization, but it should not be assumed that collaboration is infeasible. In such instances, collaboration might be best sought on a project-by-project basis rather than through long-term institution-to-institution linkages.

No doubt there are other federal-state partnerships that could be explored by SGEP, but the important point is that SGEP can greatly enhance its visibility and effectiveness by partnering with other programs that have similar goals and processes.

Sea Grant Extension Today

In spite of limited resources, SGEP has done an effective job of enabling marine, coastal, ocean, and Great Lakes users to obtain new and relevant information to improve their lives, businesses, and uses of natural resources. The presence of "county agents in hip boots" envisioned in the original Sea Grant legislation over 30 years ago has come about. But it is not enough. The extremely rapid changes in the coastal areas require a greater effort. The Panel believes that Sea Grant/NOAA should maintain the excellent basic program now in place, but at the same time should improve its effectiveness, particularly as the world it serves changes.

Traditional extension works well, in part because it is based on a bottom-up approach. Advisory groups identify needs and priorities, and the extension program links the user with relevant information. At the university program level, extension activities are integrated with research, communication, and education to make the transfer of information efficient. Packaging technical information in user-friendly products has been the hallmark of effective extension programs.

The continuous presence of extension specialists who work with stakeholders in local communities has built credibility and trust and has led to an understanding of the needs of users. However, working with traditional groups over long periods of time can lead to limited increases in diversity, reduced responsiveness to change, and unnecessary replication. Therefore, *the Panel recommends that SGEPs develop innovative ways to expand their clientele base and to identify their current and future needs.*

SGEPs are organized, managed, and administered in a variety of ways within Sea Grant Colleges. The recently implemented program assessment process has revealed that extension programs can be effective in spite of these variations if the following conditions exist:

- Extension management is integrated at the university program administration level with research, communications, and management, and is involved in program planning.
- A strong advisory council representing a diversity of users helps to identify needs and set priorities (that is, strategic planning).
- The extension program is based on a set of strong principles used to guide program implementation.
- An assessment process is used to evaluate program relevance, accountability, diversity, and completion.

Financial support of SGEP can be complex and differs from institution to institution. In general, the basic extension program is funded from NSGO funds, matched by state funds, and often enhanced by nonfederal agency and private sector support.

SGEPs are evaluated systematically by Program Assessment Team reviews every four years, extension Topical Assessment Teams when warranted, mandatory self-evaluation, and peer review of program proposals. History has shown that, in general, the extension programs are effective. Recent Sea Grant program assessments have rated 11 of 15 programs as “excellent” in reference to their connections with users. The Panel notes outstanding achievements by extension. For example, the Hazard Analysis and Critical Control Point program, developed by several Sea Grant extension programs working together, benefited about 10,000 seafood businesses nationwide. It was awarded the Vice President’s Silver Hammer Award as an extraordinarily effective government program.

Extension Specialists

During the past decade, the number of extension specialists in the Sea Grant network has declined from about 380 to about 300, while at the same time, the demand brought by increasing populations and pressure on coastal resources has dramatically increased. The need for different kinds of information has also increased as the diversity of clients has expanded.

Greater demand for information provided by a smaller number of specialists during a period of growth in diversity of clients calls for different types of delivery. Use of the Internet, distance learning capabilities, and electronic communication can help make the existing extension force more effective. There is no substitute, however, for the personal involvement of extension people with coastal businesses and others to develop an understanding of user needs and priorities. While it may be possible to develop “virtual extension agents” through the use of information technology (for example, MarinaNet, HazNet, and AquaNIC),¹⁴ efforts must be made to maintain the human linkages necessary for continuing interactions and maintenance of credibility.

One of the strengths of the NSGCP lies in its ability to plan, organize, and deliver programs as a coordinated network, especially by its extension program. Regional programs, subject-based programs, and the sharing of talent and information across programs and among people all make the extension program more than the sum of its parts. It is not uncommon for the results of a Sea Grant research project at one university to be applied throughout the nation because the extension program works in concert with other organizations and agencies. ***The Panel recommends that the NSGCP encourage and fund more regional and national networks.*** Talent sharing and professional development in and among programs should also be encouraged and supported through peer group meetings and through continuing education on a regular basis.

Across the nation, SGEPs are organized in a multitude of ways, depending on local institutional factors. The great variety in program organization makes it clear that no single organizational template will work best for all programs. One strength of the Sea Grant network of programs is the rich and textured fabric of the American university community in coastal states. Different organizational structures and patterns can be equally successful as long as certain elements are in place, such as clearly understood staff reporting relationships, regular program evaluations and appraisals of performance, encouragement of professional development, and adherence to the accepted tenets of extension, such as nonadvocacy, reliance and transference of research-based information, the use of advisors, and a “helping-people-help-themselves” approach.

Unfortunately, there are SGEPs in which the hiring and the evaluation of the extension program leader does not involve the Sea Grant director. Such a disconnect between the extension leader and the program director prompts divergence of research programs and extension objectives and functions. It often results in a breakdown in overall program management.

The Panel recommends that the Sea Grant program director have a formal role in the processes of hiring the SGEP leader and evaluating his or her performance. It is not always necessary that the extension leader report directly to the Sea Grant program director (in some consortial programs, for example, the program leader ultimately and officially reports to a different official employing institution), but the formal relationship of extension leader to Sea Grant program director should be specified in the extension leader's position description and letter of appointment.

