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Comment:

Great Lakes Beach Association Comments to the Great Lakes Interagency Task Force and the Great Lakes Advisory Board concerning the Update to Great Lakes Restoration Initiative Action Plan for FY15-19

I want to introduce myself. My name is David Rockwell (Retired GLNPO Employee). My day job is Beach Water Quality Forecasting Coordinator with the NOAA Center of Excellence for Great Lakes and Human Health and Research Area Specialist for the Cooperative Institute for Limnology and Ecosystems Research University of Michigan. As a member of the Great Lakes Beach Association Board, I am currently serving as the Past President for a two year term providing advice to GLBA's current President, Dr. Tom Edge of Environment Canada.

In the role of a Board Member of the GLBA, we are offering advice and information for improving beaches throughout the Great Lakes. These comments have been reviewed and approved by the GLBA Board which represents over 1000 members many of whom are from the local health agencies in the Great Lakes.

These comments address Charge Question 2 to the GLAB which asked if the three priority subject areas should be kept or modified. The comments also include recommendations for the GLRI FY15-19 Action Plan.

We are recommending a fourth "priority" investment area (FPIA) be adopted. This will allow for renewed funding for sanitary surveys to identify cost effective restoration projects for the remaining 50% of the high priority beaches in the Great Lakes. It will allow for the continuation and rapid expansion of beach management decision support systems (BMDSS). BMDSS reduce the number of errors in managing beach swimming advisories enhancing swimmer enjoyment of water recreation and business revenues. (FPIA includes other issues not directly covered by the three investment priority areas in charge question 2 to the Great Lakes Advisory Board Inaugural Meeting.)

GLRI in FY10 provided funding support for sanitary surveys and beach decision support system development. Funding for these two areas provided foundational support leading to the accomplishments for GLRI FY10-14 Action Plan beach objectives (p28).

The title for the FPIA is "Beach Health Science, Safety, and Economics".

The components of this priority investment area are:

- Water quality issues (Pathogens and Bacterial Concentrations, Infrastructure, Beach Nearshore Zones, Beach Management Forecast Decision Support Systems, Bacterial Source Identification, Nutrient Runoff from Agricultural Practices, Storm Water Discharges, and Harmful Algal Blooms)
- Water quantity issues (Run off control from tiled agricultural fields, Agricultural use of water for irrigation of sensitive crops, Evaporation and climate change effects, lake water levels)
- Hazardous currents (Water safety issues, Understand Conditions and Operationally Predict Rip Currents, Along-shore Currents, Structural Currents, and Seiches).
- Assessing cost effectiveness of beach restoration actions and water level changes (Economic Short Term and Long Term Costs and Benefits resulting from Beach Management Decisions, Rapid Assessment Tools, and Environmentally Healthy Near-Shore Zone including Human Health)

We further recommend that the GLRI Action Plan FY15-19 continue to include the current Focus Area 3: Nearshore Health and Nonpoint Source Pollution focus (hereafter called FA3).

FA3 provided for sanitary surveys to find bacterial pollution areas, tracked the sources, determined how to fix the problems and provided funding for remediation work. USEPA Water Division developed a CD titled "Healthier Beaches... Using Sanitary Surveys to Mitigate Pollution" which documents this process at 9 Wisconsin Beaches.

FA3 provided for beach forecasting systems. Prediction beach decision support systems reduce errors in currently used beach management decision by 20% or more. (Beach Pathogen Forecasting Tools: WDNR Publication PUB-SS-1067-2009.) The economic cost of losing a day of swimming depends on the beach involved. However, these costs are significant not only in swimmer valuation of their day at the beach but in terms of commercial economic loss with estimates of the later as high as \$1M per day for Chicago beaches. (Joyce Grant #26658, The Value of Chicago Beaches. The University of Chicago Report to Joyce Foundation, January 2006, S. L. Shaikh et al)

In the FY10-14 GLRI Action plan there are three beach objectives. These three beach objectives (which follow) should be continued in the next action plan. We recommend appropriate targets for each of these objectives which can be attained with favorable consideration of our recommendation.

