

**Fall 2009 National Sea Advisory Board Meeting  
Wednesday, August 26 – Friday, August 28, 2009  
Mayflower Park Hotel  
Seattle, Washington**

**Tuesday, Aug. 26**

2 – 5 PM New Members Orientation Session, Executive Suite

3 – 5 PM Meeting of the Outreach & Communications committee, Corner Suite

Evening Board Get Together, Executive Suite

**Wednesday, Aug. 26**

8:30 AM Meeting Session – OPEN TO PUBLIC

8:30 AM – Welcome, review agenda, minutes, etc.

8:45 AM – Chair's Report (R. West)

9:15 AM – NSGO Report (J. Murray)

9:45 AM – SGA Report (G. Grau)

10:15 AM – NOAA's Next Generation Strategic Plan (P. Doremus)

10:45 AM – Wrap up Comments

11:00AM Break

11:30 AM Field trip – OPEN TO PUBLIC (transportation provided for Board)

1) Seattle waterfront (innovative shorefront restoration) – Maureen Goff

2) Fishermen's Terminal (fisheries research and outreach) – Pete Granger, Peter Philips

*LUNCH – at Fishermen's Terminal.*

3) Hiram Chittenden locks, (salmon restoration)– Researchers Graham Young and Kerry Naish

3:30 PM Stakeholders Session, Ray's Boathouse (Northwest Room).

6049 Seaview Avenue NW, Seattle, WA 98107

1) Washington Sea Grant, Welcome – Penny Dalton

2) Stakeholder's session - Discussions with Ken Chew, Kathleen Drew, Linda Fox, Paul Johnson, Terry Stevens

5:30 PM Adjourn.

5:30 PM Evening Reception at Ray's Boathouse, Northwest Room

## **Thursday, Aug. 27**

8:15 AM Morning Session – OPEN TO PUBLIC

8:15 AM – Biennial Report Committee Report (J. Woeste/R. West)

Strategic Plan Alignment Committee Report (J. Byrne/R. West/J. Woeste)

Site Visit Discussion (J. Murray)

10:15 AM – 15 Minute Break

10:30 AM – Pacific Ocean Shelf Tracking Project presentation (J. Bolger)

11:00 AM – Research Committee Report (R. Duce)

12:30 PM – 1:00 PM Break and Working Lunch

1:00 PM Afternoon Session – OPEN TO PUBLIC

1:00 PM – Communications Committee Report (F. Kudrna)

2:30 PM – 15 Minute Break

2:45 PM – Futures Committee Report (J. Harris)

4:15 PM – 15 Minute Break

4:30 PM – Discussion: Impact of recommendations on Programs

5:30 PM Meeting Adjourn

6:30 PM Farewell Dinner for departing Board members, Swearing-in of new members. Mayflower Park Hotel.

## **Friday, Aug. 28**

8:00 AM – 11:30 AM Morning Session – OPEN

8:00 AM – Remarks (R. Spinrad)

8:45 AM – Discussion: Impact of recommendations on Programs

9:45 AM – 15 Minute Break

10:00 AM – Discussion: Impact of recommendations on Programs

11:30 PM – 12:00 PM Break and Working Lunch

12:00 – 3:00 PM Afternoon Session – CLOSED

Potential Items for Discussion:

Elections (15 min)

Assignments (15 min)

Future Priorities and Funding (60 min)

# Draft

## National Sea Grant Advisory Board Semiannual Meeting Wednesday, February 11 and Thursday, February 12, 2009

Consortium for Ocean Leadership  
1201 New York Ave., NW  
Washington, DC

### Wednesday, Feb. 11, Consortium for Ocean Leadership

#### Call to Order – Roll Call

Dr. Peter Bell	Dr. Judith Weis
Dr. Robert Duce	Rear Admiral Richard West
Dr. Ross Heath	Dr. James Murray
Dr. Frank Kudrna	Mr. Joseph Harris
Dr. Nancy Rabalais	Dr. Michael Orbach
Mr. Jeffrey Stephan	Mr. Harry Simmons
Dr. William Stubblefield	Mr. Richard Vortmann

#### Review of Day's Activities/Approval of Agenda

- Margaret Davidson will attend via conference call.

#### Introductions

- Welcome to Dr. Michael Orbach

#### Chair's Introductory Remarks - R. West, Advisory Board Chair

- Chair looked over Board's reports/recommendations over the past 10 years. Appears to be the same recommendations again and again. What is being done about all these reports? Appeal to the SGA on whether or not these reports are useful and if not, and what would be more useful?

#### Comments:

- Request for NOAA to issue a formal response to AB reports?
- Four new AB members are needed who fill regional and diversity gaps on the AB.
- Knauss reception: Needed time for speeches and more NOAA/SG signage.
- Update: An Alaska Sea Grant MAP agent who has acted in an advocacy role has invoked the FOIA to obtain information from the NSGO.
- Update: Cammen and Swann to meet with Sen. Shelby's and Sen. Cochran's staff Feb. 12, 2009.

- **Report of the Sea Grant Futures Committee - Report and Discussion, J. Harris** (See powerpoint presentation)
  - Committee met in Honolulu in January 2009.
  - SG lacks political support on the Hill and within NOAA.
  - Not perceived as a political asset.
  - Clients don't communicate benefits to political support.
  - More effort needs to go into organizing clientele into a political constituency.
- Within NOAA: Commerce unconcerned with SG, NOAA feels SG is positive but irrelevant to rest of NOAA.
- On the Hill: on radar screen but needs more support, mixed messages (LBA). Support is regional but not to the level of advocacy for the growth of the program.
- How to redefine image:
  - Immediate meetings with new administrators.
  - Be responsive to key current themes (climate change, sustainable development, etc).
  - Find champions- SG should be an agency-wise resource.

**Action: Grau will check with SGA for possible contacts within White House staff. Kudrna will check also.**

- Other questions: Is the SG model working? Should SG be in Commerce?
  - SG brand recommendations: Create brochures that highlight initiatives of current key issues. Repackage what fits under immediate needs. Share thoughts with SGAB communications committee.
  - Building immediate SG relevancy: take advantage of extension. Develop new initiative that takes advantage of extension capabilities/expertise.

Comments:

- National initiative could build national character of the program.
- Instead of a catalogue of impacts, SG should focus on a few very high impact examples.
- SG should quickly integrate into NOAA's climate plan under the engagement piece.
- How do you reconcile the need to be independent with national initiatives?
- Need to portray NOAA as a key agency to tackle climate issues.
- The Board doesn't have the authority to implement these ideas—the programs need to take the initiative—how do we bring this together?
  - Grau thought the SG directors would embrace this idea. The question is whether the NSGO will support the national initiative.
  - Does there need to be changes to the strategic plan to fit this strategy?
    - There might need to be some slight changes—packaging it under a theme of building sustainable communities (alternative marketing strategy). It's easier to get Congress to expand on an existing initiative rather than ask for money to start a new initiative.
    - There is an opportunity for NOAA to help lead USDA cooperative extension in developing national climate extension capacity.

- Who implements these suggestions? Climate extension committee could be done with existing resources within the programs and within NOAA with supplemental funds from NSGO. Once cities know this service is available, it could help build support for the program. Service could also require match from cities/towns.
- Need OAR to get approval from NOAA.
- This is a gap that no one has filled yet.
- Suggestion that the Board bring possible climate extension service up with Dr. Spinrad later today.
- Harris will produce brief draft of proposal. Board should get buy-in from SGA before going to Spinrad.

**Regional Collaboration and Engagement in NOAA – L. Furgione, Assistant Administrator, Office of Program Planning and Integration and Opportunities for NOAA/Sea Grant in a Changing Landscape, M. Davidson, Director of the NOAA Coastal Services Center (See powerpoint presentation)**

- Engagement at NOAA
- Regional collaboration: 8 regions (some regions share states)
  - Regional priority areas:
    - Hazard resiliency (M. Davidson)
    - Integrated Ecosystem Assessment (S. Murawski)
    - Integrated Water Resources Services (G. Carter)
    - Communications and Outreach (Louisa Koch)
  - Each region has new team leads.
  - Regions have measurements but have yet to develop clear objectives.
  - Strategic planning in progress.

Comments:

- Suggestion: Kellogg Commission: Engagement tool allows you to score yourself on how well you're doing.
- All teams have representatives from NOAA line offices. Each year they have at least two face-to-face meetings within the regions and one national collaboration workshop each year (Boulder, April 1, 2009).
- Regional leads can be POCs for regional capability info but so can the priority area teams. Working on communication and building a regional identity.
- To what extent is NOAA hiring managers/communicators and training them? Trying to utilize existing resources but we're also identifying needs and trying to fill gaps.
- Each region has \$50K but many regions were able to leverage funds. NOAA has over 600 full time communicators (most are in SG) but they're not well connected. This is an attempt to develop the organizational structure to improve communication between these groups.
- The challenge over the next decade will be erosion of buying power and will need to sharpen purpose and take better advantage of one another.

- How do we get SG more involved in NOAA regional process? Some regional teams have engaged SG, others less so. New administrators and Board could work together to encourage regional cooperation.
- How to get around the “them and us” culture? SG is boots on the ground and essential and the push toward climate services could show how SG is applicable to NOAA’s mission and regional objectives. SG can show local relevancy and make sure NOAA’s work is put to use.
- Is there a role for CSC in getting more SG participation? CSC has pushed for this but SG isn’t the only partner that needs to be at the table. Murray’s work with engagement is one way to do this. CSC is pushing to have SG included and more needs to be done. If you look region by region, SG has gavel for many conversations—in others SG might not return a invitation call. It goes both ways.
- Increased partnership will be even more important under new Administration. But SG needs to move on this quickly. Changing cultural issues require as much time and energy as any training program. Too often education and communication get short shrift. It’s easier to get money for tools developed than to improve communications. The Board could reach out to people to increase cooperation and make sure someone is representing SG’s interests on SAB.

**Update on Ocean Issues, K. Wheeler, Director of External Affairs, Consortium for Ocean Leadership**

- Climate change and energy are priority areas but it’s not quite clear on how ocean issues will fit in.
- Renewed focus on science based decision-making.
- New chairs on committees.
- Final Senate stimulus funds \$227 in Habitat and \$795 for Facilities.

Comments:

- Satellites should be taken out of NOAA. NOAA needs to position itself as the lead for ocean and coastal issues.
- Has there been an effort for grassroots support development. This is the SGA’s role.
- Why was habitat so successful in getting new money? Most money is going to the corps of engineers. Ross Heath’s diagram shows SG funding going down, but coastal programs funding is going up. These new programs are charged to do the same work as SG. Part of the problem is the perception that it’s hard to get an existing program like SG turned around. SG is viewed as a block grant and NOAA as too big. OMB also has a problem with the number of line items at NOAA.
- Board needs to meet with Lubcheno soon.
- SG needs to get bodies in offices continuously (at the state and congressional level and within NOAA, OMB). The NSGO just doesn’t have the staff.

**State of Sea Grant Report (2010) - Report and Discussion, R. West and J. Woeste**

- Need one more member--**Byrne will be fourth member of committee.**

- 4 tasks:
  - Generate memo on how SG is meeting requirement.
  - Highlight national program, priorities and accomplishments, and any problems over past 2 years. Focus teams will be critical in this. On an annual basis, focus teams will have 32 annual reports and decide whether SG is meeting objectives in strategic plan.

### **NSGO Director's report, L. Cammen (see powerpoint presentation)**

#### Comments:

- More and more money will go into national initiatives. This is where we're likely to have growth in the program.
- SG needs a long term plan.
- Recommendations from the Board and the Hill; are they getting implemented? Yes, to a degree but we don't have the funding. SG could do everything and still not see a funding increase. We do it because it's the right thing to do and you can't cut funding to one program for another.
- **Request to the Board: Figure out where SG is going as a program (for next legislation) by end of next year. Will have a charge by August meeting.**

### **Report of the Research Review Committee – Report and Discussion, R. Duce**

- Questionnaire sent out to SG and NOAA lab directors.
- Carried out interviews this week and next.
- Findings:
  - Perception that research is not as strong as NSF's portfolio.
  - SG viewed as entitlement program.
- Report not yet finished—no recommendations finalized.
- Preliminary recommendations:
  - NSGO must be more aggressive in promoting SG within NOAA
    - Could do this by including other NOAA people in review process.
  - More cross-cutting initiatives.
  - SG needs to develop more meaningful partnerships with NOAA labs.
- Conclusions:
  - Bring in best talent possible.
  - Limit indirect costs that universities might charge.
  - Increase partnerships with NOAA offices.
  - Continue to encourage high percentage (50%) for research.
  - Develop better metrics for research performance.
  - All publications (not just peer reviewed) should be considered when evaluating program.
- How to increase research portfolio: Regional partnerships, more state resources, aligning research programs within state, some admin changes could free up more funding for research.
- Thinking outside the box: Options

- Regionalization of all aspects of the SG program (one program lead for each region).
- Keep SG programs for outreach and education but manage research grants at the regional level.
- Options for redefining structure of SG:
  - Status quo
  - Terminate research portfolio
  - Increase research spending at expense of outreach
- Expect to complete report later this spring with a final submitted before summer.

Comments:

- Suggest taking a look at the programs and models that are well funded (USDA, NASA).
- Another “out of the box” idea: Share/coordinate research with OAR. Could also remove match requirement.
- Extension only model would mean that SG would be extension arm of NOAA—also a recommendation of the Byrne report.
- Committee’s recommendation could provide guidance for the PIE process.
- Some SG programs are having trouble making match requirements—need to consider this in research recommendations.

**Public Comment:**

- 11-12 coastal agencies and SG has a unique ability in extension but SG isn’t getting fair share of resources. NOAA should promote this when competing with other agencies for funding. The Board and SGA need to work together to sell SG and stop worrying about guidelines/rules. Should promote the fact that they SG already has the capacity and government shouldn’t reinvent the wheel. (Mary Hope Katsouros).

**Oceans and Atmospheric Research in a new Administration, Presentation and Discussion – R. Spinrad, Assistant Administrator, Oceans and Atmospheric Research**

- Need SG to fill gap in climate services to do a variety of things (develop products, get products out to communities, bring info back from communities and translate that into research needs).
- SG hasn’t characterized a well-defined niche of national capabilities. The strategic plan has made great strides in clarifying this through focus areas—three of which are directly tied to climate services.
- Lubchenco should be confirmed tomorrow. Secretary designate, Senator Gregg knows SG and wet side of NOAA.
- Regional approach is key. Credit to NSGO for building regional component. Need Board’s and SGA’s advice on what to highlight/operate regionally.

- NOAA Research Matters document-- impacts document that could be used for congressional outreach. Does the Board think this would be something SG should do?
- Performance metrics: GPRA, PART. Tools that work well for agencies like the NWS. But OAR is different. Trying to emphasize relevance, but GPRA and PART don't address this well.

Comments:

- What would be the ideal relationship between SG and rest of NOAA? A trusted agent. Input on the application or development of new research projects from SG enterprise, not just one program.
- Are there incentives/rewards for agencies that are collaborating? No, but regionalization should promote recognition of collaboration. SG has excellent relationships with the state—better than any other agency does and federal agencies are now getting a lot of direction from the states (Governors initiatives). Suggest SG strengthen connections with Governors (Coastal States Organization) on a more formal basis.
- How do you improve communication within NOAA? Attention to the activities initiated by the oceans act (ocean commission, pew commission, etc). Discussions on potential to aggregate all coastal capabilities into one coastal line office. NOAA will wait for new administration but right now, there is no coherent statement about coastal research.
- Overview of Jeremy Harris' presentation on adaptation to climate change initiative.
  - Much of what is being done is mitigation—but NOAA must also help communities adapt. In addition to sea level rise, there are a lot of other adaptation considerations (e.g. air density change, ocean acidification).
  - Who within NOAA should SG touch base with? Start with Tom Karl and Chet Koblinsky in climate services. NOAA doesn't have authority to take on climate change—it tackles it through the ramifications of climate change for NOAA's areas of interest.
  - Suggestion to fund a demo in one region and then be ready to expand when/if it gets increased resources. Spinrad: Having a test-case like this is worth having in our pocket for when NOAA is asked about the best work being done in climate adaptation—but hesitant to say that this is important enough to divert funds within NOAA now.
  - Look at adaptation as it applies to NOAA's mission--tie to OCRM, shipping/ports and harbors, etc. and then bring other agencies on board.

**Adjourn**

**Thursday, February 12**

**Review agenda and re-cap actions from previous day - R. West**

- Regional conversation –Need to follow up on how to integrate SG into NOAA regional teams.

- NOAA Education Plan is out. They haven't answered the question as to whether they are planning to broaden education to outreach and extension. If the Board thinks this is a priority, the Board should send a memo. The FACAs should get an invite to appear before the SABs. West has been invited to the next meeting.
- Something needs to be done on an interim basis regarding SG and climate adaptation initiative. There were six recommendations, the Board will need to decide on one. August meeting (26-28)—probably need a full day of closed session so a three day meeting might be necessary to discuss this initiative.
- Board should also brief OSTP, CEQ, and PAD by next spring.

### **Sea Grant Association report, G. Grau, President**

- SGA Challenges and Opportunities
  - SGA is strong and a good mix of new and established members and working better together and with the NSGO and Board.
  - Ended relationship with LBA. Need to re-establish DC presence/representation and could use the Board's advice on how to proceed.
  - Core capacities—CCD is an example of SG's national identity. Would like to have the resources to build that same capacity in other areas.
  - For SG to thrive, SG must make itself valuable to NOAA.
  - Major steps in hazard resiliency throughout the network.
  - Need to seek assistance/guidance from key members of Congress and find a Champion in both houses.
  - SGA would like to work with the Futures Committee, engage stakeholders, compile SG publications and list of SG alumni. The publication list is almost complete.
  - SG needs to stay on message—continuous communication.
  - October 14-15 is next SG in Easton, MD and welcome extended to Board members. Every meeting in the future will include training.

### Comments:

- Suggestion that the Hill/lobbying strategy be vetted by Board.
- SGA proposing to meet with Dr. Spinrad once or twice each year for a leadership meeting to decide on an approach and develop a coherent message.
- Three steps to climate adaptation initiative: building concept into strategic plan, getting additional funding, and figuring out who will implement. How should Board interacting with SGA on the latter? The model for CCD capacity is a good one to follow and CCD network is already working on climate issues. Need collaboration between Board, SGA, experts, etc. through scoping meetings and workshops. SG has capacity but it will take a year or two. By the end of April 2009 there will be a scoping meeting. Invitation for the Board (2-3 people) to attend with a few SGA members and other experts. By the end of summer SG could have the resources together to have reps from every program and produce a white paper by Labor Day.

- Message might be more effective if it comes from stakeholders rather than SGA directors. Also, the Senior Research Council is an opportunity to for SGA to sit down with OAR and lab directors.
- **Board needs to draft a short memo to the NSGO to get climate change extension started.**
- Should put together a brochure on climate activities—initiative needs to be marketed before it's developed.

**Toward a National Climate Service: Opportunities for Sea Grant, C. Koblinsky, Director, NOAA Climate Program Office**

- Someone needs to communicate climate info at the local and regional level. There is a potential role here for extension.
- Demand for climate info is increasing and exceeds capacity. Sources of information are distributed. How do we integrate capabilities to become more effective, improve capabilities, and build partnerships?
- Regional centers are active, but it's still difficult to communicate. Coordination among regional centers is improving but still don't know how to go about extension.
- In coastal areas, focus areas are in sea level rise, precipitation patters and effects, ocean temp, etc.

Comments:

- Harris presentation for climate change adaptation extension.
  - Great idea—could be helpful in climate services. Need to figure out how to move on from here in terms of partnership. Board could come up with tangible next steps for forming this partnership—what is needed is an actionable model.
  - **Jeremy and Leon will summarize climate change adaptation extension model and get something off to Chet shortly.**
  - SG extension specialists are existing resources that are available now. Invitation for Chet to attend SCD trainings.
  - Encourage Chet to work climate service presentation into response to the SAB.

**The View from the Office of Science and Technology Policy, D. Walker, Assistant Director for Environment, Science Division**

- Two new OSTP staff—Other positions are still being filled.
- Interest in big initiatives.
- Important to work on the interagency governance structure so when policy is developed we're ready to move on it.
- Joint subcommittee on ocean science and technology has been engaged in developing national priorities—which led to charting the course of ocean science (2006).
- Climate adaptation is focus (more so than mitigation).
- Two messages when talking about climate adaptation:

- Problems funding adaptation: adaptation often viewed as ignoring mitigation.
- Role of NOAA/R&D in adaptation: need to make sure all new infrastructure investments are based on scientific understanding of the long-term outlook.

Comments:

- How do you see responsibility for these efforts allocated? Not sure who will take primary responsibility. OSTP and CDQ will play a role.
- FEMA's role: Redoing hazard mapping for flooding. Increasingly involved in science but position in Dept of Homeland Security makes coordination with NOAA more difficult.
- Discussion of an integrated environmental agency is a little premature.
- How can SG be involved in OSTP's guidance memo?
  - OSTP/OMB Guidance memo will come out this year. First thing the office will do is examine the current bodies to make sure they match admin priorities—should they be realigned or sunset? Majority of NSTC reports are directed toward Commerce. Challenge will be in creating continuity.
- How would you see OSTP working with SG on a climate adaptation service? Two most obvious candidates are USDA and SG. Now we need to decide how best to marry SG research and centers under OSTP portfolio. Working on a strategic plan to incorporate the many adaptation activities. Need a dialogue with SG programs, RISA, TRACTS, Applied Climate Services, IRI, etc to talk about strategic partnering/visioning and then expand that to talk with USGS or EPA to have a plan to funnel into extension activities. Will have lunch with Dr. Cammen next week to discuss.

**MOTION: Approve minutes: with addition of attendees. (Simmons, second Motion: Stubblefield).**

**Sea Grant Communications Committee – Report and Discussion, F. Kudrna**

- Conference call in December and meetings over the past few days. Conducted interviews and went over the Board's reports. There are very few resources left for communications (1/2 of Amy Painter in NSGO and 1 ½ on the extension side).
- SG lost something by not having a national communications office.
- I suggest three committees work together to reduce interviews with the same people.
- SG should have a discussion with each of the AAs to find out which issues they'd be willing to partner with SG on and what resources they would consider (not just within OAR).
- Committee will have monthly conference call. Next one will follow SAB and report back as to what NOAA reported on engagement. Nancy and Jeff will finish a review of other reports to determine which prior report recommendations

are still appropriate/unmet. Committee will meet in June/July in Annapolis to prepare report. Request for a professional editor for the report.

#### Comments:

- In the future, committees need to coordinate meetings/interviews to reduce the number of meetings that need to be held.
- At the Baton Rouge meeting, the communications and futures committee seemed connected. Is communications committee going to take on how to sell climate adaptability to NOAA? Yes, and will include some recommendations in the report. SG needs to be careful that it doesn't look like it's trying to do it all.
- **Recommend that each Board member visit state SG program to discuss climate adaptation initiative and communications and report back to Board.**
- **Need an assessment of whether the expertise capacity within that college system can support climate adaptation initiative. The NSGO is populating at coastal experts guide and each SG Director should pay attention to extension and research capabilities that could be tapped for technical teams to get the ball rolling.**
- Climate Initiative would be creating demand and encourage people to advocate for more funding. Need to emphasize that SG is connecting climate resources, not reinventing the wheel. There is uneven distribution within the network as far as this kind of capacity and change might be difficult.
- **Suggest a climate adaptation brochure? NSGO will pull from the survey by the SGA—Amy can work with communicator at Hawaii SG. Harris and Grau will also work on strategy. Brochure should be linked to website with more info.**
- Need more congressional and constituent support. Show Hill how SG links to the constituency.
- Knauss database went live recently. There are 676 alumni—NSGO is trying to get updates and where they are now.
- Stephan brought Sen. Begich to SG Advisory Board meeting in Alaska and he asked what he could do for SG. Paula Cullenburg also met with Senator recently.

#### **Working Lunch, begin Administrative session (closed to public)**

##### **Work schedule, assignments**

##### **Board's budget**

- Exceeded the budget.
- NSGO encourages Board to book through AdTrav. Cheaper tickets can be booked but you're responsible if you have to cancel the ticket. You have to have special approval from NSGO before you do this. You must still do this through AdTrav.

**Harris: Ask that the NSGO put together a packet on how to book travel, etc. for meetings. Pearson is putting together a manual—let NSGO know what should be added. Request that NSGO send Board manual as is.**

## **Expiration of terms/need for new members**

### **Nominations process and recommendations**

- Review of Board nominations. Be aware of regional, gender, and other diversity. Murray and West will scrub list and then give Spinrad a say.
- Kudrna: recommends Katherine Ballard from the great lakes. She is interested. Another is Patty Burkholz—a state Senator from Michigan (she has not been asked yet).
- Orbach: Amber Mace (past Knauss fellow)
- Harris: We have substance, what we need is clout—big names would increase the Board's credibility and stature.
- Murray: If climate adaptation is important, we should think about that kind of expertise on the Board.
- Kudrna: Might want to have an engineer on the Board.
- Laura Contrell (marine commission).
- Stephan: More industry leaders. Brian Alee?

**Need to draft memo to NSGO on climate adaptation idea documented. Board also needs to figure out a plan to take it to the next step. Harris and someone else from the Future's committee, Leon, Chet, Grau, etc. could take the concept letter to get buy-in from other NOAA offices. Suggest conference call with to flesh out concepts and get general agreement before a meeting. Write up package proposal after conference call and then have meeting with all the stakeholders.**

**West will follow up with other advisory committees to see what's going on regarding climate change activities.**

### **Fall meeting**

- Best dates for meeting in Seattle is Aug. 26-28, 2009. Pete Granger and Penny Dalton are coordinating. There's the possibility of a field trip. Alternative dates are Aug. 3-5. Board needs enough time for internal meeting time. Perhaps half-day trip and a three day meeting. Could invite directors from NMFS and PMEL, and other NOAA labs.
- Board should follow up with Koblinsky, Spinrad, Furgione and suggest SG climate idea should be included in NOAA response to the SAB. This should perhaps be done informally?
- Going back to AAs and asking under what circumstances they would they be willing to partner and match dollars with SG. Board should charge the Exec Committee to conduct these interviews. West will discuss with Jack Dunnigan. Board needs to have something specific on the table (climate idea).
- Who is following up with congressional champions for SG in general? Schmitt will go through the list again—there were a few additions. SGA is tasked with creating a list of possible champions. Experienced politicians on the Board would be a plus. Board could review list and advise.
- Cammen met with Sen. Shelby's staffer. MS/AL issue never came up. Budget was finished. Also met with Sen. Cochran's staff. Sessions staff—excited about

MS/AL efforts. Cammen was there support MS/AL and explain national program.

- Grau will meet with James Chang (Inouye) tomorrow.

### **Coastal trends and issues: Implications for Sea Grant, M. Glackin, Deputy Under Secretary for Oceans and Atmosphere**

- Stimulus money for habitat restoration and perhaps construction money for a pacific center. NOAA will also look at what other federal partners received and opportunities for partnership.
- Admin is working on 2010 budget.
- Lubchenco could be in NOAA by next week. Quick nomination showed that new admin takes NOAA seriously. Gregg hearing week after next—he knows NOAA well.
- NOAA urgent issues: NPOESS, GOES-R, Ship acquisitions.
- What is NOAA's niche? Climate change. This takes partnerships. We want to use existing extension resources.
- NOAA has been able to get a lot done under the Mag. Stevenson Act. We need to have some clear national priorities re: coastline that NOAA can be held accountable for.
- Good to have Murray working on engagement.

### Comments:

- There is a lot of over-lap and we need to look more into that. I think that SG is much more aware of what NOAA is doing on a broad scale. The regional collaboration is helping with that. Similarly, NOAA program managers are much more aware of SG's capabilities.
- Any talk of a coastal office? No, not at this point. Not a big supporter of big reorganizations.
- Climate will be a major priority but it's not the only one.
- SAB will come back with options on how to organize climate services so there should be a good dialogue on this. Governor's also need to be involved in determining what the needs are. Climate will need to be dealt with largely at the state and local level.
- CEQ moved back into old admin building.
- What's going on with next steps in strategic planning? The next generation strategic plan (current went out in 2002) is just beginning. There will be regional sessions. Process motivated by futuristic, long-range scenarios. This will go on though the summer, then compilation a public comment before drafting so it's at least a year away from completion. Some of our current goals worked well—ecosystem goal hasn't advanced us as much as we thought it would. Perhaps a coastal goal is needed? There will be debate on this. Furgione is heading up this effort.

**Administrative session (closed to public), con't.**

- Committee meeting expenses—need to contact West to get approval.
- Grau would like to talk with West and Cammen about a leadership meeting in a few months. Oct. 14-15 is SGA meeting—Board's goal is to have committee reports completed by this meeting.

**Motion to Adjourn: Kudrna, Second Stephan.**

National Sea Grant Advisory Board Meeting  
Washington Sea Grant Session, Wednesday, August 26, 2009

**Stakeholder Session:**

Kathleen Drew - Executive Policy Advisor to Washington Governor Chris Gregoire and co-lead on West Coast Governors Agreement on Ocean Health.

Email: [Kathleen.Drew@gov.wa.gov](mailto:Kathleen.Drew@gov.wa.gov)

Terry Stevens - Director of the Padilla Bay National Estuarine Research Reserve in Mt. Vernon, Washington and a manager in the Washington Department of Ecology's Shorelines and Environmental Assistance Division.

Email: [tste461@ecy.wa.gov](mailto:tste461@ecy.wa.gov)

Linda Kirk Fox - Associate Dean/Extension for Washington State University Extension overseeing the state's Land Grant outreach operation.

Email: [lkfox@wsu.edu](mailto:lkfox@wsu.edu)

Ken Chew (invited) - Member, Washington Fish & Wildlife Commission and former Associate Director, UW School of Aquatic and Fisheries Sciences.

Email: [kchew@u.washington.edu](mailto:kchew@u.washington.edu)

Paul Johnson(invited) - Professor, School of Oceanography, WSG researcher specializing in marine geology and geophysics whose research has strong ties to Washington State's coastal tribal communities.

Email: [Johnson@ocean.washington.edu](mailto:Johnson@ocean.washington.edu)

**Field Trip Speakers:**

Kerry Naish - Associate Professor, School of Aquatic & Fisheries Sciences, specializing in conservation and evolutionary genetics and genomics.

Email: [knaish@u.washington.edu](mailto:knaish@u.washington.edu)

Graham Young - Professor, School of Aquatic & Fisheries Sciences, specializing in fish reproduction, physiology and endocrinology.

Email: [grahamy@u.washington.edu](mailto:grahamy@u.washington.edu)

Maureen Goff - Graduate Student with Wetland Ecosystem Team, School of Aquatic & Fisheries Sciences.

Email: [maugoff@u.washington.edu](mailto:maugoff@u.washington.edu)

Peter Philips - owner of Philips Publishing Group and publishing of maritime publications and events.

Email: [peter@PHPPublishing.com](mailto:peter@PHPPublishing.com)

**WSG Management Team:**

Penny Dalton – Director

Raechel Waters – Associate Director

Michelle Wainstein – Regional Research Coordinator

Cathy Burdett-Freeman - Administrator

Dan Williams - Communications Manager

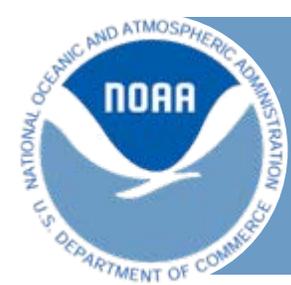
Pete Granger – Program Leader, Marine Advisory Services

**Others:**

Arthur Nowell – Dean, College of Ocean & Fisheries Sciences

Eddie Bernard – Director, Pacific Marine Environmental Lab, NOAA

Usha Varanasi – Director, Northwest Fisheries Science Center, NOAA



UNITED STATES DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION



# NOAA's Next Generation Strategic Plan

National Sea Grant Advisory Board  
Seattle, WA

**Paul Doremus**

NOAA Director of Strategic Planning  
[www.ppi.noaa.gov](http://www.ppi.noaa.gov)

August 26, 2009



# The NOAA Strategic Plan Sets the Course for the Agency

The Next Generation Strategic Plan (NGSP) will:

- Inform and respond to priorities of the new administration, based on long-term trends, challenges, and opportunities facing NOAA and the nation
- Engage and respond to stakeholders and staff
- Frame NOAA's policy, programmatic, and investment decisions
- Establish the basis for monitoring and evaluating NOAA's performance

The Strategic Plan will be updated every four years

What are the trends  
that will shape our future?

How will NOAA develop strategy  
for the long- and short-term?

How will regional input aid the  
development of NOAA strategy?



# Trends in Polar Ice

1982



2007



National Snow and Ice Data Center, 2007



2010 - 2030



2040 - 2060



2070 - 2090

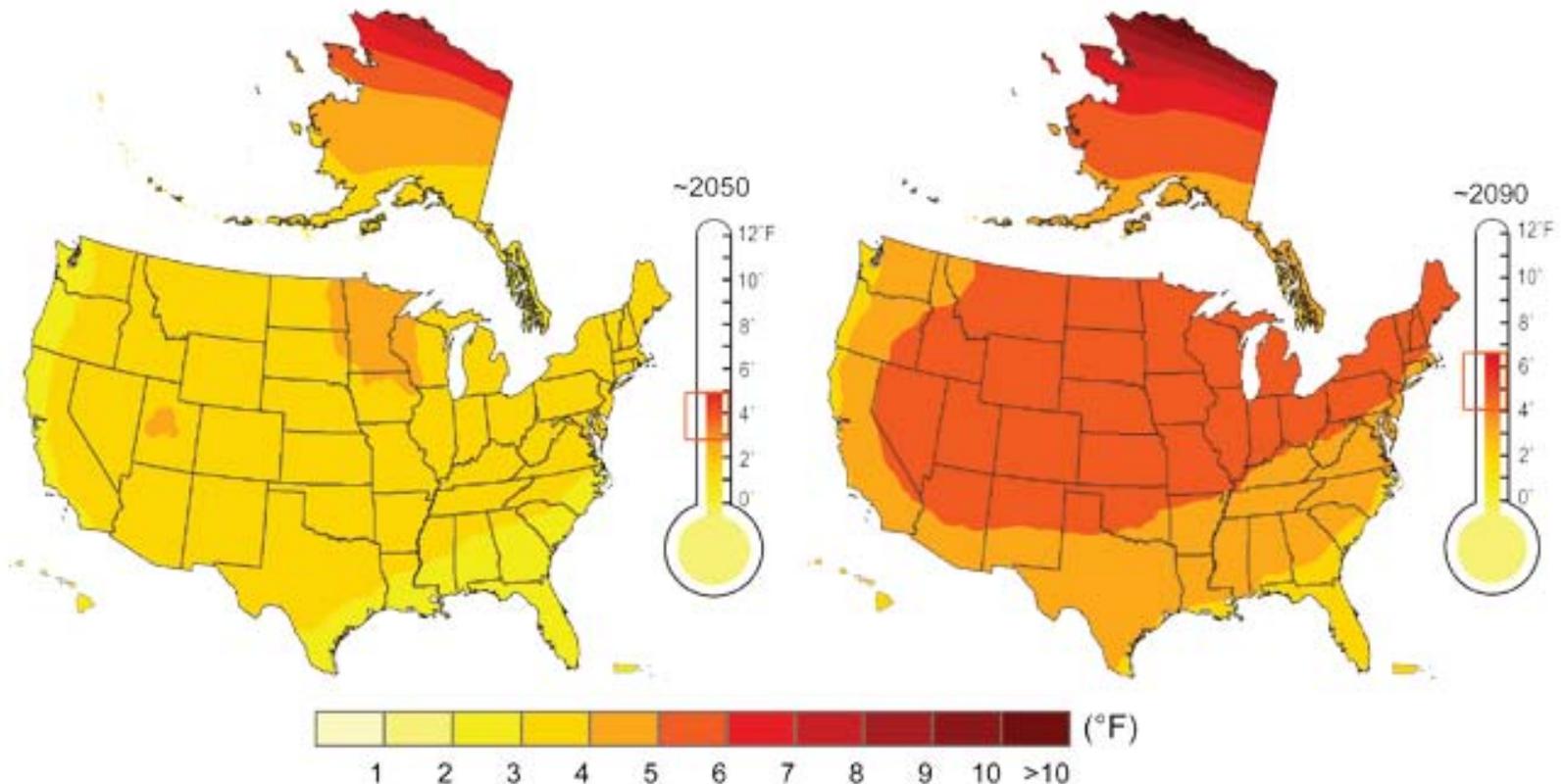


# U.S. Temperature Projections

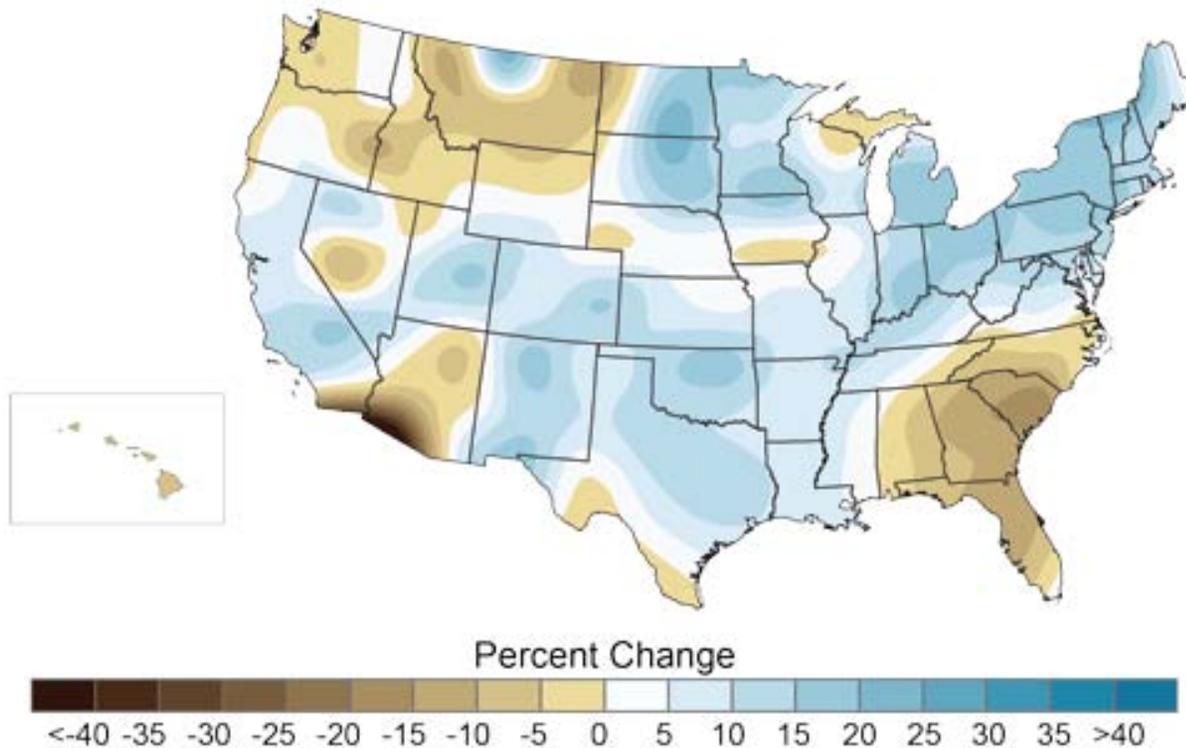
Lower Emissions Scenario Projected Temperature Change (°F)  
from 1961-1979 Baseline

Mid-Century  
(2040-2059 average)

End-of-Century  
(2080-2099 average)



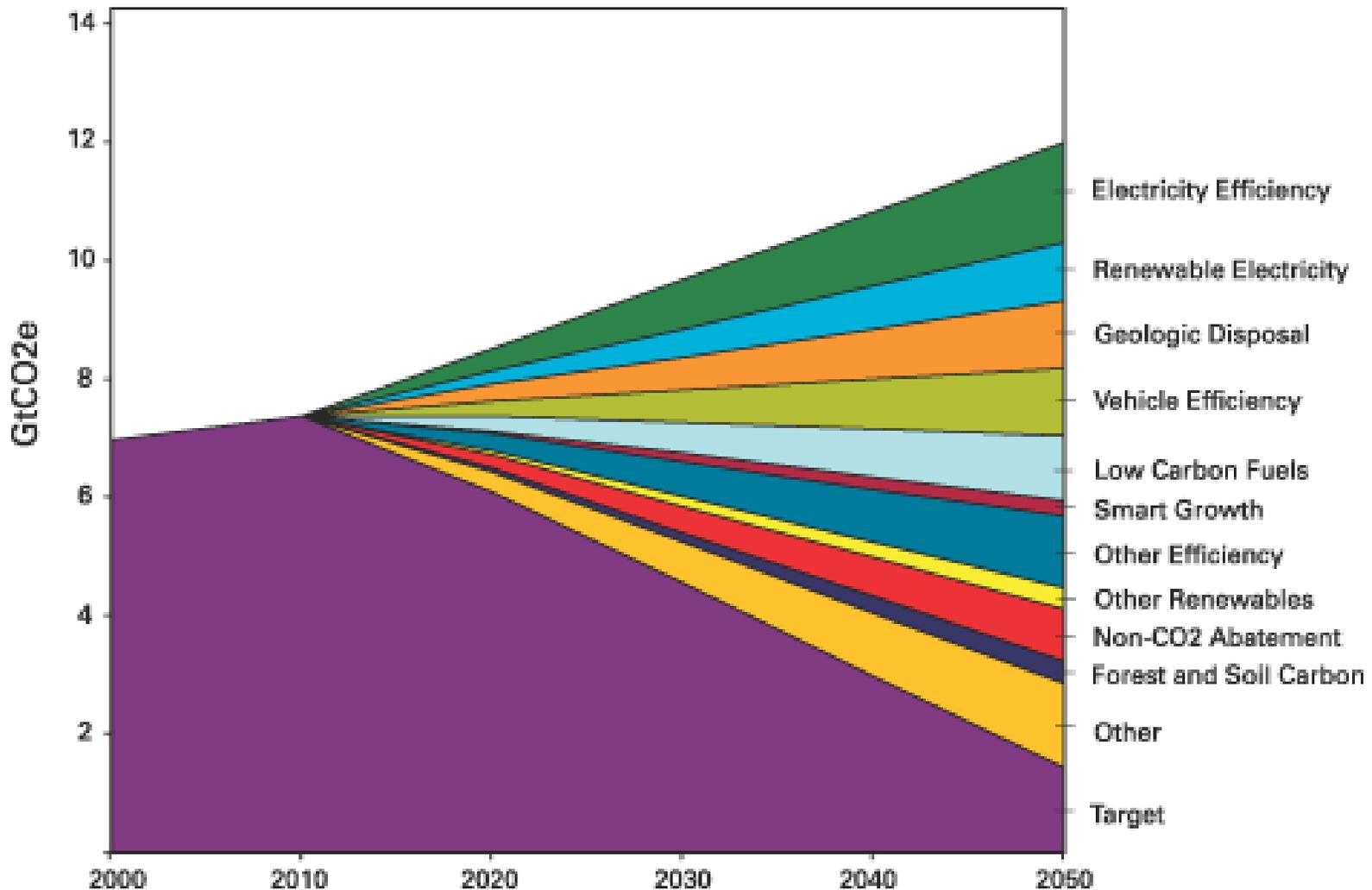
# U.S. Precipitation: Change in Observed Average, 1958 - 2008

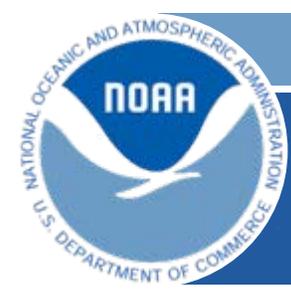


“Precipitation has increased an average of about 5 percent over the past 50 years. Projections of future precipitation generally indicate that northern areas will become wetter, and southern areas, particularly in the West, will become drier.”



# Potential Emissions Reductions "Wedge by Wedge"





# Dow Jones Industrial Average

Compare Settings

[Historical Prices](#) [Link to chart](#)

Enter ticker here

Add

Zoom: [1d](#) [5d](#) [1m](#) [3m](#) [6m](#) [YTD](#) [1y](#) [5y](#) [10y](#) Max

Jan 09, 1970 - Feb 20, 2009 +6597.81 (815.35%)



Tip: You can drag the chart.

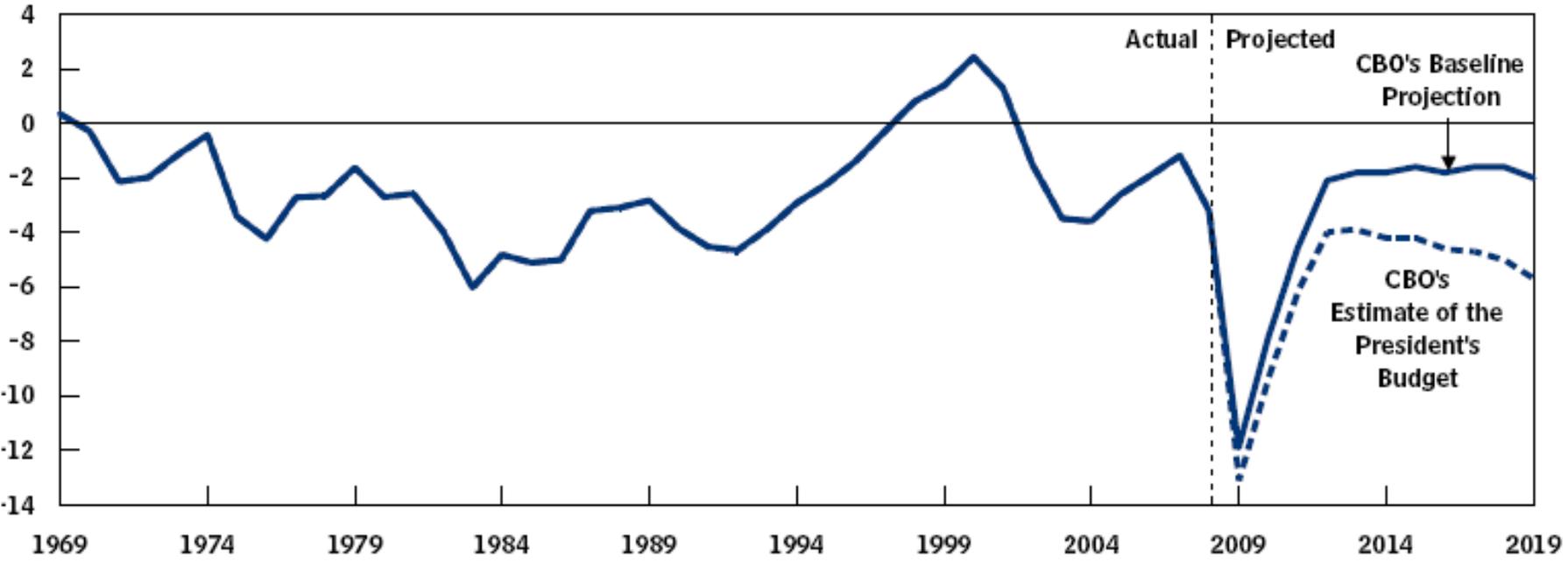
Real-time data provided by INDEXDJX - [Disclaimer](#)



# The Total Deficit or Surplus as a Share of GDP, 1970 to 2019

## Total Deficits or Surpluses, 1969 to 2019

(Percentage of gross domestic product)



Source: Congressional Budget Office.