In similar fashion, there are programs in which extension specialists do not report directly to the SGEP leader. This can be counterproductive to extension program integrity, leadership, teamwork, and evaluation. Therefore, *the Panel recommends that all extension specialist job descriptions and letters of appointment clearly state the formal reporting and performance assessment relationship with the extension program leader.*

Many Sea Grant programs have, as part of their management structure, a "program management team" that includes the Sea Grant director, the SGEP leader, and various associate or assistant Sea Grant directors (for example, for research and for communications). This team meets frequently to provide direction and management of the Sea Grant program. This approach can have clear benefits for the overall program management and ensures that the needs of SGEP and its contributions to a Sea Grant program are given full hearing. **The panel recommends that for programs that have not formally instituted a management team, they do so, with the SGEP leader as a full member.**

To be successful, SGEP specialists should have a suite of skills, knowledge areas, and experiences that enable them to deliver science or research-based services to users. This suite of skills includes

1. Experience and familiarity with scientific methodology, the research process, and graduate studies
2. Communication skills (oral, written, consultative, other media)
3. Familiarity with educational techniques (e.g., lecture, dialogue, group discussion, telecommunications, distance learning, tours, demonstrations, brainstorming)
4. Ability to draw from some subject area specialization, combined with the intellectual ability to understand and explain to others new and evolving knowledge
5. Facilitation and conflict resolution skills
6. The ability to relate well to individuals and diverse audiences and to establish trust, credibility, and open lines of communications with such audiences

Because of the need for the modern extension specialist to understand scientific methodology, research procedures, and the nature of complex problems and

emerging issues, some graduate training (for example, at least to the master's degree level) seems in order. Moreover, demands on specialists to be more active in conducting applied research begs for advanced graduate and research training. As appropriate, ongoing professional development of existing extension specialists should include experience in research methodology and graduate studies. ***The Panel recommends that Sea Grant programs require graduate level degrees of all new hires of extension specialists and urges the development of programs to encourage and facilitate professional development of existing staff, leading to graduate degrees.***

It may be difficult to find candidates for SGEP positions who have the full suite of skills described above. Thus, on-the-job training becomes more and more important. Distance learning and Internet-based professional improvement opportunities should be provided by the university. Sea Grant programs are urged to develop in-depth, comprehensive induction and orientation programs for newly hired specialists and to offer (or work to have their universities offer) in-service training opportunities for all staff in educational and communications (and telecommunications) methods, facilitation, conflict resolution, and honing of interactive people skills. Special consideration should be given to formal or informal mentoring of new staff by more experienced extension colleagues. ***The Panel recommends that all SGEP staff be actively engaged in self-directed professional development planning and implementation, encouraged and approved by their supervisors.***

Program Relevance and Innovative Programming

Because of changing economic, environmental, and social conditions, some extension programs can grow stale and outlive their usefulness, yet specialists are reluctant to disengage from their leading role in such programs. This situation serves neither the specialists nor their programs very well, given the limited resources and time available to plan, develop, and deliver programs, and the constant need to address new audiences and emerging issues. With the growing demands confronting them, it is critical that SGEP specialists be able and willing to move into new or expanded areas of programming in order to address changing audiences, their needs, and pressing, newly emergent issues. This will require that programs that have met their goal be discontinued. Programs should not be conducted or continued out of habit or history; rather, the set of programs offered by a Sea Grant program through its SGEP staff should address those issues of greatest contemporary relevance and highest public priority. Extension specialists should work diligently to bring programs to fruition and closure. If well-established and recurring programs are found to be of continuing need, stakeholders should be encouraged, empowered, and trained—through the specialist's own efforts—to assume ownership and delivery of those programs.

Extension specialist involvement in professional societies and their activities offers the opportunity for intellectual renewal. This can translate into cross-fertilization of ideas, new energies, and new contacts with which to conceive and develop innovative programs.

The Panel recommends that Sea Grant program directors allocate travel support for specialists to attend at least one professional society meeting or event each year. The specialists should expect to submit a report on their meeting experiences, to discuss with their supervisors the relevance to their work of such meeting attendance, and to share with their colleagues new ideas stimulated by their attendance.

In the past, some programs have successfully pursued talent-sharing activities within their own programs (for example, a specialist takes on a new locational assignment in a different area of a state) or with other Sea Grant programs (for example, a specialist spends some time working in concert with a colleague in another state to gain programmatic experience and perspective in some issue or program area). These activities can lead to effective transference and local tailoring of a program and thus hasten the regional or national development, adoption, or adaptation of new program resources. The Panel urges Sea Grant programs to encourage and facilitate transfers of extension talent and sharing within and between Sea Grant programs.

The Panel recommends the establishment of regional extension programs. Such programs should be multistate and, where possible, should be competitively funded by the NSGO in partnership with other agencies. These joint ventures should be in response to proposals developed to address grassroots needs. The regional programs selected for funding should be based on issues that truly reflect regional or multistate needs.

The benefits of regional networks of extension programs can be manifold. Such an approach provides a structure in which programs can band together to work on issues of mutual interest and concern. Based on the premise that different programs in a region face common issues and that the proximity of their personnel allows for an increase of talent applied to common problems, networks afford greater program efficiencies, hasten program adoption across states, and help avoid program duplication. Such regional networks should follow the guidelines outlined in “Regional and National Sea Grant Extension Programming.”¹⁵ Partners should

- Work to avoid surprises among immediate cooperators
- Engage in planning and seek to develop consensus for regional positions and programs
- Aim to be inclusive and avoid competition
- Guarantee that extension ethics and practices are upheld
- Respect cooperating program’s roles and jurisdiction
- Act in a fair and equitable manner
- Commit to regional programming, including its funding, as strongly as each partner commits to regular positions
- Earn and maintain trust by upholding agreements and sharing credit for success

Relevance and Resources

The Panel recognized the proliferation of multiple financial support of extension programs. The decreasing proportion of federal Sea Grant funds that support the salaries of extension staff in the field during the past two decades, combined with the need to maintain staff levels, has caused Sea Grant program directors to obtain substantial shares of staff salaries from non-Sea Grant funds (state, private, local agencies, and so on). While this buy-in is viewed as testimony to the excellent work of SGEP, such external funding raises the potential for a dilution of allegiance to the core SGEP. ***The Panel recommends that a set of principles be developed to guide the use of outside funds that will support program priorities and needs at the strategic planning level.***

