



## Great Lakes Fishery Commission

ESTABLISHED BY CONVENTION BETWEEN CANADA AND THE UNITED STATES TO IMPROVE AND PERPETUATE FISHERY RESOURCES

### COUNCIL OF LAKE COMMITTEES

March 22, 2003

Admiral James D. Watkins, Chairman  
U.S. Commission on Ocean Policy  
1120 20<sup>th</sup> Street, NW  
Washington, DC 20036

Dear Admiral Watkins:

On behalf of the Council of Lake Committees (CLC), I am transmitting to you a blue-ribbon-panel report entitled *Evaluating the Ability of the Great Lakes Science Center, U.S. Geological Survey, to Deliver the Large-Vessel Program*. This report—which was commissioned by the CLC and discussed during your field hearing in Chicago—looks at the ability of the U.S. Geological Survey's (USGS) Great Lakes Science Center to deliver its program on the Great Lakes. This letter provides a brief history of the generation of the report and outlines the report's key conclusions.

**In summary, the blue ribbon panel's report concludes that the USGS Great Lakes Science Center is wholly incapable of delivering its core program on the Great Lakes. As such, the panel recommends that the USGS Great Lakes Science Center personnel, facilities, and vessels should be transferred to the U.S. Fish and Wildlife Service and that the Department of Interior should annually transfer funds to the Great Lakes Fishery Commission (GLFC) for the purpose of contracting the Fish and Wildlife Service to conduct the program. It is the CLC's hope that the conclusions of this report will be reflected in the Ocean Commission's recommendations.**

The CLC consists of a senior-level manager from every state, tribal, and provincial fishery management agency on the Great Lakes. The CLC operates under the aegis of the Great Lakes Fishery Commission (a binational fishery agency), and works to ensure cooperation among the management agencies. The CLC supervises the development of shared fishery objectives and helps facilitate the consistent, science-based implementation of fishery policies. The CLC is widely viewed as one of the most effective mechanisms for cooperative fishery management anywhere on earth.

The CLC focuses on sub-national-level fishery management activities (provincial, state, tribal), where the primary authority for fishery management on the Great Lakes rests. However, the CLC also relies on the delivery of effective federal fishery programs as part of an ecosystem-based, multi-jurisdictional approach to fishery management. One historically critical component of the federal responsibility has been the delivery of a large-vessel research program, currently undertaken by the USGS's Great Lakes Science Center, located in Ann Arbor, Michigan. The science center manages a fleet of vessels that has, for

decades, maintained an invaluable set of long-term fish assessment data that serves to underpin most fishery management decisions on the Great Lakes. For instance, the vessel program:

- provides management agencies with long-term, lake-wide assessment of forage-fish stocks;
- supports the proper management of trout, salmon, walleye, and other fish species;
- helps fishery managers anticipate population trends that enable them to take unified actions to accommodate ecosystem change; and
- plays a critical a role in helping fishery managers and scientists understand the long-term dynamics of the fish communities of the Great Lakes.

The U.S. Fish and Wildlife Service traditionally carried out this large-vessel program until a reorganization in 1993 transferred this function to the U.S. Geological Survey, Biological Resources Division.

Sadly, the report concludes, the vessel program has suffered a long and painful deterioration since the mid-1990s, coupled with a chronic lack of interest by the USGS to make this work a priority in the region. For instance, the report concludes:

- the current vessel program and associated long-term data sets are inadequately maintained and are not meeting the needs of the member agencies of the council;
- the Great Lakes Science Center has experienced serious shortfalls in key personnel, vessel maintenance, and operating funds;
- commitment to the large-vessel program has declined 7% since 1998 while funding for the Great Lakes Science Center as a whole has increased by 29%;
- internal planning documents call for a complement of three biologists on each lake, but each of the upper lakes at present only has one biologist;
- staff morale at the Great Lakes Science Center has deteriorated to a point that it is reducing scientific productivity; and
- despite the fact that the management agencies have identified the large-vessel program as their top priority, the USGS continually has been unwilling to devote the needed attention to this function. Repeated requests by the agencies for even a merely adequate vessel program have been answered by empty promises, vague commitments, and a strategic vision for the USGS Great Lakes program that barely mentions fishery needs.

Based on these and other conclusions outlined in the report, the blue ribbon panel has regretfully determined that *the Great Lakes Science Center's program, "once the pride of the Center and its partners, has deteriorated to the point that alternative institutional arrangements must be considered."* Indeed, the panel has unequivocally concluded that the delivery of the vessel program within the current structure cannot continue because of past poor performance and a clear unwillingness on the part of the USGS to maintain its commitment to the program.