# Issues Most Important to the Public

## NBC-WSJ, December 2007

Iraq	34
Healthcare	15
Immigration	12
Terrorism	12
Economy / Jobs	8
Energy costs	6
<b>Environment</b>	<b>6</b>
Budget deficit	4
Other / Unsure	3
Education	--

## CNN, November 2008

Economy / Jobs	64
Iraq and Afghanistan	11
Federal Deficit	7
Energy	6
Healthcare	5
Something else	3

Note: "Environment" disappeared from the CNN list in September.



# Who will be NOAA's partners and customers?



One Laptop per Child



# Over the Long-Term, We See Multiple Trends that are High Impact and Highly Uncertain

## Global Climate and Ecology

- Sea Level Rise
- Ocean Acidification
- Species Migration and Extinction
- Glacier and Ice Changes
- Atmospheric Methane
- High-Impact Events

## Competition for Natural Resources

- Energy Supply and Demand
- Fresh Water Availability
- Water Quality
- Food Supply and Security
- Marine and Coastal Resources

## Scientific and Technological Innovation

- Environmental Measurement and Monitoring
- Modeling and High Performance Computing
- Data Management and Information Sharing
- Collaborative, Integrative R&D
- Risk Management, Decision Support Systems
- Public Concern, Engagement in Environmental Issues

## Political and Economic Power

- Growth of Green Industry
- Federal Budget and National Debt
- International Agreements
- New Forms of Governance
- Statutory Mandates, Legislative Authorities

## Social Identities and Demographics

- The Rise of China and India
- Urban and Coastal Demographics
- Arctic Industrial Activity
- S&T Education and Workforce

What are the trends  
that will shape our future?

**How will NOAA develop strategy  
for the long- and short-term?**

How will regional input aid the  
development of NOAA strategy?

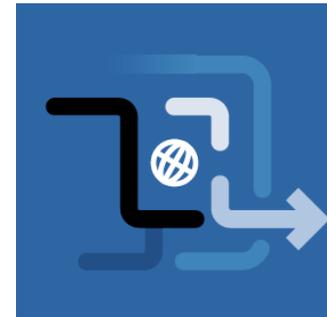


# Scenario Planning

- No one can predict the future—but we can identify key forces and imagine how they might combine to form plausible alternative futures
- Scenarios allow people and organizations to grasp complex interactions among economic, political, social, and environmental forces
- Organizations use scenarios to choose goals and objectives that respond to long-term trends and uncertainties about the future



# Using Scenarios to Address Strategic Questions



## Two possible worlds

Given that profound change is inevitable, how will it happen? Will national governments simply **Scramble** to secure their own energy supplies? Or will new **Blueprints** emerge from coalitions between various levels of societies and government, ranging from the local to the international, that begin to add up to a new energy framework?

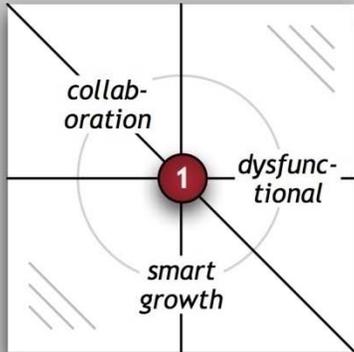


# Strategic Questions for NOAA

## *Focus Questions*

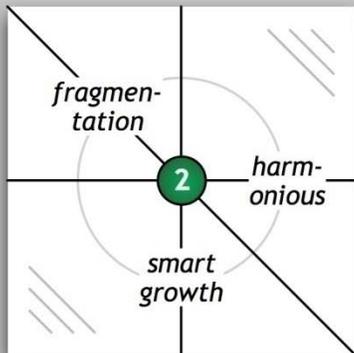
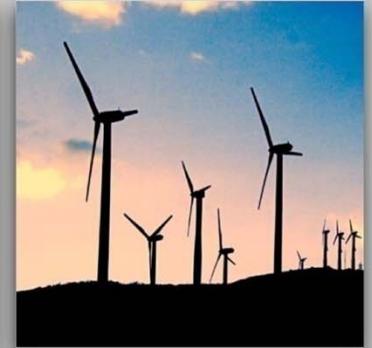
- *What should NOAA's vision, mission, and goals be to serve society for the next 25 years?*
- *What corresponding objectives and strategies should NOAA pursue in the next 5 years?*

# Summary of NOAA's *Scenarios for 2035*



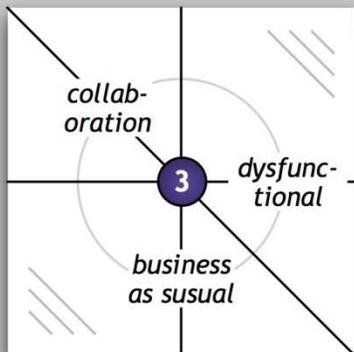
## Too Little Too Late?

Despite smart economic growth based on alternative energy and sustainable production, and despite collaboration on environmental policy at all levels of government, it may be too late to stop abrupt climate change and its social, economic, and environmental impacts.



## Green Chaos

Environmental policy at all levels of government is fragmented and disorganized, but a growing market for alternative energy and other sustainable products leads to smart economic growth and an increasingly harmonious relationship between man and nature through forces of supply and demand.



## Carbon Junkies

Environmental policy at all levels of government is collaborative, particularly in developing advanced environmental science and technology, but business-as-usual practices in industry and public focus on traditional metrics of economic success lead, ultimately, to extensive environmental degradation.



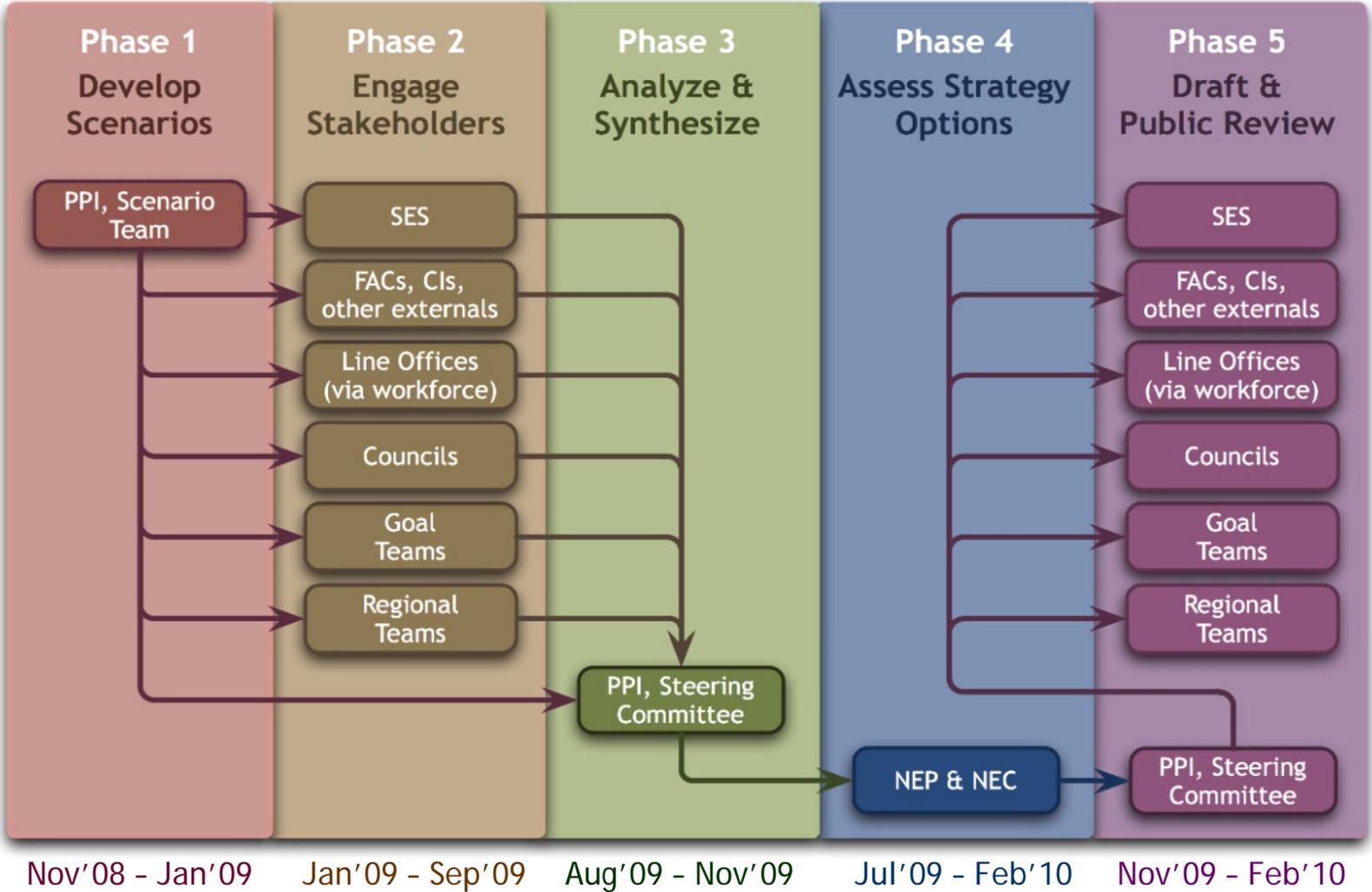
What are the trends  
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How will stakeholder input aid the  
development of NOAA strategy?

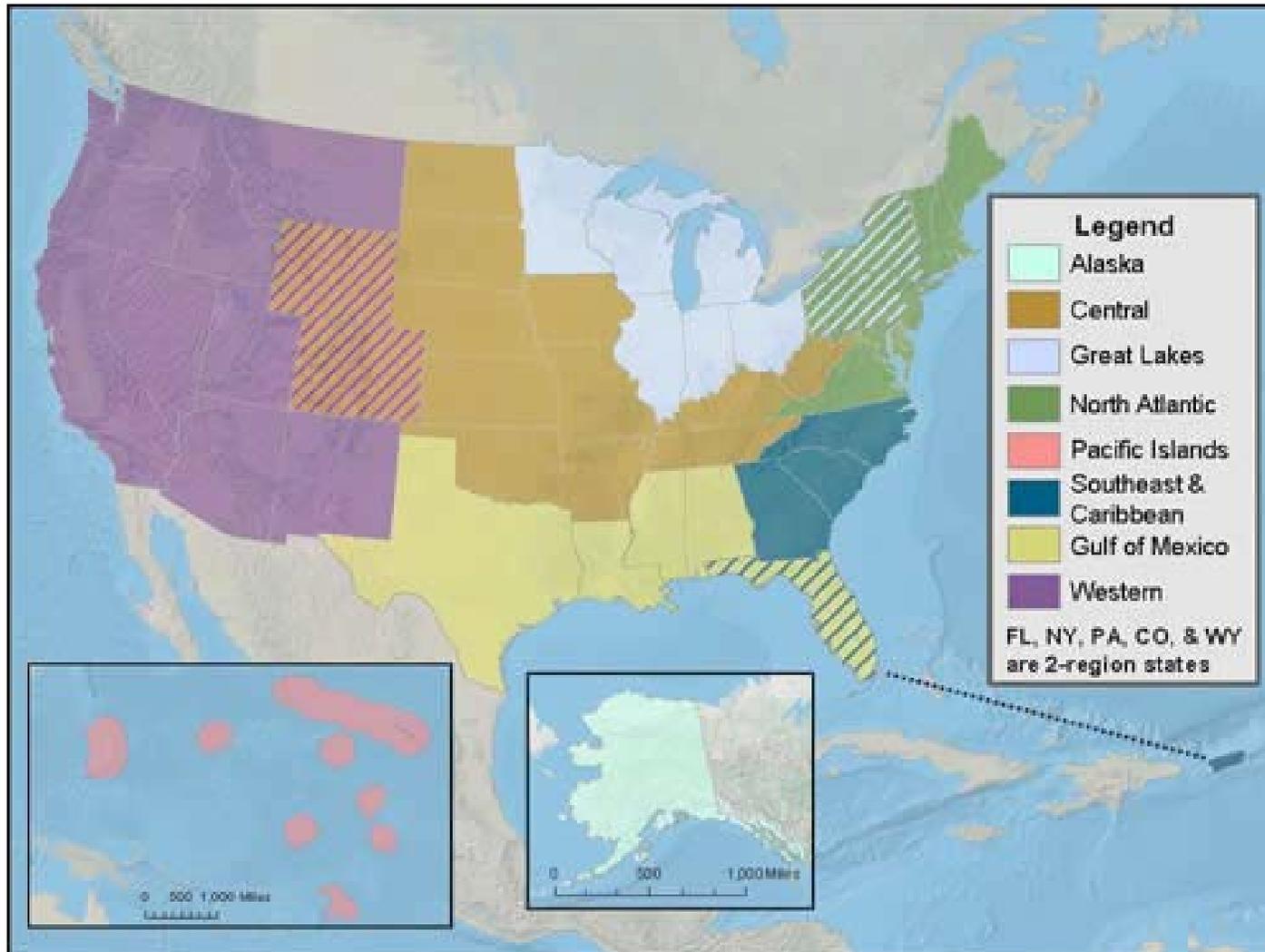


# Stakeholder Input is Central to NGSP Development





# Stakeholder Input will be Collected and Assessed on a Regional Basis





## 3 Fundamental Questions for Stakeholders and Staff

### 1. What trends will shape our long-term future?

What long-term trends (scientific, technological, socio-economic, etc.) will be relevant to you, your community, or your organization over the next 25 years?

### 2. What challenges or opportunities will we face?

In light of the trends that you have identified, what challenges or opportunities will you, your community, or your organization face over the next 25 years?

### 3. What should NOAA strive to accomplish?

Given the long-term trends, challenges, and opportunities that you identified, what should the agency seek to accomplish in the next 25 years?



# How to Be Involved

[www.noaa.gov/ngsp](http://www.noaa.gov/ngsp)

- Answer 3 long-term strategy questions:
  - *What trends will shape our long-term future?*
  - *What challenges or opportunities will we face?*
  - *What should NOAA strive to accomplish?*
- NOAA's *Scenarios for 2035* is designed to stimulate thinking on the above questions. Comments are welcome on the key trends and dynamics in the *Scenarios* document itself.
- Comment on draft NGSP during formal review phase.

# REFERENCE SLIDES



# Key External Forces in *Scenarios for 2035*

Nature and Mix of Economic Activity	Environment and Society Interaction	Governance and Decision-making
Global demographics	Water supply variability and change	International laws and agreements
Coastal population growth	GHG emissions (carbon and methane)	US ocean policy
Water supply	Climate change	Cap and trade legislation
Maritime trade	Rapid changes in glaciers and ice sheets	Carbon taxes
Industrial activities in the Arctic	Ocean circulation; AMOC	Climate science research
Level and composition of US economic growth	Arctic sea ice	Government budgets and debt
Level and composition of global economic growth	Ocean acidification	Collaborative modes of governance
U.S. urbanization	Catastrophic events	Privatization
Megacity development	Aquatic resources	Structure of Federal environmental agencies
Food supply and demand	Marine species	Demand for emergency management services
Computer technology	Coastal and ocean water quality	International information sharing
Private sector water and climate information services	Coastal zones	Global environmental information integration
Energy prices	Coastal erosion, inundation	U.S. energy policy; energy “independence”
Energy demand growth	Public opinion	
Electrification of transport	Observing system gaps (esp satellites)	
Alternative energy supplies	GIS tools and data	
	Evolution of models	



# Types of Uncertainty that Affect NOAA and Three Possible Futures

**Too Little,  
Too Late?**

**Green  
Chaos**

**Carbon  
Junkies**

Nature and mix of economy	<b>Smart Growth</b> VS Business As Usual	<b>Smart Growth</b> VS Business As Usual	Smart Growth VS <b>Business As Usual</b>
Governance and Decision-Making	<b>Collaboration</b> VS Fragmentation	Collaboration VS <b>Fragmentation</b>	<b>Collaboration</b> VS Fragmentation
Environment and Society Interaction	Harmonious VS <b>Dysfunctional</b>	<b>Harmonious</b> VS Dysfunctional	Harmonious VS <b>Dysfunctional</b>

# Scenario 1: *Too Little Too Late?*

Despite smart economic growth based on alternative energy and sustainable production, and despite collaboration on environmental policy at all levels of government, it may be too late to stop abrupt climate change and its social, economic, and environmental impacts.

	2009-2020	2021-2035
<b>Nature and Mix of Economy:</b> <b>SMART GROWTH</b>	Strong economic growth is fueled by alternative energy investments and global trade. New energy technology facilitates rapid economic development in developing countries. Sustainability as a way of life leads to comprehensive new fisheries management practices, sensible crop rotation, and more efficient water use.	Significant benefits of smart growth are achieved worldwide in less than 20 years, but it's still unknown whether they are forestalling an "abrupt" climate change. Some scientists are beginning to believe the policies were too late and were always too little to halt abrupt climate change.
<b>Governance and Decision-Making:</b> <b>COLLABORATION</b>	A new collaborative ethic takes hold at all levels of government (international, federal, state, and local). Substantial investments are made to build capabilities and reach effective multiparty agreements on the major environment, economic, and social issues. The US forms a new Department of the Environment.	Economic impacts are greatest outside the United States. Tensions between governments in the East and West begin to fray as it is becoming clear that an entirely new level of commitment will probably be needed to address the relationship between people and the planet.
<b>Environment and Society Interaction:</b> <b>DYSFUNCTIONAL</b>	An explosion in maritime trade has significant impact on the natural environment. Coastal populations grow, exposing more people to severe weather and climate effects. Severe geomagnetic storms wreak havoc. Water shortages around the world are exacerbated in many places by biofuels production.	Climate change effects are everywhere. Antarctic ice sheets continue to lose mass. Arctic sea ice disappears in the summertime. Drought conditions are more frequent and severe. Ocean acidification is increasing. Ecosystem disruptions lead to territorial conflicts in Africa, the Middle East, and Central Asia.

## Scenario 2: Green Chaos

Environmental policy at all levels of government remains fragmented and disorganized but a growing market for alternative energy and other sustainable products leads to smart economic growth, and market incentives reinforce an increasingly harmonious relationship between society and nature.

2009-2020

2021-2035

**Nature and Mix  
of Economy:  
SMART GROWTH**

Green markets flourish. Major multinationals, venture capital firms, and state-owned enterprises in Asia invest aggressively in sustainable development solutions. Carbon taxes in the US spur innovation, and the consequences from externality pricing and heavily regulating resource usage do not materialize.

By 2035, global consumers are sophisticated and green, as are many new industries. Asian players control the biggest market share. Green goods and services in developed economies are slowly replacing energy-intensive solutions, while green goods and services growth in developing countries occurs as a result of their rapid economic change.

**Governance and  
Decision-Making:  
FRAGMENTATION**

Policy makers are overwhelmed by the environmental and economic uncertainties, but a patchwork of regional and local policies succeeds. In-fighting among US agencies abounds and the private sector assumes more government functions. No nation shows leadership as politicians focus on domestic problems. No international standards for environmental data evolve.

The Arctic nations never reach an agreement on sovereignty claims, development of the Arctic, and how to best protect the environment. Russia is constantly using its Navy to try to resolve disputes over the seabed, navigation, and fishing, but lacks the investment funds to pursue much industrial development. The US, Canada, and Norway generally coordinate, but still largely go their separate ways.

**Environment  
and Society  
Interaction:  
HARMONIOUS**

Carbon tax revenue is returned to individuals by contributing to their retirement accounts and health care insurance costs. There is a trend of counter urbanization, with cities losing population to rural areas because of better living conditions. Economic incentives are also used by states and federal agencies to change agricultural and fishing practices.

Scientists can't agree on whether abrupt climate change is taking place. While the changes are muted they're still visible in a number of places. Water scarcity is getting worse around the world, while at the same time demand for food is rising faster than anyone expected. Fish stocks improve because of new regulations and commercial innovation.

## Scenario 3: Carbon Junkies

Environmental policy at all levels of government is collaborative, particularly in developing advanced environmental science and technology, but business-as-usual practices in industry and public focus on traditional metrics of economic success lead, ultimately, to extensive environmental degradation.

2009-2020

2021-2035

**Nature and Mix of Economy: BUSINESS AS USUAL**

In both developed and developing countries, old economic systems continue to exploit energy for economic growth. Consumer products like cars and appliances are cheap due to global demand, global trade agreements, and massive energy- and water-development investments. GDP growth is the highest priority, but the US economy falters and deficits rise.

Energy demand rises dramatically, while supply is still mainly oil and coal. Marine transport activity is increasingly significant because of economic growth in developing countries and open trade policies around the world. Arctic waters open, and substantial industrial activity is already occurring above the Arctic Circle.

**Governance and Decision-Making: COLLABORATION**

Institutions around the world cooperate on environmental and disaster-relief issues, but budgets are tight, environmental programs are cut, and governments struggle to respond to continued catastrophic events. A resource race to stake claims on the Arctic seabed spawns new international agreements. The effects of climate change drive new international GHG agreements with binding commitments.

While progress was initially slow in implementing the GEOSS vision, the US, EU, and China ultimately agreed to support the effort. A global environment information utility becomes available. Scientists agree that large-scale change in the climate system is taking place and the change cannot be reversed for decades, even with major mitigation efforts worldwide.

**Environment and Society Interaction: DYSFUNCTIONAL**

Worldwide energy resource exploitation increases significantly. Hydrocarbon energy resources are further developed in the US and nuclear generating plants also see major increases. Water shortages in the developing world are a problem, as are major catastrophes from floods, earthquakes, and typhoons. Fish stocks around the world begin to disappear.

Sea levels rise, oceans acidify, droughts persist, Arctic ice disappears in the summer, cropland disappears in many countries, migration patterns in Asia and Africa change rapidly. Adaptation becomes the most important issue. A cap and trade system, supported by new climate observations and models, provides incentive for utilities to sequester CO<sub>2</sub>.

To: Sea Grant Directors

From: Leon Cammen

Subject: Program Alignment Review Follow-up

We have now finished the first round of review of the strategic planning alignment documents submitted in May. In reviewing your program plans and alignment documents, it is clear that significant time and effort went into the program planning alignment process. Thank you again for your submissions. This is a critical component of the new planning, implementation and evaluation process, and an important step for the Sea Grant network.

As a reminder of why it is so important we do this together, the recent National Research Council review of Sea Grant stated that “steps should be taken ...to strengthen strategic planning at both the national and individual program level. The strategic plans of the individual programs and the national program should represent a coordinated and collective effort to serve local, regional, and national needs.” The report went on to state that we should “ensure that the performance of each program is measured against the objectives outlined in the separately approved, program specific strategic plan called for in the previous recommendation.”

The purpose of this alignment process, therefore, is threefold: (1) to ensure all Program plans align with the national plan; (2) to ensure that program plans are ambitious with challenging goals and milestones, while meeting benchmarks of effective planning documents; and (3) to establish at the outset of the planning cycle a formal agreement between the program and the NSGO that the Plan is acceptable and meets Sea Grant national planning criteria and standards.

To summarize the outcome of the June alignment review, your programs generally did an excellent job of aligning to the national plan, while also clearly outlining direction over the next four years through strategies, outcomes, measurable objectives, performance measures and targets. This information will assist the network by enabling Sea Grant to articulate the quality and quantity of performance that can be expected. It will also serve as a useful guide in evaluating your progress in meeting your program’s own goals and objectives.

What follows below is some additional detail on the alignment review process and some lessons learned that should help those of you still developing your plans.

### **Alignment Review Process**

As you know, the state program plan alignment review took place over a two-day period on June 11th and 12th. Three National Sea Grant Advisory Board members served on the planning alignment review committee: the Board Chair, Dick West; the Vice-Chair, John Woeste; and, the Board lead for strategic planning, John Byrne. Each member of the alignment review committee led discussion and provided recommendations and comments for approximately one-third of the programs, and each reviewer was

familiar with all of the state program alignment documents. Taking into account the size and resources of each program, the committee addressed the following three questions for each plan in order to recommend either approval or needed modifications to the National Sea Grant College Program (NSGCP) Director:

- (1) Does the program adequately support the national plan?
- (2) Is the program devoting a significant portion of its resources towards supporting one or more of the focus areas of the national plan?
- (3) Relative to other programs, is this plan ambitious—does the plan set challenging goals and ambitious milestones given the amount of resources dedicated to the overall program?

The committee reviewed the alignment documents (Phase I and Phase II alignment packages) in order of small programs to large programs (based on the program's overall self-reported resources). Program officers were available to answer questions from the review committee and to provide any additional input, if necessary.

Through this planning alignment review exercise, there were some common concerns that were identified in many of the plans. These are summarized in the attached appendix. This information is intended to assist those programs who have: (1) not submitted planning materials; (2) submitted only draft versions of their planning materials; or, (3) for those programs that may need to resubmit their planning materials. Please note that you will also be receiving a separate memo specific to the results of your own program's alignment review.

As we move forward, please remember that plans are living documents, and there is a process for modifying plans in the case of unforeseen events. Similarly to what is stated in the national plan, each Sea Grant program may revisit its plan and priorities to ensure that the organization is maintaining focus, staying alert to new trends and opportunities, and accomplishing outcomes. As your programs find new opportunities, please communicate them to your program officer. That said, you should not undertake the planning process with the intent to make frequent changes to the plan during its lifespan. Modifications to plans are not intended to be routine, but, when deemed necessary, will be formally submitted every year through the annual report, and must be approved by the NSGCP Director with input from the program officer.

The next alignment review process will take place on **Tuesday, October 20<sup>th</sup>, 2009**. All program alignment documents must be submitted to your program officer no later than **Friday, October 2<sup>nd</sup>, 2009**. Upon approval of all state Sea Grant program plans, which will likely take place this fall, all program planning alignment documents will be posted on the National Sea Grant College Program website. This includes the state plans (the Sea Grant program strategic/implementation plans), and the alignment documents that show how the state plans are aligned to the national plan. We will not post the program-by-program resource allocation funding. But, we will post the program-by program percentages and the national totals and percentages.

Please keep in mind that all program plans must be aligned and approved before the release of 2010 funds.

Thank you again for your hard work. You are each to be congratulated for doing your part to make Sea Grant a success. I look forward to working together as we continue to move this program forward!

## **APPENDIX**

Through the Spring Alignment Review exercise, there were some common concerns identified with many of the plans, which are summarized below:

- **Objectives and performance measures should be measurable** – An overarching concern is that many of the proposed measures or objectives were not really measurable and would not be useful for self-evaluation. The questions that need to be asked for each measure are: “Can we use this measure or objective to tell us if a project or a program is making adequate progress, and when it is completed can we tell whether it has been successful or not?” A few examples of good objectives that lend themselves well to are below:
  - By 2013, three communities have implemented sustainable practices due to information, training, or assistance provided by Sea Grant and its partners.
  - Through 2013, 20 coastal communities will enact legislation, or incorporate into comprehensive plans, actions to encourage the maintenance or expansion of coastal/marine-dependent businesses.
  - By 2012, Sea Grant will develop and transfer the remote sensing aspects of surface circulation data to three regional coastal ocean observing systems which use the model.
  - Between 2009 – 2013, Sea Grant Extension personnel will certify 120 graduates of their seafood Hazard Analysis and Critical Control Point program.
  - By 2013, Sea Grant-sponsored research will provide at least one new or improved module for improving existing models for Great Lakes fishery management.
  
- **Use numbers rather than percentages in measurable objectives and performance measures** – All performance measures and objectives that have a percentage need to have a baseline in order to determine success. Please be sure to include the numerator and the denominator, or their equivalent, in all measures or objectives that contain percentages. This also will allow us to roll measures up to the national level, something we cannot do with percentages.
  
- **Think globally, act locally** – Some programs reiterated the national plan strategies and outcomes as their state plan strategies and outcomes. Although this is acceptable, it should be understood that programs may develop distinct strategies and outcomes that are relevant to your states and regions, and should not feel compelled to use the national language. Programs should have strategies and outcomes that work locally and align with (not necessarily match) the national program.
  
- **Program Advisory Boards** – Throughout the two-day review discussion, the value of the contribution from state program advisory boards was mentioned often. Programs should ensure that their planning documents have been vetted and approved by their advisory boards.

- **Importance of the alignment letter and the “program comments” column** – Programs that took the time to write thorough alignment letters that explained their planning and alignment processes and articulated why certain decisions were made, enabled the committee to better understand the rationale behind the structure of the alignment documents. The same is true for programs that took advantage of the “program comments” column.
- **Quantity and level of objectives and performance measures** – A number of programs provided numerous objectives and performance measures that were primarily measuring outputs, not outcomes. Although these may be useful at the program level, this level of detail is not necessary for this exercise. Programs who wish to maintain a high level of detail are certainly welcome to do so; but, please keep in mind that you will need to report back on this information. If your program wishes to scale back the quantity of measures and objectives, and instead focus on those that will provide a strong outcome story, please work with your program officer to reduce your objectives and performance measures.
- **Additional focus areas** – Although the National plan contains marine literacy as a cross-cutting goal, several programs chose to include it as a separate focus area. Although that is allowable, it does present problems in rolling up our focus areas into a national summary since not all programs have separated out their education efforts. If you decide to treat marine literacy as a separate focus area, we will ask you at a later date to provide us with an estimate of how the funds that support those activities could be accounted for in the other four focus areas. In addition, it will also be useful to know the level of the cross-cutting educational activities in the programs that have not treated literacy as a separate focus area. Having this information available both ways will allow us to tell the national story not only from the perspective of our four focus areas (including the appropriate educational activities that support them), but also from the perspective of education on its own merit.
- **Leveraged Funds** – As part of the alignment process, programs were asked to estimate the leveraged funds expected over the course of the four-year implementation period. However, some programs did not include this information. The estimates of leveraged funding will be rolled up to provide an estimate of overall national program resources to make the point that Sea Grant is much more than just what the Federal appropriation would buy. Having only partial information weakens the argument. We understand that some of the expected leveraged funds may not materialize, but a “good-faith” estimate is still useful.

Draft 8/9/09

National Sea Grant Advisory Board Futures Committee

Report to the Board

August 27<sup>th</sup>, 2009

Committee Formation

The Futures Committee of the National Sea Grant Advisory Board was established by Board action at its November meeting in Baton Rouge, Louisiana. Mayor Jeremy Harris was selected by the Board to serve as Chairman. The Committee was formed as a Committee of the Whole and, as such, all Board members are on the Committee. The first meeting of the Futures Committee was on January 20 & 21, 2009 at the Sea Grant Office at the University of Hawaii.

Statement of Task

The National Sea Grant College Program was established by Congress in 1966. Since that time the program has produced an admirable record of accomplishment in marine research, education and extension services. Despite this fact, the program has failed to grow to realize its full potential.

The task of the Futures Committee is to examine why this has occurred, to assess the successes and failures of the program and to help chart a new course of growth for the program at this time of transition for our country.

The Committee will examine Sea Grant's relationship with NOAA and the Department of Commerce and make recommendations to the Board about Sea Grant's future position and role in the Federal government.

The Futures Committee will also explore Sea Grant's image and brand and make recommendations to the Board on how these important assets can be enhanced.

Finally, the Committee will examine opportunities for Sea Grant to be immediately responsive to the severe environmental and economic challenges that confront our nation by developing initiatives that fully utilize its superb nationwide research and extension talents.

The Committee will also assume any other responsibilities assigned by the Board.

Tenure

The Futures Committee will complete all its work by January 2010.

## Futures Committee Recommendations to the Board

### Sea Grant Funding

The Committee believes that Sea Grant has faced funding stagnation because it lacks political support in Congress and within Commerce. Sea Grant is not perceived as a political asset or as an agency asset. Sea Grant's clients perceive real benefit from the program but that has not translated into enhanced funding support. Its clear more effort needs to go into organizing Sea Grant clientele into a more vocal advocacy constituency. More effort also needs to go into helping NOAA appreciate the value of Sea Grant and the asset it represents to NOAA.

#### ***Recommendation to the Board***

The National Sea Grant Office should pursue a renewed, vigorous, outreach effort to strengthen its relationships with the NOAA Administration and with other NOAA agencies. In this context, the NSGO should work to better define its role in the overall NOAA charter of responsibilities and to better articulate its potential as a NOAA asset. It should be noted that NSGO management is already aggressively pursuing these actions with the new NOAA administration.

The National Sea Grant Office, in coordination with the Sea Grant Association (SGA), should expand its efforts to identify its clientele and other public audiences who benefit from Sea Grant research, education, and extension services, and should develop expanded educational initiatives to inform these constituency groups about Sea Grant programs, funding, and resource needs.

### Sea Grant's Image

In general, it appears that the Department of Commerce has little knowledge of the Sea Grant Program. The Committee believes that NOAA's view of Sea Grant is generally positive but that Sea Grant is viewed as largely irrelevant to the rest of NOAA. Many in NOAA view Sea Grant as a competitor for funding.

In Congress, Sea Grant is on the radar screen, especially of coastal community Congressional delegations. Despite this, Sea Grant has no real champions in Congress.

### ***Recommendation to the Board***

The committee recommends that Congressional champions be sought in both the Senate and House. Meetings should be initiated with selected Representatives and Senators who have been involved with the Sea Grant Program to seek their advice on strengthening the Congressional/Sea Grant relationship.

The Committee recommends that the SGA and the Board be approached for suggestions/contacts in the new Obama White House who should also be approached as potential Sea Grant supporters.

### **Sea Grant's Structure and Location**

It has been suggested that the effectiveness of Sea Grant could be enhanced if it was located in a different federal department or agency. The organizational position of the Sea Grant Program within the Federal government has been reviewed in the past, but the committee believes it should be reviewed again.

### ***Recommendation to the Board***

The Committee's recommendation is for the National Sea Grant Office to determine its optimum position within the federal governmental framework and be ready to advocate for that proposal should a major restructuring of Federal research and scientific functions be undertaken by the Obama administration. The committee does not recommend that Sea Grant unilaterally attempt to reposition itself within the bureaucracy absent a major agency shake-up.

### **The Brand - The Sea Grant Name**

While the Sea Grant Program has earned a respectable brand over the last 40 years, the word "grant" continues to cause confusion and a misunderstanding of the Program's mandate.

### ***Recommendation to the Board***

The Committee recommends that the name Sea Grant be "enhanced" by adding two or three descriptor words that help define the program's mission in relationship to the urgent challenges the nation faces. An example would be –"NOAA Sea Grant – Helping Build Sustainable Coastal Communities".

The committee recommends that a brochure be developed that highlights the existing capabilities and successes of Sea Grant to illustrate its track record in tackling the issues highlighted by the new brand. This publication would be distributed primarily to elected policy makers at all levels.

## **Building Relevancy**

The Committee believes that Sea Grant should seize the current period of opportunity to establish itself as an important asset to the nation in meeting some of the country's most urgent challenges.

While mitigation efforts to reduce the impacts of climate change are ramping up, it's clear that many impacts from climate change are unavoidable. With sea level rise and an increased intensity of coastal storms threatening coastal infrastructure and population centers, America's coastal cities are facing perhaps the greatest challenges as a result of this unfolding environmental disaster. These cities are in great need of assistance in planning for and adapting to these climate change impacts.

It's clear that NOAA, with its wide array of expertise in climate related issues, should and will play a major role in the Obama administration's comprehensive climate change strategy. There is a growing consensus within the many agencies within the federal government that are developing the climate change strategy that there is a critical need for a national extension network to work with cities on these pressing issues and other related sustainability challenges.

The Sea Grant Program has an invaluable asset at its disposal that can make an enormous contribution to this effort in its nation-wide extension network. Sea Grant Extension has been actively working with America's coastal communities for decades. Sea Grant Extension professionals have developed relationships with coastal community leaders and government officials, and they have a proven track-record of accomplishment.

While Sea Grant Extension alone probably cannot meet all of the nation's climate change mitigation and adaptation extension needs, Sea Grant can position itself to play a major role and make a major contribution to this staggering national challenge.

## ***Recommendation to the Board***

The committee recommends that Sea Grant establish a new pilot program focusing on coastal city sustainability and adaptation to climate change, and that it develop this program into a full-scale national initiative over the next three years.

Since it is unlikely that a second wide-ranging stimulus package will be sent to Congress this year that could provide the immediate full funding that this initiative deserves, the committee recommends that this vital program be

rapidly ramped-up over the next three years as the Obama administration forges its Climate Change Mitigation and Adaptation Strategy.

### Climate Change Adaptation Initiative

Coastal cities all across the nation are just beginning to realize the scope of the challenge they face with climate change and rising sea levels. Currently, city leaders have nowhere to turn for an assessment of their vulnerabilities and for recommendations on what they need to begin doing to adapt to this challenge. Our proposal is for Sea Grant to develop a “Climate Change Adaptation Initiative” on a pilot basis using existing resources and to scale-up the initiative to a major national program over the next three years.

Under our proposal, Sea Grant would help local coastal community governments develop their plans for adapting to climate change. The national office would hire a small cadre of specialists in the areas pertinent to this initiative (coastal land use planning, coastal urban infrastructure, etc) who would coordinate the pilot program from Washington. NOAA’s extensive expertise in climate related fields would be mobilized, and Sea Grant programs from around the country would identify expertise within their extension programs, as well as within their research and broader University communities in multi-disciplinary adaptation fields. (See attachment 1) This national reservoir of experts would be available to advise local governments in the assessment of their climate change vulnerabilities and in planning to meet their adaptation challenges. (Preliminary discussions with the SGA suggest that this proposal or some variation thereof would have good support from the Sea Grant College Programs.)

In the current year, the National Sea Grant Office should utilize existing funds to develop a pilot project to demonstrate the proof of concept for this initiative. Following that, FY2011 funding should be in the \$5 million dollar range, allowing Sea Grant to develop a regional pilot project and begin the work of capacity buildings to broaden its extension expertise into the broad array of coastal adaptation issues that coastal communities are facing.

Over the first three years, funding for this initiative should grow to approximately \$50 million annually. This would allow Sea Grant Extension to staff-up to meet the demand for climate change adaptation extension services that will be demanded from the nation’s thousands of coastal communities.

This initiative, if developed, would take best advantage of Sea Grant’s unique and invaluable resource...its national network of extension agents and programs.

While organizing to enhance its ability to provide climate change adaptation informational services to decision makers, Sea Grant needs to consider how it will complement related extension and training assets contained within NOAA and in other federal agencies. Sea Grant will also need to develop new organizational mechanisms to harness NOAA research and technical services and connect these services to public need.

NOAA currently conducts a wide range of engagement activities in communications, education, extension and training, and regional collaboration. Based on recommendations made by the NOAA Science Advisory Board, NOAA has recently created a new organizational structure to coordinate and provide oversight for its engagement activities, the Executive Committee on Engagement (ECE). The ECE membership is composed of the Chair of the Education Council, the Director of Communications, the Chair of the Regional Collaboration Executive Oversight Group and the Chair of the Extension and Training Services Committee (NETS). The ECE provides corporate guidance and recommends actions to promote a strong dialog and two-way relationship with society that enables NOAA to identify, develop and improve products and services to meet society's needs.

NETS capabilities encompass a broad range of programmatic and geographic assets that, when employed in a coordinated manner, will assist NOAA in its efforts to fully engage its constituents. NETS provides an integrated national leadership and coordination function for NOAA's sizable and locally placed extension and training assets nation-wide. This function helps to underpin NOAA's Regional Collaboration structure, with a focus on bringing together NOAA assets on the ground in a coordinated manner. This new approach enables the full range of NOAA's extension and training assets to focus on thematic priorities identified by NOAA leadership or by local or regional stakeholders and constituent feedback. The principles underlying this new approach include; national guidance and coordination, regional planning and strategy development, flexible regional, state and local implementation and accountability through collection and analysis of national extension and training metrics. Engaging the public on climate issues is a current priority of ECE and NETS and a Sea Grant climate adaptation initiative should utilize the ECE and NETS structures to help lead, coordinate and enlist relevant NOAA programs to provide needed climate adaptation expertise and technical services.

In addition, other agencies, notably USDA's Land Grant system which employs more than 14,000 Cooperative Extension Service staff nationwide, have important expertise that can be utilized to support a Sea Grant led climate adaptation initiative. Under the auspices of the Association of Land Grant and Public Universities (APLU), recent high level meetings have been held between the NOAA and USDA leadership for the purpose of collaborating on climate extension issues. Adding USDA extension capabilities to those of NOAA's would significantly expand the breadth of technical expertise available to help communities adapt to climate change. NOAA should be encouraged to continue its work to strengthen and formalize its relationship with USDA's Land Grant community and to nurture the formation of a national climate extension service.

## Appendix 1

### National Sea Grant Program Climate Change Adaptation Initiative Program Layout

#### Scope of Extension Services

In order to meet the extension needs of the coastal cities that are facing impacts from climate change, it is important to project what those impacts may be so that Sea Grant can properly define the content of its extension program and do the capacity building that is necessary to develop the in-house expertise to implement the program.

Following is a breakdown of likely coastal city impacts that will result from the various vulnerabilities that will come from climate change.

#### Coastal Cities Vulnerability – Sea Level Rise

##### Impacts

###### Coastal City Impacts – Coastal Zone Inundation

###### Land Use

###### Affected Property Types

- Inundation of most valuable coastal lands - coastal commercial/resort centers, downtown centers, industrial centers and facilities, commercial harbor facilities, residential communities, airports, municipal infrastructure/facilities (STPs, baseyards, water system facilities, infrastructure, schools, hospitals, zoos, libraries, etc), wetlands, coastal forests, beaches, bays, estuaries
- Destruction of buildings & facilities in all affected sectors
- Destruction of wetlands/habitat
- Loss of estuaries/marine nurseries/water bird populations
- Destruction of beaches, shoreline parks, recreational areas
- Coastal zone erosion/deteriorated water quality

###### Land Use Planning/Demographics

- Dislocation of population centers
- Density increases in population receiving sites

- Overburdening of infrastructure and facilities designed for lower densities (roadways, water systems, wastewater systems, parking, etc)
- Loss of open space in population receiving sites
- Redesign of city master plans, zoning maps, development plans, sustainable community plans, design guidelines
- Rezoning of open space to urban use
- Loss of agricultural lands to urbanization
- Adaptive reuse planning for inundated areas

#### Economic Impacts

- Loss of jobs and employment opportunities
- Loss of investment capital/income
- Failure of insurance systems
- Collapse of coastal economies
- Loss of vital freight/cargo operations
- Economic impacts to non-coastal cities, manufacturers, commodity producers
- Damage to food distribution operations
- Commodity shortages, hoarding, allocation controls
- Loss of mobility, business activity
- Collapse of commercial and recreational fisheries
- Collapse of coastal tourism
- Spike in bankruptcy rates
- Decline in gross assessed RPT valuations
- Massive municipal capital requirements for facilities/infrastructure redesign, relocation, reconstruction
- Financial collapse of local governments
- Reduction/cancellation of local government services

#### Wastewater Collection, Transmission, Treatment & Disposal

##### Inundated Coastal Collection System

- Inundated coastal collection system-manhole intrusion
- Saltwater intrusion into wastewater system
- Release of untreated sewage via manholes
- Inundation of wastewater pump stations
- Breakdown of force main system
- Sewage backups into homes and businesses
- Rupture of gravity mains

- Loss of wastewater collection services in un-inundated areas
- Damage to SCADA systems
- Sewage contamination of potable water systems
- Public health problems from sewage contamination
- Increased I&I (inflow & infiltration)
  - Increased I&I from elevated ground water in un-inundated portions of the wastewater collection system
  - Inadequate force main capacity
  - Disposal of under-treated sewage into receiving waters
- STP Damage
  - Destruction of STPs in the inundated areas and a complete loss of wastewater treatment capability
  - Overwhelmed STPs in the un-inundated zones/inadequate treatment periods resulting from I&I and inundated collection systems
  - Salinity increases in STP intake facility
  - Loss of wastewater recycling capability
  - Agricultural/industrial dislocation from loss of recycled water supply
  - Damage to biological treatment capacity
  - Massive wastewater bypass into receiving waters for extended periods (3-5 years)
  - Massive capital requirements for wastewater system reconstruction

## Water Systems-Watersheds, Wells, Reservoirs, Treatment, Transmission

### Watershed Damage

- Saltwater intrusion up rivers/streams
- Salinity increases in groundwater
- Damage to coastal forests/watersheds

### Wells

- Salinity intrusion into potable wells
- Loss of water quality

### Reservoirs

- Possible salinity intrusion into reservoirs from elevated groundwater salinity

### Treatment Systems

- Contamination of treatment systems from municipal sewage

- Physical damage to treatment facilities/inundation in the coastal zone

#### Transmission Systems

- Inundation of mains in the coastal zone
- Erosion/corrosion damage to inundated mains
- Failure of private laterals and internal plumbing in the inundated areas
- Massive water loss thru line breaks
- Saltwater intrusion into water transmission system
- Potential failure of water transmission system
- Need to reroute water flows around inundated areas with new mains

#### Urban Transportation

##### Roads & Bridges, Parking Facilities

- Inundation of coastal arterials
- Possible isolation of certain communities
- Alternative routes overwhelmed, increased traffic congestion/gridlock
- Loss of overall roadway system capacity
- Roadways in population receiving sites overwhelmed
- Damaged and destroyed bridge foundations

##### Stormwater Systems

- Inundation of coastal storm drains/catchbasins
- Stormwater backup in connected but un-inundated areas
- Increased pollution of coastal waters – release of gas and oil from inundated USTs, toxic materials from industrial sites, etc.

##### Traffic Management Systems

- Damage/destruction to sensors and signalization
- Possible system-wide failure of intelligent traffic systems-computerized traffic signal synchronization systems, video monitoring systems etc
- Damage to street light systems, inundated/shorted out electrical feeds/possible system-wide impacts

##### Public Transport (bus systems, BRT, rail, subways, etc)

- Inundation/destruction of coastal bus maintenance facilities
- Inundation/destruction of coastal BRT routes/stations
- Inundation/destruction of trolley/light rail/catenary systems
- Flooding of subway tunnels

- Bifurcation of public transportation systems that pass thru inundated areas leaving entire systems ineffective
- Disruption of public mobility/opportunity costs
- Shift from public transit to automobiles/increased traffic congestion/reduced roadway operating performance

#### Airports/Harbors

- Inundation of coastal airports
- Loss of mobility/cargo capacity/tourism
- Inundation of harbor facilities
- Loss of cargo/freight capability
- Massive facility/infrastructure relocation costs

#### Transportation Planning

- Need to completely redesign municipal transportation systems from a sustainable perspective. New/post sea level rise transportation planning needs to be integrated with land use, economic development, infrastructure, and energy policy planning. New/post sea level rise cities need to be designed around the pedestrian not the automobile.

#### Utilities (electric, gas, telephone, fiber optics, etc)

##### Electric Systems/Natural Gas

- Inundated power stations/transformers/gas lines
- Possible area-wide blackouts
- Possible bifurcated systems/Loss of gas service, steam, etc in some un-inundated areas
- Need to reroute all utilities around inundation areas

#### Solid Waste Management

##### Collection/Disposal/Recycling

- Possible need to relocate landfills with water-table changes
- De-construction debris landfills overwhelmed/new facilities needed to receive de-construction debris from the inundated zone
- Need for extensive recycling programs to recapture/reuse building materials harvested from the inundation zone
- Relocation of recycling centers, RDF plants, etc that are located in the inundation zone

#### Public Facilities

Schools, Convention Centers, Hospitals, Offices, Public Housing, Base Yards, Libraries, etc

- Inundated public facilities will need to be relocated of the flood zones
- Existing facilities in population relocation zones will need to be expanded

### Risks

The lack of substantial integrated sustainability planning for post inundation coastal cities will result in haphazard urban redevelopment that is even less sustainable and energy efficient than are today's cities.

