



**NAML Board of Directors Meeting  
7-9 March 2013  
One Washington Circle Hotel  
One Washington Circle, NW  
Washington, DC**

**Opening & Welcome: 7 March 2013; Buffet Dinner and Meeting Speaker, 6:00 to 8:30 PM**

President Jo-Ann Leong opened the dinner meeting with a welcome to all. Several procedural points were made, and Jo-Ann announced that our speaker would be Dr. Kathy Jacobs, Assistant Director, National Climate Assessment program, OSTP. Following that, Jo-Ann paid homage to a longtime member of NAML, Kumar Mahadevan, Mote Marine Laboratory. Kumar is in the stages of retiring as director of Mote Marine Laboratory having passed the baton on to Mike Crosby. In recognition of his years of service to the Marine Community, to the State of Florida, to Mote Marine Lab, and to NAML, she thanked him, and asked him not to be a stranger to NAML in his retirement. Alan Kuzirian continued the tribute by giving recollections Kumar's important contributions during the first organizational meeting of NAML in Woods Hole. Kumar's steadfastness to the preservation of SAML was unwavering. Ultimately over the 2-day meeting, NAML was formed, and SAML remained with its identity preserved, and was joined by two sister organizations, WAML and NEAMGLL.

Nancy Rabalais, on behalf of SAML, placed Kumar's name into nomination for Emeritus Status with consent of the NAML past Presidents present. All present voted in favor of the nomination with rousing applause. The election will need to be confirmed at the Biennial Meeting in Hawaii after proper notice is given to the NAML Membership of the nomination and election.

The evening's speaker was Dr. Kathy Jacobs, Assistant Director, Climate and Adaptation Assessment, Office of Science and Technology Policy. She began with a brief history of the program that had its beginnings on the US Global Change Research Program enacted in 1990. The program involves 13 different governmental agencies. Overall, it is the largest climate assessment program in the world. As enacted, the Act requires a Climate Assessment review every 4 years. However, to date there has only been two because of funding, 2000 and 2009. There was no standard infrastructure in place to facilitate these surveys, so they were all built from scratch. In spite of the difficulties, the reports have been well accepted and were of high quality.

The new assessment (third in the count) addresses the issues of adaption, mitigation, anticipation of changes, and quality of the science used in the assessment. There are foundations, NGOs, and governmental agencies all participating in the report. It has been a community building process and was undertaken with a "risk-based" framework. It has scientific and regulatory actions outlined within it.

For deliverables, the following were listed: Regional climatology assessments and projections; discussion of global sea level rise; general climate impacts on the oceans like CO<sub>2</sub> levels, ocean acidification, and changes in world ocean current flows; increased northward incursions of southern species. For coastal issues, land-loss is the biggest issue, while on the economic side the assessment plotted the economic impact flow illustrating how coastal events

in the Gulf of Mexico can spread inland into the nation's heartland and spread laterally toward both coasts. One striking finding was that current climate changes are abrupt, non-stationary in that they do not oscillate in a confined geographic area, and that these abrupt changes are moving quickly in time.

Kathy told the group that the report will be distributed electronically. It is a very large scale document with 240 authors, >800 contributors, and must be reviewed by a 60 member Advisory Board. It can be seen at: [www.ncadac.globalchange.gov](http://www.ncadac.globalchange.gov). She noted that major and independent news agencies have already started to pick it up and it is making major impacts.

Discussion followed and was begun by John Rummel asking whether the Assessment material will reach the people who need it including the general public. He suggested that none of the current briefings or public forums have involved the East and Northeast Coast. Kathy responded that hosting and funding of "Town-Hall" meetings is dependent upon stake holders. Mike Crosby lauded the effort, but cautioned that the goals and recommendations need to be clearly prioritized for the best impact. They should be brought through OSTP with the recommendation that extramural funding be dedicated to act upon the Assessment's recommendations. It has been proven many times that extramural research, gets the most results for the dollars spent. Kathy emphasized that the Assessment's main authorization is to collect data, and to get that data to those who people/agencies that make the recommendations. Kathy said that with it being on-line, it will be searchable and more readily available to upper levels of state and government management agencies, and that response addressed Toby Garfield's concerns. Nancy Rabalais said she was pleased that there was an ocean and marine chapter targeting important specific coastal assessment issues. Ivar asked about NAML joining the NCA. Kathy gave us the website to inquire about joining: [www.ncanet.usgcrp.gov](http://www.ncanet.usgcrp.gov) or, [www.assessment.globalchange.gov](http://www.assessment.globalchange.gov).

### **End of the Day Adjournment**

\*\*\*\*\*

### **NAML Annual Board of Directors Meeting: 8 March 2013, 8:00 AM**

Jo-Ann opened the meeting and gave alterations to the day's Agenda due to illness and the need of two members of the appropriations committees to work on the House passed budget. The additional time was used to formulate questions for the speakers and to hear about the Council on Ocean Leadership (COL) Panel meeting held yesterday. Ivar invited people to the OBSF-NAML steering committee meeting being held on Saturday, and if people wanted, to contribute items to the report.

**Public Policy Committee:** Nancy Rabalais took over the meeting as chair of the PPC. Nancy gave accounts of the meetings being held this week in DC including Sea Grant, COL, and others who work on public policy issues. The group discussed ways of trying to fuse these meetings to better share information.