To remedy this serious problem, the panel recommends that the USGS Great Lakes Science Center personnel, facilities, and vessels be transferred to the U.S. Fish and Wildlife Service and that the Department of Interior should annually transfer funds to the GLFC for the purpose of contracting the Fish and Wildlife Service to conduct the program. We firmly believe that the GLFC can ensure accountability, sound science, and effective delivery of the program. We also recommend that the Fish and Wildlife Service deliver this program because of its better alignment with the service's mission.

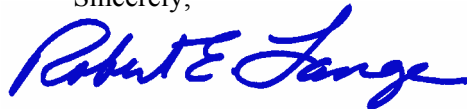
While this arrangement might appear complex, the management agencies firmly believe combining the credibility of the GLFC with the proven performance of the Fish and Wildlife Service will ensure the

effective delivery of this program. Moreover, the panel believes that this solution makes the large-vessel program more accountable to the management agencies, raises the priority of this function, focuses on ecosystem management, and re-establishes an historically effective system for data collection and analysis.

The CLC and the state and tribal management agencies remain deeply committed to implementing the recommendations of the blue ribbon panel. While the panel firmly believes its proposals will remedy the very serious problem on the Great Lakes, the panel acknowledges that an adaptive approach will help it realize its recommendations and, therefore, will work with the Department of Interior and with the Ocean Commission to reach a feasible agreement.

Thank you for considering the recommendations of the blue-ribbon panel. We hope that this report will focus attention on the dire situation we face in the Great Lakes with the USGS's large-vessel program and will help us redouble our commitment to finding effective solutions. Please do not hesitate to contact me should you wish to discuss this report in more detail.

Sincerely,



Robert E. Lange  
Chairman, Council of Lake Committees

Enclosure

Cc: Malcolm Williams

# Evaluating the Ability of the Great Lakes Science Center of the U.S. Geological Survey To Deliver the Large-Vessel Program



Photo: USGS

## Report of the Blue-Ribbon Panel

February 13, 2003

# **Evaluating the Ability of the Great Lakes Science Center, U.S. Geological Survey, To Deliver the Large-Vessel Program**

## **Report of the Blue-Ribbon Panel**

February 13, 2003

### **Executive Summary**

**Panel Charge.** A Blue-Ribbon Panel was convened by the Council of Lake Committees (Council) to 1) determine if the Great Lakes Science Center (US Geological Service, Biological Resources Division, USGS-BRD), in its current configuration, could effectively deliver its large-vessel program and 2) identify possible alternative institutional arrangements for delivering this program. The panel approached this task by 1) determining the information needs of fishery management agencies regarding the vessel program, 2) evaluating its delivery by the Center, and 3) developing a recommendation by comparing various institutional arrangements for program delivery.

**Information Needs.** Management agencies expect the Center to provide long-term, lake-wide assessment of forage-fish stocks, emphasizing deepwater fishes and fishes directly targeted by recreational and commercial fisheries. This information is to be collected by a fleet of safe, well-maintained vessels with dedicated, competent, and experienced personnel using traditional gear, as well as new technologies, in a fashion that will allow lake-specific evaluation of fish-community dynamics, as well as across-lake comparisons.

**Program Delivery by the Center.** To assess the ability of the Center to deliver a vessel program, the Panel focused on, “What was the extent of the program actually delivered by the Center from the mid-1980s to the present?” The issues germane to this question are organized below into four categories: mission, vessel operations, science delivery, and partnerships. The Panel realizes that the Center is in a quandary regarding its mission. Competing factions and perceived differences in priorities likely inhibit an effort by the Center to better define its mission. The document (Strategic Vision for the U.S. Geological Survey in the Great Lakes-St. Lawrence Region, 2001-2010) barely mentions fish or fishery needs. A strong commitment to reestablish the historical role of the Center in providing long-term fishery assessment has not been provided by the Center, nor is it identified by the USGS in its strategic vision. The Panel is skeptical regarding whether the USGS will in the future make the large-vessel program a priority for funding. Funding for the large-vessel program declined by 7% from FY 1998 to FY 2002, a period when the appropriation to the Center increased by 29%.

