



# National Association of Marine Laboratories

*do* Marine Biological Laboratory, Woods Hole, MA 02543

Secretary / Treasurer  
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Sixth Meeting  
National Association of Marine Laboratories  
Park East Hotel and Great Lakes WATER Institute  
Milwaukee, WI  
24-25 September 1999**

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**Action Items:**

1. Art Brooks and Lavem Weber representing NAML to send a letter to Rita Colwell to support development of biotechnology at marine laboratories.
2. Biotechnology Committee formed
3. "K-12 and Beyond" Committee formed



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Sixth Meeting  
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Art Brooks opened the meeting with his welcoming remarks and outlined the parameters for the Meeting. An official welcome would be heard by the mayor of Milwaukee at the International Joint Commission (UC) Plenary Session in the afternoon. Art gave an overview of his university's system. The University of Wisconsin-Milwaukee has 25,000 students with an average of 25 partly because of the number of graduate students. The WATER Institute functions as an umbrella under which the research components are grouped. There is an fresh water aquaculture center, an NIEHS toxicology center, the Sea Grant Advisory Services office, as well as space for a Great Lakes EPA center.

The International Joint Commission (UC) was also meeting in town, so Art arranged for NAML to attend the opening session and hear EPA Administrator, Carol Browner gave the plenary address. The UC is a bi-national (US, Canada) commission composed of 6 members appointed by State Department of each government (x3 members each) formed to discuss and resolve issues between the two countries dealing with the Great Lakes. Water Quality of the Great Lakes was the issue for this meeting.

Art announced that the morning session would begin with Regional Meetings. Breakout rooms were arranged for each group. Later, everyone reconvened for the Business Meeting. The Biotechnology session scheduled for the afternoon was a regathering to this area, the first since Harlyn Halvorson's initial impetus in this area at the beginning stages of NAML. A K-12 session lead by Lavem also was planned for the afternoon. Art explained that the Shipyard Shindig which would occur later that weekend was sponsored by a non-profit group trying to build a Great Lakes schooner replica and exhibit center of Great Lakes culture, past and present. Dinner and entertainment would be provided to those who attended.

## NAML Business Meeting

The Business Meeting commenced with the following Agenda considered.

1) The Minutes of the Board of Directors Meeting, 22-23 February 1999 were distributed by Alan Kuzirian. After review and one correction to the List of Attendees, a motion was made and seconded (Wise/Sage respectively) that the Minutes be approved as corrected. The motion passed by unanimous vote.

2) The Treasurer's Report was considered and discussed next. Linda Duguay and Lavem Weber moved and seconded a motion to accept the Report. It was unanimously voted.

3) Art Brooks gave a brief history of GLODIR, a UNESCO initiative to compile a world-wide list of marine scientists. Although NAML had initially rejected participation in the effort as the US node of the program, the BoD later agreed to fulfill that task after the suggested quota of 10,000 names was removed and assurances were given that the list would be controlled and not used or sold to advertisers. NAML will put up the forms on our webpage for the US contingent and make a general announcement and solicitation for enrollment

4) An **Audit Committee** consisting of the President -Elect as Chair, plus the immediate two past- presidents was formed. Lavem, Ken, and Kumar were given the charge to review the Treasurer's books and report back to the Meeting when the audit was completed.

5) The participation of NAML in the **National Ocean Science Bowl** was discussed next. It is sponsored by CORE which had asked for NAML participation at the February BoD Meeting. Sara Schoedinger is in charge. NAML's participation will be for 2000. Prizes for the winners are being sought as well as questions/answers. Eight NAML labs already participate. It was decided to obtain a listing of labs participating and the resources they commit to the effort. Art was to poll membership and coordinate the effort with Sara.

6) **Nominating Committee** from SAML proposed Madilyn Fletcher, Baruch Institute, Marine Biology & Coastal Research, U-South Carolina, Columbia as their candidate for NAML President-Elect Art called for other names to be presented from the floor. With none appearing, Madilyn was unanimously voted into office. Following the election, Madilyn thanked the group for their confidence in her and pledged to work fervently for the organization.