Nancy stated that NAML's Public Policy Agenda is now before us. It took time to get it done because of all the uncertainty in DC and with budgetary items. Commerce, Justice and Science appropriation subcommittees were in the stages of taking public testimony and NAML should and could speak to the issues. Shirley Pomponi did it last year for NAML. Joel gave more information on the process, and noted that NAML's participation did help with NOAA's extramural funding program. Shirley agreed that the process seemed unorganized, but it does work, and gets testimony into the Public Record. Joel reminded that NAML could submit

written testimony instead. Meg Thompson added her endorsement of the importance and worthiness of the process; one never knows what will happen.

Joel stated Obama's budget would come out either March 18, or 25. He related that consolidation of STEM programs would likely appear in his budget recommendations. It is clear that there is too much overlap in many federal programs concerning efforts on education. NOAA education programs fit into this situation. All NAML members involved in NOAA education programs received letters saying there was no budget in place due to sequestration. That included State governments who are also taking stock of what the possible fallout will be.

It was noted that Graham Shimmield and Roberta Marinelli were on the COL PPC panel. Discussed were the 2007-8 problems from shellfish aquaculture crash and Oregon State University's finding that low pH was the issue of most importance. It was determined from monitoring of water quality that pH issues are rapid and weather related. Regional cooperation between science organizations is needed to analyze these types of issues. Currently, the success rate is up to 80%. However, there are still other issues besides pH that need to be addressed like hypoxia, and algal culture of feed stock. The major outcome of the situation is that shellfish owners are now celebrities in support of science to fix the issues.

Mike Crosby wanted to learn more about where NOAA is going with these kinds of problems. He asked, "What is their research program? Is it a closed shop or can NAML get involved?" David Christie said that Sea Grant is involved, but both agreed NOAA's program seems closed. Mike asked if it is in the Nation's best interest to be closed. John Rummel logged into their website, and showed that within NOAA, there is community involvement, but science collaborations are narrow. Questions were asked about the size of their budget and all agreed it is very small overall. It is integrated into many other of their environmental programs. However, Jo-Ann emphasized that Extramural NOAA funding yields much more return than their intra-mural. Joel suggested asking Margaret Spring who is about to leave NOAA how to proceed and if she might have insights. She may be able to assist.

Joel restated for everyone that Congressional and Appropriation people were coming and so we needed to plan what questions to ask. Although the Appropriation people could not attend the meeting, it is the Congressional Authorizing staff that gives permission to activate programs or not. It is not about the money, but the spending policy: its scope, direction, and policy that affects NSF, NASA, and NOAA. Cooperation between the two governmental departments is now much closer than in the past. The two do now communicate and sometimes work together, so that authorizers don't waste time putting together a program that will not be funded. Meg said that Senate and Executive Committees now have to work together because the Senate is more balanced on the Democratic side. We might be able to get authorization answers from the Senate folks in relation to the Administration's priorities. Minority staffers were asked for Appropriations, but not Authorization. What the balance will be between Intra- and Extramural funding is a good question to ask, and how can NAML be better represented on the issue.

Mike Crosby asked if we followed up on tracking the ratio between the two. Joel said that his data was old and maybe not reliable. He said that NSF did survey but they only went as far as Commerce, not NOAA specifically. However, NOAA does represent the majority of their budget. It was pointed out that NOAA subcontracts are cannot be considered Extramural funds because the money given to universities must be used to fund NOAA (intramural) scientists who come there to work: it is just the pea under the shell game. Another example is the Hurricane Sandy supplemental funds. NOAA received >\$100M, and now the authorization was completed on how to spend it. This additional money is also subject to the Sequester, so it will buffer their loss by being included. Satellites will continue be a NASA & NOAA issue; who gets what. It appears that NASA would get funds to build and put the satellites in place, and NOAA would get

the data. This is still unresolved issue as a Senate issue. Senator McClusky formulated to policy but it is not known publicly. Authorization staff must now sort it out. NSF funding is handled by Ann Zulkosky, so questions about NSF should go to her. What is going to happen to the core budget is a major question. Cross-directory directives over traditional within-directorate core funding programs may now be an issue because of budget cuts. Ivar agreed the balance is important and it would be good to know what that balance might look like. The same questions chosen to ask David Conover would also fit for here

Roberta Marinelli asked about how the new agency leaders are going to be chosen. Joel stated that OSTP will have the greatest impact but that the Administration would go to good science people, but the choice will be closed. It was noted that Agency vacancies still not filled are heavy on the science side, and that causes Joel to be concerned because the reasons are not really known. Program leaders need to lead the budget process. Joel reiterated that the current situation is not the usual course of events, but are interesting. Ivar asked about current legislative initiatives and whether NAML could help through briefings, etc. Joel strongly agreed so that NAML's expertise is increasingly recognized. We need to do that.

**Ann Zulkosky – Senate Commerce Science & Transportation Committee (Catherine Barrett, NOAA).** Joel introduced the quests to the group.

Ann Zulkosky (NSAS, OSTP, NIST) manages budgets including forensic science to include NSF and NIST. The American Competes Acts (2007, 2010) must now be reauthorized again. Ann stated that the push and pull between science and infrastructure is constant. Escort states cannot train all the necessary science that is needed. The program must expand to all states. However, new grants will be greatly reduced. As is the usual case, communications between funding agencies and scientists is insufficient. Ann said that there has to be a champion to lead the charge in the Senate. Currently, "eliminate duplication in science" is the basic war-cry in appropriation committees. The take-home message related is that science must sell itself and, that to be successful in maintaining funding levels, we, as a group, have to project 5 to 10 years ahead and to be able to communicate clearly how our programs fit into the overall contribution to society. Ann warned that once science budgets are cut it is too late! We as a group have to keep information out and available to legislators about how science impacts affect everyone.