Five sub-issues were discussed under vessel operations. Cruise schedules were not completed because of poor vessel maintenance. Staff losses and turnover are an apparently unrecognized but insidious threat to the integrity of core data sets. The Center’s two new vessels are very large by Great Lakes standards and will be more expensive to operate than vessels of more-modest

size. Using costly vessels casts doubts on the efficacy of decision-making at the Center. The Panel believes that new technologies, especially acoustic sampling, should be deployed. Following a major research effort on Lake Huron in the 1980s, an acoustic program with considerable state enthusiasm and support was initiated in Lake Michigan. At present, the partners, not the Center, hold the Lake Michigan acoustic program together.

The science delivery category comprises three sub-issues: under staffing, poor morale and image, and marginal prospects for recruitment of top scientists. With two-thirds of the positions for upper-lakes' biologists not filled, scientific support for the Joint Strategic Plan for Management of Great Lakes Fisheries and publication has floundered. The Panel is convinced unequivocally that staff morale at the Center has deteriorated to a point that it is reducing scientific productivity. The Panel is quite concerned that morale and image problems will make it difficult for the Center to recruit the top scientists that the vessel program requires.

The partnership category comprises three sub-issues: dissatisfaction with performance, trust diminished or absent, and inadequate/evasive response to the 1995 Review and subsequent queries. The degree of dissatisfaction with the Center varies among Council partners. Creating this Panel was a drastic action that would have been averted had the Center been more responsive to the views of fishery agencies—views that were solicited and given in the Review of 1995, the Initiative of FY 1998, and in the USGS Strategic Vision for the Great Lakes. Overall, the prognosis for the Center's large-vessel program is bleak.

**Panel Recommendation for Housing the Vessel Program.** Based on its analysis, the Panel addressed a final question, "What is the best way to ensure the delivery of a large-vessel program that provides consistent high-quality data collection, interpretation, and reporting and that is relevant to the fishery information needs of the basin?" The five criteria used by the panel were: science, accountability, high priority, ecosystem focus, and historical effectiveness. The Panel believes that the probability is exceedingly remote that USGS-BRD will make the necessary changes in its delivery of the large-vessel program and meet the standards desired by the partners. Six alternative options for vessel-program delivery were discussed.

The Panel, based on their analysis and discussion, recommends to the Council that effective delivery of the large-vessel program will only be realized if:

***USGS-BRD personnel, facilities, and vessels are transferred to the FWS, and the Department of Interior transfers funds annually to the Commission for the purpose of contracting the FWS to conduct the large-vessel program.***

Critical to successful implementation of this recommendation is the solid commitment of all of the fishery management agencies on the Great Lakes to provide support and assistance to the FWS and the Commission during the transition, and to work in a collaborative, productive, and long-term partnership with these two organizations in the delivery of the large-vessel program.

## Background

**Formation of the Panel.** A Blue-Ribbon Panel was formed in response to concerns expressed by the Council of Lake Committees (Council) about the large-vessel program delivered by the Great Lakes Science Center (Center). The Council consists of a senior-level manager from each fishery management authority on each lake. The Council charged the Panel with determining if 1) the Center, in its current configuration, could deliver the large-vessel program and 2) alternative strategies or institutional arrangements might exist to deliver this program. The following members were empanelled: Charles Krueger (Science Director, Great Lakes Fishery Commission (Commission)), Kelley Smith (Chief, Fisheries Division, Michigan Department of Natural Resources), Mike Staggs (Director, Bureau of Fish Management, Wisconsin DNR), William Taylor (Chair, Fisheries and Wildlife, Michigan State University), Paul Wingate (Fisheries Research Manager, Minnesota DNR), and Roy Stein (Panel Chair and Ohio State University and Vice Chair of the Commission). Observers to the Panel included Steve Rideout (Branch Chief, U.S. Geological Survey), Clif Schneider (Fisheries Biologist-retired, New York Department of Environmental Conservation), and Randy Eshenroder (Science Adviser, Commission). The Panel fulfilled its charge by developing this report with four sections: a description of the Panel and the Center, an explanation of agency needs and expectations regarding the vessel program, an evaluation of its delivery by the Center, and a discussion of alternative institutional arrangements for program delivery.

**Center Description.** The Center provides scientific information on fish populations and communities and the biological processes that occur in the Great Lakes. The Center is headquartered in Ann Arbor, Michigan, and has biological stations and research vessels throughout the Great Lakes Basin. Organizationally, the Center now lies within the Biological Resources Division (BRD), U.S. Geological Survey (USGS), Department of the Interior. The Center has always been in the Department of Interior but has changed bureaus and undergone several name changes. The most recent changes occurred when the Center moved from the U.S. Fish and Wildlife Service to the newly created National Biological Service (Survey) in 1993. When the Survey was abolished in 1996, the Center became part of the BRD, USGS.