Municipal investments in mitigation initiatives to reduce GHG emissions may result in a dis-adaptation to climate change for the city. For instance, new public transit routes and facilities may be developed to reduce fossil fuel consumption and GHG emissions, but if those public transit facilities are located in future flood areas they will represent a dis-adaptation for the city. In addition, changes in building codes for mitigation purposes may not be ideally designed for adaptation purposes and may be counter productive to adaptation goals.

For these reasons, municipal mitigation and adaptation planning must be done as one unified planning process.

### Uncertainties

Cities are unable to reliably determine how, when, and to what degree sea levels will rise in their geographic area. As a result they are unable to determine the amount, timing, or type of investments they need to make to prepare for sea level rise. Inadequate or misdirected infrastructure investments will leave them unable to adequately cope with the coming coastal inundation. Excessive investment in unneeded infrastructure improvements will have disastrous financial consequences for cities.

To eliminate these uncertainties, the federal government needs to provide cities with their best scientific estimate of the effect and timing of sea level rise and other climate change impacts. These projections need to be based on the best available data and not be the result of political compromise. These projections will serve as the basis for municipal action on a nationwide basis.

Once the baseline projections are established, the federal government needs to provide and mandate a uniform methodology for cities to assess their vulnerabilities to climate change and to determine their existing adaptive capacity. By utilizing a uniform methodology, cities will be able to reasonably evaluate the likely impacts and the approximate capital and operating costs that

will be required for various response options. With these tools, city governments can then make their own critical decisions about such things as abandoning or attempting to harden coastal areas. A uniform assessment methodology such as this will also enable the federal government to make fair and reasoned decisions on how it allocates financial resources to affected cities.

## Options

To cope with sea level rise resulting from climate change, cities have the option to:

### Infrastructure

- retreat from inundated shoreline areas
- attempt to harden and defend coastal urban areas
- relocate buildings and facilities in all affected sectors
- develop new relocation population centers
- redesign city plans in a sustainable way
- develop adaptive reuse plans for inundated structures
- expand and upgrade non-inundated infrastructure to replace lost capacity
- not replace infrastructure and facilities and allow out migration
- invest in infrastructure that will support new economic development strategies to replace lost coastal economies

### Energy

- base all municipal decisions on the principles of energy efficiency, a shift to renewable energy sources, and the development of distributed energy systems
- promulgate laws that require all new construction to be based on energy efficient green building design
- implement energy efficiency upgrades on all city facilities
- adopt public incentives/rebates for the use of energy efficient appliances and technologies
- shift the entire municipal fleet to recycled biodiesel fuels
- retrofit all traffic signals/lighting to LED lighting
- develop methane recapture cogen systems for all landfills and STPs
- regulate and develop renewable primary energy sources for the city
- develop energy recapture systems for all MSW (RDF, Plasma Arc, etc)

### Policy

- require all new development and re-development to be based on Smart Growth principles to reduce automobile dependence
- mandate coastal zone development setbacks to accommodate further sea level rise

- attempt to develop new revenue sources and financing options for the city
- utilize technology and innovation to improve efficiency and cut costs
- set priorities for city services and cut back operations to live within reduced revenues

#### Capacity Building

- retrain city workforce to deal with new sustainable technologies and methodologies
- consolidate municipal workforce to operate within budget constraints

## Vulnerability – **Increased Precipitation & Severe Weather Events**

### Impacts

Urban Flooding, Storm Surge, and Wind Damage

Wastewater Collection, Transmission, Treatment & Disposal

Inundated MWW Manholes

- Overwhelmed STPs/inadequate treatment periods
- Disposal of under-treated sewage into receiving waters
- Toxic slugs entering MSW system
- Release of untreated wastewater via manholes
- Public health problems from sewage contamination
- Sewage contamination of potable water systems
- Overwhelmed pump stations
- Inadequate force-main capacity
- Rupture of gravity mains

Increased I&I (inflow and infiltration)

- Overwhelmed STPs/inadequate treatment periods
- Disposal of under-treated sewage into receiving waters
- Overwhelmed pump stations
- Inadequate force main capacity
- Rupture of gravity mains

STP Damage

- Temporary loss of biological treatment capacity
- Contamination of clarifiers
- Physical damage to pumps and facilities
- Damage to SCADA systems

Energy Conservation & Generation

- Need to implement system-wide energy efficiency upgrades
- Need to develop STP co-generation systems

Water Systems-Watersheds, Wells, Reservoirs, Treatment, Transmission

Watershed Damage

- Loss of forest cover
- Slumping/Landslides
- Erosion/damage to soils, streams, groundwater

Wells

- Flooding of well heads, pump stations
- Contamination of potable water systems

- Introduction of pollutants into groundwater
- Need for energy efficiency upgrades

#### Reservoirs

- Contamination from urban runoff (non-point source)
- Contamination from damaged infrastructure (point source)
- Siltation of reservoirs from erosion
- Overtopping of reservoirs
- Failure of dam structures/property damage, loss of life

#### Treatment Systems

- Contamination of treatment systems/sewage
- Physical damage to treatment facilities
- Need for energy efficiency upgrades

#### Transmission Systems

- Flooding caused soil slumping/expansion
- Rupture of mains and laterals
- Ruptured mains cause hillside slippage
- Damage to all buried infrastructure, property damage from slippage

### Urban Transportation

#### Roads & Bridges, Parking Facilities

- Accelerated deterioration of pavement surfaces
- Increased pothole repair demands
- Accelerated re-pavement schedules
- Overwhelmed and damaged culverts
- Damaged and destroyed bridge foundations
- Roadway cleanup costs/debris & mud removal
- New route construction around new flood zones
- Need to shift to permeable concrete paving

#### Storm Drains and Canals

- Overwhelmed drainage systems, transmission capacity
- Inadequate catch basin capacity, litter wash-back
- Increased pollution of receiving water (streams, coast, etc.)
- Increased need for watershed management infrastructure
- Increased need for public education re: watershed management

#### Traffic Management

- Damage to sensors and signalization
- Damage to roadway markings and signage
- Reduced mobility/opportunity costs
- Need for energy efficiency upgrades (LED lights, signals)

- Need for deployment of PV/wind powered lighting

#### Public Transport (bus systems, BRT, rail, etc.)

- Damage to bus yards/rolling stock
- Damage to BRT routes/stations
- Damage to trolley catenary systems
- Flooding of subway tunnels
- Disruption of public mobility/opportunity costs
- Need to relocate transit systems from new flood zones
- Need to expand non-fossil fueled public transit capacity

#### Airports/Harbors

- Damage to facilities
- Disruption of service
- Possible relocation of facilities
- Economic impacts
- Need for energy efficiency upgrades
- Need to shift to renewable energy sources

#### Transportation Planning

- Need to integrate trans/land use/infrastructure planning
- Need to develop enterprise wide GIS based management

#### Solid Waste Management

##### Collection/Disposal/Recycling

- Disruption of collection routes/services
- Public health problems from uncollected waste
- Disruption of landfill operations
- Increased waste volumes—greenwaste, deconstruction debris
- Contamination of groundwater/ leachate collection system failures
- Need to relocate landfills based on new rainfall patterns
- Need to establish methane recapture/cogeneration facilities at landfill sites
- Need demand management systems to reduce waste generation and accompanying energy demand
- Need to develop recycling systems to recapture energy and resources
- Need to develop waste to energy systems for MSW (RDF, plasma arc, etc)

## Public Facilities

Schools, Convention Centers, Hospitals, etc

- Damage to facilities
- Increased maintenance and operational costs
- Need for facility relocation out of flood zones
- Need for energy efficiency upgrades
- Need to develop cogeneration at facilities

Public Buildings-Offices, Libraries, Public Housing

- Damage to facilities/increased maintenance costs
- Need for energy efficiency upgrades
- Need to develop cogeneration systems
- Increased affordable housing maintenance costs

## Community Services

Homeless Facilities & Services, Elderly Affairs

- Increased demand for homeless facilities
- Greater homeless health and medical challenges
- Increased pressure on elderly services, health & mobility

Parks & Recreational Facilities

- Damage to parks/playgrounds
- Increased maintenance of park lands/facilities
- Conversion of parklands to floodways, retention ponds
- Reduced revenue from public golf courses/zoos, etc.
- Increased operational costs for golf courses/zoos, etc.

## Risks

Lack of substantial municipal investment in new infrastructure and equipment as well as lack of increased expenditures for maintenance, operations, and training will result in increased property damage, morbidity, and loss of life.

## Uncertainties

Cities are unable to reliably determine how and to what degree weather patterns will change for their geographical area. As a result, they are unable to determine the amount or type of investments they need to make to adapt to climate change. Inadequate or misdirected infrastructure investments will leave them unable to adequately cope with the coming

climate related problems. Excessive investment in unneeded infrastructure improvements will have disastrous financial consequences for cities.

Most cities are currently unable to finance the capital costs necessary to adapt to climate change and they do not have an adequate tax base to pay the increased operating costs associated with adaptation.

### Options

To cope with increased precipitation and flooding resulting from climate change, cities have the option of:

#### Infrastructure

- replacing storm-water infrastructure with higher capacity catch basins, storm drains, drainage canals, etc.
- systematically replacing existing hardscape with permeable concrete surfaces to increase soil absorption and reduce runoff.
- increasing urban green-space to reduce runoff and heat island effect
- relocating infrastructure and facilities from new flood prone areas
- converting public lands (parks, golf courses, etc.) to detention and retention systems to handle increased flood flows

#### Equipment

- deploying new and expanded equipment to clean and maintain catch-basins and storm drain systems (vacator trucks, etc.)
- deploying barcode/computer/enterprise GIS systems to improve the efficiency of storm water management systems

#### Policy

- instituting code changes to require building rainwater catchment, retention and reuse systems to reduce runoff and water pumping energy costs.
- changing zoning and land use laws to restrict development in areas subject to flooding as a result of increased precipitation
- mandating smart growth land use policies to reduce auto dependence

- mandating green building/energy efficiency design for all public and private construction to reduce GHG emissions.
- retrofitting all government buildings for energy efficiency
- shifting all municipal fleets to recycled biodiesel fuels
- shifting municipal energy usage to renewable fuels
- developing cogeneration capability at city facilities

### Capacity Building

- retraining city workers to utilize new sustainable technologies
- hiring additional city workers to cope with new challenges

### Finance

- utilize creative financing mechanisms to finance infrastructure upgrades (ESCO's, public-private partnerships, tax increment financing, etc.)
- increase property taxes, fees, to cover increased operating costs and to service increased general obligation bond debt
- change Federal policy to reinstitute revenue sharing so the Federal government can again provide financial assistance to cities

## Vulnerability – **Decreased Precipitation**

### Impacts

#### Droughts

Water Systems–Watersheds, Wells, Reservoirs, Treatment, Transmission

#### Watershed Damage

-Loss of forest cover from drought, pest and disease caused tree death

-Increased erosion hazard from forest die-off

#### Wells

-Drying up of aquifers

-Deterioration of water quality

-Reduction of well capacity

-Decreased recharge of groundwater systems

-Salt water intrusion/increased salinity of aquifers

#### Reservoirs

-Reduced seasonal runoff/reduced snow-pack etc.

-Dropping reservoir levels

-Reduced recreational opportunities

-Reduced lake levels/habitat destruction

-Reduced stream flow/habitat destruction

-Increased stream temperatures/habitat destruction

-Reduced hydroelectric generation capability

#### Treatment

-Increased treatment costs

#### Transmission & Distribution

-Contamination of transmission lines

-Inadequate capacity for all user groups

-Allocation conflicts between ag/industry/res/environment

#### New Source Development/Conservation

-Increased demand for desalinization plant development

-Expanded application of water catchment systems for buildings

-Increased demand for water efficient appliances

-Increased pressure for water conservation ordinances

Wastewater Collection, Transmission, Treatment & Disposal

-Increased demand to recycle wastewater for industry and agriculture

- Increased demand for more efficient distributed wastewater technologies
- Increased demand to develop and deploy non-water based sewage treatment systems
- Increased demand for efficient MBR technologies

#### Community Services

##### Parks and Recreational Facilities/Urban Forestry

- Loss of irrigation allocations/urban green space loss thru water loss, disease, & pests

#### Public Safety

##### Fire Suppression

- Increase in forest and brush fires
- Increase property damage from fire loss

#### Risks

A lack of substantial municipal investment in wastewater recycling and other water reclamation technology could leave cities dangerously short of adequate water resources to provide fire suppression services, which could lead to increased property damage and loss of life.

Inadequate potable water resources could threaten public health and economic development opportunities.

#### Uncertainties

Uncertainty about the quantifiable impact of climate change on the city's future water resources will limit a city's ability to invest appropriately in advance.

Most cities are financially unable to meet the costs associated with this adaptation and the increased costs of providing water services may make water prohibitively expensive. This could result in the dislocation of large urban populations.

#### Options

To cope with the decreased precipitation resulting from climate change cities have the option of:

Infrastructure

-developing new water supply systems based on alternative technology, such as, recycling of wastewater, desalinization, temperature differential condensation technology

-revitalizing water transmission systems to reduce line loss

-promoting the use of xeroscape species in both public and private landscaping

-mandating water catchment/reuse systems on all public and private buildings

-developing non-water based sewage treatment technology

-reforesting impacted watersheds with drought resistant species

### Equipment

-purchasing new fire fighting equipment to combat increased forest and brush fires

-deploying state of the art SCADA systems to increase the efficiency of water transmission systems

-deploying barcode/computer/enterprise GIS systems to improve the efficiency of water transmission systems

-deploying telemetry water-meter reading technology

### Policy

-instituting strict water conservation ordinances

-providing rebates for the use of low flow toilets, shower heads, and appliances

-establishing policies for the allocation of limited water resources

-promulgating water allocation quotas for various sectors

-changing building codes to reduce water consumption and require building water catchment

-restrict the installation of new water meters

## Vulnerability – **Increased Temperatures**

### Impacts

#### Water System Stress

##### Water Systems-Watersheds, Wells, Reservoirs, Treatment, Transmission

- Increased evaporative loss from reservoirs
- Reduced stream flows
- Increased demand for water for drinking, irrigation, air conditioning
- Accelerated snowmelt/diminished watershed capacity

#### Roadway Impacts

##### Urban Transportation – Roads

- Accelerated buckling of pavements/increased repaving costs
- Increased demand for roadside irrigation

#### Energy Impacts

##### Public Facilities

- Increased air-conditioning/cooling demand
- Need for increased primary power generation
- Need to retrofit existing facilities to reduce heat gain

##### Vulnerable Populations

- Prohibitive energy costs

#### Community Services Impacts

##### Homeless Facilities & Services, Elderly Affairs

- Increased health risks for the homeless, elderly, poor, and other vulnerable populations
- Need for enhanced health services
- Need to retrofit homeless facilities and senior housing to reduce passive heat gain

##### Parks & Recreational Facilities

- Stress on urban landscaping
- Spread of new pests and diseases

##### Health Services

- Reduced ambient air quality
- Increased respiratory disease

-Spread of new infectious diseases

### Brush Fire/Forest Fire Impacts

#### Fire Suppression

- Increases in forest and brush fires
- Demand for expanded fire-fighting capacity

### Crime Impacts

#### Urban Crime

- Increase in urban street crime

### Risks

Inadequate municipal response will result in increased energy costs; fire caused property damage, morbidity, and loss of life.

### Uncertainties

Inadequate information on the degree of heat increase projected in each geographic area.

### Options

To cope with the increased heat burden resulting from climate change, cities have the option of:

#### Infrastructure

- expanding electrical generation facilities
- retrofitting public facilities to reduce passive heat gain
- deploying energy efficient cooling systems (district cooling, etc)
- expanding water sources, reservoirs, transmission systems

#### Equipment

- expanding fire fighting capacity with specialized equipment

#### Policy

- mandating water conservation measures
- providing incentives/rebates for water conservation
- promulgating green building design standards
- increasing the frequency of road resurfacing and repair
- shifting from asphalt to concrete paving systems
- promulgating a model energy code
- shifting to xeroscape landscaping techniques

- expanding health services for vulnerable populations
- increasing Fire Department capabilities
- promulgate open fire burning restrictions

## Overarching Municipal System-wide Impacts from Climate Change

### City Management

In order to effectively cope with adaptation to climate change, city managers will need more definitive information on the nature, extent, and timing of the impacts that their city must adapt to. Political leaders and managers will need training and capacity building to meet the challenges this threat poses to cities.

Climate change and sea level rise will also trigger an avalanche of new legal issues for local governments as large areas of private property and facilities are inundated or deemed unsafe to the public, and population centers are relocated.

### Emergency Management

Currently, emergency management capabilities at the local government level are designed to cope with emergency events and their aftermath. Sea level rise will pose a long term protracted emergency that will require new training and technology. Immediate planning is needed at the city level that integrates GHG mitigation planning and climate change adaptation planning.

### Energy Policy

Cities need to develop policies, pass ordinances, develop facilities, and apply technology and equipment that implement energy efficiency, a shift to renewable energy sources for primary and transportation energy, and the development of distributed energy systems. All land use planning, transportation planning, and infrastructure planning needs to be integrated to reduce energy consumption.

### Planning & Permitting

All building codes, energy codes, design codes, and zoning ordinances need to be refined to address GHG mitigation and climate change adaptation.

### Design & Construction

Starting immediately, all future municipal construction of public facilities and infrastructure needs to utilize both mitigation and adaptation design standards so that we do not further exacerbate the climate change challenge.

### Police, Fire, Ambulance, Medical Examiner

Sea level rise will present emergency response services with unique and increasing burdens. These challenges will require the application of new technologies and expanded training and capacity building programs.

### Information Systems & Technology

To meet the challenges ahead, most cities will need substantial upgrades to various municipal technologies. In order to adequately plan and manage the complex and interrelated municipal operations that will be required, cities will need to reorganize themselves around enterprise-wide Geographic Information Systems (GIS).

### Human Resources

Sea level rise will result in increased municipal costs and reduced revenues. This will likely require a reduction in city staffing and an expansion of training and capacity building programs by city human resource departments.

### Budget & Finance

Climate change and sea level rise will require cities to 1) write off massive investments in inundated infrastructure (in many cases the city will need to continue to pay debt service on those lost assets), 2) invest in new replacement infrastructure without adequate financing, 3) increase operating budgets to maintain service levels, and 4) absorb large drops in their property tax base.

In many cases these circumstances will result in a significant downgrade in the cities bond rating by the bond rating agencies. This will limit future borrowing and increase debt costs. In short, under current circumstances, cities will not be able to finance the infrastructure nor pay the operating costs of dealing with climate change.

One alternative is for the federal government to establish a Climate Change Adaptation Bank that could serve as the lending source to finance municipal climate change adaptation projects. Such a bank could be modeled after the World Bank that was established after WWII to help finance post war reconstruction.



## **Note to Sea Grant Advisory Board Members Concerning the Report of the Research Committee**

The Executive Summary of the draft report of the Research Committee is presented in the following section. It gives a summary of the conclusions and recommendations reached by the committee. The charge to the committee is given below, and the report itself is organized around responses to the 6 parts of the charge.

I draw your attention in particular to the first roughly two and a half pages of the Executive Summary and to the first recommendation there. The committee recognized early in its deliberations that issues related to research support in Sea Grant are intimately related to the overall funding of Sea Grant. That in turn is related to the perception of Sea Grant within NOAA, Congress, and the Office of Management and Budget, as revealed by a series of questionnaires and personal meetings with individuals in these and related groups. We believe that until these organizations are convinced that Sea Grant is a strong national program addressing a small number of clearly defined national needs in the coastal environment, funding for Sea Grant and its research will never reach its potential and will likely slowly continue to decline. We believe that some fundamental alterations in how Sea Grant operates will be needed to change these perceptions

The remainder of the Executive Summary, and the report itself, addresses several ways in which Sea Grant's research efforts can be enhanced in the future, including maximizing the value and quality of its research, providing guidelines for the future fraction of funding devoted to research, the evaluation of future research, expanding the research portfolio, and ensuring future research is consistent with Sea Grant's strategic plan. We expect to have a "final" draft of the report sent to you electronically a few days before the meeting in Seattle. During my presentation in Seattle I will provide a detailed summary of the report.

### **Charge to the National Sea Grant Advisory Board Committee to Review Sea Grant Research**

- 1) What are the long-term implications of the decrease in Sea Grant research funding? Has the decline been across the board, or has it affected some programs or some programmatic areas more than others?
- 2) What are the reasons for this decline? What is the perceived impact and value of Sea Grant research relative to research in other NOAA programs, and what effect has this had on the decline in Sea Grant Research funding? In what way should the Sea Grant research portfolio complement, and be distinguished from, NOAA's portfolio, and with the portfolios of other coastal and marine funding agencies?
- 3) What can Programs do to maximize the value of their research effort and support the best university scientists? What can Directors do to engage the best talent? Is there a role for the National Office in this effort? What are the manpower implications of actually managing an effective research effort, both for the Programs, and for the National Office?
- 4) Is the continuation of the percentage guidelines for funding devoted to research still warranted? If so, should the percentage directed toward research vary between large or small Programs? What is the appropriate balance between research and outreach?

5) On what basis should research performance within the Sea Grant Program be evaluated and measured in the future? Should state and other research support for individual Sea Grant Programs be considered when evaluating the overall research effort?

6) Can the decline in research funding be reversed? If so, how? What pathways can be explored to expand a Program's research portfolio?

Bob Duce, Chair, Research Committee

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# **Sea Grant Research**

**Executive Summary of a Report of the National Sea  
Grant Advisory Board**

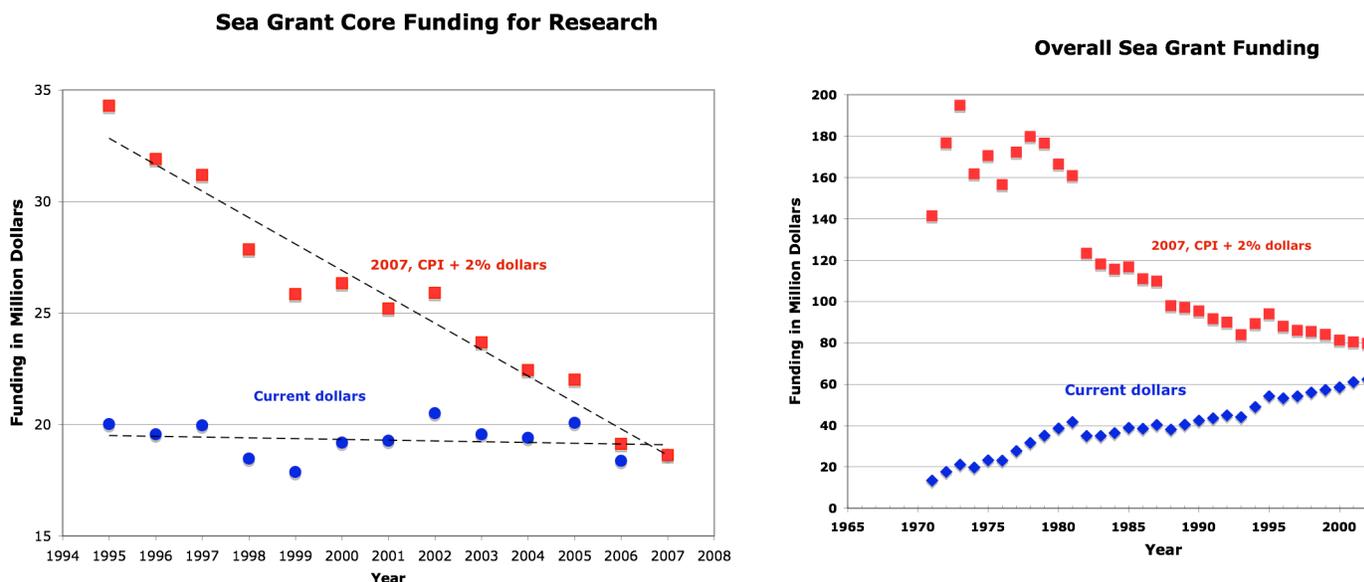
**Committee to Review Sea Grant Research**

**August, 2009**

## Executive Summary

The National Sea Grant Advisory Board (NSGAB) was asked by the Director of the National Sea Grant College Program to address several issues of concern relative to research within the Sea Grant program. The primary concerns were related to a) the perception that the fraction of funds devoted to research within the overall program had been decreasing over the past decade, b) the impacts of such a change, and c) what could be done about this in the future. The Committee to Review Sea Grant Research was formed to address these issues and a more detailed charge that was given to the committee. This document is the report of that committee.

The combined research/outreach/education alliance of the National Sea Grant Program, executed by the state programs, is well recognized among the many programs in NOAA. The National Program has evolved from a federation of programs that addressed the overall NOAA Program mission, but with a focus on state needs, into the current model with a National Strategic Plan that has specific foci adhered to by the state programs. While it is too soon to evaluate the effectiveness of the new process, it is obvious that the research component of the Sea Grant Program faces major funding challenges. Funding of Sea Grant and its research has stagnated over roughly the last decade. However, the buying power for research funding (2007, CPI + 2% dollars) has declined by almost 50%, as shown below, whereas the buying power for Sea Grant's administration, education and outreach has declined by a smaller percentage. This leaves the research component of Sea Grant in an increasingly diminished position, unable to provide the new information required to respond to NOAA's national needs or to local outreach needs. Nevertheless, NOAA has not pushed for increased funding of Sea Grant as a whole among the other NOAA programs, and thus the decline in overall Sea Grant Program buying power has also decreased significantly since its inception, as also shown below.



This all leads to a fundamental perception of how Sea Grant and its portfolio serve the NOAA mission of service to America's coastal communities. Through a series of questionnaires to Sea Grant directors and NOAA laboratory directors as well as a number of interviews with Congressional, OMB, DOC, and NOAA staff and other interested individuals, insights were gained about both the effectiveness of Sea Grant and its research program and the overall funding

problems that Sea Grant has had in recent years. Many findings and recommendations are outlined in this committee report, but the overall analysis clearly points to a need for a greatly improved appreciation of Sea Grant at the national level and a much greater integrated focus on critical national needs in the coastal environment. The status quo has not engendered this appreciation or this focus.

From our interviews and questionnaires the committee believes that the primary reasons for the current overall funding and research funding problems in Sea Grant can be summarized largely as follows:

- ❖ Sea Grant is not seen as a national program with national goals, but as many small projects with little coherence.
- ❖ Sea Grant research is not seen as being responsive in addressing emerging issues.
- ❖ Sea Grant is not viewed as addressing the research interests that OMB sees as nationally important.
- ❖ Some perceive Sea Grant research to be of lesser quality compared to top quality NSF research.
- ❖ Sea Grant research is not seen as applicable to NOAA's mission.
- ❖ There are various NOAA coastal programs with overlapping missions that are very successfully competing with Sea Grant for funding.

Research must continue to have a major role in Sea Grant. However, we believe that Sea Grant must integrate toward having a truly national research program. This must involve a vigorous effort to market Sea Grant's research efforts and demonstrate that they impact national issues in important, indeed fundamental ways. But more than that, there must be a clear focus of Sea Grant's research effort on a few critical issues of national importance and concern in the coastal environment.

In considering these overall funding problems of Sea Grant, the way in which Sea Grant has operated over the past several decades, and the impressions that we have gained from responses to our questionnaires and to our interviews, the committee believes that it is worthwhile to consider possible new models for Sea Grant and its research. Several different models are explored in this report, with advantages and disadvantages indicated for each. However, the committee believed that it was not constituted nor charged to finalize this type of necessary analysis or to make recommendations as to just what path should be taken. A carefully and appropriately constituted task team will need to be formed to develop a fully informed assessment of this kind.

- **Recommendation:** The NSGO, the NSGAB, the SGA, and NOAA should form a Task Team to initiate detailed discussions on the approaches to developing a stronger national focus for Sea Grant such that its success, and therefore increased research and overall funding, can be achieved. Considerations should include, among other actions, efforts to align with NOAA's regionalization of its programs, increased emphasis on critical coastal research needs that serve the nation while preserving some level of research that serves local needs, and a consideration of ways to improve the mechanism for handling the research portfolio.

Our preliminary analysis suggests that, whichever model is chosen, it should in the end result in the following:

- ❖ Sea Grant will be perceived as a national program with national goals addressing a small number of clearly defined national needs that are determined jointly by the programs and NOAA, and possibly OMB and Congress.
- ❖ Sea Grant will be recognized for its high quality research that makes major impacts.
- ❖ Sea Grant research will be effective in addressing new and emerging issues.
- ❖ The research needs of the individual state programs will still be met.
- ❖ State programs will continue to receive funding for outreach and education programs.
- ❖ NOAA will become an active and effective champion for Sea Grant.
- ❖ Sea Grant research will be clearly applicable to NOAA's mission, with increased interaction with other NOAA programs whose overall missions are different from that of Sea Grant.
- ❖ Overall administrative costs and reporting requirements will be minimized.

The committee also addressed issues that could enhance Sea Grant's research efforts, including the future value of Sea Grant research, how it should be evaluated, and ways in which an individual program's research portfolio can be expanded. For example, linking Sea Grant to NOAA initiatives and promoting the idea that Sea Grant could serve as a vehicle for NOAA offices for managing and recruiting their extramural funding portfolio should have a high priority. However, considerable concern was evident that Sea Grant and the rest of NOAA have not worked well together in the past. NOAA has not been seen as an effective champion for Sea Grant. The Sea Grant directors believe that real collaboration will never be possible until the rest of NOAA accepts the need for stakeholder engagement in the research process. At the same time Sea Grant is part of a mission-based agency with a mandate beyond pure science for its own sake. Furthermore, for the collaboration to become meaningful, all must recognize that Sea Grant is a true partnership, not wholly owned by NOAA or by universities.

- **Recommendation:** NOAA must find ways to better utilize the strengths of Sea Grant, such as engaging and implementing the user/clientele-oriented research, joint funding on certain cross-cutting initiatives, sharing facilities, and looking for niches to utilize Sea Grant strengths.

- **Recommendation:** Sea Grant needs to develop more meaningful partnerships with the NOAA laboratories and increase and improve efforts to communicate the impacts and value of Sea Grant research to the rest of NOAA. Forging partnerships would allow Sea Grant programs to be the vehicle for managing extramural research projects that are selected on a peer-reviewed competitive basis and would enhance research opportunities. Science workshops among Sea Grant and the NOAA laboratories should also be held to discuss ongoing and future research findings and collaboration.

- **Recommendation:** NSGO must be more aggressive in:
  - a) promoting the contributions of Sea Grant to all levels of NOAA. One way to do this is to engage a larger number of NOAA's managers and scientists in the proposal review process for research and extension; and
  - b) demonstrating that America's universities are an unequalled science, technology and human resource that, through Sea Grant, can be applied to NOAA's mission.

The interviews raised another issue that contributes to the funding difficulties of Sea Grant. This is the number of coastal programs within NOAA. The reasons cited for these new programs are numerous. The reasons notwithstanding, the results are obvious. There are too many programs with unclear mission statements, some redundancy in purpose, all subject to continuing expansion of their missions, and competing for a relatively small amount of money. The competition for funding diminishes the capability of each in addressing national and local needs. As presently structured, these programs risk competing with others to the point that the overall good and the ability of meeting national objectives of each is diminished.

Strengthening regional partnerships and approaches to collaborative research should be encouraged and could lead to significant new funding and results. Regional partnerships can address issues that are larger and more complex than those in a single state, and national issues can often be more easily approached on a regional scale. Regional partnerships can provide excellent opportunities for involvement with other NOAA entities as well as various federal and state agencies, and this would follow NOAA's intent for regionalization in its overall programs.

- **Recommendation:** Regional partnerships among Sea Grant programs and other entities are an appropriate approach for producing significant new results that address important regional and national issues. Increased partnerships within a state with governmental and private sources are also strongly encouraged.

Aligning research programs with areas whose importance is clearly going to grow in the future is a sensible approach. Examples include climate-related research, marine transportation issues, alternative energy sources in the marine environment, and human dimensions research.

- **Recommendation:** Research programs should be aligned to address critical issues that will arise in the future.

The committee believes that research remains the foundation of the Sea Grant program upon which the outreach and education programs exist. This is true both at the national level and at the level of state programs. A percentage goal for the amount of research relative to other components of a Sea Grant program has been generally accepted as a mechanism to level the efforts of the diverse programs. Historically it has been ~50%. However, the ability to reach 50% has been hampered recently by the shrinking value of the dollars received by individual

programs and extension program mandates from the NSGO. States with a smaller overall budget often find it very difficult to reach the 50% level, and this “recommended” percentage hampers their flexibility to develop all parts of a program. Ideally a program should develop a research effort that makes the most impact relative to the national goals of Sea Grant as well as important issues to the state and its stakeholders.

- **Recommendation:** The percentage of a particular program’s funding devoted to research should be flexible, although a target of 50% is appropriate for most programs. However, the particular goals of an individual program must be considered. Given this flexibility, there must be realistic, tractable and understandable metrics for research performance.

- **Recommendation:** Because some programs are too small to be able to designate a significant fraction of their funding to research, consideration should be given to combining the research activities of these smaller programs with neighboring or related programs so that all state programs can realize the research benefit.

Traditionally the most common metrics that have been utilized for assessing research performance in Sea Grant are peer-reviewed publications, patents, presentations, degrees granted, type and quality of placement of students supported, etc. Nevertheless, the committee believes that the assessment of the impacts of Sea Grant research in the future is of more importance in evaluating the contribution of a program to a national effort. For example, the incubation of new industries and start-up businesses as a result of Sea Grant research and the contribution of Sea Grant research to the sustainable development of coastal and marine resources, addressing socio-economic issues affecting productivity or the health of coastal ecosystems, and the impact on policy and lawmaking are all important measures of impact. Another important metric of the value of Sea Grant research is comprised of the human resources who are trained in research projects and who work in NOAA and universities in support of NOAA’s mission, and with other national and local environmental and resource management agencies.

- **Recommendation:** Assessing the impact of Sea Grant research, e.g., contributions to sustainability, improving regulatory policies, changing behavior, creating industries, etc. should have a high priority in future evaluation of Sea Grant research. In addition, the human resources, together with all publications and other research products deriving from funds administered by the Sea Grant Program, regardless of whether or not some of the funding came from sources other than Sea Grant core funding, should be considered in this evaluation. The contribution of core Sea Grant funding relative to other sources should also be monitored and reported.

As part of the overall evaluation process, a significant effort has been undertaken recently by the SGA to encourage programs to send in their peer-reviewed publications to the Sea Grant Library. This study has shown that there appears to be no decline in such publications despite a decline in buying power of core Sea Grant funded research, at least up through the 2004 funding year. It is not clear how these data should be interpreted. One possibility is that the lack of a decline in output reflects the success of the programs in leveraging their core Sea Grant research funding with other federal, state, and private resources. These data should continue to be updated. This effort will also provide accurate information to outside interests about the productivity, value and extent of Sea Grant research.

- **Recommendation:** Individual Sea Grant Programs should continue to submit peer-reviewed publications to the Sea Grant Library so that an up-to-date record of these publications is constantly available. Some mechanism should be devised to evaluate the relative contribution of Sea Grant vs. other funds obtained by state programs to the overall productivity of Sea Grant researchers.

Many Sea Grant programs believe that their administrative burdens have been increased by more research reporting from both the NSGO and their university.

- **Recommendation:** Every effort should be made to minimize and reduce duplicative and unnecessary reporting requirements.

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# **Sea Grant Research**

**A Report of the National Sea Grant Advisory Board**

**Committee to Review Sea Grant Research**

**August, 2009**

# Sea Grant Research

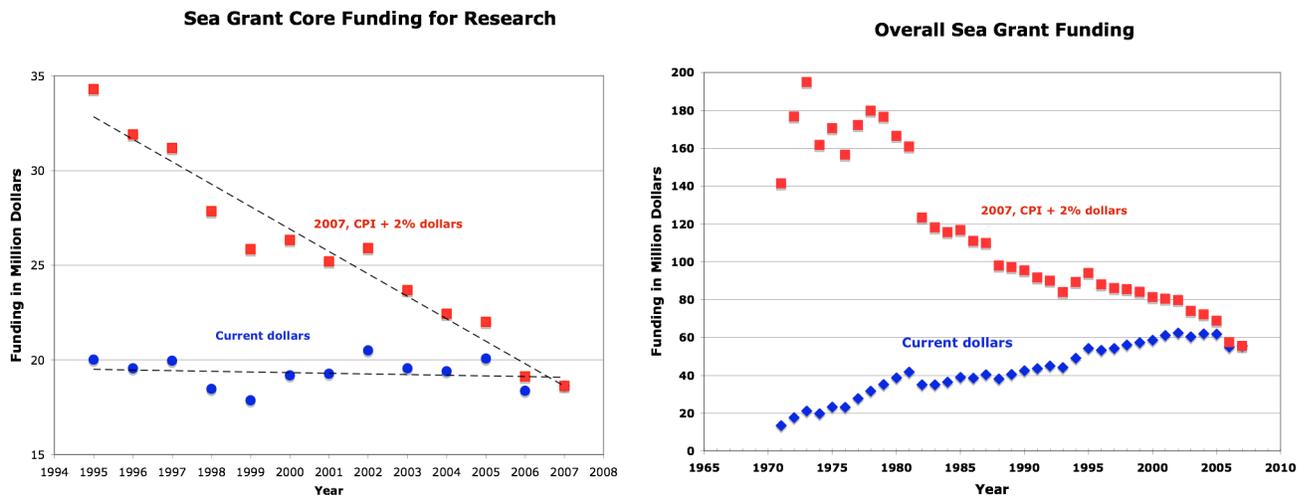
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## Executive Summary

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The committee also addressed issues that could enhance Sea Grant's research efforts, including the future value of Sea Grant research, how it should be evaluated, and ways in which an individual program's research portfolio can be expanded. For example, linking Sea Grant to NOAA initiatives and promoting the idea that Sea Grant could serve as a vehicle for NOAA offices for managing and recruiting their extramural funding portfolio should have a high priority. However, considerable concern was evident that Sea Grant and the rest of NOAA have not worked well together in the past. NOAA has not been seen as an effective champion for Sea Grant. The Sea Grant directors believe that real collaboration will never be possible until the rest of NOAA accepts the need for stakeholder engagement in the research process. At the same time Sea Grant is part of a mission-based agency with a mandate beyond pure science for its own sake. Furthermore, for the collaboration to become meaningful, all must recognize that Sea Grant is a true partnership, not wholly owned by NOAA or by universities.

- **Recommendation:** NOAA must find ways to better utilize the strengths of Sea Grant, such as engaging and implementing the user/clientele-oriented research, joint funding on certain cross-cutting initiatives, sharing facilities, and looking for niches to utilize Sea Grant strengths.
- **Recommendation:** Sea Grant needs to develop more meaningful partnerships with the NOAA laboratories and increase and improve efforts to communicate the impacts and value of Sea Grant research to the rest of NOAA. Forging partnerships would allow Sea Grant programs to be the vehicle for managing extramural research projects that are selected on a peer-reviewed competitive basis and would enhance research opportunities. Science workshops among Sea Grant and the NOAA laboratories should also be held to discuss ongoing and future research findings and collaboration.
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Strengthening regional partnerships and approaches to collaborative research should be encouraged and could lead to significant new funding and results. Regional partnerships can address issues that are larger and more complex than those in a single state, and national issues can often be more easily approached on a regional scale. Regional partnerships can provide excellent opportunities for involvement with other NOAA entities as well as various federal and state agencies, and this would follow NOAA's intent for regionalization in its overall programs.

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- **Recommendation:** Research programs should be aligned to address critical issues that will arise in the future.

The committee believes that research remains the foundation of the Sea Grant program upon which the outreach and education programs exist. This is true both at the national level and at the level of state programs. A percentage goal for the amount of research relative to other components of a Sea Grant program has been generally accepted as a mechanism to level the efforts of the diverse programs. Historically it has been ~50%. However, the ability to reach 50% has been hampered recently by the shrinking value of the dollars received by individual programs and extension program mandates from the NSGO. States with a smaller overall budget often find it very difficult to reach the 50% level, and this "recommended" percentage hampers their flexibility to develop all parts of a program. Ideally a program should develop a research effort that makes the most impact relative to the national goals of Sea Grant as well as important issues to the state and its stakeholders.

- **Recommendation:** The percentage of a particular program's funding devoted to research should be flexible, although a target of 50% is appropriate for most programs. However, the particular goals of an individual program must be considered. Given this flexibility, there must be realistic, tractable and understandable metrics for research performance.
- **Recommendation:** Because some programs are too small to be able to designate a significant fraction of their funding to research, consideration should be given to combining the research activities of these smaller programs with neighboring or related programs so that all state programs can realize the research benefit.

Traditionally the most common metrics that have been utilized for assessing research performance in Sea Grant are peer-reviewed publications, patents, presentations, degrees granted, type and quality of placement of students supported, etc. Nevertheless, the committee believes that the assessment of the impacts of Sea Grant research in the future is of more importance in evaluating the contribution of a program to a national effort. For example, the incubation of new industries and start-up businesses as a result of Sea Grant research and the contribution of Sea Grant research to the sustainable development of coastal and marine resources, addressing socio-economic issues affecting productivity or the health of coastal ecosystems, and the impact on policy and lawmaking are all important measures of impact. Another important metric of the value of Sea Grant research is comprised of the human resources who are trained in research projects and who work in NOAA and universities in support of NOAA's mission, and with other national and local environmental and resource management agencies.

- **Recommendation:** Assessing the impact of Sea Grant research, e.g., contributions to sustainability, improving regulatory policies, changing behavior, creating industries, etc. should have a high priority in future evaluation of Sea Grant research. In addition, the human resources, together with all publications and other research products deriving from funds administered by the Sea Grant Program, regardless of whether or not some of the funding came from sources other than Sea Grant core funding, should be considered in this evaluation. The contribution of core Sea Grant funding relative to other sources should also be monitored and reported.

As part of the overall evaluation process, a significant effort has been undertaken recently by the SGA to encourage programs to send in their peer-reviewed publications to the Sea Grant Library. This study has shown that there appears to be no decline in such publications despite a decline in buying power of core Sea Grant funded research, at least up through the 2004-funding year. It is not clear how these data should be interpreted. One possibility is that the lack of a decline in output reflects the success of the programs in leveraging their core Sea Grant research funding with other federal, state, and private resources. These data should continue to be updated. This effort will also provide accurate information to outside interests about the productivity, value and extent of Sea Grant research.

- **Recommendation:** Individual Sea Grant Programs should continue to submit peer-reviewed publications to the Sea Grant Library so that an up-to-date record of these publications is constantly available. Some mechanism should be devised to evaluate the relative contribution of Sea Grant vs. other funds obtained by state programs to the overall productivity of Sea Grant researchers.

Many Sea Grant programs believe that their administrative burdens have been increased by more research reporting from both the NSGO and their university.

- **Recommendation:** Every effort should be made to minimize and reduce duplicative and unnecessary reporting requirements.

## **I. Introduction**

### **A. Charge to the Committee**

Throughout the existence of the National Sea Grant College Program research has been a central and prominent part of the Sea Grant model's focus on research, outreach and education. In the summer of 2008 the Director of the National Sea Grant College Program, Dr. Leon Cammen, asked the National Sea Grant Advisory Board to address several issues of concern relative to research within the overall Sea Grant program. The primary concerns were related to a) the perception that the fraction of funds devoted to research within the overall program had been decreasing over the past decade, b) the impacts of such a change, and c) what could be done about this in the future. The Committee to Review Sea Grant Research was formed to address these issues. The specific charge given to the committee was as follows:

- 1) What are the long-term implications of the decrease in Sea Grant research funding? Has the decline been across the board, or has it affected some programs or some programmatic areas more than others?
- 2) What are the reasons for this decline? What is the perceived impact and value of Sea Grant research relative to research in other NOAA programs, and what effect has this had on the decline in Sea Grant Research funding? In what way should the Sea Grant research portfolio complement, and be distinguished from, NOAA's portfolio, and with the portfolios of other coastal and marine funding agencies?
- 3) What can Programs do to maximize the value of their research effort and support the best university scientists? What can Directors do to engage the best talent? Is there a role for the National Office in this effort? What are the manpower implications of actually managing an effective research effort, both for the Programs, and for the National Office?
- 4) Is the continuation of the percentage guidelines for funding devoted to research still warranted? If so, should the percentage directed toward research vary between large or small Programs? What is the appropriate balance between research and outreach?
- 5) On what basis should research performance within the Sea Grant Program be evaluated and measured in the future? Should state and other research support for individual Sea Grant Programs be considered when evaluating the overall research effort?
- 6) Can the decline in research funding be reversed? If so, how? What pathways can be explored to expand a Program's research portfolio?

### **B. The Committee's Approach**

In response to this charge our report addresses several aspects of research in Sea Grant, with emphasis on the decline of buying power, its impact on Sea Grant programs, and steps that Sea Grant has taken or could take to mitigate the impacts of this decline. We also suggest a process that could lead to modifications of the current Sea Grant model that might stimulate additional funding for Sea Grant. The committee's first task was to ascertain the extent of the problem relative to research itself, i.e., how much funding had been devoted to Sea Grant research and how had it changed over the years. This turned out to be a difficult problem. In addition, the committee recognized very early that any decrease in research buying power was clearly related to the general decline in the buying power of Sea Grant funding in general, and that the extent and reasons for that decline needed to be addressed as well.

As part of its fact-finding activities, the committee developed two different questionnaires addressing many of these issues. One was sent to all of the directors of the Sea Grant programs. The other was directed to a number of NOAA laboratory directors in OAR, NMFS, and NOS. Finally, a series of interviews was held with Congressional, OMB, DOC, and NOAA staff, and other interested individuals. The responses to these questionnaires and interviews have been synthesized by the committee and will be discussed later in this report. The blank questionnaires are presented in Appendices A and B, and the list of the interviewees and the questions asked of them are presented in Appendix C. Syntheses of the responses to these questionnaires and interviews are presented in Appendices D, E, and F respectively. A summary of a brainstorming effort the committee undertook to look at the advantages and disadvantages of the present Sea Grant model and alternative Sea Grant models is presented in Appendix G. Membership of the committee is given in Appendix H.

The committee held several conference calls during its deliberations. We also held two full meetings - in Washington, DC on 22-23 September 2008 and in Honolulu, HI on 19-21 January 2009. Several members of the committee met at other times as well, notably in Baton Rouge, LA on 11-12 November 2008, and in Washington, DC on 9-12 February 2009. A preliminary set of conclusions and recommendations was presented to the National Sea Grant Advisory Board at its meeting in Washington, DC on 11 February 2009, and a draft of the final report to the Board at its meeting in Seattle, WA on 27 August 2009.

This report is organized around the committee's response to the six charge points outlined above. Chapter II addresses the trends in funding for research within the Sea Grant program and the implications of these trends. That chapter then considers the trends in the overall funding of the Sea Grant program. Chapter III addresses the causes of the overall buying power decline for Sea Grant, considering in particular the viewpoints provided by the Sea Grant directors, the NOAA laboratory directors, and those from outside Sea Grant and the NOAA labs. The committee then provides some strategies for the future in this area. Chapter IV addresses ways in which Sea Grant can maximize the value and quality of Sea Grant research, considers guidelines for the future fraction of funding devoted to research, addresses the evaluation of research in the future, and considers ways in which individual Sea Grant programs can expand their research portfolio in the future.

