On December 15 and 16, 2003, twenty individuals representing a range of UMCES clients and stakeholders met at the Annapolis office of the University of Maryland to discuss their relationship with UMCES and to offer advice on future directions. The consultations were set up to assist UMCES in revising its strategic plan and were part of a larger ongoing effort to seek advice from clients as well as peers. The list of participants is appended. The discussions were two hours in length each day (ten participants each) and followed a prescribed format based on a set of questions developed by UMCES for the consultation. The questions are also appended. After the meetings, the notes were typed up without editing and forwarded to Dr. Donald Boesch, UMCES President. This report represents the effort of the facilitator, Fran Flanigan, to summarize the comments offered on both days according to a number of dominant themes.

- **Clients’ Perceptions of UMCES:** To a person, the twenty participants gave UMCES excellent marks for the quality of its work and for the relationship most faculty have developed with clients. They repeatedly noted that UMCES is the best institution they are aware of both nationally and internationally with regard to the quality of work in this field. They believe that UMCES keeps itself appropriately removed from politics and therefore has high credibility with regard to the independence and unbiased nature of its work. Faculty were given high praise for their ability and willingness to draw conclusions from their research to aid clients in answering management questions. Participants noted that UMCES faculty during the past five years have developed an ever-better capacity to interface with policy makers. It was noted that documents are well written and focused, and therefore useful to management agencies. Clients appreciate and value UMCES’ ability to tackle complex questions, to look at issues from an interdisciplinary point of view, and to assist with the identification of emerging issues that need scientific attention. And finally, UMCES’ leaders were praised for their sensitivity to the timing issues of some clients and their willingness to work within timeframes required by management agencies; it was suggested that this sensitivity needs to be imparted by lab directors to individual researchers.

- **Mission:** Participants believe that UMCES’ mission is appropriate and that the institution’s 2000 Strategic Plan effectively lays out a course of action they support. The need for flexibility in addressing emerging issues while adhering to
the core mission was noted. Participants stated that this review process itself is evidence of UMCES’ commitment to match its mission with the needs of its clients and the citizens of Maryland.

- **Emerging Issues:** Participants cited a long list of issues they believe will need to be tackled in the immediate future. These are summarized below and it is apparent that most of them relate to an applied problem that management agencies are facing or will soon face.

  1. **Economics:** This seemed to be the most critical emerging issue on almost everyone’s list. The topic was mentioned in many ways - the economic value of environmental services, the value of the loss of those services, the cost of particular courses of action and the cost of no action. Suggestions were made to conduct research on economic incentives to create behavior change, on the economic impact of the loss of the oyster industry, on the costs of a system-wide approach to cleanup and restoration focusing on where we could get the most return for dollars spent. It was suggested that UMCES work to develop an environmental economics capability to complement its other work.

  2. **Risk Analysis:** Evaluation of tradeoffs; introduced species, focusing on what the chances of success are as well as what is being given up.

  3. **Land/Water Interface:** Especially focusing on questions related to scale, so that information is useful to local decision makers.

  4. **Sea Level Rise:** Not a new topic but one of ongoing importance that does not yet seem to have penetrated the consciousness of decision makers, who tend to think short term.

  5. **Ecosystem-Based Fisheries Management:** UMCES has a good start here but topic needs to be expanded and fully funded over the next decade. A top priority for immediate attention may be menhaden. Attention should also be paid to the interface between habitat and fisheries.

  6. **Urban BMP Effectiveness:** Not a new issue but managers lack basic information to make wise spending decisions and accurate projections of pollutant reductions.

  7. **Forest Management Issues:** Including changing species composition and management for sustainability.

  8. **Nutrient Equivalencies:** This is a current hot topic at the Bay Program for which there seems to be little science on which to base imminent
management decisions regarding how “credit” is given for nitrogen and phosphorus reductions.

9. **Sediment Loading and Processes**: Including the potential impacts on navigation channels.

10. **Recreation and Aesthetics**: There appears to be little information on the economic or quality of life aspects of these components of the Bay watershed.

11. **Air/Water Interface**: Special attention could be paid to the effects of technology such as new catalytic converters which reduce NOX but increase ammonia emissions.

12. **Growth and Sprawl**: Not new issues, but we do not have good tools to measure change. We don’t know the costs of strategies such as low impact development, nor do we know how to incentivize behavior change that would lead to different consumer choices.

13. **Septic Loadings**: We lack information about the regional impacts of septic loadings.

14. **Thresholds, Cumulative Impacts, Carrying Capacity**: Not new concepts, but gaining in importance from a management perspective.

- **Need to Learn from Other Places**: Participants noted repeatedly that there are experiments and accumulated knowledge from other parts of the world that should be applied in the Chesapeake watershed. Other places have conducted useful applied experiments related to complex systems that could be instructive here. The underlying theme seemed to be that we should depart from the idea that the Chesapeake is the model for everything and be open and willing to learn from excellent work elsewhere. The Australian work on which IAN is being modeled was frequently mentioned as a case study for the Chesapeake.