Catherine Barrett (NOAA, ocean subcommittee) –Her focus is on stock assessment and weather science. Committee members have a lot of ideas related to reauthorization of programs; IOOS in particular. If these programs can be fully justified, then bipartisan cooperation is there. Catherine recommended that we should bring science data to the Senators to support the appropriate programs. She cited as examples, bills related to the FORUM Act, Arctic Science Monitoring Act, set in relationship to off-shore drilling in that area. The Arctic Observing System is included in this group. Another program is the Gulf Restoration Act and its oversight from the oil spill. The National Climate Assessment bill is also being marked up. It is important to move bills with consensus from both sides of the parties and especially with the House side. She noted that the Coast Guard Authorization also included some science. They need good science input to show where funding is working or not working. Cathy stated that the issue of Ocean Acidification is unclear politically, so we must clarify the issues for the appropriation members. Weather and satellites have their own set of issues; dry versus wet side. Satellites are essential for weather, but it comes at a big price to other programs. Sequestration committee needs to make balanced decisions on where cuts should occur. Weather models and computers are being pressed for because of the natural disasters that are happening lately. Hurricane Sandy

supplemental budget had a mix of funding programs including science. Cathy related that the Coastal Resilience program was not presented well so it eventually got cut. Tried and true programs are easily funded, but new programs with good impact can also be funded if argued in terms of the better good.

Jo-Ann asked about ecosystems evaluations and the fact that they are never funded. Cathy agreed that they like that program, however, fisheries people only push narrow, single issues, and do not think globally. Senator Rubio, FL is the new chair and he is interested into getting informed on the issues. Briefings will be held and she suggested scheduling one. John Rummel about NASA and the COMPETES Act. The published timeline for doubling the budget has not been realistic, and so the resource side is questionable said Ann. The Industry side is fairly pleased with funding obtained through the military. She noted for us that this so-called Commercial Funding, where the government puts up to x10 more than the investors is not really commercial funding. Roberta Martinelli asked about how to present the value of science effectively to legislators. Cathy said the best thing to do is to show them achievements and examples of societal benefits, not just to come to call for money. Presenting clear statements of the "value to back-home people" is best! She also indicated that explanations of the "bigger context" always works, and to leave out the minutia of individual science that they cannot understand. They warned that many of the Senators are new to committees and need to be educated on issues, how to understand them, and their impacts. They both recommended to come and seek them out, and do briefings. Mike Roman asked about extramural funding. They are aware of issues and the lack of accountability from NOAA. The chair is pursuing these issues, but it is hard to enforce compliance. Cathy asked for help and specifics so she can make the case. NASA scientists have to compete with everyone for funding, and they do not like it, but the best science gets done, said Ann. Ray Highsmith gave the example that ocean exploration within NOAA is growing significantly, while the extramural fellowships funding for NURP is due to be cut. Senators Cochrane and Inoue were the leaders for NURP funding so Cathy said she would check. NOAA has never been fully authorized, only the National Weather Service, so earmarks were the standard budget process. This has led to these current conditions. Ray also brought up the fact the extramural programs are being cut with sequestration over intramural. Mike Crosby suggested that Congress should make NOAA accountable and force them to move money into extramural programs. They said that NOAA administration at upper levels is competing within their own divisions, and so cooperativeness at the local science levels gets erased. Mike Crosby brought up NAML's PPC Agenda and the NOAA Advisory Board Report. However, Joel related that the report was initially posted on NOAA's web site, but was quickly removed from the SAB agenda. He suggested they familiarize themselves with the content and follow up with NOAA. He also suggested that mega projects currently being funded by NSF also retards the individually funded science innovations that have been the hallmark of scientific discovery.

**Oldaker Briefing Report:** Joel brought the meeting back to order and presented data to support and enlighten the past discussions. Only 2% of the Federal budget slice goes to science and medical research. The lowered spending caps will reduce that by a \$1.2 Trillion overall cut over 10 years. \$85B for this year falls on discretionary spending. Joel warned that there is still another \$12 B that will be included into other, not-yet spent FY budgets.

Joel noted that the budget pressures will be great and will persistent for 10 years. These conditions make it difficult to argue for specific programs. Science must make its argument against all the others seeking to get a "piece-of-the-pie" from discretionary spending. The Active

Military budget is exempt from the Sequester (65%), so their cuts will only come from the remainder. FY-13 House CR could cause redistribution of the cuts, but probably not to any great extent. Meg Thompson related that Ann Zulkosky in a private meeting in August, admonished the science community for not bring forth the impact sequestration would have on science. The Committee wanted and needed that information. The Budget Office kept the lid on talking sequestration because they did not want to affect the Stock Market.