## Needs and Expectations of Fishery Agencies

Federal participation in fishery resource assessment in the Great Lakes has a long history, beginning with the United States Fish Commission in 1871. Upon the invasion by the sea lamprey in the late 1940s, the need for long-term, consistent monitoring of fish populations within lakes and across state jurisdictions became apparent. For more than 40 years, the Center itself, through its vessel program, has conducted assessment and research activities that have proven both valuable and necessary to the fishery management community within the basin. Through time, these activities have come to be relied upon by all of the management agencies within the basin. Indeed, no other state, tribal, or federal program has had the resources to mount such an effort. Thus, the Center's vessel-program has played a critical role in understanding the long-term dynamics of the fish communities in the Great Lakes by providing stock-assessment data, which, in turn, lend insight into ecological processes driving change. These stock-assessment data, collected by the Center, have been important to fishery management within the Great Lakes, providing critical input into the decision-making of agencies. For their part, the

management agencies have supported the Center's operations with their own funds as well as the Center's budget requests to Congress, with the expectation that this program would remain a high priority for this federal agency.

Around the early 1990s, the delivery of the Center's large-vessel program (and its associated population-assessment data, analyses, and comprehensive reporting) was questioned seriously by the Great Lakes fishery management community. Eight years, several reports, and certainly many conversations later, the agencies are no better off—the integrity of the long-term, deep-water monitoring program for forage fishes, lake trout, and assorted other members of the fish community had been compromised. What is now required, in the context of rapidly changing lake ecosystems, is a renewed commitment not only to the historically important population assessment surveys, but also to a broader mandate to sample lower trophic levels as well as assessing all data within an uncertainty/risk-analysis framework. Accomplishing these goals will require the restoration of the large-vessel program.

What exactly do the fishery agencies on the lakes expect and indeed require from this program? Below, the Panel characterizes the features of a science-based, large-vessel program that will best meet the needs of Great Lakes fishery management agencies.

**In a nutshell.** Management agencies expect the Center to provide long-term, lake-wide assessment of forage-fish stocks, emphasizing deepwater fishes (typically deepwater ciscoes, alewives, rainbow smelt, and sculpins) and fishes directly targeted by recreational and commercial fisheries (typically lake trout, whitefish, lake herring, and various percids). This information is to be collected by a fleet of safe, well-maintained vessels with dedicated, competent, and experienced crews (captain, scientists, engineer, technicians) using traditional gear, as well as new technologies (e.g., hydroacoustics), in a fashion sufficiently consistent to allow lake-specific evaluation of fish-community dynamics, as well as across-lake comparisons. Implicit within this charge is timely data compilation, analysis, and reporting to the partner agencies. A brief justification for each of these requirements is presented below.

**Long-term, consistent, lake-wide assessment of forage-fish stocks.** By their own admission, the Center is the only governmental entity that has large fishery vessels on each of the Great Lakes. Indeed, this fact alone makes the program not only unique, but also critical to the successful monitoring of the forage-fish stocks that support trout, salmon, and walleye fisheries. Without long-term trajectory data from these stocks, management agencies cannot anticipate population trends that enable them to take unified actions to accommodate ecosystem change. While state and tribal agencies are charged with managing species such as lake trout, salmon, and walleyes, their management is greatly hampered without these population-monitoring data.

**Emphasizing lake trout, walleye, and yellow perch.** Fishes targeted for exploitation, both in the deep basins and in the shallower waters of especially Lake Erie, require attention, for it is these species that are exploited by sport and commercial fishers, and it is these species at which rehabilitation efforts are aimed. Long-term monitoring of these species provides a measure of ecosystem health, measures that cannot be captured in any other fashion. In turn, measures of forage-fish abundance affect trout and salmon stocking rates and are critical for adjusting stocking rates to forage productivity.



**Safe, well-maintained vessels.** In their report, Schneider and Peck (2001; online <<http://www.glf.org/boardcomm/clc/VesselWP.htm>>) strongly argue that the Center's vessels are in disrepair. These vessels require regularly scheduled, comprehensive vessel inspections (no current requirement exists for such inspections) focused on preventative maintenance. Comprehensive maintenance programs must be pursued given the age of the Center's fleet. These programs should be driven by safety considerations and the necessity to adhere to tightly scheduled sampling regimes.