Through the NSGO, Sea Grant Extension should develop principles to guide the response to pressing issues and new program opportunities. These principles can be based on the report “Regional and National Sea Grant Extension Programming,”¹⁵ developed by an ad hoc committee of the SGEPL. This report addresses new approaches and guidelines for national and regional extension programming. The Panel endorses several of the ideas in the report. To respond to national or regional needs with existing funds, the NSGO should provide both the incentive and the means for Sea Grant programs to respond to centrally identified networkwide or regional needs. The Panel concurs with this proposed conceptual process, in which the NSGO identifies a national or regional issue, notifies the programs of expectations for participation, and allows programs to respond flexibly by identifying existing programs that meet the purpose of the program or by proposing new programs. Program accountability would be evaluated through program assessment reviews. Such a process would enable SGEP to address national and regional priorities more effectively through core extension programming, coalesce and integrate existing programs, and still allow for bottom-up responses to national needs.

As Sea Grant looks to the future and considers how to implement a growth strategy, pursuit of external funding and partnering with other agencies could provide one avenue for growth of extension programs. Extension arrangements with other agencies provide both opportunities and challenges.

Opportunities

- Linkages with more scientists in other agencies would expand the base of research that can be transferred to stakeholders.
- Sea Grant’s value to other partnering agencies would be increased.
- Opportunities for SGEP to be proactive rather than reactive to initiatives would be increased.
- Other agencies would have access to Sea Grant extension programming, expertise, infrastructure, and clients.
- Additional funds could be obtained to expand Sea Grant extension capabilities and products.

- Competition from other agencies for extension funding and programs would be minimized.

Challenges

- Sea Grant could lose some control of programming and issue selection.
- Care would need to be taken to maintain the unbiased, science-based, nonregulatory status of SGEP.

During the past year, the NSGO has explored several opportunities for developing national or regional programs, including an SGEP/National Marine Fisheries Service partnership, a joint position between the Great Lakes Sea Grant network and NOAA's Great Lakes Environmental Research Laboratory, and a national initiative in coastal community development. SGEP should continue to explore external partnership opportunities. Conditions necessary for effective partnerships include ensuring compatible missions between SGEP and the partnering agency, determining widespread interest in conducting state-level programs on selected topics, and selecting issues based on needs and the willingness of the partnering agency to abide by extension principles. Partnerships should be encouraged to evolve from a variety of sources, including the NSGO, the NSGRP, the Sea Grant Association, SGEPL, other agencies, and Congressional earmarks, or by expanding existing Sea Grant network programs. The Sea Grant network's thematic teams may be ideally suited to identify such partnership opportunities.

Review Processes

The implementation, in 1998, of performance-based reviews of individual Sea Grant programs by high-level, independent Program Assessment Teams was a major step forward in quality control, enhanced accountability, and documentation of performance of the entire Sea Grant program.¹⁶ The appointment of Topical Assessment Teams to work with Sea Grant programs to address specific issues of concern raised by Program Assessment Teams provides a one-two punch that ensures that such issues are not left unaddressed.¹⁷

Questions remain, however, about the best strategies and guidelines to use in preparing biennial omnibus proposals, particularly with respect to extension programs. The Panel considered two questions:

- Should programs be constrained by NSGO policy in their distribution of resources between research and nonresearch or peer-reviewed and non-peer-reviewed activities?
- Should extension proposals be work plans tied to strategic goals and Program Assessment Team recommendations, or should they be proposals subject to peer review in the same way that research proposals are?

Neither of these questions has a simple or unequivocal answer. Programs must be given substantial freedom to allocate core funds in ways that best allow them to meet their strategic goals, which can vary significantly from region to region and from state to state. This freedom is one of the strengths of the Sea Grant network. Yet an expectation that most of the federal funds will be assigned on the basis of peer-reviewed proposals builds external confidence in the quality of Sea Grant programs and reduces the likelihood that a program will settle for the status quo.

Although all university Sea Grant programs (including their SGEPs) are reviewed, current NSGO guidelines require each program to distribute at least half the federal funds to peer-reviewed, typically fixed-term projects. ***The Panel recommends that local Sea Grant programs not be constrained to distribute funds according to a fixed formula but, rather, that the distribution of less than half the federal funds to peer-reviewed activities should require appropriate explanation and justification.***

With respect to peer review of extension proposals, the Panel sees merit in involving non-Sea Grant extension experts in the review of strategic goals and new initiatives. However, the pace of change of Sea Grant Extension activities is slow enough that Program Assessment Team reviews should be sufficient to ensure quality and responsiveness. In these cases, omnibus extension proposals should be concise statements of planned work that reference relevant review and planning documents.

To create a strong basis for Program Assessment Team reviews and to allow the NSGO to inform its legislative and executive overseers of Sea Grant's accomplishments, ***the Panel strongly recommends that individual Sea Grant programs report (preferably in electronic form) accomplishments and project milestones to the NSGO in a timely, succinct, and comprehensible manner.*** It will be the responsibility of the NSGO to store this information in a database that allows easy retrieval.

National Sea Grant Office

The importance of the NSGO to NOAA was recognized by the National Research Council in 1994 when it recommended that Sea Grant report directly to the Office of the Administrator of NOAA. The recommendation indicated "it would benefit NOAA to apply Sea Grant's capabilities throughout NOAA"; however, this recommendation has not been implemented. In the U.S. Department of Agriculture, by contrast, the administrator of the Cooperative State Research, Education and Extension Service, the Land Grant equivalent to the NSGO director, reports directly to the U.S. Department of Agriculture under secretary for research, education and economics.