NIH OMB meeting indicated that every appropriation account would be cut by the same amount. Within NIH, they urged that the cuts should not be assigned to new grants. NSF is in similar situation but with a little more flexibility to distribute the cuts. NOAA however, can allocate over greater resources because they have only two funded accounts; large ones. This is where intra- and extra-mural programs can be pitted against each other. Joel said that the middle of May is the earliest that substantial information on the cuts will come. Thus, the largest cuts will come only during the last quarter of the fiscal year, so they can be as high as the 5%. Most agencies have withheld the monies already so the cuts will not happen precipitously. However, in general, the major cuts and damages will occur during the last fiscal quarter. NSF said they will support funded grants and cooperative programs, but would reduce new funding. Congress could over-rule that tact by requiring NSF to go across all programs. The House CR did include DOD funding that would allow them to have more flexibility in the cuts including active military. Graham Shimmiel asked about NSF pre-proposals being increasingly used to screen in-house cuts before cutting full proposals and also increasing the delay in making choices about budget cuts. He stated that process would greatly impact new science and young investigators (even from AARA) who cannot accommodate the delays. Joel stressed that the cuts will be 5% below FY-12 levels, not FY-13, if another CR is used. He also said the cuts will affect agencies that depend/based on personnel budgets. They will have to cut staff, so there will be a delay, but it will show up by reduced services to the public.

Ray Highsmith asked about furloughs for a number of days without pay as a means for coping with the reductions. He noted that in science, it is jobs! Joel stated that anomalies can be written into the CR to help eliminate programs or start new ones that normally could not happen under a CR. The House CR did have a couple of these. Joel stressed that science is still there, but we will have to work a lot harder to get the money.

**David Conover – Ocean Sciences Division Director, NSF:** David opened with thanks to be back among friends. David stated that his research is marine based, so NAML is of instrumental importance to him. He stated that NSF is currently under a CR until 27 March, and also under Sequestration reduction. He noted that their strategy is to protect staff (6% of total budget) because if people are fired, then agency work would stop. David said that awards, fellowships, scholarships, existing awards, and cooperative agreements will mostly be on hold, so NSF will make fewer awards (1000 grants). Lower success rates will occur for submissions. NSF has only funded 80% of approved projects as part of their preparation for sequestration. The spread of the cuts has not been decided over the divisions/directorates. Allocations to the new mandated or requested programs for new initiatives will be funded to some degree because they were asked for. Continuing awards that are funded annually can be increased rather than standard awards where the total cost of the grant is encumbered from the first year awarded. The President's budget for FY-14 is supporting continuing science. Congress however, is not of that mind.

David mentioned that a new vessel launched; first in 30 years that NSF paid for. Oregon State (winner of RFP) will marshal the process the building of 3 more regional class vessels. UNOLS fleet of 30 vessels will gradually decline as the new ones come online. He also

mentioned that Alvin has been re-made and upgraded. The Operations & Management infrastructure budget is now the highest it has ever been (close to 50%). Ocean Research Priority Plan had to be connected to the National Ocean Policy and that was now done. Included in the plan were Arctic Ocean research, ocean acidification, plus others. David said the National Ocean Policy was signed by Executive Order, so now NSF proposals can be submitted addressing priorities covered there. David is now in a Decadal Survey for Ocean Sciences to look to the future for objectives and costs (2015-2025 time period). It is directed to likely funding levels and trade-offs are may occur in other program funding. Transformational discoveries are the driving force to this process. Over investment in infrastructure is likely in the future at the expense of science programs. Dave mentioned that infrastructure in coastal labs is part of this equation. The earlier proposal to double the NSF budget is no longer occurring. It is now flat-lined. However, OOI as part of the infrastructure budget must continue because Congress has adopted and funded it. Not only must it go forward, but it must be successful. Special Programs under development include: EarthCube, INSPIRE, Coastal SEES, and Belmont Forum for international collaborations

David Christie asked if coastal labs will ever appear on the budget list. Dave replied by saying they are not on the scale because to some extent coast lab funding comes from state levels, and outside sources. Other programs however like drilling cannot be done other than through the government. Shirley Pomponi asked if the newer programs initiated by the outgoing director would continue. David thought they would be. The new, Rapid Proposals will continue, but they are paid for out of the core budget, so the money must be accounted for. Use of preproposals was asked about by Mike Roman. Dave responded that there are lots of review pressures with increasing numbers of submitted proposals without increasing staff. He said there are no firm answers yet decided. He further indicated that there are lots of varieties of how reviews are handled over the directorates. Some directorates have no deadlines with an open submission. There are no plans to change the system including limits on the number of grants a PI can be awarded. Jo-Ann asked if the NEON model could it be used for marine lab infrastructure management. Dave said it could if couched as a good science plan especially if networking is involved and directed at something specific. Ray Hightsmith suggest couching marine labs a national resource with outreach, student training, etc., as one way to justify and elevate the funding potential of labs, and Dave agreed. OOI funding will be reviewed like ship use, and does not have a separate budget to fund it was the answer to a question asked by Jyotika Virmani. Fewer requests are coming in to use UNOLS ships, so over time the budget will have to be adjusted. The regional vessels will modulate some of this decline. David emphasized that to build NSF's budget through OMB is to build new things/ideas, and not to rely on arguments based upon continuing funding of things that are already being done. NSF uses RCNs for forming new networks between science and political or social scientists said Dave in response to Roberta Martinelli. Dave related that land grant colleges tend to have more of those kinds of associations. He suggested NAML might assist in forming non-traditional networking. In 2014 he will leave as his IPA will end. He suggested that NAML think about who could replace him.