**Dedicated, competent, and experienced vessel crews (captain, scientists, engineer, technicians).** Clearly, in addition to the actual sampling platform, staffing is critical to a successful vessel program. What is required here can be summarized as follows:

- 1) Each vessel should have a dedicated crew, allowing for the development of experience with a single vessel, improved sampling protocols, and safe operations.
- 2) Each crew requires a captain, an engineer, and technical (gear specialist) help. The engineer should be able to run the vessel in the event the captain is disabled. Technical help should be familiar with all operations, as well as trained in safety and sampling procedures.
- 3) Scientists on board work with the captain and crew, contributing to critical cruise decisions regarding ongoing operations, gear deployment, and unexpected events.
- 4) Clearly, these crews should have the experience necessary for Great Lakes fishery work.

**Using traditional gear, as well as new technologies (e.g., hydroacoustics), in a fashion sufficiently consistent to allow lake-specific evaluation of fish-community dynamics as well as across-lake comparisons.** For all lakes, agencies require an annual forage-fish assessment (i.e., long-term bottom trawling), hydroacoustic surveys (and associated mid-water trawling), bottom mapping (habitat assessment), spring and fall lake trout assessments, partnering opportunities for special research projects, and other lake-specific needs (e.g., collection and analysis of zooplankton and near-shore benthic samples in Lake Superior). The above list lies at the core of the large-vessel sampling program.

**Timely data compilation, analysis, and reporting.** In addition to these on-the-water activities, the agencies also require Center expertise to analyze and interpret data, as well as maintain appropriately constructed, easily searchable, accessible (web-based) databases. Regular reporting at technical and lake committee meetings is expected, as is participation in important work groups established under the aegis of the Commission. To accomplish these functions, adequate scientific staff is required for 1) design of sampling programs; 2) adjustment of programs through time (as fish communities change); and 3) timely compilation, analysis, and reporting of data.

To accomplish these goals, the Center will need to re-establish the vessel program as a high-priority program by adopting the following: 1) regeneration of a safe, well-equipped fleet of vessels appropriate for Great Lakes deep-water sampling, 2) hiring of key personnel in a timely manner to fulfill both vessel and scientific requirements, 3) elimination of vessel downtime, 4) substantial improvement of data compilation, analysis, and reporting, and 5) development of a sampling and reporting program worthy of partner confidence and support. Fulfilling these needs and expectations will serve well the state and tribal agencies responsible for fishery management on the Great Lakes. Only by restoring the large-vessel program to its historical significance and strength can effective fishery management and research be reestablished in the Great Lakes.

## **Delivery of the Vessel Program by the Center**

This section addresses the ability of the Center to deliver a vessel program that meets the needs of the member agencies of the Council. Indeed, what was the extent of the program actually delivered by the Center? The issues germane to this question are organized below into four categories: mission, vessel operations, science delivery, and partnerships. This analysis focuses on the period from the mid-1980s to the present. It relies heavily on correspondence between the Commission and officials of the USGS, including its director as well as Center directors/acting directors, and between the agencies represented on the Panel and past/present supervisors of the Center's vessel operations for each of the Great Lakes.

**Mission.** Four sub-issues are discussed under the heading of mission: no clearly articulated concept of purpose, weak cohesion among program elements, inshore/laboratory research overemphasized at expense of large-vessel research, and the depth of the commitment to the large-vessel program. The need for a clearer mission statement was identified in the 1995 Review of the Center and in letters of January 7, 1998, and February 4, 2000, from the GLFC to the Center. Notwithstanding the urgency of these requests, a mission statement was not generated until 2002. This document (Strategic Vision for the U.S. Geological Survey in the Great Lakes-St. Lawrence Region, 2001-2010), however, barely mentions fish or fishery needs and is viewed as unhelpful by the fishery management agencies on the Great Lakes, who were looking for a strong commitment to reestablish the historical role of the Center in providing long-term fishery assessment.

Competing factions and a failure to come-to-grips with perceived differences in priorities among partners likely inhibited an effort by the Center to better define its mission. Per the 1995 Review, the partners identified the large-vessel program as their top priority and recommended that under the direst financial conditions the vessel program alone should be maintained. This perspective is not reflected in the Gannon-Savino letter of October 7, 2002, which identifies cuts of 35% across all Center programs to meet a funding emergency at a time when the large-vessel program was already viewed internally to be seriously under funded. Further, the Panel is not convinced, as stated in the Gannon-Savino letter, that the trophic dynamics and biodiversity sections mutually reinforce the lake (large vessel) sections. Queries from the Panel to Center staff indicate the opposite; cohesion among the lake sections and the other sections within the Center seems to be virtually nonexistent.