(1) By 2014, assess 50% of high priority Great Lake beaches using a standardized sanitary survey tool to identify sources of contamination. (attained Holly Wirick personal communication)

(2) By 2014, 20% of high priority Great Lake beaches are to implement measures to control, manage, or remediate pollution sources identified through the use of sanitary surveys. (attained Holly Wirick personal communication)

(3) By 2014, rapid testing or predictive modeling methods (to improve the accuracy of decisions on beach postings to better protect public health) will be employed at 33 percent of high priority beaches. (75 beaches have met this target in 2013, but ~50 more beaches are needed to meet the target in 2014. There are 365 tier 1 high priority beaches in the Great Lakes.)

Substantial progress has been made by USGS (Nowcast), and NOAA (Forecast) and State programs to apply USEPA's Virtual Beach to develop BMDSS systems. (See supporting documents to follow)

The following recommendations for these targets can be attained over the next five years by renewing resources provided in FY2010 for sanitary surveys and BMDSS.

- By 2019, 100 percent of high priority Great Lakes beaches will have been assessed using a standardized sanitary survey tool to identify sources of contamination.
- By 2019, 60 percent of high priority Great Lakes beaches will have begun to implement measures to control, manage or remediate pollution sources identified through the use of sanitary surveys.
- By 2019, rapid testing or predictive decision support systems (to improve the accuracy of decisions on beach postings to better protect public health) will be employed at 66 percent of high priority beaches (250).

### **Background for these recommendations.**

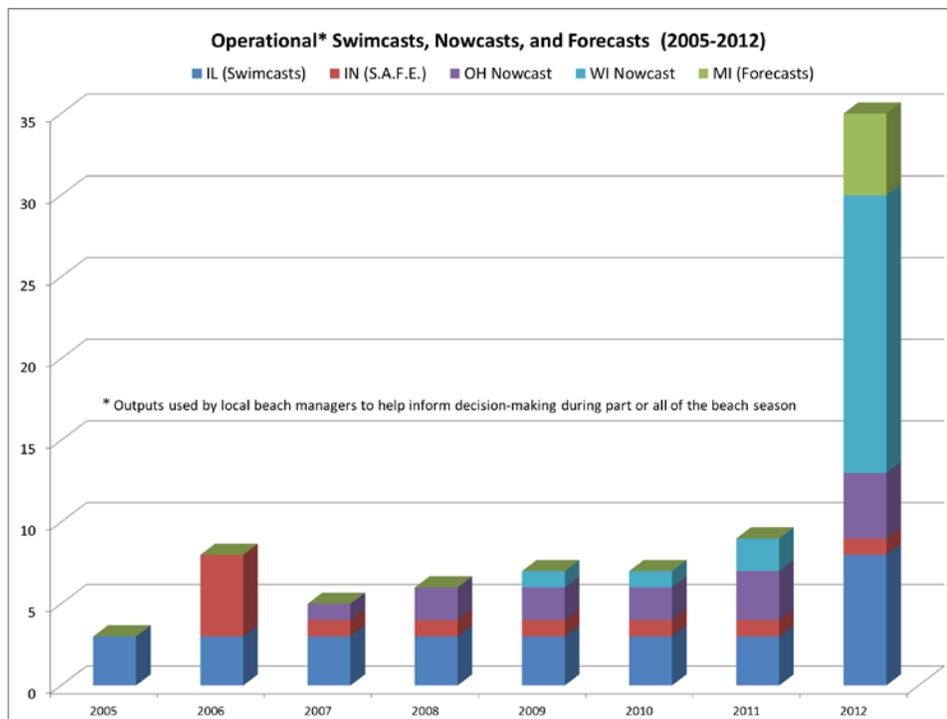
The biggest question received by many who work in beach monitoring and beach management programs is how to do more with fewer dollars and to choose wisely to maximize the benefits for the environment, public health, and the local economy. The economic goal of this priority area is to tie in all components of near-shore health which include water quality, quantity, and hazardous currents and swimming decisions. Assessing the economic impacts and benefits of near-shore restoration actions/ activities and prioritizing these issues to local economies (i.e. impacts of a beach closure due to low water levels on coastal communities or conversely the benefits of remediating a beach to reduce sewage/storm water outfalls from reaching the beach).

Remediation measures are quite costly. Because high use beaches are near municipal areas some sites have multiple and complex sources. The price tag for large urban beaches can range from \$375,000 – \$1.1 million to address localized sources. We need sanitary survey funding to continue identification of contaminate sources at the remaining 50% of the high priority beaches. This will allow local entities to contribute to large scale mitigation projects and capture low hanging fruit in the entire basin.