The NSGO administers a program that includes matching funds of over \$100 million at an administrative cost of less than 2 percent of the total. In recent years the staff has been reduced, and costs (that is, Commerce and NOAA taxes and rent charges) have dramatically increased. Furthermore, in recent years the NSGO's three

Senior Executive Service positions were reduced to one, the director; more recently, the responsibilities for the director's position were increased to include broader Office of Oceanic and Atmospheric Research activities. As a result, Sea Grant is considered to be lean administratively; it currently has the equivalent of about one-half a Senior Executive Service position.

The extension component of the NSGO is also lean at a time when it should be expanding. The NSGO has only one individual assigned to lead the Sea Grant extension component (30 programs and 300 extension agents), and this individual is also responsible for other program and administrative assignments.

The shortage of administrative support has contributed to an inadequate data management system. It is important to effective management at the national level that the NSGO have access to relevant, current information about extension clientele, number and type of contacts, results of extension activities, effectiveness, needs for additional information, assessment of programs, and program impact. An important aspect of the data management system would be a regular synthesis of the information with feedback to the programs, other parts of NOAA, and stakeholders. Each SGEP should be required to submit information on program accomplishments on a regular or accomplishment-dictated basis. The program assessment process should evaluate extension's success as part of the regular review process. One goal for this data system should be to make all Sea Grant information available in electronic form.

The Panel recommends that the NSGO add an additional staff person who would have the responsibility of developing and maintaining a data management system for SGEP. In addition, NOAA should provide an additional Senior Executive Service position to the NSGO, in order to reduce the overall administrative burden in the NSGO.

The Panel recommends that appropriate partnership opportunities be explored and pursued and further recommends that the NSGO add one additional extension staff person with responsibility for developing and administering external partnerships.

In the NOAA organization, ocean and coastal programs report to three assistant administrators (the National Ocean Service, the Office of Oceanic and Atmospheric Research, and the National Marine Fisheries Service), who often administer competing programs. This structure does not serve the user community well and does not allow for maximizing the effectiveness of Sea Grant, Sea Grant Extension, or NOAA coastal programs. ***The Panel believes this structural situation must be addressed (see following section) and recommends that NOAA reallocate resources and staff to enable the Sea Grant program to discharge its duties to its user communities.***

In summary, the panel recommends that the NSGO add two staff persons—one who would have responsibility for developing and maintaining a data management system for SGEP, and the other with responsibility for developing and administering external partnerships. Further, the panel recommends that NOAA provide

an additional Senior Executive Service position to the NSGO to reduce the overall administrative burden in the NSGO.

Location of Sea Grant Extension Program: NOAA

By virtue of its location within the Department of Commerce, NOAA has a responsibility to foster economic development, to promote technology transfer, and to encourage the wise use of America's oceanic and atmospheric resources. To fulfill this responsibility, it is incumbent upon NOAA to maintain a close relationship—an "engagement"—with the private sector and with local and state agencies responsible for the use of oceanic and atmospheric resources. Although several elements of NOAA provide the capability for this type of engagement today, NOAA's present organization does not allow for the discharge of this responsibility in an optimal way. As excellent as these efforts may be, they are uncoordinated and do not provide an overall NOAA focus.

This lack of coordination and focus results in missed opportunities, inadequate service to NOAA's clientele, and insufficient public awareness of NOAA's capabilities. It is essential that NOAA correct these deficiencies as it moves into the 21st century. The well-developed SGEP network is ideally suited to gather and disseminate information about user needs and priorities and to provide users with the results of NOAA and university research. It is one of NOAA's best connections with public users of NOAA services but is not recognized as such.

In fact, the SGEP network is an important national asset, one which is far too effective and important not to be used to the maximum extent possible. NOAA's outreach efforts would benefit significantly from more effective use of SGEP. Therefore, *the Panel recommends that a new Office of Outreach, Education, and Public Engagement, at the deputy assistant secretary level, be created that will report directly to the Office of the NOAA Administrator.* This office would include three functional elements: (1) the National Sea Grant College Program, (2) a Division of Internal and External Liaison (coordination), and (3) a Division of Educational Affairs (Appendix E).

The director of the NSGCP would head the Office of Outreach, Education, and Public Engagement and would be responsible for the operation of the three functional elements of the office. The director would be supported by three associate directors: one for the Sea Grant program, one for internal and external liaison, and one for coordination of NOAA's educational activities. The purpose of the liaison division would be to enhance NOAA's interactions with its user community in a multidisciplinary way. This division would also serve to improve the internal communication and integration of the activities of NOAA's line offices. The director of the Division of Internal and External Liaison could be the director of SGEP; he or she would assume the additional duty of overseeing the coordination of the outreach activities of the five line offices of NOAA. Each NOAA line office would assign one person (one full-time employee) from its ranks to the liaison division. In addi-

tion to the restructuring, NOAA should revise its mission statement to incorporate outreach or engagement, including stakeholder input, and education. It should develop an adequate budget for NOAA's outreach and education efforts. The director of the Office of Outreach, Education, and Public Engagement would manage this budget.

The Division of Educational Affairs would be responsible for coordinating the many educational activities offered through NOAA's line offices. Recommendations for this division are clearly presented in the "NOAA Education White Paper."¹⁸


This reorganization, with the addition of the related measures (for example, a mission statement and a budget), would improve the integration of the many excellent NOAA activities as it improves its service to its constituents. It would send a strong message to NOAA's public that NOAA is, in fact, dedicated to serving their needs.

