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COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
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Madam Chairwoman and members of the Subcommittee, I am Benjamin H. Grumbles, Assistant Administrator for Water at the United States Environmental Protection Agency (EPA). Thank you for the opportunity to discuss the accomplishments of and the challenges for the Beach Program, EPA's current actions to further advance the Beach Program, and our vision for the future of this national public health activity.

America's oceans and coasts are a national treasure. The President has proclaimed June 2007 as National Oceans Month. Our nation's ocean, coastal, and Great Lakes waters have enormous environmental and economic value. In the words of the U.S. Commission on Ocean Policy, "Our oceans and coasts are among the chief pillars of our nation's wealth and economic well-being." More than half of the country's population lives near a coastal area, and the great majority of Americans visit coastal areas to participate in recreational activities. More specifically, it is estimated that one third of all Americans visit coastal areas each year making a total of 910 million trips while spending over $40 billion annually.

Protecting the beach-going public from illness is a national priority. Since the Beaches Environmental Assessment and Coastal Health (BEACH) Act's enactment in 2000, EPA, States,

and local partners have made substantial progress in implementing its requirements and taking actions to protect the health of swimmers in our coastal recreation waters.

In this testimony, I will describe recent EPA work to support beach monitoring and public reporting; our activities to strengthen existing water quality standards; research to support developing new or revised recommended water quality criteria for the purpose of protecting human health in coastal recreation waters; and cross-Agency efforts to leverage other Clean Water Act programs to reduce pollution and sources.

Although we have made substantial progress in implementing the BEACH Act, I want to be clear that EPA recognizes there is important work left to do in the areas of additional research and updating existing recreational criteria. As I will describe further, EPA and others have conducted a substantial amount of research since 2000. More studies are needed to create a sound scientific foundation for new criteria, as I will discuss later.

I. Achievements

In order to better frame a discussion of ongoing and future activities, I would like to begin by highlighting some of the significant accomplishments that EPA has achieved under the Beach Act since 2000, in partnership with States and Territories .

- States have significantly improved their assessment and monitoring of beaches; the number of monitored beaches has increased from about 1,000 in 1997 to more than 3,500 in 2006.

- EPA has strengthened water quality standards throughout all the coastal recreation waters in the United States. All 35 States and Territories with coastal recreation waters now have water quality standards as protective of human health as EPA's recommended water quality criteria – an increase from 11 States and Territories in 2000.
- EPA has improved public access to data on beach advisories and closings by improving the Agency's electronic beach data collection and delivery systems. Today, BEACH Act States easily transmit data to EPA on their Beach Monitoring and Notification Programs through a system known as "eBeaches." The data is uploaded onto a nationally-accessible Internet site that is easily reached by the public.
- In the area of research, EPA has conducted cutting-edge research on the use of molecular-based methods for more quickly detecting indicators of fecal contamination in coastal waters. The Agency's Office of Research and Development has also completed critically needed epidemiological studies correlating the results from these methods to the incidence of gastro-intestinal illness. These molecular methods show great promise for providing quicker test results and allowing beach managers to make faster and better decisions about the safety of beach waters. Faster and better decisions are good for public health and good for the economy in beach communities. We share the goals of the public and State beach managers for making the best decisions possible about keeping beaches open or placing them under advisory.

II. Current Efforts

A. Improving Beach Monitoring and Public Notification

One of the best indicators of progress to date is the fact that all eligible States and Territories are now implementing the beach monitoring and public notification provisions of the BEACH Act.

BEACH Act Grants

EPA's Beach Act grants are a cornerstone for Clean Beaches Program. As you know, the BEACH Act authorizes and Congress appropriates funds for EPA grants to States, Territories, and Tribes to develop and implement monitoring and notification programs. Since 2000, EPA has awarded approximately $52 million of grant funds under the BEACH Act to all 35 eligible coastal and Great Lakes States and Territories. We expect to award approximately $10 million dollars more this year.