## **II. The Overall Funding Problem**

### *Charge #1*

*What are the long-term implications of the decrease in Sea Grant research funding? Has the decline been across the board, or has it affected some programs or some programmatic areas more than others?*

### **A. Trends in Sea Grant Funding for Research**

#### **1. The NIMS Data and Program Data on Research Funding**

Unless indicated otherwise, research funds reported in this report refer to core Sea Grant funds. They do not include any National Strategic Investments (NSIs) (which are Sea Grant funds, but not considered core funds), earmarks or pass-through funds (earmarks and pass-through funds are not considered Sea Grant funds because they do not originate from Sea Grant appropriations). Information on total research funding handled through the NSGO, as recorded in NIMS, is presented in Appendix I.

Before the questions addressed in the charge can be answered properly, we must determine accurately what the decrease in Sea Grant research funding (as opposed to total Sea Grant funding, which will be discussed in Section II.C) has been over time. In fact, this has not been an easy task! The initial data obtained for research funding were from the National Information Management System (NIMS). NIMS data have several shortcomings for this study.

NIMS records reflect proposed, rather than actual, spending of funds obtained from Sea Grant's omnibus and other grant proposals. There are some cases in which NIMS does not correctly report the amount of proposed spending on research. This can result from simple entry errors in the proposal itself, or in the transcription of information from the proposal to NIMS, so the wrong amount of funding, or the wrong Project Type (Research, Management, Extension, Education, Communication) is recorded in NIMS. However, the NIMS database has now been extensively validated, and it is believed that this type of error has been minimized for the data used in this analysis.

In addition, proposed research projects that also fund extension components, education projects that fund research components, or any other project that splits funding across more than one Project Type cannot be captured exactly by NIMS, because NIMS allows only one Project Type to be recorded per project. The Project Type is assigned by the Program using a standardized project numbering system in its omnibus proposal (a research project has a project number that always begins with "R", for example).

Proposed funding on a project as recorded in NIMS does not always match actual funding spent, as reported by the programs. There are several possible reasons for this, which could be happening simultaneously. These include:

- a) Sea Grant programs generally include a program development (PD) project in their omnibus proposals, which NIMS categorizes as Project Type "Management". Some of these funds are ultimately used to support research PD projects. However, in the past, NIMS has not always captured these research projects.
- b) Omnibus grants typically span four years and include many individual research projects. Grant rules usually allow programs to change the timing of the individual projects anywhere within the grant period. Thus, programs have been able to move execution dates of individual projects, even across years,

without notifying NSGO. If a research project was moved back one year, for example, and a non-research grant was moved forward one year, the total research funding actually expended for those years would not match the proposed research funding (although this should not change the totals over the entire grant period).

c) As long as the work performed matches the work plan in the omnibus proposal, it is possible under certain circumstances for programs to adjust the amount of money expended on individual projects within a single omnibus grant. If programs adjust the funding on their research projects without notifying NSGO, NIMS would not capture this adjustment.

For all the above reasons, although the NIMS data can give a good sense of the funding for research, there is significant concern on the part of both the committee members and the Sea Grant directors that NIMS research funding data may differ from what the programs themselves have recorded for research spending. To determine the size of this difference, the directors from each Sea Grant program were asked by the Sea Grant Association (SGA) to provide accurate data on the amount of funding for research in their programs over the past several years. For the purpose of this analysis, “research” was defined as peer-reviewed, competed research, including funding for students for dissertation research supported by Sea Grant. No earmark funds were included.

Twenty-four Sea Grant programs (or about 75%) provided data on research funding for the years 2006, 2007, and 2008. The programs reported two types of research funding:

- 1) Research that is supported by core funding provided through the National Sea Grant College Program; and
- 2) Research that is supported by all funding from whatever source (e.g., state, local and private), other than Sea Grant. Information on research funded by non-core Sea Grant (e.g., NSIs) is reported separately.

To determine the fraction of a program’s effort that is devoted to research using these data, the total funding for a program was defined in two ways and was also provided by these 24 programs:

- 1) Total core funding provided through the National Sea Grant Office, but excluding funding for outreach initiatives (e.g., coastal community development) that were added to the core budget but were not accompanied by additional research funding; and
- 2) Total program funding from all sources (e.g., federal, university, state, local, private), but excluding funding for outreach initiatives (e.g., fisheries extension, coastal community development, etc.) that were added to the core budget but were not accompanied by additional research funding.

There were indeed observed differences between what programs themselves reported as Sea Grant core research spending and what was recorded in NIMS. The differences were in general small, as discussed below. Error analysis is continuing, but examples of causes for the differences include those issues described above, as well as differences in the extent to which graduate education was characterized as research, differences in deciding whether or not projects with research and non-research components would be reported as research, and (legal) redistribution of Sea Grant core and non-Federal match funding among individual projects within the omnibus grant.

Unfortunately since only 75% of the programs were able to provide data and since only three years of program data were available, it is not possible to develop trends from these program data. However, the committee felt that if it could be shown that the total core research funding data from NIMS and that from the programs were similar for the 24 programs and for the years 2006 and 2007 (2008 data are not yet available from NIMS), this would give confidence that the trends shown by the NIMS data are representative of the actual amounts spent by the programs and can thus be used to evaluate trends in this report. Considering only core research funding, the differences between the NIMS data and the program data for 2006 and 2007 are shown in Table 1. The committee decided that this agreement of ~10% between the two sets of data provided us with the confidence to use the NIMS data to evaluate trends in research core funding.

<b><u>Difference between Program and NIMS Data for Core Research</u></b>	
<b>Year</b>	<b>Percentage Difference</b>
2006	9.2%
2007	10.3%

The programs also provided valuable information on the amount of extramural research funding obtained by the programs, i.e., all funds not provided by the NSGO dedicated to research. This included federal, state and private grants and donations. Figure 1 shows a comparison of Sea Grant core funding with research funding obtained externally by the programs for the years 2006, 2007, and 2008. It is clear that the external funding is approximately the same or greater than the Sea Grant core funding for those years, indicating the very strong and successful efforts that are being undertaken by the Sea Grant programs to augment their core research funding. It would be very valuable to continue to keep records of this external funding and, if possible, to include it within the NIMS database in the future.

## **2. Trends Shown by the NIMS Data**

On the basis of the results shown in Table 1, the NIMS data are used below to evaluate trends in Sea Grant core funding. The National Sea Grant Office has provided guidelines indicating what portion of Sea Grant funding should be used for research, and it is useful to look at these guideline statements over the past decade. In 1998 the guideline stated, "Approximately 50 percent of the federal funding for the program core will be distributed for research and education projects awarded competitively." In 2003, the guideline stated, "Approximately 50% of the federal funds (excluding program enhancement awards and NSIs) allocated to program core funding must be allocated to peer-reviewed, competitive research and to graduate/undergraduate education proposals." Finally, the 2005 PAT manual indicated, "It is expected that as an operating guideline, not less than 45% or more than 65% (ca. 50%), of base plus merit funding (federal portion) will be distributed for research and education projects awarded by an open, peer-review competitive process."

### Sea Grant Core and External Research Funding

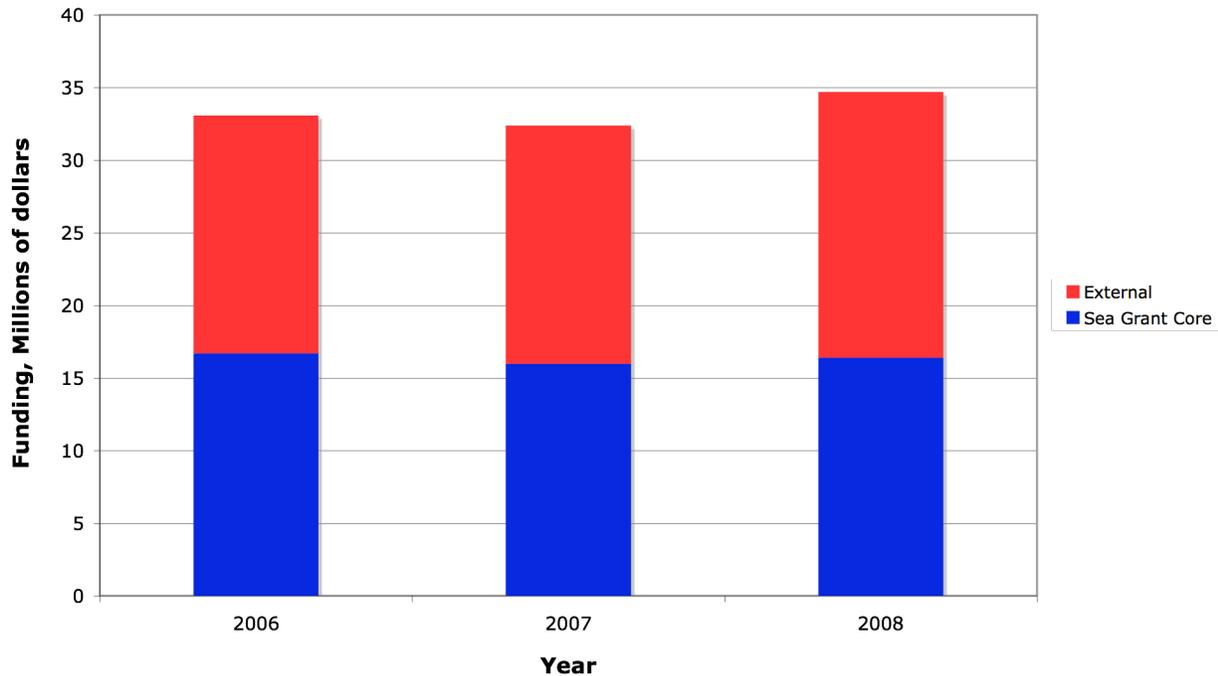


Figure 1. Sea Grant core and external research funding, as reported by the programs to the SGA.

Figure 2 presents data from NIMS that show the change in the percentage of core funding for research from 1995 to 2007. This figure includes 1996, 2002 and 2006, which were years when Sea Grant changed start dates for some of the programs. During those years, the programs received all their research funding, but less than their full complement of funding for non-research projects (e.g., 12 months research funding, but only 10 months administration and outreach), thus skewing the percent research upwards. Removing those years provides a somewhat higher  $r^2$  value ( $r^2 = 0.6822$  vs. the  $0.5327$  in Figure 2, which also shows a dashed red line representing a linear least squares regression on all the data). Figure 2 shows that there has been a gradual decrease in the percentage of core funding utilized for research since the early 1990s, although since 1999 there has been no significant trend (see the solid blue regression line for 1999-2007;  $r^2 = 0.1117$ ). Throughout the period of the chart, the percentage is below the value of roughly 50% that has been used as a guideline in recent years.

### Percentage of Core Funding for Research (from NIMS)

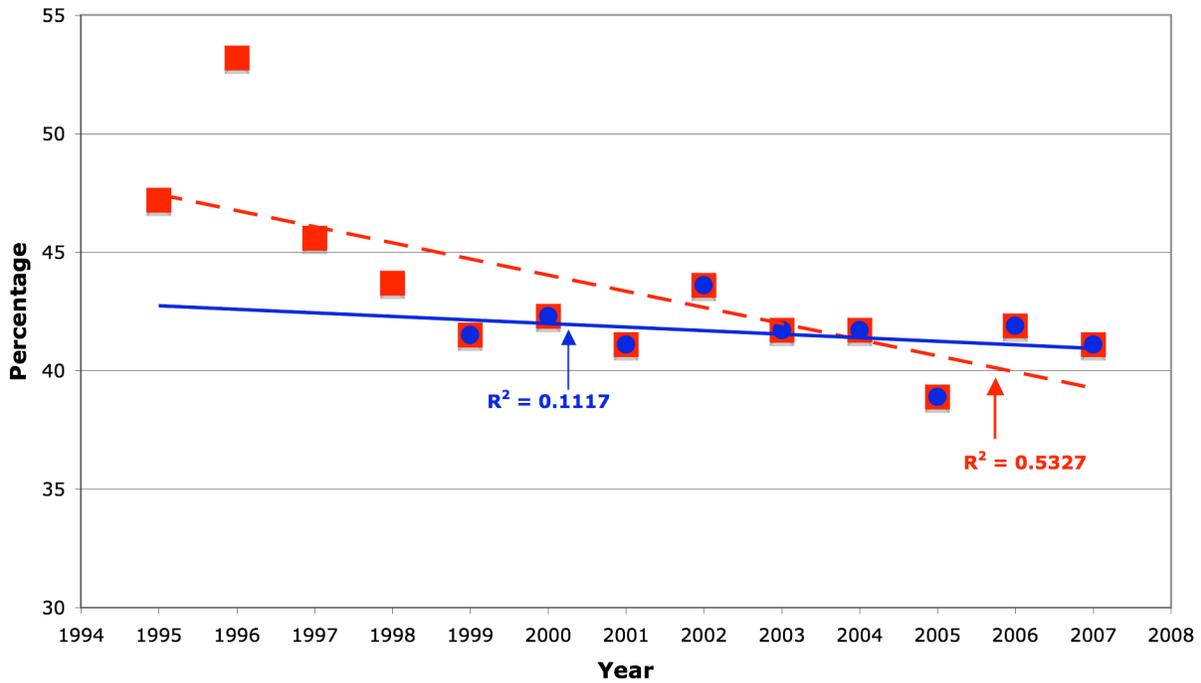


Figure 2. Percentage of core Sea Grant funding devoted to research, from NIMS data. Dashed regression line for all data, solid line only for 1999 to 2007.

Figure 3 shows the core funding devoted to research since 1995 in current dollars (i.e., dollar values for the year in which the funding was granted), and it is apparent that that funding has remained essentially constant. However, Figure 3 also shows funding presented as 2007 dollars, with the additional consideration of 2% inflation on top of the consumer price index (CPI). The "CPI + 2%" is probably a good estimate of the real inflation that has affected the Sea Grant budget over the years. Reports on "scientific" or "R&D" inflation in the engineering and biomedical areas tend to show numbers a couple of percent over the base inflation rate. This is primarily due to new equipment, competition-driven salaries, etc. Based on the general knowledge of the growth of starting salaries, ship-time costs, and lab set-up costs, we believe that marine science inflation is at least as high as general "scientific" inflation. These data show that the buying power in 2007 dollars of research funding, just like that for overall Sea Grant funding shown in a later figure, has been decreasing markedly and regularly in recent years.

### Sea Grant Core Funding for Research (from NIMS)

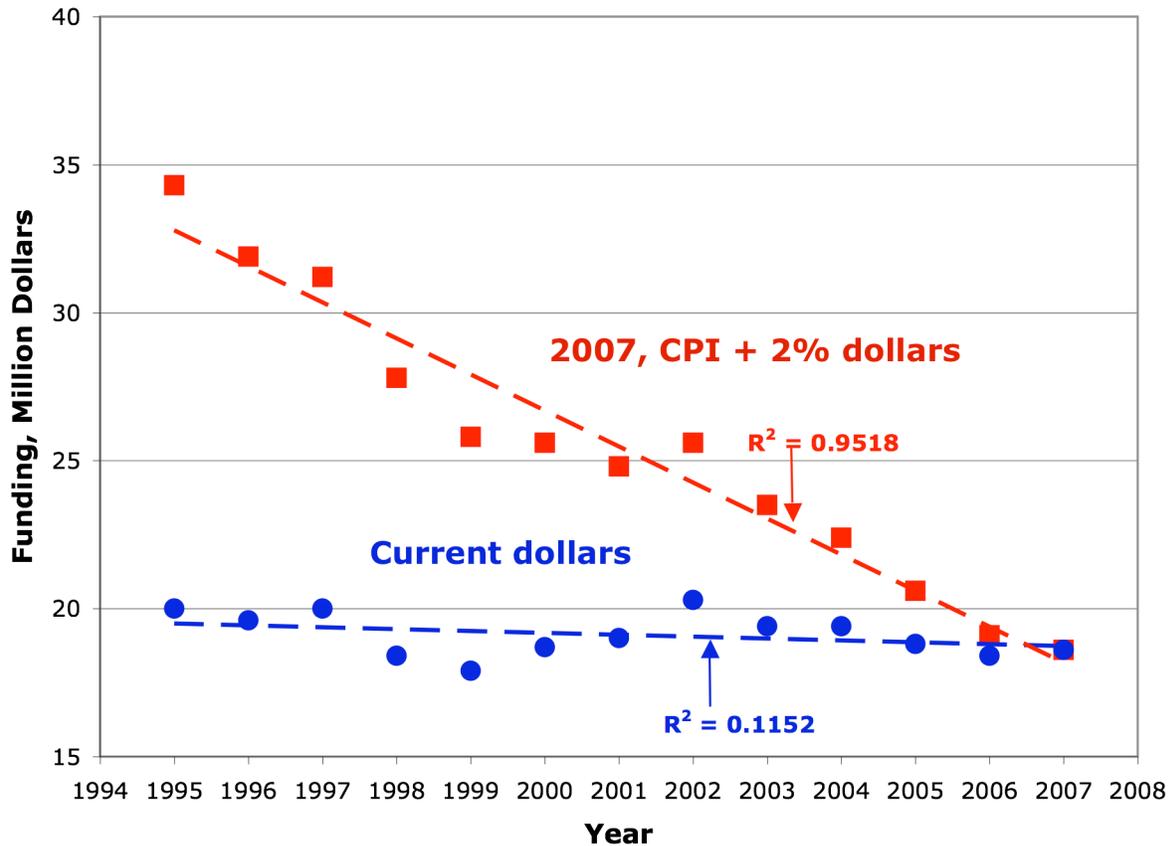


Figure 3. Sea Grant core funding for research, in current and 2007 dollars, from NIMS data. Dashed lines represent linear least squares regressions on the data.

Figures 4 and 5 show the core funding for the different major categories in Sea Grant, both in current and in 2007 dollars. These numbers include the Coastal Community Development (CCD) funding. (CCD funding was an additional \$50,000 in Sea Grant core funds provided to programs beginning in 2001, in return for their commitment to invest in coastal community development activities. The subject area of the work was directed, but the type of project to be supported (e.g., research, extension, education) was not.) Figure 4 reflects current dollars, whereas Figure 5 uses CPI + 2%. In Figure 5, note that in 2007 dollars the other categories have decreased from 1995 to 2007 to 63% to 72% of their earlier values, whereas research has decreased much more, to almost 50% of its 1995 value.

### Sea Grant Core Funding, Current Dollars from NIMS

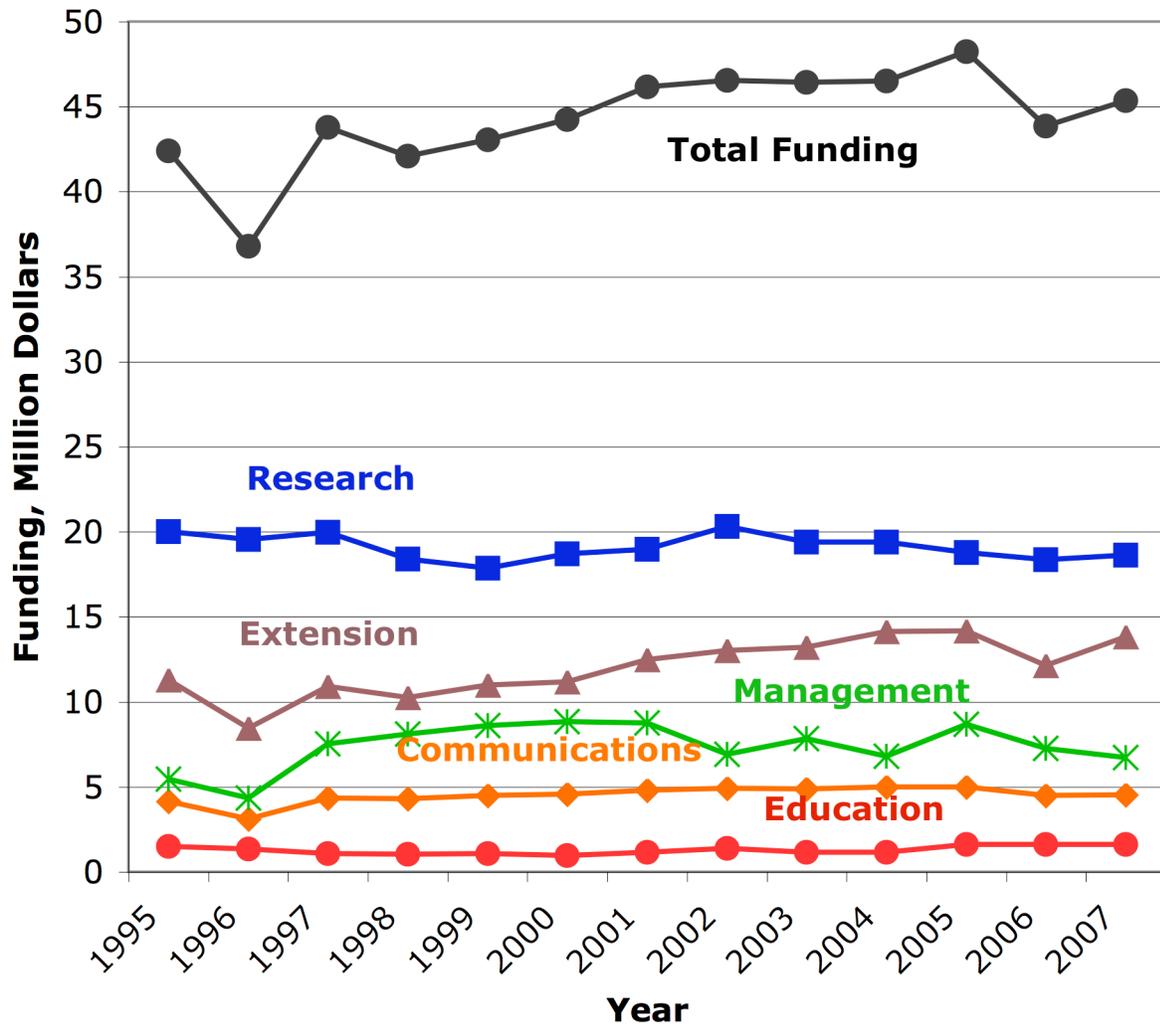


Figure 4. Sea Grant core funding devoted to research and other categories in current dollars, from NIMS data.

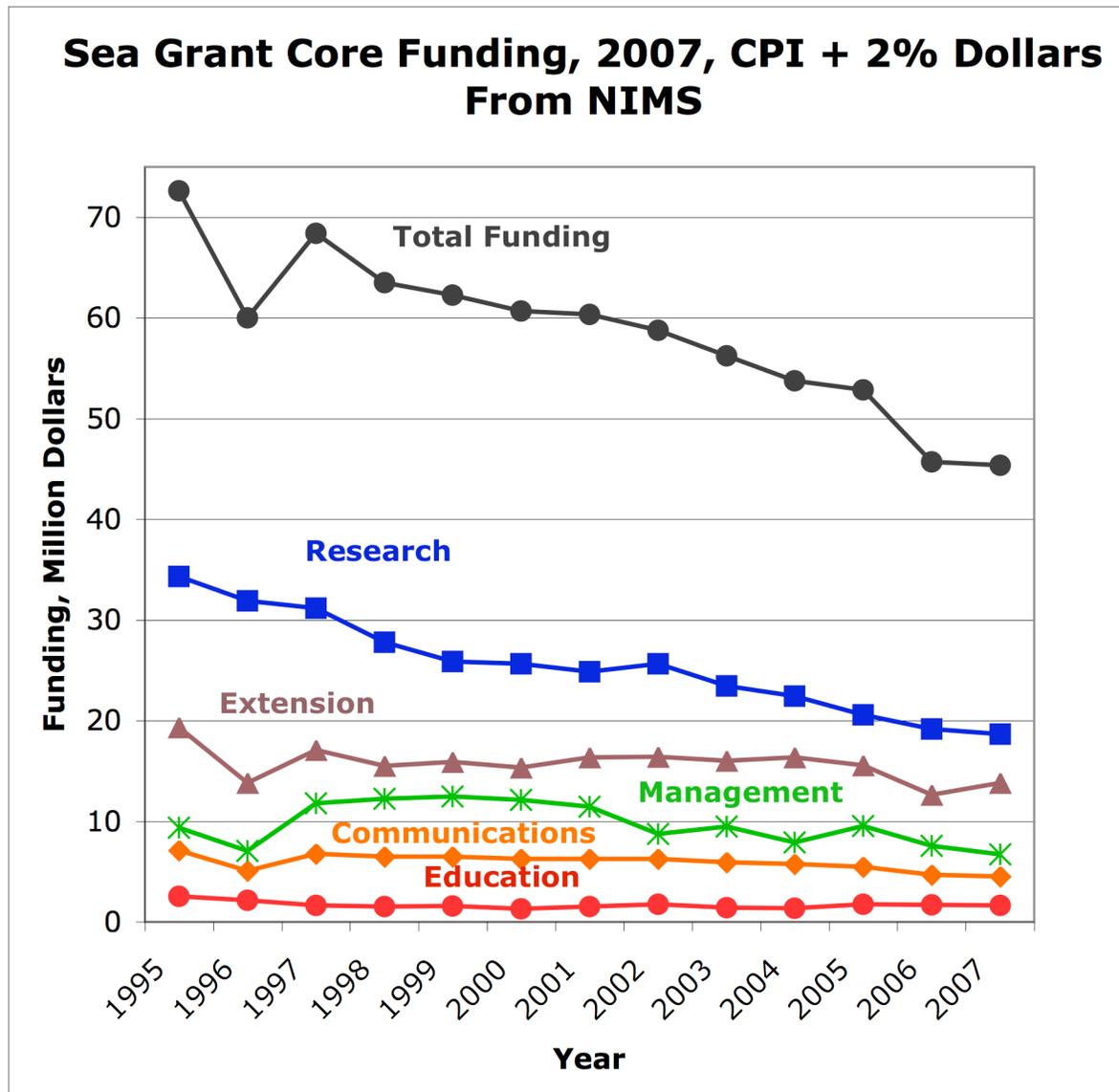


Figure 5. Change in buying power of Sea Grant core funding (2007, CPI + 2% dollars) devoted to research and other categories, from NIMS data.

### 3. Other Indicators of Research Funding

While the dollar figures show clearly that the buying power of research in the core Sea Grant budget has been decreasing, a similar trend is also found if we look at the number of research projects awarded across the Sea Grant Program each year. A plot of this from 1995 to 2006 is shown in Figure 6, where the dashed line represents a linear least squares regression on these data. The number of projects awarded has decreased from about 400 in the mid 1990s to about 300 by 2006. This appears to be a good proxy for the loss of research buying-power. If the dollar value of projects increases to accommodate inflation and there is no corresponding increase in available funding, the number of projects must decline. This decrease in project number is thus consistent with a decrease in buying power of Sea Grant research dollars.

### Number of Core Sea Grant Research Projects

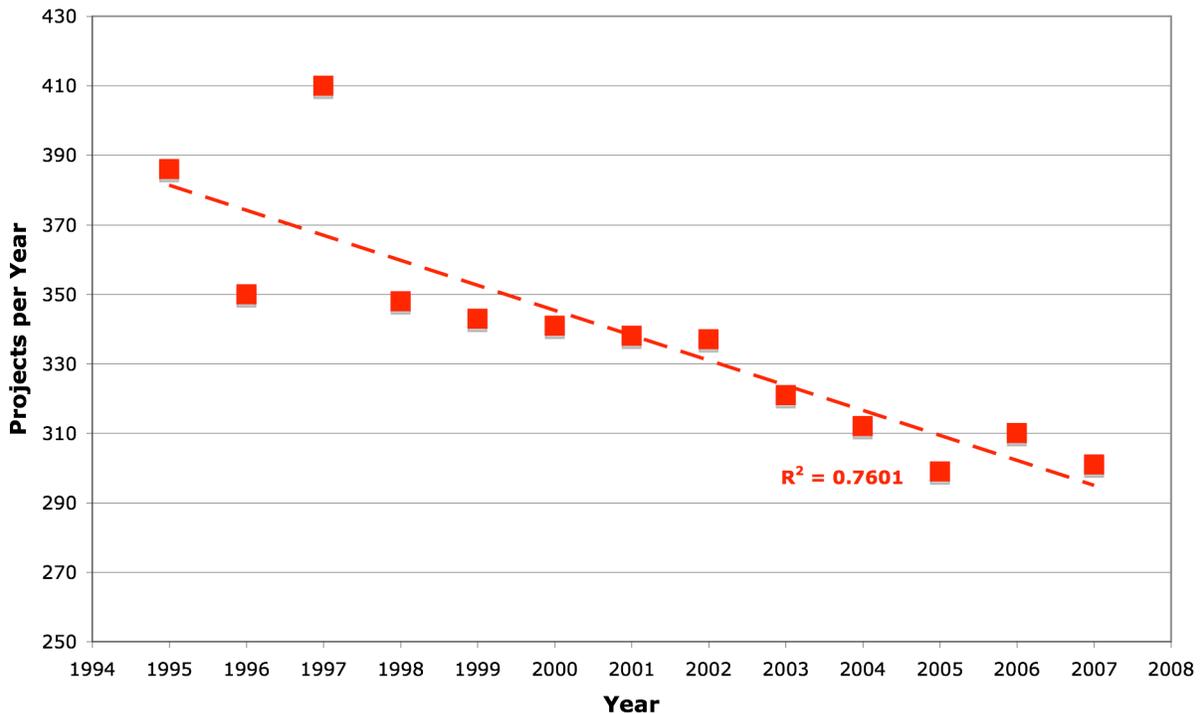


Figure 6. The number of Sea Grant core research projects funded each year.

One might assume that peer-reviewed publications would also decrease with decreasing research dollar buying power. However, from the data we presently have available this does not appear to be the case. Figure 7 shows a compilation of peer-reviewed publications from the Sea Grant Program, as compiled by the Sea Grant Library working with the Sea Grant Association. A major effort was made recently by the SGA both to encourage programs to send in their reprints to the Sea Grant Library and to carefully screen those publications such that only peer-reviewed publications would be listed. Initially this major effort only requested papers published through 2004. However, recently the individual programs were asked to provide information on all peer-reviewed scientific publications from 2005 to the present. Some of these newer data are now available and are shown in Figure 7, and all new data up to the present should all be available by early fall, when Figure 7 will be updated.

This valuable compilation does show clearly the productivity of Sea Grant researchers funded through Sea Grant programs. It also shows that through 2005 there is no clear evidence that there has been a decrease in research publications since the early to mid-1990s, even though the buying power of Sea Grant research funding had decreased and the number of Sea Grant funded projects has declined. We also note that research papers may be published some years after the grant period, as there is a normal lag between funding and publication of papers. This consistency of research output may well reflect the leveraging of funds from other sources besides the core Sea Grant program, such as NSIs and funds obtained externally by the individual programs. This should be clarified and the effort should be continued to determine whether or not this productivity in the face of declining buying power has continued. This will also provide accurate information to outside parties about the value and extent of Sea Grant research.

The number of Sea Grant peer-reviewed publications is one important measure of the productivity of Sea Grant research. Missing from these data, however, is an indication of the quality of this research.

Comments received during the course of this study suggest that this question is of more than passing interest to some decision makers. To best address this issue, the committee feels that determination of the times a Sea Grant funded research publication is cited in the professional literature would be of value. Future studies should ascertain this measure.

### All publications reported by state programs

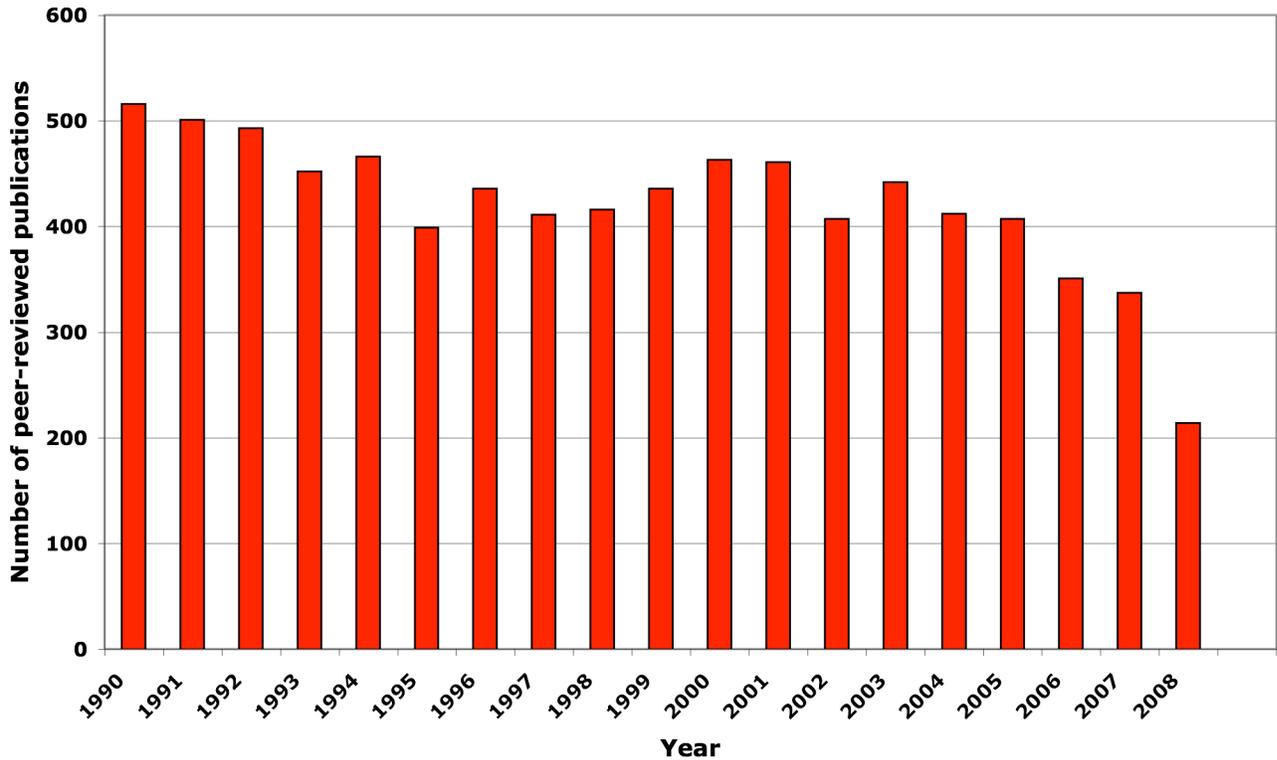


Figure 7. Sea Grant peer-reviewed publications from 1990 to 2009 as reported by the state programs, August, 2009

- Recommendation:** Individual Sea Grant Programs should continue to submit peer-reviewed and other publications to the Sea Grant Library so that an up-to-date record of these publications is constantly available. Some mechanism should be devised to evaluate the relative contribution of Sea Grant vs. other funds obtained by state programs to the overall productivity of Sea Grant researchers.

#### 4. Summary - Funding for Research

In terms of current dollars, Sea Grant core research funding has remained fairly constant from 1995 to 2007. However, due to inflation, the buying power of this research funding has decreased by ~50% over this same time period. The percentage of total Sea Grant core funding devoted to research has decreased overall from 1995 to 2007. However, from 1999 to 2007 there has been no significant decrease in this percentage, although the percentage has remained well below 50%. The decrease in research buying power is reflected by the funding of approximately 25% fewer Sea Grant research projects in 2007 than in the mid-1990s. It is noted that because funding in the other major categories of Sea Grant (e.g., extension, management, communications, and education) has done a better job of rising with inflation,

the core funding buying power in these categories has decreased much less than has research. At least through 2004, peer-reviewed scientific publications by Sea Grant investigators have not decreased, possibly reflecting the successful leveraging of funds for research from external sources by the individual Sea Grant programs.

## **B. Implications of these Research Funding Trends**

Valuable information on the implications of these trends to the research efforts within Sea Grant was obtained from the questionnaire sent to all Sea Grant directors (see Appendix A). Virtually all of the 27 program responses agreed that the decline in buying power was real and due to essentially flat federal funding and rising costs of salaries, fringe rates, indirect costs, graduate student stipends, tuition, travel, and supplies. In some cases programs had protected research by moving staff to state funds. As they pointed out, the only “easy cut” is to research. At many programs the current acceptance rate is far lower than NSF for projects, with much less money than NSF. Most programs reported that they have been reducing the number of projects funded through core funding (as shown in Figure 6) and some are capping the size of grants. It is believed that Sea Grant is losing credibility as a funding source for coastal research and that it is losing its ability to attract the best PIs because of high “transaction costs” and the small size of grants. Several programs felt that there is a trend to fund only beginning scientists who are less expensive. Another concern is that there may be pressure to fund less expensive social science and demonstration projects rather than more expensive physical and natural science research. For small programs the decline in ability to fund research is particularly acute. One program funded 7 research projects in the ‘06-‘08 Omnibus; 4 in ‘08-‘10 and predicts 2 in ‘10-‘12 and only 1 in ‘12-‘14. Total research in this program for the next two years is budgeted at \$100K.

In terms of buying power, essentially every program indicated that their buying power has gone down. Some programs have been able to “buffer” their Sea Grant research against cuts and inflation by reallocating state funds or acquiring more state funds. However, this is “not sustainable” if the core funds continue to stay flat or decline further. Many programs have been successful in leveraging Sea Grant funds to obtain additional funds from state and other federal sources. While commendable, there are several problems here as well. The first is that the current budget crisis in many coastal states will have a sharp and immediate impact on programs that have come to rely heavily on the “leveraging” of state resources. The more subtle problem is that Sea Grant will come to “own” less and less of what “it” funds. At what point does the local Sea Grant office become a “job shop”? At what point does a program become a pipe through which other monies flow?

In summary, the implications for reduced buying power for research and for individual programs are the same as those for Sea Grant as a whole shown in Figure 8 below – loss of credibility as a serious funding source, decline in student support, major reductions in the number of projects funded, lack of ability to respond to stakeholders, loss of innovative capacity, inability to attract senior PIs, etc.

## **C. Trends in Total Sea Grant Funding**

The committee believes that issues related to the amount of research funding are intimately associated with the decreasing buying power for Sea Grant as a whole. Underlying this report are data showing the decline in Sea Grant funding, both research and non-research. These data are reproduced from the recent presentation given by Dr. Ross Heath at the 2007 Sea Grant Week in San Diego, CA. His report highlighted clearly the striking decline of Sea Grant buying power over the years. Figure 8 (derived from Dr. Heath’s presentation) shows the appropriated funding for Sea Grant in current year dollars (i.e., the year the funding took place). It also shows those figures presented as 2007 dollars, with the additional consideration of a 2% inflation on top of the consumer price index, as was done for the

research dollars in earlier figures. An indisputable fact is that, in terms of real buying power dollars, funding for Sea Grant has been in a steady decline for the past two decades or more. The buying power of Sea Grant funding has decreased dramatically over the lifetime of the Sea Grant College Program, such that the current buying power is only about one third of what it was in the early 1970s. Clearly a continuation of this trend would be fatal to a viable and healthy Sea Grant program.

### Overall Sea Grant Funding

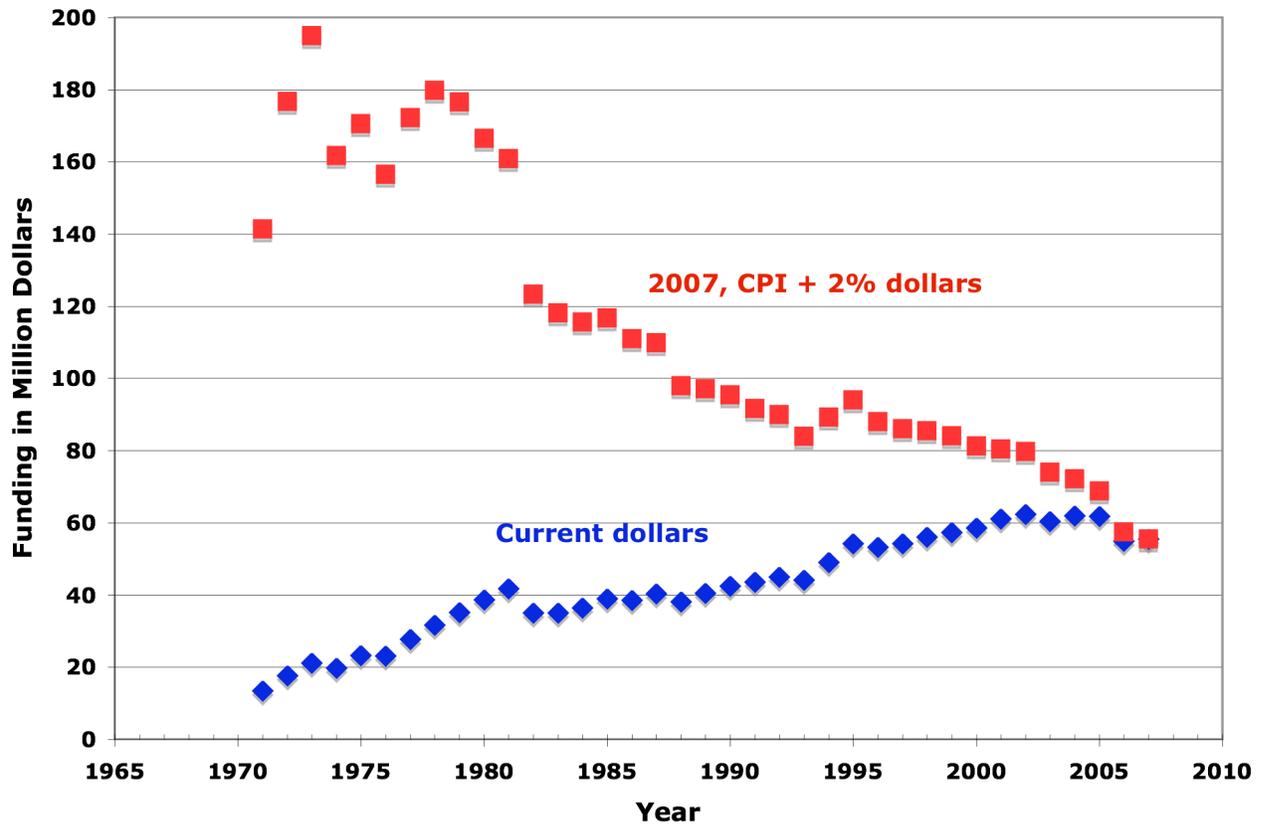


Figure 8. Overall Sea Grant funding in millions of current year dollars and in 2007, CPI + 2% dollars

### **III. Addressing the Funding Problem**

#### Charge #2

*What are the reasons for this decline? What is the perceived impact and value of Sea Grant research relative to research in other NOAA programs, and what effect has this had on the decline in Sea Grant Research funding? In what way should the Sea Grant research portfolio complement, and be distinguished from, NOAA's portfolio, and with the portfolios of other coastal and marine funding agencies?*

#### **A. Causes of the Decline**

The committee has spent considerable effort in attempting to ascertain the reasons for this lack of growth and actual decline in Sea Grant funding and buying power. Our response to Charge 2 was aided by a questionnaire to the Sea Grant directors, a different questionnaire to the NOAA Laboratory directors, and a series of interviews with persons (in current and previous positions) representing Congressional staff, the Office of Management and Budget, NOAA and Department of Commerce budget offices, senior managers in NOAA, and agencies outside of NOAA but possessing knowledge of Sea Grant (see Appendices A, B, and C). The syntheses of the comments from both the questionnaires and the interviews are included in Appendices D, E, and F. Questionnaires were sent to all 32 Sea Grant directors. Twenty-seven of these responded (84%). For the NOAA laboratories, questionnaires were sent out to 8 directors of OAR laboratories, 4 directors of NOS centers, and 16 directors of NMFS centers and laboratories. The response from those directors was 62%, 50%, and 25% respectively. A summary of the views of each of these groups follows.

##### **1. The View of the Sea Grant Directors**

From the answers received, the Sea Grant directors view the relationship with the rest of NOAA differently than the NOAA Laboratory directors view their relationship with Sea Grant. This is not unexpected. The Sea Grant directors feel that the Sea Grant College Program is under-appreciated in NOAA. They challenge this under-appreciation by citing the strong points of Sea Grant programs: 1) flexibility of Sea Grant in responding to the needs of the stakeholders; 2) ability to recruit some excellent university scientists to work on projects of coastal relevance, 3) integration of research and outreach; 4) demonstration of stakeholder commitment through local match, and 5) a source of a highly trained workforce for NOAA and other federal agencies. The directors believe that through the strategic plans, Sea Grant is integrated into the mission and goals of NOAA and that every project funded by Sea Grant furthers the NOAA missions and goals. They also view NOAA as being remiss in not using Sea Grant as a tool for more effectively engaging the American university community, acknowledged universally to be the best research enterprise in the world.

There is a sense among the Sea Grant directors that collaboration between Sea Grant and the rest of NOAA can and should be enhanced. Examples mentioned include having Sea Grant: 1) assume a larger role in engaging and implementing the user/clientele-oriented research; 2) administer national research initiatives; 3) serve as a facilitator for engaging the university community and other funding agencies for national projects; and 4) co-share facilities or resources. Furthermore, they believe there should be more thought in identifying complementary roles for both Sea Grant and the rest of NOAA. For example, Sea Grant is ideally suited to bring a local and regional consciousness to national efforts. In part this can be advanced by improved awareness of NOAA research interests throughout Sea Grant while emphasizing the range and depth of Sea Grant research, thus demonstrating the contribution of Sea Grant to the goals and missions of NOAA.

There are those within the Sea Grant directors, however, who believe that only limited opportunities exist for improved relationships between Sea Grant and the rest of NOAA. They argue that the rest of NOAA will need to undergo a “sea change” before it can see Sea Grant as a partner. In the past NOAA as a whole has shown little interest in leveraging Sea Grant strengths to the betterment of NOAA or the nation. Rather NOAA has treated Sea Grant as insignificant. Some believe that real collaboration will never be possible until the rest of NOAA accepts the need for stakeholder engagement in the research process and begins to value risk-taking in research sponsorship. On the flip side, they suggest that Sea Grant must accept that it is part of a mission-based agency and that NOAA is not a pure science-based agency like NSF. Furthermore, for the collaboration to become meaningful, Sea Grant must move away from the concept that it is a program wholly owned and directed by universities.

## **2. The View of the NOAA Laboratory Directors**

The NOAA Laboratory directors are of two minds in their assessment of Sea Grant and opportunities for enhanced collaboration. The OAR and NOS laboratory directors who responded are generally impressed with the potential for collaboration and partnering in the areas of research, education and extension. However, even though they state willingness for collaboration, there are only a few examples of such collaboration ongoing. The Center for Sponsored Coastal Ocean Research (CSCOR) cites four cooperative programs: Brown-tide research initiative on Long Island, NY; 1996-2002 Pacific Northwest Coastal Ecosystem Regional Studies; the Coral Reef Ecosystem Studies; and the Caribbean Coral Reef Institute cooperative agreement with the University of Puerto Rico’s Department of Marine Sciences. The Pacific Marine and Environmental Laboratory cited collaboration in evaluating tsunami hazards in small harbors. The Atlantic Oceanographic and Meteorological Laboratory credits Sea Grant in helping further the South Florida Ecosystem Restoration project. The National Severe Storms Laboratory mentions the value of Sea Grant in linking radar rainfall estimates with runoff models and with biological and pollution models in estuaries and coastal areas. Though not certain from the responses, the impression is that with the exception of the CSCOR activity, much of this collaboration is outreach, rather than research. One of the directors sees increased collaboration as a vehicle for their scientists to seek reimbursable funding from Sea Grant.