Implementation

The analysis of SGEP and the recommendations included in this report will be of little value unless they are fully considered and implemented. Implementing the recommendations is important to Sea Grant and to NOAA, but most importantly to the American public. None of the recommendations is more important than the implementation of the guidelines presented here. Therefore, *this Panel recommends that the NSGRP develop an implementation plan for the recommendations outlined in this report and that it follow the plan's implementation to completion. The Panel also recommends that the NSGRP engage both the Oceans 2000 Act Commission and the Pew Oceans Commission as it develops and implements the plan.*

The Future

In 1999, world population reached 6 billion people. It has doubled in less than 40 years, is continuing to increase rapidly, and is projected to reach 8 to 10 billion people in the next 50 years. The accompanying pressure on world resources will be extreme, but none more so than on coastal resources. Today, over half of the population of the United States lives in coastal counties; it is estimated that by 2025 roughly three-fourths of all Americans will live in coastal areas. As the demand for seafood increases, fisheries are being depleted or eliminated. When world production of oil peaks in the first decade of the 21st century, there will be increased pressure to drill in offshore and coastal areas. The conflict in use of the coastal areas between recreational and industrial users can only increase. The world economy is expanding, and by 2020 goods traded worldwide are expected to triple. With the U.S. as a major consumer of goods, the pressure on American ports will be immense. And then there are the threats from coastal hazards, the rise in sea level associated with global climate change, inadequate water supplies and water treatment—the list goes on.



The economic, environmental, and social demands on our coastal oceans and shorelines will be unparalleled in human history, and these demands will be similar throughout the world. The need for solutions to coastal problems, resolution of conflicts, and help in general will continue to grow as the threats to coastal areas increase. It will be imperative that all governments—local, state, and federal—engage their citizens and attend to their needs. NOAA will be called on as it has never been called on before. To date, only one program in NOAA is dedicated exclusively to the transfer of ocean and coastal knowledge to the user: the Sea Grant Extension Program of the National Sea Grant College Program. Sea Grant Extension has proven its ability to take the information resulting from sound scientific research and present it as an honest broker to the public and stakeholders for use in making public and personal decisions.

In view of the severity of problems today and their potential for growth, it is essential that the United States, as one of the world's major nations, take a leadership role in global coastal ocean issues. The United States itself must dramatically increase the resources it applies to coastal issues in an effort to develop “sustainable coasts” that will serve as a model for other nations. It is critical that all nations of the world make every possible effort to manage their coastal resources wisely.

As the U.S. civilian agency responsibility for the wise use of America's ocean and atmospheric resources, NOAA should analyze its organizational structure for addressing coastal and oceanic issues in order to provide optimal coordination and service to the citizens of America. Such analysis should address the role of Sea Grant in the full spectrum of NOAA activities, with particular attention to the role of Sea Grant Extension as the core element of a NOAA-wide outreach and engagement effort. NOAA has the opportunity today to show leadership in engaging the American public and setting an example to be followed by other nations around the world. *It is critical that NOAA make engagement with the public a major part of its mission.*

Acknowledgments

This review and the resulting report would not have been possible without the cooperation and assistance of many people. The Panel expresses its appreciation to all who shared their knowledge with the Panel through oral presentations and written materials. Special thanks go to Dr. James Murray and Ms. Nikola Garber of the National Sea Grant Office's Extension Program for their extraordinary contributions of organizational, logistical, and clerical support. Appreciation is also expressed to Ms. Carol Mason of Oregon State University for her assistance in preparing the final version of the report.

Notes

1. Spilhaus, A. F. 1964. Man in the sea. *Science* 145(3636): 993.
2. The National Sea Grant College and Program Act. 1966. Public Law 89-688.

3. For the purpose of this report, the term *specialist* is used to include Sea Grant staff called specialists, agents, advisors, educators, or extension associate or professor.
4. National Research Council. 1994. *A review of NOAA National Sea Grant College Program*. Washington, DC.: National Academy Press, p. 49.
5. U.S. Department of Commerce, Office of Inspector General. 1998. *Administrative Improvements in the National Sea Grant College Program Should Accompany Program Changes*. Inspection Report No. IPE-10105. Washington, DC.: U.S. Department of Commerce, p. 33.
6. Ocean Studies Board, National Research Council. 2000. *Bridging Boundaries through Regional Marine Research*. Washington D.C.: National Academy Press, p. 1.
7. Culliton, T. J., M. A. Warren, T. R. Goodspeed, D. G. Remer, C. M. Blackwell, and J. J. McDonough, III. 1990. *50 Years of Population Change along the Nation's Coasts, 1960–2010*. Coastal Trends Series. Rockville, MD: Strategic Assessments Branch, NOAA.
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10. California Research Bureau. 1993. *Economic Assessment of Ocean-Dependent Activities*. Prepared for the Resources Agency of California. Sacramento, CA.
11. Scheiber, H. N. 1995. Success and failure in science-policy interactions: cases from the history of California coastal and ocean studies, 1945–1973. School of Law (Boalt Hall). In National Research Council, *Improving Interactions between Coastal Science and Policy*, Washington, D.C.: National Academy Press.
12. John H. Heinz III Center for Science, Economics, and the Environment. 1999. *Designing a Report on the State of the Nation's Ecosystems: Selected Measurements for Croplands, Forests, and Coasts and Oceans*. Washington, D.C.: National Research Council 2000, p. 65. On Web at <http://www.us-ecosystems.org/>
13. Kellogg Commission on the Future of State and Land-Grant Universities. 1999. *Returning to Our Roots: The Engaged Institution*. Washington, D.C.: National Association of State Universities and Land Grant Colleges, p. 41.
14. MarinaNet, HazNet, and AquaNIC are organizational frameworks for effectively and efficiently sharing information among Sea Grant network programs and outside collaborators. They emphasize information related to marinas, coastal hazards, and aquaculture, respectively.
15. Assembly of SGEP Leaders. 2000. Regional and National Sea Grant Extension Programming: Issues, Opportunities, and Conceptual Mechanism for Improving Sea Grant's Capabilities. Draft discussion paper.
16. Program Assessment Teams are committees of distinguished senior administrators, managers, and experts appointed for the purpose of conducting program evaluations of Sea Grant institutions.
17. Topical Assessment Teams are small teams of experts on specific program elements (e.g., extension) appointed to provide outside assessment opportunities for a program.
18. NOAA education committee. 2000. NOAA Education "White Paper" draft. Silver Spring, MD: NOAA Science Advisory Board, p. 5.