**Margaret Spring – Deputy Undersecretary for Oceans & Atmosphere:** Margaret announced that she is going back to Monterey, and is welcoming the change as she leaves NOAA. Margaret said that NOAA's accomplishments recently have been significant under Jane (Menge) Lubchenko. Unfortunately, budget crises were the central focus for most of her tenured period. Weather Services was one especially of importance with long-range weather predictions being foremost. NAS and others have assisted in the effort. Cost-effective satellite programs and core

infrastructure costs have to be reengineered and managed. Ocean acidification, climate services and major weather events have been focused on as well as catch-limits for the fishing industries and improvements in stock assessment technology. This includes international input from neighbors like Canada. Margaret stated that AARA funding was good for environmental surveys and climate change assessments. The President is now centering on these issues and improving resilience to natural disasters and infrastructure damage. NOAA and partners are looking to prioritize. She said that NAML's PP document will assist in bringing things to congress.

Margaret related that overlaps between NOAA and NAML include high quality research. Partnerships are important to this effort. The SAB (Science Advisory Board) also recognizes the importance of that input. Creativity in partnerships increases perspective on research. Sea Grant Associations are germane to this issue. Ecosystem Management is important especially in the coastal environment: costs and benefits resulting from climate changes. The Ocean Policy Group is looking to be sure there is enough information being distributed to the public and legislatures so that planning decisions can be made (socio-economics). In that same vein, Observing Systems have to be maintained to be useful; sustainability is important for data collection as is data stewardship.

Moving forward Margaret said is to maintain core programs and at as much cost savings as possible; credibility is necessary. She then emphasized that Coastal Zone Management issues are very important especially those areas under stress and actions will be needed in the future. To that end, Margaret said Ecosystems Based Management programs need to continue by relating the important issues to the greater public and administrators. Inclusive observation and monitoring programs must continue to manage the ecosystems and to bring solutions to major problems related to climate and environmental changes. Eric Schwab's work was cited. Margaret cited productive partnerships between NOAA and the oil industry, based upon using drilling platforms as environmental sampling stations. Such relationships have generated much useful data.

Mike Crosby thanked Margaret for her years of service under very difficult times, and for looking closely at NAML's PP Agenda. He asked how extramural funding can be integrated into the budget assigning process. He stated that NOAA has not taken advantage of NAML's network and expertise. Margaret recognizes this disparity and a solution is not easily envisioned because those decisions are made above her level. NOAA's short-term funding cycles contributes greatly to the difficulties. They cannot plan far enough ahead to formulate important and substantive partnerships and programs

Discussion centered on ways to increase joint initiatives with good defensible outcomes by sharing of facilities and expertise that do not duplicate efforts and resources. It was emphasized that this cooperativeness can be facilitated because many NOAA programs are already located on the campuses of marine labs. It was recognized that unfortunately, many NOAA labs do not even communicate between themselves, never mind with the outside host institution. Everyone agreed the system is not working. It was further noted that the general public is losing patience with the number of federal employees, so partnerships may be an effective solution. Ray reiterated the issue of NURP and NOAA's Ocean Exploration Research to the detriment of extramural funding, student education, and scientific partnerships with universities. IOOS was brought up with respect to long-term funding, and the fact that currently it is intentionally being decreased. Margaret said there is no direct answer to this situation at this point in time. Mike Crosby recommended that we arrange a meeting with NOAA and present a list of issues for discussion and potential avenues of resolution. Margaret suggested several persons for us to contact.



**Christopher Meyer -- Research Zoologist/Curator, Director Moorea BioCode Project, NMNH, Smithsonian Inst.:** In keeping the intent of the meeting, Jo-Ann introduced the speaker as the second in the "science" series of speakers. He is a marine invertebrate zoologist from the Smithsonian Institution and is currently working in the South Pacific. Neil Davies, director of the center has pushed for this project and the lab in Tahiti. The Gump Station, University of California, Berkeley is a LTER site for coral research. It was established by James Cook as an observatory to predict the orbital circulatory patterns of the earth and other planets.

Chris conducts biodiversity studies which is essential for preservation of the planet and a hedge against change. 86% of the biodiversity of the world is still unknown. Biodiversity can be used to judge highly altered ecosystems. The costs for genomics and sequence arrays Chris predicted will essentially be free in the near future. He stated that they found about 5,000 species in 2007 in Moorea by sequence analyses, and that by 2011, there are now 9,000 to 10,000 species. DNA Barcoding Standards are being used for archival purposes. They analyze the mitochondrial CO1 gene from extracted DNA that is stored for later analysis. Decapod larvae are now being worked on and being checked against adult libraries. Chris stated that taxonomic naming is embedded in the code, so systematics is more straight forward. Later, the full sequence becomes the standard for those species not fully named. Currently, a voucher-based inventory is now available, and is being used to identify samples automatically. They use settling plates which are scraped clean after one year. The organisms are then grind up and the sequences run on the homogenate. Based upon species observations, the sequences are very compatible statistically. Currently, 1500 to 1800 spp/plate have been found, of which, 67% are unknown 'dark-taxa'. This protocol is now an emerging standard and is being used world-wide, including Census of Marine Life studies. Sub-systems approaches can now be done like gut contents analyses of species present from specific fish from specific habitats. It can extend down to trophic levels such that enteric species can also be used for host species identification. Ecostation Journal is a repository for this information and serves as a means of setting standards that are universally applied. The Genomic Standards Consortium (GSC) is the professional societal organization setting the discipline.

Chris introduced a new program: Ocean Sampling Day, 2014. It will occur on the summer solstice at noon, and is a planned event that NAML labs can participate in. The objective is to have as many labs around the world collect two water samples, on that day and time. One sample will be archived at the Smithsonian, while the second will be used to assess biodiversity by genomic sequencing. He urged the prop to participate in the program by collecting samples and spreading the word to other possible interested parties.

