MEMORANDUM FOR: Stephen B. Brandt, Director
Great Lakes Environmental Research Laboratory

FROM: David L. Evans

SUBJECT: Summary and action items resulting from the December 4-5, 2000, Great Lakes Environmental Research Laboratory Review

I congratulate you and your staff on the quality of your laboratory review on December 4th and 5th, 2000. You treated my staff, other guests, the panel members, and myself most graciously, and made the review a memorable event. I received written reviews from each of the six panelists and additional input from others who attended the review. This memorandum is to provide you with a summary of the reviewer's comments and a list of action items resulting from the review.

The panelists and I were impressed by the scientific achievements of the Great Lakes Environmental Research Laboratory (GLERL) and the effectiveness of its working environment. In fact, the panel recommended that support of GLERL and its research should be a high priority. Despite the level budget of the past few years, GLERL research is consistently excellent and its staff highly dedicated; they are a credit to the National Oceanic and Atmospheric Administration (NOAA) and to NOAA Research.

The Great Lakes Environmental Research Laboratory (GLERL) supports a wide variety of high-quality research providing scientific insight into, and conservation of, Great Lakes natural systems and marine coastal ecosystems. The quality of the research, the extensive collaborations with other scientists and institutions from around the world, a very effective outreach program, and an efficient management system are impressive. It was a measure of GLERL effectiveness and influence in the Great Lakes region that it was difficult to select panelists who did not have conflicts of interest owing to their work with the laboratory. Comments at the review from partner organizations were consistently positive, and the panelists noted your excellent international research program.

The panel felt that GLERL is unique and successful because unlike academic scientists, its researchers actually want to do applied research to accomplish NOAA objectives.

A detailed synthesis of the panelist's comments is attached to this memorandum. A summary of the reviewers' comments, my impressions and suggested actions follows. Actions and dates for completion are in bold print.

Strategic Planning Although the GLERL strategic plan is well developed and carefully thought out, it is overly optimistic given present budgets and outlook for the near future. GLERL research priorities are appropriate, but the panel found that it is unlikely that the lab will be able to accomplish all of them. I concur with this assessment. This approach to planning imperils GLERL research by focusing on short-term survival but ignoring necessary longer-term actions needed. It would also be useful to include other NOAA line offices and non-NOAA research institutions on the Great Lakes in the planning. **Toward this end, revise the GLERL strategic plan to include clearly defined priorities that can be accomplished with the resources GLERL can reasonably be expected to have available. In addition, develop an annual Implementation Plan including a task and activity statement for base-funded activities with a realistic time-line for NOAA-supported activities, Performance Measures, and budgetary requirements for accomplishing the laboratory's vision. I would like to see both your revised Strategic Plan and the Implementation Plan no later that January 31, 2002.**

Overall Management You appear to be doing a very good job managing GLERL, although there was concern expressed by one panel member about a perceived autocratic management style. It remains to be seen how well the new management system will work. Given the financial pressures on the laboratory, I support his new system as one that can improve use of personnel by maximizing lab productivity.

Provision of annual rewards for excellence is a good idea, although it is difficult to see how effective it can be in the absence of enough financial flexibility to provide monetary rewards to star performers. **Continue to implement current management changes and work out any issues associated with them. To enable us to see what their effects have been, provide me with an evaluation of their effects on personnel, scientific productivity, and financial efficiency over FY01 (as compared to earlier years) by January 31, 2002.**

Physical Resources I have been well aware of GLERL facility problems for some time, and as you know, a replacement vessel was provided by the Corps of Engineers but proved to be unusable. Considering the costs involved in such major items, GLERL should develop a realistic facility's acquisition plan covering the next five years. This should include outlining costs and requirements for a new vessel and modest improvements to the Muskegon field station. **The panel recommended development of a five-year facility acquisitions plan. I think this is a useful idea as it will allow your needs to be integrated into NOAA facilities planning activities as they take place. Furthermore it is important to develop this plan so that you and I can argue more effectively for the resources needed to enhance future GLERL research.**

Personnel The Review made it clear that the primary strength of GLERL is the diversity, dedication and competence of its personnel, and they are to be highly commended on both counts. However, it was also clear that the abundance of senior staff, and the difficulties of replacing them upon retirement in an appropriate and timely way are one of the two fundamental problems at the laboratory. This problem will be especially critical within the next five years, as many staff will retire during this period. I recognize that, given the Federal personnel system, this problem is not easily solved - but it must be fixed for the lab to survive.

Therefore, any proposed hires should be clearly linked to the priorities identified in the GLERL Strategic Plan. The panel recommended formation of a staffing plan development committee including representatives of both OAR headquarters and GLERL. In hiring, you should take into account (insofar as is possible) future science needs of the laboratory, and recommend in some detail the expertise likely to be required. Furthermore, you should consider probable availability of young scientists who could compete for GLERL positions during the period, consider diversity and EEO issues, and the use of contractors, and recommended solutions if it appears that appropriate staff supply will be insufficient.