Recommendations: A Summary

NOAA should

1. Create a new Office of Outreach, Education, and Public Engagement. The office would be at the Deputy Assistant Secretary level and would include three functional elements: (a) the National Sea Grant College Program, (b) a Division of Internal and External Liaison, and (c) a Division of Educational Affairs.
2. Review its engagement with users with the aid of the engagement test prepared by the Kellogg Commission on the Future of State and Land-Grant Universities
3. Increase the number of SGEP specialists who provide a critical role in maintaining the coastal and ocean resource of this nation
4. Reallocate resources and staff to enable the Sea Grant program to discharge its duties to its user communities

NSGO should

5. Explore and pursue appropriate partnership opportunities
6. Add one additional extension staff person with responsibility for the development and administration of partnerships
7. Establish regional extension programs
8. Establish procedures for individual Sea Grant programs to report accomplishments and project milestones (preferably in electronic form) to the NSGO
9. Store information in a database that allows easy retrieval
10. Add an additional person whose responsibilities include the development and maintenance of a data management system for SGEP
11. Avoid constraining the distribution by universities of funds according to a fixed formula, but rather require appropriate explanation and justification for any distribution of less than half the federal funds to peer-reviewed activities

University programs should

12. Develop formal principles to guide the use of outside funds in the support of program priorities and needs at the strategic planning level
13. Develop a formal role for the Sea Grant program director in hiring the SGEP leader and evaluating his/her performance
14. Clearly state in extension specialist job descriptions and letters of appointment the formal reporting and performance assessment relationships with the extension program leader
15. Include the SGEP leader as a full member of the program management team
16. Require graduate degrees of all new extension specialists hires
17. Encourage all SGEP staff to be actively engaged in self-directed professional development planning and implementation
18. Allocate travel support for specialists to attend at least one professional meeting or event each year

Implementation by NSGRP

19. Develop an implementation plan for the recommendations and follow the implementation to completion
20. Engage both the Oceans 2000 Act Commission and the Pew Oceans Commission as it develops and implements the plan

Appendix A

Biographies

National Sea Grant Extension Review Panel

John V. Byrne, chair, is President Emeritus of Oregon State University (OSU), where he served as President from November 1984 through December 1995. Before serving as President, he was the Administrator of NOAA from July 1981 through November 1984. Before he joined NOAA, his career included 3 years as a research geologist with the Humble Oil and Refining Company; 16 years in the College of Oceanography at OSU as faculty member, department chair, and dean; and 5 years as Dean of Research, Dean of the Graduate School, and Vice President for Research and Graduate Studies at OSU.

Brian E. Baird received his B.A. in environmental studies from the University of California at Santa Barbara in 1977. Mr. Baird is the Ocean Program Manager with the California Resources Agency. He represents the state of California on the Coastal States Organization and is the chair of its Ocean Policy Committee. He has served on panels and advisory committees with the John H. Heinz III Center, the National Research Council, the National Ocean Service, the National Ocean Data Center, the U.S. Army Corps of Engineers, and Sea Grant. In 1999, Mr. Baird was designated a NOAA Environmental Hero for his work with the Monterey Bay National Marine Sanctuary.

B. J. Copeland received a Ph.D. in limnology from Oklahoma State University in 1963. Dr. Copeland was a research associate, an assistant professor, and an associate professor at the University of Texas Marine Science Institute from 1962 to 1970, before serving in the faculties of zoology, botany, and marine sciences at North Carolina State University. He served as the Director of the North Carolina Sea Grant College from 1973 through 1996. Dr. Copeland is currently professor of zoology at North Carolina State University. He resides in Apex, N.C.

Robert W. Corell is a senior research fellow in the Belfer Center for Science and International Affairs of the Kennedy School of Government at Harvard University and a senior fellow at the Atmospheric Policy Program of the American Meteorological Society. He was the Assistant Director for Geosciences at the National Science Foundation, where he had oversight for the Atmospheric, Earth, and Ocean Sciences. He also chaired the interagency committee that has oversight of the U.S. Global Change Research Program. Dr. Corell was a professor and academic administrator at the University of New Hampshire, including serving as its Director of the Sea Grant Program. He has held research appointments at the Woods Hole Institution of Oceanography, the Scripps Institution of Oceanography, and the University of Washington.

G. Ross Heath is a professor of oceanography and Dean Emeritus of the College of Ocean and Fishery Sciences at the University of Washington. He earned his Ph.D. at the Scripps Institution of Oceanography in 1968. His research interests include paleoceanography, radioactive waste disposal, and deep-sea ferromanganese nodules. His other administrative positions have included Dean of Oceanography at Oregon State University and President and Executive Director of the Monterey Bay Aquarium Research Institute.

Fred E. Hutchinson retired as the President of the University of Maine in 1997 and is now professor emeritus at the University of Maine in Orono. He received a Ph.D. in agronomy in 1966 from Penn State University. Through his career at the University of Maine and Ohio State University, he served in a variety of academic positions, as faculty member and academic administrator at the department, college, and university levels. Dr. Hutchinson was a former recipient of the National Sea Grant Award and served on the Kellogg Commission on the Future of State and Land-Grant Universities. He resides in Lamoine, Maine.


Frank L. Kudrna is a member and past chair of the National Sea Grant Review Panel. He has served as Illinois Director of Water Resources and has served for over 20 years as a member of and Illinois Delegation Chairman to the Great Lakes Commission. He is CEO of Kudrna and Associates, Ltd. (a civil engineering firm located in Chicago and Westmont, Illinois). Kudrna holds a doctoral degree in city and regional planning from the Illinois Institute of Technology. He resides in Westmont, Illinois.

Michael P. Voiland is currently Assistant Director for Research and Extension at the Cornell University College of Agriculture and Life Sciences and Cornell Cooperative Extension. Previously, he had served at Cornell as Assistant Director of Governmental Affairs, Associate Director and Extension Program Leader for the New York Sea Grant Institute, and regional Sea Grant Extension specialist. Voiland holds a doctoral degree in natural resource management from the State University of New York College of Environmental Science and Forestry at Syracuse. He lives in Ithaca, New York.