#### 7) **Regional Reports:**

a) **NEAMGLL:** Bill Wise filled in for Steve Brandt who had to leave the Meeting because of a family emergency. Bill reported that there were three outcomes from the morning's session. The first was the election of Gordon Fraser as President-Elect and Albert Answini as Member-at-Large. Second, that the Board must seek tangible group activities to move the Region forward. As an effort to do that, NEAMGLL will undertake compiling species checklists to document biodiversity in the Northeast. Another activity may center on K-12 education. Action on that interest will await Lavem Weber's plans for his NAML initiative. White paper reports will be generated prior to the next NAML BoD Meeting at which time the topic(s) will be chosen from the ones presented. The group also formed a Program Committee to facilitate coordination of the meeting agenda. The next full meeting is planned for sometime in October 2000 at MBL, Woods Hole, MA, John Burris hosting.

Brian Melzian, US-EPA, Narragansett, RI, presented materials from the EPA Atlantic Ecology Division that included reference to newly finished reports; *Condition of the Mid-Atlantic Estuaries* and the Cabinet level report to Vice-President Al Gore on a long-term Federal ocean policy entitled, *Turning to the Sea: America's Ocean Future*. Copies of these reports are available from Brian or EPA directly ([www.publicaffairs.noaa.gov](http://www.publicaffairs.noaa.gov)).

**WAML:** Ray Highsmith presented the report highlighted by notes on WAML's annual meeting held in July in Hawaii and hosted by Mike Hadfield. In addition to the meeting, those present visited the Oceanic Institute, Kewalaw Lab, and the Waikiki Aquarium among others. They discussed the Washington briefings in February and the meeting with the Agencies. The potential impact that Tom Callahan's recent death might have on the continuance of his facilities program was of concern. Walt Nelson was given funding to produce a WAML Brochure. Walt Nelson, and Tony Michaels will join Marcia McNutt as members of the executive board. WAML will also consider Bylaws revisions. It was decided to hold their next Annual Meeting in Alaska next year. A support group to assist Lavem during his presidency was also formed.

**SAML:** Madilyn Fletcher gave the report. Elections were held that replaced Tom Malone as President-Elect with Wes Tunnell. Wes will take office in January 2000. Bob Van Dolah was elected the new president-elect and Mat Gilligan as a member-at-large. The Horn Point and Oxford labs will host the spring 2000 meeting. One topic covered during the meeting included a Media Forum which centered on items such as public exposure in newspapers, or TV. A new meeting schedule was adopted which will now revolve around only one/year except when NAML meets for its Biennial Meeting. At the SAML Meeting held 1 April in St Petersburg (Ken Haddad, Florida Marine Research Inst., host) they ran a side-bar meeting for Business Managers that was later followed by joint discussions. It went well for all, especially the Mangers. SAML

will continue that format in the future. An Education Coordinators luncheon is being planned for the next meeting to help SAML coordinate member educational programs. SAML representatives met with National Marine Educators in August. Again, they anticipate it will be a great adjunct to the meeting; two side-bars now.

It was noted that the SAML webpages need revising. They are very incomplete now and should be done well or not at all. SAML will assign the task of completing the webpages to a student at Madilyn's lab and pay for the T&E required to get it finished (to \$5000). Subsequently, that information will be used to update the SAML brochure.

8) It was recommended that the NAML Webpage should contain search engines that would integrate bio-technology as a major identifier as well as the coastal issues; this is especially true for courses. They would serve to increase the collective nature of biotechnology being done by the membership.

The raising of this subject prompted further discussion. The term, Molecular Approaches, was suggested as a good umbrella to cover the subject. Cross-discipline areas are always at a disadvantage because they fall under the purview of many different groups. Labeling is hard to avoid, as is the large investment of time and effort put into grants-man-ship to secure funding in cross-discipline areas. Therefore, it is often difficult to succeed in getting money to start programs under these parameters. The integration of biology and ecology is hard because of "labeling" practices. It is difficult to combine population biology and biodiversity on the same level. John Burris said that NAML definitely needs to do just that. NAML members cannot be labeled as just a collection of field stations. Marine labs answer basic biological questions, so we must extol biotechnology to get agency funding; nurture the widest possible audience. Ken recommended that a subcommittee be formed to address this issue and to set up a meeting with Rita Colwell at the February BoD Meeting to expand that funding. John Burris stated that the time is ripe; tout the fact that there is a network of labs doing gene sequencing on biomedically important species as an example. Rita and Mary Clutter are tuned into the needs of marine labs for biotechnology applications (she endorsed \$50M for biocomplexity). A strong case can be made that marine labs produce students with an integrated knowledge of biological processes.