The small sample of directors from the National Marine Fisheries Service who responded, with one notable exception, did not share the OAR and NOS directors’ enthusiasm for Sea Grant. In one area, the collaboration between Sea Grant and NMFS scientists includes helping develop the scientific basis of managing various fishery resources, such as trophic dynamics of squid, bio-economics of rockfish, and acoustic tracking of salmonid fishes. This collaboration is blunted somewhat with the impression that Sea Grant is focusing too much of its marine research on the basic end of the research continuum that garners support by academia, but not from the larger end of the user community. Furthermore, while recognizing the value of Sea Grant extension, the NMFS director believes that Sea Grant devotes too much effort to the areas of biodiversity, climate change, and sustainability issues at the expense of more traditional interaction with commercial and recreational fisheries.

The other NMFS Laboratory directors who responded see Sea Grant of limited value, with one viewing Sea Grant as a competitor for funding and others seeing Sea Grant as of no impact or only occasionally useful. The more generous see Sea Grant as a potential, but currently undeveloped partner. One area of potential collaboration is the utilization of Sea Grant research in applied fisheries and ecosystem management, such as restoration of ESA-listed salmonid fisheries, providing information to the Fisheries Management Councils and promoting the common goal of sustainable fisheries. These directors see collaborative research being hindered because NOAA scientists are required to bring their

own funds. Similar to the NOS director, the NMFS directors would like to be able to compete for Sea Grant funding. Doing so would enhance collaboration with Sea Grant.

There were a few areas where agreement was found between the OAR, NOS, and NMFS directors. One such area is that of discipline-focused workshops. The value of these workshops would provide cross-fertilization of talent and ideas for addressing problems, discussing commonalities and avoiding overlaps. They see the value at both the research level and the program level. Three of the NMFS directors did question the value of such a workshop.

Two other points emerged from the questionnaire sent to the NOAA Laboratory directors. Even though the Knauss Fellows program was not part of the questions, some of the directors mentioned this as a program that works. Second, few of the directors recognize Sea Grant as a source of highly trained personnel.

A question unanswered from the responses from either the Sea Grant or the NOAA Laboratory directors is why, after nearly four decades, the Sea Grant model has not been accepted and utilized within the rest of NOAA. Significant collaboration has yet to take root.

### **3. The View from Outside of Sea Grant and the NOAA Laboratories**

Those persons interviewed outside of the Sea Grant and NOAA laboratory network gave a view of Sea Grant funding difficulties with a perspective different from either the Sea Grant or the NOAA laboratory directors. Individuals interviewed included representatives from the House of Representatives (both current and previous staffers from the Natural Resources Committee and Science Committee); Office of Management and Budget (both current and previous); Department of Commerce and NOAA Budget office (current); senior NOAA management (both current and previous); and persons who have knowledge of Sea Grant from the perspective of other agencies (see Appendices C and F).

From this broad representation we expected to receive a wide range of opinions. While that proved to be the case, there were also some important recurring themes. Many of those interviewed from the Hill, previous OMB examiners, and NOAA believed that OMB has a deep and long-standing bias against Sea Grant, especially Sea Grant's research. They believed that the recognition of this bias by NOAA has influenced NOAA not asking for additional funding for Sea Grant. NOAA believed that any request for additional Sea Grant funding would not be well received, which has resulted in NOAA beginning new programs in areas where Sea Grant has expertise. OMB and the DOC budget office expressed the view that NOAA has not requested additional funding for the past several years, perhaps due to the desire to protect in-house research at the expense of extramural research. According to OMB, NOAA has failed to make a case for Sea Grant research being of a high priority at the national, state, or local level.

When shown the funding graph developed by Ross Heath (Figure 8) demonstrating Sea Grant funding to be in a steady decline for the past 20 years, representatives from OMB/DOC believed that the interpretation is skewed by what was or was not included. They offered that:

- a) If the big ticket items (e.g., satellites) were removed from NOAA's budget and only ORF (Operations, Research, and Facilities) were considered, the Sea Grant budget would look similar to the overall NOAA budget; and
- b) If funding for the coastal ocean programs were also considered, the funding profile would be much different than presented. Except for the past four or five years, little drop off in funding for coastal issues would be found.

The key to the funding for Sea Grant obviously rests with the funding side of the Administration and Congress. This includes the budget offices of NOAA and the Department of Commerce, OMB, and the Appropriation committees in both House and Senate. The budget offices in NOAA and DOC take their lead from OMB. Congress generally has limited money to add substantially to a program's budget, and this is especially true in an era of reduced earmarks. As a result, the real key to successful funding ultimately rests with OMB. The interviews provided some insight as to the attitude of OMB toward Sea Grant, both from comments of current and previous OMB/DOC/NOAA budget office staff, and from comments of those persons interviewed from the Hill, senior positions in NOAA, and other agencies, all of whom have substantial knowledge of OMB.

OMB expressed a concern about overlap among the numerous coastal ocean programs within NOAA. The lack of a clear distinction among the research missions of these programs was cited as a problem with Sea Grant funding. Without clear definition, there is a probability of mission and funding overlap. The competition for funding diminishes the capability of each in addressing national and local needs. As presently structured, these programs risk competing with others to the point that the overall good and the ability of meeting national objectives of each are diminished. With the formation of each new coastal program in NOAA, there is a new line item in the budget. When building the budget, the money is allocated to the program most closely identified with a research task; other organizations lose out. Building a budget is a bottom-up process. According to OMB, NOAA must first take the initiative and request new funding. In the past several years, NOAA has not done this for Sea Grant. There may be a tendency in NOAA to protect in-house research at the expense of extramural research. Or it may be part of a question raised over the years of whether Sea Grant is supporting national priorities or it is a collection of local programs. The NOAA budget is presented as a total initiative, but how Sea Grant fits into this budget is often lost.

Of the two previous OMB examiners interviewed, one said that OMB is concerned about the nimbleness of Sea Grant in addressing emerging issues and the type of research OMB wants. Sea Grant is viewed as doing a good job at solving local and state problems, thus ensuring that existing funding will be maintained. However, its perceived failure to address national problems is an impediment for increased funding. Sea Grant is not seen as a problem-solver on the national level because it is not positioned to address national issues. There is a lack of coherence with "hundreds of mosaic tiles, without the big picture." The beneficiaries are thought to be a large number of small local-type programs rather than the nation as a whole. Sea Grant has not adequately integrated the impacts of its research to a national scale.

It is also thought that OMB and the Appropriators view Sea Grant as an entitlement program or a pass-through program to the states to do whatever they want. Hence, Sea Grant funding is viewed more like an earmark than a competitive program. On at least one occasion an individual has stated that Sea Grant is not a national program, prompting OMB to ask "then why are federal dollars being spent on state and local programs and what national benefit is being gained from Sea Grant?" There is a sense at OMB that whenever these issues are raised the Sea Grant attitude has been "send money and leave us alone."

There are other perceptions that compound the problem of Sea Grant's funding. OMB has not viewed Sea Grant's research as stellar science but rather as being static, without the nimbleness to address emerging scientific issues (despite the fact that virtually all Sea Grant research proposals are now subjected to rigorous external peer review). Some on the Hill (and elsewhere) perceive that the amount of funding to individual Sea Grant programs is due as much to timing as to merit. For example, those programs in existence from the early days of Sea Grant are thought to get more funding than the newer Sea Grant programs. It is felt by some that NOAA has very little flexibility in its budget and tends to view Sea Grant with ambivalence and as a small program that is doing some nice things but is of a low

priority in terms of funding. Others in NOAA view Sea Grant as a competitor for limited research dollars.

Sea Grant's extension efforts are widely praised by everyone interviewed. The criticism is that NOAA is under-utilizing this outreach effort. This strength, which is under-emphasized by Sea Grant, is ideally positioned to complement other NOAA activities and should be an essential means of extending the results of NOAA research. Unlike Sea Grant's research, OMB recognizes the lead role that Sea Grant plays in outreach, and believes that this capability should be further capitalized by Sea Grant recasting itself to focus on outreach.

Some raised the issue of the location of Sea Grant. One of those interviewed expressed the opinion that Sea Grant is an orphan within NOAA and does not fit well within OAR. In a fairly recent study of NOAA's ocean programs, it was recommended to move Sea Grant to NOS. Sea Grant, however, indicated that it is a research-based program and would not fit well within NOS; therefore it did not move. The person interviewed believes that the failure to move was a mistake. Others argue that merging Sea Grant with the NOS Center for Sponsored Coastal Ocean Research (CSCOR) would be beneficial to both programs. We note that both NOS and CSCOR also fund external research.

Some of those interviewed felt that the individual lobbying by the Sea Grant Association has been a serious problem in the past. The SGA is occasionally seen as being self-serving and not a team player, although this impression has been decreasing in recent years. They believe that this may be part of the reason for NOAA not being more supportive of Sea Grant.

The current approach of Sea Grant research funding decisions being made at the local (state) level has caused one senior official to question whether the Sea Grant research best serves the NOAA mission and whether funds in the current state program model are being well utilized. Others remark that Sea Grant research is not well connected to the NOAA mission and is generally ignored by NOAA. Several interviewees believe that Sea Grant research would fare better if it were directed by NSGO. They see a loss of message and relevance for the program at present. These individuals believe that if research were handled at the national level, there would be a better-defined connection of Sea Grant research and outreach activities to national issues and to the mission of NOAA. Others caution that should the research decision be moved to the federal level, protective steps must be taken to ensure state priorities are not lost.

In summary, from our interviews it appears to us that the primary reason Sea Grant has not fared well in funding is that it is seen more as an entitlement program addressing the needs of individual states than a national program. Sea Grant has been unable to change this perception over many years. Also, by failing to request increased funding, NOAA has not been an effective champion for Sea Grant. Rather, new coastal programs, of a perceived national scope, have been established, and these new programs are competing successfully with Sea Grant for funding. With the addition of numerous coastal programs, OMB is concerned that inadequate distinction exists, resulting in duplication and inefficiency of funding and overlap of missions. The applicability to the NOAA mission of research funded by Sea Grant is frequently questioned. As now managed, there is little influence of Sea Grant research at the national level and the wisdom of the investment of taxpayer's money is questioned.

Sea Grant must find ways to demonstrate clearly its impact to the nation as well as the local community. There has recently been some discussion that this can be done through the number of publications prepared by Sea Grant researchers. Some of those interviewed believed that this would only appear to compete with NSF and could prove to be counter-productive. Rather, Sea Grant should concentrate on its impact in meeting national needs. It is much easier to generate funding support for a program whose research is clearly serving needs than one simply doing research. Also, Sea Grant must

get its supporters more engaged in singing the virtues of the program. With few exceptions, the universities do not lobby for Sea Grant. This counters the impression that stakeholders are committed to the success of Sea Grant. Sea Grant must be sold as a national program and as an integral part of NOAA's outreach and research.

Those interviewed indicated that Sea Grant needs to show that it is more than the sum of its parts, something it has until now been unable to do. Certainly the new Sea Grant Strategic Plan, which aligns its goals with those of NOAA and requires each state Sea Grant program to align its own strategic plan and goals with the national strategic plan, is a move in the right direction. That plan focuses its efforts in four areas of national concern: healthy coastal ecosystems; sustainable coastal development; a safe and sustainable seafood supply; and hazard resilience in coastal communities. Our committee supports strongly the recent suggestion by the Futures Committee that an excellent national focus for Sea Grant should be adaptation to climate change in the coastal zone. Focusing its national effort on one, or very few issue(s) and carrying out that effort in a coordinated and well-managed way would send a clear message that Sea Grant is a national program addressing critical needs.

## **B. Strategies for the Future**

The synthesis above of the interviews with individuals knowledgeable about Sea Grant and the budget process in Washington begs the question if the current Sea Grant model is working. Sea Grant funding is stagnant. While the extension program being conducted in each coastal state is universally praised, Sea Grant research is challenged. In addition, the level of funding for Sea Grant research has decreased in certain programs to the point where its relevance is questioned. On the basis of the discussions in the previous section we believe that the primary reasons for the current overall funding problems in Sea Grant can be summarized as follows:

- ❖ Sea Grant is not seen as a national program with national goals, but as many small projects with little coherence.
- ❖ Sea Grant research is not seen as being responsive in addressing emerging issues.
- ❖ Sea Grant is not viewed as addressing the research interests that OMB sees as nationally important.
- ❖ Some perceive Sea Grant research to be of lesser quality compared to top quality NSF research.
- ❖ Sea Grant research is not seen as applicable to NOAA's mission.
- ❖ NOAA is not seen as an effective champion for Sea Grant.
- ❖ There are various NOAA coastal programs with overlapping missions that are very successfully competing with Sea Grant for funding.

In considering these overall funding problems of Sea Grant, the way in which Sea Grant has operated over the past several decades, and the impressions that we have gained from responses to our questionnaires and to our interviews, the committee believed that it was worthwhile to consider possible new models for Sea Grant and its research or perhaps ways in which the current model could be made more effective. Thus we attempted to "think outside the box" in our deliberations on these issues.

In this exercise we considered six different possibilities in addition to maintaining the current Sea Grant model. These six new approaches included:

- Maintaining the basic current model but undertaking a major effort to aggregate and synthesize Sea Grant research outputs and their impacts.
- Regionalization of all aspects of the Sea Grant Program;
- Maintaining current Sea Grant programs for outreach and education but handling research grants at a regional level;

- Maintaining current Sea Grant programs for outreach and education but handling research grants at a national level;
- Elimination of research in Sea Grant in order to concentrate on its universally recognized strength of extension; and
- Increasing the funding of Sea Grant research at the expense of outreach.

For each of these approaches, and the current Sea Grant model, we considered advantages and disadvantages. That analysis is presented in detail in Appendix G. These six additional models span a wide range of approaches - from important fine-tuning of the present model to a major overhaul of the research management (even including the possibility of managing the research program centrally in Washington), to the extreme of eliminating research in Sea Grant entirely. Obviously in evaluating which of these approaches would be best for Sea Grant in the future, one would need to determine which would most effectively overcome the overall funding hurdles outlined above. This would be a very complex and important calculation, and this committee was not constituted nor charged to make this type of necessary analysis or to make recommendations on just what path should be taken. A carefully and appropriately constituted task team will need to be formed to develop a fully informed assessment of this kind.

- **Recommendation:** The NSGO, the NSGAB, the SGA, and NOAA should form a Task Team to initiate detailed discussions on the approaches to developing a stronger national focus for Sea Grant such that its success, and therefore increased research and overall funding can be achieved. Considerations should include, among other actions, efforts to align with NOAA's regionalization of its programs, increased emphasis on critical coastal research needs that serve the nation while preserving some level of research that serves local needs, and a consideration of ways to improve the mechanism for handling the research portfolio.

Our preliminary analysis suggests that, whichever model is chosen, it should in the end result in the following:

- ❖ Sea Grant will be perceived as a national program with national goals addressing a small number of clearly defined national needs that are determined jointly by the programs and NOAA, and possibly OMB and Congress.
- ❖ Sea Grant will be recognized for its high quality research that makes major impacts.
- ❖ Sea Grant research will be very effective in addressing new and emerging issues.
- ❖ The research needs of the individual state programs will still be met.
- ❖ State programs will continue to receive funding for outreach and education programs.
- ❖ NOAA will become an active and effective champion for Sea Grant.
- ❖ Sea Grant research will be clearly applicable to NOAA's mission, with increased interaction with other NOAA programs whose overall missions are different from that of Sea Grant.
- ❖ Overall administrative costs and reporting requirements will be minimized.

Research must continue to have a major role in Sea Grant.<sup>1</sup> However, we believe that Sea Grant must move much more toward having a truly national research program. This must involve a vigorous effort to market Sea Grant's research efforts and the impacts they have had on national issues. But more than

<sup>1</sup> The committee does not believe that research should be eliminated, as one of the hypothetical models above suggests.

that, there must be a clear focus of Sea Grant's research effort on a few critical issues of national importance and concern in the coastal environment. NOAA must recognize that Sea Grant is a valuable resource and use it by developing meaningful ties between Sea Grant and all other parts of NOAA, especially the research laboratories. The future Sea Grant model should continue to have its current excellent extension programs managed at the state level, but there should be a concerted effort to integrate these activities with other parts of NOAA.

## **IV. Enhancing Sea Grant Research Efforts**

The last four charges given to the committee addressed various issues that bear upon the future value of Sea Grant research, how it should be evaluated, and ways in which a program's research portfolio can be expanded. The committee drew extensively on the responses to the questionnaire that was sent out to all Sea Grant directors addressing these issues. That questionnaire is given in Appendix A, and syntheses of the responses by the directors to questions related to this charge are given in Appendix D. The remainder of this chapter addresses these last four charges given to the committee. While the discussion below is largely based on an assumption that research would be handled administratively in a manner somewhat similar to how it is done now, most of the issues raised here are relevant no matter what final model is chosen for Sea Grant research.

### **A. Maximizing the Value and Quality of Sea Grant Research**

#### *Charge #3*

*What can Programs do to maximize the value of their research effort and support the best university scientists? What can Directors do to engage the best talent? Is there a role for the National Office in this effort? What are the manpower implications of actually managing an effective research effort, both for the Programs, and for the National Office?*

Obviously providing more funding so that the success rate for research grants would be higher and increasing the size and number of individual grants would help to bring the very best scientists into the Sea Grant program. Nevertheless, there are also other means of accomplishing this. Directors should actively and continuously recruit the best talent. Fair, open, peer-refereed competitions certainly will help, and this is now common throughout the Sea Grant Program. Mini/program development grants can also provide the means for attracting new investigators and engaging young investigators with mid-career established investigators. Connecting scientists more closely to non-university stakeholder and interest groups, such as communities, non-profits, or small business groups to identify potential research projects can be very beneficial, and having an effective and desirable extension program to offer as partners to stakeholders that adds value and credibility to the research project, the researcher and the portfolio can also be quite attractive to excellent researchers.

As outlined in Sections IIIA1 and IIIA2 above, there is a belief that collaboration between Sea Grant and other parts of NOAA can and should be enhanced and that there are a number of ways that NOAA can better utilize Sea Grant's university research strengths. The development of significant new partnerships between Sea Grant and NOAA laboratories should be an important way of maximizing the value and quality of Sea Grant's research. An often-cited example for a good first theme is the impact of climate change on fisheries. Nevertheless, for this partnership to be successful, both NOAA and individual Sea Grant programs must accept that Sea Grant is a synergistic partnership of a mission-based agency with America's universities that engages stakeholders in the research process and values risk-taking in research sponsorship.

Communicating and demonstrating the value, impact and success of Sea Grant research to the other parts of NOAA is a critical role that the NSGO should play. NSGO will need to synthesize research outputs and impacts and communicate these in a compelling way to other NOAA offices and across the network and nationally if partnerships of the type mentioned above are to occur. NSGO is currently attempting to involve Knauss Fellows with this task. The upper management of NOAA may be hearing this message but the rest of NOAA has not yet appropriately valued the need for increased collaboration.

But this is a two way street, and NSGO needs to help Sea Grant programs become much more informed about ongoing research within NOAA. Linking Sea Grant to greater NOAA initiatives and promoting the idea that Sea Grant could serve as a vehicle for NOAA offices for managing and recruiting their extramural funding portfolio should have a high priority. The NSGO could pursue partnerships and jointly fund research initiatives with other agencies that may share mission, goals and objectives (e.g., NSF and the Smart Growth relationship with EPA). To do this more extensively, NSGO personnel would need to be redirected to some extent from present activities. With the current staffing shortages within the NSGO, it is difficult to see where significant new time could be devoted to this issue. However, if a serious effort is undertaken to work much more closely on research issues with other NOAA programs and laboratories, serious consideration should be given to expanding the NSGO staff to perform this management, education and partnership-forming process.

- **Recommendation:** NOAA must find ways to better utilize the strengths of Sea Grant, such as engaging and implementing the user/clientele-oriented research, joint funding on certain cross-cutting initiatives, sharing facilities, and looking for niches to utilize Sea Grant strengths.
- **Recommendation:** Sea Grant needs to develop more meaningful partnerships with the NOAA laboratories and increase and improve efforts to communicate the impacts and value of Sea Grant research to the rest of NOAA. Forging partnerships would allow Sea Grant programs to be the vehicle for managing extramural research projects that are selected on a peer-reviewed competitive basis and would enhance research opportunities. Science workshops among Sea Grant and the NOAA laboratories should also be held to discuss ongoing and future research findings and collaboration.
- **Recommendation:** NSGO must be more aggressive in:

  - a) promoting the contributions of Sea Grant to all levels of NOAA. One way to do this is to engage a larger number of NOAA's managers and scientists in the proposal review process for research and extension; and
  - b) demonstrating that America's universities are an unequalled science, technology and human resource that, through Sea Grant, can be applied to NOAA's mission.

## B. Guidelines for the Future Fraction of Funding Devoted to Research

### Charge #4

*Is the continuation of the percentage guidelines for funding devoted to research still warranted? If so, should the percentage directed toward research vary between large or small Programs? What is the appropriate balance between research and outreach?*

Research remains the foundation of the Sea Grant program upon which the outreach and education programs exist. This is true both at the national level and at the level of individual programs. The idea of a percentage goal for the amount of research relative to other components of a Sea Grant program has been generally accepted as a mechanism to provide balance to diverse program elements. Historically it has been ~50%. However, the ability to reach 50% has been hampered by the shrinking value of the dollars received by individual programs and the addition of extension program mandates (e.g., fisheries extension and coastal community development), and it has become more difficult to meet this percentage in recent years. Thus the idea of a flexible goal for the amount of research, within limits or over a range, is preferred over rigid limits. Other components of Sea Grant programs have often been eliminated or reduced in order to attempt to reach this approximate 50% research goal. A number of programs have been able to leverage external funds, state funds, and private funds to help offset the administrative costs of the program, thus helping to solve this problem. Ideally a program should develop a research effort that makes the most impact relative to the national goals of Sea Grant as well as issues that are important locally.

Under current funding, states with a smaller overall budget often find it very difficult to reach the 50% level, and this “required” percentage hampers their flexibility to develop all parts of a program. Several small programs have found it very difficult or impossible to even approach the 50% research level, or in some cases, have a viable research program at all. In some cases it may be desirable for the research programs of smaller programs to work closely or even merge with research efforts of larger programs.

Starting from the context of the National Strategic Plan, individual programs should identify priority resource management issues in their locale, what issues are not being adequately addressed, what resources (personnel, funds, skills) are needed to address an issue, what resources are on hand (program, leveraged and partnerships), and the likelihood that an investment by the program will yield a useful result. This applies to outreach and education as well as research. Such an approach should lead to the optimum research/outreach-funding ratio for that program. Thus it is probably not appropriate to indicate a preferred balance between research and outreach - this will depend to a large extent on a given program’s goals and available funding.

- **Recommendation:** The percentage of a particular program’s funding devoted to research should be flexible, although a target of 50% is appropriate for most programs. However, the particular goals of an individual program must be considered. Given this flexibility, there must be realistic, tractable and understandable metrics for research performance.
- **Recommendation:** Because some programs are too small to be able to designate a significant fraction of their funding to research, consideration should be given to combining the research activities of these smaller programs with neighboring or related programs so that all state programs can realize the research benefit.

## C. Evaluation of Research in the Future

### Charge #5

*On what basis should research performance within the Sea Grant Program be evaluated and measured in the future? Should state and other research support for individual Sea Grant Programs be considered when evaluating the overall research effort?*

Traditionally the most common metrics that have been utilized for assessing research performance are peer-reviewed publications, presentations, degrees granted, and the number, type and placement of students supported, patents, and patent royalties. Landmark papers, citations in peer-reviewed journals, initiation of new research fields or topics, sessions organized at meetings, the ability to leverage Sea Grant funds for larger grants, and partnering with other organizations to fund research have all been utilized and are certainly important in academia as a measure of the fundamental quality of the research.

However, the committee believes that in the future the assessment of the impacts of Sea Grant research will be particularly important, and at least to the same degree as traditional academic metrics. For example, the incubation of new industries and start-up businesses as a result of research and technological hurdles cleared via research are additional valuable measures of research productivity. The contribution of the Sea Grant research to the sustainable development of coastal and marine resources, addressing socio-economic issues affecting productivity or the health of coastal ecosystems, and the impact on policy and lawmaking are all important measures of impact. Programs should work continuously to encourage interactions between their outreach and research programs and devote resources to enhancing interactions where appropriate. This process requires that program management continue to interact with researchers even after project funding terminates because results are often not fully analyzed and exploited within a funding cycle. This requires effort and attention that should be recognized in the review process.

An appropriate strategy used by most Sea Grant programs is to seek alternative sources of funding to grow the research efforts. A high level of state, local and private support for research indicates that there is collaboration and that the stakeholders value what Sea Grant is doing as highly relevant and worth investing in with their money, resources, and time. While all of the funds a program marshals for research should be counted, differences need to be considered. Opportunities vary around the network, and success in this regard is not always based upon the performance of the Sea Grant program. For example, some states provide very limited support for academic research, so it is difficult for some programs to draw on extensive state assets. Under the present economic conditions, individual state investment will likely decline in many places in the near future.

The evaluation system itself can become a problem if not handled carefully and thoughtfully. The administrative burden of dealing with rising reporting requirements, data systems that are continuing to be developed, and a myriad of goals, objectives, outputs, outcomes, strategies, and performance measures at both state and national levels can lead to a significant time burden for programs.

- **Recommendation:** Assessing the impact of Sea Grant research, e.g., contributions to sustainability, improving regulatory policies, changing behavior, creating industries, etc. should have a high priority in future evaluation of Sea Grant research. In addition, the human resources, together with all publications and other research products deriving from funds administered by the Sea Grant Program, regardless of whether or not some of the funding came from sources other than Sea Grant core funding, should be considered in this evaluation. The contribution of core Sea Grant funding relative to other sources should also be monitored and reported.

## D. Expanding the Research Portfolio

### Charge #6

*Can the decline in research funding be reversed? If so, how? What pathways can be explored to expand a Program's research portfolio?*

The first charge point is addressed in Chapter III of this report. Leveraging and partnering are two approaches to enhancing current research programs that are common throughout the Sea Grant network, and these bring considerable outside resources to the Sea Grant mission. Increased partnerships with NOAA units have been discussed in Section IVA above. It is acknowledged, however, that there are positives and negatives associated with such success in acquiring extramural research funds. These additional funds indicate in real terms the good reputation that Sea Grant programs have, and they help to ensure that programs are focused on issues that are important to the local and national constituency. However, in some cases local programs may be driven by agendas that may not always be fully compatible with local and national needs and goals.

Strengthening regional partnerships and approaches to collaborative research should be encouraged and could lead to significant new funding and results. Regional partnerships can address issues that are larger and more complex than those in a single state, and national issues can often be more easily approached on a regional scale. Regional partnerships can provide excellent opportunities for involvement with other NOAA entities as well as other federal and state agencies, and this would follow NOAA's intent for regionalization in its overall programs.

Enhanced partnerships within a state that address issues of concern to that state are also excellent ways to increase support for research, and essentially all Sea Grant programs are doing this already. Many programs have close relationships with a range of state agencies involved with environmental protection in general and marine efforts in particular, as well as with the private sector and foundations. Developing close relationships with state legislatures and the various committees responsible for marine issues is also a valuable approach taken by many programs, and should be encouraged. Aligning research programs with areas whose importance is clearly going to grow in importance in the future is a sensible approach. Examples include climate-related research focused on regional issues (for example, sea level rise may be important for one region, while the effects of climate change on hurricanes may be more important for another), marine transportation issues, and energy sources in the marine environment.

- **Recommendation:** Regional partnerships among Sea Grant programs and other entities are an appropriate approach for producing significant new results that address important regional and national issues. Increased partnerships within a state with governmental and private sources are also strongly encouraged.

- **Recommendation:** Research programs should be aligned to address critical issues that will arise in the future.

Efficiency of program management is being promoted through the continuing development of databases for storing and managing data, reports, publications, etc., as well as for managing, evaluating and selecting proposals for funding. This must be directed to ensure a unified output of network accomplishments and impacts. A standardized data input format in a widely available web-based database is now practical, obviating the need for each program to independently develop and implement such a scheme. A network-wide synthesis of the results and impacts of Sea Grant research would be particularly useful, and this should ultimately be developed utilizing NIMS. NIMS has led to increased time spent on reporting by the programs, with problems about accuracy of the system and the usefulness of the reports that it generates. However, NIMS is slowly overcoming these shortcomings and in the long run will be a very useful system. Ideally, reports should only be required once, e.g., not both NIMS and Grants Online.

Many Sea Grant programs believe that their administrative burdens have been increased by more research reporting and other requirements from both the NSGO and their university. Much of the concern has been focused on NIMS, as mentioned above. Examples of the concerns expressed include incompatibility of NIMS and Grants Online, an estimate in some programs that NIMS has resulted in some people spending up to three times as much time on annual reporting as before NIMS, and the fact that NIMS is PC-centric, which is not easy for Mac users. However, as mentioned above, there was widespread feeling that eventually the problems with NIMS will be overcome and it will be very useful. There is general appreciation of the efforts being made by NSGO staff to solve these problems.

- **Recommendation:** Every effort should be made to minimize and reduce duplicative and unnecessary research reporting requirements.

# Appendices

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## Appendix A

### Questionnaire for Sea Grant Directors

#### *Questions related to decline in research support:*

- The percentage of Sea Grant funds that is devoted to research over the entire Sea Grant Program has decreased during the past 6 or more years. What do you believe has been the reason for this decline?
- What are the implications of this decline to Sea Grant as a whole?
- If this percentage has decreased in your own program, how much has it decreased and why?
- If this decrease has occurred for your program, what are the long-term implications of this to your program's research and overall effort?
- Has reduced buying power reduced the productivity of your research program? In what ways?

#### *Questions related to research performance:*

- In view of the oversight demands of OMB and Congress, on what basis should research performance within the Sea Grant Program be evaluated and measured in the future?
- Should the training and education of graduate students and post-doctorals be a metric for evaluating research productivity?
- Should state and other research support for individual Sea Grant Programs be considered when evaluating the overall research effort?
- Are the papers recorded in the Sea Grant Library (Depository) a good measure of your program's publication activity?

#### *Questions related to research guidelines:*

- Historically, there has been a percentage guideline for funds devoted to research as compared to extension and education. Has this percentage impacted your program and if so, in what way?
- Do you believe that these percentage guidelines for the proportion of federal funds devoted to research are useful within an individual program and across the entire Sea Grant Program? If not, what would you suggest?
- If percentage guidelines were to continue, do you believe that the percentage should be the same for all Sea Grant Programs? Why?

- **If percentage guidelines did not continue, what kind of criteria should be used to determine appropriate funding proportions for research for a particular program or for programs in general?**

*Questions related to research program management:*

- **Working under the current budget restrictions, and assuming no additional funding, what new pathways should be explored to expand a program's research portfolio?**
- **Is one of these new pathways to increase the efficiency of research program management, and if so, in what way can this be done?**
- **How have your administrative burdens been increased by research reporting and other requirements from the NSGO or your university?**
- **How can programs maximize the engagement of the best university scientists?**

*Questions related to interactions with NOAA:*

- **In what way should the Sea Grant research portfolio complement and be distinguished from NOAA's portfolio and with the portfolios of other coastal and marine funding agencies?**
- **Can Sea Grant engage NOAA with real collaborative synergy, as has been achieved with academic institutions in NOAA Joint Institutes? If so, how could this be done?**

*Questions related to the National Office:*

- **Is there a role for the National Office in promoting and enhancing Sea Grant research? If so, what should it be?**
- **Is there any other role that the National Office should be playing in this area that they are currently not playing? If so, what?**

## **Appendix B**

### **Questionnaire for NOAA Laboratory Directors**

#### ***Impression of Sea Grant and Its Research***

- In Sea Grant, are you most familiar with its: research; extension; or educational effort?
- Have you, or your organization, worked closely with Sea Grant in the past, or are currently doing so; if yes, is your most successful collaboration in research, extension, or education?
- Do you envision additional collaboration with Sea Grant; if so in research, extension, or education?
- Is Sea Grant successful in furthering the goals and objectives of NOAA; if yes, can you provide specific examples?
- Do you view Sea Grant as being helpful in meeting the objectives of your organization; if so, how?
- Have you found Sea Grant supported research projects to be a source of trained personnel in your organization? For example, have Sea Grant-supported graduate students gone on to careers in your organization?
- Do you see merit in future disciplined-focused workshops between NOAA and Sea Grant investigators?
- Do you have any recommendations for ways that Sea Grant can further enhance your organization?
- How would you best describe Sea Grant?
  - A partner
  - No impact on my organization
  - Competitor for limited funding dollars

## Appendix C

### Questions for Interviewees and their Names

#### Questions Asked

- What is your assessment of Sea Grant's role in promoting the betterment and dealing with the problems and opportunities of our coastal environment?
- What is your assessment of Sea Grant's effectiveness in meeting this role?
- Is the integration of research, education, and engagement (i.e., outreach) in Sea Grant viewed as a national strength?
  - If so, is this integration being utilized by Sea Grant to the nation's advantage, and if not, how would you see this being approached differently?
  - Does this integration provide Sea Grant a critical niche among coastal programs?
- Sea Grant's funding has been declining in constant dollars for the past several years. Are there fundamental changes that Sea Grant should make to reverse this decline in funding?
  - If so, what are these changes?

#### Names of Interviewees

David Evans, Former NOAA Assistant Administrator for Oceanic and Atmospheric Research

Mary Glacken, Deputy Under Secretary for NOAA Oceans and Atmosphere

Louisa Koch, Director, NOAA Office of Education, Former OMB Examiner

Margaret Leinen, Former Assistant Director for Geosciences, NSF

Stuart Levenbach, OMB Examiner

Gene Lockwood-Shabat, DOC Budget Office

Heidi Keller, DOC Budget Office

John Rayfield, House Transportation Comm.; previous House Comm. on Natural Resources

Bonnie Bruce, House Committee on Natural Resources

Rick Spinrad, NOAA Assistant Administrator for Oceanic and Atmospheric Research

Dan Walker, Office of Science and Technology Policy, Former NRC Ocean Studies Board staff

Emily Woglom, Former OMB Examiner, currently at The Nature Conservancy

Eric Webster, Former House Science Comm.; former Director NOAA Congressional Affairs, currently at ITT

## Appendix D

### Summary of Responses from Sea Grant Directors

#### Questions Related to the Decline in Research Support

- **The percentage of Sea Grant funds that is devoted to research over the entire Sea Grant Program has decreased during the past 6 or more years. What do you believe has been the reason for this decline?**

Only two programs disagreed with our assertion. One program argued that the apparent decline in their program (not necessarily Sea Grant as a whole) was an artifact of “add ons” and pass throughs for outreach. The other program said the percentage was constant but inflation had decreased the amount of research that could be done. Virtually all of the other 26 program responses agreed that the decline was real and due to essentially flat federal funding and rising costs of salaries, fringe rates, indirect costs, graduate student stipends, tuition, travel, and supplies. It was noted that the decline of NSIs also contributed to declines in research. Programs value experienced staff and want to retain (and properly reward) them. It is not easy or desirable to replace them with less expensive and inexperienced people. In some cases programs had protected research to some extent by moving staff to state funds. The only “easy cut” is to reduce research.

- **What are the implications of this decline to Sea Grant as a whole?**

With the exception of one director who wrote, “Actually, I am not too concerned about it, as long as Sea Grant continues to do some excellent, innovative, and useful research,” all of the other programs felt that this was a grave threat to the future credibility of Sea Grant. As one person said, the decline was “taking the grant out of Sea Grant.” Programs in general are struggling between the number of projects they can fund v the size of projects they can fund – a difficult situation. As one reply noted, they can request very few full proposals from the pre proposal process or encourage a larger number and end up with an acceptance rate far lower than NSF for projects with much less money than NSF. Almost all programs reported that they have been reducing the number of projects funded through core funding and some are capping the size of grants. The latter varies a good deal – the five programs that mentioned a cap ranged from \$80K to \$110K/year. One program noted that their typical grant of \$60 to \$80K would support one student and some supplies or a PI’s summer salary and supplies, but not both. Many programs felt that Sea Grant was losing credibility as a funding source for coastal research, and that it was losing its ability to attract the best PIs because of high “transaction costs” and the small size of grants. Several programs felt that there would be a trend to fund only beginning scientists who were less expensive (no one was opposed to funding beginners, but most felt that it was important to have a mix of high profile seniors and promising beginners). There may be pressures to fund less expensive social science and demonstration projects rather than more expensive physical and natural science research. One program made the important point that low project budgets “also implies that complicated, integrated and interdisciplinary science on today’s critical issues...will be extremely challenging to fund.” Another program noted pressure to fund fewer risky basic research and instead fund more targeted, stakeholder driven “downstream” topics.

- **If this percentage has decreased in your own program, how much has it decreased and why?**

It is a bit challenging to summarize the replies to this question because some programs did not respond directly (of these three programs, one noted there were too many ways to make the calculation), and

others used different time periods for comparison. It is also confusing because “program” was considered differently – some as the core omnibus Sea Grant Program and others as all the funding they manage, including state, special projects, etc. As best we can tell, 8 programs reported declines in percentage devoted to research ranging from 4% to 30% (the latter for a small program). Surprisingly 14 programs seemed to feel that their research had not declined – but it is possible that in most (if not all) of these cases they were including increases in state and other sources of “leveraged” support in their assessment.

- **If this decrease has occurred for your program, what are the long-term implications of this to your program’s research and overall effort?**

Interestingly, even some of the programs not reporting a decrease in research responded to this (probably reflecting the mixture of interpretations of “program”). In general the implications for individual programs were the same as those for Sea Grant as a whole – loss of credibility as a serious funding source, decline in student support, major reductions in the number of projects funded, lack of ability to respond to stakeholders, loss of innovative capacity, inability to attract senior PIs, etc. There were concerns that Sea Grant would become viewed only as an outreach program. For small programs the decline in ability to fund research is particularly acute. For example, one program funded 7 projects in the 06-08 omnibus; 4 in 08-10 and projects 2 in 10-12 and 1 in 12-14. Total research for the next two years for that program is budgeted at \$100K.

- **Has reduced buying power reduced the productivity of your research program? In what ways?**

We received an interesting mix of responses. While virtually everyone agrees that their buying power has gone down, no one seems eager to say that their productivity is going down. On the other hand, there is a mass balance problem, at least within the constraint of the core omnibus Sea Grant program. Several programs report that they have been able to “buffer” their Sea Grant research against cuts and inflation by reallocating state funds or acquiring more state funds. Most recognize that this is “not sustainable” if the core funds continue to stay flat or decline further. A number of directors are rightly proud of their ability to “leverage” funds from other federal and state sources. It seems that the word “leverage” has become the mantra of Sea Grant directors. There are some obvious dangers here. The first is that the current budget crisis in many coastal states will have a sharp and immediate impact on programs that have come to rely heavily on the “leveraging” of state resources. The more subtle problem is that Sea Grant will come to “own” less and less of what “it” funds. At what point does the local Sea Grant office become a “job shop”? At what point does a Program become a pipe through which other monies flow? We believe that these questions deserve some serious thought. Obviously, directors try to capture and manage funds that seem consistent with Sea Grant strategic plans and goals, but there is some danger that success as “leveragers” is making some complacent about what is happening to the Sea Grant Program and concept.

### **Questions Related to Research Performance**

- **In view of the oversight demands of OMB and Congress, on what basis should research performance within the Sea Grant Program be evaluated and measured in the future?**

The most common metrics utilized for research performance are publications, presentations, degrees granted, number and type of students supported, patents, and patent royalties. Some responders pointed out the value of landmark papers, initiation of new research fields or topics, and sessions organized at meetings. (Small programs stressed that the number of publications should be measured relative to the

size of the Sea Grant program.) Efforts to synthesize information should also be viewed as valuable and providing impact. Citations in peer-reviewed journals should also be considered.

It was pointed out that the ability to leverage Sea Grant funds for larger grants should be an important measure that should be included in research productivity. Given the relatively small amount of Sea Grant funds, partnering with other organizations to fund research should be viewed very positively. Programs should be credited for leveraged funds, faculty, staff, and students trained by Sea Grant who now work in NOAA and other government agencies. New industries incubated via research, and technological hurdles cleared via research are valuable measures of research productivity. Research that results in startup businesses and application of research that results in changing behavior are issues that should be considered.

The impact of the research as measured by performance measures in the National Sea Grant Implementation Plan should be included. There are metrics being developed to measure the real impacts that Sea Grant research has on citizens' economic status, health, and quality of life. The contribution of the Sea Grant research to the sustainable development of coastal and marine resources; problem solving; tackling socio-economic issues affecting productivity or the health of coastal ecosystems; and the impact on policy making are important measures of productivity.

It was noted that it might take years as well as additional, subsequent funding to fully develop many of the best measurement tools. Assessment should be retrospective, over a long-term (five to ten years), asking program stakeholders/agencies to discuss the value of the program's research *in toto* to their own activities. It could be that the end product could not have happened without Sea Grant funding, but because it happened after the Sea Grant project ended, the agency that provided the later funds receives credit. Integration of the research with the outreach parts of the program should be encouraged by the evaluation system.

One of the biggest problems mentioned by responders is the evaluation system – the administrative burden of dealing with rising reporting requirements, data systems that don't work and a myriad of goals, objectives, outputs, outcomes, strategies, and performance measures at state and national levels. They emphasize that many of these systems are not well designed to measure research performance, particularly projects with longer-term payoffs.

- **Should the training and education of graduate students and post-docs be a metric for evaluating research productivity?**

There was a unanimous "yes" from responders. All agree that student performance and their placement in the workforce should be used to assess impact from Sea Grant's research enterprise. They point out that funding future researchers and scientific leaders is one of the most important things we can do for the future protection of aquatic resources. They note that students funded by Sea Grant will become the leaders of tomorrow who may have influence over Sea Grant's future. Without the cadre of scientists that come through Sea Grant and other government-supported programs, we as a nation will suffer greatly. Overall, they point out that our best investments are in graduate students and scientists at the beginning of their careers. The NMFS-Sea Grant fellowships are currently listed in NIMS as Education (E/) projects. These funds support research and should be counted as such. Graduate students and post-doctoral students should be evaluated for their research productivity and their outreach activities.

- **Should state and other research support for individual Sea Grant Programs be considered when evaluating the overall research effort?**

Responders say that it is generally an appropriate strategy to seek alternative sources of funding to grow the research efforts. When there is a high level of state, local and private support for research it indicates that there is collaboration and that the stakeholders view what Sea Grant is doing as highly relevant – efforts that are worth investing in with their money, resources, and time.

Responders pointed out that Sea Grant extension agents and specialists have a considerable amount of research supported by state agencies and various federal agencies in addition to the core.

It was pointed out that if we include all research projects irrespective of source of support, some of the projects evaluated and measured would not mesh well with federal priorities. They suggest that the entire Sea Grant budget (core and match) should be considered, but only if the non-Sea Grant supported components are truly integrated in the overall program.

While responders agree that all of the funds a program marshals for research should be counted, they also expressed that program differences need to be considered. Such opportunities vary around the network, and success in this regard is not always based upon the performance of the Sea Grant program. They point out that some states provide very limited support for academic research, so it is difficult for some programs to draw on extensive state assets.

- **Are the papers recorded in the Sea Grant Library (Depository) a good measure of your program's publication activity?**

Programs emphasize that for the most part the publications are recorded in the Sea Grant Library. However, this is not a complete list because at times PIs publish and do not let the Sea Grant Program know about the publications until well after the fact, if at all. There is often a long time lag before the papers get to the Sea Grant Library. Directors point out that today there are many electronic-only publication items that cannot physically be sent to the library. It would be ideal to have the Sea Grant library upload them, but that will take the help of programs throughout the network.

The library is one measure but certainly should not be the only measure. Respondents point out that for research evaluation purposes it would be much more effective to report research publications for each project in NIMS. They mention that currently research publications are collected as a compiled publications table – this does not contribute to the evaluation of individual projects, nor does it provide details on the caliber of peer-reviewed publications (i.e., high impact journals) or presentations (e.g., invited or plenary conference presentations).

### Questions Related to Research Guidelines

- **Historically, there has been a percentage guideline for funds devoted to research as compared to extension and education. Has this percentage impacted your program and if so, in what way?**

The idea of a percentage goal for the amount of research versus other components of a Sea Grant program is generally accepted as a mechanism to level the efforts of the diverse programs. The generally accepted value as viewed historically is 50%. Other memory of percentage of research to strive for was somewhere between 45 to 65%, another 40 to 60%. Another program believed that the range was 30 to 50%, with flexibility. Several programs indicate that this (close to 50%) is a desirable goal, but also indicate that the ability to reach 50% is hampered by the shrinking value of the dollars received by individual programs. It is becoming harder to meet this percentage.

Other aspects of Sea Grant programs have been eliminated in order to reach an approximate 50% research goal. To adequately reach this goal supplemental funds are needed to meet it. Some Sea Grant programs feel penalized because they do not or are not able to attain this percentage. For those states with a smaller overall budget, it is difficult to reach the 50% research level. In the case of these programs, the 'required' percentage hampers flexibility of a program to develop all parts of the program. This level of ~50% research support in a Sea Grant program is more likely to be accepted by the larger programs.

The need to incur some fixed costs to run and maintain a Sea Grant program prevents meeting the 50% research goal. However, the more successful Sea Grant programs are leveraging external funds, state funds, and private funds to help offset the administrative costs of the program. In other programs research projects integrated with other funding agencies has provided a mechanism to maintain the research percentage.

The goal to reach a 50% support of research within a program has hampered the establishment of important outreach programs, especially where Sea Grant program advisory boards have recommended that a certain amount of the program, e.g., outreach, should meet a percentage of funding at 33%.

- **Do you believe that these percentage guidelines for the proportion of federal funds devoted to research are useful within an individual program and across the entire Sea Grant Program? If not, what would you suggest?**

The idea of establishing a goal of a percentage of funding to be directed to the research component of a Sea Grant program is generally accepted, because it provides a uniform guideline for all programs under the National Sea Grant Program. The idea of a flexible goal for the amount of research, within limits or over a range, is preferred over rigid limits. Because of the diverse sources of funding for each Sea Grant program, it is difficult to determine exactly what percentage of funds is devoted to research versus other funds in the overall program.

The smaller Sea Grant programs were not as enamored with a percentage to be directed to research, particularly at the approximately 50% level.

If the decreasing support of Sea Grant (in real dollars, or worse) continues, then a smaller percentage can be directed to research. However, if this continues for the long-term, the research reputation of the Sea Grant Program would be diminished considerably. One program suggested that there be a division of research funds between 5-10% devoted to 'regional' research plus 30-40% for state programs.

Several dissenting opinions were that there should be no guidelines for a percentage of research funds in a program. A program, within the limits of the omnibus, should be allowed to develop a research effort that makes the most impacts relative to the important issues of the state and its stakeholders. Longer-term programs are more fully invested in the generation of new knowledge (i.e., research) and now need to develop a portfolio to synthesize this knowledge into a product that will more strongly connect to their local, state and regional situations. One percentage does not fit all.