The Panel realizes that the Center is in a quandary regarding its mission. Within the Center's leadership, none of whom has worked in the large-vessel program, enthusiasm for internal refocusing appears to be minimal. Individual sections have charted their own courses for so long that a priority-setting exercise would, no doubt, be painful, especially if the views of state and tribal fishery management agencies were to prevail. Similarly, commitment within the USGS to long-term monitoring, implicit in the vessel program, also has been questioned. In the aggregate these institutional barriers likely have contributed to an over emphasis on inshore/laboratory research at the expense of the large-vessel program. The Panel believes that a lack of leadership, understanding, and vision has led to this reality.

The Panel is skeptical regarding whether the USGS has made, or in the future will make, the large-vessel program a priority for funding. Although the Gannon-Savino letter emphasizes a commitment to the vessel program, support has nonetheless deteriorated since 1995, a period when Center funding increased faster than the rate of inflation (letter from N. Milton to C. Goddard of February 14, 2001). Even more disconcerting, funding for the large-vessel program declined by 7% from FY 1998 to FY 2002, a period when the appropriation to the Center increased by 29% (letter of December 26, 2002, from Director Groat to Senator Levin). The Panel continues to hear verbal support for the large-vessel program from the USGS, but past performance contradicts these words.

**Vessel Operations.** Five sub-issues were identified under this category: cruise schedules not completed, vessels poorly maintained resulting in a vessel loss, understaffing, new vessel designs questionable, and new technologies not fully deployed. To some extent all five sub-issues are interconnected in that they affect the quality and quantity of the sampling that can be accomplished by the vessel fleet. The Center's large-vessel program is intended to function with an open-water-class vessel complete with deck crew and scientific staff for each lake. Cruise schedules vary among the lakes, but the most important sampling revolves around maintenance of long-term databases, which, for example, extend as far back as 1962 on Lake Michigan.

The Center states that the vessel program has been under funded for many years and that recent, serious shortfalls in key personnel, vessel maintenance, and operating funds have occurred. Although positions in every category are unfilled, the most dramatic shortfalls are for scientific staff. Internal planning documents call for a complement of three biologists on each lake, but each of the upper lakes at present has only one biologist (see Gannon-Savino letter of October 7, 2002). Biologist staffing is better on the lower lakes, particularly Lake Ontario. Cruise schedules have been cut in response to staff reductions, the loss of a vessel, vessel breakdowns, and delays in bringing new vessels online. As of early 1997, efforts were made to maintain the "core" data sets (Smith letter of February 27, 1997), but recently even these data have been compromised. Individual stations (ports) have been skipped in several years in both lakes Michigan and Huron. Worse, all of the 1998 fall bottom-trawl data for Lake Michigan are suspect because an inexperienced crew towed the trawl too fast, and no fall trawling was undertaken in Lake Huron in 2000. Finally, the current vessel program and associated long-term data sets, being inadequately maintained, are not meeting the needs of the member agencies of the Council.

Staff losses and turnover are an apparently unrecognized but insidious threat to the integrity of the Center's core data sets. Continuity in collection and analysis clearly is critical to the reliability of this type of time-series data. Yet, with the existing turnover of staff, data collection and analysis vary in important ways among years. Inasmuch as it will be exceedingly difficult to detect these errors, the only solution is prevention, i.e., a dedicated effort to maintain continuity in staff and data collection. The value of the historical data is diminished if the new data are not of the same quality. The Panel is concerned that, in correspondence from the Center that was reviewed, the Center does not acknowledge the seriousness of the threat to the integrity of its core data.

The two remaining sub-issues are questionable designs of new vessels and inadequate deployment of new technologies. The Center's two new vessels are very large by Great Lakes standards and will be more expensive to operate and maintain than vessels of more-appropriate size. Bringing online operationally more costly vessels during a long period, when vessel operations were a low priority, is paradoxical and casts doubts on the efficacy of decision-making at the Center. The Panel believes that new technologies, especially acoustic sampling, should have been deployed. Following a major research effort on Lake Huron in the 1980s, a program with considerable state enthusiasm and support was initiated in Lake Michigan. As well, the state of New York, in the 1995 Review, sought an acoustic program for Lake Ontario. At present, the partners, not the Center, hold the Lake Michigan acoustic program together, and programs in lakes Huron and Ontario are on hold. Departure as well as reassignment of biologists familiar with acoustics, as acknowledged in the Gannon-Savino letter of October 7, 2002, have undoubtedly contributed to this problem. The Panel, however, is perplexed to learn that the only Center scientist experienced with acoustics has not been assigned, at least temporarily, to process the Lake Michigan data. This inaction has put the Center's partners in the awkward position of processing these data themselves, or seeking funding from elsewhere to have the data processed.