EPA has been evaluating whether to revise the existing allocation formula for distributing beach grant funds. EPA has awarded grants to all eligible States that applied for funding using an allocation formula that the Agency developed in 2002. EPA consulted with various States and other stakeholders to develop a formula that uses three factors—beach season length, beach miles, and beach usage. (Because the data for beach miles and beach usage were not readily available, shoreline length and coastal population have been used as "surrogates.") This formula has been effective in creating a strong foundation for the current program, but it presently does not have the flexibility to adjust new year grant allocation levels to reflect the level and rate of grant utilization in prior years.

In 2006, EPA formed a State/EPA workgroup to examine the current formula, assess current programs and their monitoring/notification practices and develop options for possible changes to the allocation formula. EPA reviewed a number of allocation formula scenarios during the course of this process. One of the key issues identified by the State/EPA workgroup is how to ensure that

any readjustment to the formula does not occur at the cost of a particular State being unable to continue its current monitoring and reporting activities. No final decision on possible allocation formula revisions has been made at this time.

As we look at different allocation formula scenarios, we are completely mindful of the need for maintaining State programs. EPA plans to request public comment on a range of different options later this fall. We look forward to receiving valuable information and feedback from States, beach monitoring groups, and interested stakeholders on how to proceed forward.

B. Program Development and Implementation

National Beach Guidance and Required Performance Criteria for Grants

To ensure effective use of BEACH grants, EPA has undertaken a substantial collaboration effort with States and interested parties to develop a basic framework for beach monitoring and notification programs. The Agency issued comprehensive national guidance in June 2002 which specifies nine performance criteria for implementing State beach monitoring, assessment, and notification programs.

State and Local accomplishments

The real "on the ground" effect of this guidance in combination with annual grants has been to enable the States and Territories to establish or greatly improve their beach programs. The strength of these programs is described in EPA's 2006 Report to Congress on the BEACH Act which contains 15 pages of state-by-state program summaries followed by another thirty pages of detailed accomplishments.

eBeaches – Public Reporting

The BEACH Act also directs EPA to establish, maintain, and make available to the public a national coastal recreation water pollution occurrence database. In response, EPA has established an online electronic data collection and reporting system called "eBeaches". The system provides for fast, easy, and secure transmittal of beach water quality data; it improves public access to state-reported information about beach conditions (along with information on health risks associated with swimming in polluted water); and it saves time and money by allowing electronic data transfer and eliminating paper forms and outdated methods of data entry.

National List of Beaches

The BEACH Act also directs EPA to maintain a publicly available list of waters that are subject to a monitoring and notification program, as well as those not subject to a program. States and Territories with BEACH Act implementation grants identify lists of coastal recreational waters that are subject to the program and submit this information to EPA.

The Agency has compiled this information into the National List of Beaches; the list was published in the Federal Register on May 4, 2004 (69 FR 24597); and the list will be updated as new information becomes available from States and Territories. The list provides a national picture of the extent of beach water quality monitoring, and the States are using their BEACH Act grants to refine their inventory of beaches.

Great Lakes Sanitary Survey

The Great Lakes Regional Collaboration recommends activities to improve beach water quality. To that end, EPA is working with the Great Lakes States to develop and conduct beach sanitary surveys to identify sources of contamination at Great Lakes beaches. These surveys also will help beach managers inform the public about any potential pollution impacting a beach, which will support the public in making better informed decisions before swimming to reduce their risk of swimming-related illness. The final sanitary survey form has been developed and is ready to be pilot tested. EPA's Great Lakes National Program Office has worked tirelessly to prepare grants using funds appropriated in FY 2007 to fund pilots at 60 Great Lakes beaches, including beaches on each of the Great Lakes, in the near future.

I am pleased to report that six of the seven states (Michigan, Minnesota, Wisconsin, Illinois, Pennsylvania, and New York) that applied for a sanitary survey grant have received their award.

C. Conducting Research on Critical Science Issues

Current Research Accomplishments

As I mentioned in my opening statement, a key area of remaining work under the BEACH Act is to complete the science to support developing new or revised recommended recreational water quality criteria. Under CWA section 304(a)(9), EPA is required to publish new or revised water quality criteria for pathogens or pathogen indicators for the purpose of protecting human health in coastal recreation waters. Under section 104(v) of the CWA, EPA is required to complete studies to provide additional information for use in developing these new or revised recommended water quality criteria.