Scientific Expertise The excellent reputation of GLERL has been earned with its scientific accomplishments. Its real strength is that it is the *only* research facility in the Great Lakes Basin with a truly interdisciplinary research group that can integrate research issues such as contaminants, climate change, ecosystem dynamics, episodic events, invading species,

water resources and physical processes of limnological systems. This breadth of topics covered by only 22 scientists means that in some areas there already exists a critical minimum of expertise. Considering the demographics of the research group, future retirements can mean the complete loss of expertise in some critical areas. **At a time when budgets are not growing, it is especially important to insure that research performed addresses the highest priority and most relevant issues. GLERL itself must work to make the most of what it has by focusing on its core mission even if it means reducing or eliminating work on other subjects. In hiring, you should take into account the critical areas of the GLERL Strategic Plan where you intend to focus your expertise.**

Productivity As panelists pointed out, there are two kinds of scientific productivity - services provided and publications (research results). GLERL is clearly very successful in the former and moderately successful in the latter. It is difficult to use publications as a measure of success or productivity; neither number nor length measure quality. I do not agree with the panelist who thought that there should be more publications in "top journals." Papers should be published in the appropriate journals - that is how the results are distributed to the "right" people; the journal must present the information to the appropriate audience. Otherwise, it will not be used.

Providing rewards for meritorious activities or scientific successes is a good idea, but I agree with the panel that it is hard to gauge results. In the briefing notebook section "GLERL Incentive Awards Policy" there is no specific list of who has received awards for what activities. **Rewards should not depend solely on number or prestige of publication; these are two simple but not necessarily good or adequate measures. Other appropriate measures should also be used, including importance of work performed and relevance of results to NOAA missions. The panel recommended that you distribute to all laboratory staff information on the awards made because it will demonstrate what is considered to be meritorious, and that you develop a way to assess the effects of the rewards program on productivity and morale.**

The Review The review was well organized and thorough, although some of the presentations lasted too long without a break. A panelist also pointed out that it was difficult to compare the panelists' list of review considerations to the review book because the book did not match the list.

Furthermore, the panel heard from laboratory staff that previous review results were kept from them, even though they participated in the review, and their efforts made it possible. **All GLERL staff should be provided with a timely copy of this letter and the attached synthesis report summarizing the review panel comments and associated findings and recommendations. Further, future reviews should evaluate the impact of recommendations from this review.**

Partnerships GLERL depends heavily on a wide variety of partnerships and collaborative mechanisms with other U.S. and Canadian scientific and policy institutions. One of the most fundamental of these is with CILER. This relationship was apparently not adequately described during the review, because at least some of the panelists were confused by it. In addition, panelists were also concerned by an apparent "inadequate" relationship between the USGS laboratory and GLERL. This difficulty is represented by GLERL's hiring of a fishery biologist rather than hiring an investigator in one of the critical but understaffed research areas of the lab. As stated by a panelist, "It was not clear who made the decision, how the decision was made, and how explicitly the issue of lab renewal is being discussed." **Given that most of the GLERL budget is required to support existing personnel, the laboratory needs to better clarify its role in the Great Lakes, especially vis-à-vis other research entities. In so doing it should work to reduce or eliminate overlap, strengthen its uniqueness, and work more closely with those entities to jointly complement each others' strength. This clarification should be included in the revised Strategic Plan.**

Public Information and Outreach GLERL's outreach activities are a model for other laboratories, and the panel and I are highly supportive of them. In particular, the collaboration between Sea Grant and the laboratory to create and staff a position within GLERL is innovative and I expect it to be highly effective. In view of the panel suggestion that GLERL's effectiveness at actually providing research results to decision makers could be improved, I would like to see an effort by the lab to strengthen this outreach component. **In addition, I agree with the panel suggestion that laboratory scientists should be encouraged to publish not only in peer-reviewed journals but also in popular literature with regional or national distribution. If possible, GLERL should have a staff member whose responsibility it is to provide scientific research results in a form suitable for public consumption.**

Perhaps the new joint Sea Grant-GLERL outreach person could be assigned this task. Finally, consider establishing a policy advisory committee composed of lab personnel and constituents to help maximize the benefits and practical applications of GLERL products and services and promote their adoption by potential users.

I recognize the financial problems discussed at length during the review by both panelists and GLERL management, and I will work with you to improve the situation. However, for the next year or two, it is unlikely that there will be any significant improvement no matter how hard we work. For that reason, to reduce the effects of the tight budget, the lab should make every effort to implement the suggestions I have made elsewhere in this letter. These include defining a clear and unique role for the lab (and expressing this through the GLERL Strategic Plan), providing the means to assess research progress and its relationship to the NOAA mission, and reducing overlap with other research institutions in the Great lakes.

In conclusion, I again express my appreciation for organizing and managing an excellent review. It was clear to me that not only your staff, but also your collaborators, customers, and the panel were enthusiastic and supportive of your efforts. If you have any questions about this memorandum, my recommendations, or any other GLERL/Headquarters issues, Dr. David Stein is your laboratory liaison, and he will be glad to help you. He can be reached at (301) 713-2465 ext 118, fax (301) 713-0158 or e-mail david.stein@noaa.gov.

Attachment