National Sea Grant Office Staff

Nikola M. Garber received her M.S. in marine/molecular biology from the University of Southern Mississippi (Gulf Coast Research Laboratory) in 1999. She currently serves as staff to the National Extension Review Panel and is the Knauss Sea Grant Fellows Program Manager in the National Sea Grant College Office. Ms. Garber previously participated in both the Sea Semester and Semester at Sea programs and was a Knauss Fellow with Senator Ron Wyden of Oregon.

James Murray received his Ph.D. in 1993 in resource management from North Carolina State University. He currently serves as Assistant Director for Outreach and Program Leader for Extension at NOAA's National Sea Grant Office. Dr. Murray has devoted his career to the Sea Grant Extension Program, having previous experience



as a Sea Grant extension specialist and program leader at three Sea Grant institutions (Minnesota, New Jersey, and North Carolina). He has twice chaired the Assembly of Sea Grant Extension Program Leaders, and he received the Outstanding Leadership Award from the Assembly in 1999.

Appendix B

Charge to the Panel

Dr. John V. Byrne, President Emeritus
Oregon State University
Autzen House
811 SW Jefferson Avenue
Corvallis, OR 97333

Dear Dr. Byrne:

At the request of the Sea Grant Review Panel and as Director of the National Sea Grant College Program, I am in the process of organizing a review of the Sea Grant Extension Program (SGEP). The proposed review will be the first of its type in Sea Grant's 31-year history and I view the exercise as one of the most important activities that the Sea Grant community will undertake in the coming years. On behalf of the National Sea Grant College Program, I invite you to serve as chair of the national review panel of the SGEP. You have been nominated by the Sea Grant community as one who could provide invaluable experience and insight into the issues the network needs to address to make the SGEP more effective in the years ahead. Your vast experience and leadership in NOAA and university affairs, including your interest in NOAA extension while NOAA administrator and your present leadership of the Kellogg Commission, make you ideally suited for this important task.

I will telephone you in the next few days to discuss your availability for the review, elaborate on the anticipated duties and answer any questions you may have about the process. Attached is a brief summary of the background, purpose and process we envision for conducting the review, which should provide appropriate background information prior to my call.

Given the importance of this review to the future of the National Sea Grant College Program, I sincerely encourage you to consider chairing the panel. I plan to discuss this matter with you soon. Thank you.

Sincerely,

Ronald J. Baird, Director,
National Sea Grant College Program

National Review of the Sea Grant Extension Program

Purpose: To conduct a review and evaluation of the Sea Grant Extension Program (SGEP) for the purpose of providing recommendations about the organization, administration and management of the SGEP program within NOAA, the NSGO and its university partners. The review should be forward looking and designed to provide the Sea Grant network with strategy, guidance and recommendations to enable the SGEP to meet its full potential in the decade ahead.

Background: The U. S. Department of Commerce Office of Inspector General conducted an evaluation of the National Sea Grant College Program to determine whether the NSGCP was achieving its goals as determined by the National Sea Grant College Program Act of 1966. The evaluation began in 1997 and the subsequent report was released in July 1998. Among six major findings was one related to the Sea Grant Extension Program which stated the “marine extension program should benefit from the new evaluation process.” Among the OIG’s concerns were, 1) neither the NSGO nor the National Research Council has conducted a comparative review of SGEP programs, and “programmatic attention to the [SG]EP is long overdue,” and 2) NSGO should ensure the new review procedures focus on the effectiveness of the SGEP and recommend improvements, “in those extension programs whose organizational arrangements and techniques are generally not associated with the most productive, integrated, and dynamic [SG]EP programs.”

The OIG decided not to undertake a full review of SGEP while the new Sea Grant evaluation procedures were being developed; however, the OIG concluded that “a comparative review of the extension function of Sea Grant universities is overdue.” The OIG further stated that “because of the numerous changes anticipated and currently underway, we believe that a full-scale OIG review of the Sea Grant program would be more valuable in about two years” (July, 1998).

The NSGRP and our office also believe that a review would be very useful and should address several other issues such as the following:

- 1) Are there best management practices for the organization and management of SGEPs at the Sea Grant Program level?
- 2) Are the national and regional structures of the SGEP sufficient to meet its goals? How do we build outreach into national competitions?
- 3) How can the SGEP relationship to OAR and the rest of NOAA be improved?
- 4) Can SGEP effectiveness be improved by developing new and creative partnerships with other agencies?
- 5) Is the NSGO adequately fulfilling its SGEP leadership responsibilities?
- 6) Collectively, is the SGEP organized to address the proper mix of programmatic issues?

Potential Schedule: Overall, we view the National Sea Grant Extension Review as functioning similarly to National Research Council reviews, with various presenters and panels presenting information and points of view and answering questions on topics determined by the panel. Although the below schedule is subject to change, a need was seen for an opening conference call and three meetings over a six to eight month period. It will be important to have the preliminary findings available by November for

policy briefings for transition teams in the new administration. A proposed schedule is to be determined and may look like the following:

1999

December and January—Solicit input and panel nominations from the network

2000

January—SGRP discusses and approves the extension review plan

January and February—Panel appointed by NSGO Director

March—Extension Review Panel conference call to review charge, establish process and schedule and discuss information needs

May—1st meeting in Silver Spring (concentration on NOAA and NSGO related issues)

Agenda items

- Review of 1994 National Research Council report and its implications for extension review
- SGEP overview, background and data
- NOAA outreach/constituent affairs
- OAR outreach
- NSGO context
- Other input from folks knowledgeable about SGEP at the NSGO/NOAA level
- Other extension models? (USDA, NIST, etc.)
- User panels
- executive session

July/August—2nd meeting (West coast?), focus on issues from Sea Grant network

Agenda items

- SGEP management structures
- Summary of PAT reports vis a vis extension
- SGA (SGA chair or panel of directors)
- SGEP perspective (Assembly chair or panel of program leaders)
- Regional Programs
- National extension networks and programs
- Theme areas and extension's ability to address emerging program areas (biotechnology, large urban area extension programming, etc.)
- User panels

October—3rd meeting (location set by panel). Focus on drawing conclusions, writing final reports and additional information needs including user community input from the region

The panel would ultimately set the agenda and its agenda will likely vary considerably from the above.