- **If percentage guidelines were to continue, do you believe that the percentage should be the same for all Sea Grant Programs? Why?**

Most programs indicate that a uniform guideline for consistency among the programs, with some flexibility, would be best. Flexibility is continually identified as a mechanism for determining a percentage of funding to go to research programs, versus education, outreach, and administration. A range is more helpful than rigid percentage guidelines. Again, those states with smaller programs are

more reluctant to be guided by a 'one size fits all,' but that there should be an adjustment for the smaller-sized programs.

- **If percentage guidelines did not continue, what kind of criteria should be used to determine appropriate funding proportions for research for a particular program or for programs in general?**

The opinions of several respondents indicate that the metrics of ranges of funding to research, education, outreach, and administration cannot be uniformly applied to the range of Sea Grant programs. If there is to be a percentage, it should be based on the total funds over and above the base level of funding.

Individual programs should identify priority resource management issues in their area, what issues are not being adequately addressed, what resources (personnel, funds, skills) are needed to address an issue, what resources are on hand (program, leveraged and partnerships), and the likelihood that an investment by the program will yield a useful result. This applies to outreach, education and research. Applying these criteria will allow programs to develop models for component outputs, outcomes and impacts. As a gross measure, cost-benefit estimates can be used to guide resource allocation and promote efficiency of resource use.

There are significantly different regional needs across the nation. In some regions the scientific and management needs are very similar across programs; that is, research programs respond to parallel needs in adjacent or nearby states. In those cases, economies of scale may allow a set of realistic funding proportions across two or more programs. In one coastal region, the issues and needs for research and extension differ extensively, so that regional cooperation is possible, but research questions are quite diverse and much less amenable to a cross-state context. A regional research and information needs portfolio is being developed that will allow us to work with partner Sea Grant programs where possible, on both research and extension initiatives.

One respondent suggested that an overall program portfolio that maximizes science-to-management, technology transfer/adoption, and the application of science-based information in various public decision-making situations would be the best measures of performance of any given research/extension-funding ratio. Perhaps a better determination of percentage of funds spent for research should be determined as a result of what are the impacts of the various components of a Sea Grant program. In some way, this speaks more to the education and outreach portion of a program, which is more tractable than the research component, especially with regard to usefulness to the stakeholders.

A 'pre-determined' goal for a percentage of program funds to go to research has provided a uniformity to which programs are inclined to emulate. However, such a percentage has caused problems in more recent years with the declining buying power of funds from the Sea Grant program and/or state supporting funds. With a stated goal of percentage research, albeit quite flexible, there is less flexibility in a program to develop other aspects of their programs, i.e., education and outreach. Also, fixed costs of a program (mostly administrative) often dictate what level of funding is available for research, outreach and education.

That a proportion of program funds go towards research is generally accepted, as long as the range is broad and flexible. The larger programs are more inclined to accept a higher percentage of research funding as a goal and an across-the-board application than smaller programs.

Alternative schemes to using a percentage for research funding are to leave the determination of spending of Sea Grant program funds to the individual programs as they address the needs of their

program, primarily as a result of local needs and stakeholder input. What is not clear is the way in which the 'success' of a Sea Grant program can be evaluated with regard to research, outreach, and education to be measured

### **Questions Related to Research Program Management**

- **Working under the current budget restrictions, and assuming no additional funding, what new pathways should be explored to expand a program's research portfolio?**

Leveraging and partnering represented by far the most common suggestion from Directors in this area. This practice is already common throughout the network and brings considerable outside resources to the Sea Grant mission. Success in this is viewed to reflect the good opinion with which Sea Grant programs are held by local constituents, agencies and university administrators. It is acknowledged that there are positives and negatives associated with success in acquiring research funds extramural to those provided through the NOAA budget. On the one hand, these additional funds indicate in real terms the value with which Sea Grant programs are held and they help to ensure that programs are focused on issues that are important to the local constituency. On the other hand and despite the fact that the foundation for Sea Grant programs derives from their core NOAA funding and their connection to NOAA's mission, local programs may be driven by agendas that may or may not be fully consonant with the parent organization. Overall, however, Sea Grant was envisioned from its inception as a partnering institution and the matching requirement ensures the continuation of the principle both for research and outreach.

There was strong support for strengthening regional partnerships and approaches to collaborative research. Regional partnerships among Sea Grant programs, including pooling of resources from several states and developing joint research efforts with aligned RFPs, could lead to significant new funding and results. Such regional partnerships would be able to address issues that are larger and more complex than those in a single state. Funds could be set aside to address national issues that could be approached on a regional scale. As pointed out by several programs, however, there are some problems with expanding this approach too much. Different programs would contribute different amounts of funding for such efforts, there would be increased fiscal management requirements and complications, and the efficiency of overall project management could be degraded. These issues could likely be overcome, but the effort to do so would likely be significant. Such regional partnerships need not be restricted to state Sea Grant programs alone. There would likely be excellent opportunities for involvement of other NOAA entities as well as other federal and state agencies. Involvement of other federal agencies in particular might be very positive, since in many cases these agencies are responsible or concerned about issues that cross state boundaries. One possibility for increased funding might be to become more involved with monitoring activities, as such measurements are being increasingly recognized as of critical importance, and a variety of state and federal agencies are concerned with such measurements.

Of course enhanced partnerships **within** a state addressing issues of concern to that state are also excellent ways to enhance support for research, and essentially all Sea Grant programs are doing this already. Many programs have close relationships with a range of state agencies involved with environmental protection in general and marine efforts in particular. Developing close relationships with state legislatures and the various committees responsible for marine issues is also a valuable approach taken by many programs, and should be encouraged. Working with the private sector and foundations can also generate new funding, but again, most programs are doing this already.

Several programs have pointed out that a good strategy is to align their research programs with areas whose importance is clearly going to grow in importance in their state in the future. While this can certainly vary from state to state, there are a number of such areas that can be identified that are likely regional or even national in character. These include climate-related research focused on a particular state's issues (for example, sea level rise may be important for one state while increased hurricane strength may be more important for another), marine transportation issues, alternative energy sources in the marine environment, and human dimensions research. Evaluating the expected areas of critical importance for a state program would be addressed in the development of that program's strategic plan, and many state programs are doing this already.

There is also some support for minimizing NSIs in the future and placing those funds back in the core funding for programs. While this would increase research funding for a particular program or programs, it does not enhance research funding for Sea Grant as a whole.

Finally, there are some administrative-type changes that could help to increase the amount of funding (or the percentage of total funding) that is devoted to research within a program. Examples include restricting and capping the level of indirect costs at a particular institution, including having no overhead on the first \$25K of sub-contracts as is currently the practice of USDA with partnering universities and colleges; streamlining the administrative requirements for NIMS and other reporting structures; capping project award amounts; and categorizing expenses for graduate students and mini-grants as research.

A variety of other suggestions were offered. These included: instituting a minimum level of funding for programs; linking investigators for other funding sources; forging partnerships with other NOAA units that would allow Sea Grant programs to be the vehicle for funding extramural research that is selected on a peer-refereed competitive basis.

- **Is one of these new pathways to increase the efficiency of research program management, and if so, in what way can this be done?**

While many respondents felt that their programs were being managed as efficiently as possible, other responses to this question varied, such that this question led to a very mixed response from the Sea Grant programs. Table 1 provides a summary of the responses to this question.

Table 1

Responses to the Question "Can the Efficiency of Research Management Be Increased?"

Yes	No	Uncertain	No response
9	12	5	6

Of the 32 state Sea Grant programs, six did not respond to this question and 5 were uncertain as to whether the efficiency could be improved over what is presently being done. Nine programs believed that efficiency could be improved and 12 did not. Of those that did believe there could be improved efficiency, several believed that the improvement would be minor. The majority clearly felt that programs were already operating as efficiently as possible. Again, improved efficiency, while always to be strived for, would not increase the overall amount of funding, but would simply allow more of the present funding to be utilized for research and other activities of the programs - a worthy goal, of course.

There were some suggestions as to how efficiency in some areas could be improved. There was broad and generally strong support for continuing efforts to build databases for storing and managing data,

reports, publications, etc., as well as for managing, evaluating and selecting proposals for funding. It was suggested that this must be directed to ensure a unified output of network accomplishments and impacts. At the present time different programs use a variety of database programs to record this information. A standardized data input format in a widely available web-based database would now be practical, obviating the need for each program to independently develop and implement such a scheme. This database would also be useful for the NSGO and the SGA. In general, a network wide synthesis of the results and impacts of Sea Grant research would be particularly useful, with hope that this could ultimately be developed utilizing NIMS. One respondent suggested that host universities fund administrative positions, at least in part. This would reduce that cost of management for the federal grant.

The area where most concern was expressed was with NIMS in particular and the reporting structure in general. There was widespread concern that NIMS had led to greatly increased time spent on reporting, with problems with accuracy of the system and the usefulness of the reports that it generates, although there was also acknowledgment that NIMS is slowly overcoming these shortcomings and in the long run will likely be a very useful system. There was also concern that reports should only be required once, e.g., not both NIMS and Grants Online.

As mentioned in the section above, regional and collaborative programs can also help to reduce many administrative activities. Examples include the pooling of resources for joint RFPs with state agencies and regional research programs, and the reduction or deferral of infrastructure costs. Other administrative changes could also lead to improved efficiency, including biennial calls for proposals, web-based RFP and pre-proposal submissions, and in general tailoring research management to the level of work at hand.

- **Have your administrative burdens been increased by research reporting and other requirements from the NSGO or your university?**

Although responses to this question were longer and more detailed than those to any other, they can be more easily summarized. The answer is, “Yes!” While most have noted that the switch to NIMS is the most important factor, many are hopeful that administrative burdens will decrease once NIMS is fully realized and perfected. Several respondents acknowledged that administration and reporting are part of the job and are essential to ensuring quality. Table 2 provides a summary of the responses to this question.

Table 2

Responses to the Question “Have your Administrative Burdens Been Increased by Research Reporting and other Requirements from the NSGO or your University?”

Yes	No	Uncertain	No response
20	4	3	5

Of the 32 state Sea Grant programs, five did not respond to this question and 3 were uncertain as to whether administrative burdens have been increased. However, of those who did give a yes or no response, 20, or 83%, believed that their administrative burden had been increased, while only four believed that it had not. It is clear that there was a strong feeling that the administrative burdens for Sea Grant programs have increased significantly in recent years. Some sample quotes include:

“I’d guess the administrative burden has increased by about 0.5 FTE in the past five years.”

“Administrative requirements are a voracious and mad monster and all of us are the victims.”

“The new reporting requirements have significantly increased our administrative effort requirements.”

“Research reporting has become exceptionally burdensome of late.”

“Oversight and reporting requirements have become extremely burdensome in the past five years or so.”

“NIMS and other electronic data submission systems that have been imposed without adequate testing have been an ENORMOUS time sink for our staff.” Others had similar feelings.

“More time is devoted to reporting outcomes and less effort devoted to making things happen.”

“The reporting system is less user friendly than ever. Cycles for reporting do not match, and there have been constantly changing demands.”

Much of the concern has been focused on NIMS, as mentioned above. Examples of the concerns expressed include incompatibility of NIMS and Grants Online, an estimate that NIMS has resulted in people spending 3 times as much time on annual reporting as before NIMS, and the fact that NIMS is PC-centric, which is not easy for Mac users. However, as mentioned above, there was widespread feeling that eventually the problems with NIMS would be overcome and it would be a very useful program. Concerns were expressed that it was released before all the bugs had been worked out, but there was in general complimentary statements about the efforts being made by NSGO staff to solve these problems.

- **How can programs maximize the engagement of the best university scientists?**

The obvious suggestion that was made by most Sea Grant programs was to provide more funding so the success rate would be higher - that would clearly help to bring in the very best scientists. Related to this would be increasing the size and number of individual grants. However, with increased regular funding an unlikely possibility soon, other means of bringing the best scientists into the Sea Grant program must be found.

Among a variety of thoughts, the following were most common from the respondents. Run fair, open, peer-refereed competitions that provide investigators with a realistic expectation of funding and with sufficient funds to accomplish something meaningful. Directors should actively recruit the best talent. “We should also have a nice mix of young, mid-career and established scientists. Nurturing new talent is obviously beneficial in the long run. Mid-career level scientists bring a lot of good energy and opportunities for multi-agency efforts. That is, these scientists often have large research efforts from NSF, EPA, etc. The same goes for the established scientists, plus there is a sense of loyalty that is very effective for our outreach efforts.” Mini/program development grants can also provide the means for attracting new investigators. Also expressed was the opinion that it is good to engage young investigators and mix these with mid-career, established investigators. The worry was that low levels of funding, combined with the long duration of the application process (time of pre-proposal to the time of grant award) can be deterrents for the most accomplished university scientists.

One approach (which many programs take already) would be to connect scientists more closely to non-university interest groups, such as communities, non-profit organizations, or small business groups to

identify potential research projects, and when this is done make certain that this is followed up by extending the results of those projects back to the stakeholders and partner groups. Related closely to this is having an effective and desirable extension program to offer as partners to stakeholders that adds value and credibility to the research project, the researcher and the portfolio.

Support of graduate students and their research has always been a strong point in Sea Grant. Targeting the students of “the best university scientists” instead of directly targeting the scientists themselves is an approach that would still bring in the best scientists in a more advisory capacity, but at the same time enable the best students to become familiar not only with Sea Grant but with the entire funding process and what is required to develop a good, fundable research program. This process of “training” young researchers will lead overall to a stronger cadre of scientists who in the future may well be involved with Sea Grant research and programs at other institutions.

Another possibility suggested is to initiate a Program Development account that would be set at, ~15% of the overall omnibus award (although the Grants Office thinks that even 10% is too high). This would enable a program not only to increase the engagement of university scientists, but also to be more widely viewed as a more responsive “mover and shaker” in executive agency, legislative and stakeholder circles. Several programs are doing something similar to this already.

It was suggested that there are also some administrative changes that could serve to encourage the best scientists to become involved with Sea Grant. These include:

- Cutting down administrative burdens in general.
- Offering longer-term funding commitments (i.e., > 2 years).
- Making smaller pots of money more readily available (less paperwork, etc.).
- Reducing the match requirement.
- Having reasonable reporting requirements and grants that are sufficiently large.
- Increasing the flexibility to leverage Sea Grant funds with other federal research funding sources.

### **Questions Related to Interactions with NOAA**

- **In what way should the Sea Grant research portfolio complement and be distinguished from NOAA’s portfolio and with the portfolios of other coastal and marine funding agencies?**
- **Can Sea Grant engage NOAA with real collaborative synergy, as has been achieved with academic institutions in NOAA Joint Institutes? If so, how could this be done?**

#### *Strength of Sea Grant*

Not unexpectedly, several of the respondents took the opportunity to highlight the value and strength of Sea Grant. Of the twelve who highlighted these strengths, several mentioned the flexibility that Sea Grant offers. Not encumbered by the “stovepipe” approach of NOAA, Sea Grant is able to utilize a broad range of expertise, easily integrates research and outreach components, and responds quickly to the needs of the coastal community. Through Sea Grant and its competitive process for awarding research funding, the nation’s leading universities are better positioned to recognize and address important marine and coastal issues. The integration of extension and education with research contributes significantly to solving existing and emerging local and regional problems.

Adding value to Sea Grant is its match requirement. Unique to coastal research and outreach, this requirement confirms the value of the intended work and demonstrates to the Federal Government the commitment of the local community. It is a testament that the Sea Grant research priorities are reflective of local stakeholder needs.

Through its strategic planning process, Sea Grant research is closely aligned with NOAA's mission and goals. Thus Sea Grant brings to NOAA an integration of research, extension, and education, a strength not existing elsewhere within NOAA. Due to its close linkage with the local and regional coastal communities, Sea Grant's research is highly complementary but not duplicative of NOAA research. Sea Grant has consistently recognized the importance that its research be influenced by local stakeholder needs and the need to maintain an allegiance with these core groups of constituents.

*Synergism with NOAA as positive*

Only three out of the 26 respondents view the relationship with NOAA as positive without any steps needed to enhance the relationship. This small population believes this current relationship as too good and too important to change. They believe, however, that frequently Sea Grant is out ahead of NOAA in engaging stakeholders and developing strategic plans. They also feel that NOAA doesn't fully appreciate Sea Grant's proactive position.

*Synergism with NOAA is positive but certain actions are needed for improvement.*

Twelve respondents identified ways to improve on what they consider as a positive relationship with NOAA. They see Sea Grant as the logical vehicle for identifying research of interest to the local and regional stakeholders, but do not believe that NOAA is currently giving Sea Grant the appropriate role for engaging and implementing the user/client-oriented research. Nearly every project that Sea Grant funds can be linked in various ways to the NOAA mission. From their perspective, NOAA needs to recognize Sea Grant as a collaborator by adding value to NOAA work rather than being viewed as a competitor of NOAA's resources. They caution, however, that real collaborative synergy may not be possible until NOAA accepts stakeholder engagement in the research process and Sea Grant accepts that it is part of a mission-based agency and is not a program wholly owned and directed by the university elements. They see a general lack of NOAA engagement with universities and believe that this lack of engagement underpins the problem that needs to be addressed before Sea Grant can satisfactorily engage NOAA through integrated research.

In face of these impediments, they argue that certain steps can be taken to enhance this collaboration including sharing of facilities between Sea Grant and NOAA. Either as a complement or in lieu of sharing facilities, they recognize value in seeking joint funding opportunities with an integration of some aspects of a research program. They believe that niches exist for Sea Grant to work jointly with NOAA researchers concentrating on large-scale projects with Sea Grant focusing on research projects with local impacts, such as coastal management programs or the NMFS Sanctuary program. Other suggestions include using Sea Grant to administer various national research initiatives for the NOAA line offices, and using NOAA line managers on Sea Grant advisory committees, extension advisory committees and on research review panels. They believe that Sea Grant must be more aggressive in looking for opportunities to effectively engage the NOAA laboratories.

A significant inhibitor, in their view, is the lack of appreciation at various levels of NOAA as to the significance of Sea Grant. There is a reasonable understanding of Sea Grant at the highest level of NOAA but few Sea Grant champions are found at the field level of NOAA. They argue that the National Sea Grant Office should take a more aggressive role in highlighting how Sea Grant can help forward the mission of NOAA. Similarly, NSGO should look for niches utilizing Sea Grant strengths.

Effective packaging of the Sea Grant accomplishments and its impact on the NOAA missions should be a high priority of all levels of Sea Grant.

*Little synergism exists between NOAA and Sea Grant*

Ten of the programs responded with comments questioning meaningful synergism. Some of these programs did, however, offer suggestions of a positive nature and were included in the two previous sections. A common impression is that NOAA has shown little interest in utilizing Sea Grant strengths or viewing Sea Grant as a partner. Rather their perception is that Sea Grant is viewed by much of NOAA as insignificant. They use as arguments that NOAA re-creates and duplicates programs and abilities previously established and utilized by Sea Grant while offering little credit to Sea Grant.

For this to change, they believe that NOAA would have to go through a “sea-change” resulting in Sea Grant being viewed as a fully contributing partner. Similarly, others believe Sea Grant must make a very substantial change in mindset and to actively seek participation of NOAA researchers on Sea Grant projects, something that Sea Grant has been reluctant to do. Whereas the NSGO must play a role in developing meaningful synergism, collaborative efforts may have to play out initially with individual or small subsets of the overall Sea Grant network so that specific NOAA needs can be meshed with specific Sea Grant programs. The skeptics argue, however, that this has not happened on a significantly measurable level in the past 30 to 40 years, i.e., since inception of the program, and no substantive actions have been taken to change the prevailing attitudes in either NOAA or Sea Grant.

*Risks to be avoided*

Several of the respondents, while acknowledging the importance of close cooperation with NOAA, see some associated risks. The greatest risk is becoming too much like NOAA’s research and losing Sea Grant’s identity and purpose. These risks are accentuated when research, aligned under broad themes relevant to coastal issues, become overly prescriptive. Another fear is that Sea Grant will drift from focusing on real world problems of the coastal community. Others see the need for a continuation of exploratory research and applied solutions in an effort to engage the best scientists to bring innovative ideas for solving key issues. If Sea Grant is unable to maintain both its “complimentary role to NOAA missions” and its problem-solving, applied research orientation, then program identity and eventual funding is jeopardized. Sea Grant must continue to be a leader in working with stakeholders in addressing most relevant issues and effectively communicate the results to a wide range of end-users. It must continue to develop performance measures to document its ability to address issues as they relate to local and regional scales.

*Joint institutes as a model for Sea Grant*

The few respondents who addressed the Joint Institutes as a model for Sea Grant were less than generous in their assessment of the Joint Institutes. In their view the Joint Institutes have typically been used by NOAA as a vehicle of convenience rather than a meaningful partnership. The Joint Institutes have no authorization language and have little of the bureaucracy endemic to NOAA making them more responsive for shared needs. As a result, NOAA has used these organizations as earmarks for getting money to NOAA programs or to by-pass the more cumbersome NOAA administrative rules for purchases or hiring of contractors.

While not a model to be emulated by Sea Grant, the organizational flexibility of the Joint Institutes proves an attractive option to some of Sea Grant’s partnering needs. Also the Joint Institute model may be necessary to thrive in an ever-changing bureaucratic environment of NOAA and the Administration. OMB has expressed the desire to see “coastal integration of Sea Grant and other NOAA elements.

## Questions Related to the National Office

- **Is there a role for the National Office in promoting and enhancing Sea Grant research? If so, what should it be?**

There was broad agreement that an important role for the NSGO is communicating the value of Sea Grant research within NOAA. To the same end, it is important that the NSGO synthesize research outputs and impacts and communicate these in a compelling way to other NOAA offices and across the network and nationally. Communicating and demonstrating the impact and success of Sea Grant research directly to other parts of NOAA was a frequent theme.

Another general line is linking Sea Grant to NOAA initiatives and vice versa, and promoting the idea of Sea Grant could serve as a vehicle for NOAA offices for managing and recruiting their extramural funding portfolio. The NSGO could help Sea Grant become much more informed about ongoing research in NOAA. The NSGO could find opportunities to jointly fund research initiatives between Sea Grant and other agencies such as NSF. Similarly, it was suggested that the NSGO might pursue partnerships with other agencies that may share mission, goals and objectives (e.g., the Smart Growth relationship with EPA).

It was suggested that NSGO personnel should be redirected from present time-consuming activities to spend more time on Sea Grant-specific tasks. One respondent opined that NSGO should look across the state programs and identify common needs across the states and note that this is not the same as identifying national needs. It was suggested that the NSGO develop pre-negotiated rates with all SG institutions that standardize and control costs on indirect cost rates, pass through funding policies, and student fee remissions.

- **Is there any other role that the National Office should be playing in this area that they are currently not playing? If so, what?**

As one Sea Grant Director stated, “The single most important issue facing Sea Grant and its research portfolio is limited funding. A common objective of the NSGO, Sea Grant Advisory Board and SGA should be to enhance our funding base to ensure that the current very low success rates of preliminary and full proposals submitted to Sea Grant increases substantially. Without more funds to spend on research we will unhappily see the impact of Sea Grant funded research continue to decline.”

## Appendix E

### Summary of Responses from NOAA Laboratory Directors

Thirteen NOAA laboratory Directors responded to the questionnaire. Five of these were from OAR, two from NOS, and six from NMFS. In general, the OAR and NOS Directors were less knowledgeable of Sea Grant but placed a higher value to Sea Grant than did the NMFS Directors. The NMFS Directors were either highly complementary or highly critical of Sea Grant. The Directors were asked nine questions.

- **In Sea Grant, are you most familiar with its: research; extension; or educational effort?**

With the exception of OAR's GFDL, all were familiar with Sea Grant, with Research and Extension being the areas with which they were most familiar.

- **Have you, or your organization, worked closely with Sea Grant in the past, or are currently doing so; if yes, is your most successful collaboration in research, extension, or education?**

Only a limited number of collaborative research efforts were cited. The bulk of these came from the two NOS programs that mentioned several examples of working with Sea Grant's research and the Knauss Fellows. The NMFS program in California also cited a very productive collaboration with Sea Grant researchers. They credit this collaboration to significantly increasing the magnitude and scope of research information relevant to the NMFS mission. The same program mentioned occasionally serving on research review committees for Sea Grant. Only one OAR laboratory mentioned collaboration, and that was with a tsunami hazard evaluation project for small harbors.

Examples of extension interaction were more limited than expected. Two OAR laboratories mentioned being involved with extension; one failed to provide examples of this interaction while the other mentioned educational outreach associated with coastal-inland flooding following a severe storm. One California NMFS laboratory would like more interaction with Sea Grant extension, but are limited on what they can do. This Director is of the opinion that Sea Grant programs in California do not provide extension in the traditional method of serving as a liaison between the research and the commercial and recreational fishery industry. Rather they appear to be concentrating on biodiversity, tourism, sustainability and the like. Other Directors, however, view that this is exactly the direction in which Sea Grant extension should be moving.

- **Do you envision additional collaboration with Sea Grant; if so in research, extension, or education?**

Three OAR facilities, including the two oceanographic laboratories and one of the NOS laboratories see opportunities for collaboration in all three areas. Potential areas for research include cross cutting topics such as coral reef conservation, mitigation of harmful algal blooms, climate change impact on coastal ecosystems, and coastal development. They believe collaboration in establishing research priorities would enhance the breath and reach of research portfolios and reduce duplicative efforts in research and communications. The far-reaching network of extension agents could assist with technology transfer, transitioning predictive tools into an operational mode, and communicating complex scientific information to policy makers.

Three of the NMFS laboratories also expressed willingness for enhanced collaboration. Some concerns were mentioned that Sea Grant is not adequately focused on fishery issues and the extension agents need

to assume more traditional extension activity of working cooperatively with the fishing industry community.

One of the NMFS Directors expressed no intent of working with Sea Grant whereas another NMFS Director and OAR Director saw very little opportunity for close collaboration. Even those Directors envisioning future collaboration, saw some difficulties. They cite the difficulty of moving funds from the state Sea Grant Programs and the NOAA Laboratories. Collaborative research is also limited because NOAA scientists need to bring their own funds and there is limited opportunity to acquire Sea Grant funding to cover research costs.

- **Is Sea Grant successful in furthering the goals and objectives of NOAA; if yes, can you provide specific examples?**

In research, examples of where Sea Grant furthered NOAA's goals included linking radar rainfall runoff models with biological and pollution models in estuaries and coastal zones, using aquaculture and invasive species research for policy development, and fishery research projects to help develop the scientific basis for managing fishery resources. Of the latter, specific examples include: tracking and trophic dynamics of jumbo squid, bio-economics of rockfish, and acoustic tracking of salmonid fisheries. Whereas much of the research between NOAA and Sea Grant researchers are complimentary, the transfer of research results into NOAA applications is often difficult.

The extension capabilities of Sea Grant are generally well recognized and appreciated within NOAA. Sea Grant was cited by one of the NMFS Directors for bringing together local fishers with NMFS scientists to provide information to the Fisheries Management Council. Sea Grant is also recognized as being very successful in the areas of marine education and ocean literacy. Two of the NMFS laboratories were less generous in their recognition of Sea Grant's contribution to furthering NOAA goals and objectives.

- **Do you view Sea Grant as being helping in meeting the objectives of your organization; if so, how?**

Not many examples were provided of where Sea Grant is useful in promoting the objectives of the various NOAA laboratories. One example was cited of Sea Grant's value in helping evaluate the effectiveness of the NOAA tsunami preparedness program. Another example was Sea Grant help in the national estuarine eutrophication assessment program where data are solicited from regional and local experts. It was also believed that NMFS could more effectively utilize Sea Grant research in applied fisheries and ecosystem-based management. The latter could be enhanced if a higher priority was placed on Sea Grant research directed toward specific NMFS management and policy issues. This could be done through funding priorities, encouraging researchers to address their work toward these issues, and having a more collaborative work arrangement between Sea Grant and NOAA researchers.

Sea Grant extension helps justify the national investment in weather radars and provides an independent evaluation process for judging the effectiveness of existing preparedness activities such as TsunamiReady. One Director expressed some frustration with extension in that Sea Grant capabilities are primarily concentrated in state programs whereas his laboratory addresses programs of national scope.

- **Have you found Sea Grant supported research projects to be a source of trained personnel in your organization?**

With the exception of the Knauss Fellows, few of the NOAA programs have utilized Sea Grant trained research personnel. A couple of Directors allowed that probably some Sea Grant trained personnel work in their laboratories but do not have the data to suggest how many.

- **Do you see merit in future discipline-focused workshops between NOAA and Sea Grant investigators?**

Of all the questions, this one received the most positive response. With the exception of two Directors, everyone thought a discipline-focused workshop to be a good idea. Such a workshop would provide the opportunity for cross-fertilization of talent and ideas, identify commonalities and avoid overlap in research planning. One Director suggested that for program planning, rather than research planning, these focused workshops should be between staff at the National Program Office levels. Two of the NMFS Directors saw little value in such a workshop. They cite that the academic and NOAA researchers are already quite familiar with the others work and there is frequent collaboration on research projects. Therefore, they see little to be gained.

- **Do you have any recommendations for ways that Sea Grant can further your organization?**

Several of the suggestions for Sea Grant furthering the efforts of a NOAA laboratory centered on funding. Suggestions included modifying the Sea Grant rules to allow NOAA researchers to compete for Sea Grant funding. Another is help to fund graduate students. Suggestions other than funding include exchanges involving Sea Grant scholars and NOAA research centers, using Sea Grant's local research focus to supplement NOAA's large-scale, regional ecosystem research, and finding ways to entrain Sea Grant research into management priorities of NMFS.

In the area of extension, suggestions include focusing Sea Grant extension on NOAA high priority activities, duplicate Sea Grant's successful ecosystem extension activities to climate interests, and mimic the Oregon and Washington approaches for establishing relationships of trust and influence with the fishing industry. Sea Grant needs to expand its research and outreach focus to include a broader constituency that believes Sea Grant's activities are critical to their interests and will lobby Congress to support them. Traditionally, the 'fishery' was extractive resource users (e.g. commercial and recreational fishing), but society has changed to include many other uses such as biodiversity, tourism, existence value, etc.

Simple actions can also help both the collaboration and the furthering of NOAA goals. As one NMFS Director said, "The local extension agent could get to know us and actively promote collaborations not only in extension but also in research and education."

- **How would you best describe Sea Grant?**

Of the eleven respondents, 8 viewed Sea Grant as a partner, ranging from a potential, or good but could be better, to a partner. Two view Sea Grant as a competitor for funding, and one viewed Sea Grant as no impact. Of the 8 viewing Sea Grant as a partner, only 3 cited examples of this partnership in the earlier questions.

## **Appendix F**

### **Summary of Comments from Interviewees**

Numerous interviews were conducted either face-to-face or over the telephone. Included were Hill staffers, both current and previous (John Rayfield, Bonnie Bruce, Eric Webster), NOAA senior management, both current and previous (Mary Glacken, Rick Spinrad, Louisa Koch, Eric Webster), OMB, current and previous (Stuart Levenbach, Emily Woglom), DOC and NOAA budget offices (Gene Lockwood-Shabat and Heidi Keller) and others (Margaret Leinen, Dan Walker).

These individuals obviously had different perspectives of Sea Grant. Several placed Sea Grant's troubles at the foot of OMB, whereas OMB and DOC considered the funding woes of Sea Grant was due to NOAA not being a strong champion of Sea Grant. Several commented that Sea Grant was a good program and a few felt that the Sea Grant model was working; others felt differently. When shown the Ross Heath funding graph (Figure 8), representatives from OMB/DOC believed that the interpretation is skewed by what was included or left out. They offered that:

- 1) If the big ticket items (e.g. satellites) were removed from NOAA's budget and only ORF (Operations, Research, and Facilities) were considered, the Sea Grant budget would look similar to the overall NOAA budget; and
- 2) If funding for the coastal ocean programs were also considered, the funding profile would be much different than presented. Except for the past four or five years, little drop off in funding for coastal issues would be found.

Those interviewed offered a wide range of thoughts and suggestions on why Sea Grant was not achieving broader success. These include:

#### **A. *Sea Grant as a Whole***

- a. OMB and the Appropriation side of Congress are thought to perceive Sea Grant as a 'local flavor' program since it is implemented through state programs. Although Sea Grant meets the needs of local constituents, it does not really comprise a national program. The beneficiaries are thought to be a large number of small local programs rather than the nation as a whole. It is also believed that OMB and the Appropriators see Sea Grant as an entitlement program or a pass-through program to the states to do whatever they want. Hence Sea Grant is viewed more like an earmark than a competitive program. The NOAA budget people, perhaps aware of OMB's reluctance to fund Sea Grant, have not requested additional funding for Sea Grant.
- b. Sea Grant is viewed as a collection of state and local programs rather than a national program, causing some in OMB to ask "what national benefit is being gained from Sea Grant?" The fact that Sea Grant is perceived as doing a good job in solving state and local issues protects it from budget cuts but its failure to address national problems is an impediment to increased funding.

- c. The current management model of Sea Grant shifts research funding decisions of what best serves the NOAA mission to the states level; some believe that funds are being wasted on Sea Grant research.
- d. There is a perception by some that the amount of funding to Sea Grant programs is due as much to timing as to merit. Those programs in existence from the early days of Sea Grant are thought to get more funding than the newer Sea Grant programs.
- e. Rather than addressing several issues, Sea Grant should focus on a single issue such as the coastal community adaptability to climate change.
- f. Sea Grant needs to demonstrate a return on investment and will need to quantify success tracked over time.
- g. Sea Grant has not done a good job of marketing itself in terms of demonstrating that it is greater than the sum of its parts. The number of publications is not viewed as a serious indicator of impact; trying to compete with NSF on number of publications could be counter-productive. Instead of showing the number of publications, Sea Grant should concentrate on its impact in meeting a national need. It is much easier to generate funding support for a program that is clearly serving needs than one simply doing research.
- h. With the formation of each new program in NOAA, there is a new line item in the budget. When building the budget, the money is allocated to the program most closely identified with a research task; the secondary player, regardless of the size of separation between the two programs, loses out. The NOAA budget is presented as a total initiative but how Sea Grant fits into this budget is not apparent. Building a budget is a bottom-up process. NOAA must first take the initiative and request new funding. In the past several years, NOAA has not done this for Sea Grant. There may be a tendency in NOAA to protect intramural research at the expense of extramural research.
- i. With few exceptions, the universities do not lobby for Sea Grant. In addition, the state and local match is very little. This counters the impression that stakeholders are committed to the success of Sea Grant.
- j. Whereas the current model is workable, there is recognition that a shift to regionalization could be beneficial; in the absence of changing the model, Sea Grant must be sold as a National program and as an integral part of NOAA's outreach and research.

## ***B. Extension and Education***

- k. The strength of the Sea Grant program is in extension and education. The strong and well-respected outreach is the area that Sea Grant can best support NOAA. This strength, which is under-emphasized by Sea Grant, is ideally positioned to complement other NOAA activities. Sea Grant extension should be seen as essential to NOAA as the vehicle of extending the results of NOAA research.
- l. Sea Grant needs to establish a niche that ensures that it is the lead player; extension/education is one area in which Sea Grant has a clearly defined lead role and should capitalize on this capability. Sea Grant should recast itself to focus on extension.
- m. Sea Grant needs to be seen as part of the National Coastal Initiatives. Without Sea Grant extension, the NCIs have no connectivity to NOAA managers.

### ***C. Research***

- n. By some in NOAA, Sea Grant is not viewed as a real research program, rather is viewed as a competitor.
- o. It is perceived that OMB does not consider research to be an important component to Sea Grant. OMB/DOC establishes new programs for coastal research rather than add money to Sea Grant budget. NOAA requests these new programs believing OMB has a prejudice against Sea Grant. The results are more competition for few research dollars. The OMB bias against Sea Grant has existed for so long that it has taken on cultural overtones.
- p. Sea Grant's research is not viewed as stellar science but rather as being static without the nimbleness to address emerging scientific issues. The research is viewed as "hundreds of mosaic tiles, without the big picture" and fails to address those issues thought important to OMB.
- q. The question of overlap among numerous coastal ocean programs within NOAA must be addressed. The lack of a clear distinction between the research missions of these programs is a problem with Sea Grant funding. Without clear definition, there is overlap in mission and funding. Establishment of new programs in NOAA is in part due to the question raised a few years ago of whether Sea Grant was supporting National priorities or if it was a collection of local programs.
- r. Sea Grant research is similar to other NOAA extramural programs and thus is a target of other programs for funding. Sea Grant's research should be restricted to well-defined, applied efforts that address local needs but ideally with a national application. It must be demonstrated to OMB/DOC that Sea Grant research is of a high priority at the state/local level. NOAA has not made this case for Sea Grant.
- s. Sea Grant funding woes are due to NOAA not requesting new funding for Sea Grant (OMB/DOC); NOAA has never taken ownership of Sea Grant. This may be due to the preference of NOAA to do its science in-house.
- t. Research in Sea Grant would fare better if it were managed by NSGO. Currently there is a loss of message and relevance for the program. If research were handled at the national level, there would be an enhancement of the connection of Sea Grant research and outreach activities to the mission of NOAA.
- u. Amount of funding per state program is considered sub-minimal

### ***D. Support in NOAA, DOC, OMB***

- v. Sea Grant is an orphan within NOAA and does not fit well within OAR. In a fairly recent study of NOAA's ocean programs, it was recommended by the committee to move Sea Grant to NOS. Sea Grant, however, indicated that it is a research-based program and would not fit well within NOS; therefore it did not move. One previous senior manager within NOAA believes that failure to move was a mistake. Others argue that Sea Grant should merge with the NOS Center for Sponsored Coastal Ocean Research.
- w. NOAA has very little flexibility in its budget and thus tends to view Sea Grant with some ambivalence and as a small program that is doing some nice things but is of a low priority in terms of funding. OMB is thought not to be highly supportive of research and would rather

put money into “actions” rather than research. Once the budget gets to the Hill, the amount of additional dollars that can be added is relatively small.

- x. The lobbying by Sea Grant Association has been a serious problem in the past. The SGA is occasionally seen as being self-serving and not a team player. This may be part of the reason for NOAA not being more supportive of Sea Grant.
- y. There is little that Sea Grant can do by itself to change the OMB and Congressional bias.

## Appendix G

### Alternate Sea Grant Models

In Chapter 3, Section B, alternative models for Sea Grant are mentioned. After considering the overall funding problems of Sea Grant, the way in which Sea Grant has operated over the past several decades, and the impressions that we have gained from responses to our questionnaires and to our interviews, the committee believed that it was worthwhile to consider possible alternate models for Sea Grant or perhaps ways in which the current model could be made more effective. Thus we attempted to “think outside the box” with additional models. In the following discussion and tables we consider some of the advantages and disadvantages of the current Sea Grant model and then look at several other possible models, again addressing some of their advantages and disadvantages. Those advantages or disadvantages considered unique to a particular model are denoted with an (U).

Each of the following alternate models would be a significant shift in the way Sea Grant does business. We emphasize that this is not a comprehensive analysis, but the results of a brief brainstorming session. In no way should the number of advantages vs. disadvantages listed here for a particular model indicate that there is a belief that advantages outweigh disadvantages for that model, or vice versa. Also, there is no prioritization among the advantages and disadvantages.

#### A. Maintaining the Current Sea Grant Model

The current Sea Grant model includes a balance of efforts directed toward research, outreach and education, with to a large extent that balance and decisions concerning how core funding is distributed undertaken at the local level. Some advantages and disadvantages of the current model are presented in the following table.

#### Maintaining the Current Sea Grant Model

Advantages	Disadvantages
Research targets local area and state needs.	Perception is that Sea Grant research is of limited use to NOAA’s mission (U)
Productive model (measured by research publication output)	Sea Grant not seen as a national program (U)
Research results are transferable beyond the originating Program	Current model removes limited dollars otherwise available for outreach and has not led to increased funding
Research is viewed by Sea Grant Directors to be critical to the overall success of their program. (U)	Inflation will make useful Sea Grant research unaffordable
Research supports young faculty and graduate student training	Sea Grant research is perceived by some as not being of the highest quality
Universities, states, and local constituencies feel that Sea Grant research addressing their needs is of high quality	Small Programs cannot effectively run research competitions (U)
Research encourages Universities to be partners with Sea Grant and provides credibility for the entire Sea Grant program within universities (U)	Sea Grant research is viewed as an entitlement program (U)
Many scientists currently conducting research	Sea Grant research is seen as insignificant at

relevant to coastal / marine issues were supported as students by Sea Grant	some Universities
	OMB feels research directed to local needs should be funded with local not federal dollars (U)

### **B. Aggregation and Synthesis of Sea Grant Research Outputs and their Impacts**

This model basically maintains the current model but would involve the National Sea Grant Office making as a major priority the aggregation and synthesis of Sea Grant research outputs and their impacts. This would be a significant step toward Sea Grant being viewed as a truly national asset and resource. To date Sea Grant has not adequately portrayed or represented either the high quality of Sea Grant research or its highly valuable national impacts. Some advantages and disadvantages of this model include the following.

#### **Aggregation and Synthesis of Sea Grant Research Outputs and their Impacts**

<b>Advantages</b>	<b>Disadvantages</b>
All the advantages of the current model	May not solve the entitlement problem
Little disturbance to local programs	Does not address the need for a national research focus
Brings some coherence to the research efforts	Involves added personnel time at the NSGO
Improves the perception of the quality of Sea Grant research	Does not address increased interaction with NOAA laboratories and other entities

### **C. Regionalization of all Aspects of a Sea Grant Program**

In this model a Sea Grant program would represent a region rather than having a separate Sea Grant program in the states as currently exists. A single Sea Grant program would thus represent multiple states, and decisions would be carried out on a regional level by a regional staff. Ideally, the delineation of these regions would be consistent with other coastal regions within NOAA or other such organizations. Some advantages and disadvantages of this model include the following.

#### **Regionalization of all Aspects of a Sea Grant Program**

<b>Advantages</b>	<b>Disadvantages</b>
Increase administrative efficiency - more dollars could go to research	States would be less happy to provide match, especially if other states in region balk
Ability to address larger-scale (regional or national scale) issues	May weaken Congressional base of support – looks less like a state earmark
Could address larger-budget issues	There are many mutually-inconsistent regionalization efforts and plans (U)
Could address more interdisciplinary projects	Likely tremendous resistance from current Sea Grant programs
Could answer perception of state entitlement program	University match and infrastructure support (office space and other services) likely to decline (U)

More efficient oversight by the NSGO	Local private match would likely decline (U)
May broaden Congressional base of support – looks less like a state earmark	Hard to run outreach regionally (U)
There are already regionalization efforts and plans (ocean action plan, NOAA, etc) (U)	Many issues are state-level or smaller; can't generate interest at the regional scale (U)
High quality specialized research selection panels can more easily be run	Perceived injustices in funding could occur
	It would weaken Sea Grant's unique niche of state- and local-level engagement (U)
	Would need to overcome inertia
	Local university capacity-building benefit of Sea Grant could be lost (U)

#### **D. Maintaining Current Sea Grant Programs for Outreach and Education but Managing Research Grants at the Regional Level**

The current model of providing extension and education to the local and state communities would continue to exist. All decisions regarding funding for research would be done at a regional level. An obvious advantage to this suggestion is to satisfy the question of entitlement, which is often raised against Sea Grant. There are other advantages and disadvantages. Many of these were considered in the previous section.

#### **Regionalization of Only Sea Grant Research**

<b>Advantages</b>	<b>Disadvantages</b>
Some small programs are too small to maintain an effective research program on their own	Could impact state match
Can address perception of state entitlement program	May weaken Congressional base of support
Consistent with NOAA's push for regionalization (U)	Inconsistent regionalization efforts (U)
Increased efficiency in oversight by national office	Resistance from current Sea Grant programs
Increase in efficiency in general	Could impact infrastructural support
Ability to address larger scale problems	Perceived injustices in funding
More opportunities for small states	
More money directed toward research	
Could address interdisciplinary projects more effectively	
High quality specialized research selection panels used	

### **E. Maintaining Current Sea Grant Programs for Outreach and Education but Managing Research Grants at the National Level**

The current model of providing extension and education to the local and state communities would continue to exist. All decisions regarding funding for research would be done at the national level. An obvious advantage to this suggestion is to satisfy the question of entitlement as well as that Sea Grant does not focus on national issues, which is often raised as a criticism against Sea Grant. There are other advantages and disadvantages. Many of these were considered in the previous section.

#### **Nationalization of Only Sea Grant Research**

<b>Advantages</b>	<b>Disadvantages</b>
Would address perception that Sea Grant is not a national program (U)	Could impact state match
Would address perception of state entitlement program (U)	May weaken Congressional base of support (U)
Some small programs are too small to maintain an effective research program on their own (U)	Resistance from current Sea Grant programs (U)
Increased efficiency in oversight by national office (U)	May not as adequately address local problems (U)
Increase in efficiency in general	Could impact infrastructural support
Ability to address larger, national scale problems (U)	Perceived injustices in funding
More opportunities for small states	
More money directed toward research (U)	
Could address interdisciplinary projects more effectively (U)	
High quality specialized research selection panels used	

### **F. Eliminating Research and Focusing on Outreach and Education**

Sea Grant has long profited from the inclusion of education and extension along with research. One option is the elimination of research in order to concentrate on Sea Grant's universally recognized strength of extension and education, which would still be managed at the local level. Some advantages and disadvantages of this model are given below.

#### **Elimination of Research and Focusing on Outreach and Education**

<b>Advantages</b>	<b>Disadvantages</b>
Strengthens and provides more money for outreach (U)	Threatens the status quo
Sea Grant could more easily be recognized as the extension arm of NOAA	Sea Grant would not be a well-rounded program (U)
NOAA and OMB already see the benefit of Sea Grant extension	Targeted research addressing local community needs would be lost (U)
Parts of NOAA would see Sea Grant more as a partner and less as a competitor for research dollars (U)	University lobbying for NOAA budget increase could be marginalized (U)

Administrative requirements of each Program would decrease	Loss of junior faculty and some graduate student research (U)
Sea Grant would not be seen as trying to be everything to everybody without sufficient funds to do all.	In some areas (coastal and near shore research), there's no significant alternative source of research funding (U)
	Elimination of research could relegate Sea Grant to a social science part of the university (U)
	Elimination of research would not guarantee growth in Sea Grant and might actually reduce funding to Sea Grant (U)

### G. Increasing Research Funding at the Expense of Outreach

The opposite consideration to E. above is to increase the funding of research at the expense of outreach. For this consideration, we assume that research would be increased to 70-80% of the core federal funding. The loss of significant federal funding for outreach could be compensated for by increased local funding. All of the efforts would be managed at the local level.