To date, EPA has conducted significant research on the use of molecular-based methods to allow faster reporting. The Agency also has completed critically needed epidemiology studies in fresh waters. EPA has also completed the first comprehensive study evaluating how different factors such as water depth, distance from the beach, and time of day affect an individual's exposure and potential risk from swimming.

EPA's NEEAR Water Study and Methods Development

EPA's Office of Research and Development (ORD), in consultation with the Office of Water, initiated the very comprehensive National Epidemiological and Environmental Assessment of Recreational (NEEAR) Water Study in 2001. It is a collaborative research study between EPA and the Centers for Disease Control (CDC). EPA is also coordinating the study with the U.S. Geological Survey (USGS) and other interested agencies.

The indicators and rapid methods that EPA is evaluating through the NEEAR study are DNA-based microbiological indicators of fecal contamination. The goal of the NEEAR research is to produce information defining the relationship between water quality, as measured with rapid indicators of fecal contamination, and swimming-associated health effects.

Indicator Methods Development

The goal is to help beach managers to quickly test the water in the morning and make results about the safety of beach waters available in hours, rather than days. Providing faster results to beach managers and the public should help reduce the risk of waterborne illness among beachgoers as well as re-open the beach earlier. A number of rapid methods were evaluated for potential use in the NEEAR Water Study, but only the few that met EPA's performance criteria

were ultimately included. One of the more promising methods that EPA is evaluating is a molecular method called the Quantitative Polymerase Chain Reaction (qPCR) Method.

Epidemiology Study

The second part of the NEEAR Water Study includes epidemiology studies that combine health data and water quality analyses using the selected indicator methods. The epidemiology studies measure human health outcomes including gastrointestinal illness; ear, eye, and respiratory infections; urinary tract infection; and skin (rash) endpoints.

The NEEAR Water Study team has completed four summers of data collection. These studies included a one-year pilot study and two full-year studies in the Great Lakes. In addition a partial study was conducted along the Gulf coast. EPA also conducted a recreational monitoring characterization study before starting the Great Lakes studies. The data demonstrate that swimmers exposed to higher levels of indicators as measured using rapid methods, experience more illness than non-swimmers, or swimmers exposed to lower levels of indicators. Analysis of the data from these Great Lakes studies shows a promising relationship between one of the rapid indicators methods (qPCR) and gastro-intestinal illness among swimmers.

Monitoring and Modeling Studies

EPA has also been working to improve the science and integration of monitoring and modeling for microbial contamination in coastal recreation waters. My earlier discussion describes some of EPA's efforts in this area. There are also other EPA efforts to improve monitoring methodologies and techniques for coastal recreation waters. The Agency wants to help beach managers with their efforts to provide the public with real-time information on the condition of their beaches, and EPA is

working on predictive modeling tools that promise faster results than single sample daily monitoring. The USGS, supported in part by EPA also is working on the development and use of predictive models to deliver near-real time data on the public health acceptability of beaches in some area of the Great Lakes.

III. Lessons Learned From Beach Act Implementation

EPA is working to publish new or revised recommended water quality criteria as required by the BEACH Act. There are many significant science issues that we believe need to be addressed, and we are addressing them.

A. Agency Efforts to Address Scientific and Policy Questions

EPA's review of existing science and our research results have raised a series of very significant scientific and policy questions. Foremost among these questions are:

- How should we address the geographic and temporal variability in beach water quality?
- How well do the new molecular methods work and how could they be applied in other Clean Water Act programs (such as beach notification, discharge permits, water quality assessments and TMDLs)?
- How should the criteria address the difference between the health threats posed by human vs. non-human sources of pollution?
- How can we best address significant variability in measurements at beaches—spatially and temporally?

We need to allow the science to inform our decisions—we do not want to move too quickly---for acting quickly without a sound scientific foundation can result in economic consequences for the economies of coastal zones or impacts on public health.

Despite these challenges, I am happy to report that our efforts in implementing the BEACH Act have not only provided people with up-to-date information to enable them to make risk management decisions, but it has also served as a motivator for people to identify sources of contamination and to take action.