In the discussion that followed, questions were mainly generated related to Ocean Sampling Day such as specimen preservations and extractions. The taxonomic Voucher System was also discussed and the use of the data. Archiving issues were brought up as well.

**Ruth Gates -- Hawaiian Institute for Marine Biology:** Ruth told the group that some of her topics of interest include marine biology and marine organisms to ecosystems and their responses to change. Coral reefs once massive are now experiencing rapidly declining integrity due to environmental stresses they are now working on to define. In general, there are highly variable responses to these environmental stresses; some species survive, but why or how? Adaptive plasticity is the key to adaptation to these stresses. Endosymbiosis is linked to the outcome of survivorship. The functional integration of these symbioses underpins the survival of the corals. So it is the dinoflagellates that often control survivorship of the corals, not the coral

animal itself. The propensity of corals to bleach and their thermal sensitivity are related to dinoflagellates and their different clades. It has been found that invasive species of dinoflagellates can affect corals more than previously thought (i.e., Caribbean dinos found in the Hawaiian Pacific corals). Data related to parental stress experiences versus survival of progeny is now being collected and it has been demonstrated that some progeny from stressed parents have greater survivorship ability.

Ruth gave information on GeoSymbios; a global perspective of data related to these symbioses and corals hosts. Data is available on Google search and Google Maps so you can search for them. They are looking for under-sampled locations so the nodes will increase and add to the diversity. That includes social settings for governmental support and practices affecting local areas. Marine labs and field stations can serve as sampling/data network hubs. Permitting processes can be expedited or they may already be in place. If you sign on, all sampling materials will be supplied, including species IDs, and videos on how to collect and package the specimens to send them back, post-paid. Ruth stated that network hubs need to have the physical space for sample storage. Open source publishing of data so everyone can use it.

Graham Shimmiel asked about viruses and their involvement, noting also that NSF is funding marine virus collections. Ruth said that their group is reaching out to citizen NGOs because sampling is so easy to do, and they do all the analyses. Jyotika mentioned Jacques Cousteau's diver community as another possible sampling venue.

**Ian Billick -- FSML/OBFS Workshop Report:** Ian is Executive Director, Rocky Mountain Biological Laboratory. Jo-Ann introduced Ian and thanked him for the cooperation in this partnership with OBFS. The question germane to the Workshop Report was, "How to structure infrastructure to support the ever changing avenues of science?" Transformative science techniques are being developed, so the physical environment has to expand and update to support the science. The report encompasses those trends, and details where and how these trends can be addressed. Ian announced the joint meeting between OSFS and NAML to be held at the Marine Biological Laboratory, Woods Hole, MA (20-24 September 2014). The previous topics as well as developing a research coordination network will be major topics discussed at the meeting. Ian stated that good examples as models include the LTER networks. Conversations between stake holders occur in the field, but nothing at the management levels for the groups using the sites. He hopes to be able at some point to create staff capacity to manage a big picture science directory and national center with a strong science component. It is unlikely that the federal government will fund this, but private money might be available. National Ecological Observation Network [NEON] is established for terrestrial environments, while OOI and IOOS are the comparable marine components. Ian related that access to public lands is a problem for many field biologists, so federal agency cooperation in providing access is important.

Information from the Workshop meeting contained a good working summary and much will be incorporated in the final report. Several levels of the report will be generated to target the different audiences. The summary two-pager must contain all the main points needed to be addressed and it must be well stated so it makes a major impact. The idea of joint meetings is good for bringing science people together, not just managers/directors. Discussions could then be at higher levels with good exchanges of ideas. Synergies of ideas and collaborations could come from the meeting including facilitating science. Also gained would be an increase political clout and impact needed to gain recognition for support and funding. Forming a Legislative agenda with a common goal will give increased impact. Ian noted that congressional district coverage between the two organizations is almost universally represented. RCN (research

coordination networks) building is a necessity and organizational capacity by providing tools/skills ensures success.

### **End of the Day Adjournment**

\*\*\*\*\*

### **NAML Board of Directors Meeting, One Washington Circle Hotel; 9 March 2013**

Jo-Ann opened the meeting and presented a PPT presentation addressing her concerns about NAML and its loss of membership. There are several similar organizations, so where does NAML fall on the spectrum is the critical question. She emphasized NAML's uniqueness as a, "Organization of Marine & Coastal Laboratories featured as, "Windows on the Sea". She told the group that the Board has issued an RFP requesting bids to help manage society. OBFS is in a similar situation and is seeking in the long-term, to hire an Executive Director and establish a central office (Washington, DC presently) The society plans to raise 500,000 over 3 years.

Kumar cited past experiences with trying to join with OBFS, and that we came to the conclusion that the two organizations are too different to fit well together. He suggested that NAML could politically join forces with OBFS, by not as a single association. Jim Sanders agreed with Kumar. Shirley Pomponi brought up the Southern Universities Research Association (SURA) . She emphasized the regional role that NAML plays that others don't do. Partnerships are great, but maybe NAML should remain separate. NAML could push regional connections more than is currently being done especially those with shared goals. Mike DeLuca mentioned that OMB might combine observation programs so NAML could assist there. Ray Highsmith still emphasized his feeling of the advantages of forming an OBFS partnership. Mutual goals are important. NSF has already combined field stations and marine labs into one category and directorate. NSF has not been overwhelmed with proposals from marine labs. He suggested that training grants etc. directed toward students at the high school or undergraduate levels might get funded by NSF. Mike Deluca acknowledged the combined political forces, but he noted that we are not connected together in science like observation sites and data collection/sharing organizations. Ray countered that we tried that with LabNet and that didn't work. However, establishing sentinel sites are still viable to explore said Mike Deluca. There was such a topical workshop that Margaret Davidison organized and NAML was represented by several members, including Mike, and Ivar Babb. Kumar said NAML needs to get organized by a professional staff that can herd the troops. Mike Crosby said he was OK with the number of NAML member because they are the interested labs. He suggested that NAML needs to develop its own topics for funding priorities and then let those who are interested and wish to join, join. He emphasized that "We" have to do it.