#### Increased Research Funding at the Expense of Outreach

Advantages	Disadvantages
All the advantages of option A, only more so	Does not address OMB's perception of Sea Grant research (U)
More rapid development of knowledge about coastal marine processes and issues	Largely takes away the component of Sea Grant most appreciated nationally (U)
More funding for graduate education and development of future scientists	Could result in loss of a critical piece of Sea Grant, the part which helps drive its success (U)
More funding for junior faculty who are under increasing pressure to receive grants	Concept would take a few years to shift to substantially more local funding (U)
University administrators are expected to be very supportive. This should lead to increased university support for NOAA/Sea Grant	High risk, assumes that local match could offset the loss of federal funding (U)
Local funding might be able to be obtained for outreach more easily than research	Threatens the status quo
Small programs will be able to run adequate research competitions, which they cannot do at present	Re-defines the essence of Sea Grant (U)
Increased numbers of publications will lead to better reputation for Sea Grant in academia	
Sea Grant will be able to do more of something it does well (peer-reviewed publications for an inexpensive price)	

## Appendix H

### Members of the Committee to Review Sea Grant Research

**Robert A. Duce**, Chair, is Distinguished Professor Emeritus of Oceanography and of Atmospheric Sciences at Texas A&M University, where he was Dean of the College of Geosciences from 1991 to 1997. From 1987 to 1991 he was Dean of the Graduate School of Oceanography, University of Rhode Island. He completed a Ph.D. in nuclear chemistry at MIT in 1964 and also served on the faculty at the Universities of Rhode Island and Hawaii. He is a member of the National Sea Grant Advisory Board and is Past-President of SCOR, of The Oceanography Society (TOS), and of the International Association of Meteorology and Atmospheric Sciences. He is an officer of the International Geosphere/Biosphere Program Scientific Committee and was Chair of the UN Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP). He has been a member of the NAS/NRC Ocean Studies Board and the Board on Atmospheric Sciences and Climate, is a National Associate of the National Academies and has chaired several NRC committees. He has over 280 publications in marine and atmospheric chemistry and was awarded the Rosenstiel Award in Marine and Atmospheric Chemistry. He is a Fellow of the AGU, AMS, AAAS and TOS.

**E. Gordon Grau** is Professor of Zoology and a member of the faculty of the Hawaii Institute of Marine Biology of the University of Hawaii's School of Ocean and Earth Science and Technology. He obtained a B.S. in Biology from Loyola College of Maryland, an M.S. in Science Teaching from Morgan State University and a Ph.D. in Biology from the University of Delaware, and was an NIH Postdoctoral Fellow at the University of California, Berkeley. His studies focus the environmental physiology and comparative endocrinology of euryhaline fish. He has served as the Director of the University of Hawaii Sea Grant College Program since 2000. He has also served as Distinguished Visiting Professor at the Physiology Department of the University of Alberta and at the Ocean Research Institute of the University of Tokyo. Professor Grau has also served on the Honolulu Charter Commission and was honored as a University of Hawaii Regents Medalist and as a Fujio Matsuda Scholar. He serves on the Board of the International Federation of Comparative Endocrine Societies and as President of the Sea Grant Association. He is the author of over 160 scientific papers and has served as mentor and graduate chair for more than 35 graduate students and postdoctoral fellows.

**Scott Nixon** is Professor of Oceanography and UNESCO/Cousteau Chair in Coastal Ecology and Global Assessment at the University of Rhode Island, where he has been on the faculty since 1970. He took his Ph.D. in systems ecology at the University of North Carolina- Chapel Hill in 1969 and has studied a variety of coastal ecosystems ever since. He served for 16 years as Director of the Rhode Island Sea Grant College Program and for many years as Co-Editor-In-Chief of *Estuaries and Coasts*, the journal of the Estuarine Research Federation. He has published over 100 scientific papers and served on numerous committees of the U.S. National Research Council, including the Ocean Studies Board, the Everglades Restoration Science Review Committee (vice-chair), the Florida Keys Carrying Capacity Model Review Committee (chair), and the Coastal Louisiana Restoration Plan Review Committee. He has been recognized with several awards, including the Ketchum Award for excellence in coastal research from the Woods Hole Oceanographic Institution, the New England Estuarine Research Society Lifetime Achievement Award, and the Odum Award from the Estuarine Research Federation for lifetime achievement. He is a National Associate of the National Academies. He has graduated over 30 M.S. and Ph.D. students.

**Nancy N. Rabalais** is the Executive Director of Louisiana Universities Marine Consortium and a Professor. Dr. Rabalais' research interests include the dynamics of hypoxic environments, interactions of large rivers with the coastal ocean, estuarine and coastal eutrophication, benthic ecology, environmental effects of habitat alterations and contaminants, and science policy. Dr. Rabalais is an American Association for the Advancement of Science Fellow, a National Associate of the National Academies, past Chair of the Ocean Studies Board of the National Research Council, a Past President of the Estuarine Research Federation, and an Aldo Leopold Leadership Program Fellow. She received the 2002 Bostwick H. Ketchum Award for coastal research from the Woods Hole Oceanographic Institution, the 2008 Ruth Patrick Award from the American Society of Limnology and Oceanography, the 2008 Clarke Prize from the National Water Research Institute, and several research and environmental awards for her work on the causes and consequences of Gulf of Mexico hypoxia. She earned a

Ph.D. in Zoology from the University of Texas at Austin in 1983, and her B.S and M.S. in Biology from Texas A&I University, Kingsville.

**William L. Stubblefield** is a County Commissioner of Berkeley County, West Virginia, one of the fastest growing counties in the U.S. Rear Admiral Stubblefield retired as Director of NOAA's Ship and Aircraft Operations and Director of the NOAA Commissioned Corps. Following his retirement, he was elected an officer on the National Board of Directors of the Military Officers of America Association. During his 35 years as a commissioned officer in the Navy and NOAA, he authored over 30 scientific papers on near-shore marine processes, commanded oceanographic vessels, and severed in several senior positions in NOAA. He has a PhD from Texas A & M University. He is married to Dr. Bonnie A. McGregor who was the Associated Director and the Director of the Eastern Region of the U. S. Geological Survey.

**Judith S. Weis** is Professor, Department of Biological Sciences, Rutgers University, Newark NJ, and served as Associate Dean. She also has been an American Association for the Advancement of Science (AAAS) Congressional Science Fellow, Program Director at NSF, and visiting scientist at EPA. She has published ~200 refereed papers, focusing mainly on stresses in estuaries and their effects on organisms, populations and communities. She has just published her first book, "Salt Marshes: A Natural and Unnatural History". She served on the Board of Directors of the Society of Environmental Toxicology and Chemistry (SETAC), Association for Women in Science (AWIS) and American Institute of Biological Sciences (AIBS); Chair of the Biology Section of AAAS; and President of AIBS. She is a fellow of AAAS, served on advisory committees for EPA, and has been a member of the Marine Board of the National Research Council. She serves on the National Sea Grant Advisory Board.

## Appendix I

### Sea Grant Research Funding as Recorded by NIMS

Sea Grant's legislation describes three programmatic elements of the National Sea Grant College Program: the state network of programs, national Fellowship programs, and regional or national strategic investments (NSIs). NIMS tracks grant awards and project activities in all three areas.

Funding that goes directly to the state programs in the form of Omnibus grants is recorded in NIMS as "SG-CORE" funding, and is further broken down by type of activity (Research, Education, Management, Extension, Communication).

Fellowship grants are recorded in NIMS by the name of the Fellowship Program (e.g., Dean A. Knauss Fellowship), and are categorized as Education. Sea Grant and NOAA Fisheries also jointly fund Graduate Fellowship Programs for Ph.D. students in population dynamics and marine resource economics.

The term NSI is sometimes used as a shorthand term for national competitions run by the national office, but the term is really broader than that. All other grants of Sea Grant appropriated funds are NSIs. They are labeled in NIMS as "SG-" plus a shorthand name for the strategic investment (e.g., "SG-BIOTECH", "SG-FET" [for Fisheries Extension Enhancement], "SG-REGIONAL"), and broken down further by type of activity (Research, Extension, Education, Communication).

When this report discusses all Sea Grant funding, it is referring to all of the above. When it discusses Sea Grant core funding, it is NOT including Fellowship or NSI funding.

The legislation also allows Sea Grant to accept money from other federal sources and pass it through as grants to the Sea Grant Programs or others. These funds are called "pass through" funds and are recorded in NIMS with shorthand names for the source and purpose of the pass through funding. Pass through funds are not considered by NIMS to be Sea Grant funds because they are not part of the Sea Grant appropriations.

Figure I-1 below presents the sum of core, NSI, and pass-through research funding since 1995. **These data do not include other research funds that individual programs obtain directly from sources outside Sea Grant.** From this figure it appears that the total Sea Grant research funding handled through the NSGO from 1995 to 2002 was fairly constant, but from 2003 to 2007 this total has decreased.

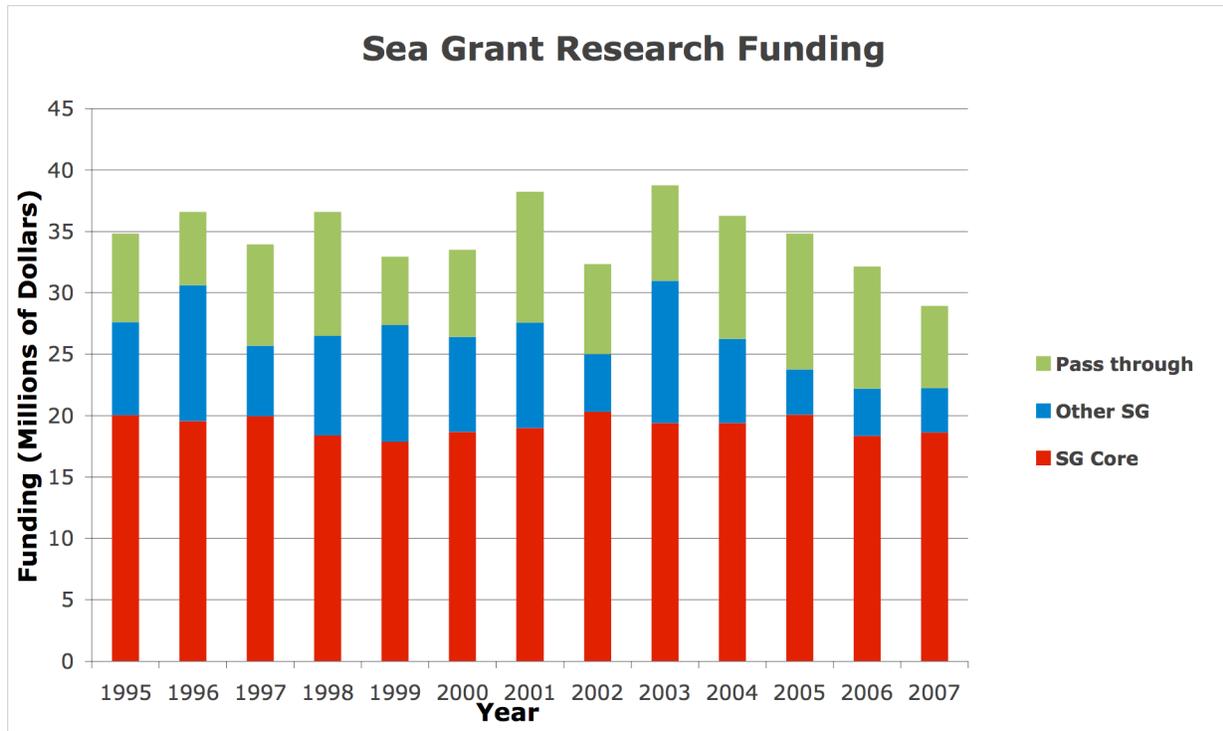


Figure I-1. Core, NSI, and pass-through research funding, according to NIMS.

## **Appendix J**

### **Acknowledgements**

We would like to acknowledge the many individuals who worked with us in the development of this report. Of particular importance is Dorn Carlson of the National Sea Grant Office, whose efforts have been Herculean. He worked with us during his vacations, on weekends and evenings, while also undertaking his many other responsibilities at the National Office. His willingness to answer many questions, dig out obscure data, and make valuable suggestions has been invaluable.

We thank the many Sea Grant program directors and NOAA lab directors for completing our sometimes-lengthy questionnaires. Their thoughtful responses were critical in the development of this report.

We also thank the many individuals who we interviewed in person or on the telephone. These included persons (in current and previous positions) representing Congressional staff, the Office of Management and Budget, NOAA and Department of Commerce budget offices, senior managers in NOAA, and agencies outside of NOAA but possessing knowledge of Sea Grant, such as NSF. Their candid responses became a critical part of our discussion and conclusions

We appreciate very much the Sea Grant Association and the Sea Grant directors who provided up-to-date information on research funding and publications so that the most accurate and recent information was available to us. Darren Lerner and Mary Donohue at Hawaii Sea Grant and Cyndi Murray at the National Sea Grant Library at the University of Rhode Island were particularly helpful and diligent in these areas.

And finally we must thank Leon Cammen, Director of the National Sea Grant Office and many other staff members for their support throughout this effort. The arrangement of travel, scheduling of interviews and meetings, etc. were handled professionally and promptly. Leon in particular provided insight, advice, and helpful guidance during our deliberations, which we greatly appreciate. He encouraged us to think “outside of the box” in our considerations and recommendations.

Communications, Engagement  
and  
Partnership Opportunities  
with NOAA Line Offices

A Report to NOAA's  
National Sea Grant Advisory Board

**August 2009**

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Appendix 1. Report Committee Background

Appendix 2. Prior Reports, Recommendations and Other References

Appendix 3. Hays/Dunnigan/Grau Interviews

## Chapter 1 Executive Summary

The National Sea Grant Advisory Board, at its 2008 Baton Rouge meeting, established a Communication/Engagement Committee. The Board Chair later modified the committee charge to include revisions and recommendations regarding partnership opportunities with NOAA line offices. The original charge and the revision are in Chapter 2.

The Committee charged with writing this report has extensive experience with the issues, and includes three previous Sea Grant Advisory Board Panel chairs and the current Advisory Board vice-chairman, as well as the Board's current Communication liaison and the Board's current and past Extension liaison, and a member of NOAA's Science Advisory Board. Appendix 1 contains the background of the committee members.

Over the last decade the federal funding of Sea Grant has decreased in terms of buying power. The National Sea Grant office has decreased in FTE staff from 23 in 2005 to 15 today. In the areas of Communications and Extension the decrease is even more pronounced: communications FTEs have decreased from three, in 2005, to one currently; extension and education FTEs have decreased from three in 2005 to one in 2009. This is a 67% decrease.

The NSGO staff is overloaded with diminished staffing along with increased NOAA and OAR requirements. **Sea Grant cannot continue to perform all of its current activities at its reduced staffing and funding levels. The NSGO and Sea Grant Advisory Board should review the full range of NSGO activities and determine which could be terminated, so new opportunities could receive investments.**

This report includes a series of short term and long term recommendations which could enhance the future of Sea Grant.

This report includes ten (10) recommendations in the area of communications:

<u>Recommendation Type</u>	<u>Recommendation</u>	<u>Responsible Party</u>
Short	1. Technology efficiency	NSGO, SGA
Short	2. Added communications staff member	NSGO
Short	3. Overall NOAA investments	NSGO, NOAA
Short	4. Added Knauss Fellow	NSGO
Short	5. "Friends of Sea Grant"	NSGO, Board, SGA
Short	6. University identification	NSGO, NOAA, SGA
Short	7. Collaboration	NSGO, SGA

Short	8. Network wide system	NSGO, Board, SGA
Short	9. NIMS	NSGO, SGA
Long	10. Reestablish Media relations office	NSGO, SGA

This report further includes the ten following recommendations in the area of engagement.

<u>Recommendation Type</u>	<u>Recommendation</u>	<u>Responsible Party</u>
Short	1. Staff SAB engagement report <b>urgent</b>	NSGO, OAR
Short	2. Added Knauss Fellow	NSGO
Short	3. Climate Extension	NSGO, Board, OAR
Short	4. Regional priority	NSGO, Board, OAR
Short	5. SAB engagement demonstration	NSGO, Board, OAR, SGA
Short	6. Annual administrator report/meeting	NSGO, Board, OAR
Short	7. NOAA services	NSGO
Short	8. Cost effective alternatives	NSGO
Short	9. Modify regional grants	NSGO
Long	10. Re-establish engagement staff	NSGO

In addition, interviews with AA's Jack Hays (NWS), Jack Dunnigan (NOS), and Gordon Grau, SGA president resulted in the following fourteen (14) comments, suggestions and opportunities that should be pursued jointly by the NSGO, the Board and OAR.

Hayes/Dunnigan/Grau Recommendations:

Hayes

<u>Recommendation</u>	<u>Responsible Party</u>
1) The NSGO should participate in the NWS/OAR Summit, (scheduled for this fall). Sea Grant should be a focus.	NSGO, OAR
2) Individual Sea Grant programs, should review the NWS CSTAR program as an opportunity for developing coordination with NWS.	NSGO, SGA
3) NWS supports the concept of AA's developing a joint climate extension program.	NSGO, OAR
4) NWS would support establishing joint positions at Regional Centers, based on available funds.	NSGO, OAR, SGA

## Dunnigan

<u>Recommendation</u>	<u>Responsible Party</u>
1) NOS would like to have a NOS/OAR Summit, (they have not had one in several years). Sea Grant should be a focus.	NSGO, OAR
2) NOS has concerns over Sea Grant's responsiveness and cost/OH rates, and Sea Grant's ability to respond to NOS funding opportunities.	NSGO, SGA
3) NOS believes that a joint Climate Extension proposal is possible, however needs to be defined better.	NSGO, OAR
4) Regional demonstration needs to incorporate "lessons learned."	NSGO, SGA
5) Marine Hydrology and Marine Transportation are areas of huge need and opportunity, and should be jointly explored.	NSGO, SGA
6) The FY 12 Budget is the next opportunity for funding, and climate will likely be the principal area for funding. Joint projects should be discussed at the Summit cited in 1) above.	NSGO, OAR

## Grau

<u>Recommendation</u>	<u>Responsible Party</u>
1) Supports the Sea Grant Academy concept. This is consistent with things SGA is trying to do.	NSGO, SGA
2) Supports funding of an additional NSGO communications position.	NSGO
3) When asked what are the priorities for the NSGO, and where reprogramming could take place, indicated top priorities were Communications, Engagement and Evaluation.	NSGO
4) Was pleased with recent \$4 M Sea Grant Climate Adaptation funding, and cited need for a strong Communications/Engagement element.	NSGO, SGA

In closing, our committee believes that the implementation of the recommendations above and the follow up of the Hayes/Dunnigan/Grau Comments, suggestions, and opportunities are critical to the long term viability of Sea Grant.

## **Chapter 2 Committee Charge**

The Communications/Engagement Committee, a “Board initiated Task Committee” of the NSGAB, was established by the Board at its fall 2008 meeting. Membership includes Frank Kudrna, chairman, Peter Bell, John Woeste, Jeff Stephan and Nancy Rabalais.

The committee is charged with reviewing and utilizing previous reports, including, but not limited to: the Byrne Report, the Alden Report, the SAB EOE Report, the Steve Whitman Report, and the communications engagement portions of the Duce Report.

The Committee will make short term recommendations based on currently available resources and long term recommendations based on future potential resources. The Committee will have two to four conference calls and two face-to-face meetings, and then provide a final report to the full NSGAP for adoption at their Aug/Sept meeting in Seattle.

The report will answer these questions:

Q. What recommendations from previous reports are still appropriate and unmet?

Q. How can Sea Grant become fully engaged within NOAA?

Q. What specific steps should Sea Grant take to implement the SAB Extension/Outreach/Education report within Sea Grants current budget? What additional steps could be taken if new resources become available?

Q. How should Sea Grant at its current budget level invest in Communications and Engagement?

Q. At future increased levels of funding, how should Sea Grant expand Communications and Engagement activities and what are the priorities?

The committee was further charged with interviewing Jack Dunnigan and Jack Hayes, AA’s respectively of NOAA’s NOS and Weather Service, to determine in what areas and under what circumstances they would participate and cost share various activities.

Additionally the Committee chose to interview Gordon Grau, SGA President.

## **Chapter 3**

### **Previous Reports, Recommendations and Outcomes**

The Communications/Engagement Committee of the National Sea Grant Advisory Board (NSGAB) was charged to: (1) review and utilize several reports that previously reviewed and evaluated a broad range of issues, constraints and opportunities that are associated with the goals of extending the impacts and benefits of the many research, education, outreach, communications, engagement and extension products and services of the National Sea Grant College Program (NSGCP) and NOAA; (2) ensure the growth and sustainability of the political and financial support for the NSGCP; (3) review and, to the extent possible, determine the disposition, implementation and outcomes of the recommendations and observations of these prior reports.

The reports reviewed and considered by the Communications/Engagement Committee included the following:

“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 [Byrne Report]

[http://www.seagrant.noaa.gov/GreenBook/gb\\_documents/pdf\\_otherfiles/byrne\\_report.pdf](http://www.seagrant.noaa.gov/GreenBook/gb_documents/pdf_otherfiles/byrne_report.pdf)

“Building Sea Grant: The Role of the National Sea Grant Office”; June 2002; The National Sea Grant Office Review Committee of the National Sea Grant Review Panel [Duce Report]

[http://www.seagrant.noaa.gov/GreenBook/gb\\_documents/pdf\\_otherfiles/ducereport.pdf](http://www.seagrant.noaa.gov/GreenBook/gb_documents/pdf_otherfiles/ducereport.pdf)

“Positioning Sea Grant: An Integrated National Communications Plan 2003-06”; Steve Wittman; March 2003 [Wittman Plan]

[http://www.seagrant.noaa.gov/other/positioning\\_sea\\_grant\\_an\\_integrated\\_national\\_communications\\_plan\\_2003.pdf](http://www.seagrant.noaa.gov/other/positioning_sea_grant_an_integrated_national_communications_plan_2003.pdf)

“Communicating for Success: A Review of the National Sea Grant Communications Activities”; December 2004; Sea Grant Communications Review Task Force [Alden Report]

[http://www.seagrant.noaa.gov/GreenBook/communicating\\_for\\_success.pdf](http://www.seagrant.noaa.gov/GreenBook/communicating_for_success.pdf)

“National Sea Grant Office Response to: Positioning Sea Grant: An Integrated National Communications Plan (“Wittman Plan”)”; No Publication Date; National Sea Grant Office [NSGO Response To Wittman Plan]

“NSGO Implementation Plan for Summary Recommendations of the Sea Grant National Communications Task Force”; No Publication Date; National Sea Grant Office [NSGO Response to Alden Report]  
[http://www.seagrants.noaa.gov/GreenBook/nsgoresponse\\_torecommendations.pdf](http://www.seagrants.noaa.gov/GreenBook/nsgoresponse_torecommendations.pdf)

“Engaging NOAA’s Constituents: A Report from the NOAA Science Advisory Board; Putting the pieces together to create impacts” (August 2008; NOAA Science Advisory Board Extension Outreach and Education Working Group) [Engaging NOAA’s Constituents SAB Report]  
[http://www.sab.noaa.gov/Reports/EOEWG/EOEWG\\_Final\\_Report\\_03\\_20\\_08.pdf](http://www.sab.noaa.gov/Reports/EOEWG/EOEWG_Final_Report_03_20_08.pdf)

**I. “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 [Byrne Report]**

The National Sea Grant Review Panel (NSGRP) in consultation with the then Director of the National Sea Grant College Program, Dr. Ronald J. Baird, requested a review of the National Sea Grant College Extension Program in early 2000. This review was the first of its type in Sea Grant’s 31-year history, and was viewed as one of the most important activities that the Sea Grant community would undertake. Dr. John V. Byrne was appointed in February 2000 as the Chair of the National Sea Grant Extension Review Panel (Panel). The report entitled “A Mandate to Engage Coastal Users Review Of The National Sea Grant College Extension Program And A Call for Greater National Commitment To Engagement” (Byrne Report) was submitted to the NSGRP and the NSGCP Director in November, 2000.

In his November, 2000, letter of transmittal of the Byrne Report to the NSGRP and the NSGCP Director, Dr. Byrne indicated, “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.”

The Byrne Report included 20 recommendations to increase the effectiveness of University-based extension services in coastal and marine areas; to guide the NSGCP in considering its future activities, role and responsibilities; and to advise NOAA senior management with respect to the Agency’s emerging need for

greater engagement with its constituents and the public, and Sea Grant's readiness, capacity and capabilities to lead such an initiative.

The Byrne Report provided the following summary of its 20 recommendations (pp. 8-9):

### **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

## **II. "Building Sea Grant: The Role of the National Sea Grant Office"; June 2002; The National Sea Grant Office Review Committee of the National Sea Grant Review Panel [Duce Report]**

The Duce Report identified six "major issue areas" that required an in-depth evaluation to address the Charge given to the Duce Committee. These issue areas also embraced some themes that are similar in context to elements of the Charge given to the Communications and Engagement Committee, including "communications and marketing" and "partnerships, both in and out of NOAA." (p. 18) Significant topics of attention in the Duce Report included "Enhancing Congressional Awareness and Funding;" (p. 20) "Enhancing Partnerships," including "Opportunities for Joint Initiatives," "Developing Regional Programs," and "Expanding Extension Opportunities;" (pp. 25 to 27) and "Strengthening Communications and Public Awareness" including "Promoting Sea Grant," "Generating an Information System," and "Enhancing the Sea Grant Web Site."

(pp. 28 – 30) Moreover, many of the 21 recommendations from the Duce Report addressed topics that are relevant to elements of the Charge to the Communications and Engagement Committee. The Duce Report summarized its 21 Recommendations in 6 elemental points, including that “The NSGO must . . . Provide leadership in communicating the national Sea Grant agenda, the achievements, and the opportunities of Sea Grant to Congress, the Administration, and the public,” and “Continue to seek adequate funding to effectively carry out the functions of the National Sea Grant Office utilizing the findings of this report.” (p. 41)

Four of the eight “Key responsibilities of the NSGO” as described in the Duce Report relate to Communication and Engagement and include: (p. 17)

*“Information and Communication.* The NSGO is responsible for gathering, synthesizing, and disseminating both management and programmatic information. This information must be presented in a variety of forms to a variety of audiences, including the state programs and program participants, a broad range of scientific and educational interests, NOAA/DOC, other federal agencies, Congress, the media, and a wide range of other external clientele;

*“Marketing.* The NSGO must actively promote Sea Grant. This is a key ingredient for ensuring the long-term viability of Sea Grant while also providing a necessary feedback mechanism. Coordination with the individual state programs is essential to meet this responsibility;

*“Capacity Building.* The NSGO must be continuously concerned with the vitality of the Sea Grant enterprise. In some cases this involves identifying problems at a state program level and assisting in remedial efforts. More often it is the sharing of best management practices and providing workshops and training in areas of program-wide need. The NSGO must be constantly focused on building the capabilities of the network as a whole as well as each component within it;

*“Broad Support and Service to NOAA and DOC.* The NSGO has a broad support and service function for its line office in NOAA, Oceanic and Atmospheric Research (OAR), as well as for NOAA and the Department of Commerce. At a modest level, this service is both appropriate and healthy for the NSGO and for its personnel. It also is a function that can be easily misused.” (p. 17)

Key recommendations of the Duce Report associated with elements of the Charge to the Communications and Engagement Committee include: (p. 41)

Recommendation 2: The NSGO, in partnership with NSGRP, SGA, and NOAA, should continue to develop a cohesive, coherent strategy to raise the awareness and deepen the appreciation of Sea Grant by Congress and the Administration.

Recommendation 5: The NSGO, in consultation with the SGA, should continue to develop joint national initiatives with the NOAA Line Offices that will focus expanded university efforts on critical marine issues central to NOAA's current and future needs. The NSGO should also seek opportunities to develop joint initiatives.

Recommendation 6: The NSGO also should seek opportunities to develop joint initiatives with other federal agencies, professional scientific organizations, and foundations with strong marine science missions.

Recommendation 7: The NSGO should consider the potential for major regional initiatives by [1] Synthesizing the principal results from the recent reports and plans in this area and [2] Developing a strategy for new funding resources.

Recommendation 10: The NSGO should continue to take an active leadership role, with the SGA and the NSGP Communicators, in the development and aggressive implementation of a comprehensive and marketing strategy for promoting the NSGCP.

Recommendation 11: The NSGO, in partnership with the Sea Grant network, should provide leadership and support for the development and utilization of a network-wide data and information system for cataloging and tracking technical information, accomplishments, and general information about Sea Grant investments in research, outreach, and education.

Recommendation 12: The NSGO, in partnership with the state programs, should provide leadership in developing and maintaining a web site that is attractive, easily navigable, readily accessible, up to date and highly informative about the NSGCP.

Recommendation 17: Sea Grant should remain within NOAA/OAR, and NOAA should specifically charge OAR with broad responsibility for education and extension activities.

The Duce Report concludes that "If the recommendations in this report are to be carried out successfully, a number of significant changes will be required – changes not just in administrative structure or in the ways that tasks are carried out, and not just in the operations of the National Sea Grant Office. Perhaps most importantly this will require changes and improvements in the overall approach within the entire National Sea Grant College Program and the individuals who comprise it. The satisfactory implementation of these recommendations requires that all the essential partners in Sea Grant - the National Office personnel, the critical science, education, communications, and extension personnel at the state programs, the National Sea Grant Review Panel, and the administrators and staff within NOAA and DOC - work together in

a cooperative and proactive manner with a common goal." (p. 41)

The NMRP was conceived and was in operation prior to the Duce Report.

### **III. Wittman Plan "Positioning Sea Grant: An Integrated National Communications Plan 2003-06"; Steve Wittman; March 2003 [Wittman Plan]**

The first of the five "Objectives" of the Wittman plan is to provide Sea Grant with a blueprint for excelling in communications. That is, "To enhance Sea Grant's internal/external national communications capability to ensure coordination among NSGO, NOAA, SGA, NMRO and Sea Grant network communications efforts, and provide timely, consistent messages to targeted audiences on a sustained basis." (p. 9)

The "Situation Analysis (2002)" that influenced the Wittman Plan indicated "A comprehensive federal/national strategy for conveying the Sea Grant story is long overdue . . . By clearly articulating the Sea Grant story and conveying a unified vision, Sea Grant has the opportunity to greatly increase its stock with a variety of national audiences . . . In sum, Sea Grant must strive to demonstrate and communicate its relevance and effectiveness in addressing critical ocean, Great Lakes and coastal issues and opportunities, and how this benefits the rest of the nation. This will require a cohesive, consistent, timely and sustained national-level program marketing effort involving contributions from all elements of the Sea Grant network. This involves three interrelated considerations of national communications capability." (p. 6)

The key recommendations of the Wittman Plan are listed here to document the history, significance and principles of this initiative:

**"• *Sea Grant needs to establish a national-level capability to collect, synthesize and deliver program and issue-oriented information.***

Individual Sea Grant programs produce an abundance of information on program activities and accomplishments that is generally very effectively communicated within their respective states or region, yet this information often fails to get assimilated and communicated at the national level. Moreover, much of this information has already been compiled and summarized in the briefing books prepared for Program Assessment Teams (PATs) over the past four years. This goldmine of information has yet to be tapped. (p. 6)

**"• *Sea Grant needs a centralized online program information database capable of searching and compiling information from multiple programs and summarizing it by topic.***

Today's congressional staffers, federal agency and Administration officials, national news media, NGOs, and interested constituents are increasingly likely to turn first to the Web for information on

any organization or topic. All state Sea Grant programs, the SGA, National Sea Grant Library and the NMRO have Web sites, and currently the NSGO is developing its own Web site (formerly hosted by Maryland Sea Grant). Recently, the NSGO inaugurated a long-needed search capability that provides access to more than 25,000 Web pages of Sea Grant information network-wide. However, the somewhat random resulting list of information is likely to be of limited usefulness to national-level audiences." (p. 7)

***"• The NSGO needs to initiate a comprehensive review and evaluation of the cost effectiveness of its present national communications efforts and project expenditures and implement necessary changes.*** Over the years, Sea Grant has attempted—with varying degrees of success—to establish national vehicles for effectively communicating the program's activities, products and accomplishments both internally and externally." (p. 7)

#### **IV. "Communicating for Success: A Review of the National Sea Grant Communications Activities"; December 2004; Sea Grant Communications Review Task Force [Alden Report]**

"In April 2003 the Sea Grant Communications Review Task Force (Task Force) was appointed by the Chair of the National Sea Grant Review Panel and the President of the Sea Grant Association. The Task Force was charged by Dr. Ronald C. Baird, Director of the National Sea Grant College Program (NSGCP), to conduct a strategic review of three national communications activities of the NSGCP: the NMRP, the NSGL and the Sea Grant Abstracts. The Task Force was asked to examine the relevance of each of the programs in fulfilling Sea Grant's mission in law: The prompt dissemination of knowledge as defined in Sec. 1211(b) and Sec. 1123(c)(4)C of the Sea Grant Act of 2002. Dr. Baird requested that the Task Force review:

- ways to improve the cost-effectiveness and delivery of each of these products and services;
- how to better integrate the projects with network operations including place in the organization, funding, grant responsibility, management and accountability;
- whether additional technical reviews (TATs) of specific operations would be helpful; and
- make any other recommendations about the projects and their value added to Sea Grant." (p. 9)

The following 23 "Summary Recommendations" are taken from the Alden Report: (pp. 45-46)

## **Summary Recommendations**

### **Sea Grant National Communications Task Force**

#### **General**

1. The Task Force recommends that the Sea Grant Network institutionalize a process for periodic updating and modification of the 2002 National Communications Plan "Positioning Sea Grant: An Integrated National Communications Plan 2003-2006."
2. The Task Force recommends that the National Sea Grant Office designate one person to be responsible for effective national communications.
3. The Task Force recommends that continued priority be given to using the one percent money in the Sea Grant budget to fund the National Sea Grant Library and the National Media Relations Program.
4. The Task Force recommends regular outside review of both the National Sea Grant Library and the National Media Relations Program.
5. The Task Force recommends that the Sea Grant Association's national communications activities be closely coordinated with the Network's national communications program.

#### **Sea Grant Abstracts and National Sea Grant Library**

6. The Task Force recommends cessation of the publication *Sea Grant Abstracts*.
7. The Task Force recommends that the Communications Steering Committee, aided by the National Sea Grant Office national communications leader, develop and implement a transition plan for publicizing the Sea Grant Network's products after the cessation of the publication *Sea Grant Abstracts*.
8. The Task Force recommends that the National Sea Grant Office national communications leader and the Chair of the Communications Steering Committee lead a re-examination of the Network's projected long-term needs for national communications products.
9. The Task Force finds that the National Sea Grant Library provides an invaluable service to Sea Grant and to the users of Sea Grant information.
10. The Task Force recommends that National Sea Grant Office national communications leader provide the National Sea Grant Library with a point of contact, advocacy and integration into the overall activities of the national communications program.
11. The Task Force recommends that attention be given to the management structure and positioning of the National Sea Grant Library within the University of Rhode Island library system.

12. The Task Force recommends that a National Sea Grant Library Advisory Committee be formed.

13. The Task Force recommends that the membership of the Communications Steering Committee should be expanded to include the National Sea Grant Library Manager.

14. The Task Force recommends that National Sea Grant Library staffing be increased both for fulltime employees and for contracted services as needed to meet the additional responsibilities that result from cessation of the publication *Sea Grant Abstracts*.

15. The Task Force recommends that the Sea Grant Network put a high priority on complete and timely submissions to the National Sea Grant Library so that its collection reflects the comprehensive products of the National Sea Grant College Program.

16. The Task Force recommends that an upgrade of the National Sea Grant Library website be given a high priority.

17. The Task Force recommends that a technology audit be undertaken of all National Sea Grant Library computers, peripheral equipment and software and that a high priority be given to implementing necessary technology upgrades.

### **National Media Relations Program**

18. The Task Force concurs with the Technical Panel's recommendation that a media relations function for the National Sea Grant College Program is important.

19. The Task Force recommends that a National Media Relations Program to serve the National Sea Grant College Program be re-established at the earliest possible moment.

20. The Task Force recommends that the National Media Relations Program be located in the office of a non-governmental organization in the metropolitan Washington, DC area.

21. The Task Force recommends that a National Media Relations Advisory Committee be reestablished.

22. The Task Force recommends that responsibility for the National Media Relations Program be shared by the National Media Relations Director, the National Sea Grant Office and the host non-governmental organization with advice and guidance from the National Media Relations Advisory Committee.

23. The Task Force recommends that a National Media Relations Director and an Administrative Assistant be hired for the National Media Relations Program.

The "Conclusion" of the 23 "Summary Recommendations" of the Alden Report indicated (p. 46) "If the recommendations made in this report are implemented, the Sea Grant story in all its dimensions will be able to be told – and to be heard. The Sea Grant story will be put forward in many ways: through good online access to scientific results, through organizing and participating in media events and through factual and professional stories in a myriad of media for the general public."

**V. "National Sea Grant Office Response to: Positioning Sea Grant: An Integrated National Communications Plan ("Wittman Plan")"; No Publication Date; National Sea Grant Office [NSGO Response To Wittman Plan]**

The NSGO Response to the Wittman Plan indicates the initiatives that have been undertaken by the NSGO to implement the various provisions and recommendations of the Wittman Plan. Nevertheless, it is difficult to reasonably ascertain the extent, degree, effectiveness, magnitude, variability or success of such implementation. Therefore, given contemporary circumstances that affect the future of the NSGCP, it is important that a joint review of the NSGO Response to Wittman Plan, and a joint evaluation of the implementation of the Wittman Plan provisions and recommendations, and of the Alden Report recommendations, should be accomplished at an early opportunity through a joint effort of the Sea Grant Communications Network and the NSGO.

**VI. "NSGO Implementation Plan for Summary Recommendations of the Sea Grant National Communications Task Force"; No Publication Date; National Sea Grant Office [NSGO Response to Alden Report]**

The NSGO Response to Alden Report indicates the initiatives that have been undertaken by the NSGO to implement the 23 recommendations of the Alden Report. Nevertheless, it is difficult to reasonably ascertain the extent, degree, effectiveness, magnitude, variability or success of such implementation. Therefore, given contemporary circumstances that affect the future of the NSGCP, it is important that a joint review of the NSGO Response to Alden Report, and a joint evaluation of the implementation of the Alden Report recommendations, and of the Wittman Plan provisions and recommendations, should be accomplished at an early opportunity through a joint effort of the Sea Grant Communications Network and the NSGO.

**The following is excerpted from the "NSGO Response to the Alden Report":**

**NSGO Implementation Plan  
For Summary Recommendations  
of the Sea Grant National Communications Task Force**

“NOAA’s National Sea Grant Office (NSGO) is pleased to present the Implementation Plan for the Sea Grant Communications Review Task Force report *Communicating for Success*.

([http://www.seagrants.noaa.gov/other/greenbook\\_doc/communicating\\_for\\_success.pdf](http://www.seagrants.noaa.gov/other/greenbook_doc/communicating_for_success.pdf)). The Report presented findings in three areas: the National Sea Grant Library, the Sea Grant Abstracts, and the National Media Relations Program. The final document was informed by two Technical Panels that conducted a review of the three national communications activities funded by Sea Grant. One panel reviewed the National Sea Grant Library and the Sea Grant Abstracts while the other panel reviewed the National Media Relations Program. (p. 1)

The NSGO is grateful to the Task Force for their leadership in reviewing the three national communications activities. The implementation of the report’s recommendations will increase the visibility and utility of Communications within the Sea Grant network and improve the management, structure, and efficiency of the three national communications projects. (p.1)

**VII. “Engaging NOAA’s Constituents: A Report from the NOAA Science Advisory Board; Putting the pieces together to create impacts”; (August 2008; NOAA Science Advisory Board Extension Outreach and Education Working Group) [Engaging NOAA’s Constituents SAB Report]**

This report was prepared for NOAA overall. However, it is important to capitalize on the fact that Sea Grant is the NOAA line office with significant proven capacity, knowledge, an experienced work force and a successful record of accomplishments in engagement. The recommendations of the *Engaging NOAA’s Constituents SAB Report* provide an enormous opportunity for Sea Grant to support NOAA-wide engagement. The report has been well received by NOAA. They are currently drafting a full response to the detailed recommendations and have already accepted and are implementing several of them.

The report includes eight (8) findings and a series of recommendations included below:

**Summary of Findings and Recommendations**

**Finding #1: A strategy for public engagement is missing.**

**Recommendations:**

- 1.1 NOAA should review and revise its strategic plan, mission, and vision statements to include the importance of an informed and engaged public consistent with the new authorization language. There needs to be a shift in focus to a more engaged organization providing products and services, as well as science, to the American people. NOAA must work to change the organizational culture as well as its process and procedures to encourage, promote, and reward engagement.
- 1.2 NOAA should develop a strategy for public engagement that provides a roadmap for coordination of all extension, outreach, and education programs in the agency.
- 1.3 NOAA should develop a coherent set of informational products and tools, including appropriate evaluation strategies, for use by all NOAA employees when engaging their stakeholder communities. NOAA also should acknowledge the importance of the involvement of NOAA employees in engagement, and this should be communicated and rewarded at all levels of NOAA management starting in the highest administrative offices.
- 1.4 NOAA should include a climate science component for non-coastal programs to deal with atmospheric and climate change issues.

**Finding #2: There is no coordinating body to implement public engagement strategy.**

**Recommendations:**

- 2.1 NOAA should expand the mission and membership of the current Education Council to become an Engagement Council, chaired by the NOAA Education Director, to administer a NOAA-wide program of extension, and outreach. The expanded Council must be given appropriate administrative and budgetary authority, and leaders of NOAA programs in extension, outreach, and education, as well as the Office of Communications, should be represented on the Council. For example, the National Sea Grant Extension Leader should be a member. The Council should have as its mission to seek ways to combine strengths, leverage as appropriate partnerships established by any NOAA activity for the benefit of all, and refine and modify NOAA engagement programs as needed to address national and/or regional needs.
- 2.2 The Engagement Council should be charged with development of the NOAA engagement strategy.
- 2.3 The Engagement Council should maintain an inventory of all extension, outreach, and education activities across NOAA. The Council should review NOAA's engagement with consumers and clients with the aid of the

engagement test prepared with support from the Kellogg Commission. The Council should also establish guidelines for best management practices in all NOAA extension, outreach, and education programs. The Council should also define metrics for success and ensure that the required data are collected.

- 2.4 The Engagement Council should report annually to the NOAA Administrator and, when appropriate, to the SAB to provide an update on progress of programs of engagement, an assessment of their effectiveness, challenges, and plans for the future.

**Finding #3: There are insufficient resources for engagement.**

**Recommendations:**

- 3.1 The Working Group recommends that at least 10% of the NOAA budget be committed to engagement. This funding recommendation was based on percentage of funding spent on extension, outreach, and education in NOAA programs that the Working Group determined to have strong engagement programs (including Sea Grant and National Marine Sanctuaries Program, which spend 36.3% and 20% respectively), (Figure 2). The proposed Engagement Council should periodically evaluate the adequacy of the 10% funding recommendation. Efforts to enhance NOAA's extension, outreach, and education programs are too critical to wait for new money.
- 3.2 NOAA's program managers, researchers, and other employees, where appropriate, should have, as a starting point, a commitment of 5% of their time to engagement in their position descriptions, performance plans, and programs. The NOAA Engagement Council should assist NOAA employees in engaging the public. NOAA employees and associates should be given basic information about NOAA science and services and points of contact within the organization to allow them to get additional information on topics of interest. This will allow NOAA employees to acquire and present a broader and more integrated view of NOAA. The Engagement Council should highlight activities that allow NOAA employees to discuss their research or programs with the general public, policy makers, community groups, school groups. The Council also should highlight events where NOAA programs are focused on such as beach clean-ups, lectures, and storm watcher training. Identifying the best practices in this area will help improve and expand these efforts. The Engagement Council should reach out to individuals across NOAA to sponsor the development of communications materials that provide insightful visual material (videos, search engines, or data displays) or compelling written descriptions of NOAA issues.

**Finding #4: Organizational culture in NOAA is not conducive to engagement.**

**Recommendations:**

Under the direction of the Engagement Council, all NOAA programs:

- 4.1 Should review their operational plans to ensure that they include the “one NOAA” vision and expectation that extension, outreach, and education are essential components of, and expectation for, success and performance.
- 4.2 Should identify resources to allow them to consistently implement NOAA strategies identified in the engagement plan to integrate extension, outreach, and education in the delivery of their products and services, and in their interaction with consumers and clients.
- 4.3 Should establish an agency-wide engagement training program for all current and future employees. More extensive training programs in translational science should be developed for the 600 extension, outreach, and education professionals to equip them to be the interface between NOAA’s scientists and its consumers and clients.
- 4.4 Should consistently incorporate performance benchmarks, indicators of performance or other similar means of establishing the expectation across all programs and personnel that the successful implementation and incorporation of engagement is important to NOAA management, and to achieving NOAA’s mission and vision.

**Finding #5: The public is not fully aware of NOAA and its services.**

**Recommendations:**

- 5.1 Extension, outreach and education efforts need to be coordinated across organizations to assure that the results will be greater than the sum of their parts. The public should easily be able to identify services, products, and programs funded by or associated with NOAA; all services, products, and programs should display the NOAA logo.
- 5.2 NOAA should establish a mechanism to regularly monitor public awareness, knowledge, and use of its services, products, and programs.

**Finding #6: NOAA is developing a new regional structure, although its place within existing NOAA regional structure is not clear.**

**Recommendations:**

- 6.1 NOAA should recognize that while it currently has many very valuable national audiences, consumers and clients that it must continue to foster,

its greatest growth potential is in further development of, and engagement with, local audiences, consumers and clients.

- 6.2 NOAA should utilize its newly formed regional collaboration structures to create opportunities to become fully engaged with local consumers and clients on national issues. While the majority of extension, outreach and education specialists in NOAA reside in Sea Grant, in many regions it is not clear how fully these capabilities are being leveraged by NOAA teams. For example, the Gulf of Mexico Region may be a leader in including Sea Grant and other partners in regional activities and thereby leveraging the power of those organizations. The proposed pilot project with Sea Grant in the Gulf of Mexico (see Appendix IX) could be a good test case for expanding this synergy.
- 6.3 NOAA should coordinate its existing extension, outreach, and education networks at the national, regional, and local levels to better engage consumers and clients at all levels. At the national level this coordination should be through the proposed NOAA Engagement Council (See Finding #2).
- 6.4 NOAA should assure that its newly created regional structures, and those of NOAA Sea Grant, are well integrated and coordinated. Local engagement should be accomplished by nationally and regionally coordinated programs inside and outside of NOAA, including Sea Grant, NERRS, NWS, Coastal Zone Management, Coastal Services Center, National Centers for Coastal Ocean Science, museums, aquariums, etc. This would also address recent requests for better coordination of coastal programs from the Office of Management and Budget (OMB).
- 6.5 NOAA should use its regional structures to address pressing issues, such as climate and energy, through its extension, outreach, and education programs in both coastal and non-coastal states with a variety of partners (e.g. universities, K-12 education, and professional associations).

**Finding #7: NOAA should better utilize partnerships in engagement.**

**Recommendations:**

NOAA should commit to utilize its existing partnerships, including the university community, other federal agencies, the informal science education community, industry partners, vendors, professional societies and mass media to extend the engagement NOAA has with the public. NOAA should support these partnerships by:

- 7.1 Funding regional pilot projects (see Finding #6) with selected partners to learn how broad engagement activities, representing all of NOAA and clearly identified as NOAA, could take place.
- 7.2 Funding similar regional pilot projects with universities, informal science education institutions, the weather and climate enterprise partners, and others that are not currently NOAA partners, to learn how new partners can be enlisted in the most cost-effective manner.
- 7.3 Continuing and expanding diagnostic assessment activities to learn which of these partnerships produces the largest return on investment. Those findings in turn can be used by NOAA to decide where future pilot and implementation projects should be undertaken. The evaluation of "Science on a Sphere" is a good example of such assessment practices.
- 7.4 Documenting the value of partnerships (for NOAA, OMB, and the Department of Commerce) by recognizing cost-share coming from partners, both cash and in-kind, including volunteered hours by paid NOAA staff.
- 7.5 Deepening existing partnerships by listening to partners, soliciting regular feedback from them on the partnership, and demonstrating that their ideas and concerns are heard, appreciated, and acted upon whenever possible.
- 7.6 Taking leadership to include environmental issues in the next generation of science education standards through working with formal education partnerships.