**Motion:** Ken Tenore proposed (with second from Lynda Shapiro) that the presidents (Art, Lavem) draft letter to NSF supporting infrastructure funding for marine labs and field stations. In the discussion that followed, it was decided that the letter should include support for biotechnology development at marine laboratories because of the changing nature of biological research. A copy of the Sarasota Report should be included as verification of its importance. A Committee could also be formed that would make presentations to Rita Colwell. The history of program was also discussed regarding the split funding between Ocean Sciences and Biological Oceanography and the supposed sharing of the funds between marine labs and OBSF. John Burris re-emphasized that program specificity is necessary in the letter. The motion carried with the abstentions of the Federal labs.

Lavem asked for help in preparing and wording the letter. A Committee was formed with Tom Johnson, Tony Michaels-chair, Sandy Sage, Lynda Shapiro, and Peter Anderson as members.

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**Lunch** was served in the Executive Room #2

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**Report of the Audit Committee:** Ken Tenore reported back to the meeting. The audit was complete, the Treasurer's books were in order, and the signatory sheet was signed.

**K-12 Education:** Lavem reported that last week in Seattle there was a meeting of CORE, and the Marine Advanced Training Program, looking at marine technician training especially at the community college level. Trish Morse formerly of Northeastern University, Boston, and the NSF Education Program also attended. Technicians were there as well, and related the fact that

they felt a greater need for management training than anything else. Their technology skills training was OK and they were confident that their training could adapt easily to the marine environment. Ship-board technician training is needed however. In Lavem's opinion, CORE has an excellent webpage on K-12 education but those same kinds of programs occurring at NAML labs are not well marketed. National Marine Educators, Sea Grant, IAMSLIC, and CORE cooperation with NAML should be developed and programs/webpages shared and linked.

Lavem thought to propose that we meet the day before the BoD with these groups to see what they have done. Although everyone recognizes the potential that should be addressed in K-12 programs, no one can exactly define WHAT specifically can be done with K-12 and curricula development. Training vs education are very different issues. Outreach education in environmental education is always needed and NAML is in a position to do it. We as lab directors however, don't have the time to do it. It was suggested by Tony Michaels that Education Coordinators be invited to NAML meetings. We can introduce them to the areas they can focus on. NAML labs can serve as resources and this will be Lavem's task as president. However, each member must participate and/or support the effort. Education and educational resources could easily be a unit of LABNET suggested Nancy Marcus. Tony used an example of an underwater camera at each lab that can be connected into the web and used for teaching diverse units. It was brought up that standardized state curricula may interfere with some of our programs. However, K-12 is the new market arena which we, through LABNET links, can reach; a Kansas school "coming to the ocean." Sandy Sage reported that Maine's schools are now all wired together. There is an immense potential for using this network to develop a marine experience for students. Art suggested that NAML's niche may lie in teacher education, while Dave Remsen argued for the application of an interactive database to be developed on the web. He further suggested linking member labs as underwater exhibit/visitor centers, etc. Using LABNET as real-time observatories was also suggested. Kumar related that geographic distance learning is now coming rapidly. Three school districts are currently connected to MOTE for real-time lab experiences. NAML can do the same thing. Participation will be limited to those with interested faculty/staff. However, a good way to create a science and math "hook" for the kids is through these kinds of connections.

Tony suggested doing a workshop with education coordinators. NMEA and IAMSLIC are anxious to cooperate with us. SAML is going to set up one meeting and Madilyn suggested that it be open to all those interested. Ken reinforced the suggestion of meeting on this subject in February. Lavem will need support from the NAML group dealing with this issue.