**Science Delivery.** The science-delivery category comprises three sub-issues: under staffing, poor morale and image, and marginal prospects for recruitment of top scientists. Understaffing was discussed in the previous section (vessel operations) in terms of scientific oversight of data collection onboard the vessels; the emphasis here is on scientific productivity in support of the Joint Strategic Plan for Management of Great Lakes Fisheries (Joint Plan) and in publication. The Panel does not, because of questions of mandate, intend to undertake a review of the productivity of individual scientists at the Center. A review, however, is not needed—with two-thirds of the positions for upper-lakes' biologists vacant, scientific support for the Joint Plan and publication has obviously floundered.

The Panel is convinced unequivocally that staff morale at the Center has deteriorated to a point that it is reducing scientific productivity. Individual Panel members are in regular contact with Center staff, for instance at committee meetings of the Commission, and the feedback is indeed distressing. Further, poor morale is contributing to an image of the Center as being an unattractive place for scientists to work. The Panel is quite concerned that morale and image problems will make it difficult for the Center to recruit the top scientists that the large-vessel program requires.

**Partnerships.** This category comprises three sub-issues: Commission-sponsored committees dissatisfied with performance, confidence and trust diminished or absent, and inadequate/evasive response to the 1995 Review and subsequent queries. The degree of dissatisfaction with the Center varies among Council partners. Clearly, ample reasons exist for dissatisfaction and diminished confidence. The depths of these feelings are difficult to quantify, but support for this partnership within the Council is obviously wavering or the Council would not have created this Panel. Creating the Panel was a drastic action that would have been averted had the Center been more responsive to the views of management agencies—views that were solicited in the Review of 1995, the Initiative for FY 1998, and the USGS Strategic Vision for the Great Lakes.

Overall, the Panel’s prognosis for the Center’s large-vessel program is bleak. Once the pride of the Center and its partners, it has deteriorated to the point that alternative institutional arrangements must be considered. In the following section, the Panel examines several options for consideration by the Council and identifies the option with the best prospects for reinvigorating this critical program.

## **Alternative Institutional Arrangements For Delivery of the Vessel Program and Panel Recommendation**

Based on the analysis provided in the previous two sections, the Panel addressed a final question, “What is the best way to ensure the delivery of a large-vessel program that provides consistent high-quality data collection, interpretation, and reporting and that is relevant to the fishery information needs of the basin?” Several criteria were used in an analysis of the various options for delivering the program.

1. **Science.** The program must deliver high-quality scientific information and provide leadership within the research and assessment community in the basin, especially within the committee structure established under the Commission.
2. **Accountability.** The program must be accountable to the Joint Plan (<http://www.glf.org/fishmgmt/sglfmp97.htm>) via the Council of Lake Committees (<http://www.glf.org/boardcomm/clc/clchome.asp>) and the Council of Great Lakes Fishery Agencies (<http://www.glf.org/boardcomm/cglfa/cglfahom.asp>). The vessel program should be located in an organization that has a demonstrated commitment to the partnership concepts described in the Joint Plan.
3. **High Priority.** The program must be delivered by an organization that recognizes its critical importance to basin-wide management of fishery resources and embraces it as a core-mission responsibility.
4. **Ecosystem Focus.** The program must encourage the science required to support ecosystem-based fishery management of the Great Lakes, utilizing an uncertainty/risk-analysis framework.

5. **History of Effectiveness.** The program must be delivered by an organization with a history of effectiveness in delivering its core-mission responsibilities.

The first option discussed by the Panel was delivery of the vessel program within the current structure of the Center, USGS-BRD, U.S. Department of Interior. The panel did not find any advantages to this option other than that it is simple and would not require the energy necessary for implementing an alternative institutional arrangement. The disadvantages rest with past performance and failure to meet most of the criteria listed above as documented in previous sections. The Panel believes that the probability is exceedingly remote that USGS-BRD could make the necessary institutional changes to meet the criteria listed above. This conclusion is based on the history of unresponsiveness by USGS-BRD to partner agencies.

The Panel then identified a suite of alternative options for the delivery of the vessel program with their associated pros and cons. Each option was thoroughly discussed with much of the discussion focusing on accountability, reliability, and scientific leadership. No perfect solution was found among the alternatives. Each option had important advantages and disadvantages; however, some were deemed substantially better than others.