- **Interdisciplinary Integration across University System**: This emerged as a major theme throughout the discussions on both days. Participants noted that UMCES does a fairly good job of internal integration. But there is a growing need for inclusion of additional perspectives and expertise, such as engineering, finance, agriculture, the social sciences and so forth. Participants saw this consultation as an opportunity for UMCES to relate to the Chancellor the importance of a major culture shift within the System in order to truly serve the needs of state and local clients and the citizens of Maryland.
• **Role for the Integration and Applications Network:** This concept, put forth in the strategic plan of 2000, received very high marks from all participants (minus those few who were not aware of IAN). All believe this is the approach of the future and all gave Bill Denison high marks for his efforts in launching IAN. Suggestions for further development were many and included these: 1) IAN needs to have a landscape component added; 2) Other indicator programs ought to be merged into IAN; 3) Much additional communication is needed, especially with local clients like the tributary teams, to realize IAN’s potential; 4) additional research needs to be included in IAN so that its ability to function as a service network for the research community as well as outside users is enhanced; 5) IAN needs more money and staff to realize its potential; 6) the communication aspects of IAN seem to bear further discussion with regard to whether products like report cards are appropriate and valuable, and what other products and tools would be useful; 7) IAN should be the “go-to” place for managers, serving as the science/management interface team; some suggested it could be the personification of an UMCES “swat team”; 8) many participants expressed a desire to have more input into the development of IAN and urged UMCES to consult more frequently with clients. In summary, participants urged that IAN be fully implemented as described in the 2000 Strategic Plan.

• **How Best to do Environmental Education:** This topic provoked a range of opinion with regard to UMCES’ role. It was suggested that what UMCES should focus on is science literacy, not strictly environmental education. It was also noted that teacher training is crucial and that there is a need to demonstrate that teaching about the environment can increase student test scores in required subjects like math and English. UMCES was urged to spend some effort on other audiences, principally elected and appointed decision makers and extension agents. It was also suggested that more data be available on the internet for use by teachers and students. It was further suggested that UMCES could play a useful role in facilitating the coordination and integration of environmental education work being done by many NGO’s, especially in the arena of education to meet C2K commitments.

• **Communication:** Participants made a number of suggestions about how UMCES could improve communications with clients. Some said it is not clear to them how UMCES participates in issues discussions, whether by invitation or on their own initiative. UMCES was urged to include local groups in their outreach and to seek opportunities to communicate with members of the cabinet and other key officials. Some UMCES faculty are particularly good communicators and participants urged that they be showcased. Finally, strong sentiment was expressed for regular, periodic dialogue such as the conversations held on these two days.

• **Leadership and Institutional Issues:** UMCES faculty and leadership were praised for involvement in issues, visibility and leadership. Dr. Boesch in particular was identified as being both visible and accessible; lab directors were
urged to be more involved and visible in both policy discussions and local issues. In general UMCES was given good marks for leadership on tough issues and for managing most of the time to avoid the political fray. A number of clients noted the potential for more contract work with UMCES and cited the fact that they can hire UMCES without a lengthy procurement process, which is advantageous to getting work done in a timely way. An issue with regard to the cost of hiring UMCES was raised (both the basic cost of research as well as overhead); a concern about the ability of some clients, especially local governments and NGO’s, to afford the research needed to answer their questions was raised. A caution was expressed about the danger of following money. Some concern was voiced by a few participants about an attitude of arrogance occasionally emanating from within UMCES. It was said that this attitude might be considered the rightful response to the institution’s excellence, but it is viewed as a deterrent to the close collaboration that most UMCES clients want. It was suggested many times that involvement of UMCES faculty and staff in local activities such as tributary teams has been valuable and should be encouraged, even though academia has few ways to reward such involvement. Finally, participants urged UMCES to use this report to communicate with Chancellor Kirwan about what a valued resource UMCES is to Maryland.
Participants in the UMCES Client Consultation

David Bancroft, Executive Director, Alliance for the Chesapeake Bay
Lowell Bahner, Director, NOAA Chesapeake Bay Office
Rich Batiuk, Associate Director, EPA Chesapeake Bay Program
Mark Bundy, Assistant Secretary, Maryland Department of Natural Resources
Charles Conklin, Chair, Upper Western Shore Tributary Team and Gunpowder Valley Conservancy
Reggie Harrell, Regional Director, Maryland Cooperative Extension.
Verna Harrison, Executive Director, Keith Campbell Foundation for Pete Jensen, Deputy Secretary, Maryland Department of Natural Resources
Donelle Keech, The Nature Conservancy
Bill Lellis, U.S. Park Service
Marc Lieber, Chair, Patuxent River Commission
Rob Magnien, Director, NOAA Coastal Ocean Program
David O’Neill, Executive Director, Chesapeake Bay Trust
Don Outen, Baltimore County Department of Environmental Protection and Restoration Management
Teresa Pierno, Vice President, Chesapeake Bay Foundation
Eric Schwaab, Resource Director, International Association of Fish and Wildlife Agencies
Rick Sheckells, Director of Planning and Environmental Programs, Maryland Port Administration
Bob Summers, Director of Water Management Administration, Maryland Department of the Environment
Ann Swanson, Executive Director, Chesapeake Bay Commission.
Joe Tassone, Director of Comprehensive Planning, Maryland Department of Planning
Starting Questions for the Consultations

How would you rate the University of Maryland Center for Environmental Science relative to other sources of scientific information about the environment and natural resources with regard to relevance, quality, and credibility?

What does the Center do best?

What could the Center do much better?

What are the emerging issues on which UMCES should focus its science?

As a result of its last strategic plan, UMCES launched its Integration and Applications Network (IAN) to facilitate the synthesis of its science and its timely and effective application. Has IAN been helpful? Is it on the right track? What improvements should be made?

UMCES has a long tradition of providing environmental education to Maryland’s citizens. Over the course of the last several years the Center has focused primarily on training teachers. On which facets of environmental education should the Center's program focus?

How might communication and coordination between UMCES and your organization be improved?

How effective is the UMCES leadership (President, Vice President, Laboratory Directors)? How can it become more effective?