The real feature of "what marine science is" a very important goal. Mike Orbach voiced concern that adults need education on the marine environment equally as well as K-12, especially in the areas of management and policy. K-12 education can easily be the focal point for foundation support. There is a K-12 water quality program being practiced in Buffalo said Gordon Fraser. Alan Kuzirian suggest a "shadow program" could be established through the webpage. John Burris suggested mentoring students doing science fair projects and introducing them to marine models.. Madilyn recognized the need that information exchange is the crucial applicable to all areas, so making the information available is key. John Burris suggested the idea of using K-12 as a focus area is a good one, because it is a way to get the, "biggest bang-for-the-buck". Docent programs will be necessary to implement any K-12. Lavem suggested that it is NAML's job to catalog the educational information available, while others want to extend the project by establishing actual programs through the member labs. Lavem says that information cataloging has been done but in general, remains unavailable in one place. It is hoped that Dave Remsen could help by making search engines in the proper context to search NAML's sources. Ken Tenore made a motion to commit funds to Lavem for this project; \$5K suggested Madilyn Fletcher seconded the motion which was then voted unanimously to implement.

Lavem asked for a list of people willing to help on this project (Appendix II). Kuzirian passed a sign-up sheet around. Lavem suggested a working committee of 7 people. Input from the others who did not sign up would also be gratefully accepted..

The meeting adjourned for the afternoon. Members were to depart to the Midwest Express Convention Center for the opening **Plenary session of the International Joint Commission and Great Lakes Environmental Expo**. The keynote speaker was Carol Browner, US-EPA Chief Administrator. She began her address by informing the audience of her mission as EPA Administrator. It consists of protecting the environment to insure that there is clean air, water, land and good health for the next generation. She pledged to insure that superfund clean-up sites get cleaned up and that she would endeavor to protect the health of our children.

Carol noted that this was the 90<sup>th</sup> anniversary of the LTC. It was begun by Teddy Roosevelt who actually held the first conservation conference between the US, Canada and Mexico. She noted that the 95,000 sq. miles of the Great Lakes comprise 95% of the fresh water in the US and 20% of the world's. The biggest threat to the safety of that water supply is "bio-accumulating toxic pollutants." Of these bio-accumulating chemicals (BCCs), mercury and PCBs are among the most important. These BCCs enter the Great Lakes in mixing zones. Carol wants to eliminate all mixing zones in the Great Lakes and elsewhere. She repeated several times that, "dilution is no solution to pollution."

80% of the Hg that enters the Great Lakes comes from air pollution originating primarily from coal-fired power plants. She pledged to implement stringent Hg control measures on coal-fired power plants by December 2000 unless Congress again interferes. The other large contributor to Hg pollution is chlorine production; it contributes 5%. Almost all chlorine plants are located near major bodies of water. Therefore, they need to have more stringent controls imposed. Carol ended her presentation with her final point of pledging her efforts to prohibit the whole-sale selling and exportation of water from the Great Lakes. She supports Vice President Gore on this point.

Additional Speakers at the opening session included, John Norquist, Mayor of Milwaukee, Paddy Torsney, Parliamentary Secretary of the Canadian Federal Ministry of the Environment, Lawrence J. Washington Jr., Vice-president, Dow Chemical Company, and Tony Clement, Ontario's Minister of the Environment. The session closed with a very enlightening and moving Traditional Native American Blessing given by Jim DeNomie, member of the Bad River Band of the Chippewa Indians of Lake Superior and Indian Development Commission. Jim is the host of a PBS radio and TV program and was the first person to recognize and alert authorities to the exotic species invasion of the Zebra Mussel.

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**Social Evening: John Ernst Restuarant**  
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**Sixth NAML Meeting  
Great Lakes WATER Institute  
25 September 1999**

The morning's session began with opening remarks and words of welcome from WATER Institute Director, Jeff Foran. Jeff came from Washington, DC about a year ago. He noted the shared concerns and commonality between fresh and salt water. Jeff ran down the organizations that fall under the WATER Institute. There is an NIEHS Center that deals with zebrafish and physiological toxicology. Emphasis in their aquaculture center is on yellow perch. Aquaculture efforts for this fish is key to its food production in the Lakes. The fish do not reproduce naturally now in the Lakes and the reasons remain unknown. There is a Sea Grant Advisory Office dso housed here. Their focus of emphasis within the Institute is now broadening from the Lakes to other large lakes/fresh water resources in the world. Their efforts now extend to economic, social, as well as the science of fresh water management

In response to a few questions from Sandy Sage, the discussion turned to exotic species. It was noted that the Quagga mussel is beginning to replace the zebra mussel in Lake Erie. They reproduce at lower temperatures and have a deeper benthic distribution. If suitable habitat is not available, they attach to each other and form benthic mats. Because of this, some detachment

of marcoalgae is occurring and it washes up on shore making the shoreline smell like the ocean.