Mike further suggested that NSF and NOAA education and research should be developed at the ecosystem levels. He liked the Sentinel Program through NMFS. Jim Sanders mentioned NSF provided Sentinel grant money, but the problem was they had so little to award. Shirley agreed with applying for the observation system approach. Dave Christie supported the idea as well and mentioned how easily NAML labs could become data portals. Alan Kuzirian mentioned that LabNet failed because it was conceived too early before the ability to handle megadata which is now commonplace. Ivar went back to OBSF/NAML grant and what has and will come out of this effort. Research Coordinated Networks (RCNs) was brought up as a possible way to join of efforts with them. Ivar emphasized that together the two organizations can muster sufficient strength to move forward. Toby Garfield brought up NAML's PPC

connection, and the Oldaker information he receives is critical to his membership in NAML. Rob Suryan mentioned other models and possible organizations including industry partners.

**NAML Survey Results:** Jim Harvey presented results of Jan Hodder's NAML Survey. Thirty three responses were sent in: NEAMGLL, 6; SAML, 11; WAML, 13. Of the 33 responders, 17 members also belong to COL. On the positive side, almost half (15 responders) stated that the contributions of the PP Committee and Joel Widder's information were important to them. Another 14 members responded and stated the personal interactions between lab directors were of significant importance to them. On the deficiency side, everyone listed the NAML website and its need to be updated and improved. Responders stated that there is not enough science networking going on within NAML itself.

Everyone agreed that monitoring NSF and NOAA extramural science by the PPC was on target. They would also like to see more networking and lab visitations occurring at the Regional level. Collaborations are needed and are primary for seeking grant funding for common areas of interest. The Regional websites were also targeted for needing to be current and more useful.

The majority of responders feel the current dues structure is OK. However, it was suggested that sources of funding opportunities should be actively investigated. Those cited included: Nat. Fish & Wildlife Foundation, the Packard fund, Morton Foundation, and the Barry More Foundation). These funds could be used for cooperative agreements or for an endowment. Overall the survey results were very positive and the major contributor to that score was aspects of the PPC.

In the discussion that followed, it was mentioned by Graham Shimmiel that WAMS is moving forward and that NAML should actively network with them. A "To Do" list was established:

Mike Crosby and Mike Roman would investigate research coordination between labs

Jim Harvey would look into funding from foundations that would be appropriate for NAML.

Graham Shimmiel would gather information on WAMS.

Jyotika Vermani would send a letter from NAML to NOAA and to legislators with questions to the potential nominees for the new NOAA Administrator. Specific questions would include position on Extramural Funding and other important topics extracted from the NAML's PP Agenda. A copy would also go to Cathy Barrett and Ann Zulkosky. Mentioning that NAML would be happy to do a briefing on NOAA's re-authorization is also a possibility.

Ray Highsmith would ask about education. STEM education reforms from the Administration would be the target. Joel said NAML should join the effort to effect change. OMB is keen on reducing waste. The efforts should target the 8 April date for release of the President's budget. Mike Deluca suggested some education involvement by NAML is certainly appropriate. NSF's COSEE program mentioned by Ivar is still a very strong program but it slated not be renewed. NAML is still set in a good place to help and join efforts to perhaps save the program. Everyone agreed that Matt Gilligan is missed here. Ivar and Mike said they would follow up on this topic

## **Joel's Report on the Meeting:**

Joel put forth the following action item list:

1. A decision on whether to testify before the House Subcommittee on Appropriations is required. Shirley Pomponi did say she could assist. Jo-Ann as President will be listed. NAML as a minimum should issue a statement in writing. Suggestions that Mike Crosby or Mike Roman could present the testimony were put forth. The text will be taken from PP Agenda.

2. NAML should act on Catherine and Ann's invitation to interact with them on NOAA issues: A NAML briefing, on ecosystems was suggested. The PPC should decide on the possible topics. It was suggested that several members could present a program illustrating regional aspects and differences. A mutual date and topic can be coordinated with Catherine and Ann. The Capital Visitors Center was proposed as a possible neutral site for a single presentation, or it could be done twice; once for the Senate, then the House. The testimony should pertain to their first budget mark-up legislation. We won't know until later which topic would fit best. NAML will serve as a resource for them.

3. NAML needs to draft comments directed to the proposed new NOAA administrator, and followed up with a letter of support with topics to question the nominee.

4. NAML must circulate the approved PP Agenda to the Hill, get it well advertised, and put NAML in their minds.

5. Administration Budget Release is due 7 April: STEM education consolidation will be included (OMB), climate change research monies (NSF), related material for OSTP. It will involve both FY-13 and FY-14 issues as they must now overlap.