Staffing—NSGO (Dr. James Murray, Program Leader for Extension) will provide staff to the panel.

Costs—To be covered by NSGO including panel travel and a honoraria.

Appendix C

Presenters at the Three Panel Meetings

Bob Bacon, Extension Program Leader, SC Sea Grant
Ronald Baird, Director, National Sea Grant College Program
Nancy Balcom, Extension Program leader, CT Sea Grant
Al Beeton, Chair and Science Advisor to the NOAA Administrator
Eddie Bernard, Director, Pacific Marine Environmental Laboratory
Penelope Dalton, Director, National Marine Fisheries Service
Margaret Davidson, Director, Coastal Services Center
Chris DeWees, Program Leader, California Sea Grant Extension Program
Rick DeVoe, Director, South Carolina Sea Grant Consortium
Mike Donahue, Executive Director, Great Lakes Commission
Tom Dowd, former Washington Sea Grant Ports and Harbors Specialist
Bill DuPaul, Extension Program Leader, VA Sea Grant
Louie Echols, Director, Washington Sea Grant
David Evans, Assistant Administrator, Oceans and Atmospheric Research
Kristen Fletcher, Director MS/AL Sea Grant Legal Program
Bob Goodwin, Coastal Resources Specialist, WA Sea Grant
Leigh Johnson, Marine Advisor, CA Sea Grant
Andrew Kemmerer, Director, Office of Habitat Conservation, National Marine Fisheries Service
Jonathan Kramer, Director, Maryland Sea Grant
Frank Kudrna, Chair, Sea Grant Review Panel
Margaret Leinen, Assistant Director, Geosciences, National Science Foundation
Tony MacDonald, Executive Director, Coastal States Organization
Bob Malouf, Director, Oregon Sea Grant
Laurie McGilvray, Director, National Estuarine Research Reserve System
Jim McVey, Program Leader for Aquaculture, NSGO
Brian Miller, Program Leader, IL/IN Sea Grant
Jim Murray, Extension Program Leader for Extension, NSGO
Ralph Otto, Deputy Administrator, Cooperative State Research, Education and Extension Service, U.S. Department of Agriculture
Phil Pope, Director IL/IN Sea Grant
Ed Sander, Chair, New York Sea Grant Program Advisory Council
Fritz Schuler, Executive Director, NSGO
John Schwartz, Extension Program Leader, MI Sea Grant
LaDon Swann, Aquaculture Extension Specialist, IL/IN Sea Grant
Leslie Sturmer, Marine Agent, Florida Sea Grant
Mary Anne Whitcomb, Coordinator, Office of Oceanic and Atmospheric Research outreach committee
Clint Winant, Acting Director, California Sea Grant
Willie Younger, Marine Education Specialist, TX Sea Grant

Organizations Represented by the Presenters

National Sea Grant Office
National Oceanic and Atmospheric Administration
United States Department of Agriculture
National Science Foundation
Sea Grant Association
Assembly of Sea Grant Extension Program leaders
Sea Grant Extension Program specialists
Coastal States Organization
Great Lakes Commission
Representative Stakeholder Group

Appendix D

List of Selected Documents Provided to the Panel

- The National Sea Grant College Act [33 USCS 1121 *et seq.*]
- 1994 review of the National Sea Grant College Program by the National Research Council
- The U.S. Department of Commerce Office of Inspector General's inspection report no. IPE-10150/July 1998
- Executive summary of "Returning to Our Roots: The Engaged Institution," Kellogg Commission on the Future of State and Land-Grant Universities, National Association of State Universities and Land-Grant Colleges, 1999
- NOAA and Sea Grant organizational charts
- FY 2000 NSGO operating budget
- Performance plan for the NSGO program leader for extension
- Summary of comments from Program Assessment Review Team related to the SGEP
- Organization charts for the SGEP programs
- "NOAA Education White Paper," June 27, 2000 draft
- Concept paper for joint National Marine Fisheries Service/Sea Grant Fisheries Extension/Outreach Proposal, May 15, 2000 draft
- Concept paper for a proposed coastal communities development initiative, Ron Baird memorandum to Sea Grant directors, September 2000
- Topical Assessment Review procedures
- Sea Grant Program assessment evaluation procedures, April 20, 1998 draft
- A discussion paper to the Assembly of SGEP Leaders, "Regional and national Sea Grant Extension programming: issues, opportunities, and conceptual mechanisms for improving Sea Grant's capabilities," September 21, 2000 draft
- National Strategic Investment Policy Document, February 2, 1998 draft
- Data on SGEP FTEs, including funding sources
- Data on the distribution of SGEP program effort by NOAA strategic plan category
- The executive summary of the National Research Council, "Bridging Boundaries through Regional Marine Research," National Academy Press, 2000
- The annual salary and outreach surveys (1997–00) for the SGEP
- A 1992 "think piece," "Sea Grant Marine Advisory Service; the Nation's Coastal Technology Transfer Program for the 21st Century"
- In addition, many of the presenters provided a variety of handouts and materials, including position papers supportive of their presentations.

Appendix E

Proposed Organizational Structure

See next page.

PROPOSED ORGANIZATIONAL STRUCTURE

FOR THE NOAA OFFICE OF OUTREACH, EDUCATION, AND PUBLIC ENGAGEMENT