Art gave a brief history of the building. It was originally built as a ceramic tile factory for Allen-Bradley Corporation. Their expansion effort into this area only lasted about a year and a half. The U-Wisconsin-Milwaukee purchased the building for \$1.5M in 1973-74 and has expanded its use since. The facilities now include aquaculture, ship docking capabilities, plus laboratory, research, teaching, support and administrative space.

Ken Tenore began his talk with a brief history of LABNET. The idea was born four years ago at the Sarasota Workshop. Among the questions asked at that time was, "where is the niche that marine labs can fill?" Two initiatives came from the Workshop: the NAML website, and the idea of networking the data collected by member laboratories. For the latter case, a steering committee was formed to move the project forward. A technical committee was established as well to develop the technical capabilities for erecting the system. LABNET is NOT a centralized database and is not in competition with GOOS, etc.; it is not a system designed to try to collect real-time data. It is a linking network that is capable of interfacing with labs and other databases. It is a means to visually display and integrate data. The general types of data sets of interest include: 1) coastal habitats (lagoons, estuaries, marshes, bays, rocky shores, coral reefs) and 2) significant biological events (harmful algal blooms, disease outbreaks, nutrient loading and eutrophication). Ken stated that the network (including regional hubs) will be supported by NSF and other agency funds. However, the data input and questions asked will be contracted through NAML.

The topic for the last LABNET meeting was how to implement LABNET. One area of focus will be to allow multiple, distributed databases to be accessed and queried and visually integrated as if they were a single logical unit. One pilot project involving the SAML labs will be on harmful algal blooms in the southeast Atlantic and Gulf. WAML will do one on sea-surface temperatures related to El Niño. Access to the LABNET system is for NAML members who wish to participate and others who wish to affiliate with member labs.

Dave Remsen demonstrated the system as he has configured it to this point. It contains general purpose tools that are flexible for many applications and for various formats and databases. The location and spatial distribution of NAML labs will form the geographic coverage that is necessary to make LABNET successful; distributed labs operating in concert! Visualization images are generated over the network, usually in the form of a distribution map. The input component will be designed for accessibility by all members. Taken *en toto*, the system will allow input for managing databases, and then the (visual) display of that information. Dave said he uses API engines to create the intermediate layer that allows easy data use but also provides enhanced graphic displays.

Dave demonstrated the system using the distribution data of coastal algal blooms by displaying it on a data map system. He explained how the system will operate by using an "index card paradigm" of sending data into the system daily. Over a spatial and temporal period, the data can be displayed on/as a map. The input will allow the participants to manage their own data at any time. Flexibility is the key to the whole system; temperatures, time-series, biological/physical/climatic events, quantification data, etc. Security gates can be installed at many points in the system to protect the data and systems. In general, each participant will either maintain their own data sets that are accessible to LABNET retrieval, OR the data sets can be stored in the LABNET system and the user can do the processing on the LABNET server. Combinations of the two will also be permitted.

Bill Wise asked about the mechanism by which a collaboration or project can be formed and implemented through LABNET. Ken reported that the actual methods will be formulated at the next LABNET workshop. It will be governed by what the technical committee can devise. Ease of database accessibility is one of the major desires. There were several people agreeing that the Survey Data Questions/Responses should be put up on the web. It was further suggested that the form and question templates be accessible to the membership so they could continually be updated with information whenever necessary. Many Members want to know "who" else might be doing things of similar interest.

**Facilities Tour: Great Lakes WATER Institute.** Art hosted a facilities tour of the Institute. Among the highlights of the tour were the freshwater aquaculture facility of the Aquaculture Institute, the laboratory of Rudi Strickler, and the EPA ship, the *Lake Guardian*.

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**Luncheon Buffet Served**

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**Congressional Initiative:** Art Brooks told the group that he had hoped to get members of his local congressional delegation to attend the NAML Meeting, but as so often happens, they had to remain in DC for budget voting roll calls. Therefore, he switched the emphasis and adjourned the meeting so that all could catch the bus back to the Hotel. Art thanked everyone for a good meeting and reminded everyone about the Shipyard Shindig that evening.