The alternative options discussed were:

1. U.S. Fish and Wildlife Service (FWS), Department of Interior – This option would move vessels, facilities, personnel, and budget to the FWS. The FWS successfully administered the program prior to the formation of the National Biological Survey in the early 1990s.
2. Commission and the FWS – This option would transfer vessels, facilities, and personnel to the FWS. The budget would remain within Interior but funds would be transferred to the Commission. The Commission would then contract the program back to the FWS. This option is comparable to the funding arrangements between the Department of State and the Commission where sea lamprey control is contracted with the FWS.
3. National Marine Fisheries Service (NMFS), Department of Commerce – This option would move vessels, facilities, personnel, and budget to the NMFS.
4. Great Lakes Environmental Research Laboratory (GLERL), National Oceanic and Atmospheric Administration, Department of Commerce – This option would move vessels, facilities, personnel, and budget to GLERL.
5. Commission – This option would move vessels, facilities, personnel, and budget to the Commission.
6. State-Operated Vessel Program – This option would divide the program among the states and distribute vessels, facilities, personnel, and budget among them.

The Panel chose the Commission and the FWS (Option #2) as being most likely to meet the five criteria. This option is within the mandate of the Commission, whose duties include “to formulate a research program or programs...” and “to coordinate research made pursuant to such programs and, if necessary, to undertake such research itself.” Moreover, the Panel believes that the sea lamprey control partnership between the Commission and the FWS has been historically effective, providing good evidence that a similar partnership could be arranged for the vessel program.

The disadvantages to the Commission-FWS option are listed below:

- ? Commission-staff work load would be increased considerably, requiring the addition of at least two personnel within the Commission.
- ? Congress and others may become confused concerning the mission of the Commission.
- ? Commission-staff attention could be diverted away from the successful, ongoing program of sea lamprey control, research, and interagency coordination.
- ? This proposed solution is more complicated administratively than having the budget and funds go directly to the FWS.

The Panel believes that these issues are real and must be addressed; however, with an increase in Commission staff and a firm commitment to this organizational arrangement among the partners these disadvantages can be overcome.

The advantages to the Commission-FWS option are:

- ? Science – the Commission has a long-standing commitment to science and could provide the scientific overview to the program for the FWS. The program could follow many of the same elements already established in the Commission’s science program, including a board of directors, proposal submissions, and peer review. The FWS already has a high level of involvement within the Commission’s committee structure.
- ? Accountability – Both the Commission and the FWS have a long history of support for, and are well integrated into, the institutional structure provided by the Joint Plan. A formal memorandum of agreement established annually between the two organizations would further enhance this accountability (comparable to the practice in the sea lamprey program). The primary reason this option was chosen as the best solution was that it offered the highest level of accountability to the signatory agencies to the Joint Plan. [I added an underline to the latter part of this sentence]
- ? High Priority – The Panel was convinced that the Commission and the FWS would both regard the program as a high-priority core mission. The vessel program is consistent with four of the five primary duties described in Article IV of the *Convention on Great Lakes Fisheries between the United States of America and Canada* (<http://www.glf.org/pubs/conv.htm>). The vessel program is also consistent with the strategic initiative within the FWS to support the development of fisheries programs (<http://ifw2irm2.irm1.r2.fws.gov/fishery/natlfishconf/vision.html>).
- ? Ecosystem Focus – Both the Commission in its strategic vision (<http://www.glf.org/pubs/SpecialPubs/StrategicVision2001.pdf>) and the FWS within the Great Lakes Basin Ecosystem Team (<http://greatlakes.fws.gov/index.html>) are committed to an ecosystem approach to understanding and managing Great Lake fisheries.

- ? History of Effectiveness – The Commission and the FWS follow a similar administrative arrangement that has delivered a highly effective program of sea lamprey control. The lessons learned from this experience will be applicable to the effective delivery of a vessel program with similar arrangements.

The Panel, based on their analysis and discussion, recommends to the Council that effective delivery of the large-vessel program will only be realized if:

***USGS-BRD personnel, facilities, and vessels are transferred to the FWS, and the Department of Interior transfers funds annually to the Commission for the purpose of contracting the FWS to conduct the large-vessel program.***

Critical to the successful implementation of this recommendation is the solid commitment of all fishery management agencies on the Great Lakes to provide support and assistance to the FWS and the Commission during the transition and to work in a collaborative, productive and long-term partnership with these two organizations in the delivery of the large-vessel program. The panel believes that the Commission also should pursue a similar arrangement with the Government of Canada. Such an arrangement would provide internationally the same level of effectiveness sought here for large-vessel operations in U.S. waters.