## **Regional Reports:**

**SAML** – Nancy Rabalais presented the summary report. SAML will help fund the NAML Website revisions and members of the design committee. A Spring Meeting is being planned and membership lists will be reviewed for new members to be added. Issues under consideration for discussion include: possible solutions for global ecology problems and those that will need to be solved locally, and the topic of CORA hold-over co-operations.

**WAML** -- Dave Christie presented the agenda. Issues discussed included travel scholarships to meetings for students, genomic observatories are still of interest to WAML and could incorporate participation in the Summer Solstice sampling date. A WAML website update was also considered.

**NEAMGLL** – Val Klump presented plans discussed for a Milwaukee meeting this summer. Membership is a major concern especially efforts directed to Great Lakes interests. It was suggested that new members would be given free membership for a year. Minority institutions and education programs were mentioned as was the National Ocean Policy implementation plan and NROC in conjunction with NAML's possible role. The topic of developing an education effort and student exchange program that would help stitch labs together was favorably received. Also discussed was the use of video conferencing that would help allow federal labs to attend virtually especially those existing under strict travel restrictions.

Discussion followed about attendance at the Ocean Sciences Meeting to showcase NAML Labs. It stemmed from a question mentioned by Jyotika Virmani. There is a 15 March deadline to deal with. Toby Garfield, Jyotika, and Val Klump will follow through on the possibilities

**Jo-Ann's report:**

Jo-Ann suggested the date of 1-2 March 2014 for the next Board Meeting. It would be held at COL headquarters if we reserved that date. The Biennial Meeting will be held in Honolulu and hosted by Jo-Ann as out-going president. Possible dates suggested were, 30 Sept to 1-2 October: However, Jo-Ann will do a Doodle poll to see if other dates would be better.

Following this discussion, the Meeting adjourned.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'AMKuzirian', with a long horizontal flourish extending to the right.

AMKuzirian  
NAML Secretary

## Participants List – 2013

Ivar G. Babb (NEAMGLL)  
NURTEC, Univ. of Connecticut,  
Groton, CT

Lou Burnett (SAML)  
Grice Marine Lab, College of Charleston  
Charleston, SC

David Christie (WAML)  
Kasitsna Bay Marine Laboratory  
School of Fisheries and Ocean Sciences  
Univ. of Alaska-Fairbanks; Fairbanks, AK

Mike Crosby (SAML)  
Mote Marine Laboratory  
Sarasota, FL

Michael P. De Luca (NEAMGLL)  
Inst. of Marine & Coastal Sciences  
Rutgers University;  
New Brunswick, NJ

Toby Garfield (WAML)  
Romberg Tiburon Cntr, Environ. Studies  
San Francisco State University  
Tiburon, CA

Sandra Gilchrist (SAML)  
Pritzker Marine Laboratory  
New College of Florida  
Sarasota, FL

Jim Harvey (WAML)  
Moss Landing Marine Laboratories  
SJ (California) State University  
Moss Landing, CA

Raymond Highsmith (SAML)  
NIUST, Univ. of Mississippi  
Abbeville, MS

Alan M. Kuzirian (NAML- Sec/Treas.)  
Marine Biological Laboratory  
Woods Hole, MA

Val Klump (NEAMGLL)  
University of Wisconsin-Milwaukee  
Great Lakes WATER Institute  
Milwaukee, WI

Jo-Ann C. Leong (WAML)  
Hawaii Institute of Marine Biology

Kaneohe, HI  
Roberta Marinelli (WAML)  
Wrigley Institute for Environmental Studies  
University of Southern California  
Los Angeles, CA  
Brian D. Melzian (NEAMGLL) (via teleconference)  
U.S. EPA - NHEERL, Atlantic Ecology Division  
Narragansett, RI

Nancy N. Rabalais (SAML)  
Louisiana Universities  
Marine Consortium (LUMCON)  
Chauvin, LA

Shirley Pomponi (SAML)  
Harbor Branch Oceanographic Inst., Inc.  
Fort Pierce, FL

Michael Roman (SAML)  
Horn Point Laboratory  
U-Maryland Cntr. Envir. Sci.;  
Cambridge, MD

John Rummel (SAML)  
Institute for Coastal Science & Policy  
Eastern Carolina University  
Greenville, NC

James Sanders (SAML)  
Skidaway Inst. of Oceanography  
University System of Georgia  
Savannah, GA

Graham Shimmield (NEAMGLL)  
Bigelow Laboratory for Ocean Science  
West Boothbay Harbor, ME

Jyotika Virmani (SAML)  
Keys Marine Laboratory  
Florida Institute of Oceanography  
St. Petersburg, FL

### Guests:

Catherine Barrett, Senate Commerce, Science &  
Transportation Committee

Ian Billick, Rocky Mountain Biological Laboratory,  
Crested Butte, CO

David Conover, Division Dir., Ocean Sciences,  
NSF

Ruth Gates, Researcher, Hawaii Institute of Marine  
Biology, University of Hawaii, Honolulu, HI

Christopher Meyer, Researcher, Curator, Moorea  
Biocode Project, Nat Museum Natural History,  
Smithsonian Institution

Kolo Rathburn, Senator Roger Wicker's Office

Margaret Spring, Deputy Undersecretary, Oceans &  
Atmosphere, NOAA

Ann Zulkosky, Senate Commerce, Science &  
Transportation Committee

**Consultants:**

Phillip Bye, Oldaker Group

Meg Thompson, Oldaker Group

Joel Widder, Oldaker Group