The **Shipyard Shindig** was sponsored by the Wisconsin Lake Schooner Education Association. They are a non-profit organization currently building a wooden, 137 foot, three-masted, Great Lakes Schooner on the edge of Lake Michigan in downtown Milwaukee. With aid of about 12 New England master shipbuilders and shipwrights, it is being built essentially with volunteer labor. The ship, when completed, will serve as the state's Flagship and operate as a floating classroom devoted to hands-on, interdisciplinary learning in the areas of historical, cultural, and environmental awareness of the Great Lakes for persons of all ages. The ship will have approximately 40 berths for extended, on-board educational programs as well as wet and dry laboratory space. Specific programs include navigation, piloting, and other ship operations, as well as on-going environmental education programs to communities throughout the Great Lakes. Those who toured the ship under construction and its associated support workshops had a real experience into the art of wooden ship building.

Respectively submitted.

Alan M. Kuzirian, PhD  
Secretary/Treasurer



**APPENDIX I**  
**ATTENDEES; SIXTH NAML MEETING**  
**Milwaukee, WI; 24-25 September 1999**

Peter A.V. Anderson, Whitney Lab, U-Florida, St. Augustine, FL  
Albert Answini, Marine Science Consortium, Wallops Island, VA  
Ivar G. Babb, NURC, U-Connecticut, Avery Point, Groton, CT  
Simon C. Beeching, Marine Science Consortium, Wallops Island, VA  
Stephen Brandt, Great Lakes Environmental Res. Lab., Ann Arbor, MI  
Arthur Brooks, Center Great Lakes Studies, U-WI-Milwaukee, WI  
John E. Burris, MBL, Woods Hole, MA  
Linda Duquay, Wrigley Inst., USC, Catalina Island, CA  
Madilyn Fletcher, Baruch Inst, Marine Biol., U-SC, Columbia, SC  
Gordan Fraser, Great Lakes Cntr., SUNY College, Buffalo, NY  
Cpt. John Freidhoff, Great Lakes Cntr, SUNY College, Buffalo, NY  
Michael Hadfield, Kewalo Marine Lab., Univ. Hawaii, Honolulu, HI  
Carol Hansen, Mar. Biomed. Env. Sci., Med. U-SC, Charleston, SC  
Raymond Highsmith, West Coast NURP, U-AK, Fairbanks, AK  
Thomas C. Johnson, Large Lakes Lab, U-MN, Duluth, MN  
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Kumar Mahadevan, Mote Marine Lab, Sarasota, FL  
Nancy Marcus, Mar. Lab, Florida State U., Tallahassee, FL  
Brian D. Melzian, US-EPA, Ecol. Div., Narragansett, RI  
Anthony Michaels, Wrigley Inst., USC, Catalina Island, CA  
Frank Millero, RSMAS, U-Miami, Miami, FL  
Timothy Nelson, Blakely Island Field Sta., Seattle Pacific U., Seattle WA  
Walter G. Nelson, US-EPA, Coastal Ecol. Branch., Newport, OR  
Michael K. Orbach, Duke U. Mar. Lab, Beaufort, NC  
Richard Osman, Estuar. Res. Cntr., Acad. Nat. Sci., St. Leonard, MD  
Sandy Sage, Bigelow Lab for Ocean Sci., W. Boothbay Harbor, ME  
Rynda Shapiro, OIMB, U-Oregon, Charleston  
Stephen D. Sulkin, Shannon PL Mar. Cntr., W. Wash-U, Anacortes, WA  
Randal Snyder, Great Lakes Cntr., SUNY College, Buffalo, NY  
Ken Tenore, CBL, UM Cntr. Envir. Studies, U-MD, Solomons, MD  
Wes Tunnell Cntr-Coastal Studies, TX-AM U., Corpus Christi, TX  
Lavem J. Weber, Hatfield Mar. Sci. Cntr, OR-State U., Newport, OR  
Stephen Weisberg, S. Cal. Coast. Water Res. Proj., Westminster, CA  
William Wise, SUNY, Stony Brook, Long Island, NY  
Thomas G. Wolcott, Mar. Earth Atmos. Sci., NC State U, Raleigh, NC

**APPENDIX H**  
**"K-12 and Beyond," Helper List**  
**SIXTH NAML MEETING**  
**Milwaukee, WI; 24-25 September 1999**

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