B. Cross-Agency Activities

The authors of the Clean Water Act had great foresight. They believed something had to be done to defend America's water, and they understood that meeting the goals of the Clean Water Act depended on both the long-term protection of water quality and the involvement of federal, state and community partners.

We recognize that the BEACH Act focus on protecting coastal recreation waters also extends to protecting America's coastal estuaries, and our National Estuary Program has done significant work in restoring and protecting our country's watersheds. The National Estuary Program's collaborative approach to addressing watershed protection and restoration is proving to be an effective model for how federal, state, and community partners can work together effectively. After two decades of building partnerships across each of the 28 nationally-recognized watersheds, we are seeing impressive environmental results.

In December 2004, this Administration released a comprehensive Ocean Action Plan (OAP) including 88 actions and a set of principles to strengthen and improve U.S. ocean policy. The OAP aligns with a number of EPA priorities, including improving water quality monitoring and supporting regional, watershed-based collaboration for protecting the health of our Nation's ocean and coastal waters.

I mentioned earlier the Great Lakes Regional Collaboration and EPA's work with the Great Lakes States to develop and conduct beach sanitary surveys to identify sources of contamination at Great Lakes beaches.

EPA has also been working across Agency programs to control bacteria/pathogen input into waters from Combined Sewer Overflows (CSOs) which occur in 770 communities around the country. CSOs can affect the quality of recreational waters by releasing untreated wastewater potentially containing high levels of pathogens. EPA, states, and local governments are making steady progress toward reducing overflows under the 1994 CSO Policy. The Agency is also working very closely with particular states, such as Indiana, to ensure that water quality standards, permitting, and enforcement are effectively coordinated so the entire water program is best leveraged for reducing the impact of CSOs. EPA is also encouraging state, tribal and local governments to adopt voluntary guidelines for managing on-site/decentralized sewage treatment systems and using Clean Water Revolving Loan Funds to finance systems where appropriate.

IV. Future Challenges

A. Identifying Future Science Needs

The BEACH Act requires EPA to develop new or revised recommended water quality criteria for coastal recreation waters. Since EPA issued its current recommended recreational water quality criteria over 20 years ago, there have been significant advances in molecular biology, microbiology, and analytical chemistry that should be considered and factored into the development of new or revised criteria. EPA has been working to consider these advances as it develops the scientific foundation for new criteria. EPA decided that the best approach to complete development of that scientific foundation would be to obtain individual input from members of the broad scientific and technical community on the critical path research and science needs for establishing scientifically defensible criteria by 2012.

Accordingly, EPA held the *Experts Scientific Workshop on Critical Research Needs for Developing New or Revised Recreational Water Quality Criteria,* on March 26-30, 2007in Warrenton, Virginia; and invited 42 outstanding national and international technical, scientific, and implementation experts from academia, Federal, State, and local government, and interest groups.

We brought together U.S. and international experts to obtain individual input on the critical path research and science needs for developing scientifically defensible new or revised Clean Water Act Section 304(a) recreational water quality criteria. A Report from that meeting identified critical science issues for further study. The report is available online at www.epa.gov/waterscience/criteria/recreation. These issues include:

- Need to determine potential human health impacts from different sources of fecal contamination;

- Need to determine potential human health impacts from pathogens in waters across different climatic and geographic regions;
- Need to determine an appropriate risk level for the most sensitive subpopulation(s); and,
- Need to identify appropriate indicators and methods for measuring fecal contamination.

This expert report will be considered by EPA as we develop a science plan to help address the previously mentioned critical issues necessary to develop recreational water quality criteria. The science plan will further inform the Agency as it sets overall research priorities.

V. Conclusion

We have made significant progress in the implementation of programs and practices to protect our coastal recreational waters. EPA plans to continue this work to achieve the BEACH Program's long-term goals.

We will continue to work with this Committee, our Federal and State partners, and the many stakeholders and citizens who want to accelerate the pace and efficiency of coastal recreational water protection and restoration.

This concludes my prepared remarks; I would be happy to respond to any questions you may have.