**Finding #8: NOAA needs to institutionalize a public accountability system.**

**Recommendations:**

- 8.1 NOAA should establish a program to determine (1) baseline public understanding and recognition of NOAA, its mission, products, and services; (2) baseline public understanding of core STEM principles upon which NOAA's work is based; (3) NOAA-wide outputs, that is, numbers of people being reached in various segments of the population, and descriptions of the duration, topics, and depth of that outreach; and finally, (4) impact evaluations on the baseline measures of samples of NOAA-operated or NOAA-supported activities in extension, outreach, and education. This program of data collection, which should use both qualitative and quantitative methods as appropriate, should also be used to provide direction to NOAA staff and partners in designing public

engagement activities that are responsive to the perceived needs of key audiences and stakeholders.

- 8.2 These measures should reflect national focus, regional direction and local relevance. NOAA should also consider a performance evaluation system that rewards senior NOAA managers and field workers for effective impacts, yet reward systems must be very carefully developed to avoid skewing the portfolio toward impacts that are most easily quantified and measured.
- 8.3 Impact evaluation should be developed with the full participation of NOAA staff or NOAA-supported staff.
- 8.4 Baseline data and output information should be collected across NOAA's programmatic efforts.
- 8.5 NOAA should use established best practice techniques for overall planning and evaluation of its extension, outreach and education programs. These techniques include the use of "logic models" and "backward-design strategies," specific to each program, because individual programs will have their own target audiences and desired impacts.
- 8.6 NOAA should use the most rigorous practical methodology to provide the best data on project and overall program effectiveness.

## **Chapter 4**

### **National Sea Grant Staff Roles (Prepared by NSGO)**

The National Sea Grant Office (NSGO) and its Program Officers and core staff are central to the National Sea Grant College Program's ability to administer grants. Program Officers work closely with state Sea Grant programs on strategic planning, accountability and assessment processes. Other functions of the NSGO critical to the successful operation of the National program include: facilitation, coordination, and integration of state extension/outreach and education efforts; focus team leadership and coordination; national-level communication; administration of fellowship and national strategic investment programs; support of NOAA program development; and meeting the performance and accountability requirements expected of all NOAA and Federal programs.

#### NSGO Priorities

In 2006, NSGO leadership reorganized the National Office. In the face of steady budget declines, the constraints of the five percent administrative cap, and a new approach to the organization's program planning, implementation and evaluation processes (based on a National Research Council report), leadership re-positioned existing NSGO staff to focus on grants administration, accountability and assessment process. This paradigm shift has resulted in less emphasis on, and fewer resources allocated to, national communications and outreach activities.

#### Diminished Resources

Increased efforts to enhance national visibility are highly challenging at current funding levels because current staff must focus on core "keep the trains running" tasks. At the local level, Sea Grant programs are highly successful in their involvement with state and local agencies in addressing coastal issues, and local staff typically serves in leadership roles for these activities. However, the NSGO is not able to complement this approach at the national level and within NOAA for the benefit of the entire network.

Within NOAA, Sea Grant functions in a competitive environment. Almost all staff time devoted to participating in NOAA activities is for the purpose of increasing the organization's visibility and value within the Agency. Direct participation in these activities has resulted in additional funding for state Sea Grant programs through programs such as the NOAA Charter Ship Time Program, coastal storms initiative, the lead role in allocating NOAA aquaculture research and outreach funds, and numerous pass-through programs.

#### Current Workforce Status and Recent History

The NSGO had 20 FTEs and three contractors as recently as 2005 (refer to Table 1, below). The budget cuts in the national program of the last four years have resulted in a corresponding loss in capacity of the NSGO. The NSGO has responded to this capacity loss by: (1) reducing the amount of time spent on lower-priority activities while preserving, to the extent possible, the capacity to perform its highest-priority activities (providing Program Officer support to state programs and responding to NOAA and Federal program requirements); (2) partnering with other NOAA programs (e.g., Aquaculture, Invasive Species) to achieve goals common to both programs at reduced cost; (3) using contractors, detailees or more junior Federal employees for tasks that had previously been performed by more senior Federal employees.

When compared to similar NOAA granting programs (Ocean Exploration and Research, Office of Coastal Resources Management, Office of Education, Climate Program Office and Coastal Zone Management), the NSGO has about one-quarter the number of FTEs per dollar of grants managed than these five programs combined. Given that many NSGO duties are prescribed by legislation, the workload is arguably higher and more complex than many other NOAA programs.

**Table 1: NSGO Workforce Decline**

<b>Year</b>	<b>FTEs</b>	<b>Contractors</b>
2005	20	1.8
2009	11	3

As of the third quarter of FY 2009, the NSGO currently has 15 staff (11 FTEs, three contractors, two Knauss fellows, and one detailee paid for by NMFS) dedicated to Sea Grant. In addition, there are three other individuals who spend about 20% of their time on Sea Grant activities, but whose salaries are largely supported elsewhere. With the current budget, NSGO cannot support a staff dedicated to the Sea Grant of more than 14 FTEs. The current workforce level does not give the NSGO sufficient capacity to effectively carry out all tasks necessary for most successful running of the National program.

NSGO Outreach Capabilities

Until FY 2007, the NSGO supported one extension leader, one education leader, and three communications staff. When one communications staff member departed and another transferred to another position within the NSGO, the vacant communications positions were not filled due to budget constraints and the new priorities mentioned above. The remaining communications position assumed a number of operational responsibilities, leaving half time for communications activities. Consequently, much of the partnership development (internal and external to NOAA), communications leadership and writing and editing capabilities were severely impacted. Presently, the NSGO supports one

Extension and one Communications position. These positions, as detailed below, are not dedicated exclusively to extension and communications activities.

<b>NSGO Extension and Communication Responsibilities</b>
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1) Extension Coordinator (1.0 FTE)
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The position is responsible for setting extension policy and for coordinating extension activities among Sea Grant programs, NOAA and other constituents. The position also....
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2) Communications Coordinator (1.0 FTE)
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The position is responsible for maintaining all aspects of communications between Sea Grant programs, NOAA, the NSGO and constituents. The position also sets policy for and manages information management, including data management and reporting, Internet presence and records retention.
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The implications of NSGO staff erosion are significant. In addition, workload is a major concern that has led to the departure of several employees. The increased volume of work was so significant that the employees were constantly frustrated by their inability to perform any single task well. This situation will undoubtedly result in more departures by key personnel.

## **Chapter 5**

### **Recommendations for Sea Grant Communications**

Communications is an essential instrument for raising the awareness and understanding of the products, services, contributions, impacts, accomplishments, benefits and value of the National Sea Grant College Program; to providing the foundation of an adequate and stable funding and political base; to better extending the utilization, application and reach of Sea Grant's products, services and science; and to engaging support from Sea Grant's existing and potential consumer and client base, and from those who possess the authority and influence to determine the survival, growth and success of Sea Grant.

Several committees and individuals have organized around an examination of how to best utilize the tools, science and machinery of communications to promote and advertise the Sea Grant Story to relevant, important and influential audiences, and to achieve the Sea Grant mission.

These committees and individuals produced a variety of reports that confirm the need of the Sea Grant Network to fund and implement a significant, multidimensional, comprehensive and coordinated Network-wide communications strategy. The reports conclude that the existence and results of successful Sea Grant investments in research, engagement, extension, outreach and education are not sufficiently known or understood, and that recognition of such reports is not achieved, especially in contemporary and anticipated competitive appropriations and political environments, unless delivered by means of a well thought-out communications strategy and associated implementation plan.

The Duce Report ("Building Sea Grant; The Role of the National Sea Grant Office"; Prepared by The National Sea Grant Office Review Committee of the National Sea Grant Review Panel; June 2002) observed "[The] national agenda for Sea Grant should be communicated widely . . . Of particular importance is the promotion of Sea Grant to Congress and the Administration . . . This will require a . . . cohesive and coherent strategic approach . . ." (p.10), and "Communicating the importance of Sea Grant is central to the future health, effectiveness, and sustained growth of Sea Grant . . . Of particular importance is enhancing the understanding and support of Congress. For Sea Grant to meet its Congressionally mandated expectations, it is necessary for Sea Grant to expand this base support in Congress, the Administration, other interest groups, and a larger fraction of the general public. Sea Grant must become more widely recognized as a national network that funds important research, educates the citizenry, addresses real world problems, and pays for itself in tangible economic benefits." (p. 11) The Duce Report recommends that "The NSGO, in partnership with NSGRP [National Sea Grant Review Panel, now named the National Sea

Grant Advisory Board], SGA, and NOAA, should continue to develop a cohesive, coherent strategy to raise the awareness and deepen the appreciation of Sea Grant by Congress and the Administration." (p. 10), and "The NSGO should continue to take an active leadership role, with the SGA and the NSGP Communicators, in the development and aggressive implementation of a comprehensive communications and marketing strategy for promoting the NSGCP." (p. 11)

The Wittman Plan ("Positioning Sea Grant: An Integrated National Communications Plan 2003-06"; Steve Wittman, March 2003) was based on a communications needs assessment conducted during June-August 2002 by Wisconsin Sea Grant communicator Stephen Wittman and the results of a September 2002 communications planning retreat involving broad participation from the Sea Grant Network, NOAA, NGOs and private sector marketing experts. The Goal established in The Wittman Plan is "To effectively demonstrate the need for and value of the National Sea Grant College Program to Congress, NOAA, the Department of Commerce (DOC), Office of Management and Budget (OMB), the White House, national non-governmental organizations, national news media, and other relevant partners and audiences." (p. 9) The Wittman Plan observed that "The success of this effort depends largely on the strength of commitment and continual support given to it by the entire Sea Grant community. It will require all components of the program to give high priority to presenting our branding message and 'the Sea Grant story' as part of a consistent and persistent campaign over the next four years to position and market at the national level. This is essential if we are to increase national support for the program by its next reauthorization and reverse a 20-year decline, in real dollars, of its federal funding base. This decline has begun to diminish the program's capability for addressing critical ocean, Great Lakes and coastal issues. Clearly, Sea Grant's continued viability depends on generating greater national support for the program." (p. 3)

The Alden Report ("Communicating for Success: A Review of the National Sea Grant Communications Activities"; Sea Grant Communications Review Task Force, December 2004) asked "Can Sea Grant capture the opportunity available from well-run national scale communications?" The answer was, "Yes, but Sea Grant must be attentive to coordinating, organizing and administering the diverse array of communications activities that define Sea Grant communications at a national level." (p. 9) The Alden Report observed ". . . that more attention to integration and coordination of national communications is needed . . . [To] enable Sea Grant to release the power of its scientific information and its education and extension activities to further its mission and the program's growth." (p. 9) The Alden Report recommended that ". . . the Sea Grant Network institutionalize a process for periodic updating and modification of the 2002 National Communications Plan 'Positioning Sea Grant: An Integrated National Communications Plan 2003-2006.'" (p. 17), and that ". . . the Sea

Grant Association's national communications activities be closely coordinated with the Network's national communications program." (p. 21)

There is a great need for Sea Grant to build awareness, recognition, support and respect for the many impacts, contributions and accomplishments that result from the Sea Grant investment. It is critical that Sea Grant successfully communicates the promise that Sea Grant offers in addressing job creation, competitiveness, economic development, scientific investigation, and sustainable solutions to opportunities, challenges and needs that exist in ocean, Great Lakes and coastal environments. This can be achieved only if the current communications planning, operational and implementation structure is enhanced and expanded, and only if such improvements occur with respect to the interaction, collaboration, efficiency and effectiveness of all of the Sea Grant internal elements and program entities.

### **A. Short Term Recommendations**

1. The NSGO should increase efficiency and reduce costs through technology. With a diminished National Office budget it is critical that the National Office find ways to increase its communication efficiency and effectiveness. Traveling to face-to-face meetings, in light of reduced airline schedules, flight delays, and extended pre-boarding times, expends a great deal of staff time and resources. Communications can be the leader to effectively utilize webinars, conference calls and various new digital conferencing technologies, as well as design web pages to help make the National Office staff and resources available to more people.

2. The NSGO should invest in an additional staff member (i.e., "NSGO Communications Leader") who possesses significant professional experience, expertise, knowledge and understanding of the tools, science and machinery of the communications field and technological advances. The NSGO should assign the additional staff person to:

(a) "be responsible for effective national communications" (Alden Report; p. 18);

(b) act as "a point person to focus, plan and direct strategic efforts - including internal communications, national Web presence, and potential marketing efforts - on a continuing basis" ("The Sea Grant National Communications Network Strategic Plan 2001-2005");

(c) provide leadership to the Network to "enhance internal communications among all program elements (researchers, communicators, extension staff and educators) as well as among all program entities (SGA, NSGO, NMRO [National Media Relations Office] and NRP [National Sea Grant Advisory Board]) with the objective of improving their interactions, collaborations, efficiency and effectiveness" (Wittman Plan; p. 4);

(d) enhance "Sea Grant's internal/external national communications capability to ensure coordination among NSGO, NOAA, SGA, NMRO and Sea Grant network communications efforts, and provide timely, consistent messages to targeted audiences on a sustained basis" (Wittman Plan; p. 4);

(e) "provide leadership to the network in implementing and annually updating its strategic national communications plan" (Wittman Plan; p. 10);

(f) understand and "know what is happening in each program; collaborate with network communicators to collect, synthesize and package program results and impacts; and work with the SGA, NMRO and NOAA-OAR offices of Public Affairs and External Affairs to disseminate information to appropriate national audiences." (Wittman Plan; p. 10);

(g) incorporate and synthesize the materials, work products and other initiatives of the four Sea Grant Focus Teams that demonstrate Sea Grant's value to the nation, and disseminate such information through press releases, news and media events, publications, etc.;

(h) collaborate with the Sea Grant Communications Network in an initiative to prioritize and implement the objectives, tasks and activities that are outlined in the Wittman Plan.

3. The Director of the National Sea Grant College Program should engage in a series of personal visits with all individual Sea Grant Programs that include scheduled visits, dialogue and discourse with senior executive leadership of the host university institutions in which Sea Grant Programs reside. The NSGCP Director should embark on these personal visits in possession of an institutional endorsement from NOAA, together with the requisite data and information, to permit the Director to represent the whole of the NOAA investment. These important personal visits would seek to institute a standard of communication that would raise the level of appreciation for and visibility of the NSGCP and NOAA, and encourage the willingness of senior leadership at the individual Sea Grant Programs and at the host university institutions to support NOAA and NSGCP program initiatives.

4. Sea Grant Knauss Fellow: The NSGO should host a Sea Grant Knauss Fellow to assist with carrying out tasks and activities that are associated with the communications responsibilities and objectives of the NSGO and the Sea Grant Communications Network. This position would support NSGO and Network communications activities in much the same manner as the two current Sea Grant Knauss Fellows now each support respective Sea Grant Focus Teams. The NSGO should consult with the National Sea Grant Advisory Board, the National Sea Grant Communications Network and the Sea Grant Association to clarify specific qualifications for those prospective fellows. These qualifications should include "individuals who have an interest in ocean, coastal and Great Lakes resources and in the national policy decisions affecting these resources," and who may also have additional interest and expertise in the communications field.

5. Engage and organize a group of individuals, to be referred to as "Friends of Sea Grant", who possess the knowledge, understanding, experience and appreciation of the Vision, Mission, Goals, contributions and benefits of the National Sea Grant College Program. Participation in the Friends of Sea Grant would include: current and prior members of the National Sea Grant Advisory Board (and the prior National Sea Grant Review Panel); current and prior employees of NOAA, the NSGO and individual state Sea Grant programs; current and prior Sea Grant Knauss Fellows; stakeholders of individual state Sea Grant programs; and others who understand, value and support the NSGCP.

6. The NSGAB should approach Under Secretary for Oceans and Atmosphere and NOAA Administrator Dr. Jane Lubchenco with the idea that support and appreciation for NOAA and the NSGCP would likely be advanced if the university institutions in which individual Sea Grant programs reside were to be more clearly identified in media, news releases and reports that originate from NOAA and OAR Public Affairs. These media include, but are not limited to, the NOAA Website; "OAR in the Spotlight"; "NOAA World"; "OAR News Updates"; NOAA Administrator Newsletter; OAR Public Affairs weekly news releases; "OAR Hot Items"; other NOAA/DOC leadership newsletters (e.g., "EMT," "Weekly," and others); and Hill briefings, speeches, presentations, etc. Moreover, favorable consideration of such a propitious opportunity would likely be received as a considerate and respectful recognition by the university institutions and would likely bring forth offers of cooperation, partnership, association and assistance.

7. The NSGO should generally endeavor to expand and enhance the interaction, partnership and collaboration with the Sea Grant Communications Network. This collaboration should include a joint review and evaluation of the progress that has been made in implementing the provisions and recommendations of the Wittman Plan and the Alden Report, and a joint review of the two NSGO reports, "National Sea Grant Office Response to: Positioning Sea Grant: An Integrated National Communications Plan ("Wittman Plan")", and "NSGO Implementation Plan for Summary Recommendations of the Sea Grant National Communications Task Force."

8. The NSGO should organize a work group to assess opportunities for increasing public awareness of NSGCP impacts and relevance to national concerns at the national, regional and state levels. With changing media organization structures, new electronic information systems and evolving consumer demands for information, opportunities for creating and capturing program publicity and visibility will be beneficial to the program. This work group would include representatives of the NSGO, the National Sea Grant Communications Network, the National Sea Grant Advisory Board, the SGA and others who have knowledge and experience in the communications field.

9. Accelerate the development of the Sea Grant National Information Management System (NIMS) to serve as a “network-wide data and information system for cataloging and tracking technical information, accomplishments, and general information about Sea Grant investments in research, outreach, and education” (Duce Report; p. 29) and that fulfills the identified need for “a centralized online program information database capable of searching and compiling information from multiple programs and summarizing it by topic.” (Wittman Plan; p. 7)

## **B. Long Term Recommendation**

The NSGO should provide funding and the mechanism to reestablish the Sea Grant National Media Relations Office (NMRO) at the earliest opportunity. The Sea Grant National Communications Network Strategic Plan 2001-2005, the Duce Report, the Alden Report and the Wittman Plan have expressed recognition of the contribution of the NMRO (also referred to as the National Media Relations Program, or “NMRP”) to meeting the Mission and achieving the Goals of the NSGCP. A Sea Grant NMRO is essential to achieving the overarching Goal of the Wittman Plan to “effectively demonstrate the need for and value of the National Sea Grant College Program to Congress, NOAA, the Department of Commerce (DOC), Office of Management and Budget (OMB), the White House, national non-governmental organizations, national news media, and other relevant partners and audiences.” [Whittman Plan; p. 4] The NMRO has been recognized in several past examinations of Sea Grant communications as a key element, participant and messenger in the formulation and execution of the tactics and activities that are of strategic importance to achieving the Mission and Goals of the NSGCP, to the objectives of achieving stable funding, and to attracting the interest and attention of those who have the authority and influence to impact the survival, growth and success of the NSGCP.

It is important to note that the Sea Grant Communications Review Task Force convened a National Media Relations Technical Panel that included four external and independent reviewers with extensive and proven knowledge, experience and understanding of media relations, public affairs and communications who recommended that the “The National Media Relations Program should continue.” [Alden Report; p. 38] Moreover, the Technical Panel observed that “The NSGCP is responsible for communicating its common goals to the public, including the importance and results of marine science, education and outreach. In this context, it is also important to note that the public is the customer whose understanding, and financial and political support is necessary for the NSGCP to exist. A media relations effort is an important tool in carrying out this responsibility . . . An effective NSGCP media relations program can reassure policymakers about the benefits and accomplishments derived from their decision to invest public funds and help ensure their continued support.

Moreover, a NSGCP media relations effort serves to increase public awareness and utilization of the valuable scientific information that flows from the public investment in the NSGCP." [Alden Report; p. 37]

## Chapter 6

### Short and Long Term Recommendations for Extension

#### A. Short Term Recommendations

- 1) NOAA is currently developing implementation of the SAB Engagement Report. **TIME IS CRITICAL**. Sea Grant is a natural in the implementation of these recommendations; however, other parts of NOAA with greater resources want to grab this turf and the potential dollars with the engagement plan implementation. Jim Murray chairs the "Engagement Council. However, he does not have adequate available time to spend on the subject and allow the full engagement of Sea Grant. It is recommended that a significant additional block of Jim Murray's time (say, 25%) be freed up allow him to fully engage the SAB Engagement Report Adding this as a duty is inadequate; relieving him by reassigning duties would be required.
- 2) Keep an additional Knauss Fellow in the Sea Grant office, to supplement engagement. This will provide some critical relief for an understaffed NSGO. A call for Knauss Fellows should specifically identify engagement similar to a call for Knauss Fellow communicator.
- 3) Climate extension is a great opportunity for NOAA to integrate an array of units and the Sea Grant college network into a collaborative, multi-unit, synergetic program. Full realization of that vision will depend on strong NOAA leadership. Sea Grant and OAR should negotiate a memorandum of understanding with the other NOAA AAs to clearly identify roles and an operational plan for an enhanced engagement program dealing with climate issues; this plan could then be presented to the administrator.
- 4) NOAA's regional effort is another important opportunity for Sea Grant to expand collaborative engagement activities addressing clientele needs. This should continue to be funded and staffed by Sea Grant as a priority item.
- 5) Implement the SAB Engagement Report's Sea Grant demonstration project. This would show how Sea Grant could more fully engage NOAA assets for greater impact and visibility of NOAA programming on a regional basis. This demonstration could emphasize Climate Change and the public's growing interest in and understanding of weather and climate and the impact they have on their lives. This project could demonstrate

NOAA's capacity to build and lead as the premier organization to address the climate and weather needs of our nation.

Within a two year period we believe NOAA could expect to have a workable role, along with responsibility, funding and accountability agreements to guide effective collaborative work among units within NOAA and other government agencies.

- 6) The Sea Grant Advisory Board should reestablish the formal annual meeting with the NOAA administrator, where the Board provides a written report and Recommendations (why is this capitalized?) to the administrator.
- 7) Sea Grant pays a significant overhead to NOAA. The Sea Grant Advisory Board should do an analysis of the services rendered to the national Sea Grant college program and the priority of those resources to the success of the program.
- 8) Sea Grant should further pursue cost effective alternatives to supplement it staff. This could include use of faculty on sabbaticals, individuals on detail, etc.
- 9) Sea Grant should require \$5000.00 of each of its \$50,000 Regional Grants to be utilized for engagement, including media and communications activities.

### **Long Term Recommendations**

As a result of flat budgets, reduced state funding, required salary increases and inflation, the number of Sea Grant agents have been reduced in a time when growth is needed. As funding returns, these extension and outreach cuts should be reestablished to maintain a vibrant, trusted outreach component in Sea Grant programming.

## Chapter 7

### Interviews and Recommendations

The Committee held two face-to-face meetings, the first immediately preceding a Sea Grant Board meeting in Washington DC and the second at a final writing session in Annapolis. During these two meetings a series of interviews took place. The first series included:

- Jim Murray, Deputy, National Sea Grant Office
- Leon Cammen, Director, National Sea Grant Office
- Jim Hurley, Extension Service Director, Wisconsin Sea Grant
- Laura Furgione, Director, NOAA Program Planning and Implementation
- Jack Greer, Director of Communications, Maryland Sea Grant
- Roy Kron, Sea Grant Communications Network, Director of Communications, Louisiana Sea Grant
- Steve Wittman, Director of Communications, Wisconsin Sea Grant, Author of " Positioning Sea Grant: An Integrated Plan for Communications"
- Linda Duguay, Director, Southern California Sea Grant, Communications Liaison

These interviews were intended to be open and forthcoming with ideas and concepts. Therefore, in summarizing issues discussed we did not attribute them to specific individuals. The following issues were discussed during these calls and meetings:

#### The issues discussed

- The Committee on Communications and Engagement should interact with the Futures Committee to avoid overlap and align recommendations
- Insufficient staff: NSGO staff is currently only a half-time position, down from three, plus one Sea Grant Media Relations person (Ben Sherman)
- There is a need to fund a media relations person/office; this should be a top priority
- Knauss Fellows Program this could be a valuable asset to supplement personnel needs
- Seriously reduced funding for Sea Grant resulting in an extremely limited communications function
- Re-engagement of Sea Grant programs which are not seen as "relevant," and thus do not compete well for NOAA funding
- The efforts to change the old image of a divided Sea Grant are becoming successful
- Sea Grant should stake out its role in the new NOAA Climate Services program
- Sea Grant Extension programs should utilize NOAA science

- Climate extension has gained interest; it may be possible to obtain assistance from USDA
- The Executive Committee on Engagement: The Sea Grant regional model will work for climate
- NSGO allocation of effort on Engagement should include Mike Liffman and Jim Murray at 25% time
- Sea Grant needs to develop leadership champions in NOAA and in the private sector
- Sea Grant needs to mobilize stakeholders
- Sea Grant needs to get funding for demonstration projects
- Joint/Cooperative Institutes do not know about Sea Grant extension
- It is important to preserve Sea Grant research at the 50% of budget level.

**The following recommendations came from these discussions:**

1. The NSGAB should appoint a committee to establish a specific job description for the Media Relations person.
2. The NSGAB should appoint a committee to establish a set of objectives and job descriptions for Knauss Fellows working with communications and outreach. The objectives should include familiarization with the Sea Grant Program and assignments to serve at NSGO on a rotating basis.
3. Efforts should be made to improve the image of Sea Grant within NOAA. This task could be coordinated by the Communications Network.
4. NSGAB extension should consider an evaluation of a "Climate" Fellow or agent for "Climate," to be associated with the NOAA Regional offices.

Additionally, Appendix 3 contains summary minutes of conference calls with Jack Hays (NWS), Jack Dunnigan (NOS), and Gordon Grau (SGA President) which resulted in the following fourteen (14) comments, suggestions and opportunities that should be pursued jointly by NSGO, the Board and OAR.

Hayes

- 1) The NSGO should participate in the NWS/OAR Summit, (scheduled for this fall). Sea Grant should be a focus.
- 2) Individual Sea Grant programs should review the NWS CSTAR program as an opportunity for developing coordination with NWS.
- 3) NWS supports the concept of AAs developing a joint climate extension program.

- 4) NWS (based on available funds) would support establishing joint positions at Regional Centers based on available funds.

#### Dunnigan

- 1) NOS would like to have a NOS/OAR Summit (they have not had one in several years). Sea Grant should be a focus.
- 2) NOS has concerns over Sea Grants responsiveness and cost/OH rates, and Sea Grant's ability respond to NOS funding opportunities.
- 3) NOS believes a joint Climate Extension proposal is possible; however, this needs to be defined better.
- 4) Regional demonstration needs to incorporate "lessons learned."
- 5) Marine Hydrology and Marine Transportation are areas of need and opportunity and should be jointly explored.
- 6) The FY-12 Budget is the next opportunity for funding. Climate will likely be the principal area for funding. Joint projects should be discussed at the Summit cited in 1), above.

#### Grau

- 1) Supports the Sea Grant Academy concept. This is consistent with things SGA is trying to do.
- 2) Supports funding of an additional NSGO communications position.
- 3) When asked what are priorities for the NSGO, and where reprogramming could take place, indicated top priorities were Communications, Engagement and Evaluation.
- 4) Was pleased with recent \$4 M Sea Grant Climate Adaptation funding, and cited need for a strong Communications/Engagement element.

## Appendix 1

### Report Committee Background

#### **Frank Kudrna, Jr. (Past Board Chairman)**

Westmont, Illinois

Dr. Frank Kudrna is the chief executive officer of Kudrna & Associates, Ltd., a Chicago civil engineering consulting firm. Formerly he was president of Epstein Civil Engineering Company, and prior to that he was director of the Illinois Division of Water Resources and supervising engineer of flood control and planning with the Metropolitan Water Reclamation District of Greater Chicago. Dr. Kudrna has served for over 25 years on the Great Lakes Commission. He is former vice-chairman of the Upper Mississippi River Basin Commission and the Ohio River Basin Commission. Dr. Kudrna holds a Ph.D. from the Illinois Institute of Technology and an MBA from the University of Chicago. During 2000, Dr. Kudrna served on the eight-member team that conducted an intensive review of the National Sea Grant College Program's extension efforts that resulted in the report A Mandate to Engage Coastal Users. Dr. Kudrna also serves on NOAA's Science Advisory Board.

#### **Peter M. Bell (Past Board Chairman)**

Galesville, Maryland

Dr. Peter M. Bell is a consultant in the fields of geophysics and material science and is adjunct senior research scientist at the Carnegie Institution of Washington's Geophysical Laboratory. In addition, he serves on the Advisory Board of the Materials Processing Center of the Massachusetts Institute of Technology. Before his retirement, Dr. Bell was the vice president and chief scientist of St. Gobain Corporation and Norton Company. He has served on the Board of Directors of Cerbec Corporation and KuriNorton Company. Dr. Bell has taught at Harvard, Johns Hopkins, the California Institute of Technology and the State University of New York. Dr. Bell was awarded the Medal for Exceptional Scientific Achievement by the National Aeronautics and Space Administration in 1976, the Guggenheim Foundation Fellowship in 1981, and the Guinness Foundation Award in 1981. He was named the Fairchild Distinguished Scholar by the California Institute of Technology in 1983. Dr. Bell received his Ph.D. in geophysics at Harvard University.

## **Nancy Rabalais**

Chauvin, Louisiana

Nancy Rabalais is a Professor at the Louisiana Universities Marine Consortium. Dr. Rabalais' research interests include the dynamics of hypoxic environments, interactions of large rivers with the coastal ocean, estuarine and coastal eutrophication, benthic ecology, and environmental effects of habitat alterations and contaminants. Dr. Rabalais is an AAAS Fellow, an Aldo Leopold Leadership Program Fellow, a Past President of the Estuarine Research Federation, a National Associate of the National Academies of Science, a member of the Scientific Steering Committee of LOICZ/IGBP, and currently is Chair of the Ocean Studies Board of the National Research Council, National Academy of Science. She received the 2002 Bostwick H. Ketchum Award for coastal research from the Woods Hole Oceanographic Institution and was the Ian Morris Scholar in Residence at the University of Maryland Center for Environmental Studies in 2004. Her work on the causes and consequences of Gulf hypoxia have garnered several citations: the Blasker award shared with R.E. Turner, and a NOAA Environmental Hero, Clean Water Act Hero, and Gulf Guardian award. She earned a Ph.D. in Zoology from the University of Texas at Austin in 1983, and her B.S. and M.S. in Biology from Texas A&I University, Kingsville.

## **Jeffrey Stephan (Past Board Chairman)**

Kodiak, Alaska

Mr. Jeffrey Stephan is manager of the United Fishermen's Marketing Association, Inc., (UFMA) in Kodiak, Alaska. UFMA is a trade association whose members conduct fishing operations in the Gulf of Alaska and the Bering Sea/Aleutian Islands. Mr. Stephan is a member of the Kodiak School District Board of Education, the Kodiak Regional Aquaculture Association Board of Directors, and the University of Alaska Fairbanks Fishery Industrial Technology Center Policy Committee. He is Chair of the Alaska Seafood Marketing Institute (ASMI) International Marketing Committee, and past Vice Chair of the ASMI Board of Directors. Mr. Stephan has served on the North Pacific Fishery Management Council, as Steering Committee Chair of the Department of Commerce Marine Fisheries Advisory Committee, on the Department of Interior Outer Continental Shelf Advisory Board, as an advisor to the Department of State International North Pacific Fisheries Commission, on the Kodiak City Council and as Kodiak College Council President. Mr. Stephan worked for Eastman Kodak Company, and as a commercial fisherman. Mr. Stephan graduated with a B.A. in Economics from the State University of New York at Plattsburgh.

## **John T. Woeste (Board Vice-Chairman)**

Gainesville, Florida

Dr. John T. Woeste is professor emeritus and retired Dean of the University of Florida's Institute of Food and Agriculture Sciences. From 1976 to 1995 he served as Director of Extension and the Florida Sea Grant Marine Extension Program. He was frequently recognized for his leadership of both agriculture and marine resource extension programs. In 1987 he received the USDA "Unit Award for Distinguished Service." In 1992 Dr. Woeste won the Mary Nell Greenwood Award from the American Evaluation Association for his sustained commitment to public accountability. In 1997 he was inducted into the International Adult and Continuing Education Hall of Fame and in 2002 was elected to the Florida 4-H Hall of Fame. He was recognized by the National FFA with an "Honorary American FFA Degree" and the Alpha Gamma Rho fraternity with a "Brother of Distinction" award. He has served on boards for the Southern region aquaculture center and the Sustainable agriculture program. He chaired the National Extension Committee on Policy (ECOP), and co-chaired the Legislative committee for the Agriculture division of the Land Grant University Association while he was a member of the Board of Directors. His international experience includes advisory visits and consulting trips to Ecuador, Cameroon, and Israel addressing agriculture education and technology transfer. Currently he is president of the Florida Rural Rehabilitation Corporation, Inc., Director of the National NARRC, President of the Alpha Gamma AGR educational foundation, and a member of the SHARE-UF Foundation board executive committee. He is a retiring director and past president of the International Adult and Continuing Education Hall of Fame. In 2002 he was appointed to the National Sea Grant Review Panel.

**Appendix 3 (Note: interview with Grau is included here but not edited yet by me (see previous email with just Appendix 3 attached to it))**

**Interview with NOAA Jack Hays (AA NWS), accompanied by Don Burchoff (Director of NWS OST)**

The discussion began with Jack's statement that he is an "advocate of a 'One-NOAA.'" In this regard, Jack commented as follows:

NWS has the mission of reducing lead times in the forecasting of daily weather reports for the general public. These forecasts are especially needed in reducing lead times of floods, tornado, and other extreme weather conditions that could affect air travel. Improved forecasting is needed (an administration priority) in support of developing renewable energy systems (wind, solar, tidal, and hydroelectric).

An important recent NWS program is CSTAR (Cooperative Science Technology Applied Research, funded at \$1 million per year), in which universities conduct research focused on aviation, tornados, and other pressing local needs.

Forecasting, research and application of warnings for coastal areas could intersect with Sea Grant skills and capabilities. Collaboration with Sea Grant allows NWS to "tap a well-oiled machine that knows how to get results." Planned for this fall is a NWS/OAR summit to ensure good communication between NWS and NOAA - OAR. The objective is to lay out a five-year science and technology road-map that allows us to test and implement. The summit could include a session focused on Sea Grant extension and other capabilities. (Very helpful is that both organizations have Sea Grant alumni). John Birchoff will provide the agenda to Frank Kudrna. As a part of the agenda it might be possible to include the pilot demonstration.

The placing of a fellow or extension agent at NOAA Regional Offices could be explored depending on funding. Right now NWS is working on final touches of the FY-11 budget. PPBES process requires development of a five-year program plan that is the basis of the budget submission. With regard to partnerships, PPBES limits ability to funding partnerships, so the earlier in the five-year cycle this can be planned, the better. He noted that to advocate a ramp-up of investment, there needs to be a compelling requirement. The FY-12 plan is now beginning, and will be up for approval in January 2010.

## **Interview with NOAA Jack Dunnigan (AA NOS), accompanied by Don Burchoff (Director of NWS OST)**

Dunnigan was with NMFS and working with Ecosystem Goal Team there was a meeting in Seattle that included senior NMFS and SG leaders that provided an opportunity to discuss issues and problems as well as capabilities. As a result, Dunnigan went to NC State University to see how to get ecosystem-based management information out. NC SG helped get the message out.

Impediments to moving forward:

- 1) We do not have a good appreciation at senior NOAA levels of what SG capabilities and problems are. Need better communications at high levels. (Notify Dunnigan regarding Sea Grant meetings so that senior folks can have focused communications regarding how to work together.)
- 2) Not sure we have identified places where there is ease of doing business. Can be hard to make contact. Not sure who or where to contact. Easier for NOS to “just do it themselves”. NOS outreach and communications are more general and corporate. Lots of stakeholder and partner building. SG has many institutions and capabilities. Questions: “How can I access the system” at the national level? Easy at state level, harder at national level. Not clear regarding arrangement/organizational structure.
- 3) How do we use resources in the best way possible? Concern that it can be more cost effective to do business within NOAA rather than going to universities with overhead. Also perception that university programs work for universities – not NOAA. He wants to “get what he wants out of it” – a clear product for a specific investment.
- 4) Extramural biases within Agency. Response – NOAA business model. Some weaknesses. Talk to each other, but do not reflect “one NOAA” approach. Easy to say this is a problem for NOAA and we should do better. On the other hand, this may be part of doing business with a big organization. Now, we have “a different set of stovepipes”. We don’t have “one NOAA”. The Agency is sliced differently. Could try to focus on the NOAA side of the problem. Or, find more sophisticated ways of dealing with Agency’s view of extramural programs.
- 5) NOAA needs coordinated story. Response – NOAA has focused on building collaborations internally for the past seven years. Could use help in budgets. NOAA working at different level (than state). E.g. regional.

Background: Individual constituents and governors do not feel the impact of NOAA. NOAA needs to ask constituents/have the dialogue to identify pressing issues at local levels. There are opportunities.

Background from Jack Hayes call: Request for LO AA meeting to discuss partnership and to discuss Climate Service and outreach. Opportunity to bring collaborative proposal for a NOAA-wide Climate Service. Regional demonstration project. Response – Need for NOS/NOAA meeting. Last one was two years ago. Good idea to see what kind of collaborations can be built. Focus on bringing in people from SG institutions. Excellent idea. Glad to move forward on that.

Regarding climate extension: Something to consider potential of. Must be careful in teasing out what we're talking about. Longstanding relationship with local and state governments through CSC and other programs. Offer trainings for coastal managers. Many problems communities are facing are associated with climate in the next 15 – 50 years. Margaret Davidson, working closely with Tom Karl, in development of Climate Service. Should talk about what we mean by "climate extension", or "climate outreach." Need to have this discussion at cross-LO level.

Regional demonstration project: Pilot effort. Leader in providing support states need. Good job with Gulf of Mexico Alliance and West Coast Governors. Struggling to come together in other regions. Regional pilot thinking is happening, but may not be apparent. Not systematic. Great Lakes has been active in coming together to support Administration's agenda regarding Great Lakes recovery. Pilot project can be good, but must answer where, why, what's it going to cover. Explore "lessons learned." Need to keep grounded in what we know already.

Need systematic look at where to go and lessons along the way (John Woeste). Anything that can be made visible as collaborative, integrative effort within Agency will be a plus. Agency-wide partnerships a positive. Explore efforts to see where successes and struggles were. Were there lessons learned that could be applied to other projects (John Woeste)? Response – When getting partnerships started there is energy. Over time it's important to ask those types of questions to follow through. E.g. NOAA in the Carolinas seems to be useful, but there has not been formal evaluation. Someone needs to focus on the outcomes, looking back (retrospective analysis).

Are there issues that could be addressed through a joint budget proposal that would provide the principles the resources to move forward? Response – Right now the only place where there is critical mass in the budget is in the climate arena. FY11 budget may have major commitment to doing something new. Hard for NOAA to move up something without budget justification given current budget process. Answer is yes. Desire to want to do something very practical in climate. Need to have discussions to explore that.

Competitive issues and cost and overhead issues: Will be brought to Director (NSGCP).

Partnering issues regarding scale: Dunnigan went to NC SG. Program had excellent capability via Katie Mosher. However, scale of focus is not always the same for SG and NOS/NOAA since SG is state/local focus. How do we deal with this? SG thought of as a "job shop contractor for NOAA." SG has a unique identify it must maintain. (implied – something different than Sea Grant colleges). On the other hand, "I work for NOAA and must get that business done." How do these intersect? SG should not be just a contractor doing something for us. But sometimes that's what we need.

Not clear regarding what regional projects we're supposed to do.

Worried about ability of U.S. to execute navigational, safety and services missions. This business requires much capital investment. We should be building assets that will meet requirements of technology that will be useful in the future. There is an opportunity for research community and SG to figure out how to move forward in terms of research and outreach. But, in looking across SG, there are only four people who are conversant in this (navigation/marine transportation) – e.g. Jim Fawcett at USC SG. SG institutions focus on problems in their own communities. But these things do not get a national focus. Doesn't seem to be a match between interest level in SG community and NOS needs. "SG doesn't necessarily have assets all over the country that can help me."

3:30 p.m. Teleconference: Gordon Grau (Director, Hawaii Sea Grant)

- Topic: Developing constituent relations via "Friends of Sea Grant"

Response: Alumni association in the works. Mary Donohue working to develop spreadsheet of all SG alumni including Knauss fellows, graduate students, SG employees now in powerful positions, etc.

- This could also help garner SG support at critical times (Frank Kudrna). Grau agreed.

- Topic: Joint LO Partnerships with AAs

Response: Dunnigan and Cammen should meet to discuss impression that SG is "non-responsive."

- Topic: Climate

Response: May be \$4M for climate adaptation initiative proposed by Jeremy Harris

- SGA board very positive on climate engagement. Congress interested in seeing climate and coastal resiliency tied to education. Cited NSF GK12 Program. Proposal to fund graduate education and research.

- Topic: Diminished buying power and NSGO staffing.

Response: Good idea to free Jim Murray's time. Highest priority on "upreach." More communications and marketing within NOAA. Spinrad and McLean need to help more to promote SG.

- Topic: Tasks from other LO's. Needs to be process to determine which are appropriate for SG and which are not (e.g. too specific, tight turnaround, short-term).

Response: SG is best bargain in town. Investment return on federal \$ is significant. We also bring "university enterprise" to the table.

- NSGO should take leadership on determining which partnership opportunities with other parts of NOAA are most worth pursuing.

- Communications externally is good. Not as strong within NOAA. Need to communicate what an asset SG is.

- Topic: What does NSGO stop doing?

Response: Communications, engagement, inreach and outreach are of high importance for NSGO. Program specialists are of lesser importance.

- Maintaining quality of research is essential to SG credibility within universities; graduate education also critical. At national level, the engagement of NOAA & being part of the Agency's coastal and ocean enterprise is also essential.

- HI SG spends a lot of time on outreach. One person dedicated to research portfolio. When you are trying to engage people (whether in state, at university, on faculty, etc.) it takes a lot of time. We have four people in communications. NSGO should be built on same principle that SG programs are. Better to have more communicators and fewer specialists.

- Topic: Budget formulation. SG will focus on climate & has proposal for funding from NOAA.

Response: Yes, this is how we can work with NOAA and become a valuable part of NOAA. We need to let OMB know that SG and other NOAA programs know how to work together. Climate resiliency is a key issue for all coastal communities. Strong desire within network to work as a component of the NOAA enterprise in partnership with other parts of NOAA.

- Topic: Climate extension & idea of developing a joint proposal with OAR/SG, NOS and NWS (representing various parts of NOAA)

Response: In terms of working together, SG brings a lot to the table. Many programs have climate specialists (6 in HI SG alone). Communicating this expertise within SG to NOAA is vital. How do we dovetail these efforts into what the rest of NOAA wants to do in a way that promotes synergy, not competition. Combining university climate assets and those in SG with what NOAA wants to start would be highly valuable. Must be careful to define collaboration so that parties who do the work get the money.

- Topic: Joint and Cooperative Institutes

Response: These are mainly a way for NOAA to get money to its own programs and to deliver earmarks. NMFS runs many funds through Joint Institute. Money doesn't show up on federal books.

Gordon has very good relationship with head of local Joint Institute.

Not sure about other SG programs. If there were a shared mandate to provide engagement, that could work.

- SGA vice president: John Pennock (NH SG). Board is: Anderson, Voiland, DeGuise, Targett, Wilson, Havens, Pennock.

- Gordon has been working with Craig McLean. Strong supporter of Sea Grant. Might be valuable for this committee to solicit his input.

- Senior Research Council (SRC): SG has a seat. SGA should send a representative (Frank Kudrna).

Response: Will speak with Craig McLean re. getting advanced notice on future meetings.

4:30 p.m.

## **Hays/Dunnigan/Grau Recommendations**

### Hayes

- 1) The NSGO should participate in the NWS/OAR Summit, (scheduled for this fall). Sea Grant should be a focus.
- 2) Individual Sea Grant programs, should review the NWS CSTAR program as an opportunity for developing coordination with NWS.
- 3) NWS supports the concept of AA's developing a joint climate extension program.
- 4) NWS would support establishing joint positions at Regional Centers, based on available funds.

### Dunnigan

- 1) NOS would like to have a NOS/OAR Summit, (they have not had one in several years). Sea Grant should be a focus.
- 2) NOS has concerns over Sea Grants responsiveness and cost/OH rates, and Sea Grants ability respond to NOS funding opportunities.
- 3) NOS believes a joint Climate Extension proposal is possible, however needs to be defined better.
- 4) Regional demonstration needs to incorporate "lessons learned."
- 5) Marine Hydrology/Transportation is an area of huge need and opportunity, and should be jointly explored.
- 6) The FY 12 Budget is the next opportunity for funding. And, Climate will likely be the principal area for funding. Joint projects should be discussed at the Summit cited in 1) above.

### Grau

- 1) Supports the Sea Grant Academy concept. This is consistent with things SGA is trying to do.
- 2) Supports funding of an additional NSGO communications position.

- 3) When asked what are priorities for the NSGO, and where reprogramming could take place, indicated top priorities were Communications, Engagement and evaluation.
- 4) Was pleased with recent \$4 M Sea Grant Climate Adaptation funding, and cited need for a strong Communications/ Engagement element.

Folks,

The following is intended to capture our June 11 discussion about the biennial report process. In general, we were still in agreement with what was decided earlier and is summarized in the attached January 13, 2009 email.

- 1) The audience for the report is broader than Congress and includes all parties who care about Sea Grant.
- 2) The legislative language should be used to shape the overall theme and we should therefore address the status of the NRC recommendations and add an executive summary on the Board's overall assessment of the national program.
- 3) We should involve a member of the SGA. The NRC report and bill language state 'the Board' shall report on the state of Sea Grant and although the SGA should be included as the committee researches and prepares its, it is noted that the "official Board Sub-committee" should be voting Board members. The committee should work through the President, Gordon Grau to solicit SGA participation. Mike Voiland, SGA external relations chair, was suggested. The SGA member's role would be to help shape the content and direction for the report as well as the marketing strategy.
- 4) The Board will advise NOAA leadership on the status of the report and its findings, but as an Advisory Board report it does not need official NOAA clearance.
- 5) The biennial report represents a major marketing opportunity for Sea Grant and represents an avenue to communicate with Congress.
- 6) The Board members who serve on the biennial report committee should visit Congressional staff to determine their interest in content and suggestions for the report.
- 7) The report should be absolutely impartial. With this in mind, Murray and Painter should not be committee members but rather serve as support to the committee.
- 8) NSGO staff will provide data and background reports to the biennial report committee and the committee will use this information to independently write the report.
- 9) Consider adding a fourth member, someone newer to the Board who would have a fresh perspective,
- 10) A detailed schedule needs to be developed, starting with a report due date and backing up from it, and affirmed by the full Board at the August meeting.

Please let me know if I missed anything.

Thanks, Jim