For beach remediation, these projects get a big bang for the GLRI investment as documented for nine Wisconsin beaches in Region 5 Water Division CD cited earlier. Sanitary surveys lead to identification of sources. Next engineering design plans and community involvement resulted in restoration including wetlands and enhanced use.

Many of the beach management agencies have general responsibilities including environmental health of the beach and the beach watershed, as well as public health. Many beach managers in public health departments have not had time to look at or have the expertise to operate the nowcast and forecast beach decision support systems now available via EPA’s Virtual Beach expert beach management software capability. Because many Great Lake beaches and communities are really geared towards tourism, it is a priority for both the tourist and the various local chambers of commerce to fix problems and to eliminate even one advisory that adversely affects swimming.

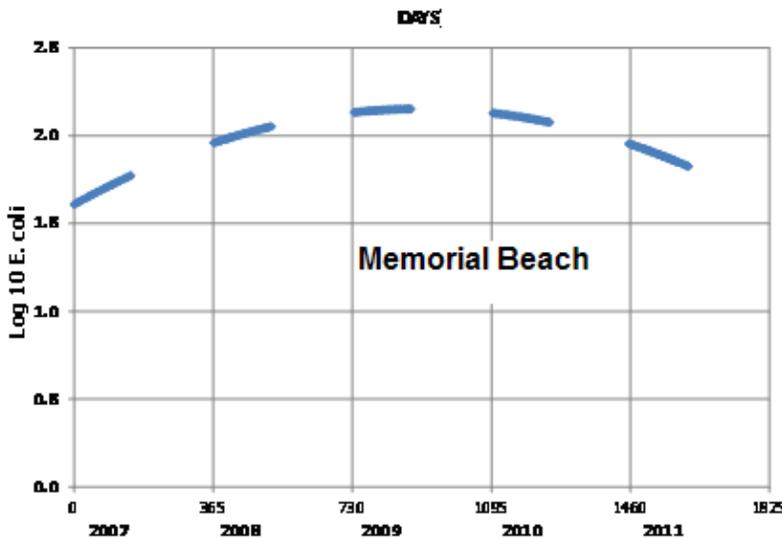
The following graph illustrates work initiated by the current FA3’s Objective 4.



Credit Adam Mednick Science Services  
Wisconsin Department of Natural Resources

In 2013, about 75 beaches will have decision support systems or rapid testing. Momentum is clearly building in developing beach management decision support systems. In the next five year action plan, BMDSS at 250 beaches that protect public health and enhance economic is attainable. In 2011 (the last year of available beach data), Wisconsin has 125 beaches. Michigan has 568 beaches. These states monitor 353 beaches and have over 70% of the 956 Great Lakes Public Beaches. The remaining six states have 263 beaches and monitor 212. Clearly a sufficient number of monitored beaches are available to attain the goal of 250 beaches.

Another example of the success resulting from monitoring leading to remediation can be seen in the decline in *E. coli* concentrations at Memorial Beach, Macomb County MI on Lake St. Clair. This graph indicates the bacterial concentrations at the beach started to decrease in 2009. This decrease has resulted from responsible parties collectively working together to remove millions of gallons of waste water via the Illicit Discharge Elimination Program (IDEP). These parties included Macomb County Health Department, local county drain commissions, townships in the Clinton River watershed, and those responsible for pollution sources. Pollution sources have been identified via effective monitoring that allows IDEP to work. Clinton River *E. coli* concentrations have declined during this period from 10,000 counts/100ml to 1,000 counts/100ml.



**Burton, Campbell, and Rockwell, 60 Hour Beach Forecasting Models, GLRI Grant 00E00658**

In summary, good work has been started by the FY10-14 GLRI Action plan. The recommendations for FY15-19 GLRI Action Plan build on the foundation started. It will provide opportunities to protect the health of beaches and the people using the Great Lakes Beaches. It will allow for cost effective remediation efforts to be spread though

out the Great Lake Basin communities. By providing the remaining 50% of the high priority beaches with sanitary surveys you will set the stage for cost effective remediation projects over the next three years.

Thank you for the opportunity to provide these comments.